FAYETTEVILLE NC
AMERICA'S CAN DO CITY

**PURCHASING**

**November 21, 2025**

**MEMO TO:** Prospective Bidders

**FROM:** Kimberly Toon, Purchasing Manager

**SUBJECT:** **Addendum #1: RFQ -** Architect-Transit Multi-Modal Upfit

**DUE DATE AND TIME:** **DECEMBER 2, 2025; 2:00 p.m.**

1. The Bid Documents are hereby modified by this Addendum #1 dated November 21, 2025. To include the following:

    a. **FAST Multi-Modal Center Plans-attached**
    b. **Q&A**

2. The foregoing changes shall be incorporated in the Bid Documents, and a copy of the Addendum #1, signed by the Bidder, must accompany the Bid to indicate the Bidder's familiarity with the changes.

    a. **FAST Multi-Modal Center Plans-attached**
    b. **Q&A Responses**

**Question:** Who is the tenant?
**Answer**: The tenant has not been identified yet.

**Question:** What is the project budget?
**Answer**: The budget for this project is $2.5 million.

**Question:** What is the timeline for the project?
**Answer**: The award to the design firm is anticipated in January 2026.
Construction is expected to begin in Q3 2026.

**Question:** Are there building drawings available for the space?
**Answer:** Yes, attached are the plans for the existing facility.

**Question:** Are there any LEED requirements or certifications associated with the project?
**Answer:** There are currently no LEED requirements or certifications associated with the project.

**Question:** The RFQ mentioned that plans may be obtained in the Purchasing Office of the City of Fayetteville. Would you have any existing plans or as-builts that you could share with us at this stage of the process?
**Answer:** Yes, attached are the plans for the existing facility.

**Question:** Is there any civil work expected as part of the scope?
**Answer:** Proposers should structure their project team appropriately to complete the scope of work as described in the RFQ.

**Bidder Acknowledgement:**

Bidder Name (Print):_____

Bidder Signature:_____

Date of Signature:_____

# FAST Multi-Modal Center
# City of Fayetteville
Fayetteville, NC

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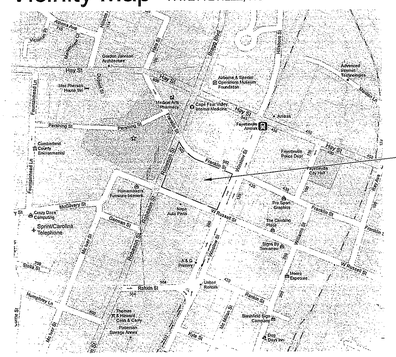
## Vicinity Map FAYETTEVILLE, NC




## Legend

CONCRETE
CMU
BRICK
STEEL
EARTH
BATT INSULATION
RIGID INSULATION
STONE FILL
PLASTER / GYP. BD.
STUCCO
WOOD BLOCKING
HARDWOOD / PLYWOOD
QUARRY / PAVER / CER. TILE

## Abbreviations

| | |
|---|---|
| A.F.F. | ABOVE FINISH FLOOR |
| ALUM. | ALUMINUM |
| AMPC | ACOUSTICAL METAL PAN CEILING |
| APC | ACOUSTICAL PANEL CEILING |
| BD. | BOARD |
| BLDG. | BUILDING |
| B.O. ( ) | BOTTOM OF (ITEM) |
| C | CENTERLINE |
| C.J. | CONTROL JOINT |
| CEIL | CEILING |
| CER. | CERAMIC |
| CMU | CONCRETE MASONRY UNIT |
| COMP. | COMPOSITE |
| COL. | COLUMN |
| CONC. | CONCRETE |
| CONT. | CONTINUOUS |
| CPT. | CARPET |
| C.W. | CURTAIN WALL |
| DET. | DETAIL |
| DIA. | DIAMETER |
| DN. | DOWN |
| DWG. | DRAWING |
| E.W.C. | ELECTRIC WATER COOLER |
| EA. | EACH |
| E.J. | EXPANSION JOINT |
| ELEC. | ELECTRICAL |
| ELEV. | ELEVATOR |
| EQ. | EQUAL |
| EXT. | EXTERIOR |
| FIN. FL. | FINISH FLOOR |
| F.D. | FLOOR DRAIN |
| F.E.- B | FIRE EXTINGUISHER (BRACKET) |
| F.E.C.-1 | FIRE EXTINGUISHER CABINET (NON-RATED & RECESSED) |
| F.E.C.-2 | FIRE EXTINGUISHER CABINET (RATED & RECESSED) |
| F.R.P. | FIBERGLASS REINFORCED PANEL |
| F.S. | FLOOR SINK |
| F.V. | FIELD VERIFY |
| GALV. | GALVINIZED |
| GA. | GAUGE |
| GYP. | GYPSUM |
| H.C. | HOLLOW CORE |
| H.M. | HOLLOW METAL |
| IMP | INSULATED METAL PANEL |
| INT. | INTERIOR |
| JST. BRG. | JOIST BEARING |
| JT. | JOINT |
| M.O. | MASONRY OPENING |
| MAX. | MAXIMUM |
| MANUF. | MANUFACTURER |
| MCM | METAL COMPOSITE MATERIAL |
| MECH. | MECHANICAL |
| MET. | METAL |
| MIN. | MINIMUM |
| MPS | METAL PANEL SOFFIT |
| N.I.C. | NOT IN CONTRACT |
| N.T.S. | NOT TO SCALE |
| O.C. | ON CENTER |
| OPP. | OPPOSITE HAND |
| O.H. | OVERFLOW ROOF DRAIN |
| O.R.D. | OVERFLOW ROOF DRAIN |
| PT. / PTD. | PAINT / PAINTED |
| PLAS. LAM. | PLASTIC LAMINATE |
| RES. | RESILIENT |
| REQD. | REQUIRED |
| R.D. | ROOF DRAIN |
| R.L. | ROOF LADDER |
| SCHED. | SCHEDULE |
| SHT. | SHEET |
| SIM. | SIMILAR |
| S.C. | SOLID CORE |
| S.S. | STAINLESS STEEL |
| STRUCT. | STRUCTURE |
| SUSP. | SUSPENDED |
| T.O. ( ) | TOP OF (ITEM) |
| T.B. (@) | TACKBOARD (LENGTH) |
| T.W.S. | TACKABLE WALL SURFACE |
| TYP. | TYPICAL |
| TZO | TERRAZZO |
| U.O.N. | UNLESS OTHERWISE NOTED |
| VERT. | VERTICAL |
| V.C.T. | VINYL COMPOSITE TILE |
| V.W.C. | VINYL WALL COVERING |
| W.W.F | WELDED WIRE FABRIC |
| WD. | WOOD |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1/31/2014

| | |
|---|---|
| Drawn | MGB |
| Checked | LW |
| Date | January 31, 2014 |
| Revisions | |


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**FAST Multi-Modal Center**
City of Fayetteville
Fayetteville, NC

Project Number 621A

Title
**Title Sheet**

Sheet
# G001

Plate of


3/6/2014 10:06:02 AM
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# 2012 APPENDIX B BUILDING CODE SUMMARY
## FOR ALL COMMERCIAL PROJECTS
(EXCEPT 1 AND 2-FAMILY DWELLINGS AND TOWNHOUSES)
(Reproduce the following data on the building plans sheet 1 or 2)

Name of Project: FAST Fayetteville Area System of Transit- Multi-Modal Center
Address: Winslow Street, Fayetteville, NC Zip Code 28301
Proposed Use: Transportation, Retail, Business Center
Owner/Authorized Agent: Richard Craig Hampton Phone # ( ) — 1786 E-Mail champton@ci.fay.nc.us
Owned By: [X] City/County [ ] Private [ ] State
Code Enforcement Jurisdiction: [X] City of Fayetteville [ ] County [ ] State

LEAD DESIGN PROFESSIONAL:

| DESIGNER | FIRM | NAME | LICENSE# | TELEPHONE# | E-MAIL |
|---|---|---|---|---|---|
| Architectural | Gantt Huberman Architects | HarveGantt | NC 2646 | (704 )334.6436 | |
| Civil | URS Corporation | Tony Chamra | NC 033255 | (704 )7160764 | |
| Electrical | McCracken and Lopez | John Chapman | NCPE 27409 | (704 )376.7072 | |
| Fire Alarm | McCracken and Lopez | John Chapman | NCPE 27409 | (704 ) 376.7072 | |
| Plumbing | McCracken and Lopez | Tony Brandon | NCPE 23940 | (704 )376-7072 | |
| Mechanical | McCracken and Lopez | James Currie | NCPE 031478 | (704 )376-7072 | |
| Sprinkler-Standpipe | McCracken and Lopez | Tony Brandon | NCPE 23940 | (704 )376.7072 | |
| Structural | Stewart Engineering | Lance Williams | NCPE 26465 | (704 )909.3520 | |
| Retaining Walls >5' | High Stewart Engineering | Lance Williams | NCPE 26465 | (704 )909.3520 | |
| Other | | | | ( ) | |

2012 EDITION OF NC CODE FOR: New Construction [ ] Addition [ ] Upfit
EXISTING: [ ] Reconstruction [ ] Alteration [ ] Repair [ ] Renovation
CONSTRUCTED: (date) _____ ORIGINAL USE(S) (Ch. 3): _____
RENOVATED: (date) _____ CURRENT USE(S) (Ch. 3): _____
PROPOSED USE(S) (Ch. 3): — — — — — — — —

BASIC BUILDING DATA
Construction Type: [ ] I-A [ ] II-A [ ] III-A [ ] IV [ ] V-A
(check all that apply) [ ] I-B [ ] II-B [ ] III-B [ ] V-B
Sprinklers: [ ] No [ ] Partial Yes NFPA 13 [ ] NFPA 13R [ ] NFPA 130
Standpipes: [ ] No [ ] Yes Class [ ] I [ ] II [ ] III Wet [ ] Dry
Fire District: [ ] No [ ] Yes (Primary) Flood Hazard Area: [ ] No [ ] Yes
Building Height: (feet) 39' 7 1/2"

Gross Building Area:

| FLOOR | EXISTING (SQ FT) | NEW (SQ FT) | SUB-TOTAL |
|---|---|---|---|
| BASE BID | | | |
| Level 1 | | 16,627 | |
| Level 2 | | 16,691 | 34,064 |
| ALTERNATE A | | | |
| Level 1 | | 5,271 | |
| Level 2 | | 5,336 | 10,607 |
| ALTERNATE B | | | |
| Level 1 | | 10,988 | |
| Level 2 | | 11,159 | 22,147 |
| TOTAL | NA | 66,818 SF | 66,818 SF |

2012 NC Administrative Code and Policies DD-29 621A

### ALLOWABLE AREA

**Occupancy:**
Assembly [ ] A-1 [X] A-2 [X] A-3 [ ] A-4 [ ] A-5
Business [X]
Educational [ ]
Factory [ ] F-1 Moderate [ ] F-2 Low
Hazardous [ ] H-1 Detonate [ ] H-2 Deflagrate [ ] H-3 Combust [ ] H-4 Health [ ] H-5 HPM
Institutional [ ] I-1 [ ] I-2 [ ] I-3 [ ] I-4
I-3 Condition [ ] 1 [ ] 2 [ ] 3 [ ] 4 [ ] 5
Mercantile [X]
Residential [ ] R-1 [ ] R-2 [ ] R-3 [ ] R-4
Storage [ ] S-1 Moderate [ ] S-2 Low [ ] High-piled
[ ] Parking Garage [ ] Open [ ] Enclosed [ ] Repair Garage
Utility and Miscellaneous [ ]

**Accessory Occupancies:**
Assembly [ ] A-1 [ ] A-2 [ ] A-3 [ ] A-4 [ ] A-5
Business [ ]
Educational [ ]
Factory [ ] F-1 Moderate [ ] F-2 Low
Hazardous [ ] H-1 Detonate [ ] H-2 Deflagrate [ ] H-3 Combust [ ] H-4 Health [ ] H-5 HPM
Institutional [ ] I-1 [ ] I-2 [ ] I-3 [ ] I-4
I-3 Condition [ ] 1 [ ] 2 [ ] 3 [ ] 4 [ ] 5
Mercantile [ ]
Residential [ ] R-1 [ ] R-2 [ ] R-3 [ ] R-4
Storage [ ] S-1 Moderate [ ] S-2 Low [ ] High-piled
[ ] Parking Garage [ ] Open [ ] Enclosed [ ] Repair Garage
Utility and Miscellaneous [ ]

**Incidental Uses** (Table 508.2.5):
[X] Furnace room where any piece of equipment is over 400,000 Btu per hour input
[ ] Rooms with boilers where the largest piece of equipment is over 15 psi and 10 horsepower
[ ] Refrigerant machine room
[ ] Hydrogen cutoff rooms, not classified as Group H
[ ] Incinerator rooms
[ ] Paint shops, not classified as Group H, located in occupancies other than Group F
[ ] Laboratories and vocational shops, not classified as Group H, located in a Group E or I-2 occupancy
[ ] Laundry rooms over 100 square feet
[ ] Group I-3 cells equipped with padded surfaces
[ ] Group I-2 waste and linen collection rooms
[ ] Waste and linen collection rooms over 100 square feet
[ ] Stationary storage battery systems having a liquid electrolyte capacity of more than 50 gallons, or a lithium-ion capacity of 1,000 pounds used for facility standby power, emergency power or uninterrupted power supplies
[ ] Rooms containing fire pumps
[ ] Group I-2 storage rooms over 100 square feet
[ ] Group I-2 commercial kitchens
[ ] Group I-2 laundries equal to or less than 100 square feet
[ ] Group I-2 rooms or spaces that contain fuel-fired heating equipment

**Special Uses:** [ ] 402 [ ] 403 [X] 404 [ ] 405 [ ] 406 [ ] 407 [ ] 408 [ ] 409 [ ] 410 [ ] 411 [ ] 412 [ ] 413 [ ] 414 [ ] 415 [ ] 416 [ ] 417 [ ] 418 [ ] 419 [ ] 420 [ ] 421 [ ] 422 [ ] 423 [ ] 424 [ ] 425 [ ] 426 [ ] 427

**Special Provisions:** [ ] 509.2 [ ] 509.3 [ ] 509.4 [ ] 509.5 [ ] 509.6 [ ] 509.7 [ ] 509.8 [ ] 509.9

**Mixed Occupancy:** [ ] No [X] Yes Separation: ____ Hr. Exception: 508.3
[X] Incidental Use Separation (508.2.5)
2012 NC Administrative Code and Policies

This separation is not exempt as a Non-Separated Use (see exceptions).
[X] Non-Separated Use (508.3)
The required type of construction for the building shall be determined by applying the height and area limitations for each of the applicable occupancies to the entire building. The most restrictive type of construction, as determined, shall apply to the entire building.
[ ] Separated Use (508.4) - See below for area calculations
For each story, the area of the occupancy shall be such that the sum of the ratios of the actual floor area of each use divided by the allowable floor area for each use shall not exceed 1.

$$\frac{\text{Actual Area of Occupancy A}}{\text{Allowable Area of Occupancy A}} + \frac{\text{Actual Area of Occupancy B}}{\text{Allowable Area of Occupancy B}} \leq 1$$

_____ + _____ + ... = _____ ≤ 1.00

| STORY NO. | DESCRIPTION AND USE | (A) BUILDING AREA PER STORY (ACTUAL) | (B) TABLE 503[3] AREA | (C) AREA FOR FRONTAGE INCREASE[1] | (D) AREA FOR SPRINKLER INCREASE[2] | (E) ALLOWABLE AREA OR UNLIMITED[3] | (F) MAXIMUM BUILDING AREA[4] |
|---|---|---|---|---|---|---|---|
| 1 | A2, A3, B, M | 32,827 | 9,500 | 7,125 | 19,000 | 35,625 | 71,250 SF |
| 2 | A3, B | 31,102 | 9,500 | 7,125 | 19,000 | 35,625 | 71,250 SF |
| | | | | | | | |
| TOTAL | | 63,929 | | | | | |

[1] Frontage area increases from Section 506.2 are computed thus:
a. Perimeter which fronts a public way or open space having 20 feet minimum width = 6,321 (F)
b. Total Building Perimeter = 6,321 (P)
c. Ratio (F/P) = 1 (F/P)
d. W = Minimum width of public way = 30' (W)
e. Percent of frontage increase $I_f$ = 100 [ F/P - 0.25] x W/30 = 75 (%)
[2] The sprinkler increase per Section 506.3 is as follows:
a. Multi-story building $I_s$ = 200 percent
b. Single story building $I_s$ = 300 percent
[3] Unlimited area applicable under conditions of Section 507.
[4] Maximum Building Area = total number of stories in the building x E (506.4).
[5] The maximum area of open parking garages must comply with Table 406.3.5. The maximum area of air traffic control towers must comply with Table 412.1.2.

### ALLOWABLE HEIGHT

| | ALLOWABLE (TABLE 503) | INCREASE FOR SPRINKLERS | SHOWN ON PLANS | CODE REFERENCE |
|---|---|---|---|---|
| Type of Construction | Type IIB | | Type IIB | |
| Building Height in Feet | 55' | Feet = H + 20' = 75' | 39' 7 1/2" | |
| Building Height in Stories | 2 | Stories + 1 = 3 | 2 stories | |

### FIRE PROTECTION REQUIREMENTS

| BUILDING ELEMENT | FIRE SEPARATION DISTANCE (FEET) | RATING REQ'D | RATING PROVIDED (W/ * REDUCTION) | DETAIL # AND SHEET # | DESIGN # FOR RATED ASSEMBLY | DESIGN # FOR RATED PENETRATION | DESIGN # FOR RATED JOINTS |
|---|---|---|---|---|---|---|---|
| Structural Frame, including columns, girders, trusses | 10' - 30' | 0 | | | | | |
| Bearing Walls | 10' - 30' | 0 | | | | | |
| Exterior | 10' - 30' | 0 | | | | | |
| North | 10' - 30' | 0 | | | | | |
| East | 10' - 30' | 0 | | | | | |
| West | 10' - 30' | 0 | | | | | |
| South | 10' - 30' | 0 | | | | | |
| Interior | 10' - 30' | 0 | | | | | |
| Nonbearing Walls and Partitions Exterior walls | 10' - 30' | 0 | | | | | |
| North | 10' - 30' | 0 | | | | | |
| East | 10' - 30' | 0 | | | | | |
| West | 10' - 30' | 0 | | | | | |
| South | 10' - 30' | 0 | | | | | |
| Interior walls and partitions | 10' - 30' | 0 | | | | | |
| Floor Construction Including supporting beams and joists | 10' - 30' | 0 | | D002 G005 G101a | | | |
| Roof Construction Including supporting beams and joists | 10' - 30' | 0 | | | | | |
| Shaft Enclosures - Exit | | 1 | 1 | 1/A201 B1 | U-465 | | HW-D-0043 / HW-D-0066 |
| Shaft Enclosures - Other | | As Req'd | As Req'd | 1/A201 E1 | U-415 | | HW-D-0043 HW-D-0066 |
| Corridor Separation | | 0 | 0 | | | | |
| Occupancy Separation | | 0 | 0 | | | | |
| Party/Fire Wall Separation | | 0 | 0 | | | | |
| Smoke Barrier Separation | | 0 | 0 | | | | |
| Tenant Separation | | 2 | 2 | 1/A201 C1 | U-411 | | HW-D-0043 / HW-D-0066 |
| Incidental Use Separation | | 1 | 1 | 1/A201 B1 | U-465 | | HW-D-0043 / HW-D-0066 |

* Indicate section number permitting reduction
** Floor construction above rated rooms to receive same rating as the rated rooms.

### LIFE SAFETY SYSTEM REQUIREMENTS

Emergency Lighting: [ ] No [X] Yes
Exit Signs: [ ] No [X] Yes
Fire Alarm: [ ] No [X] Yes
Smoke Detection Systems: [ ] No [X] Yes [ ] Partial _____
Panic Hardware: [ ] No [X] Yes

### LIFE SAFETY PLAN REQUIREMENTS

Life Safety Plan Sheet #: G101a, G101b, G102a, G102b

[X] Fire and/or smoke rated wall locations (Chapter 7)
[X] Assumed and real property line locations

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[X] Exterior wall opening area with respect to distance to assumed property lines (705.8)
[X] Existing structures within 30' of the proposed building
[X] Occupancy types for each area as it relates to occupant load calculation (Table 1004.1.1)
[X] Occupant loads for each area
[X] Exit access travel distances (1016)
[X] Common path of travel distances (1014.3 & 1028.8)
[X] Dead end lengths (1018.4)
[X] Clear exit widths for each exit door
[X] Maximum calculated occupant load capacity each exit door can accommodate based on egress width (1005.1)
[X] Actual occupant load for each exit door
[N/A] A separate schematic plan indicating where fire rated floor/ceiling and/or roof structure is provided for purposes of occupancy separation
[X] Location of doors with panic hardware (1008.1.10)
[N/A] Location of doors with delayed egress locks and the amount of delay (1008.1.9.7)
[N/A] Location of doors with electromagnetic egress locks (1008.1.9.8)
[N/A] Location of doors equipped with hold-open devices
[N/A] Location of emergency escape windows (1029)
[X] The square footage of each fire area (902)
[N/A] The square footage of each smoke compartment (407.4)
[N/A] Note any code exceptions or table notes that may have been utilized regarding the items above

### ACCESSIBLE DWELLING UNITS
(SECTION 1107)

| TOTAL UNITS | ACCESSIBLE UNITS REQUIRED | ACCESSIBLE UNITS PROVIDED | TYPE A UNITS REQUIRED | TYPE A UNITS PROVIDED | TYPE B UNITS REQUIRED | TYPE B UNITS PROVIDED | TOTAL ACCESSIBLE UNITS PROVIDED |
|---|---|---|---|---|---|---|---|
| N/A | | | | | | | |

### ACCESSIBLE PARKING
(SECTION 1106)

| LOT OR PARKING AREA | TOTAL # OF PARKING SPACES REQUIRED | TOTAL # OF PARKING SPACES PROVIDED | # OF ACCESSIBLE SPACES PROVIDED REGULAR WITH 5' ACCESS AISLE | # OF ACCESSIBLE SPACES PROVIDED VAN SPACES WITH 132" ACCESS AISLE | # OF ACCESSIBLE SPACES PROVIDED VAN SPACES WITH 8' ACCESS AISLE | TOTAL # ACCESSIBLE PROVIDED |
|---|---|---|---|---|---|---|
| N/A | | | | | | |
| TOTAL | | | | | | |

### STRUCTURAL DESIGN

**DESIGN LOADS:**

**Importance Factors:** Wind ($I_w$) 1.0; Snow ($I_s$) 1.0; Seismic ($I_E$) 1.0

**Live Loads:** Roof 20 psf; Mezzanine N/A psf; Floor 150/125/100* psf
*60/ 50+15 partitions

**Ground Snow Load:** 10 psf

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**Wind Load:** Basic Wind Speed 100 mph (ASCE-7)
Exposure Category C
Wind Base Shears (for MWFRS) $V_X$ = 169.2K/118.1K $V_Y$ = 83.1K/250.8K

**SEISMIC DESIGN CATEGORY:** [ ] A [ ] B [X] C [ ] D
Provide the following Seismic Design Parameters:
**Occupancy Category** (Table 1604.5) [ ] I [X] II [ ] III [ ] IV
**Spectral Response Acceleration** $S_S$ 29.7 %g $S_1$ 10.1 %g
**Site Classification** (Table 1613.5.2) [ ] A [ ] B [ ] C [X] D [ ] E [ ] F
Data Source: [X] Field Test [ ] Presumptive [ ] Historical Data
**Basic structural system** (check one)
[ ] Bearing Wall [ ] Dual w/Special Moment Frame
[X] Building Frame [ ] Dual w/Intermediate R/C or Special Steel
[ ] Moment Frame [ ] Inverted Pendulum
**Seismic base shear:** $V_X$ = 184.1K/143.9K $V_Y$ = 184.1K/181.1K
**Analysis Procedure:** [ ] Simplified [X] Equivalent Lateral Force [ ] Dynamic
**Architectural, Mechanical, Components anchored?** [X] Yes [ ] No

**LATERAL DESIGN CONTROL:** Earthquake [ ] Wind [X]

**SOIL BEARING CAPACITIES:**
Field Test (provide copy of test report) 3000 psf
Presumptive Bearing capacity N/A psf
Pile size, type, and capacity N/A

**SPECIAL INSPECTIONS REQUIRED:** [ ] Yes [X] No

### PLUMBING FIXTURE REQUIREMENTS
(TABLE 2902.1)

| USE / OCCUPANCY | | WATERCLOSETS M | WATERCLOSETS F | URINALS | LAVATORIES M | LAVATORIES F | DRINKING FOUNTAINS Regular | DRINKING FOUNTAINS ACC | NOTES |
|---|---|---|---|---|---|---|---|---|---|
| Level One M Mercantile | Required | 1 | 1 | | 1 | 1 | | | |
| | Provided | 1 | 1 | | 1 | 1 | | | |
| A-2 Lobby | Required | 1 | 1 | | 1 | 1 | 1 | 1 | |
| A-3 Passenger Waiting | Required | 1 | 1 | | 1 | 1 | | | |
| | Provided | 3 | 6 | 4 | 2 | 2 | 1 | 1 | |
| B Ticket | Required | 1 | 1 | | 1 | 1 | | | |
| | Provided | 1 | 1 | | 1 | 1 | | | |
| B Transit | Required | 1 | 1 | | 1 | 1 | | | |
| | Provided | 1 | 1 | | 1 | 1 | | | |
| Level Two A-2 Lobby | Required | M 1 | F 1 | | M 1 | F 1 | Regular 1 | ACC 1 | |
| A-3 Meeting Room | Required | 1 | 2 | | 1 | 1 | | | |
| | Provided | 2 | 4 | 2 | 2 | 2 | 1 | 1 | |
| B Offices | Required | 1 | 2 | | 1 | 1 | | | |
| | Provided | 1 | 2 | 1 | 1 | 1 | | | |

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**ENERGY REQUIREMENTS:**
The following data shall be considered minimum and any special attribute required to meet the energy code shall also be provided. Each Designer shall furnish the required portions of the project information for the plan data sheet. If performance method, state the annual energy cost for the standard reference design vs annual energy cost for the proposed design.

**Climate Zone:** [ ] 3 [X] 4 [ ] 5

**Method of Compliance:**
[X] Prescriptive (Energy Code)
[ ] Performance (Energy Code)
[X] Prescriptive (ASHRAE 90.1)
[ ] Performance (ASHRAE 90.1)

**THERMAL ENVELOPE**

**Roof/ceiling Assembly** (each assembly)
Description of assembly: Cond. membrane, 1/2" thk roof board, 5" rigid ins. (tapered), 3" metal deck
U-Value of total assembly: .028
R-Value of insulation: R38
Skylights in each assembly: N/A
U-Value of skylight: _____
total square footage of skylights in each assembly: N/A

**Exterior Walls** (each assembly)

| | Insulated Metal Panel | CMU w/Insulated Metal Panel | Curtainwall |
|---|---|---|---|
| Description of assembly: | | | |
| U-Value of total assembly: | U.045 / U.0625 | U.041 / U.055 | U.44 |
| R-Value of insulation: | Flat panel R22 / Ribbed panel R16 | R24.1 / R18.1 | |
| Openings (windows or doors with glazing) | | | |
| U-Value of assembly: | .29 | | |
| Solar heat gain coefficient: | .29 | | |
| projection factor: | | | |
| Door R-Values: | | | |

**Walls below grade** (each assembly)
Description of assembly: 8" CMU
U-Value of total assembly: U.9
R-Value of insulation: R1.1

**Floors over unconditioned space** (each assembly)
Description of assembly: N/A
U-Value of total assembly:
R-Value of insulation:

**Floors slab on grade**
Description of assembly: 4" conc. slab
U-Value of total assembly: U3.12
R-Value of insulation: R.32
Horizontal/vertical requirement: N/A
slab heated:

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### MECHANICAL SUMMARY - SEE MECHANICAL

**MECHANICAL SYSTEMS, SERVICE SYSTEMS AND EQUIPMENT**

**Thermal Zone**
winter dry bulb: 21.4 F
summer dry bulb: 93.1 F

**Interior design conditions**
winter dry bulb: 70 F
summer dry bulb: 75 F
relative humidity: 50 % RH

**Building heating load:** 1200 MBH

**Building cooling load:** 240 TONS

**Mechanical Spacing Conditioning System**
Unitary
description of unit: Water Source Heat Pump
heating efficiency: Refer to schedule
cooling efficiency: Refer to schedule
size category of unit: Refer to schedule
Boiler
Size category. If oversized, state reason.: 2-800 MBH output
Chiller
Size category. If oversized, state reason.: N/A

**List equipment efficiencies:** Refer to schedules on sheets M301 and M302

### ELECTRICAL SUMMARY - SEE ELECTRICAL

**ELECTRICAL SYSTEM AND EQUIPMENT**

**Method of Compliance:**
Energy Code: [X] Prescriptive [ ] Performance
ASHRAE 90.1: [X] Prescriptive [ ] Performance

**Lighting schedule** (each fixture type)
lamp type required in fixture
number of lamps in fixture
ballast type used in the fixture
number of ballasts in fixture
total wattage per fixture
total interior wattage specified vs. allowed (whole building or space by space)
total exterior wattage specified vs. allowed

**Additional Prescriptive Compliance**
[ ] 506.2.1 More Efficient Mechanical Equipment
[ ] 506.2.2 Reduced Lighting Power Density
[ ] 506.2.3 Energy Recovery Ventilation Systems
[ ] 506.2.4 Higher Efficiency Service Water Heating
[ ] 506.2.5 On-Site Supply of Renewable Energy
[ ] 506.2.6 Automatic Daylighting Control Systems

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**Vertex Technology Consultants**
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1/31/2014

| | |
|---|---|
| Drawn | MS |
| Checked | LW |
| Date | January 31, 2014 |
| Revisions | |


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**FAST Multi-Modal Center**
City of Fayetteville
Fayetteville, NC

Project Number 621A

Title
**Appendix B Code Summary**

Sheet
# G002

Plate of


3/6/2014 10:05:27 AM
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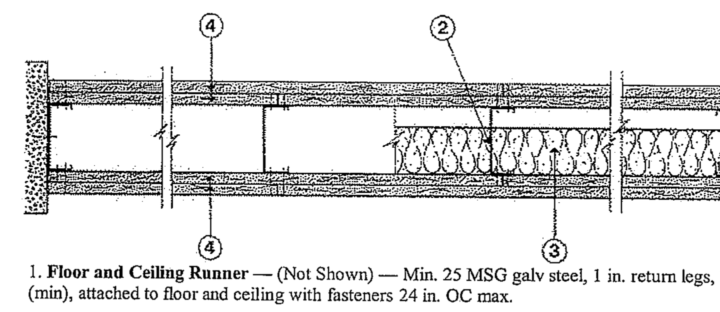
3/4/2014 10:02:20 AM

## Design No. U411
January 07, 2013

**Nonbearing Wall Rating — 2 HR.**




1. **Floor and Ceiling Runner** — (Not Shown) — Min. 25 MSG galv steel, 1 in. return legs, 2-1/2 in. deep (min), attached to floor and ceiling with fasteners 24 in. OC max.

1A. **Framing Members*— Floor and Ceiling Runners** — (Not shown) — As an alternate to Item 1 - For use with Item 2A, channel shaped, min 2-1/2 in. deep, attached to floor and ceiling with fasteners 24 in. OC. max.

**ALLSTEEL & GYPSUM PRODUCTS INC** — Type SUPREME Framing System

**CALIFORNIA EXPANDED METAL PRODUCTS CO** — Viper20™ Track

**CONSOLIDATED FABRICATORS CORP, BUILDING PRODUCTS DIV** — Type SUPREME Framing System

**MARINO/WARE, DIV OF WARE INDUSTRIES INC** — Viper20™ Track

**PHILLIPS MFG CO L L C** — Viper20™ Track

**QUAIL RUN BUILDING MATERIALS INC** — Type SUPREME Framing System

**SCAFCO STEEL STUD MANUFACTURING CO** — Type SUPREME Framing System

**STEEL CONSTRUCTION SYSTEMS INC** — Type SUPREME Framing System

**UNITED METAL PRODUCTS INC** — Type SUPREME Framing System

1B. **Floor and Ceiling Runners** — (Not shown)—For use with Item 2B- Channel shaped, fabricated from min 20 MSG corrosion-protected or galv steel, min width to accommodate stud size, with min 1 in. long legs, attached to floor and ceiling with fasteners spaced max 24 in. OC.

1C. **Framing Members*— Floor and Ceiling Runners** — (Not shown) — As an alternate to Item 1 - For use with Item 2B, channel shaped, min 2-1/2 in. wide fabricated from min 0.015 in. thick galv steel, attached to floor and ceiling with fasteners 24 in. OC. max.

**CLARKDIETRICH BUILDING SYSTEMS** — CD ProTRAK

**DMFCWBS L L C** — ProTRAK

**MBA BUILDING SUPPLIES** — ProTRAK

**RAM SALES L L C** — Ram ProTRAK

**SOUTHEASTERN STUD & COMPONENTS INC** — ProTRAK

**STEEL STRUCTURAL SYSTEMS L L C** — Tri-S ProTRAK

1D. **Framing Members*— Floor and Ceiling Runners** — (Not shown) — As an alternate to Item 1 - For use with Item 2D, channel shaped, min 2-1/2 in. wide fabricated from min 0.018 in. thick galv steel, attached to floor and ceiling with fasteners 24 in. OC. max.

**TELLING INDUSTRIES L L C** — TRUE-TRACK™

1E. **Framing Members*— Floor and Ceiling Runners** — (Not shown) — As an alternate to Item 1 - For use with Item 2E, channel shaped, min 2-1/2 in. wide fabricated from min 25 MSG steel, attached to floor and ceiling with fasteners 24 in. OC. max.

**KIRII (HONG KONG) LTD** — Type KIRII

1F. **Floor and Ceiling Runners** — (Not shown) — Channel shaped, fabricated from min 0.02 in. galv steel, min width to accommodate stud size, with min 1 in. long legs, for use with studs specified below and fabricated from min 0.02 in. galv steel or thicker, attached to floor and ceiling with fasteners spaced max 24 in. OC.

**MARINO/WARE, DIV OF WARE INDUSTRIES INC** — Viper20™ Track VT100.

1G. **Framing Members*— Floor and Ceiling Runners** — (Not shown) — As an alternate to Item 1 - For use with Item 2G, channel shaped, min 2-1/2 in. deep, attached to floor and ceiling with fasteners 24 in. OC. max.

**TELLING INDUSTRIES L L C** — Viper20™ Track

2. **Steel Studs** — Min 2-1/2 in. deep, formed of min 25 MSG galv steel max stud spacing 24 in. OC. Studs to be cut 3/4 in. less than assembly height.

2A. **Framing Members*— Steel Studs** — As an alternate to Item 2 - For use with Item 1G, channel shaped studs, min 2-1/2 in. deep, spaced a max of 24 in. OC. Studs to be cut 3/4 in. less than assembly height.

**ALLSTEEL & GYPSUM PRODUCTS INC** — Type SUPREME Framing System

**CALIFORNIA EXPANDED METAL PRODUCTS CO** — Viper20™

**CONSOLIDATED FABRICATORS CORP, BUILDING PRODUCTS DIV** — Type SUPREME Framing System

**MARINO/WARE, DIV OF WARE INDUSTRIES INC** — Viper20™

**PHILLIPS MFG CO L L C** — Viper20™

**QUAIL RUN BUILDING MATERIALS INC** — Type SUPREME Framing System

**SCAFCO STEEL STUD MANUFACTURING CO** — Type SUPREME Framing System

**STEEL CONSTRUCTION SYSTEMS INC** — Type SUPREME Framing System

**UNITED METAL PRODUCTS INC** — Type SUPREME Framing System

2B. **Steel Studs** — (As an alternate to Item 2, For use with Item 4D) Channel shaped, fabricated from min 20 MSG corrosion-protected or galv steel, 3-1/2 in. min depth, spaced a max of 16 in. OC. Studs friction-fit into floor and ceiling runners. Studs to be cut 5/8 to 3/4 in. less than assembly height.

2C. **Framing Members*— Steel Studs** — As an alternate to Item 2 - For use with Item 1B, channel shaped studs, min 2-1/2 in. wide fabricated from min 0.015 in. thick galv steel, spaced a max of 24 in. OC. Studs to be cut 3/4 in. less than assembly height.

**CLARKDIETRICH BUILDING SYSTEMS** — CD ProSTUD

**DMFCWBS L L C** — ProSTUD

**MBA BUILDING SUPPLIES** — ProSTUD

**RAM SALES L L C** — Ram ProSTUD

**SOUTHEASTERN STUD & COMPONENTS INC** — ProSTUD

**STEEL STRUCTURAL SYSTEMS L L C** — Tri-S ProSTUD

2D. **Framing Members*— Steel Studs** — As an alternate to Item 2 - For use with Item 1D, channel shaped studs, min 2-1/2 in. wide fabricated from min 0.018 in. thick galv steel, spaced a max of 24 in. OC. Studs to be cut 3/4 in. less than assembly height.

**TELLING INDUSTRIES L L C** — TRUE-STUD™

2E. **Framing Members*— Steel Studs** — As an alternate to Item 2 - For use with Item 1E, channel shaped studs, min 2-1/2 in. wide fabricated from min 25 MSG steel, spaced a max of 24 in. OC. Studs to be cut 3/4 in. less than assembly height.

**KIRII (HONG KONG) LTD** — Type KIRII

2F. **Framing Members*— Steel Studs** — As an alternate to Item 2 - For use with Item 1G, channel shaped studs, min 2-1/2 in. deep, spaced a max of 24 in. OC. Studs to be cut 3/4 in. less than assembly height.

**TELLING INDUSTRIES L L C** — Viper20™

3. **Batts and Blankets*** — (Optional) — Mineral wool or glass fiber batts partially or completely filling stud cavity. Fasten each batt to wallboard base layer with a min 9/16 in. long staple. Use five staples for each 4 ft piece. Drive one staple in the center of each piece and a staple at each corner, approx 3 in. from edges.

See **Batts and Blankets** (BZJZ) category for names of manufacturers.

3A. **Fiber, Sprayed*** — As an alternate to Batts and Blankets (Item 3) — Spray applied cellulose material. The fiber is applied with water to completely fill the enclosed cavity in accordance with the application instructions supplied with the product. Nominal dry density of 3.0 lb/ft$^3$. Alternate application method: The fiber is applied with U.S. Greenfiber LLC Type AD100 hot melt adhesive at a nominal ratio of one part adhesive to 6.6 parts fiber to completely fill the enclosed cavity in accordance with the application instructions supplied with the product. Nominal dry density of 2.5 lb/ft$^3$.

**U S GREENFIBER L L C** — — Cocoon2 Stabilized or Cocoon-FRM (Fire Rated Material)

3B. **Fiber, Sprayed*** — As an alternate to Batts and Blankets (Item 3) and Item 3A - Spray applied cellulose insulation material. The fiber is applied with water to interior surfaces in accordance with the application instructions supplied with the product. Applied to completely fill the enclosed cavity. Minimum dry density of 4.3 pounds per cubic ft.

**NU-WOOL CO INC** — Cellulose Insulation

3C. **Fiber, Sprayed*** — As an alternate to Batts and Blankets (Item 3) - Spray applied cellulose fiber. The fiber is applied with water to completely fill the enclosed cavity in accordance with the application instructions supplied with the product. The minimum dry density shall be 4.30 lbs/ft$^3$.

**INTERNATIONAL CELLULOSE CORP** — Celbar-RL

4. **Gypsum Board*** — 5/8 in. thick, outer layer paper, glass mat or vinyl surfaced. (Laminated System) Gypsum board applied vertically in two layers. Inner layer attached to studs with 1 in. long Type S steel screws spaced 8 in. OC along vertical edges, and 12 in. OC in the field and outer layer laminated to inner layer with joint compound, applied with a notched spreader producing continuous beads of compound about 3/8 in. in diameter, spaced not greater than 2 in. OC. Joints of laminated outer layer offset 12 in. from inner layer joints Outer layer gypsum board attached to floor and ceiling runner track with 1-5/8 in. long Type S steel screws spaced 12 in. OC.

Optional, (Direct Attached System), Inner layer attached to studs with 1 in. long Type S steel screws spaced 16 in. OC in the field and along the vertical edges. Outer layer attached to the studs over the inner layer with 1-5/8 in. long Type S steel screws spaced 16 in. OC in the field and along the vertical edges and 12 in. OC to the floor and ceiling runners. Joints of screw-attached outer layer offset from inner layer joints. Joints of outer layer may be taped or untaped.

Nom 3/32 in. thick gypsum veneer plaster may be applied to the entire surface of Classified veneer baseboard. Joints reinforced.

**ACADIA DRYWALL SUPPLIES LTD** — Type X

**AMERICAN GYPSUM CO** — Types AG-C, AGX-1, M-Glass, AGX-11.

**BEIJING NEW BUILDING MATERIALS PUBLIC LTD CO** — Type DBX-1.

**CERTAINTEED GYPSUM INC** — Types 1, FRPC, EGRG, GlasRoc, Type X or Type C, 5/8" Easi-Lite Type X.

**CERTAINTEED GYPSUM CANADA INC** — Type C, Type X or Type Abuse-Resistant, 5/8" Easi-Lite Type X.

**CGC INC** — Type AR, C, IP-AR, IP-X1, IP-X2, IPC-AR, SCX, SHX, WRC or WRX.

**GEORGIA-PACIFIC GYPSUM L L C** — Types 5, 6, 9, C, DAP, DD, DA, DAPC, DGG, DS, GPFS6, LS.

**LAFARGE NORTH AMERICA INC** — Types LGFC2, LGFC2A, LGFC3, LGFC6, LGFC6A, LGFC-C, LGFC-C/A, LGFC-WD, LGLLX.

**NATIONAL GYPSUM CO** — Types FSK-C, FSW, FSW-3, FSW-5, FSW-6, FSW-C, FSW-G, FSMR-C, FSL, SoundBreak XP Type X Gypsum Board.

**PABCO BUILDING PRODUCTS L L C, DBA PABCO GYPSUM** — Type C, PG-3, PG-5, PG-9, PG-11, PG-C, PGS-WRS.

**PANEL REY S A** — Types GREX, PRX, RHX, MDX, ETX or PRC.

**SIAM GYPSUM INDUSTRY (SARABURI) CO LTD** — Type EX-1

**TEMPLE-INLAND** — Types TG-C, Type X, Veneer Plaster Base-Type X, Water Rated-Type X, Sheathing Type-X, Soffit-Type X, GreenGlass Type X, Type X ComfortGuard Sound Deadening Gypsum Board.

**THAI GYPSUM PRODUCTS PCL** — Type C or Type X

**UNITED STATES GYPSUM CO** — Type AR, C, FRX-G, IP-AR, IP-X1, IP-X2, IPC-AR, SCX, SGX, SHX, WRC, WRX, USGX.

**USG MEXICO S A DE C V** — Type AR, C, IP-AR, IP-X1, IP-X2, IPC-AR, SCX, SHX, WRC or WRX.

4A. **Gypsum Board*** — (As an alternate to Item 4) — Nom 3/4 in. thick, installed as described in Item 4 with 1-1/4 in. long Type S screws for inner layer and 2-1/4 in. long Type S screws for outer layer.

**CGC INC** — Types AR, IP-AR.

**UNITED STATES GYPSUM CO** — Types AR, IP-AR.

**USG MEXICO S A DE C V** — Types AR, IP-AR.

4B. **Gypsum Board*** — (As an alternate to Item 4 and 4A) —5/8 in. thick, 24 to 54 in. wide, applied horizontally as the outer layer to one side of the assembly. Horizontal joints need not be backed by steel framing. Secured as described in Item 4 for the direct attached system. When used in widths other than 48 in., gypsum panels to be installed horizontally.

**CGC INC** — Type SHX.

**CERTAINTEED GYPSUM INC** — Type X, Type C.

**CERTAINTEED GYPSUM CANADA INC** — Type X, Type C.

**THAI GYPSUM PRODUCTS PCL** — Type X, Type C.

**UNITED STATES GYPSUM CO** — Type SHX, FRX-G.

**USG MEXICO S A DE C V** — Type SHX.

4C. **Gypsum Board*** — (As an alternate to Items 4, 4A and 4B) — Two layers of 5/8 in. thick gypsum board applied horizontally or vertically. Inner layer attached to studs with No. 6 by 1 in. long Type S bugle head screws spaced 24 in. OC along the top and bottom tracks starting 2 in. and then 12 in. from the vertical edge. Inner layer screws spaced 24 in. OC along the studs, starting 2 in. and then 12 in. from the top and bottom of the studs and starting 1-1/4 in. from the horizontal joints when installed horizontally. Outer layer attached to studs with 1-5/8 in. long Type S bugle head screws spaced 16 in. OC along the top and bottom tracks starting 1-3/4 in. from the vertical edge. Outer layer screws spaced 16 in. OC along the studs, starting 1-3/4 in. and then 8 in. from the top and bottom of the studs and starting 1-1/4 in. and then 8 in. from the horizontal joints when installed horizontally. Vertical joints centered over studs and staggered one stud cavity on opposite sides of studs. Vertical joints in adjacent layers staggered one stud cavity. Horizontal joints need not be backed by steel framing. Horizontal edge joints and horizontal butt joints on opposite sides of studs need not be staggered. Horizontal edge joints and horizontal butt joints in adjacent layers staggered a min of 12 in. When outer layers are installed horizontally, vinyl or casein, dry or premixed joint compound shall be applied in two coats to joints and screw heads of outer layer. Paper tape, nom 2 in. wide, embedded in first layer of compound over all joints of outer layer panels. Nom 3/32 in. thick gypsum veneer plaster may be applied to the entire surface of Classified veneer baseboard. Joints reinforced.

**GEORGIA-PACIFIC GYPSUM L L C** — Types 5, 9, C, DAP, DGG, DS.

4D. **Gypsum Board*** — (Not Shown) - (As an alternate to Item 4 when used as the base layer on one or both sides of wall. For direct attachment only to steel studs Item 2B) - Nom 5/8 in. thick lead backed gypsum panels with beveled, square or tapered edges, applied vertically. Vertical joints centered over studs and staggered min 1 stud cavity on opposite sides of studs. Gypsum board secured to studs with 1-1/4 in. long Type S-12 steel screws spaced 8 in. OC at perimeter and 12 in. OC in the field.

**RAY-BAR ENGINEERING CORP** — Type RB-LBG

4E. **Wall and Partition Facings and Accessories*** — (As an alternate to Items 4 through 4D) — Nominal 5/8 in. thick, 4 ft wide panels, applied vertically and secured as described in Item 4.

**SERIOUS ENERGY INC** — Types QuietRock ES, QuietRock 527.

4F. **Gypsum Board*** — (As an alternate to Items 4 through 4E ) - 5/8 in. thick, 4 ft. wide, paper surfaced, applied vertically and secured as described in Item 4.

**CERTAINTEED GYPSUM INC** — Type SilentFX

4G. **Gypsum Board*** — As an alternate to Item 4- Nom. 5/8 in. thick, inner layer attached vertically to studs with 1 in. long Type S steel screws spaced 16 in. OC in the field and along the vertical edges. Outer layer attached to the studs horizontally over the inner layer with 1-5/8 in. long Type S steel screws spaced 16 in. OC in the field and along the vertical edges and 12 in. OC to the floor and ceiling runners. Joints of outer layer must be taped. Nom 3/32 in. thick gypsum veneer plaster may be applied to the entire surface of Classified veneer baseboard.

**PABCO BUILDING PRODUCTS L L C, DBA PABCO GYPSUM** — Types C, PG-11, PGS-WRS.

4H. **Gypsum Board*** — (Not Shown) - (As an alternate to Items 4) For Direct Application to Studs Only- For use as the base layer on one or both sides of the wall. Nom 5/8 in. thick lead backed gypsum panels with beveled, square or tapered edges, applied vertically. Vertical joints centered over studs and staggered min 1 stud cavity on opposite sides of studs. Wallboard secured to studs with 1-5/8 in. long Type S 12 steel screws spaced 8 in. OC at perimeter and 12 in OC in the field. Lead batten strips required behind vertical joints of lead backed gypsum wallboard and optional at remaining stud locations. Fasteners for face layer gypsum panels when installed over lead backed board to be min 2-1/2 in. Type S-12 bugle head steel screws spaced as described in Item 4. To be used with Lead Batten Strips (see Item 5A) or Lead Discs (see Item 6A).

**MAYCO INDUSTRIES INC** — Type X-Ray Shielded Gypsum

4I. **Gypsum Board*** — (As an alternate to Item 4, not for use with Items 1C and 2C) - Nom. 5/8 in. thick gypsum panels with beveled, square or tapered edges installed as described in Item 4.

**CGC INC** — Type ULX

**UNITED STATES GYPSUM CO** — Type ULX.

**USG MEXICO S A DE C V** — Type ULX

4J. **Gypsum Board*** — (As an alternate to Item 4 when used as the base layer on one or both sides of wall. For direct attachment only to steel studs Item 2B). Nom 5/8 in. thick lead backed gypsum panels with beveled, square or tapered edges, applied vertically. Vertical joints centered over studs and staggered min 1 stud cavity on opposite sides of studs. Wallboard secured to studs with 1-1/4 in. long Type S-12 steel screws gypsum panel steel screws spaced 8 in. OC at perimeter and 12 in. OC in the field. Lead batten strips required behind vertical joints of lead backed gypsum wallboard and optional at remaining stud locations. Lead batten strips, min 2 in. wide, max 8 ft long with a max thickness of 0.14 in. placed on the face of studs and attached to the stud with construction adhesive and two 1 in. long Type S-12 pan head steel screws, one at the top of the strip and one at the bottom of the strip. Lead discs, nominal 3/8 in. diam by max 0.085 in. thick. Compression fitted or adhered over the screw heads. Lead batten strips and discs to have a purity of 99.9% meeting the Federal specification QQ-L-201f, Grade "C".

**RADIATION PROTECTION PRODUCTS INC** — Type RPP - Lead Lined Drywall

5. **Lead Batten Strips** — (Not Shown, For Use With Item 4D) - Lead batten strips, min 1-1/2 in. wide, max 10 ft long with a max thickness of 0.125 in. Strips placed on the interior face of studs and attached from the exterior face of the stud with two 1 in. long Type S-12 pan head steel screws, one at the top of the strip and one at the bottom of the strip. Lead batten strips to have a purity of 99.9% meeting the Federal specification QQ-L-201f, Grade "C". Lead batten strips required behind vertical joints of lead backed gypsum board (Item 4D) and optional at remaining stud locations. Required behind vertical joints.

5A. **Lead Batten Strips** — (Not Shown, for use with Item 4H) Lead batten strips, 2 in. wide, max 10 ft long with a max thickness of0.140 in. Strips placed on the face of studs and attached to the stud with two min. 1 in. long min. Type S-8 pan head steel screws, one at the top of the strip and one at the bottom of the strip or with one min. 1 in. long min. Type S-8 pan head steel screw at the top of the strip. Lead batten strips to have a purity of 99.9% meeting the Federal specification QQ-L-201f, Grades "A, B, C or D". Lead batten strips required behind vertical joints of lead backed gypsum wallboard (Item 6) and optional at remaining stud locations.

6. **Lead Discs or Tabs** — (Not Shown, For Use With Item 4D) - Used in lieu of or in addition to the lead batten strips (Item 5) or optional at other locations - Max 3/4 in. diam by max 0.125 in. thick lead discs compression fitted or adhered over steel screw heads or max 1/2 in. by 1-1/4 in. by max 0.125 in. thick lead tabs placed on gypsum boards (Item 4D) underneath screw locations prior to the installation of the screws. Lead discs or tabs to have a purity of 99.9% meeting the Federal specification QQ-L-201f, Grade "C".

6A. **Lead Discs** — (Not Shown, for use with Item 4H) Max 5/16 in. diam by max0.140 in. thick lead discs compression fitted or adhered over steel screw heads. Lead discs to have a purity of 99.9% meeting the Federal Specification QQ-L-201f, Grades "A, B, C or D".

7. **Mineral and Fiber Board*** — (Optional, Not shown) — For optional use as an additional layer on one side of wall. Nom 1/2 in. thick, 4 ft wide with long dimension parallel and centered over studs. Attached to studs and floor and ceiling runners with 1-5/8 in. long Type S steel screws, spaced 12 in. OC. The required UL Classified gypsum board layer(s) is/are to be installed as indicated as to fastener type and spacing, except that the required fastener length shall be increased by a minimum of 1/2 in. Not evaluated or intended as a substitute for the required layer(s) of UL Classified Gypsum Board.

**HOMASOTE CO** — Homasote Type 440-32

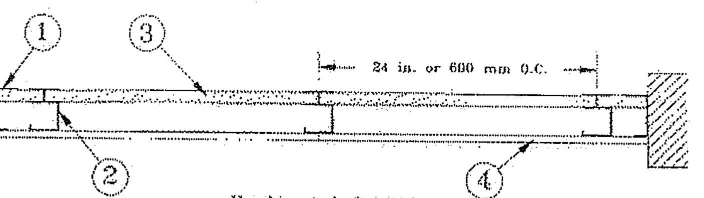
*Bearing the UL Classification Mark

Last Updated on 2013-01-07

## Design No. U415
December 10, 2012

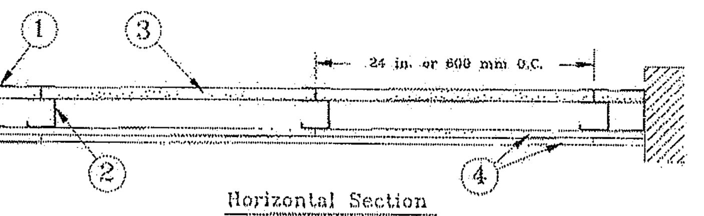
**Nonbearing Wall Ratings — 1, 2, 3 or 4 Hr**

System A – 1 Hr.



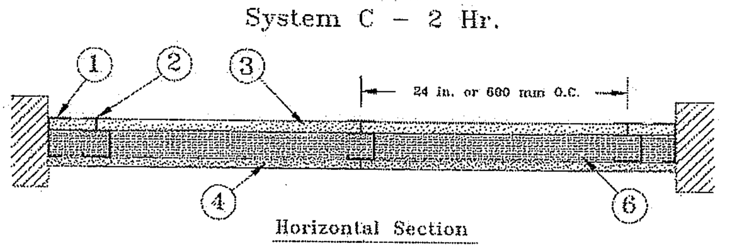

Horizontal Section

System B – 2 Hr.



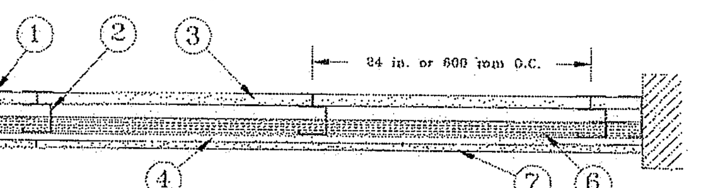

Horizontal Section

System C – 2 Hr.



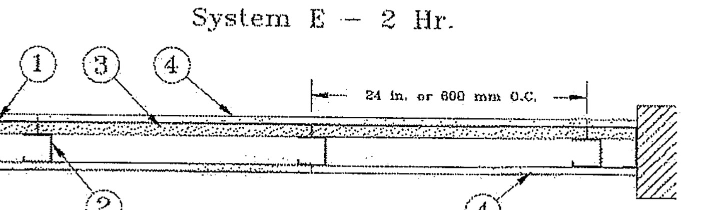

Horizontal Section

System D – 2 Hr.



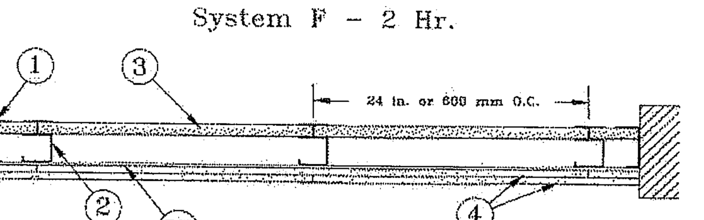

Horizontal Section

System E – 2 Hr.



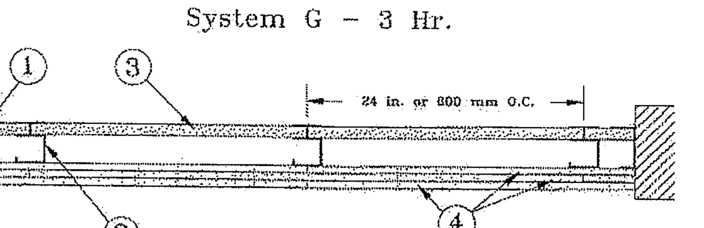

Horizontal Section

System F – 2 Hr.



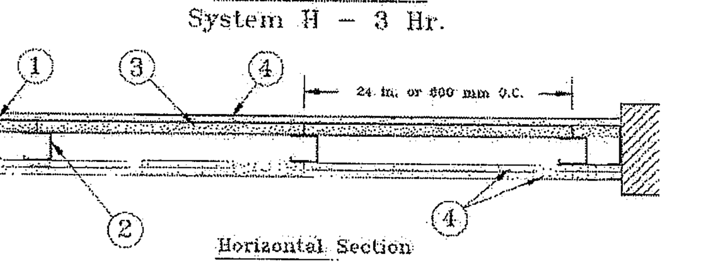

Horizontal Section

System G – 3 Hr.



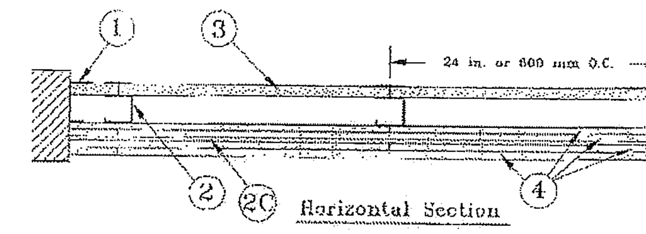

Horizontal Section

System H – 3 Hr.




Horizontal Section

System I – 4 Hr.




Horizontal Section

1. **Floor, Side and Ceiling Runners** — "J" - shaped runner, min 2-1/2 in. deep (min 4 in. deep when System C is used), with unequal legs of 1 in. and 2 in., fabricated from min 24 MSG (min 20 MSG when Item 4A, 4B or 7 are used) galv steel. Runners positioned with short leg toward finished side of wall. Runners attached to structural supports with steel fasteners located not greater than 2 in. from ends and not greater than 24 in. OC. "E" - shaped studs (Item 2A) may be used as side runners in place of "J" - shaped runners.

2. **Steel Studs** — "C-H" - shaped studs, min 2-1/2 in. deep (min 4 in. deep when System C is used), fabricated from min 25 MSG (min 20 MSG when Items 2D, 4A, 4B or 7 is used) galv steel. Cut to lengths 3/8 to 1/2 in. less than floor-to-ceiling height and spaced 24 in. or 600 mm OC.

2A. **Steel Studs** — (Not Shown) — "E" - shaped studs installed back to back in place of "C-H" - shaped studs (Item 2) "E" - shaped studs secured together with steel screws spaced a maximum 12 in. OC. Fabricated from min 25 MSG (min 20 MSG when Item 2D, 4A, 4B or 7 is used) galv steel, min 2-1/2 in. deep (min 4 in. deep when System C is used), with one leg 1 in. long and two legs 3/4 in. long. Shorter legs 1 in. apart to engage gypsum liner panels. Cut to lengths 3/8 to 1/2 in. less than floor to ceiling heights.

2B. **Furring Channels** — (Optional, not shown) — For use with single or double layer systems. Resilient furring channels fabricated from min 25MSG corrosion protected steel, installed horizontally, and spaced vertically a max 24 in. OC. Flange portion of channel attached to each intersecting "C-H" or "E" stud on side of stud opposite the 1 in. liner panels with 1/2 in. long Type S or S-12 pan-head steel screws. When furring channels are used, wallboard to be installed vertically only. Not to be used with Type FRX-G gypsum wallboard, Type RB-LBG (Item 4A), Type Nelco (Item 4B) or cementitious backer units (Item 7).

2C. **Furring Channels** — For use with System I - "Hat" - shaped, 25 MSG galv steel furring channels attached directly over the inner layers of wallboard to each stud with 2 in. long Type S pan head steel screws. Screws alternate from top flange to bottom flange at each stud intersection. Furring channels spaced vertically max 24 in. OC.

2D. **Steel Framing Members*** — (Optional, not shown) — For use with single or double layer systems. Furring channels and Steel Framing Members as described below. Not to be used with Type FRX-G gypsum wallboard, Type RB-LBG (Item 4A), Type Nelco (Item 4B) or cementitious backer units (Item 7):

a. **Furring Channels** — Formed of No. 25 MSG galv steel. 2-9/16 in. or 2-23/32 in. wide by 7/8 in. deep, spaced max. 24 in. OC perpendicular to studs. Channels secured to studs as described in Item b. Gypsum board installed vertically only and attached to furring channels as described in Item 3.

b. **Steel Framing Members*** — Used to attach furring channels (Item 2Da) to studs (Item 2 or 2A). Clips spaced max. 24 in. OC., and secured to studs with No. 8 x 1-1/2 in. minimum self-drilling, S-12 steel screw through the center grommet. Furring channels are friction fitted into clips. RSIC-1 clip for use with 2-9/16 in. wide furring channels. RSIC-1 (2.75) clip for use with 2-23/32 in. wide furring channels.

**PAC INTERNATIONAL INC** — Types RSIC-1, RSIC-1 (2.75).

3. **Gypsum Board*** — Gypsum liner panels, nom 1 in. thick, 24 in. or 600 mm (for metric spacing) wide. Panels cut 1 in. less in length than floor to ceiling height. Vertical edges inserted in "H" portion of "C-H" studs or the gap between the two 3/4 in. legs of the "E" studs. Free edge of end panels attached to long leg of vertical "J" - runners with 1-5/8 in. long Type S steel screws spaced not greater than 12 in. OC. When wall height exceeds liner panel length, liner panel may be butted to extend to the full height of the wall. Horizontal joints need not be backed by steel framing. In System I, butt joints in liner panels are staggered min 36 in. Butt joints backed with 6 in. by 22 in. strips of 3/4 in. thick gypsum wallboard (Item 4). Wallboard strips centered over butt joints and secured to liner panels with six 1-1/2 in. long Type G steel screws, three screws along the 22 in. dimension at the top and bottom of the strips.

**CGC INC** — Type SLX

**UNITED STATES GYPSUM CO** — Type SLX

**USG MEXICO S A DE C V** — Type SLX

4. **Gypsum Board*** —

**System A - 1 Hr**

Gypsum panels, with beveled, square or tapered edges, nom 5/8 in. thick, 48 in. or 1200 mm wide, applied vertically or horizontally, attached to studs with 1 in. long Type S steel screws spaced 12 in. when installed vertically or 8 in OC when installed horizontally. Horizontal joints need not be backed by steel framing.

**CGC INC** — Types AR, C, IP-AR, IP-X1, IP-X2, IPC-AR, SCX, SHX, ULX, WRC, WRX

**UNITED STATES GYPSUM CO** — Types AR, C, FRX-G, IP-AR, IP-X1, IP-X2, IPC-AR, SCX, SGX, SHX, ULX, WRC, WRX, USGX.

**USG MEXICO S A DE C V** — Types AP, C, IP-AR, IP-X1, IP-X2, IPC-AR, SCX, SHX, ULX, WRC, WRX

**System B - 2 Hr**

Gypsum panels, with beveled, square or tapered edges, nom 1/2 in. or 5/8 in. thick, 48 in. or 1200 mm wide, applied vertically or horizontally in two layers. Inner or base layer attached to studs with 1 in. long Type S steel screws spaced 24 in. OC when installed vertically or 16 in. OC when installed horizontally. Outer or face layer attached to studs with 1-5/8 in. long Type S steel screws spaced 12 in. OC when installed vertically and staggered 12 in. from base layer screws or 8 in. OC when installed horizontally and staggered 8 in. from base layer screws. Horizontal joints between inner and outer layers staggered a min of 12 in. Horizontal joints need not be backed by steel framing. Vertical joints centered over studs and staggered 24 in.

**CGC INC** — 1/2 in. Type C, IP-X2, IPC-AR or WRC; 5/8 in. Types AR, C, IP-AR, IP-X1, IP-X2, IPC-AR, SCX, SHX, ULX, WRC, WRX

**UNITED STATES GYPSUM CO** — 1/2 in. Types C, IP-X2, IPC-AR, or WRC; 5/8 in. Types AR, C, FRX-G, IP-AR, IP-X1, IP-X2, IPC-AR, SCX, SGX, SHX, ULX, USGX, WRC, WRX

**USG MEXICO S A DE C V** — 1/2 in. Types C, IP-X2, IPC-AR or WRC; 5/8 in. Types AR, C, IP-AR, IP-X1, IP-X2, IPC-AR, SCX, SHX, ULX, WRC, WRX

**System C - 2 Hr**

Gypsum panels, with beveled, square or tapered edges, nom 3/4 in. thick, 48 in. or 1200 mm wide, applied vertically or horizontally, secured with 1-1/4 in. long Type S steel screws spaced 8 in. OC along vertical edges and 12 in. OC in the field when installed vertically or 8 in. OC along the vertical edges and in the field when installed horizontally. Horizontal joints need not be backed by steel framing. Screws along side joints offset 4 in. Requires min 4 in. deep framing per Items 1, 2 and 3. Requires min 3 in. thick mineral wool batts per Item 6.

**CGC INC** — Types IP-X3, or ULTRACODE

**UNITED STATES GYPSUM CO** — Types IP-X3, or ULTRACODE

**USG MEXICO S A DE C V** — Types IP-X3, or ULTRACODE

**System D - 2 Hr**

Gypsum panels, with beveled, square or tapered edges, nom 5/8 in. thick, 48 in. or 1200 mm wide, applied vertically or horizontally, attached directly to studs with 1 in. long Type S steel screws spaced 24 in. when installed vertically or 16 in. OC when installed horizontally. . Horizontal joints need not be backed by steel framing. Requires face layer of 1/2 or 5/8 in. thick cementitious backer units per Item 7 and min 1-1/2 in. thick mineral wool batts per Item 6.

**CGC INC** — Types AR, C, IP-AR, IP-X1, IP-X2, IPC-AR, SCX, SHX, ULX, WRC, WRX

**UNITED STATES GYPSUM CO** — Types AR, C, FRX-G, IP-AR, IP-X1, IP-X2, IPC-AR, SCX, SGX, SHX, ULX, USGX, WRC, WRX.

**USG MEXICO S A DE C V** — Types AR, C, IP-AR, IP-X1, IP-X2, IPC-AR, SCX, SHX, ULX, WRC, WRX

**System E - 2 Hr**

Gypsum panels, with beveled, square or tapered edges, nom 1/2 in. or 5/8 in. thick, 48 in. or 1200 mm wide, applied vertically or horizontally, attached to studs with 1 in. long Type S steel screws spaced 12 in. OC when installed vertically or 8 in. when installed horizontally. Horizontal joints need not be backed by steel framing.

**CGC INC** — 1/2 in. Types C, IP-X2, IPC-AR; 5/8 in. Types AR, C, IP-AR, IP-X1, IP-X2, IPC-AR, SCX, SHX, ULX, WRC, WRX

**UNITED STATES GYPSUM CO** — 1/2 in. Types C, IP-X2, IPC-AR; 5/8 in. Types AR, C, FRX-G, IP-AR, IP-X1, IP-X2, IPC-AR, SCX, SGX, SHX, ULX, USGX, WRC, WRX.

**USG MEXICO S A DE C V** — 1/2 in. Types C, IP-X2, IPC-AR; 5/8 in. Types AR, C, IP-AR, IP-X1, IP-X2, IPC-AR, SCX, SHX, ULX, WRC, WRX

**System F - 2 Hr**

Gypsum panels, with beveled, square or tapered edges, nom 1/2 in. or 5/8 in. thick, 48 in. or 1200 mm wide, applied vertically in two layers. Inner or base layer attached to resilient furring channels (Item 2B) with 1 in. long Type S steel screws spaced 24 in. Outer or face layer attached to resilient furring channels (Item 2B) with 1-5/8 in. long Type S steel screws spaced 12 in. OC and staggered 12 in. from base layer screws. Joints between inner and outer layers staggered 24 in.

**CGC INC** — 1/2 in. Type C, IP-X2, IPC-AR or WRC; 5/8 in. Types AR, C, FRX-G, IP-AR, IP-X1, IP-X2, IPC-AR, SCX, SHX, ULX, WRC, WRX

**UNITED STATES GYPSUM CO** — 1/2 in. Type C, IP-X2, IPC-AR or WRC; 5/8 in. Types AR, C, FRX-G, IP-AR, IP-X1, IP-X2, IPC-AR, SCX, SGX, SHX, ULX, USGX, WRC, WRX.

**USG MEXICO S A DE C V** — 1/2 in. Type C, IP-X2, IPC-AR or WRC; 5/8 in. Types AR, C, IP-AR, IP-X1, IP-X2, IPC-AR, SCX, SHX, ULX, WRC, WRX

**System G - 3 Hr**

Gypsum panels, with beveled, square or tapered edges, nom 5/8 in. thick, 48 in. or 1200 mm wide, applied vertically or horizontally in three layers. Inner or base layer attached to studs with 1 in. long Type S steel screws spaced 24 in. OC when installed vertically or 16 in. OC when installed horizontally. Middle layer attached to studs with 1-5/8 in. long Type S steel screws spaced 24 in. when installed vertically or 16 in. OC when installed horizontally. Outer or face layer attached to studs with 2-1/4 in. long Type S steel screws spaced 16 in. when installed vertically or 12 in. OC when installed horizontally. Screws offset 6 in. from layer below. Horizontal joints on adjacent layers staggered a min of 12 in. . Horizontal joints need not be backed by steel framing. Vertical joints centered over studs and staggered 24 in. on adjacent layers.

**CGC INC** — Types C, IP-X2, IPC-AR, WRC

**UNITED STATES GYPSUM CO** — Types C, IP-X2, IPC-AR, WRC

**USG MEXICO S A DE C V** — Types C, IP-X2, IPC-AR, WRC

**System H - 3 Hr**

Gypsum panels, with beveled, square or tapered edges, nom 5/8 in. thick, 48 in. or 1200 mm wide, applied vertically or horizontally, two layers over the flange of the "C" section of the studs, one layer over the flange of the "H" section of the studs. Inner or base layer attached to studs with 1 in. long Type S steel screws spaced 24 in. OC when installed vertically or 16 in. OC when installed horizontally. Face layer attached to studs with 1-5/8 in. long Type S steel screws spaced 16 in. when installed vertically or 12 in. OC when installed horizontally. Screws offset 6 in. from layer below. Horizontal joints on adjacent layers staggered a min of 12 in. Horizontal joints need not be backed by steel framing. Vertical joints centered over studs and staggered 24 in. on adjacent layers.

**CGC INC** — Types C, IP-X2, IPC-AR, WRC

**UNITED STATES GYPSUM CO** — Types C, IP-X2, IPC-AR, WRC

**USG MEXICO S A DE C V** — Types C, IP-X2, IPC-AR, WRC

**System I - 4 Hr**

Gypsum panels, with beveled, square or tapered edges, nom 3/4 in. thick, 4 ft wide (or 1200 mm for metric spacing) wallboard with square or tapered edges. Total of four layers to be used. First and second (inner) layers applied vertically or horizontally over the steel studs. Horizontal joints need not be backed by steel framing. When applied vertically, joints centered over studs and staggered min 24 in., otherwise all joints staggered min 12 in. First layer secured to studs with 1-1/4 in. long Type S self-drilling, self-tapping bugle-head steel screws spaced 24 in. OC. Second layer secured to studs with 2-1/4 in. long Type S self-drilling, self-tapping bugle-head steel screws spaced 12 in. OC. Third layer applied vertically over the furring channels (Item 2C) with a 1-1/4 in. long Type S self-drilling, self-tapping bugle-head steel screws spaced 12 in. OC. Fourth layer applied vertically or horizontally with 2-1/4 in. long Type S self-drilling, self-tapping bugle-head steel screws spaced 12 in. OC. When applied vertically, joints to be staggered min 24 in. from third layer, otherwise all joints staggered min 12 in.

**CGC INC** — Types IP-X3, or ULTRACODE

**UNITED STATES GYPSUM CO** — Types IP-X3, or ULTRACODE

**USG MEXICO S A DE C V** — Types IP-X3, or ULTRACODE

4A. **Gypsum Board*** — (As an alternate to Item 4 Systems A, B, C, D, E, G, H, and I when used as the base layer, For direct attachment only) - Nom 5/8 in. or ¾ in. thick lead backed gypsum panels with beveled, square or tapered edges, applied vertically. Vertical joints centered over 20 MSG steel studs and staggered min 1 stud cavity on opposite sides of studs. See Items 1, 2, 2A, 2B and 2D. Wallboard secured to studs with 1-1/4 in. long Type S-12 steel screws spaced 8 in. OC at perimeter and 12 in. OC in the field. For Joint Compound see Item 5. To be used with Lead Batten Strips (see Item 9) or Lead Discs or Tabs (see Item 10).

**RAY-BAR ENGINEERING CORP** — Type RB-LBG

4B. **Gypsum Board*** — (As an alternate to Item 4 Systems A, B, C, D, E, G, H, and I when used as the base layer, For direct attachment only) - Nominal 5/8 in. thick lead backed gypsum panels with beveled, square or tapered edges, applied vertically. Vertical joints centered over studs and staggered min 1 stud cavity on opposite sides of studs. Wallboard secured to studs with 1-1/4 in. long Type S-12 (or #6 by 1-1/4 in. long bugle head fine driller) steel screws spaced 8 in. OC at perimeter and 12 in. OC in the field.

**NEW ENGLAND LEAD BURNING CO INC, DBA NELCO** — Nelco

4C. **Gypsum Board*** — (As an alternate to Item 4 Systems A, B, C, D, E, G, H, and I when used as the base layer, For direct attachment only) - Nom 5/8 or 3/4 in. thick lead backed gypsum panels with beveled, square or tapered edges, applied vertically. Vertical joints centered over 20 MSG steel studs and staggered min 1 stud cavity on opposite sides of studs. See Items 1, 2, 2A, 2B and 2D. Wallboard secured to studs with 1-1/4 in. long Type S-12 steel screws spaced 8 in. OC at perimeter and 12 in. OC in the field. For Joint Compound see Item 5. To be used with Lead Batten Strips (see Item 9A) or Lead Discs (see Item 10A). Lead batten strips required behind vertical joints of lead backed gypsum wallboard and optional at remaining stud locations. Lead batten strips, min 2 in. wide, max 10 ft long with a max thickness of 0.140 in. placed on the face of studs and attached to the stud with two 1 in. long Type S-8 pan head steel screws, one at the top of the strip and one at the bottom of the strip.

**MAYCO INDUSTRIES INC** — Type X-Ray Shielded Gypsum

4D. **Gypsum Board*** — (As an alternate to Item 4 Systems A, B, C, D, E, G, H, and I when used as the base layer, For direct attachment only). Nom 5/8 in. thick lead backed gypsum panels with beveled, square or tapered edges, applied vertically. Vertical joints centered over studs and staggered min 1 stud cavity on opposite sides of studs. Wallboard secured to studs with 1-1/4 in. long Type S-12 steel screws gypsum panel steel screws spaced 8 in. OC at perimeter and 12 in. OC in the field. Lead batten strips required behind vertical joints of lead backed gypsum wallboard and optional at remaining stud locations. Lead batten strips, min 2 in. wide, max 8 ft long with a max thickness of 0.14 in. placed on the face of studs and attached to the stud with construction adhesive and two 1 in. long Type S-12 pan head steel screws, one at the top of the strip and one at the bottom of the strip. Lead discs, nominal 3/8 in. diam by max 0.085 in. thick. Compression fitted or adhered over the screw heads. Lead batten strips and discs to have a purity of 99.9% meeting the Federal specification QQ-L-201f, Grade "C".

**RADIATION PROTECTION PRODUCTS INC** — Type RPP - Lead Lined Drywall

5. **Joint Tape and Compound** — (Not Shown)

**Systems A, B, C, E, F, G, H, I**

Joints on outer layers of gypsum boards (Item 4 and 4A) covered with paper tape and joint compound. Paper tape and joint compound may be omitted when gypsum boards are supplied with square edges. Exposed screw heads covered with joint compound.

6. **Batts and Blankets*** —

**Systems A, B, E, F, G, H, I**

(Optional) — Mineral wool or glass fiber batts partially or completely filling stud cavity. Any mineral wool or glass fiber batt mineral bearing the UL Classification Marking as to Fire Resistance.

**Systems C & D**

Min 3 in. (System C) and min 1-1/2 in. (System D) thick mineral wool batts, friction fitted between the studs and floor and ceiling runners.

**THERMAFIBER INC** — Type SAFB

7. **Cementitious Backer Units*** — (System D) — Nom 1/2 or 5/8 in. thick panels, square edge, attached to studs over gypsum wallboard with 1-5/8 in. long, Type S-12, corrosion resistant steel screws spaced 8 in. OC and staggered 8 in. from gypsum wall board screws. Joints covered with glass fiber mesh tape. Vertical joints staggered one stud cavity from gypsum wallboard joints. Horizontal joints staggered a min of 12 in. from the gypsum wallboard joints.

**UNITED STATES GYPSUM CO** — DUROCK Exterior Cement Board or DUROCK Brand Cement Board.

8. **Laminating Adhesive*** — (Optional, Not Shown) — Used to bond outer layer of Cementitious Backer Units (Item 7) to inner layers of Gypsum Board (Item 4) in System D. ANSI A136.1 Type 1 organic adhesive applied with 1/4 in. square notched trowel. See Adhesives (BYWR) in the Fire Resistance Directory or Adhesives (BJLZ) in the Building Materials Directory for names of Classified companies.

9. **Lead Batten Strips** — (Not Shown, For Use With Item 4A) - Lead batten strips, min 1-1/2 in. wide, max 10 ft long with a max thickness of 0.125 in. Strips placed on the interior face of studs and attached from the exterior face of the stud with two 1 in. long Type S-12 pan head steel screws, one at the top of the strip and one at the bottom of the strip. Lead batten strips to have a purity of 99.9% meeting the Federal specification QQ-L-201f, Grade "C". Lead batten strips required behind vertical joints of lead backed gypsum wallboard (Item 4A) and optional at remaining stud locations. Required behind vertical joints.

9A. **Lead Batten Strips** — (Not Shown, for use with Item 4C) Lead batten strips, 2 in. wide, max 10 ft long with a max thickness of 0.140 in. Strips placed on the face of studs and attached to the stud with two min. 1 in. long min. Type S-8 pan head steel screws, one at the top of the strip and one at the bottom of the strip or with one min. 1 in. long min. Type S-8 pan head steel screw at the top of the strip. Lead batten strips to have a purity of 99.9% meeting the Federal specification QQ-L-201f, Grades "A, B, C or D".. Lead batten strips required behind vertical joints of lead backed gypsum wallboard (Item 6) and optional at remaining stud locations.

10. **Lead Discs or Tabs** — (Not Shown, For Use With Item 4A) - Used in lieu of or in addition to the lead batten strips (Item 9) or optional at other locations - Max 3/4 in. diam by max 0.125 in. thick lead discs compression fitted or adhered over steel screw heads or max 1/2 in. by 1-1/4 in. by max 0.125 in. thick lead tabs placed on gypsum boards (Item 4A) underneath screw locations prior to the installation of the screws. Lead discs or tabs to have a purity of 99.9% meeting the Federal specification QQ-L-201f, Grade "C".

10A. **Lead Discs** — (Not Shown, for use with Item 4C) Max 5/16 in. diam by max 0.140 in. thick lead discs compression fitted or adhered over steel screw heads. Lead discs to have a purity of 99.9% meeting the Federal Specification QQ-L-201f, Grades "A, B, C or D".

11. **Lead Batten Strips** — (Not Shown, For Use With Item 4B) Lead batten strips, 2 in. wide, max 10 ft long with a max thickness of 0.142 in. Strips placed on the face of studs and attached to the stud with two min. 1 in. long min. Type S-8 pan head steel screws, one at the top of the strip and one at the bottom of the strip or with one min. 1 in. long min. Type S-8 pan head steel screw at the top of the strip. Lead batten strips to have a purity of 99.9% meeting the Federal specification QQ-L-201f, Grade "C". Lead batten strips required behind vertical joints of lead backed gypsum wallboard (Item 4B) and optional at remaining stud locations.

12. **Lead Tabs** — (Not Shown, For Use With Item 4B) 2 in. wide, 5 in. long with a max thickness of 0.142 in. Tabs friction-fit around front face of stud, the stud folded back flange, and the back face of the stud. Tabs required at each location where a screw (that secures the gypsum boards, Item 4B) will penetrate the steel stud. Lead tabs to have a purity of 99.9% meeting the Federal specification QQ-L-201f, Grade "C". Lead tabs may be held in place with standard adhesive tape if necessary.

*Bearing the UL Classification Mark

Last Updated on 2012-12-10

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1/31/2014

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| Drawn | MGB |
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| Revisions | |

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**FAST Multi-Modal Center**
City of Fayetteville
Fayetteville, NC

Project Number 621A

Title
**Rated Assemblies**

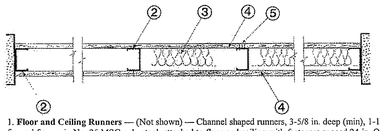
Sheet
**G003**

Plate of

C:\Rev... \FAST CENTRAL 041513_mbutler.rvt

## Design No. U465
January 07, 2013

**Nonbearing Wall Rating — 1 HR.**




1. **Floor and Ceiling Runners** — (Not shown) — Channel shaped runners, 3-5/8 in. deep (min), 1-1/4 in. legs, formed from min No. 25 MSG galv steel, attached to floor and ceiling with fasteners spaced 24 in. OC max.

1A. **Framing Members* — Floor and Ceiling Runners** — (Not shown) — As an alternate to Item 1 - Channel shaped, min 3-5/8 in. deep, attached to floor and ceiling with fasteners 24 in. OC. max.

**ALLSTEEL & GYPSUM PRODUCTS INC** — Type SUPREME Framing System

**CONSOLIDATED FABRICATORS CORP, BUILDING PRODUCTS DIV** — Type SUPREME Framing System

**QUAIL RUN BUILDING MATERIALS INC** — Type SUPREME Framing System

**SCAFCO STEEL STUD MANUFACTURING CO** — Type SUPREME Framing System

**STEEL CONSTRUCTION SYSTEMS INC** — Type SUPREME Framing System

**UNITED METAL PRODUCTS INC** — Type SUPREME Framing System

1B. **Framing Members* - Floor and Ceiling Runners** — Not shown - In lieu of Item 1 — For use with Item 2B, proprietary channel shaped runners, 1-1/4 in. wide by min 3-5/8 in. deep fabricated from min 0.020 in. thick galv steel, attached to floor and ceiling with fasteners spaced 24 in. OC max.

**CALIFORNIA EXPANDED METAL PRODUCTS CO** — Viper20™ Track

**CRACO MFG INC** — SmarterTrack20™, SmartTrack20™

**MARINO/WARE, DIV OF WARE INDUSTRIES INC** — Viper20™ Track

**PHILLIPS MFG CO L L C** — Viper20™ Track

1C. **Floor and Ceiling Runners —** (Not shown)—For use with Item 2C- Channel shaped, fabricated from min 20 MSG corrosion-protected or galv steel, min depth to accommodate stud size, with min 1 in. long legs, attached to floor and ceiling with fasteners spaced max 24 in. OC.

1D. **Framing Members*— Floor and Ceiling Runners** — Not shown - In lieu of Items 1 through 1C — For use with Item 2D and 4G only, proprietary channel shaped runners, 1-1/4 in. deep by min 3-5/8 in. wide fabricated from min 0.018 in. thick galv steel, attached to floor and ceiling with fasteners spaced 24 in. OC max.

**CLARKDIETRICH BUILDING SYSTEMS** — CD ProTRAK

**DMFCWBS L L C** — ProTRAK

**MBA BUILDING SUPPLIES** — ProTRAK

**RAM SALES L L C** — Ram ProTRAK

**SOUTHEASTERN STUD & COMPONENTS INC** — ProTRAK

**STEEL STRUCTURAL SYSTEMS L L C** — Tri-S ProTRAK

1E. **Framing Members*— Floor and Ceiling Runners** — Not shown - In lieu of Items 1 through 1D — For use with Item 2E and 4I only, proprietary channel shaped runners, 1-1/4 in. deep by min 3-5/8 in. wide fabricated from min 0.018 in. thick galv steel, attached to floor and ceiling with fasteners spaced 24 in. OC max.

**TELLING INDUSTRIES L L C** — TRUE-TRACK™

1F. **Framing Members*— Floor and Ceiling Runners** — Not shown - In lieu of Items 1 through 1E — For use with Item 2, channel shaped runners, 1-1/4 in. deep by min 3-5/8 in. wide fabricated from min 25 MSG steel, attached to floor and ceiling with fasteners spaced 24 in. OC max.

**KIRII (HONG KONG) LTD** — Type KIRII

1G. **Framing Members*— Floor and Ceiling Runners** — Not shown - In lieu of Items 1 through 1F — For use with Item 2, channel shaped runners, 1-1/4 in. deep by min 3-5/8 in. wide, attached to floor and ceiling with fasteners spaced 24 in. OC max.

**STUDCO BUILDING SYSTEMS** — CROCSTUD Track

1H. **Floor and Ceiling Runners** — (Not shown) — Channel shaped, fabricated from min 0.02 in. galv steel, min width to accommodate stud size, with min 1 in. long legs, for use with studs specified below and fabricated from min 0.02 in. galv steel or thicker, attached to floor and ceiling with fasteners spaced max 24 in. OC.

**MARINO/WARE, DIV OF WARE INDUSTRIES INC** — Viper20™ Track VT100.

1I. **Framing Members* - Floor and Ceiling Runners** — Not shown - In lieu of Item 1 — For use with Item 2H, proprietary channel shaped runners, 1-1/4 in. wide by min 3-5/8 in. deep fabricated from min 0.020 in. thick galv steel, attached to floor and ceiling with fasteners spaced 24 in. OC max.

**TELLING INDUSTRIES L L C** — Viper20™ Track

2. **Steel Studs —** Channel shaped, 3-5/8 in. deep (min), formed from min No. 25 MSG galv steel spaced 24 in. OC max. Studs to be cut 3/4 in. less than assembly height.

2A. **Framing Members*— Steel Studs** — As an alternate to Item 2 - Channel shaped studs, min 3-5/8 in. deep, spaced a max of 24 in. OC. Studs to be cut 3/4 in. less than assembly height.

**ALLSTEEL & GYPSUM PRODUCTS INC** — Type SUPREME Framing System

**CONSOLIDATED FABRICATORS CORP, BUILDING PRODUCTS DIV** — Type SUPREME Framing System

**QUAIL RUN BUILDING MATERIALS INC** — Type SUPREME Framing System

**SCAFCO STEEL STUD MANUFACTURING CO** — Type SUPREME Framing System

**STEEL CONSTRUCTION SYSTEMS INC** — Type SUPREME Framing System

**UNITED METAL PRODUCTS INC** — Type SUPREME Framing System

2B. **Framing Members* - Steel Studs —** Not shown - In lieu of Item 2 — For use with Item 1B, proprietary channel shaped steel studs, 1-1/4 in. wide by min 3-5/8 in. deep fabricated from min 0.020 in. thick galv steel. Studs cut 3/4 in. less in length than assembly height.

**CALIFORNIA EXPANDED METAL PRODUCTS CO** — Viper20™

**CRACO MFG INC** — SmarterStud20™, SmartStud20™

**MARINO/WARE, DIV OF WARE INDUSTRIES INC** — Viper20™

**PHILLIPS MFG CO L L C** — Viper20™

2C. **Steel Studs —** (As an alternate to Item 2, For use with Item 4E) Channel shaped, fabricated from min 20 MSG corrosion-protected or galv steel, 3-1/2 in. min depth, spaced a max of 16 in. OC. Studs friction-fit into floor and ceiling runners. Studs to be cut 5/8 to 3/4 in. less than assembly height.

2D. **Framing Members*— Steel Studs** — As an alternate to Items 2 through 2C- For use with Item 1D and 4G only, channel shaped studs, min 3-5/8 in. wide fabricated from min 0.018 in. thick galv steel, spaced a max of 24 in. OC. Studs to be cut 1/2 in. less than assembly height.

**CLARKDIETRICH BUILDING SYSTEMS** — CD ProSTUD

**DMFCWBS L L C** — ProSTUD

**MBA BUILDING SUPPLIES** — ProSTUD

**RAM SALES L L C** — Ram ProSTUD

**SOUTHEASTERN STUD & COMPONENTS INC** — ProSTUD

**STEEL STRUCTURAL SYSTEMS L L C** — Tri-S ProSTUD

2E. **Framing Members*— Steel Studs** — As an alternate to Items 2 through 2D- For use with Item 1E and 4I only, channel shaped studs, min 3-5/8 in. wide fabricated from min 0.018 in. thick galv steel, spaced a max of 24 in. OC. Studs to be cut 1/2 in. less than assembly height.

**TELLING INDUSTRIES L L C** — TRUE-STUD™

2F. **Framing Members*— Steel Studs** — As an alternate to Items 2 through 2E- For use with Item 1F, channel shaped studs, min 3-5/8 in. wide fabricated from min 25 MSG steel, spaced a max of 24 in. OC. Studs to be cut 1/2 in. less than assembly height.

**KIRII (HONG KONG) LTD** — Type KIRII

2G. **Framing Members* - Steel Studs —** Not shown - In lieu of Item 2 through 2F - For use with Item 1G. Proprietary channel shaped studs, minimum 3-5/8 in. wide, Studs to be cut 1/2 in. less than the assembly height.

**STUDCO BUILDING SYSTEMS** — CROCSTUD

2H. **Framing Members* - Steel Studs —** Not shown - In lieu of Item 2 — For use with Item 1I, proprietary channel shaped steel studs, 1-1/4 in. wide by min 3-5/8 in. deep fabricated from min 0.020 in. thick galv steel. Studs cut 3/4 in. less in length than assembly height.

**TELLING INDUSTRIES L L C** — Viper20™

3. **Batts and Blankets*** — (Optional) — Mineral wool or glass fiber batts partially or completely filling stud cavity.

See **Batts and Blankets** (BZJZ) category for names of Classified companies.

3A. **Fiber, Sprayed*** — As an alternate to Batts and Blankets (Item 3) — Spray applied cellulose material. The fiber is applied with water to completely fill the enclosed cavity in accordance with the application instructions supplied with the product. Nominal dry density of 3.0 lb/ft$^3$. Alternate application method: The fiber is applied with U.S. Greenfiber LLC Type AD100 hot melt adhesive at a nominal ratio of one part adhesive to 6.6 parts fiber to completely fill the enclosed cavity in accordance with the application instructions supplied with the product. Nominal dry density of 2.5 lb/ft$^2$.

**U S GREENFIBER L L C** — Cocoon2 Stabilized or Cocoon-FRM (Fire Rated Material)

3B. **Fiber, Sprayed*** — As an alternate to Batts and Blankets (Item 3) and Item 3A - Spray applied cellulose insulation material. The fiber is applied with water to interior surfaces in accordance with the application instructions supplied with the product. Applied to completely fill the enclosed cavity. Minimum dry density of 4.3 pounds per cubic ft.

**NU-WOOL CO INC** — Cellulose Insulation

3C. **Fiber, Sprayed*** — As an alternate to Batts and Blankets (Item 3) - Spray applied cellulose fiber. The fiber is applied with water to completely fill the enclosed cavity in accordance with the application instructions supplied with the product. The minimum dry density shall be 4.30 lbs/ft$^3$.

**INTERNATIONAL CELLULOSE CORP** — Celbar-RL

3D. **Batts and Blankets* —** For use with Item 8. Nom 3 in. thick, minimum 3.4 pcf mineral wool batts, friction fit between the studs and floor and ceiling runners.

See **Batts and Blankets** (BZJZ) category for names of manufacturers.

4. **Gypsum Board* —** 5/8 in. thick, 4 ft wide, attached to steel studs and floor and ceiling track with 1 in. long, Type S steel screws spaced 8 in. OC. along edges of board and 12 in. OC in the field of the board. Joints oriented vertically and staggered on opposite sides of the assembly. When attached to Item 6 (resilient channels) or 6A (furring channels), gypsum board is screw attached to furring channels with 1 in. long, Type S steel screws spaced 12 in. OC.

**ACADIA DRYWALL SUPPLIES LTD** — Type X

**AMERICAN GYPSUM CO** — Types AG-C, AGX-1, M-Glass

**BEIJING NEW BUILDING MATERIALS PUBLIC LTD CO** — Type DBX-1.

**CGC INC** — Types AR, C, IP-AR, IP-X1, IP-X2, IPC-AR, SCX, SHX, WRC or WRX.

**CERTAINTEED GYPSUM INC** — Types 1, EGRG, GlasRoc, Type X, Type C, SilentFX, 5/8" Easi-Lite Type X.

**CERTAINTEED GYPSUM CANADA INC** — Type C, Type X, Type Abuse-Resistant, 5/8" Easi-Lite Type X.

**GEORGIA-PACIFIC GYPSUM L L C** — Types 5, 6, 9, C, DAP, DD, DA, DAPC, DGG, DS, GPFS6, LS.

**LAFARGE NORTH AMERICA INC** — Types LGFC2, LGFC2A, LGFC6, LGFC6A, LGFC-C, LGFC-C/A, LGFC-WD, LGLLX.

**NATIONAL GYPSUM CO** — Types FSK, FSK-C, FSK-G, FSW-C, FSW-G, FSW, FSW-3, FSW-5, FSW-6, FSL.

**PABCO BUILDING PRODUCTS L L C, DBA PABCO GYPSUM** — Types PG-C, PG-9, PG-11, PGS-WRS.

**PANEL REY S A** — Types GREX, PRX, RHX, MDX, ETX.

**SIAM GYPSUM INDUSTRY (SARABURI) CO LTD** — Type EX-1

**TEMPLE-INLAND** — Type X, Veneer Plaster Base - Type X, Water Rated - Type X, Sheathing - Type X, Soffit - Type X, TG-C, GreenGlass Type X, Type X ComfortGuard Sound Deadening Gypsum Board.

**THAI GYPSUM PRODUCTS PCL** — Type X, Type C.

**UNITED STATES GYPSUM CO** — Type AR, C, FRX-G, IP-AR, IP-X1, IP-X2, IPC-AR, SCX, SHX, WRC, WRX, USGX (Joint tape and compound, Item 5, optional for use with Type USGX).

**USG MEXICO S A DE C V** — Type AR, C, IP-AR, IP-X1, IP-X2, IPC-AR, SCX, SHX, WRC or WRX.

4A. **Gypsum Board*** — (As alternate to Item 4) - Nom 5/8 in. thick gypsum panels with beveled, square or tapered edges, applied vertically or horizontally. Vertical joints centered over studs and staggered one stud cavity on opposite sides of studs. Horizontal edge joints and horizontal butt joints on opposite sides of studs need not be staggered or backed by steel framing. Panels attached to steel studs and floor runner with 1 in. long Type S steel screws spaced 8 in. OC when applied horizontally, or 8 in. OC along vertical and bottom edges and 12 in. OC in the field when panels are applied vertically. When used in widths other than 48 in., gypsum panels to be installed horizontally.

**CGC INC** — Types AR, C, IP-AR, IP-X1, IP-X2, IPC-AR, SCX, SHX, WRC or WRX.

**CERTAINTEED GYPSUM INC** — Type X, Type C.

**CERTAINTEED GYPSUM CANADA INC** — Type X, Type C.

**GEORGIA-PACIFIC GYPSUM L L C** — Types DAP, DAPC, DGG, DS.

**LAFARGE NORTH AMERICA INC** — Type LGFC6A, LGFC-C/A

**THAI GYPSUM PRODUCTS PCL** — Type X, Type C.

**UNITED STATES GYPSUM CO** — T ype AR, C, FRX-G, IP-AR, IP-X1, IP-X2, IPC-AR, SCX, SHX, WRC, WRX, , USGX (Joint tape and compound, Item 5, optional for use with Type USGX).

**USG MEXICO S A DE C V** — Type AR, C, IP-AR, IP-X1, IP-X2, IPC-AR, SCX, SHX, WRC or WRX.

4B. **Gypsum Board*** — (As an alternate to Items 4 or 4A) — Nom 3/4 in. thick, 4 ft wide, installed as described in Item 4A with screw length increased to 1-1/4 in.

**CGC INC** — Types AR, IP-AR.

**UNITED STATES GYPSUM CO** — Types AR, IP-AR.

**USG MEXICO S A DE C V** — Types AR, IP-AR.

4C. **Gypsum Board*** — As an alternate to Items 4, 4A, and 4B - Nom. 5/8 in. thick gypsum panels, with square edges, applied horizontally. Gypsum panels fastened to framing with 1 in. long bugle head steel screws spaced a max 8 in. OC, with last 2 screws 3/4 in. and 4 in. from each edge of board. Horizontal joints need not be backed by steel framing. Horizontal edge joints and horizontal butt joints on opposite sides of studs on interior walls need not be staggered or backed by steel framing.

**TEMPLE-INLAND** — GreenGlass Type X.

4D. **Gypsum Board*** — As an alternate to Items 4, 4A, 4B, and 4C - Nom. 5/8 in. thick gypsum panels applied horizontally. Horizontal joints need not be backed by steel framing. Horizontal edge joints and horizontal butt joints on opposite sides of studs need not be staggered. Gypsum panels fastened to framing with 1 in. long Type S steel screws 1-1/2 in. from board edges, 3 in. from board edge and every 8 in. OC in the field. Screws spaced a max 12 in. along the top and bottom edges of the wall.

**NATIONAL GYPSUM CO** — Types FSK, FSK-C, FSK-G, FSW-C, FSW-G, FSW.

4E. **Gypsum Board*** — (As an alternate to Items 4 through 4D) - Installed as described in Item 4. 5/8 in. thick, 4 ft. wide, paper surfaced, applied vertically only and fastened to the studs and plates with 1 in. long, Type S steel screws spaced, 8 in. OC. Not to be used with item 6.

**NATIONAL GYPSUM CO** — SoundBreak XP Type X Gypsum Board

4F. **Gypsum Board*** — (Not Shown) - (As an alternate to Item 4 when used as the base layer on one or both sides of wall. For direct attachment only to steel studs Item 2C) - Nom 5/8 in. thick lead backed gypsum panels with beveled, square or tapered edges, applied vertically. Vertical joints centered over studs and staggered min 1 stud cavity on opposite sides of studs. Gypsum board secured to studs with 1-1/4 in. long Type S-12 steel screws spaced 8 in. OC at perimeter and 12 in. OC in the field.

**RAY-BAR ENGINEERING CORP** — Type RB-LBG

4G. **Gypsum Board*** — (As an alternate to Items 4 through 4F) — For use with Items 1D and 2D only, 5/8 in. thick, 4 ft wide, attached to steel studs and floor and ceiling track with 1 in. long, Type S steel screws spaced 8 in. OC. along edges of board and 12 in. OC in the field of the board. Joints oriented vertically and staggered on opposite sides of the assembly.

**LAFARGE NORTH AMERICA INC** — Type LGFC6A, LGFC-C/A

**NATIONAL GYPSUM CO** — Types FSW

**UNITED STATES GYPSUM CO** — Type SCX

4H. **Wall and Partition Facings and Accessories*** — (As an alternate to Items 4 through 4G) — Nominal 5/8 in. thick, 4 ft wide panels, applied vertically and secured as described in Item 4.

**SERIOUS ENERGY INC** — Types QuietRock ES, QuietRock 527.

4I. **Gypsum Board*** — (As an alternate to Items 4 through 4F) — For use with Items 1E and 2E only, 5/8 in. thick, 4 ft wide, attached to steel studs and floor and ceiling track with 1 in. long, Type S steel screws spaced 8 in. OC. along edges of board and 12 in. OC in the field of the board. Joints oriented vertically and staggered on opposite sides of the assembly.

**UNITED STATES GYPSUM CO** — Type SCX

4J. **Gypsum Board*** — (Not Shown) - (As an alternate to Item 4 when used as the base layer on one or both sides of wall. For direct attachment only to steel studs Item 2C) - Nom 5/8 in. thick lead backed gypsum panels with beveled, square or tapered edges, applied vertically. Vertical joints centered over studs and staggered min 1 stud cavity on opposite sides of studs. Gypsum board secured to studs with 1-1/4 in. long Type S-12 steel screws spaced 8 in. OC at perimeter and 12 in. OC in the field. To be used with Lead Batten Strips (see Item 9A) or Lead Discs (see Item 10A).

**MAYCO INDUSTRIES INC** — Type X-Ray Shielded Gypsum

4K. **Gypsum Board*** — (As an alternate to Item 4 and 4A, not for use with Items 1D, 1E, 2D and 2E) - Nom. 5/8 in. thick gypsum panels with beveled, square or tapered edges installed as described in Item 4 and 4A.

**CGC INC** — Type ULX

**UNITED STATES GYPSUM CO** — Type ULX

**USG MEXICO S A DE C V** — Type ULX

4L. **Gypsum Board*** — (Not Shown) - (As an alternate to Item 4 when used as the base layer on one or both sides of wall. For direct attachment only to steel studs Item 2C). Nom 5/8 in. thick lead backed gypsum panels with beveled, square or tapered edges, applied vertically. Vertical joints centered over studs and staggered min 1 stud cavity on opposite sides of studs. Wallboard secured to studs with 1-1/4 in. long Type S-12 steel screws gypsum panel steel screws spaced 8 in. OC at perimeter and 12 in. OC in the field. Lead batten strips required behind vertical joints of lead backed gypsum wallboard and optional at remaining stud locations. Lead batten strips, min 2 in. wide, max 8 /8 long with a max thickness of 0.14 in. placed on the face of studs and attached to the stud with construction adhesive and two 1 in. long Type S-12 pan head steel screws, one at the top of the strip and one at the bottom of the strip. Lead discs, nominal 3/8 in. diam by max 0.085 in. thick. Compression fitted or adhered over the screw heads. Lead batten strips and discs to have a purity of 99.9% meeting the Federal specification QQ-L-201 f, Grade "C".

**RADIATION PROTECTION PRODUCTS INC** — Type RPP - Lead Lined Drywall

4M. **Gypsum Board*** — (For use with Item 8) - 5/8 in. thick, 4 ft wide, applied vertically over Mineral and Fiber Board (Item 8) with vertical joints located anywhere over stud cavities. Secured to mineral and fiber boards with 1-1/2 in. Type G Screws spaced 8 in. OC along edges of each vertical joint and 12 in. OC in intermediate field of the Mineral and Fiber Board (Item 8). Secured to outermost studs and floor and ceiling runners with 2 in. long Type S screws spaced 8 in. OC. Gypsum Board joints covered with paper tape and joint compound. Screw heads covered with joint compound.

**AMERICAN GYPSUM CO** — Type AG-C

**CERTAINTEED GYPSUM INC** — Type FRPC, Type C

**CERTAINTEED GYPSUM CANADA INC** — Type C

**CGC INC** — Types C, IP-X2, IPC-AR

**GEORGIA-PACIFIC GYPSUM L L C** — Types 5, DAPC

**LAFARGE NORTH AMERICA INC** — Types LGFC-C, LGFC-C/A

**NATIONAL GYPSUM CO** — Types FSK-C, FSW-C

**PABCO BUILDING PRODUCTS L L C, DBA PABCO GYPSUM** — Type PG-C.

**PANEL REY S A** — Type PRC

**TEMPLE-INLAND** — Type TG-C

**THAI GYPSUM PRODUCTS PCL** — Type C

**UNITED STATES GYPSUM CO** — Types C, IP-X2, IPC-AR

**USG MEXICO S A DE C V** — Types C, IP-X2, IPC-AR

5. **Joint Tape and Compound —** Vinyl, dry or premixed joint compound, applied in two coats to joints and screw heads; paper tape, 2 in. wide, embedded in first layer of compound over all joints. As an alternate, nominal 3/32 in. thick gypsum veneer plaster may be applied to the entire surface of Classified veneer baseboard. Joints reinforced. Paper tape and joint compound may be omitted when gypsum boards are supplied with square edges.

6. **Resilient Channel** — (Optional-Not Shown) — 25 MSG galv steel resilient channels spaced vertically max 24 in. OC, flange portion attached to each intersecting stud with 1/2 in. long type S-12 pan head steel screws. May not be used with Item 4F or 4J.

6A. **Steel Framing Members (Not Shown)*** — As an alternate to Item 3, furring channels and resilient sound isolation clip as described below:

a. **Furring Channels** — Formed of No. 25 MSG galv steel. 2-9/16 in. or 2-23/32 in. wide by 7/8 in. deep, spaced 24 in. OC perpendicular to studs. Channels secured to studs as described in Item b. Ends of adjoining channels are overlapped 6 in. and tied together with double strand of No. 18 SWG galv steel wire near each end of overlap. As an alternate, ends of adjoining channels may be overlapped 6 in. and secured together with two self-tapping No. 6 framing screws, min 7/16 in. long at the midpoint of the overlap, with one screw on each flange of the channel.

b. **Framing Members*** — Used to attach furring channels (Item a) to studs (Item 1). Clips spaced 48 in. OC., and secured to studs with 1-5/8 in. wafer or hex head Type S steel screw through the center grommet. Furring channels are friction fitted into clips. RSIC-1 clip for use with 2-9/16 in. wide furring channels. RSIC-1 (2.75) clip for use with 2-23/32 in. wide furring channels.

**PAC INTERNATIONAL INC** — Types RSIC-1, RSIC-1 (2.75).

6B. **Framing Members*** — Optional - Not Shown - Used as an alternate method to attach resilient channels (Item 6). Clips attached at each intersection of the resilient channel and the steel studs (Item 2). Resilient channels are friction fitted into clips, and then clips are secured to the stud with min. 1 in. long Type S-12 pan head steel screws through the center hole of the clip and the resilient channel flange.

**KEENE BUILDING PRODUCTS CO INC** — Type RC Assurance.

7. **Wall and Partition Facings and Accessories*** — (Optional, Not shown) — Nominal 1/2 in. thick, 4 ft wide panels, for optional use as an additional layer on one or both sides of the assembly. Panels attached in accordance with manufacturer's recommendations. When the QR-510 panel is installed between the steel

framing and the UL Classified gypsum board, the required UL Classified gypsum board layer(s) is/are to be installed as indicated as to fastener type and spacing, except that the required fastener length shall be increased by a minimum of 1/2 in. Not evaluated or intended as a substitute for the required layer(s) of UL Classified Gypsum Board.

**SERIOUS ENERGY INC —** Type QuietRock QR-510.

8. **Mineral and Fiber Board*** — (Optional, Not shown) — For optional use as an additional layer on one side of wall. Nom 1/2 in. thick, 4 ft wide with long dimension parallel and centered over studs. Attached to studs and floor and ceiling runners with 1-5/8 in. long Type S steel screws, spaced 12 in. OC and 24 in. OC along all intermediate framing. The required UL Classified gypsum board layer (Item 4M) is to be installed over the Mineral and Fiber Boards. Batts and Blankets, Item 3D, and Adhesive, Item 11, are required.

**HOMASOTE CO** — Homasote Type 440-32

9. **Lead Batten Strips —** (Not Shown, For Use With Item 4E) - Lead batten strips, min 1-1/2 in. wide, max 10 ft long with a max thickness of 0.125 in. Strips placed on the interior face of studs and attached from the exterior face of the stud with two 1 in. long Type S-12 pan head steel screws, one at the top of the strip and one at the bottom of the strip. Lead batten strips to have a purity of 99.9% meeting the Federal specification QQ-L-201f, Grade "C". Lead batten strips required behind vertical joints of lead backed gypsum board (Item 4E) and optional at remaining stud locations. Required behind vertical joints.

9A. **Lead Batten Strips** — (Not Shown, for use with Item 4J) Lead batten strips, 2 in. wide, max 10 ft long with a max thickness of 0.140 in. Strips placed on the face of studs and attached to the stud with two min. 1 in. long min. Type S-8 pan head steel screws, one at the top of the strip and one at the bottom of the strip or with one min. 1 in. long min. Type S-8 pan head steel screw at the top of the strip. Lead batten strips to have a purity of 99.9% meeting the Federal specification QQ-L-201f, Grades "A, B, C or D". Lead batten strips required behind vertical joints of lead backed gypsum wallboard (Item 4J) and optional at remaining stud locations.

10. **Lead Discs or Tabs** — (Not Shown, For Use With Item 4E) - Used in lieu of or in addition to the lead batten strips (Item 8) or optional at other locations - Max 3/4 in. diam by max 0.125 in. thick lead discs compression fitted or adhered over steel screw heads or max 1/2 in. by 1-1/4 in. by max 0.125 in. thick lead tabs placed on gypsum boards (Item 4E) underneath screw locations prior to the installation of the screws. Lead discs or tabs to have a purity of 99.9% meeting the Federal specification QQ-L-201f, Grade "C".

10A. **Lead Discs** — (Not Shown, for use with Item 4J) Max 5/16 in. diam by max 0.140 in. thick lead discs compression fitted or adhered over steel screw heads. Lead discs to have a purity of 99.9% meeting the Federal Specification QQ-L-201f, Grades "A, B, C or D".

11. **Adhesive —** Not Shown - (For use with Item 8) - Construction grade adhesive applied in vertical, serpentine, nominal 3/8 in. wide beads down the length of both vertical edges of Mineral and Fiber Board (Item 8).

*Bearing the UL Classification Mark

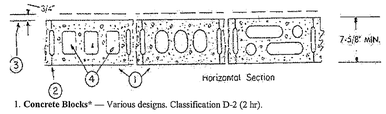
Last Updated on 2013-01-07

## Design No. U905
September 30, 2010

**Bearing Wall Rating — 2 HR.**

**Nonbearing Wall Rating — 2 HR**

**Load Restricted for Canadian Applications — See Guide BXUV7**




1. **Concrete Blocks*** — Various designs. Classification D-2 (2 hr).

See **Concrete Blocks** category for list of eligible manufacturers.

2. **Mortar** — Blocks laid in full bed of mortar, nom. 3/8 in. thick, of not less than 2-1/4 and not more than 3-1/2 parts of clean sharp sand to 1 part Portland cement (proportioned by volume) and not more than 50 percent hydrated lime (by cement volume). Vertical joints staggered.

3. **Portland Cement Stucco or Gypsum Plaster —** Add 1/2 hr to classification if used. Where combustible members are framed in wall, plaster or stucco must be applied on the face opposite framing to achieve a max. Classification of 1-1/2 hr. Attached to concrete blocks (Item 1).

4. **Loose Masonry Fill** — If all core spaces are filled with loosc dry expanded slag, expanded clay or shale (Rotary Kiln Process), water repellant vermiculite masonry fill insulation, or silicone treated perlite loose fill insulation add 2 hr to classification.

5. **Foamed Plastic*** — (Optional-Not Shown) — 1-1/2 in. thick max, 4 ft wide sheathing attached to concrete blocks (Item 1).

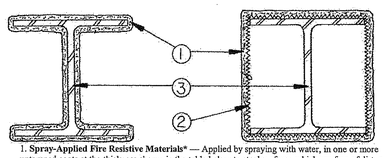
**THE DOW CHEMICAL CO** — Type Thermax Sheathing, Thermax Light Duty Insulation, Thermax Heavy Duty Insulation, Thermax Metal Building Board, Thermax White Finish Insulation, Thermax ci Exterior Insulation, Thermax IH Insulation, Thermax Plus Liner Panel and Thermax Heavy Duty Plus (HDP)

*Bearing the UL Classification Mark

Last Updated on 2010-09-30

## Design No. X829
June 24, 2008

**Ratings — 1/2, 1, 1-1/2, 2, 3, 4 Hr**




1. **Spray-Applied Fire Resistive Materials*** — Applied by spraying with water, in one or more untamped coats at the thickness shown in the table below to steel surfaces which are free of dirt, oil or scale. Use of adhesive is optional. Minimum average untamped density is 13 pcf with minimum ind untamped density of 11 pcf for Types II and D-C/F. Min avg and min ind untamped densities of 22 and 19 pcf, respectively, for Type HP. Tamping is optional. For method of density determination refer to Design Information Section.

The thickness of Spray-Applied Fire Resistive Materials (Item 1) required for rating periods of 1 h, 1-1/2 h, 2 h, 3 h, 4 h of contour sprayed columns may be determined by the equation:

$$h = \frac{R}{1.01\ (W/D) + 0.66}$$

Where:

h=Protection material thickness in the range 0.375-3.75 in.

R=Fire resistance rating in hours (1-4 h).

D=Heated perimeter of steel column in inches.

W=Weight of steel column in lbs per foot.

W/D=0.55 to 7.0

The thickness of Spray-Applied Fire Resistive Materials in the range of 0.375-3.75 in. required for rating periods of 1 h, 1-1/2 h, 2 h, 3 h, 4 h of contour sprayed columns with W/D=0.30-0.55 may be determined by the equation:

$$h = \frac{R}{0.95\ (W/D) + 0.45}$$

As an alternative to the equations, the minimum thickness of protection Material required for various fire resistance ratings of contour or box sprayed columns may be determined from the table below:

| Column Size | W/D | Min Thkns In. | | | | |
|---|---|---|---|---|---|---|
| | | 1 Hr | 1-1/2 Hr | 2 Hr | 3 Hr | 4 Hr |
| W8X10 | 0.33 | 1-1/4 | 1-13/16 | 2-5/16 | 3-9/16 | — |
| *W6X16 | 0.57 | 11/16 | 1-1/8 | 1-9/16 | 2-7/16 | 3-1/4 |
| W8X28 | 0.68 | 11/16 | 1-1/8 | 1-7/16 | 1-7/8 | 2-5/16 |
| W10X49 | 0.83 | 11/16 | 1 | 1-1/4 | 1-11/16 | 2-1/8 |
| W12X106 | 1.46 | 7/16 | 3/4 | 1 | 1-7/16 | 1-15/16 |
| W14X233 | 2.52 | 5/16 | 1/2 | 1/2 | 15/16 | 1-5/16 |
| W14X730 | 6.68 | 3/8 | 3/8 | 3/8 | 3/8 | 9/16 |
| * = A 1/2 Hour Rating may be obtained on a minimum W6x16 column with a minimum 3/8 in. of material. | | | | | | |
| The thicknesses of protection material contained in the table below are applicable when the protection of the contour sprayed column's flange tips are reduced to one-half. | | | | | | |
| W8X10 | 0.33 | 1-3/8 | 2 | 2-5/8 | — | — |
| W6X16 | 0.57 | 13/16 | 1-5/16 | 1-3/4 | 2-3/4 | 3-11/16 |
| W8X28 | 0.68 | 13/16 | 1-5/16 | 1-11/16 | 2-9/16 | 3-7/16 |
| W10X49 | 0.83 | 13/16 | 1-1/8 | 1-7/16 | 1-15/16 | 2-7/16 |
| W12X106 | 1.46 | 1/2 | 13/16 | 1-1/8 | 1-5/8 | 2-3/16 |
| W14X233 | 2.52 | 7/16 | 9/16 | 9/16 | 1-1/16 | 1-1/2 |
| W14X730 | 6.68 | 3/8 | 3/8 | 3/8 | 1/2 | 11/16 |

**ISOLATEK INTERNATIONAL** — Type D-C/F, HP or II. Type D-C/F, HP or II investigated for exterior use. Type EBS or Type X adhesive/sealer optional.

2. **Metal Lath** — (Optional for contour application) — 3.4 lb/sq yd galvanized or painted expanded steel lath. Lath shall be lapped 1 in. and tied together with No. 13 SWG galvanized steel wire spaced vertically 6 in. O.C. or alternately, attached with No. 24 MSG spring clips, 1/2 in. wide, pushed onto column flanges, vertically spaced 6 in. O.C.

3. **Steel Column** — Min. sizes as shown above in Item 1.

*Bearing the UL Classification Mark

Last Updated on 2008-06-24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404.876.9272 Tel


REGISTERED ARCHITECTS, ENGINEERS & LANDSCAPE ARCHITECTURAL CORPORATION — 52852 — NORTH CAROLINA — CHARLOTTE, NC

HARVEY B. GANTT — REGISTERED ARCHITECT — 2048 — NORTH CAROLINA — CHARLOTTE, NC

1/31/2014

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| Drawn | MGB |
| Checked | LW |
| Date | January 31, 2014 |
| Revisions | |


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**FAST Multi-Modal Center**
City of Fayetteville
Fayetteville, NC

Project Number 621A

Title
**Rated Assemblies**

Sheet
**G004**

Plate of

## Design No. D902

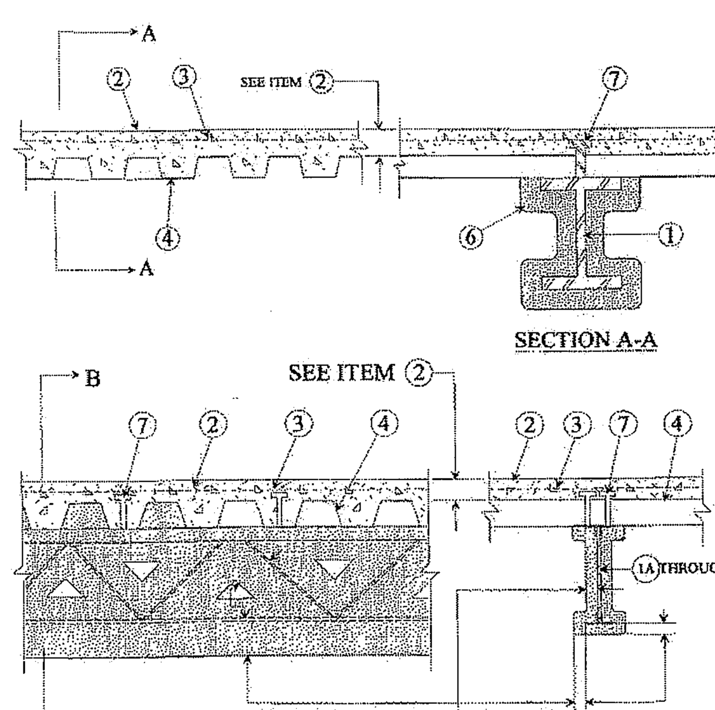
December 26, 2012

**Restrained Assembly Ratings — 1, 1-1/2, 2 and 3 Hr.**

**Unrestrained Assembly Ratings — 0, 1, 1-1/2, 2 or 3 Hr. (See Items 4 & 6)**

**Unrestrained Beam Ratings — 1, 1-1/2, 2 and 3 Hr.**

**Load Restricted for Canadian Applications — See Guide BXUV7**




1. **Beam** — W12X14, W8X28, W8x24 or W6x12, min size, see Items 6A through 6E.

1A. **Steel Joists** — (Not shown) — As an alternate to Item 1 — Composite or noncomposite min 8k1 or min depth and weight shall be 8 in. and 4.9 lb/ft respectively. May be uncoated or provided with a shop coat of paint. Designed per S.J.I. specifications for a max design stress of 30, 000 psi (30 ksi). Welded or bolted to end supports. The top chords shall consist of two angles measuring 1-1/4 by 1-1/4 by 0.127 in. thick. Bottom chords shall consist of two round bars measuring 0.566 in. in diam. or two angles measuring 1 by 1 by 0.125 in. thick. Bearing plates shall consist of two angles measuring 1-1/2 by 2 by 0.188 in. thick and 5-1/16 in. long. Web members shall consist of 0.565 in. diam bars.

1B. **Steel Joists** — (Not shown) — As an alternate to Item 1 — Composite or noncomposite min 12k5 or min depth and weight shall be 12 in. and 7.1 lb/ft respectively. May be uncoated or provided with a shop coat of paint. Designed per S.J.I. specifications for a max design stress of 30, 000 psi (30 ksi). Welded or bolted to end supports. Top chords shall consist of two angles measuring 1-1/2 by 1-1/2 by 0.156 in. thick. Bottom chords shall consist of two round bars measuring 0.675 in. in diam. or two angles measuring 1 by 1 by 0.125 in. thick. Bearing plates shall consist of two angles measuring 2 by 2 by 0.192 in. thick and shall be min 4-15/16 in long. The second web member at each end shall consist of 0.654 in. diam round bar. All remaining web members, including the end web members, shall consist of 0.774 in. diam round bars. Bridging per S.J.I. specifications is required when noncomposite joists are used.

1C. **Steel Joists** — (Not shown) — As an alternate to Item 1 — Composite or noncomposite min 12k5 or min depth and weight shall be 12 in. and 7.1 lb/ft respectively. May be uncoated or provided with a shop coat of paint. Designed per S.J.I. specifications for a max design stress of 30, 000 psi (30 ksi). Welded or bolted to end supports. Top chords shall consist of two angles measuring 1-1/2 by 1-1/2 by 0.156 in. thick. Bottom chord shall consist of two round bars measuring 0.675 in. in diam. or two nangles measuring 1 by 1 by 0.125 in. thick. The second web member at each end shall consist of 0.654 in. diam round bar. All remaining web members, including the end web members, shall consist of 0.774 in. diam round bars. Bridging per S.J.I. specifications is required when noncomposite joists are used.

1D. **Steel Joists** — (Not shown) — As an alternate to Item 1 — Composite or noncomposite min 8k1 or min depth and weight shall be 8 in. and 4.9 lb/ft respectively. May be uncoated or provided with a shop coat of paint. Designed per S.J.I. specifications for a max design stress of 30, 000 psi (30 ksi). Welded or bolted to end supports. The top chords shall consist of two angles measuring 1-1/4 by 1-1/4 by 0.127 in. thick. Bottom chords shall consist of two round bars measuring 0.566 in. in diam. or two angles measuring 1 by 1 by 0.125 in. thick. Bearing plates shall conform to S.J.I. specifications . Web members shall consist of 0.565 in. diam bars.

2. **Normal Weight or Lightweight Concrete** — Normal weight concrete, carbonate or siliceous aggregate, 3500 psi compressive strength, vibrated. Lightweight concrete, expanded shale or slate aggregate by rotary-kiln method or expanded clay aggregate by rotary-kiln or sintered-grate method, 3000 psi compressive strength, vibrated, 4 to 7 per cent entrained air.

| Restrained Assembly Rating Hr | Concrete (Type) | Concrete Unit Weight pcf | Concrete Thkns In. |
|---|---|---|---|
| 1 | Normal Weight | 147-153 | 3-1/2 |
| 1-1/2 | Normal Weight | 147-153 | 4 |
| 2 | Normal Weight | 147-153 | 4-1/2 |
| 3 | Normal Weight | 147-153 | 5-1/4 |
| 1 | Lightweight | 107-113 | 2-1/2 |
| 1 | Lightweight | 107-120 | 2-5/8 |
| 1-1/2 | Lightweight | 107-113 | 3 |
| 2 | Lightweight | 107-113 | 3-1/4 |
| 2 | Lightweight | 107-116 | 3-1/4* |
| 2 | Lightweight | 114-120 | 3-1/2 |
| 3 | Lightweight | 107-113 | 4-3/16 |
| 3 | Lightweight | 114-120 | 4-7/16 |

*With 2 and 3 in. deep steel floor units only.

3. **Welded Wire Fabric** — 6x6 10/10 SWG.

3A. **Negative Reinforcement** — (Not Shown) - Optional - Used in lieu of Item 3 and with Items 3B or 3C. For floor spans with concrete cast continuous over the supporting beams. Deformed bars designed to resist the support moments of the concrete slab in accordance with the latest ACI Building Code Specifications.

3B. **Fiber Reinforcement*** — (Not Shown) - Required with Item 3A. Engineered synthetic fibers added to concrete mix to control shrinkage cracks in concrete. Fibers added to concrete mix at rate of 1 lb of fiber for each cubic yard of concrete.

**PROPEX OPERATING COMPANY L L C** — Fibermesh 150 and Fibermesh 300.

3C. **Fiber Reinforcement*** — (Not Shown) - Required with Item 3A. Any fiber reinforcement bearing the UL Classification Marking for Fire Resistance, Classified for use in lieu of welded wire fabric.

See **Fiber Reinforcement** (CBXQ) Category for names of manufacturers.

4. **Steel Floor and Form Units*** — Composite 1-1/2, 1-5/8 , 2 or 3 in. deep galv units or 4-1/2 in. deep non-composite galv units. Fluted units may be phos/ptd. Min gauges are 22 MSG for fluted and 20/20 for cellular and partial cellular units. The following combinations of units may be used:

(1) All 24, 26, 28 or 36 in. wide cellular or partial cellular.

(2) All fluted.

(3) One or two 3 in. deep, 12 in. wide, 18/18 MSG min cellular alternating with 3 in. deep fluted or other cellular.

(4)Any blend of fluted and 24, 26, 28 or 36 in. wide cellular or partial cellular.

(5)Corrugated, nom 1-5/16 or 2 in. deep, 30 in. wide, 24 MSG min galv units with shear wires factory welded to deck corrugations. Welded to supports 12 in. OC through welding washers. For shear wire spacing of 8 in. or less the steel deck stress shall not exceed 20 KSI. For shear wire spacing greater than 8 in. OC but less than or equal to 12 in. OC steel deck stress shall not exceed 12 KSI.

**ASC STEEL DECK, DIV OF ASC PROFILES INC** — 24, 30, or 36 in. wide, Types B Hi-Form, BF Hi-Form, BMOD Hi-Form, BR Hi-Form, BR MOD Hi-Form, N Hi-Form, NF Hi-Form, 2W Hi-Form, 2WF Hi-Form, 3W Hi-Form, 3WF Hi-Form, B, BF, BR, BR MOD, B MOD, N,NF, 2W, 2WF, 3W, 3WF BR Hi-Form, BMOD Hi-Form, BRMOD Hi-Form, DGB, DGBF, DGN, DGNF, DG2W, DG2WF, DG3W, DG3WF, DGB Hi-Form, DGBF Hi-Form, DGN Hi-Form, DGN32 Hi-Form, DGNF Hi-Form, DGNF32 Hi-Form, DG2W Hi-Form, DG2WF Hi-Form, DG3W Hi-Form, and DG3WF Hi-Form; 32 in. wide Type N-32, NF32, DGN-32, DGNF32; 24 or 30 in. wide Types ASC2, ASC3. All units may be galvanized or Prime Shield.

**CANAM STEEL CORP** — 24 in. wide Type P-2432 composite or 36 in. wide Type P-3623, P-3606, P-3615 and 24 in wide Type P-2432 composite, Type P-3606 and P-3615 non-composite

**CENTRIA** — QL Types, 24 in. wide, 3 or 3 inverted, UKX, 21 or 21 inverted, 2 in. 99, 121, AKX, NKX, TKX; 24 or 30 in. wide GKX, GKXH, GKX-A; 36 in. wide 2 in. 99, AKX, WKX; 12 in. wide NKC, TKC; 12 in. wide non-composite Sec 12. Side joints of 99, 121, TKC, TKX, WKX may be welded together 60 in. OC. Side joints of 99, AKX, WKX, GKX, GKX-A, TKX may be fastened together with min 1 in. long No. 12x14 self-drilling, self-tapping steel screws 36 in. OC.

**CHIA TEH CONSTRUCTION MATERIAL CO LTD** — 24 or 36 in. wide Mac-Lok 3; 24 in. wide CFD-3.

**CANAM STEEL CORP** — 12 or 24 in. wide, Types 1-1/2, 2, or 3 in. LOK-Floor and LOK-Floor Cell; 36 in. wide, Types 2 or 3 in. LOK-Floor and LOK-Floor Cell; 24, 30 or 36 in. wide, Type 1-1/2 in. B-LOK and B-LOK Cell; 24 in. wide, Types N-LOK and N-LOK Cell.

**CONSOLIDATED SYSTEMS INC** — 24 in. wide Types CFD-2, CFD-3; 24, 30 or 36 in. wide Type CFD-1.5; 24 or 36 in. wide Types Mac-Lok 2, Mac-Lok 3; 24 in. wide Types B2C, B2FC, NC, NFC; 30 in. wide, Type B3C; 12 in. wide Mac-Way Cellular 45 MDW, 2-633 MTWA, 3-633 MTWA+. 30 in. wide, Mac-Cor Types 1 and 2

**DECK WEST INC** — 36 in. wide Type B-DW, Inverted B-DW, BA-DW, Inverted BA-DW, 2-DW or 3-DW. Side joints of Type 2-DW and 3-DW may be fastened together with min 1 in. long No. 12 x 14 self-drilling, self-tapping steel screws 36 in. OC.

**DESIGN ASSISTANCE CONSTRUCTION SYSTEMS INC** — 36 in. wide Type DACS1.5CD, or 24 in. wide Type DACS2.0CD, or DACS3.0CD.

**EPIC METALS CORP** — 24 in. wide Types EC150, EC150 inverted, EC300, EC366, ECP150, ECP300, ECP366, ECA; 30 in. wide Types ECB150, ECBR150; 36 in. wide Types EC156, EC266, ECP266.

**GENS METALS INC** — 12 or 24 in. wide Types LF2, LF3.

**MARLYN STEEL DECKS INC** — Type 1.5 CF, 2.0 CF or 3.0 CF.

**MORIN CORP** — 24, 30 or 36 in. wide Types LXR-B, LXR-B inverted; 24 or 36 in. wide Type LXR-3W; 36 in. wide Type LXR-2W.

**NEW MILLENNIUM BUILDING SYSTEMS L L C** — Type 1.5CD, 1.5CDI, 1.5CDR, 2.0CD, or 3.0CD. Units may be phos/painted or galvanized.

**ROOF DECK INC** — 36 in. wide Types LOK-1-1/2, LOK-1-1/2R; 24 in. wide Types LOK-2, LOK-3.

**VERCO DECKING INC - A NUCOR CO** — 24, 30 or 36 in. wide Types PLB, PLBCD, B, BCD, BR; 24 or 36 in. wide Types PLW2, PLW2CD, W2, W2CD, PLW3, PLW3CD, W3, W3CD; 24 in. wide Types PLN, PLNCD, N, NCD . 12 in. wide PLW2, W2, PLW3 or W3 units may be blended with 24 or 36 in. wide PLW2, W2, PLW3 or W3 units, respectively. Fluted units may be phos/ptd.

**VALLEY JOIST** — 24 or 36 in. wide Types WVC 1-1/2 or WVC 2.

**VULCRAFT, DIV OF NUCOR CORP** — 24, 30 or 36 in. wide, Type 1.5 VL, 1.5VLI, 1.5VLP; 24 or 36 in. wide, Types 2VLI, 3VLI, 2VLP, 3VLP.

**WIREMOLD CO** — 24 in. wide, Types 2 or 3 in. WDR.

Spacing of welds attaching units to supports shall be 12 in. OC for 12, 24, 36 in. wide units, four welds per sheet for 30 in. wide units. 6 in. OC for 18 in. wide and Sec. 12 units. Unless specified otherwise for specific units types, adjacent units button-punched or welded together 36 in. OC along side joints. For **3 Hr Rating,** units with overlapping type side joints welded together 24 in. OC max.

When a superimposed load of 250 PSF is desired the spacing of welds or button-punches shall not exceed 24 in. OC along side joints.

+12 in. wide, 1-1/2 in. deep Mac-Way units may be blended with 24 in. wide B2C or 30 in wide B3C units in a blend of one cell to one or more fluted units. 12 in. wide, 2 in. deep Mac-Way units may be blended with 24 or 36 in. wide Mac-Lock units in a blend of one cell to one or more fluted units. 12 in. wide, 3 in. deep Mac-Way units may be blended with 24 or 36 in. wide Mac-Lock 3 units in a blend of one cell to one or more fluted units. The side edge of the fluted units is placed on the top of the side edge of the Mac-Way unit and the two are

welded together with welding washers spaced a max. of 32 in. OC for Mac-Lock 2 or 3 units and a max of 24 in. OC for the B2C or B3C units.

Alternate Construction — Noncomposite units of the same type listed above may be used provided allowable loading is calculated on the basis of noncomposite design.

The Unrestrained Assembly Rating is equal to the Unrestrained Beam Rating (See Item 6) for a max 3 Hr and is limited to the following units and limitations:

(a) 1-1/2, 2 and 3 in. deep, 24 in. wide, 22 MSG or thicker fluted with clear spans not more than 7 ft, 8 in.

(b) 1-1/2, 2 and 3 in. deep, 24 in. wide, 20 MSG or thicker fluted with clear spans not more than 8 ft, 8 in.

(c) 1-1/2 and 2 in. deep, 24 in. wide, 16 MSG or thicker fluted and 18/18 MSG or thicker cellular with clear spans not more than 9 ft, 11 in.

(d) 3 in. deep, 36 in. wide, 18 MSG or thicker fluted and 24 in. wide, 20/18 MSG or thicker cellular with clear spans not more than 13 ft, 2 in.

For assemblies utilizing 3-1/4 in. lightweight concrete topping with a max Restrained Assembly Rating of 2 Hr, the Unrestrained Assembly Rating is equal to the Unrestrained Beam Rating (See Item 6) and is limited to the following floor units and spans:

(a) 1-1/2, 2 and 3 in. deep, 24 or 36 in. wide, 22 MSG fluted and 20/20 MSG cellular with clear spans not more than 9 ft, 6 in.

(b) 2 and 3 in. deep, 24 or 36 in. wide, 20 MSG fluted and 20/20 MSG cellular with clear spans not more than 10 ft, 0 in.

(c) 3 in. deep, 24 in. wide, 20 MSG fluted and 20/20 MSG cellular with clear spans not more than 13 ft, 2 in.

5. **Joint Cover** — (Use with fluted units optional — Not Shown) — 2 in. wide cloth adhesive tape applied following the contour of the units.

6. **Spray-Applied Fire Resistive Materials*** — Applied by spraying with water, in one coat to a final thickness as shown above and in table below to steel beam surface which is free of dirt, oil or scale. When fluted steel deck is used and the fire protection thickness selected is based on all fluted deck, the area between the steel deck and the top flange of the steel beam shall be filled. When fluted steel deck is used and the steel beam is sprayed with the thicknesses applicable to cellular or blended units, the area between the steel deck and the top flange of the steel beam shall be plugged. Use of adhesive is optional. Min avg untamped density is 13 pcf with min ind untamped density of 11 pcf for Types II or DC/F. Min avg and min ind untamped densities of 22 and 19 pcf, respectively, for Type HP. Tamping is optional. For method of density determination, refer to Design Information Section. The thickness of the Spray-Applied Fire Resistive Materials on the Structural Members (Item 1, 1A, or 1B) shall be as follows:

| Restrained Assembly Rating Hr | Unrestrained Beam Rating Hr | Concrete Type | Protection Mtl Thkns on Structural Member In. W8x28 When Deck Is All Fluted | W8x28 When Deck Is Blend or All Cellular | W12x14 When Deck Is All Fluted | Joist Item 1A When Deck Is Fluted Cellular or Blend | Joist Item 1B When Deck Is Fluted Cellular or Blend |
|---|---|---|---|---|---|---|---|
| 1 | 1 | NW | 3/8,5/8** | 1/2+,11/16** | 9/16,15/16** | 1++ | — |
| 1-1/2 | 1 | NW | 3/8,5/8** | 1/2+,11/16** | 9/16,15/16** | 1-9/16 | — |
| 2 | 1 | NW | 3/8,5/8** | 1/2+,11/16** | 9/16,15/16** | 2-1/16 | — |
| 2 | 2 | NW | 3/4 | 1-3/8+ | 1-1/16 | 2-1/16 | — |
| 2 | 3 | NW | 1-3/16 | 2-1/8+ | 1-11/16 | — | 3-1/4 |
| 3 | 1-1/2 | NW | 1/2 | 7/8* | 3/4 | — | 3-1/4 |
| 3 | 2 | NW | 3/4 | 1-3/8+ | 1-1/16 | — | 3-1/4 |
| 3 | 3 | NW | 1-3/16 | 2-1/8+ | 1-11/16 | — | 3-1/4 |
| 1 | 1 | LW | 3/8,5/8** | 1/2+,11/16** | 9/16,15/16** | 1-1/8++ | — |
| 1-1/2 | 1 | LW | 3/8,5/8** | 1/2+,11/16** | 9/16,15/16** | 1-3/4 | — |
| 2 | 1 | LW | 3/8,5/8** | 1/2+,11/16** | 9/16,15/16** | 2-1/4 | — |
| 2 | 2 | LW | 1 | 1-3/8+ | 1-7/16 | 2-1/4 | — |
| 2 | 3 | LW | 1-9/16+ | 2-1/8+ | 2-1/4 | — | 3-1/4 |
| 3 | 1-1/2 | LW | 11/16 | 7/8* | 1 | — | 3-1/4 |
| 3 | 2 | LW | 1+ | 1-3/8+ | 1-7/16 | — | 3-1/4 |

*May be reduced to 3/4 in. for the 1-1/2 hr Unrestrained Beam Rating when the material is sprayed 2 in. beyond the beams's top flange and no reduction in thickness is made at the tips of the bottom flange.

**This thickness applies when optional Item 12 or 13 are used over 3-1/4 in. lightweight concrete topping.

+Thickness of Spray-Applied Fire Resistive Materials may be reduced to one half of this thickness on the lower flange tips of the steel beam.

++ - When bottom chords consist of 1 by 1 by 0.125 in. thickn steel angles, the thickness of spray-applied fire resistive material shall be increased by 1/4 in. on the bottom chord only.

**ISOLATEK INTERNATIONAL** — Type D-C/F, HP, Type II, Type EBS or Type X adhesive which may also be used as a surface sealer.

6A. **Spray-Applied Fire Resistive Materials*** — Alternate to Item 6. See table below for appropriate thicknesses. When fluted steel deck is used and the fire protection thickness selected is based on all fluted deck, the area between the steel deck and the top flange of the steel beam shall be filled. When fluted steel deck is used and the steel beam is sprayed with the thicknesses applicable to cellular or blended units, the area between the steel deck and the top flange of the steel beam shall be plugged. Prepared by mixing with water and spray-applied in one or more coats to beam surfaces which must be clean and free of dirt, loose scale and oil. Min average density of 17.5 pcf with min individual value of 17.0 pcf. For method of density determination, see Design Information Section, Sprayed Material.

| Restrained Assembly Rating Hr | Unrestrained Beam Rating Hr | Protection Thkns on W8x28, In. When Deck Is All Fluted | When Deck Is Blend or All Cellular |
|---|---|---|---|
| 1, 1-1/2, 2 | 1 | 5/16, 7/16* | 5/16, 7/16* |
| 2 | 2 | 11/16 | 13/16 |
| 2 | 3 | 1-1/16 | 1-5/16 |
| 3 | 1-1/2 | 1/2 | 9/16 |
| 3 | 2 | 11/16 | 13/16 |
| 3 | 3 | 1-1/16 | 1-5/16 |

*This thickness applies when optional Items 12, 13 are used over 3-1/4 in. lightweight concrete topping.

+ ++ - When bottom chords consist of 1 by 1 by 0.125 in. thick steel angles, the thickness of spray-applied fire resistive material shall be increased by 1/4 in. on the bottom chord only.

**ISOLATEK INTERNATIONAL** — Type 280.

6B. **Spray-Applied Fire Resistive Materials*** — Alternate to Item 6 or 6A. Applied by mixing with water according to instructions on each bag of material. Mixture can be spray or trowel applied in one or more coats. The thickness of the mixture is dependent on the type of floor unit. See table below for appropriate thickness. When fluted steel deck is used and the fire protection thickness selected is based on all fluted deck, the area between the steel deck and the top flange of the steel beam shall be filled. When fluted steel deck is used and the steel beam is sprayed with the thicknesses applicable to cellular or blended units, the area between the steel deck and the top flange of the steel beam shall be plugged. The steel surfaces must be clean and free of dirt, loose scale and oil. Minimum average density of 38 pcf and minimum individual density of 35 pcf for Type 800. Min avg density of 44 pcf with min ind value of 40 pcf for Type M-II. Min avg density of 44 pcf with min ind value of 42 pcf for Type TG. For method of density determination, refer to Design Information Section, Sprayed Material.

| Restrained Assembly Rating Hr | Unrestrained Beam Rating Hr | Protection Thkns on W8x28, In. When Deck Is All Fluted | When Deck Is Blend or All Cellular |
|---|---|---|---|
| 1, 1-1/2, 2 | 1 | 3/8, 1/2* | 7/16, 9/16* |
| 2 | 2 | 15/16 | 1-1/4 |
| 2 | 3 | 1-5/16 | 1-1/2 |
| 3 | 1-1/2 | 5/8 | 1 |
| 3 | 2 | 15/16 | 1-1/4 |
| 3 | 3 | 1-5/16 | 1-1/2 |

*This thickness applies when optional Item 12 or 13 are used over 3-1/4 in. lightweight concrete topping.

**BERLIN CO LTD** — Types M-II or TG. Types M-II and TG Investigated for exterior use.

**ISOLATEK INTERNATIONAL** — Types 800, M-II or TG. Types 800, M-II and TG Investigated for exterior use.

**LUCKY CORE INSULATING MATERIALS MANUFACTURING L L C** — Types M-II or TG. Types M-II and TG Investigated for exterior use.

**NEWKEM PRODUCTS CORP** — Types M-II or TG. Types M-II and TG Investigated for exterior use.

6C. **Spray-Applied Fire Resistive Materials*** — Alternate to Items 6A or 6B. Applied by mixing with water in accordance with instructions on each bag and applied in one or more coats to a final thickness as shown in table below to steel beam surface which is free of dirt, oil or scale. When fluted steel deck is used and the fire protection thickness selected is based on all fluted deck, the area between the steel deck and the top flange of the steel beam shall be filled. When fluted steel deck is used and the steel beam is sprayed with the thicknesses applicable to cellular or blended units, the area between the steel deck and the top flange of the steel beam shall be plugged.

Min average and min individual density is 15 and 14 pcf, respectively. For method of density determination, refer to Design Information Section. The thickness of the material on the Structural Members (Item 1, 1C, or 1D) shall be as follows:

| Restrained Assembly Rating Hr | Unrestrained Beam Rating Hr | Protection Mtl Thkns on Structural Members In. W8x28 When Deck Is All Fluted | W8x28 When Deck Is Blend or All Cellular | W12x14 When Deck Is All Fluted | Joist (Item 1C or 1D) When Deck Is Fluted Cellular or Blend |
|---|---|---|---|---|---|
| 1 | 1 | 5/16, 7/16* | 5/16, 7/16* | 1/2,5/8* | 9/16 |
| 1-1/2 | 1 | 5/16, 7/16* | 5/16, 7/16* | 1/2,5/8* | 1 |
| 2 | 1 | 5/16, 7/16* | 5/16, 7/16* | 1/2,5/8* | 1-3/8 |
| 2 | 2 | 11/16 | 13/16 | 1 | 1-3/8 |
| 2 | 3 | 1-1/16 | 1-5/16 | 1-1/2 | 2-1/4 |
| 3 | 1-1/2 | 1/2 | 9/16 | 3/4 | 2-1/4 |
| 3 | 2 | 11/16 | 13/16 | 1 | 2-1/4 |
| 3 | 3 | 1-1/16 | 1-5/16 | 1-1/2 | 2-1/4 |

*This thickness applies when optional Item 12 or 13 are used over 3-1/4 in. lightweight concrete topping.

**BERLIN CO LTD** — Type 300, Type 300ES, Type 300N or Type SB.

**ISOLATEK INTERNATIONAL** — Type 300, Type 300AC, Type 300ES, Type 300HS, Type 300N, or Type SB.

**LUCKY CORE INSULATING MATERIALS MANUFACTURING L L C** — Type 300, Type 300ES, Type 300N, or Type SB.

**NEWKEM PRODUCTS CORP** — Type 300, Type 300ES, Type 300N, or Type SB.

6D. **Spray-Applied Fire Resistive Materials*** — Alternate to Items 6A, 6B or 6C. Applied by mixing with water in accordance with instructions on each bag and applied in one or more coats to a final thickness as shown in table below to steel beam surface which is free of dirt, oil or scale. When fluted steel deck is used and the fire protection thickness selected is based on all fluted deck, the area between the steel deck and the top flange of the steel beam shall be filled. When fluted steel deck is used and the steel beam is sprayed with the thicknesses applicable to cellular or blended units, the area between the steel deck and the top flange of the steel beam shall be plugged.

Min average and min individual density is 17.5 and 16 pcf, respectively, for 300TW. Min average and min individual density of 22 and 19 pcf, respectively, for Type 400. For method of density determination, refer to Design Information Section. The thickness of the material on the Structural Members (Item 1, 1C, or 1D) shall be as follows:

| Restrained Assembly Rating Hr | Unrestrained Beam Rating Hr | Protection Mtl Thkns on Structural Members In. W8x28 When Deck Is All Fluted | W8x28 When Deck Is Blend or All Cellular | W12x14 When Deck Is All Fluted | Joist (Item 1C or 1D) When Deck Is Fluted Cellular or Blend |
|---|---|---|---|---|---|
| 1 | 1 | 5/16, 7/16* | 5/16, 7/16* | 1/2,5/8* | 9/16 |
| 1-1/2 | 1 | 5/16, 7/16* | 5/16, 7/16* | 1/2,5/8* | 1 |
| 2 | 1 | 5/16, 7/16* | 5/16, 7/16* | 1/2,5/8* | 1-3/8 |
| 2 | 2 | 11/16 | 13/16 | 1 | 1-3/8 |
| 2 | 3 | 1-1/16 | 1-5/16 | 1-1/2 | 2-1/4 |
| 3 | 1-1/2 | 1/2 | 9/16 | 3/4 | 2-1/4 |
| 3 | 2 | 11/16 | 13/16 | 1 | 2-1/4 |
| 3 | 3 | 1-1/16 | 1-5/16 | 1-1/2 | 2-1/4 |

*This thickness applies when optional Item 12 or 13 are used over 3-1/4 in. lightweight concrete topping.

**BERLIN CO LTD** — Type 400.

**ISOLATEK INTERNATIONAL** — Type 300TW, Type 400.

**LUCKY CORE INSULATING MATERIALS MANUFACTURING L L C** — Type 400

**NEWKEM PRODUCTS CORP** — Type 400.

6E. **Mastic and Intumescent Coatings*** — As an alternate to Items 6 through 6D. For use with fluted steel floor and form units only. Min. size W8x24 or W6x12 beams shall be primed with a phenolic modified alkyd primer, a metal alkyd primer, an acrylic primer or an epoxy primer at a nominal thickness of 2 mil. Coating spray or brush applied in accordance with the manufacturer's instructions at the min dry thickness as shown in the table below. The thickness shown below includes the primer thickness. Flutes above beam to be completely filled with minimum 6 pcf mineral wool insulation, or the top flange of the beam to be protected with the same thickness of coating as required on the beam.

| Minimum Dry Thickness mils | Minimum Dry Thickness mm | Beam Size | Unrestrained Beam Rating Hr | Restrained Assembly Rating Hr |
|---|---|---|---|---|
| 53 | 1.34 | W8x24 | 1 | 2 |
| 95 | 2.41 | W8x24 | 1-1/2 | 3 |
| 73 | 1.83 | W6x12 | 1 | 2 |
| 123 | 3.10 | W6x12 | 1-1/2 | 3 |

**BERLIN CO LTD** — Type WB 3. Investigated for Interior General Purpose. Type WB 4, Investigated for Interior General Purpose. Type WB4, Investigated for Exterior Use with top coat as described in Item 6F.

**ISOLATEK INTERNATIONAL** — Type SprayFilm-WB 3 and Type WB 3. Investigated for Interior General Purpose. Type SprayFilm-WB 4 and Type WB 4, Investigated for Interior General Purpose. Type SprayFilm-WB 4 and Type WB4, Investigated for Exterior Use with top coat as described in Item 6F.

6F. **Mastic and Intumescent Coatings*** — As an alternate to Items 6 through 6E. For use with normal weight concrete. Min. size W8x28 beams shall be primed with a phenolic modified alkyd primer a metal alkyd primer, an acrylic primer or an epoxy primer at a nominal thickness of 2 mil. Coating spray or brush applied in accordance with the manufacturer's instructions at the min dry thickness as shown in the table below. The thickness shown below includes the primer thickness. The top surface of the top flange where fluted units are used must be protected with the coating material at the same min dry thickness at a min distance of 1 in. (25 mm) inward from the flange tip on both sides of the beam. Mineral wool insulation optional above top surface of the beam.

| Minimum Dry Thickness mils | Minimum Dry Thickness mm | Steel Floor Units | Unrestrained Beam Rating Hr | Restrained Assembly Rating Hr |
|---|---|---|---|---|
| 103 | 2.62 | Fluted or Cellular | 1-1/2 | 2 |
| 179 | 4.55 | Cellular | 1-1/2 | 3 |
| 341 | 8.67 | Cellular | 2 | 3 |

**BERLIN CO LTD** — Type WB 3. Investigated for Interior General Purpose. Type WB 4, Investigated for Interior General Purpose. Type WB 4, Investigated for Exterior Use with top coat as described in Item 6G.

**ISOLATEK INTERNATIONAL** — Type SprayFilm-WB 3 and Type WB 3. Investigated for Interior General Purpose. Type SprayFilm-WB 4 and Type WB 4, Investigated for Interior General Purpose. Type SprayFilm-WB 4 and Type WB 4, Investigated for Exterior Use with top coat as described in Item 6G.

6G. **Top Coat** — Type SprayFilm - TOPSEAL and Type TOPSEAL required for Exterior Use, applied at a minimum dry thickness of 14 mils (0.34 mm) over the intumescent material. See Classification information in the Mastic and Intumescent Coating (CDWZ) category, Isolatek International, for mixing requirements.

6H. **Mastic and Intumescent Coatings*** — As an alternate to Items 6 through 6F. For use with normal weight concrete and fluted steel floor and form units only. Min size W6x12 beams shall be primed with a phenolic modified alkyd primer at a thickness of 1 mil. Coating spray or brush applied in accordance with the manufacturer's instructions at the thickness shown below. The thickness includes the 1 mil of primer.

| Minimum Dry Thickness mils | Minimum Dry Thickness mm | Unrestrained Beam Rating Hr. | Restrained Assembly Rating Hr. |
|---|---|---|---|
| 60 | 1.5 | 1 | 1 |

**ISOLATEK INTERNATIONAL** — Type SprayFilm-WB 2. Investigated Interior General Purpose.

6I. **Mastic and Intumescent Coatings*** — As an alternate to Items 6 through 6F and 6H. For use with normal weight concrete and fluted steel floor and form units only. Min size W8x24 beams shall be primed with a phenolic modified alkyd primer at a thickness of 2 mils. Coating spray or brush applied in accordance with the manufacturer's instructions at the thicknesses shown below. The thickness includes the 2 mils of primer. The top surface of the top flange where fluted units are used must be protected with the coating material at the same min dry thickness or filled with nominal 4 pcf mineral wool.

| Minimum Dry Thickness mils | Minimum Dry Thickness mm | Unrestrained Beam Rating Hr. | Restrained Assembly Rating Hr. |
|---|---|---|---|
| 35 | 0.88 | 1 | 2 |

**ISOLATEK INTERNATIONAL** — Type SprayFilm-WB 5. Investigated Interior General Purpose.

7. **Shear Connector Studs** — Optional — Studs, 3/4 in. diam by 3 in. long, for 1-1/2 in. deep form units to 5-1/4 in. long for 3 in. deep form units, headed type or equivalent per AISC specifications. Welded to the top flange of the beam through the steel form units.

8. **Lath Hanger** — (Not Shown) — Optional - For use in caged beams with Items 6, 6A, 6B or 6C Galv steel 6 SWG min diam spaced 27 in. O. C.

9. **Clips** — (Not Shown) — Optional - For use in caged beams with Items 6, 6A, 6B or 6C No. 24 MSG spring steel pushed on to top and bottom flanges of beam spaced 6 in. O. C. max.

10. **Metal Lath** — (Not Shown) — Optional - For use in caged beams with Items 6, 6A, 6B or 6C 3/8 in. diamond mesh or rib lath, 3.4 lbs per sq yd expanded steel attached to beam with clips spaced 6 in. OC max; or tied to lath hangers with 18 SWG galv steel wire spaced 6 in. OC max.

11. **Electrical Inserts** — (Not Shown) — Classified as "Outlet Boxes and Fittings Classified for Fire Resistance".*

12. **Mineral and Fiberboards*** — (Optional, not shown). Applied over concrete floor with no restriction on board thickness. When mineral and fiber boards are used, the unrestrained beam rating shall be increased by a minimum of 1/2 hr. See **Mineral and Fiber Board** (CERZ) category for names of manufacturers.

13. **Foamed Plastic*** — (Optional, not shown). Consisting of polyisocyanurate or urethane roof insulations. Applied over concrete floor with no restrictions on thickness. When polyisocyanurate or urethane insulation is used, the unrestrained beam rating shall be increased by a minimum of 1/2 hr. See **Foamed Plastic** (CCVW) for list of manufacturers.

14. **Insulating Concrete** — (Optional, not shown) — Various types of insulating concrete prepared and applied as follows:

A. Vermiculite Concrete - Blend 6 to 8 cu ft of Vermiculite Aggregate* to 94 lb Portland cement and air entraining agent. Min thickness of 2 in. as measured to the top surface of the structural concrete or foamed plastic (Item 15) when it is used. See Vermiculite Aggregate (CJZZ) category for names of Classified companies.

B. Cellular Concrete-Roof Topping Mixture* - Concentrate mixed with water and Portland cement per manufacturer's specifications. Cast dry density and 28-day min compressive strength of 190 psi as determined with ASTM C495-66.

**CELCORE INC** — Type Celcore with cast dry density of 31 (+ or - 3.0) pcf or Type Celcore MF with cast dry density of 29 (+ or - 3.0) pcf.
**CELLULAR CONCRETE L L C** — Cast dry density of 37 (+ or -) 3.0 pcf.

**ELASTIZELL CORP OF AMERICA** — Type II, with a cast dry density of 39 (+ or - 3.0) pcf.
**LITE-CRETE INC** — Cast density of 29 (+ or -) 3.0 pcf.
**SIPLAST INC** — Mix #1, Cast dry density of 32 (+ or -) 3 pcf.
**SIPLAST INC** — Mix #2, Cast dry density of 36 (+ or -) 3 pcf.

C. Cellular Concrete-Roof Topping Mixture* - Foam concentrate mixed with water, Portland cement and UL Classified Vermiculite Aggregate per manufacture's application instructions. Cast dry density of 33 (+ or -) 3 pcf and 28 day compressive strength of min 250 psi as determined in accordance with ASTM C495-86.

**CELLULAR CONCRETE L L C** — Mix #3.
**ELASTIZELL CORP OF AMERICA** — Type II. Mix #1 of cast dry density 39 (+ or -) 3.0 pcf, Mix #2 of cast dry density 40 (+ or -) 3.0 pcf, Mix #3 of cast dry density 47 (+ or -) 3.0 pcf.
**SIPLAST INC** — Mix #3.

D. Perlite Concrete - 6 cu ft of Perlite Aggregate* to 94 lb of Portland Cement and 1-1/2 pt air entraining agent. Min thickness 2 in. as measured to the top surface of structural concrete or foamed plastic (Item 15A) when it is used.

See Perlite Aggregate (CFFX) in Fire Resistance Directory for names of Classified companies.

15. **Foamed Plastic*** — (Optional-not shown) — For use only with vermiculite (Item 14A) or cellular (Item 14B) concretes-Rigid polystyrene foamed plastic insulation having slots and/or holes sandwiched between vermiculite concrete slurry which is applied to the normal or lightweight concrete surface and vermiculite concrete topping (Item 14A). Max thickness to be 8 in.

See Foamed Plastic* (BRYX) category in Building Materials Directory or Foamed Plastic* (CCVW) Category in Fire Resistance Directory for list of Classified companies.

15A. **Foamed Plastic*** — (Not Shown) — For use only with cellular or perlite concrete. Nominal 24 by 48 by max 8 in. thick polystyrene foamed plastic insulation boards having a density of 1.0 (+ or - 0.1) pcf, encapsulated within concrete topping. Each insulation board shall contain six nominal 3 in. diameter holes oriented in two rows of three holes each with the holes spaced 12 in. OC transversely and 16 in. OC longitudinally.

See Foamed Plastic* (BRYX) category in Building Materials Directory or Foamed Plastic* (CCYW) category in Fire Resistance Directory for list of Classified companies.

16. **Roof Covering Materials*** — (Optional, not shown) — Consisting of materials compatible with insulations described here in which provide Class A, B or C coverings. See Built-Up Roof Covering Materials in Building Materials Directory.

17. **Insulated Concrete** — (Optional, not shown) — various types of insulated concrete prepared and applied in the thickness indicated.

A. **Vermiculite Concrete** — Mix consists of 6 cu ft of Vermiculite Aggregate*, 94 lbs of Portland cement and 6 ox of air entraining agent. Thickness to be 2 in min from the top plane of steel roof deck.

**ELASTIZELL CORP OF AMERICA** — Types MS16-U, MSV 200.

B. **Perlite Concrete** — Mix consists of 6.2 cu ft Perlite Aggregate* to 94 lbs of Portland cement and 1-1/2 pt air entraining agent. Compressive strength 80 psi min.

See Perlite Aggregate (CFFX) category for names of Classified companies.

*Bearing the UL Classification Mark

Last Updated on 2012-12-26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1/31/2014

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|---|---|
| Drawn | MGB |
| Checked | LW |
| Date | January 31, 2014 |
| Revisions | |


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**FAST Multi-Modal Center**

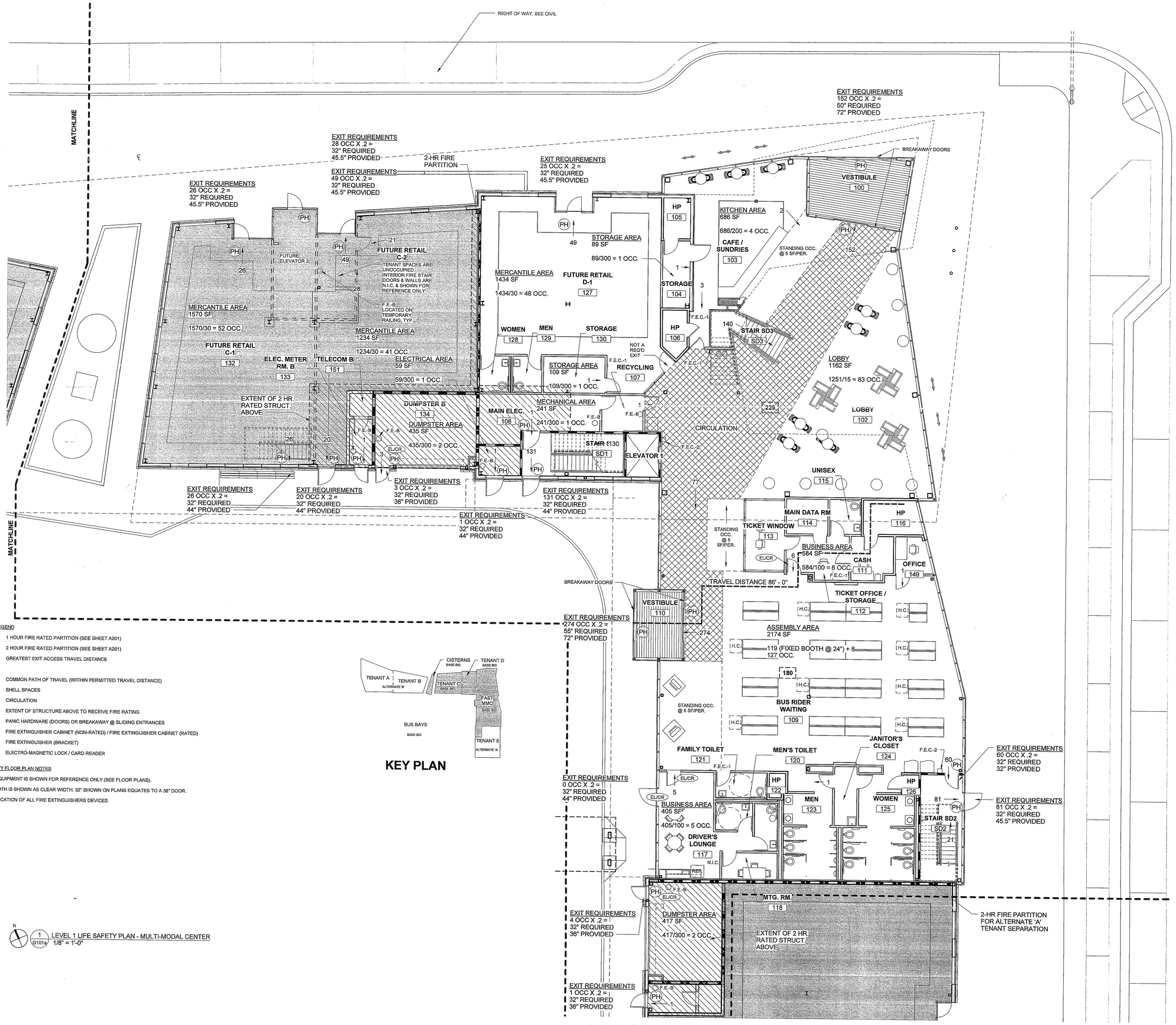
City of Fayetteville
Fayetteville, NC

Project Number 621A

Title
**Rated Assemblies**

Sheet
**G005**

Plate of




LIFE SAFETY PLAN LEGEND

- 1 HOUR FIRE RATED PARTITION (SEE SHEET A201)
- 2 HOUR FIRE RATED PARTITION (SEE SHEET A201)
- GREATEST EXIT ACCESS TRAVEL DISTANCE
- C.P.T. — COMMON PATH OF TRAVEL (WITHIN PERMITTED TRAVEL DISTANCE)
- SHELL SPACES
- CIRCULATION
- EXTENT OF STRUCTURE ABOVE TO RECEIVE FIRE RATING
- (PH) — PANIC HARDWARE (DOORS) OR BREAKAWAY @ SLIDING ENTRANCES
- F.E.C.-1 / F.E.C.-2 — FIRE EXTINGUISHER CABINET (NON-RATED) / FIRE EXTINGUISHER CABINET (RATED)
- F.E.-B — FIRE EXTINGUISHER (BRACKET)
- (EL/CR) — ELECTRO-MAGNETIC LOCK / CARD READER

GENERAL LIFE SAFETY FLOOR PLAN NOTES

1. FURNITURE AND EQUIPMENT IS SHOWN FOR REFERENCE ONLY (SEE FLOOR PLANS).
2. EGRESS DOOR WIDTH IS SHOWN AS CLEAR WIDTH. 32" SHOWN ON PLANS EQUATES TO A 36" DOOR.
3. SEE PLANS FOR LOCATION OF ALL FIRE EXTINGUISHERS DEVICES.




KEY PLAN

N

1 / G101a LEVEL 1 LIFE SAFETY PLAN - MULTI-MODAL CENTER
1/8" = 1'-0"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BERGMANN ASSOCIATES, ARCHITECTS, ENGINEERS, P.C. REGISTERED ARCHITECTURAL CORPORATION NORTH CAROLINA 52852 CHARLOTTE, NC

HARVEY B. GANTT REGISTERED ARCHITECT 2008 NORTH CAROLINA CHARLOTTE, NC

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**FAST Multi-Modal Center**
City of Fayetteville
Fayetteville, NC

Project Number 621A

Title
**Level 1 Life Safety Plan - Multi-Modal Center**

Sheet
# G101a

Plate of


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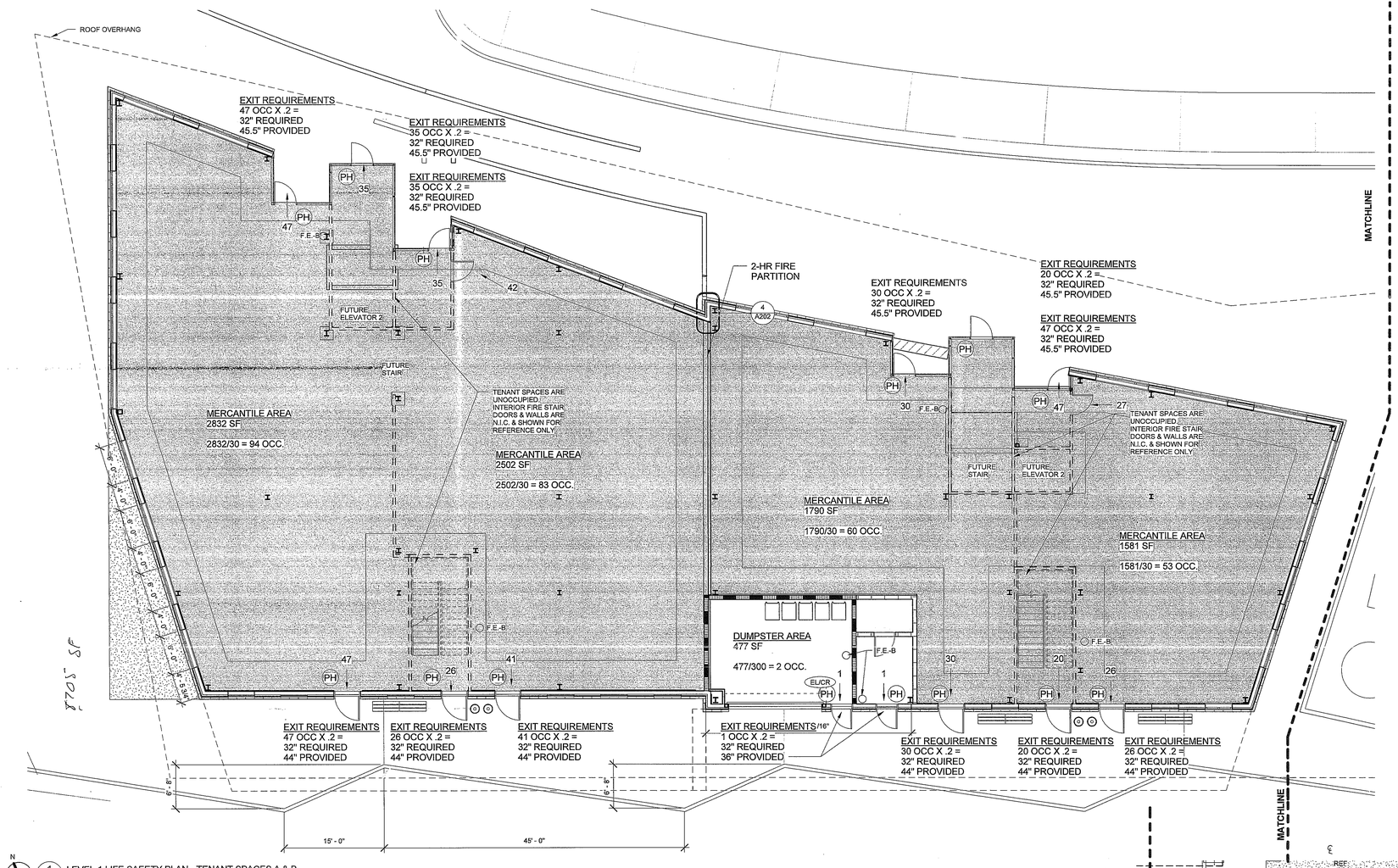


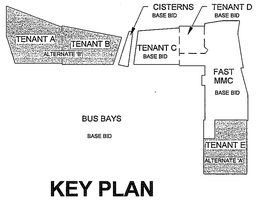

N 1 G101b LEVEL 1 LIFE SAFETY PLAN - TENANT SPACES A & B
1/8" = 1'-0"

LIFE SAFETY PLAN LEGEND

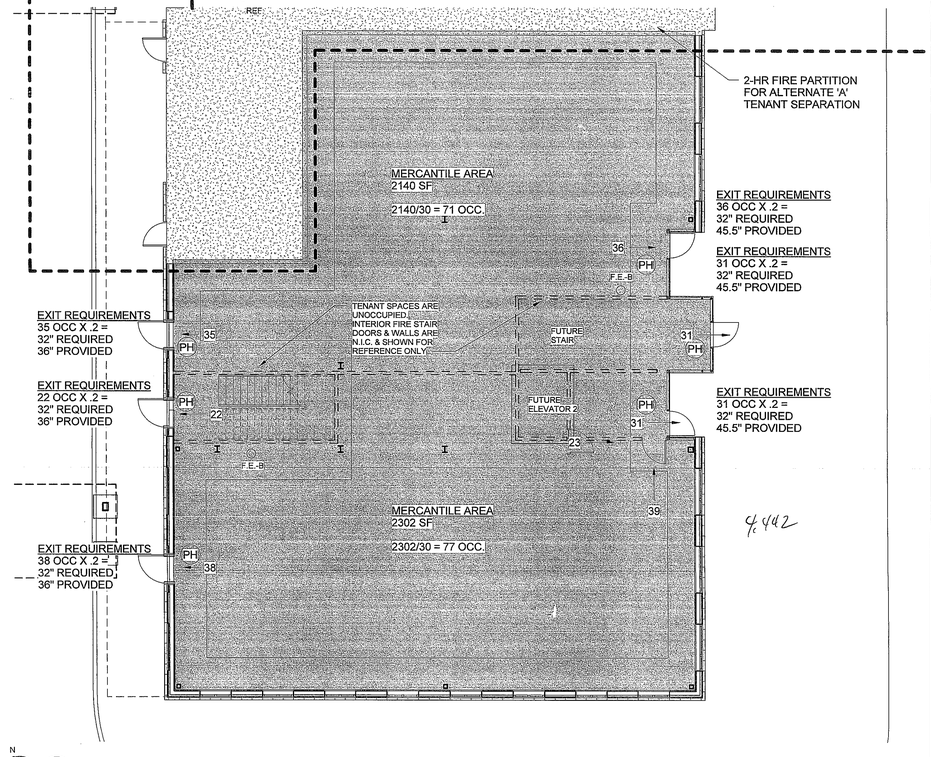
| | |
|---|---|
| | 1 HOUR FIRE RATED PARTITION (SEE SHEET A201) |
| | 2 HOUR FIRE RATED PARTITION (SEE SHEET A201) |
| | GREATEST EXIT ACCESS TRAVEL DISTANCE |
| C.P.T. | COMMON PATH OF TRAVEL (WITHIN PERMITTED TRAVEL DISTANCE) |
| | SHELL SPACES |
| | CIRCULATION |
| | EXTENT OF STRUCTURE ABOVE TO RECEIVE FIRE RATING |
| PH | PANIC HARDWARE (DOORS) OR BREAKAWAY @ SLIDING ENTRANCES |
| F.E.C.-1 / F.E.C.-2 | FIRE EXTINGUISHER CABINET (NON-RATED) / FIRE EXTINGUISHER CABINET (RATED) |
| F.E.-B | FIRE EXTINGUISHER (BRACKET) |
| EL/CR | ELECTRO-MAGNETIC LOCK / CARD READER |

GENERAL LIFE SAFETY FLOOR PLAN NOTES

1. FURNITURE AND EQUIPMENT IS SHOWN FOR REFERENCE ONLY (SEE FLOOR PLANS).
2. EGRESS DOOR WIDTH IS SHOWN AS CLEAR WIDTH. 32" SHOWN ON PLANS EQUATES TO A 36" DOOR.
3. SEE PLANS FOR LOCATION OF ALL FIRE EXTINGUISHERS DEVICES.




KEY PLAN




N 2 G101b LEVEL 1 LIFE SAFETY PLAN - TENANT SPACES J & K
1/8" = 1'-0"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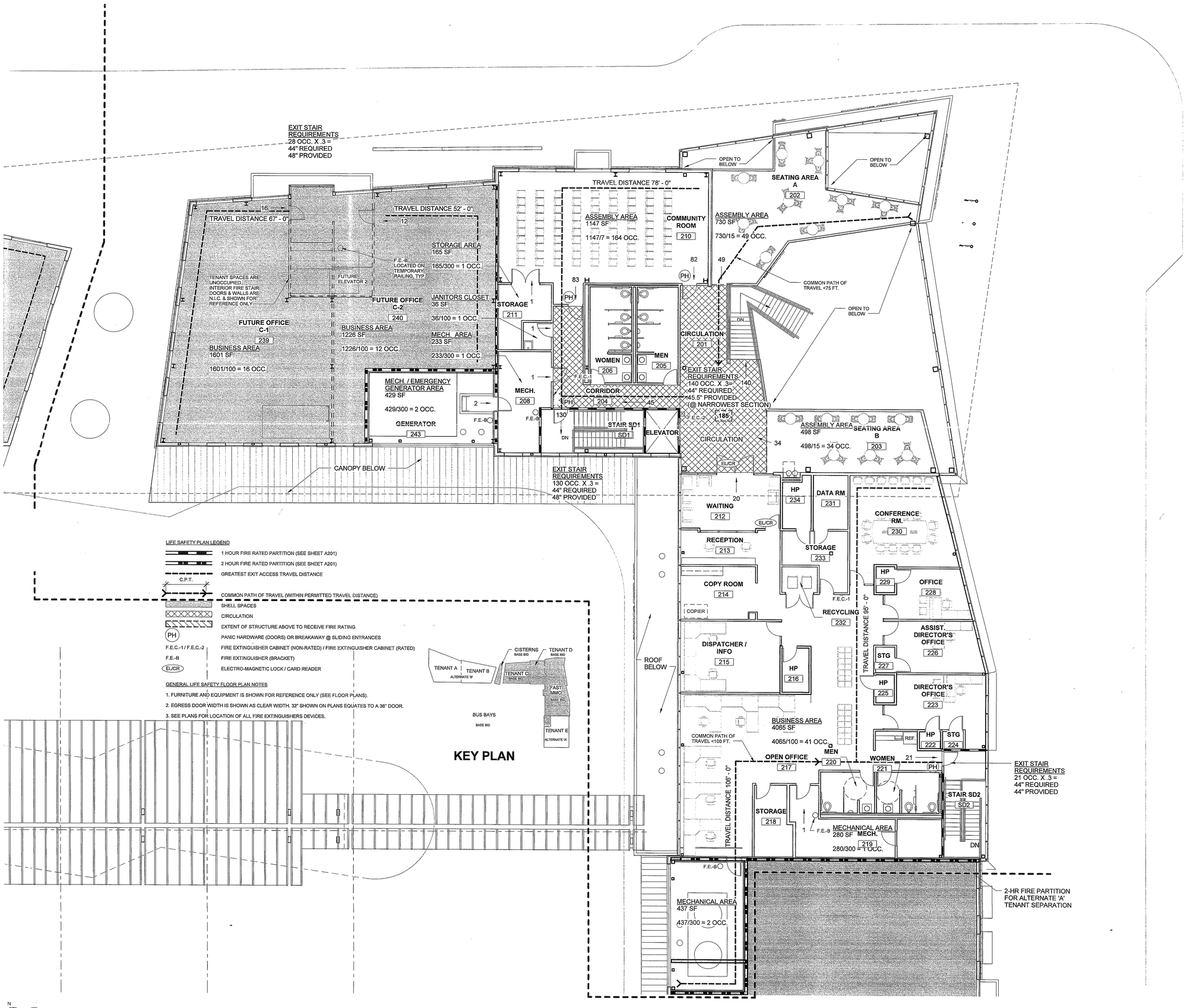
**FAST Multi-Modal Center**
City of Fayetteville
Fayetteville, NC

Project Number 621A

Title
**Level 1 Life Safety Plan - Tenant Spaces**

Sheet
# G101b

Plate of

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HARVEY B. GANTT ARCHITECT REGISTERED SEAL NORTH CAROLINA CHARLOTTE, NC

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**FAST Multi-Modal Center**
City of Fayetteville
Fayetteville, NC

Project Number 621A

Title
**Level 2 Life Safety Plan - Multi-Modal Center**

Sheet
# G102a

Plate of

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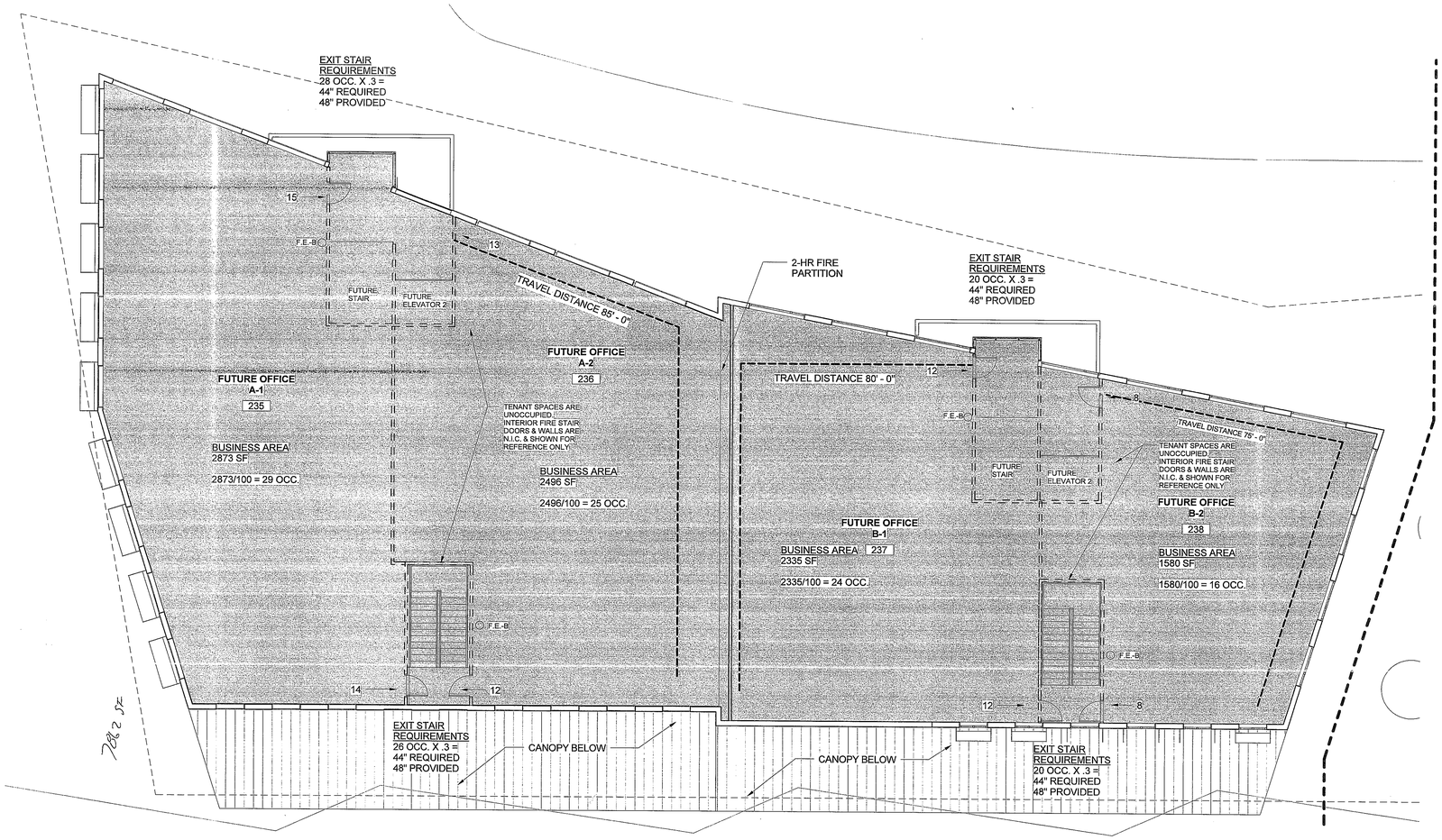
3/4/2014 10:03:57 AM



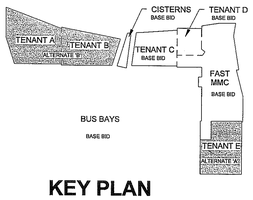

N 1 G102b LEVEL 2 LIFE SAFETY PLAN - TENANT SPACES A & B
1/8" = 1'-0"

LIFE SAFETY PLAN LEGEND

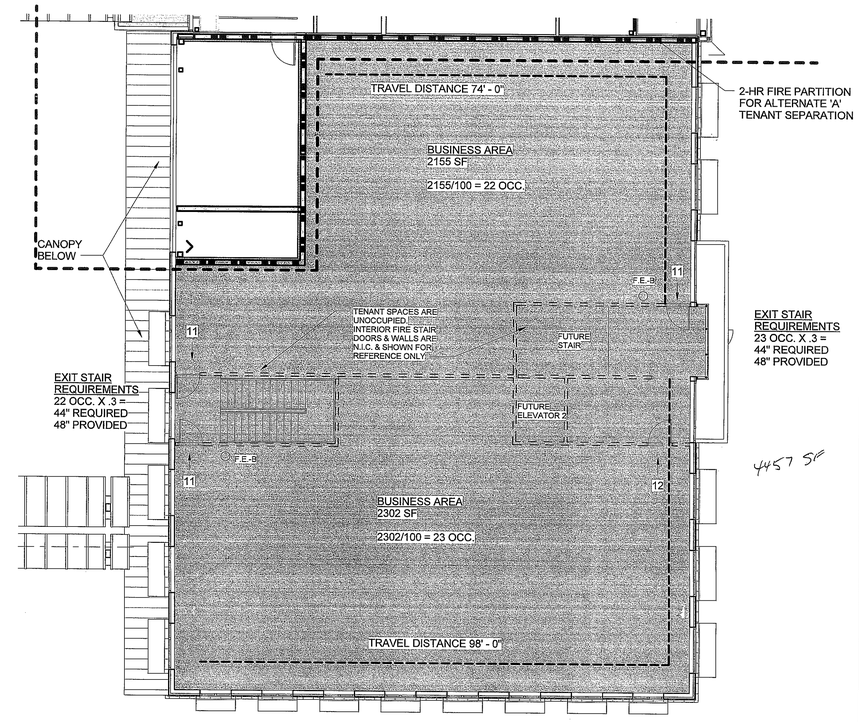
| | |
|---|---|
| | 1 HOUR FIRE RATED PARTITION (SEE SHEET A201) |
| | 2 HOUR FIRE RATED PARTITION (SEE SHEET A201) |
| | GREATEST EXIT ACCESS TRAVEL DISTANCE |
| C.P.T. | COMMON PATH OF TRAVEL (WITHIN PERMITTED TRAVEL DISTANCE) |
| | SHELL SPACES |
| | CIRCULATION |
| | EXTENT OF STRUCTURE ABOVE TO RECEIVE FIRE RATING |
| PH | PANIC HARDWARE (DOORS) OR BREAKAWAY @ SLIDING ENTRANCES |
| F.E.C.-1 / F.E.C.-2 | FIRE EXTINGUISHER CABINET (NON-RATED) / FIRE EXTINGUISHER CABINET (RATED) |
| F.E.-B | FIRE EXTINGUISHER (BRACKET) |
| EL/CR | ELECTRO-MAGNETIC LOCK / CARD READER |

GENERAL LIFE SAFETY FLOOR PLAN NOTES

1. FURNITURE AND EQUIPMENT IS SHOWN FOR REFERENCE ONLY (SEE FLOOR PLANS).
2. EGRESS DOOR WIDTH IS SHOWN AS CLEAR WIDTH. 32" SHOWN ON PLANS EQUATES TO A 36" DOOR.
3. SEE PLANS FOR LOCATION OF ALL FIRE EXTINGUISHERS DEVICES.




**KEY PLAN**




N 2 G102b LEVEL 2 LIFE SAFETY PLAN - TENANT SPACES J & K
1/8" = 1'-0"

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REGISTERED ARCHITECT SEAL 52852 NORTH CAROLINA CHARLOTTE, NC

HARVEY B. GANTT ARCHITECT SEAL 2662 NORTH CAROLINA CHARLOTTE, NC

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**FAST Multi-Modal Center**
City of Fayetteville
Fayetteville, NC

Project Number 621A

Title
**Level 2 Life Safety Sheet - Tenant Spaces**

Sheet
# G102b

Plate of

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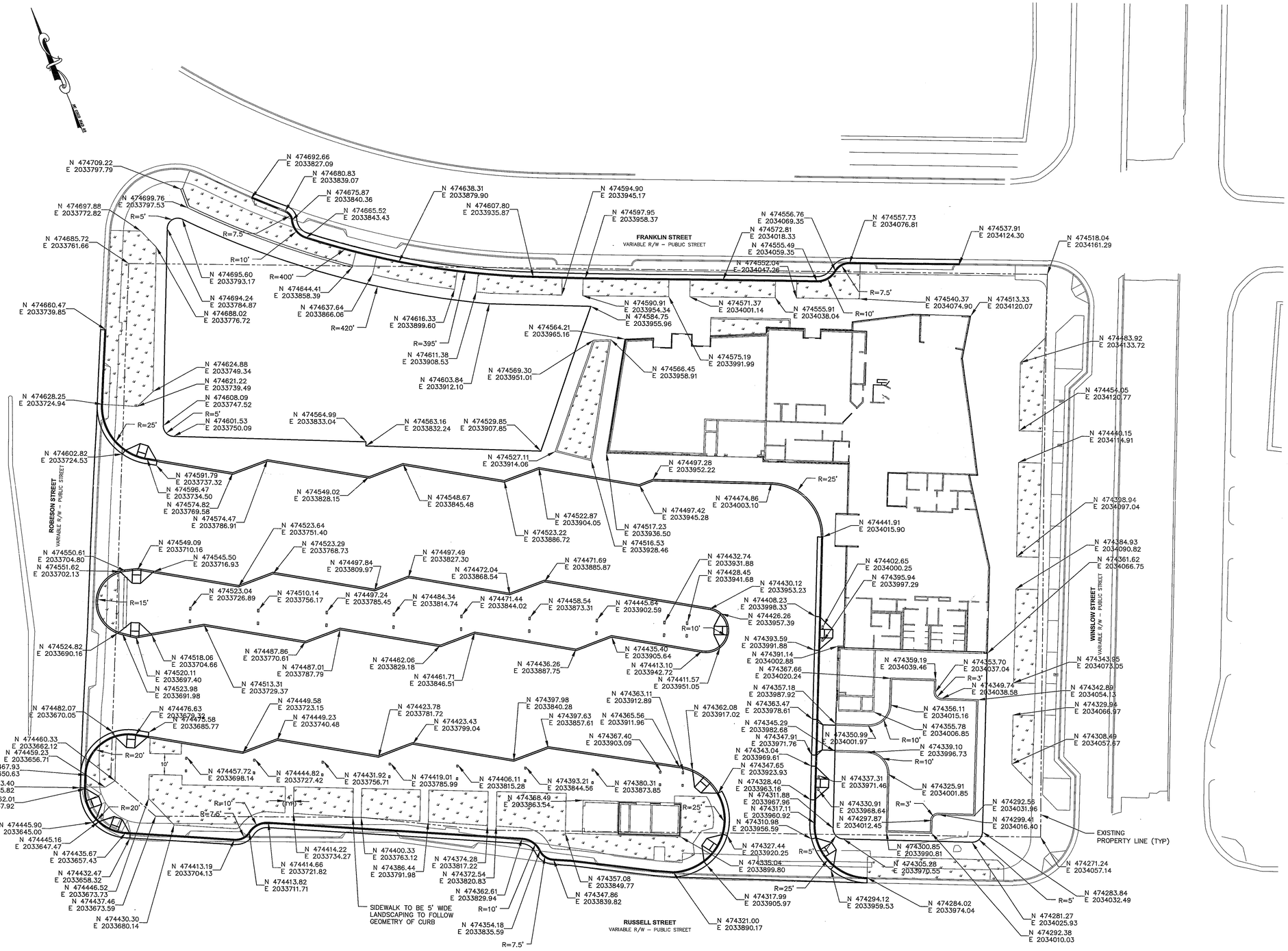
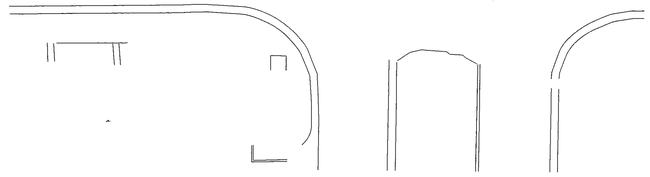



LANDSCAPED AREAS

NOTES:

1. CONTACT NC811 BEFORE ANY CONSTRUCTION ACTIVITY.
2. MAINTAIN OPERATION OF ALL SURROUNDING TRAFFIC SIGNALS THROUGHOUT CONSTRUCTION.
3. LOCATIONS OF EXISTING PROPERTY LINES AND RIGHTS-OF-WAY PER SURVEY PROVIDED BY THE CITY OF FAYETTEVILLE AND ARE FOR INFORMATION AND REFERENCE ONLY.
4. NO PROPERTY LINES ARE CHANGED AS PART OF THIS PROJECT. ALL PROPERTY LINE ADJUSTMENTS TO BE MADE BY CITY OF FAYETTEVILLE AND FAST. CONTRACTOR TO VERIFY CURRENT PROPERTY LINES BEFORE INITIATION OF PROJECT ACTIVITIES.
5. SPOT LOCATIONS REFER TO BACK OF CURB OR FACE OF BUILDING/OUTSIDE OF CLADDING SYSTEM AS APPROPRIATE.



BAR SCALE 1"=20'
0 10 20 40

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1/31/14

URS NC CORP LICENSE : C-2243

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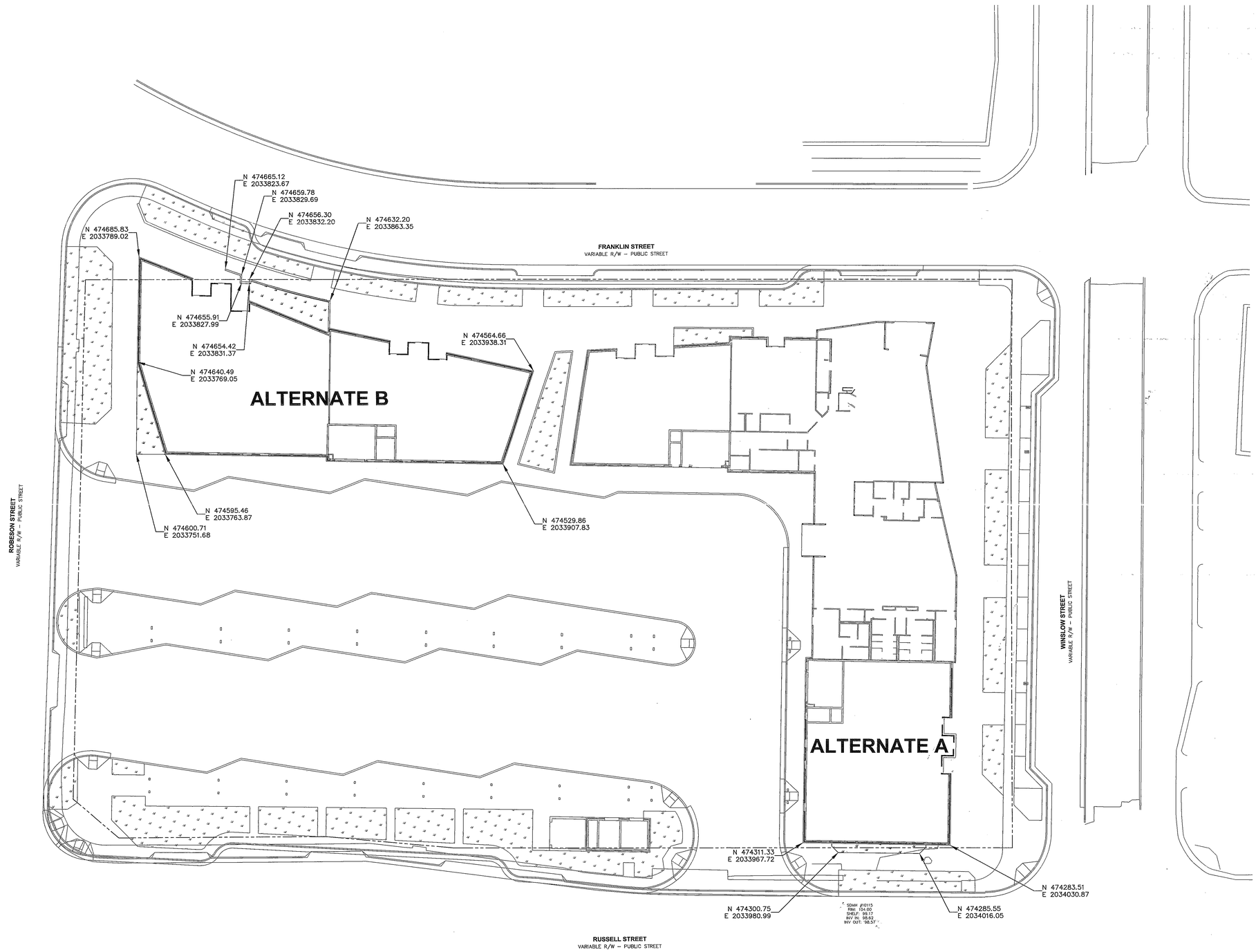
**FAST Multi-Modal Center**
City of Fayetteville
Fayetteville, NC

Project Number 621A

Title
**CIVIL SITE PLAN - GEOMETRY - BASE BID**

Sheet
C100

Plate of




NOTES:

1. CONTACT NC811 BEFORE ANY CONSTRUCTION ACTIVITY.
2. MAINTAIN OPERATION OF ALL SURROUNDING TRAFFIC SIGNALS THROUGHOUT CONSTRUCTION.
3. LOCATIONS OF EXISTING PROPERTY LINES AND RIGHTS–OF–WAY PER SURVEY PROVIDED BY THE CITY OF FAYETTEVILLE AND ARE FOR INFORMATION AND REFERENCE ONLY.
4. NO PROPERTY LINES ARE CHANGED AS PART OF THIS PROJECT. ALL PROPERTY LINE ADJUSTMENTS TO BE MADE BY CITY OF FAYETTEVILLE AND FAST. CONTRACTOR TO VERIFY CURRENT PROPERTY LINES BEFORE INITIATION OF PROJECT ACTIVITIES.
5. SPOT LOCATIONS REFER TO BACK OF CURB OR FACE OF BUILDING/OUTSIDE OF CLADDING SYSTEM AS APPROPRIATE.

LANDSCAPED AREAS

BAR SCALE 1"=20'
0 10 20 40

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NORTH CAROLINA PROFESSIONAL SEAL 033296 ENGINEER ANTHONY A. CHIANESE 1/31/14

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**FAST Multi-Modal Center**
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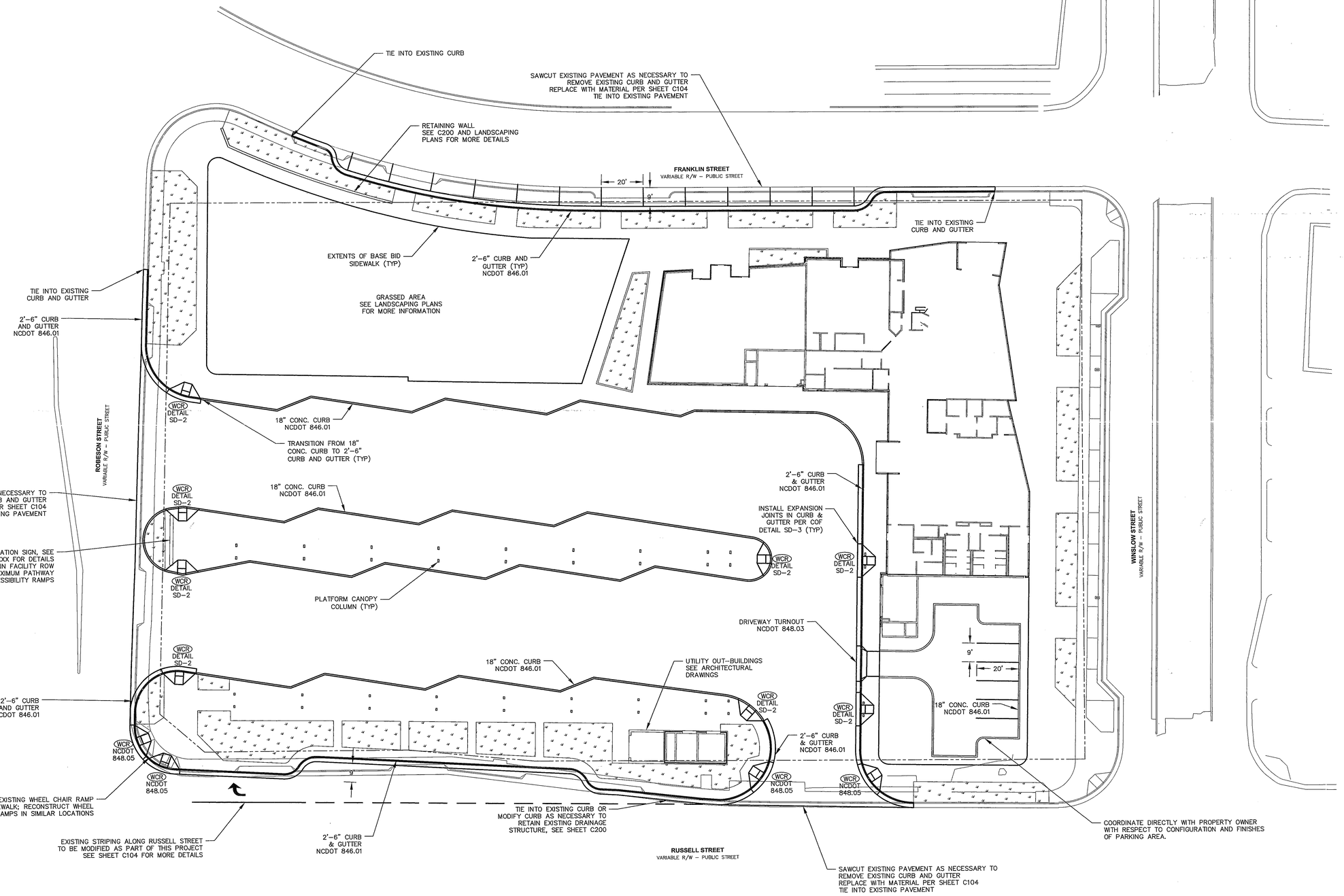
Project Number 621A

Title
**CIVIL SITE PLAN - GEOMETRY - ALTERNATE A & B**

Sheet
# C101

Plate of




LANDSCAPED AREAS

NOTES:

1. CONTACT NC811 BEFORE ANY CONSTRUCTION ACTIVITY.
2. MAINTAIN OPERATION OF ALL SURROUNDING TRAFFIC SIGNALS THROUGHOUT CONSTRUCTION.
3. NCDOT DETAILS ON SHEET C107 TO BE USED FOR THOSE FEATURES LOCATED WITHIN OR CONNECTED TO NCDOT ROW
4. CITY OF FAYETTEVILLE DETAILS SHALL BE USED FOR THOSE FEATURES LOCATED WITHIN THE SITE THAT DO NOT QUALIFY UNDER NOTE 1
5. ALL CURBS SHALL BE CONSTRUCTED TO NCDOT DETAILS AND SPECIFICATIONS
6. CURB SURROUNDING PARKING AREA MAY NOT BE REQUIRED. CONSULT WITH PROPERTY OWNER BEFORE CONSTRUCTION.

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**FAST Multi-Modal Center**
City of Fayetteville
Fayetteville, NC

Project Number 621A

Title
**CIVIL SITE PLAN - BASE BID**

Sheet
C102

Plate of

INSTALL RETAINING WALL AND STEPS
SEE GRADING PLAN ON
SHEET C201 FOR ELEVATIONS

**FRANKLIN STREET**
VARIABLE R/W – PUBLIC STREET

**ALTERNATE B**

**ROBESON STREET**
VARIABLE R/W – PUBLIC STREET

**WINSLOW STREET**
VARIABLE R/W – PUBLIC STREET

PATCH PARKING LOT
DRIVEWAY CUT WITH
2'-6" CURB & GUTTER
PER NCDOT 846.01

**ALTERNATE A**

SDMH #10115
RIM: 104.00
SHELF: 99.17
INV IN: 98.62
INV OUT: 98.57

**RUSSELL STREET**
VARIABLE R/W – PUBLIC STREET

LANDSCAPED AREAS

BAR SCALE 1"=20'
0 10 20 40


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NORTH CAROLINA PROFESSIONAL SEAL ENGINEER TIMOTHY A. CHAMBERS 1/31/14

URS NC CORP LICENSE : C-2243

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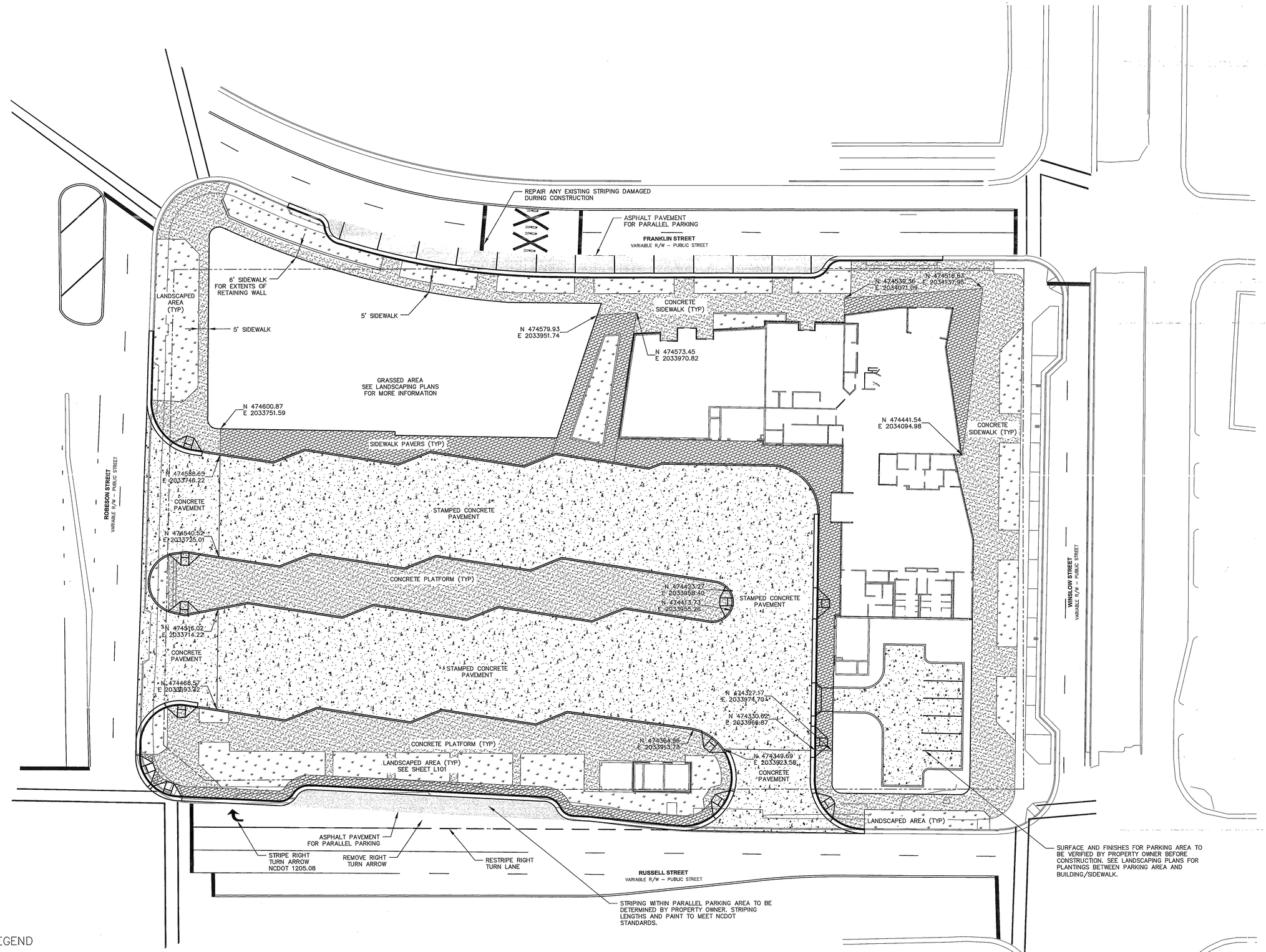
**FAST Multi-Modal Center**
City of Fayetteville
Fayetteville, NC

Project Number 621A

Title
**CIVIL SITE PLAN - ALTERNATE A & B**

Sheet
**C103**

Plate of




HATCH LEGEND

- CONCRETE PAVEMENT – DETAIL C106
- SIDEWALK CONCRETE PAVERS – DETAIL C106
- CONCRETE PLATFORM/SIDEWALK – DETAIL C106 & XXXX
- LANDSCAPED AREA
- ASPHALT PAVEMENT – SEE NCDOT STANDARDS

NOTES:

1. CONTACT NC811 BEFORE ANY CONSTRUCTION ACTIVITY.
2. MAINTAIN OPERATION OF ALL SURROUNDING TRAFFIC SIGNALS THROUGHOUT CONSTRUCTION.
3. DETERMINATION OF STAMPED CONCRETE PATTERN TO BE MADE DURING CONSTRUCTION BY THE PROPERTY OWNER. USE OF MULTIPLE PATTERNS IS POSSIBLE.
4. FOR MORE INFORMATION ON SIDEWALK PAVERS REFER TO LANDSCAPING PLANS.
5. FINISH FOR CONCRETE DRIVEWAYS TO BE BRUSHED CONCRETE. CONTRACTOR TO VERIFY WITH PROPERTY OWNER BEFORE CONSTRUCTION. SOLID LINES ON THIS DRAWING DENOTE LIMITS OF STAMPED CONCRETE AREA.

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NORTH CAROLINA REGISTERED LANDSCAPE ARCHITECT SEAL 005265 ENGINEER ANTHONY A. CHIAPPA 1/31/14

URS NC CORP LICENSE : C-2243

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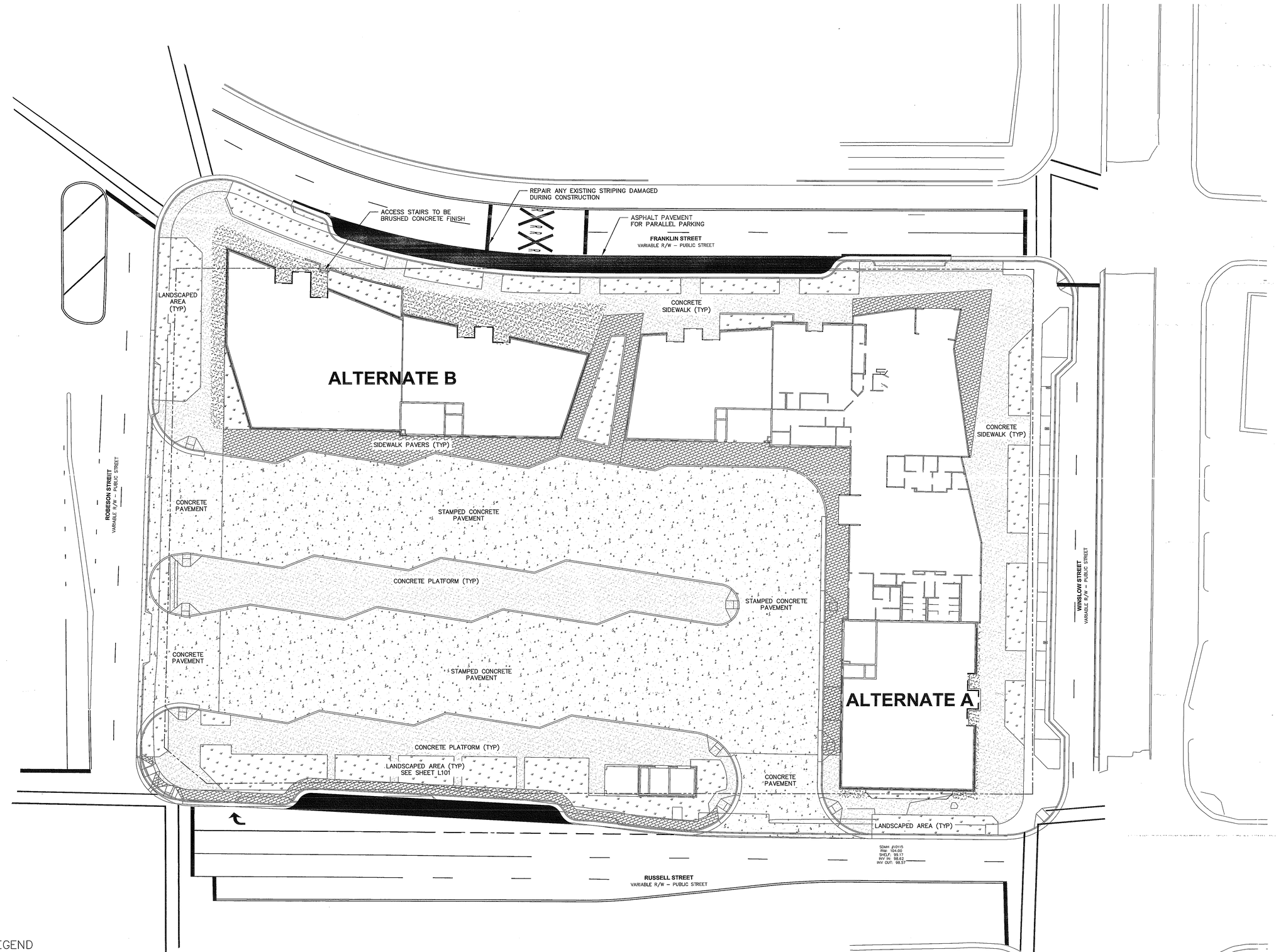
**FAST Multi-Modal Center**
City of Fayetteville
Fayetteville, NC

Project Number 621A

Title
**SITE FINISHES**
**BASE BID**

Sheet
# C104

Plate of




HATCH LEGEND

- CONCRETE PAVEMENT – DETAIL C106
- SIDEWALK CONCRETE PAVERS – DETAIL C106
- CONCRETE PLATFORM/SIDEWALK – DETAIL C106 & XXXX
- LANDSCAPED AREA
- ASPHALT PAVEMENT – SEE NCDOT STANDARDS

NOTES:

1. CONTACT NC811 BEFORE ANY CONSTRUCTION ACTIVITY.
2. MAINTAIN OPERATION OF ALL SURROUNDING TRAFFIC SIGNALS THROUGHOUT CONSTRUCTION.
3. DETERMINATION OF STAMPED CONCRETE PATTERN TO BE MADE DURING CONSTRUCTION BY THE PROPERTY OWNER. USE OF MULTIPLE PATTERNS IS POSSIBLE.
4. FOR MORE INFORMATION ON SIDEWALK PAVERS REFER TO LANDSCAPING PLANS.
5. FINISH FOR CONCRETE DRIVEWAYS TO BE BRUSHED CONCRETE. CONTRACTOR TO VERIFY WITH PROPERTY OWNER BEFORE CONSTRUCTION. SOLID LINES ON THIS DRAWING DENOTE LIMITS OF STAMPED CONCRETE AREA.

BAR SCALE 1"=20'
0 10 20 40

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NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 032045 ENGINEER TIMOTHY A. CHAMBERS 1/31/14

URS NC CORP LICENSE : C-2243

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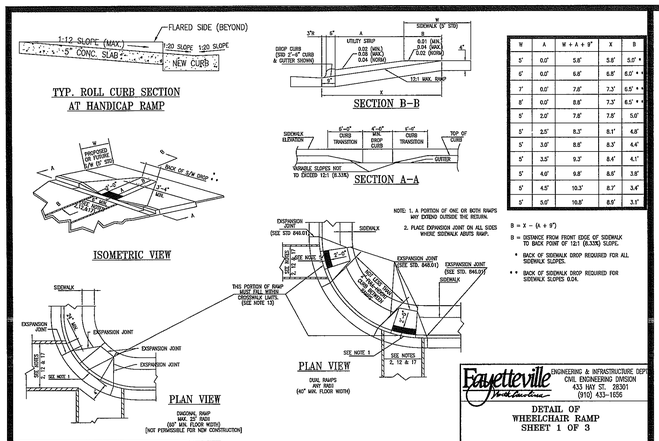
**FAST Multi-Modal Center**
City of Fayetteville
Fayetteville, NC

Project Number 621A

Title
**SITE FINISHES ALTERNATE A & B**

Sheet
# C105

Plate of




| W | A | W + A + 9" | X | B |
|---|---|---|---|---|
| 5' | 0.0' | 5.8' | 5.8' | 5.0' * |
| 6' | 0.0' | 6.8' | 6.8' | 6.0' * * |
| 7' | 0.0' | 7.8' | 7.3' | 6.5' * * |
| 8' | 0.0' | 8.8' | 7.3' | 6.5' * * |
| 5' | 2.0' | 7.8' | 7.8' | 5.0' |
| 5' | 2.5' | 8.3' | 8.1' | 4.8' |
| 5' | 3.0' | 8.8' | 8.3' | 4.4' |
| 5' | 3.5' | 9.3' | 8.4' | 4.1' |
| 5' | 4.0' | 9.8' | 8.6' | 3.8' |
| 5' | 4.5' | 10.3' | 8.7' | 3.4' |
| 5' | 5.0' | 10.8' | 8.9' | 3.1' |

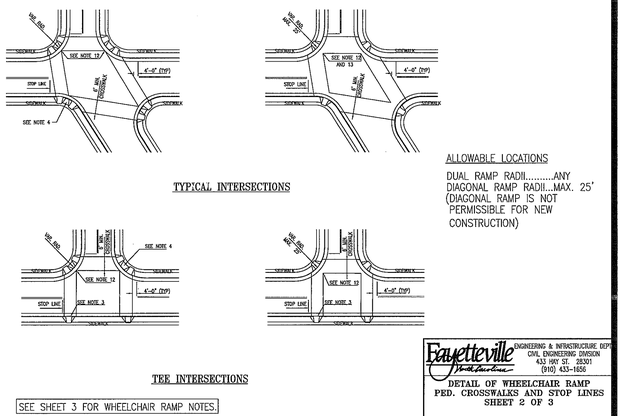
NOTE: 1. A PORTION OF ONE OR BOTH RAMPS MAY EXTEND OUTSIDE THE RETURN.
2. PLACE EXPANSION JOINT ON ALL SIDES WHERE SIDEWALK ABUTS RAMP.

B = X - (A + 9")

B = DISTANCE FROM FRONT EDGE OF SIDEWALK TO BACK POINT OF 12:1 (8.33%) SLOPE.

* BACK OF SIDEWALK DROP REQUIRED FOR ALL SIDEWALK SLOPES.

** BACK OF SIDEWALK DROP REQUIRED FOR SIDEWALK SLOPES 6.0%

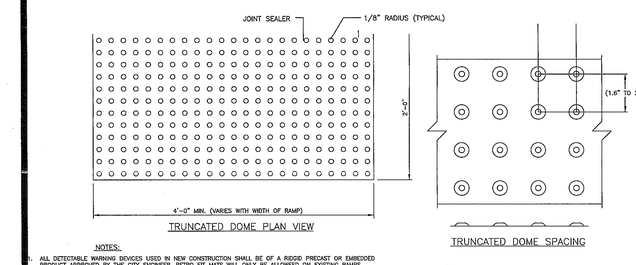



1. CONSTRUCT THE WALKING SURFACE WITH SLIP RESISTANTANCE AND A 70% CONTRASTING COLOR TO THE SIDEWALK.
2. CROSSWALK WIDTHS AND CONFIGURATION VARY BUT MUST CONFORM TO TRAFFIC DESIGN STANDARDS. (1.6" TO 2.4")
3. NORTH CAROLINA GENERAL STATUTE 135-44.14 REQUIRES THAT ALL STREET CURBS BEING CONSTRUCTED OR RECONSTRUCTED FOR MAINTENANCE PROCEDURES, TRAFFIC OPERATIONS, REPAIRS, CORRECTION OF UTILITIES OR ALTERED FOR ANY REASON AFTER SEPTEMBER 1, 1973 SHALL PROVIDE WHEELCHAIR RAMPS FOR THE PHYSICALLY DISABLED AT ALL INTERSECTIONS WHERE BOTH CURB AND GUTTER AND SIDEWALKS ARE PROVIDED AND AT OTHER POINTS OF PEDESTRIAN FLOW.

   IN ADDITION, SECTION 228 OF THE 1973 FEDERAL AID HIGHWAY SAFETY ACT REQUIRES PROVISION OF CURB RAMPS ON ANY CURB CONSTRUCTION AFTER JULY 1, 1976 WHETHER A SIDEWALK IS PROPOSED INITIALLY OR IS PLANNED FOR A FUTURE DATE.

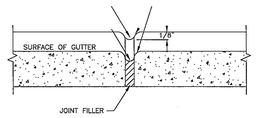
   THE AMERICANS WITH DISABILITIES ACT (ADA) OF 1990 EXTENDS TO INDIVIDUALS WITH DISABILITIES. COMPREHENSIVE CIVIL RIGHTS PROTECTIONS SIMILAR TO THOSE PROVIDED TO PERSONS ON THE BASIS OF RACE, SEX, NATIONAL ORIGIN AND RELIGION UNDER THE CIVIL RIGHTS ACT OF 1964. THESE CURB RAMPS HAVE BEEN DESIGNED TO COMPLY WITH THE CURRENT ADA STANDARDS.
4. PROVIDE WHEELCHAIR RAMPS AT LOCATIONS AS SHOWN ON THE PLANS OR AS DIRECTED BY THE ENGINEER. LOCATE WHEELCHAIR RAMPS AS DIRECTED BY THE ENGINEER WHERE EXISTING LIGHT POLES, FIRE HYDRANTS, DROP INLETS, ETC. AFFECT PLACEMENT. WHERE TWO RAMPS ARE INSTALLED NOT LESS THAN 2 FEET OF FULL HEIGHT CURB SHALL BE PLACED BETWEEN THE RAMPS. PLACE DUAL RAMPS AS NEAR PERPENDICULAR TO THE TRAVEL LANE BEING CROSSED AS POSSIBLE.
5. PAY FOR ALL VARIABLE DEPTH CONCRETE USED FOR CONSTRUCTION OF WHEELCHAIR RAMPS AS CONCRETE WHEELCHAIR RAMPS. (SQ. YDS.)
6. PAY FOR ALL DEPRESSED CURBS AT WHEELCHAIR RAMPS AS THE TYPE CURB AND GUTTER USED ADJACENT TO DEPRESSED CURB. (LIN. FT.)
7. SUCH PRICES AND PAYMENTS WILL BE CONSIDERED FULL COMPENSATION FOR ALL MATERIALS, LABOR, EQUIPMENT, TOOLS AND INCIDENTALS NECESSARY TO SATISFACTORILY COMPLETE THE WORK.
8. DO NOT EXCEED 0.08 (1:12) SLOPE ON THE WHEELCHAIR RAMP IN RELATIONSHIP TO THE GRADE OF THE STREET.
9. CONSTRUCT WHEELCHAIR RAMPS 40" (3'-4") OR GREATER FOR DUAL RAMPS.
10. USE CLASS "B" CONCRETE WITH A SIDEWALK FINISH IN ORDER TO OBTAIN A ROUGH NON-SKID TYPE SURFACE.
11. PLACE A 1/2" EXSPANSION JOINT WHERE THE CONCRETE WHEELCHAIR RAMP JOINS THE CURB AND AS SHOWN ON STD. DWG. 848.01.
12. PLACE THE INSIDE PEDESTRIAN CROSSWALK LINES NO CLOSER IN THE INTERSECTION BY BISECTING THE INTERSECTION RADII, WITH ALLOWANCE OF A 4' CLEAR ZONE IN THE VEHICULAR TRAVELWAY WHEN ONE RAMP IS INSTALLED. (SEE NOTE 17)
13. COORDINATE THE CURB CUT AND THE PEDESTRIAN CROSSWALK LINES SO THE FLOOR OF THE WHEELCHAIR RAMP WILL FALL WITHIN THE PEDESTRIAN CROSSWALK LINES. PLACE DIAGONAL RAMPS WITH FLARED SIDES SO 24" OF FULL HEIGHT CURB FALLS WITHIN THE CROSSWALK MARKINGS ON EACH SIDE OF THE FLARES.
14. CONSTRUCT THE PEDESTRIAN CROSSWALK A MINIMUM OF 6 FEET. A CROSSWALK WIDTH OF 10 FEET OR GREATER IS DESIREABLE.
15. USE STOP LINES, NORMALLY PERPENDICULAR TO THE LANE LINES, WHERE IT IS IMPORTANT TO INDICATE THE POINT BEHIND WHICH VEHICLES ARE REQUIRED TO STOP IN COMPLIANCE WITH A TRAFFIC SIGNAL, STOP SIGN OR OTHER LEGAL REQUIREMENT. AN UNUSUAL APPROACH SKEW MAY REQUIRE THE PLACEMENT OF THE STOP LINE TO BE PARALLEL TO THE INTERSECTING ROADWAY.
16. TERMINATE PARKING A MINIMUM OF 20 FEET BACK OF PEDESTRIAN CROSSWALK.
17. PLACE ALL PAVEMENT MARKINGS IN ACCORDANCE WITH THE LATEST EDITION OF THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) PUBLISHED BY THE FEDERAL HIGHWAY ADMINISTRATION AND THE NORTH CAROLINA SUPPLEMENT TO THE MUTCD.

CAD FILE : WC-RAMP3 | SD-2.2 | WHEELCHAIR RAMP NOTES SHEET 3 OF 3 | DATE 3/11/2008 DRAWN BY CSA | SCALE N.T.S. CK'D BY JPB




NOTES:
1. ALL DETECTABLE WARNING DEVICES USED IN NEW CONSTRUCTION SHALL BE OF A RIGID PRECAST OR EMBEDDED PRODUCT APPROVED BY THE CITY ENGINEER. RETRO FIT MATS WILL ONLY BE ALLOWED ON EXISTING RAMPS WITH PRIOR APPROVAL OF THE CITY ENGINEER FOR MATERIAL TYPE AND INSTALLATION (IE. RESURFACING).
2. WIDTH OF DETECTABLE WARNING AREA SHALL BE A MINIMUM OF 4 FEET AND VARY WITH WIDTH OF RAMP.
3. LENGTH OF DETECTABLE WARNING AREA SHALL BE 2 FEET REGARDLESS OF SECTION WIDTH.
4. DETECTABLE WARNING AREA CAN BE SQUARE WHERE USED IN A CURB RADIUS.
5. DETECTABLE WARNING DOMES SHALL BE ALIGNED ON A SQUARE GRID IN THE PREDOMINANT DIRECTION OF OF TRAVEL TO PERMIT WHEELS TO ROLL BETWEEN DOMES.
6. DECTECTABLE WARNING AREA SHALL BE COLORED BLACK IN ALL LOCATIONS EXCEPT ON TRYON STREET MALL, WHERE FRENCH GRAY IS TO BE USED.
7. IF PAVERS ARE TO BE USED, PAVERS SHALL BE 6" THICK AND CAST FROM 5000 psi CONCRETE.
8. MATS ARE TO BE RIGID WITH TURN DOWN EDGES EMBEDDED IN CONCRETE TO ELIMINATE TRIP HAZARD.
9. TRUNCATED DOMES ARE TO BE BLACK IN COLOR.

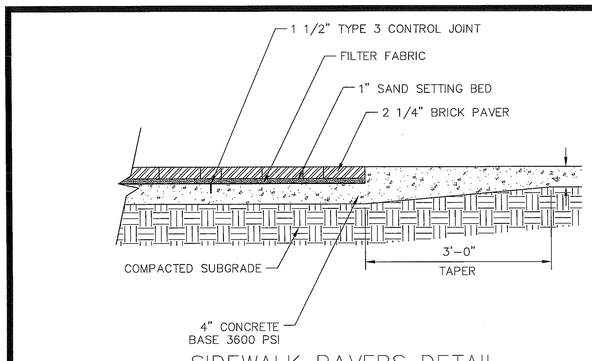
CAD FILE : TRUNDOME | SD-2.3 | TRUNCATED DOMES PLAN AND CROSS SECTION | DATE 3/11/2008 DRAWN BY CSA | SCALE NTS CK'D BY JPB




TRANSVERSE EXPANSION JOINT

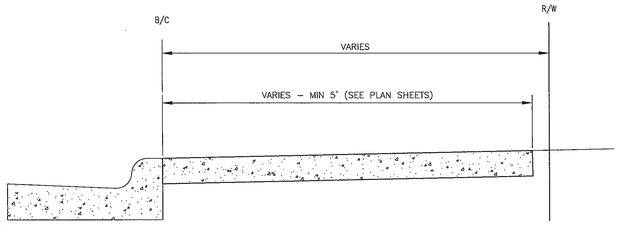
NOTES:
1. CONTRACTION JOINTS SHALL BE SPACED AT 10-FOOT INTERVALS. A 15-FT SPACING MAY BE USED WHEN A CURB MACHINE IS USED. JOINT SPACING MAY BE ALTERED BY THE CITY ENGINEER TO PREVENT UNCONTROLLED CRACKING.
2. CONTRACTION JOINTS MAY BE INSTALLED BY THE USE OF TEMPLATES OR FORMED BY OTHER APPROVED METHODS. WHERE SUCH JOINTS ARE NOT FORMED BY TEMPLATES, A MINIMUM DEPTH OF 1 1/2" SHALL BE OBTAINED.
3. ALL EXPANSION JOINTS SHALL BE SPACED AT 90-FOOT INTERVALS, AND ADJACENT TO ALL RIGID OBJECTS. JOINTS SHALL MATCH LOCATIONS WITH JOINTS IN ABUTTING SIDEWALK.
4. CONCRETE COMPRESSIVE STRENGTH SHALL BE 3600 P.S.I. IN 28 DAYS.
5. CURB SHALL BE DEPRESSED AT INTERSECTIONS TO PROVIDE FOR FUTURE ACCESSIBLE RAMPS.
6. TOP 6" OF SUBGRADE BENEATH THE CURB AND GUTTER SHALL BE COMPACTED TO 100% STANDARD PROCTOR DENSITY.

CAD FILE : EXPJOINT | SD-3 | EXPANSION JOINT | DATE 3/11/2008 DRAWN BY C.W | SCALE NTS CK'D BY C.A



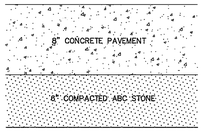

SIDEWALK PAVERS DETAIL
N.T.S

TYPICAL SIDEWALK SECTION




NOTES:
1. SIDEWALK SLAB SHALL HAVE A THICKNESS OF 5" FOR PEDESTRIAN PATHWAYS AND 7" ACROSS DRIVEWAYS.
2. CURB VARIES FROM 2'6" CURB AND GUTTER TO 18" VERTICAL CURB

CAD FILE : TYPSWBC | SD-13 | TYPICAL SIDEWALK SECTION AT BACK OF CURB | DATE 3/11/2008 DRAWN BY C.W. | SCALE N.T.S. CK'D BY C.A.




NOTES:

1. CONCRETE PAVEMENT TO CONSIST OF 8 INCHES OF 4,000 PSI AIR ENTRAINED CONCRETE.

2. CONCRETE SHOULD BE UNDERLAIN WITH 6 INCHES OF NCDOT ABC STONE, COMPACTED TO AT LEAST 98 PERCENT OF THE MAXIMUM DRY DENSITY.

3. TO CONFIRM THAT THE BASE COURSE STONE HAS BEEN UNIFORMLY COMPACTED, IN-PLACE DENSITY TESTS SHOULD BE PERFORMED BY A QUALIFIED SOILS TECHNICIAN AND THE AREA BE THOROUGHLY PROOFROLLED UNDER HIS OBSERVATION.

4. DETAIL ALSO APPLIES TO STAMPED CONCRETE PORTION OF THE PROJECT. STAMPED CONCRETE CONTRACTOR TO DETERMINE IF ADDITIONAL PROVISIONS ARE REQUIRED TO ACCOMMODATE STAMPING AND SUBMIT INFORMATION TO ENGINEER FOR APPROVAL.

CONCRETE PAVEMENT DETAIL
N.T.S

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NORTH CAROLINA PROFESSIONAL SEAL 030756 ENGINEER TIMOTHY A. CRAMER 1/21/14

URS NC CORP LICENSE : C-2243

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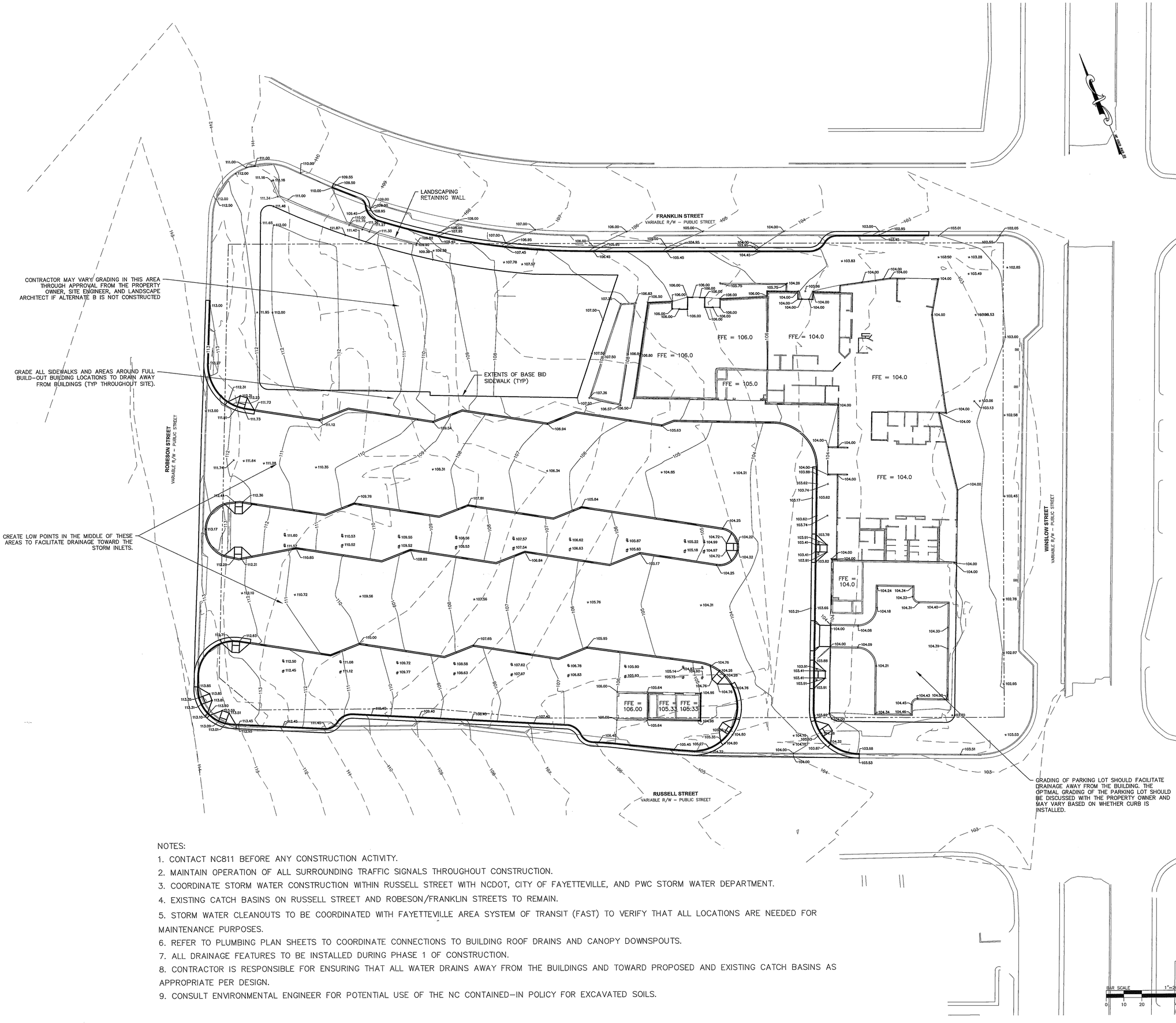
**FAST Multi-Modal Center**
City of Fayetteville
Fayetteville, NC

Project Number 621A

Title
**SITE DETAILS**

Sheet
C106

Plate of




NOTES:

1. CONTACT NC811 BEFORE ANY CONSTRUCTION ACTIVITY.
2. MAINTAIN OPERATION OF ALL SURROUNDING TRAFFIC SIGNALS THROUGHOUT CONSTRUCTION.
3. COORDINATE STORM WATER CONSTRUCTION WITHIN RUSSELL STREET WITH NCDOT, CITY OF FAYETTEVILLE, AND PWC STORM WATER DEPARTMENT.
4. EXISTING CATCH BASINS ON RUSSELL STREET AND ROBESON/FRANKLIN STREETS TO REMAIN.
5. STORM WATER CLEANOUTS TO BE COORDINATED WITH FAYETTEVILLE AREA SYSTEM OF TRANSIT (FAST) TO VERIFY THAT ALL LOCATIONS ARE NEEDED FOR MAINTENANCE PURPOSES.
6. REFER TO PLUMBING PLAN SHEETS TO COORDINATE CONNECTIONS TO BUILDING ROOF DRAINS AND CANOPY DOWNSPOUTS.
7. ALL DRAINAGE FEATURES TO BE INSTALLED DURING PHASE 1 OF CONSTRUCTION.
8. CONTRACTOR IS RESPONSIBLE FOR ENSURING THAT ALL WATER DRAINS AWAY FROM THE BUILDINGS AND TOWARD PROPOSED AND EXISTING CATCH BASINS AS APPROPRIATE PER DESIGN.
9. CONSULT ENVIRONMENTAL ENGINEER FOR POTENTIAL USE OF THE NC CONTAINED–IN POLICY FOR EXCAVATED SOILS.

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NORTH CAROLINA PROFESSIONAL SEAL 033215 ENGINEER ANTHONY A. CHIARA 1/31/14

URS NC CORP LICENSE : C-2243

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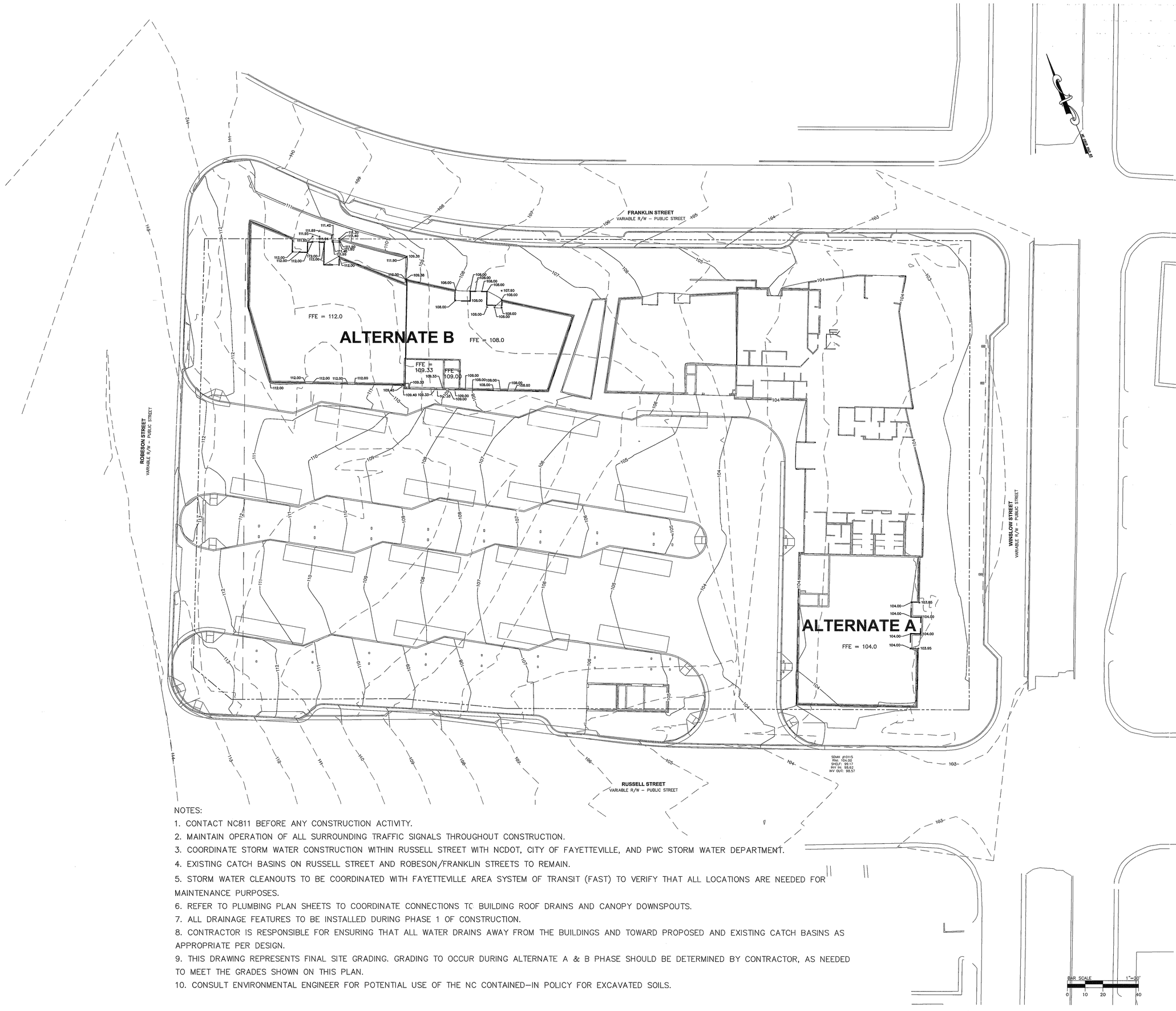
**FAST Multi-Modal Center**
City of Fayetteville
Fayetteville, NC

Project Number 621A

Title
**SITE GRADING - BASE BID**

Sheet
# C200

Plate of

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6. REFER TO PLUMBING PLAN SHEETS TO COORDINATE CONNECTIONS TO BUILDING ROOF DRAINS AND CANOPY DOWNSPOUTS.
7. ALL DRAINAGE FEATURES TO BE INSTALLED DURING PHASE 1 OF CONSTRUCTION.
8. CONTRACTOR IS RESPONSIBLE FOR ENSURING THAT ALL WATER DRAINS AWAY FROM THE BUILDINGS AND TOWARD PROPOSED AND EXISTING CATCH BASINS AS APPROPRIATE PER DESIGN.
9. THIS DRAWING REPRESENTS FINAL SITE GRADING. GRADING TO OCCUR DURING ALTERNATE A & B PHASE SHOULD BE DETERMINED BY CONTRACTOR, AS NEEDED TO MEET THE GRADES SHOWN ON THIS PLAN.
10. CONSULT ENVIRONMENTAL ENGINEER FOR POTENTIAL USE OF THE NC CONTAINED–IN POLICY FOR EXCAVATED SOILS.

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NORTH CAROLINA PROFESSIONAL SEAL 035155 ENGINEER ANTHONY A. CHAMBERS
1/31/14

URS NC CORP LICENSE : C-2243

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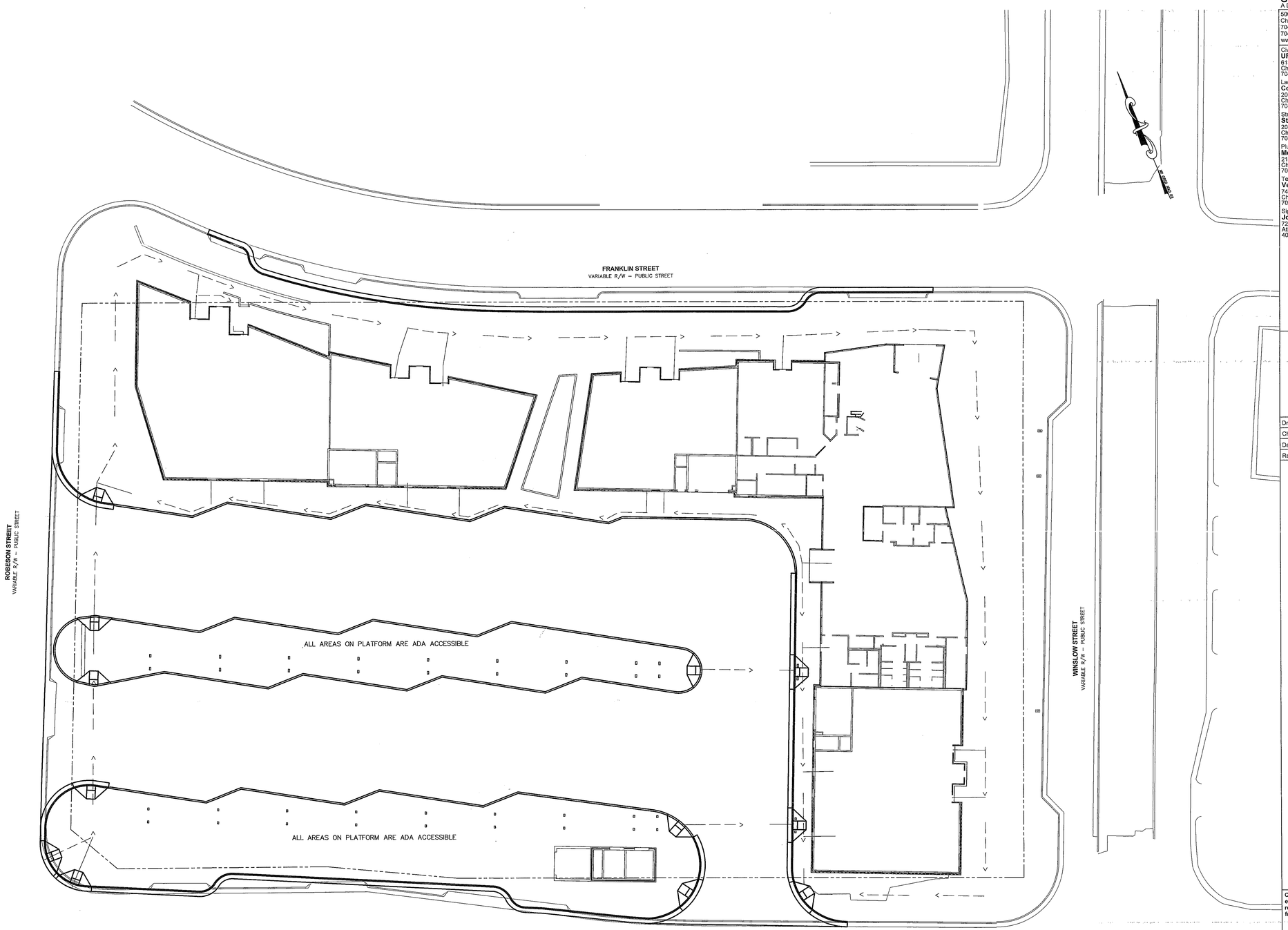
**FAST Multi-Modal Center**
City of Fayetteville
Fayetteville, NC

Project Number 621A

Title
**SITE GRADING - ALTERNATE A & B**

Sheet
**C201**

Plate of




NOTES:

1. THIS PLAN SHEET IS SCHEMATIC AND IS FOR INFORMATION PURPOSES ONLY
2. ARROWS INDICATE ONE (NOT THE ONLY) ADA ACCEPTABLE PATH AROUND THE SITE.
3. CONTRACTOR IS RESPONSIBLE FOR ESTABLISHING ADA ACCEPTABLE PATHS AS INDICATED ON THIS DRAWING.
4. ALL ENTRY DOORS TO ALL BUILDINGS SHALL BE ADA ACCESSIBLE UNLESS THE DOOR LEADS TO A STAIRWELL.
5. ALL CONCRETE PLATFORMS AND BUS LOADING AREAS SHALL BE ADA ACCESSIBLE.
6. CONTRACTOR SHALL VERIFY ADA ACCESSIBILITY (TO THE PROPERTY OWNER) UPON COMPLETION OF CONSTRUCTION.

BAR SCALE 1"=20'
0 10 20 40

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Signage Consultant
**Jones Worley**
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Atlanta, GA 30308-1416
404.876.9272 Tel

THIS SHEET FOR INFORMATION ONLY

| | |
|---|---|
| Drawn | JMM |
| Checked | TAC |
| Date | January 31, 2014 |
| Revisions | |

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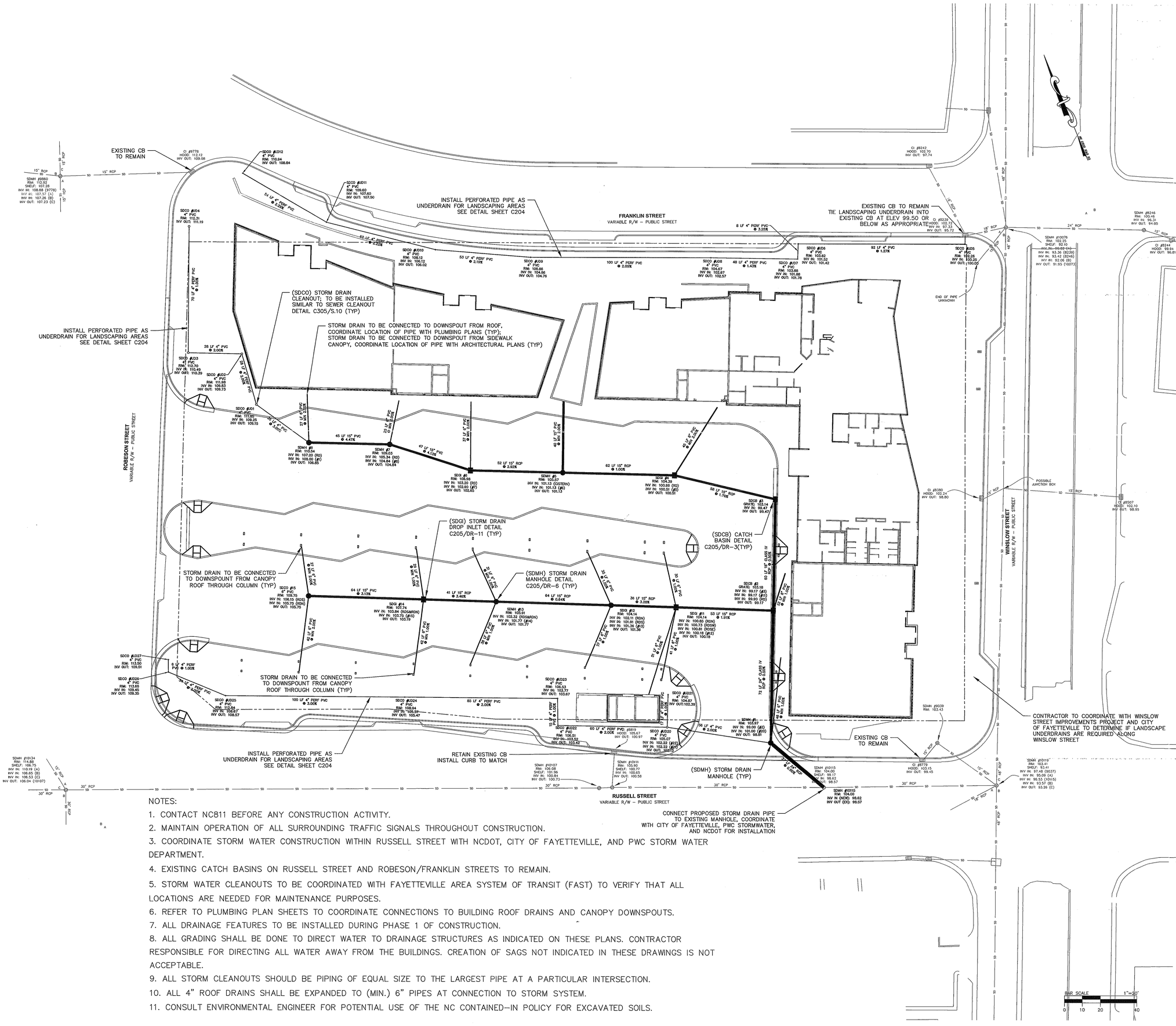
**FAST Multi-Modal Center**
City of Fayetteville
Fayetteville, NC

Project Number 621A

Title
**ACCESSIBLE PATH SCHEMATIC**

Sheet
C202

Plate of




NOTES:

1. CONTACT NC811 BEFORE ANY CONSTRUCTION ACTIVITY.
2. MAINTAIN OPERATION OF ALL SURROUNDING TRAFFIC SIGNALS THROUGHOUT CONSTRUCTION.
3. COORDINATE STORM WATER CONSTRUCTION WITHIN RUSSELL STREET WITH NCDOT, CITY OF FAYETTEVILLE, AND PWC STORM WATER DEPARTMENT.
4. EXISTING CATCH BASINS ON RUSSELL STREET AND ROBESON/FRANKLIN STREETS TO REMAIN.
5. STORM WATER CLEANOUTS TO BE COORDINATED WITH FAYETTEVILLE AREA SYSTEM OF TRANSIT (FAST) TO VERIFY THAT ALL LOCATIONS ARE NEEDED FOR MAINTENANCE PURPOSES.
6. REFER TO PLUMBING PLAN SHEETS TO COORDINATE CONNECTIONS TO BUILDING ROOF DRAINS AND CANOPY DOWNSPOUTS.
7. ALL DRAINAGE FEATURES TO BE INSTALLED DURING PHASE 1 OF CONSTRUCTION.
8. ALL GRADING SHALL BE DONE TO DIRECT WATER TO DRAINAGE STRUCTURES AS INDICATED ON THESE PLANS. CONTRACTOR RESPONSIBLE FOR DIRECTING ALL WATER AWAY FROM THE BUILDINGS. CREATION OF SAGS NOT INDICATED IN THESE DRAWINGS IS NOT ACCEPTABLE.
9. ALL STORM CLEANOUTS SHOULD BE PIPING OF EQUAL SIZE TO THE LARGEST PIPE AT A PARTICULAR INTERSECTION.
10. ALL 4" ROOF DRAINS SHALL BE EXPANDED TO (MIN.) 6" PIPES AT CONNECTION TO STORM SYSTEM.
11. CONSULT ENVIRONMENTAL ENGINEER FOR POTENTIAL USE OF THE NC CONTAINED–IN POLICY FOR EXCAVATED SOILS.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NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 033216 TIMOTHY A. CHAMBA 1/31/14

URS NC CORP LICENSE : C-2243

| | |
|---|---|
| Drawn | JMM |
| Checked | TAC |
| Date | January 31, 2014 |
| Revisions | March 21, 2013 |


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**FAST Multi-Modal Center**
City of Fayetteville
Fayetteville, NC

Project Number 621A

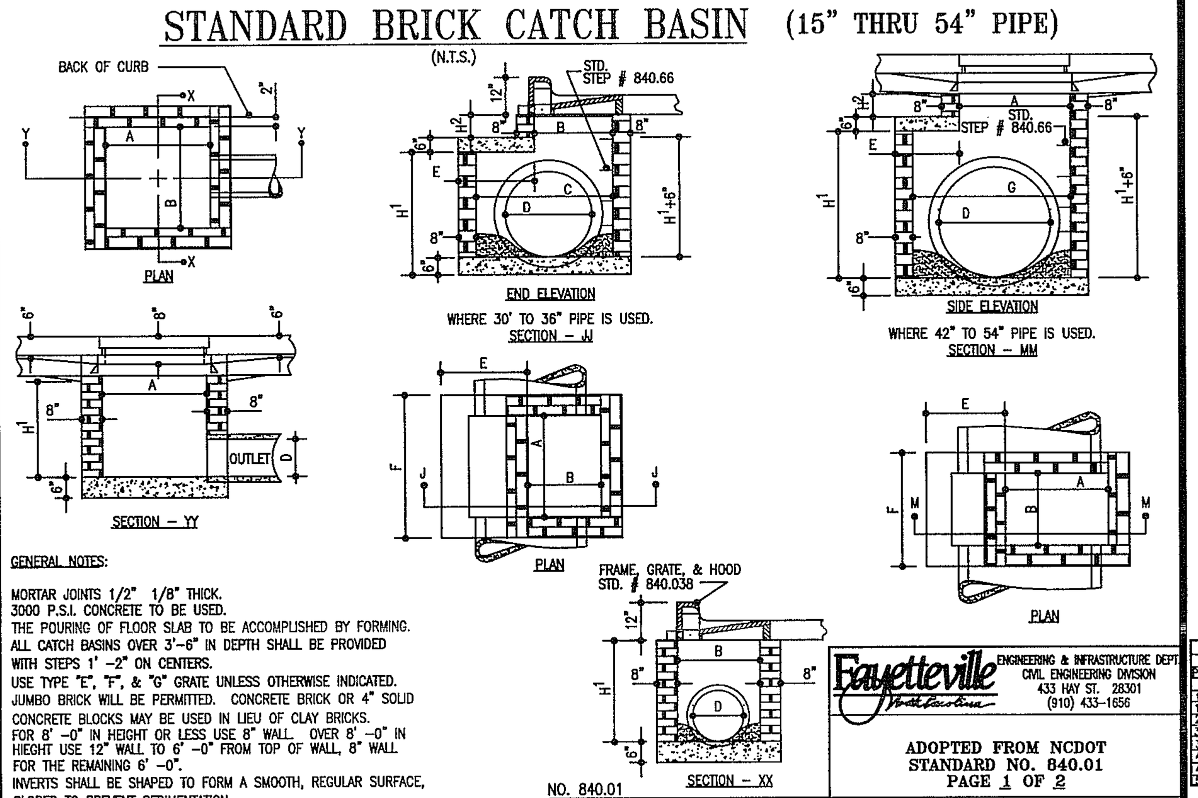
Title
**SITE DRAINAGE**

Sheet
# C203

Plate of

# STANDARD BRICK CATCH BASIN (15" THRU 54" PIPE)

(N.T.S.)




GENERAL NOTES:

MORTAR JOINTS 1/2" 1/8" THICK.
3000 P.S.I. CONCRETE TO BE USED.
THE POURING OF FLOOR SLAB TO BE ACCOMPLISHED BY FORMING.
ALL CATCH BASINS OVER 3'-6" IN DEPTH SHALL BE PROVIDED WITH STEPS 1'-2" ON CENTERS.
USE TYPE "E", "F", & "G" GRATE UNLESS OTHERWISE INDICATED.
JUMBO BRICK WILL BE PERMITTED. CONCRETE BRICK OR 4" SOLID CONCRETE BLOCKS MAY BE USED IN LIEU OF CLAY BRICKS.
FOR 8'-0" IN HEIGHT OR LESS USE 8" WALL. OVER 8'-0" IN HEIGHT USE 12" WALL TO 6'-0" FROM TOP OF WALL, 8" WALL FOR THE REMAINING 6'-0".
INVERTS SHALL BE SHAPED TO FORM A SMOOTH, REGULAR SURFACE, SLOPED TO PREVENT SEDIMENTATION.

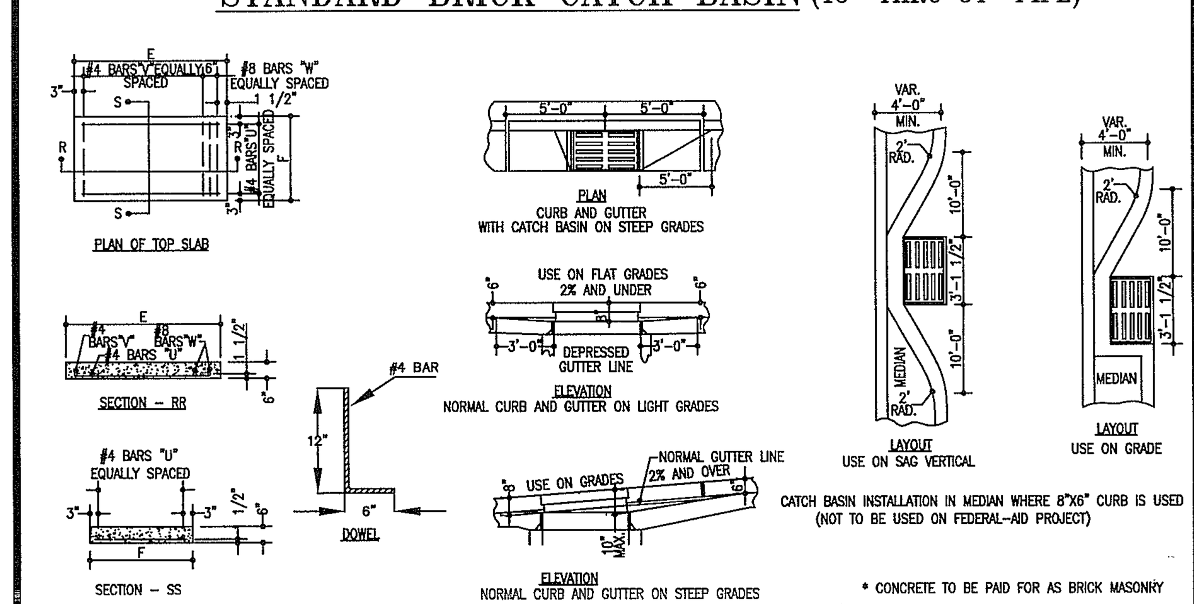
NO. 840.01

Fayetteville — ENGINEERING & INFRASTRUCTURE DEPT. CIVIL ENGINEERING DIVISION, 433 HAY ST. 28301, (910) 433-1656

ADOPTED FROM NCDOT STANDARD NO. 840.01 PAGE 1 OF 2

CAD FILE : STDBRKCB | DR-3 | DATE 3/18/2008 DRAWN BY C.W. | SCALE N.T.S. CK'D BY C.A.

# STANDARD BRICK CATCH BASIN (15" THRU 54" PIPE)




* CONCRETE TO BE PAID FOR AS BRICK MASONRY

DIMENSIONS AND QUANTITIES FOR BRICK CATCH BASIN

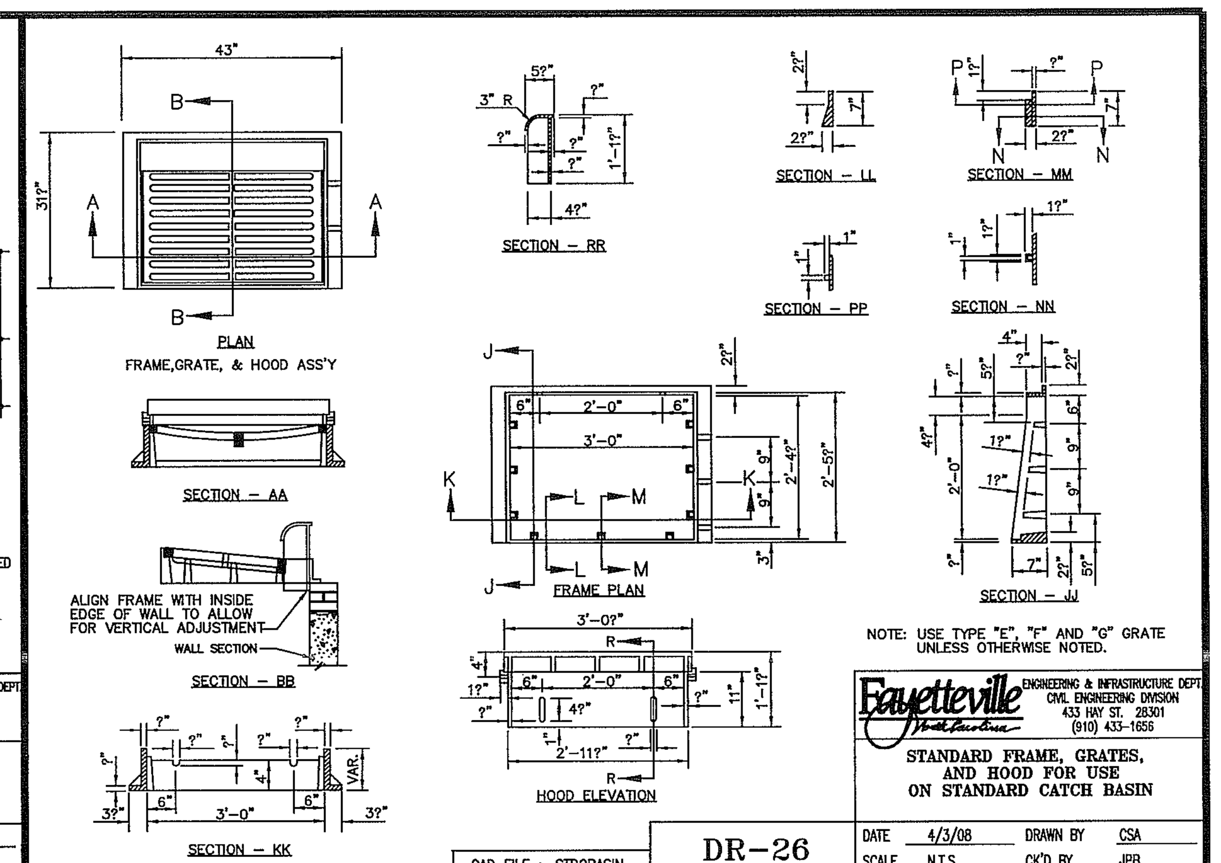
| DIMENSIONS OF BOX AND PIPE | | | | | | | COVER DIMENSION | | REINFORCING | | | | | | | * CUBIC YARDS OF CONCRETE IN BOX | | | BRICK MASON | | DEDUCTIONS FOR ONE PIPE | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| PIPE | SPAN | WIDTH | WIDTH | SPAN | HEIGHT | HEIGHT | | | BARS-U | | BARS-V | | BARS-W | | TOTAL | | | | $H^1$ | | | |
| D | A | B | C | G | MIN. $H^1$ | $H^2$ | E | F | NO | LENGTH | NO | LENGTH | NO. | LENGTH | LBS. | TOP SLAB | FLOOR | TOTAL | CU. YDS. | PER FT.HT | C.M. | R.C. |
| 15" | 3'-0" | 2'-2" | – | – | 3'-0" | – | – | – | – | – | – | – | – | – | – | – | 0.281 | 0.281 | 0.963 | 0.321 ABOVE MIN. $H^1$ | 0.0308 | 0.047 |
| 18" | | | – | – | 3'-3" | – | – | – | – | – | – | – | – | – | – | – | 0.281 | 0.281 | 1.043 | | 0.0442 | 0.065 |
| 24" | | | – | – | 3'-9" | – | – | – | – | – | – | – | – | – | – | – | 0.281 | 0.281 | 1.204 | | 0.0784 | 0.121 |
| 30" | | | 3'-4" | – | 4'-3" | VARIABLE | 1'-2" | 4'-4" | 4 | 1'-6" | 3 | 4'-1" | 3 | 4'-1" | 45 | 0.147 | 0.374 | 0.521 | 1.606 | 0.321 $H^2$ | 0.1224 | 0.184 |
| 36" | | | 3'-10" | – | 4'-9" | | 1'-8" | 4'-4" | 4 | 2'-0" | 4 | 4'-1" | 3 | 4'-1" | 49 | 0.187 | 0.415 | 0.602 | 1.914 | | 0.1760 | 0.261 |
| 42" | | | – | 4'-5" | 5'-3" | | 1'-5" | 3'-6" | 4 | 1'-9" | 3 | 3'-3" | 3 | 3'-3" | 38 | 0.135 | 0.373 | 0.508 | 2.152 | | 0.2400 | 0.371 |
| 48" | | | – | 5'-0" | 5'-9" | | 2'-0" | 3'-6" | 4 | 2'-6" | 4 | 3'-3" | 3 | 3'-3" | 41 | 0.173 | 0.410 | 0.583 | 2.415 | | 0.3131 | 0.477 |
| 54" | 3'-0" | 2'-2" | – | 5'-7" | 6'-3" | | 2'-7" | 3'-6" | 4 | 3'-0" | 6 | 3'-3" | 3 | 3'-3" | 47 | 0.211 | 0.448 | 0.659 | 2.808 | | 0.3958 | 0.595 |

NO. 840.01

Fayetteville — ENGINEERING & INFRASTRUCTURE DEPT. CIVIL ENGINEERING DIVISION, 433 HAY ST. 28301, (910) 433-1656

ADOPTED FROM NCDOT STANDARD NO. 840.01 PAGE 2 OF 2

CAD FILE : STDBRCB2 | DR-3.1 | DATE 3/18/2008 DRAWN BY C.W. | SCALE N.T.S. CK'D BY C.A.

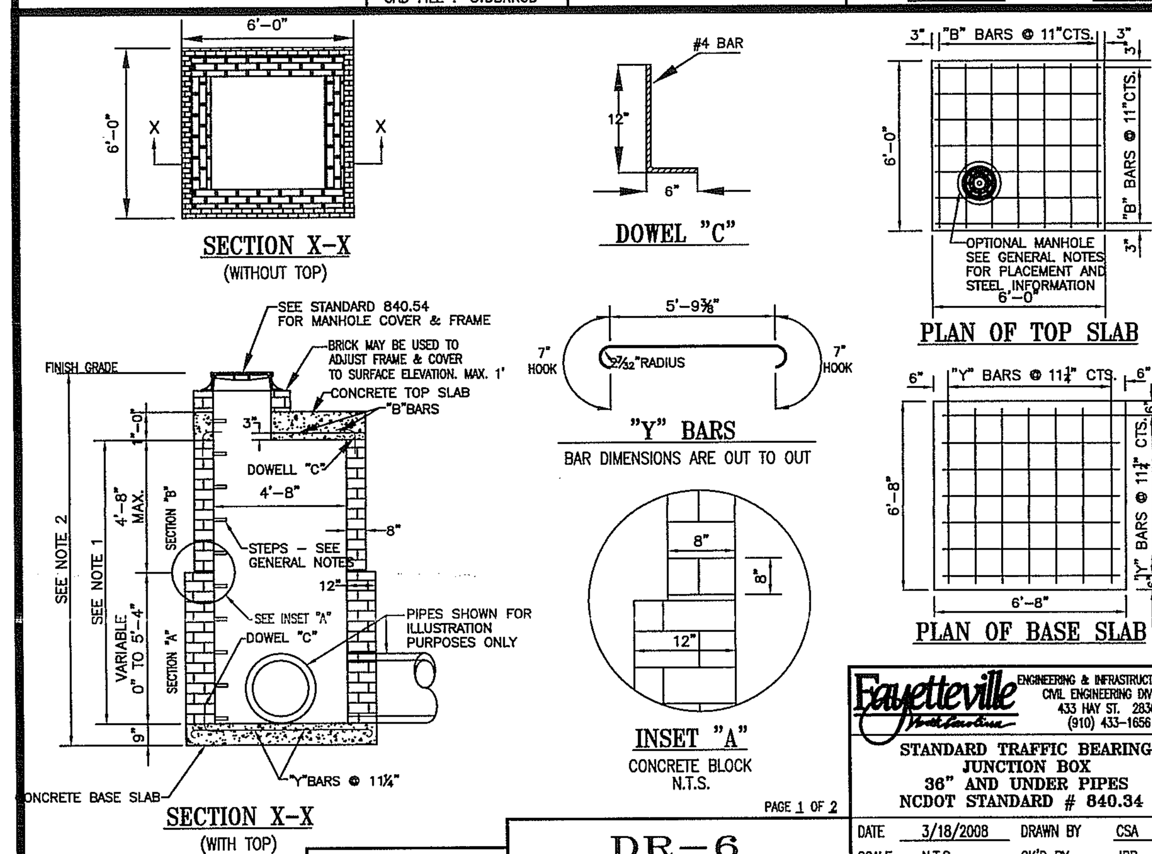



NOTE: USE TYPE "E", "F" AND "G" GRATE UNLESS OTHERWISE NOTED.

Fayetteville — ENGINEERING & INFRASTRUCTURE DEPT. CIVIL ENGINEERING DIVISION, 433 HAY ST. 28301, (910) 433-1656

STANDARD FRAME, GRATES, AND HOOD FOR USE ON STANDARD CATCH BASIN

CAD FILE : STDCBASIN | DR-26 | DATE 4/3/08 DRAWN BY CSA | SCALE N.T.S. CK'D BY JPB




PAGE 1 OF 2

Fayetteville — ENGINEERING & INFRASTRUCTURE DEPT. CIVIL ENGINEERING DIVISION, 433 HAY ST. 28301, (910) 433-1656

STANDARD TRAFFIC BEARING JUNCTION BOX 36" AND UNDER PIPES NCDOT STANDARD # 840.34

CAD FILE : STDJBTRAFFIC | DR-6 | DATE 3/18/2008 DRAWN BY CSA | SCALE N.T.S. CK'D BY JPB

GENERAL NOTES:

STANDARD OR JUMBO BRICK SHALL BE USED FOR WALL CONSTRUCTION. SOLID CONCRETE BRICK OR BLOCK ARE OPTIONAL WALL CONSTRUCTION MATERIAL.

PRECAST UNITS MADE OF CLASS "AA" CONCRETE MAY BE USED IN LIEU OF BRICK MASONRY CONSTRUCTION. DESIGN OF PRECAST UNITS SHALL BE SUBMITTED FOR APPROVAL PRIOR TO CONSTRUCTION.

ALL ADJUSTMENTS TO WALLS, SLABS OR REINFORCING MATERIAL SHALL BE INCLUDED IN THE UNIT PRICE BID FOR EACH UNIT.

OPTIONAL MANHOLE SHALL BE INSTALLED IN POSITION AS DIRECTED BY THE ENGINEER. ALL REBAR CROSSING THIS OPENING SHALL BE CUT OR BENT TO ALLOW 2" MINIMUM CONCRETE COVERAGE. THE OPENING SHALL BE ENCLOSED WITH 8 "A" BARS TIED TO THE REBAR MAT AND SET SO A MINIMUM OF A 3" CONCRETE COVERAGE IS OBTAINED. REFERENCE STD. NO. 840.54 FOR ALL MANHOLE INFORMATION.

JUNCTION BOXES OVER 3'-6" IN DEPTH WITH MANHOLES SHALL REQUIRE STEPS TO BE PLACED ON 1'-2" CENTERS. REFERENCE STD. NO. 840.66.

DOWEL "C" BARS SHALL BE SPACED AT A MINIMUM OF 12" CENTERS.

MAXIMUM DEPTH OF THIS UNIT AS SHOWN IS 12'.

BILL OF MATERIALS

| BAR | QTY. | SIZE | LENGTH | WEIGHT |
|---|---|---|---|---|
| A | 8 | #5 | 1'-2" | 9.7 |
| B | 14 | #5 | 5'-6" | 80.3 |
| C | 26 | #4 | 1'-6" | 26.1 |
| Y | 14 | #5 | 6'-11 3/8" | 101.5 |
| | | STEEL TOTAL WEIGHT | | 217.6 |
| CU. YDS. CLASS "AA" CONC. | | | | 2.6 |
| CU. YDS. BRICK/FT. HT. (8") | | | | 0.53 |
| CU. YDS. BRICK/FT. HT. (12") | | | | 0.84 |

NOTE 1: SECTION "B" OF THE PROPOSED WALL SHALL BE 8" THICK. SECTION "A" SHALL BE 12" THICK.

NOTE 2: IF PROPOSED STRUCTURE EXCEEDS 12'-0" VERTICAL HEIGHT A DESIGN WILL BE REQUIRED FOR APPROVAL.

NOTE 3: ALL REINFORCING STEEL SHALL BE SINGLE MAT; EXCEPT DOUBLE MAT STEEL MAY BE USED IN LIEU OF HOOK BARS IN BASE SLAB.

PAGE 2 OF 2

Fayetteville — ENGINEERING & INFRASTRUCTURE DEPT. CIVIL ENGINEERING DIVISION, 433 HAY ST. 28301, (910) 433-1656

STANDARD TRAFFIC BEARING JUNCTION BOX 36" AND UNDER PIPES NCDOT STANDARD # 840.34

CAD FILE : STDJBTRAFFIC | DR-6.1 | DATE 3/18/2008 DRAWN BY CSA | SCALE N.T.S. CK'D BY JPB

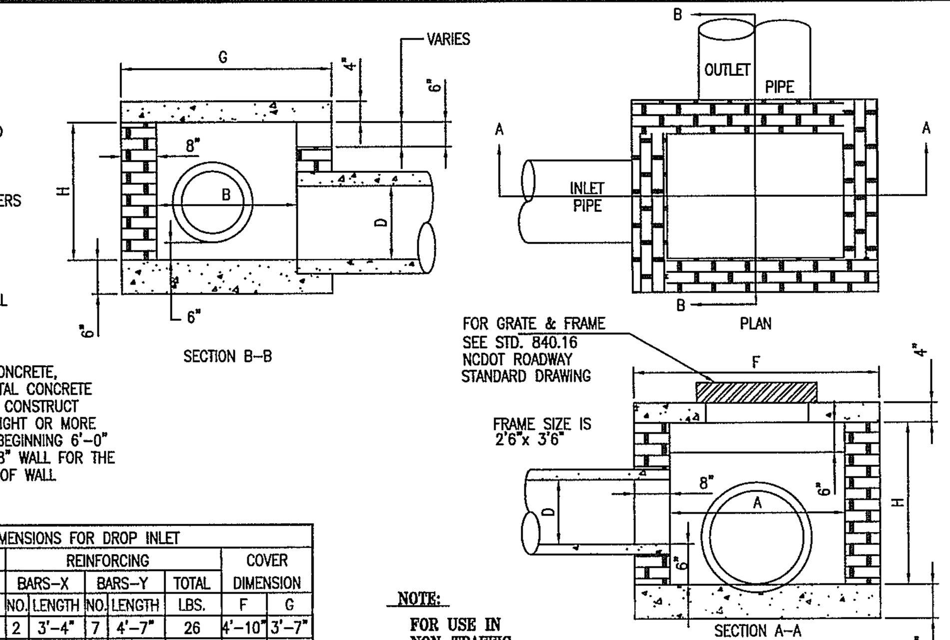
NOTES:

ALL BASINS OVER 3'-6" DEPTH SHALL BE PROVIDED WITH STEPS 1'-2" O.C.

EXPOSED CONCRETE CORNERS SHALL BE CHAMFERED 1" MOTAR JOINTS SHALL BE 1/2" ± 1/8"

ALL EXPOSED JOINTS SHALL BE CONCAVE TOOLED

JUMBO BRICK, PRECAST CONCRETE, AND/OR PRECAST SEGMENTAL CONCRETE BLOCKS MAY BE USED TO CONSTRUCT BASIN, BASIN 8'-0" IN HEIGHT OR MORE SHALL HAVE A 12" WALL BEGINNING 6'-0" FROM TOP OF WALL AND 8" WALL FOR THE REMAINING 6'-0" TO TOP OF WALL




MIN DIMENSIONS FOR DROP INLET

| DIM'S OF BOX & PIPE | | | | REINFORCING | | | | | COVER DIMENSION | |
|---|---|---|---|---|---|---|---|---|---|---|
| PIPE | SPAN | WIDTH | HEIGHT | BARS-X | | BARS-Y | | TOTAL | | |
| D | A | B | H(MIN) | NO. | LENGTH | NO. | LENGTH | LBS. | F | G |
| 15" | 3'-6" | 2'-3" | 2'-7" | 2 | 3'-4" | 7 | 4'-7" | 26 | 4'-10" | 3'-7" |
| 18" | 4'-0" | 2'-8" | 2'-11" | 2 | 3'-9" | 8 | 5'-1" | 33 | 5'-4" | 4'-0" |
| 24" | 4'-0" | 2'-8" | 3'-5" | 2 | 3'-9" | 8 | 5'-1" | 33 | 5'-4" | 4'-0" |
| 30" | 4'-0" | 3'-6" | 3'-11" | 2 | 4'-7" | 9 | 5'-1" | 37 | 5'-4" | 4'-10" |
| 36" | 4'-0" | 3'-6" | 4'-6" | 2 | 4'-7" | 9 | 5'-1" | 37 | 5'-4" | 4'-10" |
| 42" | 4'-0" | 3'-6" | 4'-11" | 2 | 4'-7" | 9 | 5'-1" | 37 | 5'-4" | 4'-10" |
| 48" | 4'-6" | 4'-0" | 5'-5" | 2 | 5'-4" | 10 | 5'-7" | 45 | 5'-10" | 5'-4" |

NOTE:
FOR USE IN NON-TRAFFIC AREAS ONLY.

SHEET 2 OF 2

Fayetteville — ENGINEERING & INFRASTRUCTURE DEPT. CIVIL ENGINEERING DIVISION, 433 HAY ST. 28301, (910) 433-1656

DROP INLET WITH GRATE (ON TOP) ADOPTED FROM NCDOT STANDARD NO. 840.15

CAD FILE : Dropnleta | DR-11 | DATE 3/24/2008 DRAWN BY C.W. | SCALE N.T.S. CK'D BY C.A.

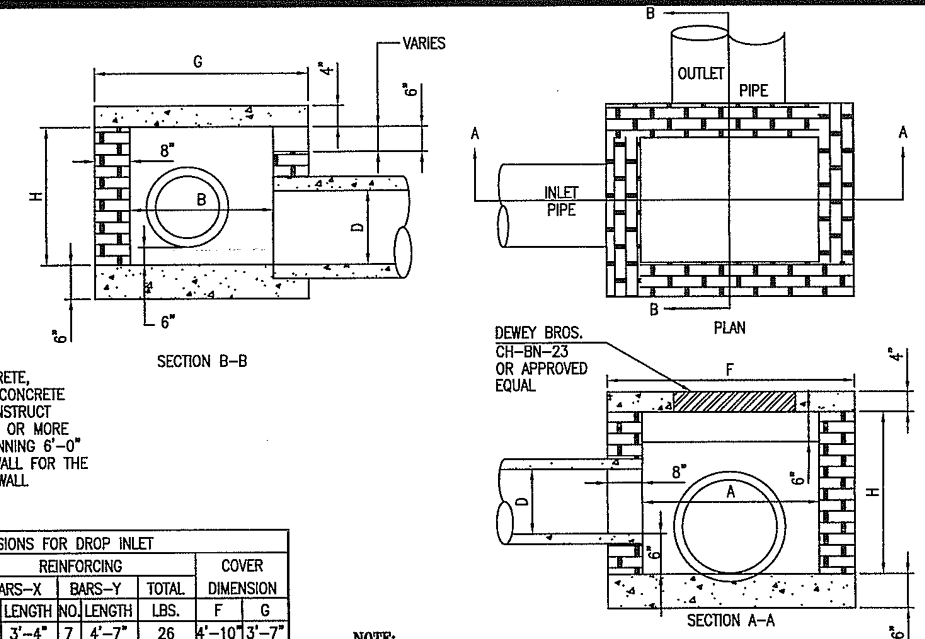
NOTES:

ALL BASINS OVER 3'-6" DEPTH SHALL BE PROVIDED WITH STEPS 1'-2" O.C.

EXPOSED CONCRETE CORNERS SHALL BE CHAMFERED 1" MOTAR JOINTS SHALL BE 1/2" ± 1/8"

ALL EXPOSED JOINTS SHALL BE CONCAVE TOOLED

JUMBO BRICK, PRECAST CONCRETE, AND/OR PRECAST SEGMENTAL CONCRETE BLOCKS MAY BE USED TO CONSTRUCT BASIN, BASIN 8'-0" IN HEIGHT OR MORE SHALL HAVE A 12" WALL BEGINNING 6'-0" FROM TOP OF WALL AND 8" WALL FOR THE REMAINING 6'-0" TO TOP OF WALL




MIN DIMENSIONS FOR DROP INLET

| DIM'S OF BOX & PIPE | | | | REINFORCING | | | | | COVER DIMENSION | |
|---|---|---|---|---|---|---|---|---|---|---|
| PIPE | SPAN | WIDTH | HEIGHT | BARS-X | | BARS-Y | | TOTAL | | |
| D | A | B | H(MIN) | NO. | LENGTH | NO. | LENGTH | LBS. | F | G |
| 15" | 3'-6" | 2'-3" | 2'-7" | 2 | 3'-4" | 7 | 4'-7" | 26 | 4'-10" | 3'-7" |
| 18" | 4'-0" | 2'-8" | 2'-11" | 2 | 3'-9" | 8 | 5'-1" | 33 | 5'-4" | 4'-0" |
| 24" | 4'-0" | 2'-8" | 3'-5" | 2 | 3'-9" | 8 | 5'-1" | 33 | 5'-4" | 4'-0" |
| 30" | 4'-0" | 3'-6" | 3'-11" | 2 | 4'-7" | 9 | 5'-1" | 37 | 5'-4" | 4'-10" |
| 36" | 4'-0" | 3'-6" | 4'-6" | 2 | 4'-7" | 9 | 5'-1" | 37 | 5'-4" | 4'-10" |
| 42" | 4'-0" | 3'-6" | 4'-11" | 2 | 4'-7" | 9 | 5'-1" | 37 | 5'-4" | 4'-10" |
| 48" | 4'-6" | 4'-0" | 5'-5" | 2 | 5'-4" | 10 | 5'-7" | 45 | 5'-10" | 5'-4" |

NOTE:
FOR USE IN NON-TRAFFIC AREAS ONLY.

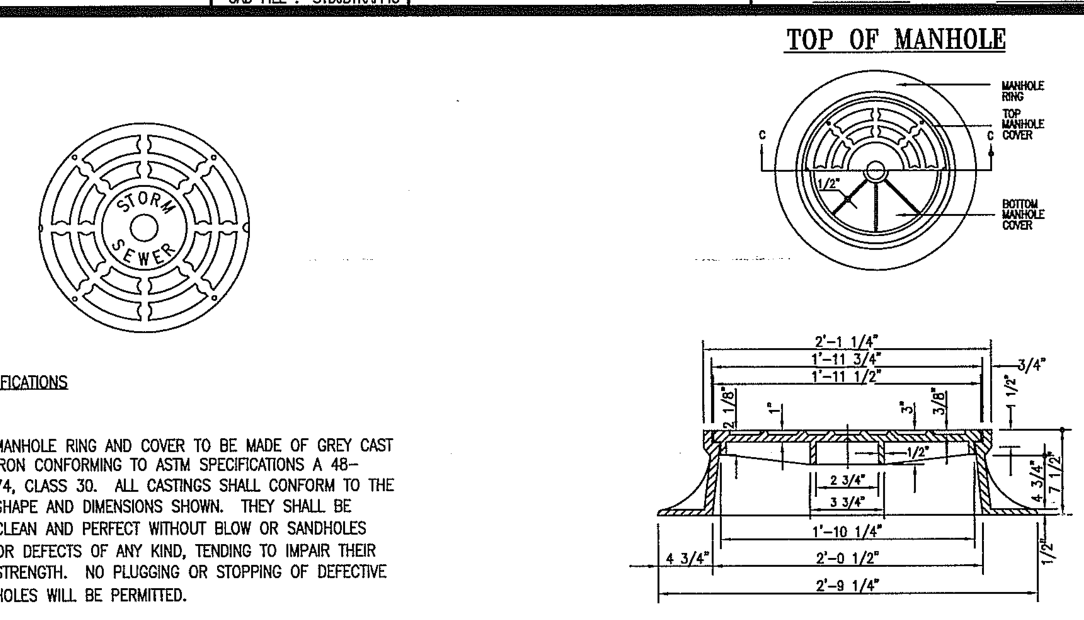
SHEET 1 OF 2

Fayetteville — ENGINEERING & INFRASTRUCTURE DEPT. CIVIL ENGINEERING DIVISION, 433 HAY ST. 28301, (910) 433-1656

DROP INLET WITH GRATE (FLUSH) ADOPTED FROM NCDOT STANDARD NO. 840.15

CAD FILE: DROPNLET | DR-11 | DATE 3/24/2008 DRAWN BY C.W. | SCALE N. T. S. CK'D BY C.A.

## TOP OF MANHOLE




SPECIFICATIONS

1. MANHOLE RING AND COVER TO BE MADE OF GREY CAST IRON CONFORMING TO ASTM SPECIFICATIONS A 48-74, CLASS 30. ALL CASTINGS SHALL CONFORM TO THE SHAPE AND DIMENSIONS SHOWN. THEY SHALL BE CLEAN AND PERFECT WITHOUT BLOW OR SANDHOLES OR DEFECTS OF ANY KIND, TENDING TO IMPAIR THEIR STRENGTH. NO PLUGGING OR STOPPING OF DEFECTIVE HOLES WILL BE PERMITTED.
2. CASTINGS SHALL BE DIPPED WHILE IN HOT COAL TAR.
3. MANHOLE RING AND COVER TO WITHSTAND VEHICULAR TRAFFIC WITHOUT OBJECTIONABLE NOISE.
4. MINIMUM AVERAGE WEIGHT:
   FRAME: 180 LBS
   COVER: 120 LBS

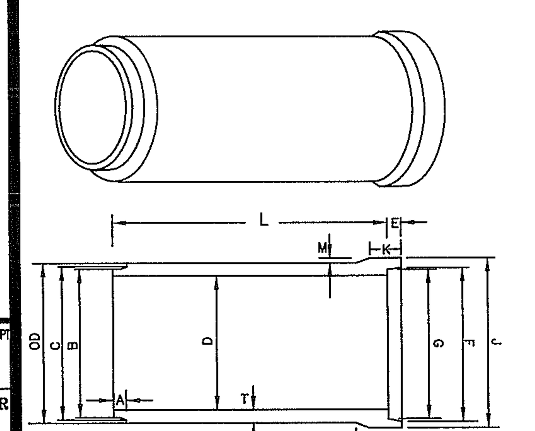
DEWEY BROS., INC.-MH-RCR- 2001
OR APPROVED EQUAL

Fayetteville — ENGINEERING & INFRASTRUCTURE DEPT. CIVIL ENGINEERING DIVISION, 433 HAY ST. 28301, (910) 433-1656

STANDARD MANHOLE RING AND COVER ADOPTED FROM NCDOT STANDARD NO. 840.54

CAD FILE : MHRCOVER | DR-13 | DATE 3/24/2008 DRAWN BY C.W. | SCALE N.T.S. CK'D BY C.A.

| SIZE D | T | L | POUNDS PER FOOT | ASTM SPEC. & CLASS | OD | A | B | C | E | F | G | J | K | M | N | PLANT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 15 | B2¼ | 8' | 134 | ASTM C76 III IV V | 19½ | 2 | 16 15/16 | 17¼ | 2 | 17¾ | 17 | 21⅜ | 4½ | 7/16 | 1¼ | SR VN-KN |
| 18 | B2½ | 8' | 173 | ASTM C76 III IV V | 23 | 2 | 20 | 20¾ | 2 | 21¼ | 20½ | 23½ | 6½ | ¾ | 1¼ | SR VN-KN |
| 24 | B3 | 8' | 268 | ASTM C76 III IV V | 30 | 2½ | 26 3/16 | 26⅞ | 2 13/16 | 27¾ | 27 | 31 1/32 | 4¼ | ½ | 1½ | VN-KN SR |
| 30 | B3½ | 8' | 396 | ASTM C76 III IV V | 37 | 2 15/16 | 32 1/16 | 33⅛ | 3 | 34 1/32 | 33 1/32 | 38½ | 5½ | ¾ | 1½ | SR-K |
| 36 | B4 | 8' | 543 | ASTM C76 III IV V | 44 | 3¾ | 39¼ | 39 29/32 | 3 13/16 | 40 19/32 | 40 5/16 | 46½ | 6 | 1¼ | 2 11/16 | SR-K |



MODIFIED TONGUE AND GROOVE

8 FOOT LENGTH

MORTAR OF FLEXIBLE PLASTIC TYPE JOINT

SPECIFICATIONS:
ASTM C 76-LATEST
NCDOT
REINFORCED IN ACCORDANCE WITH APPLICABLE SPECIFICATIONS

LIFT HOLES STANDARD ON 36" AS ALLOWED PER ASTM SPECIFICATIONS

Fayetteville — ENGINEERING & INFRASTRUCTURE DEPT. CIVIL ENGINEERING DIVISION, 433 HAY ST. 28301, (910) 433-1656

REINFORCED CONCRETE SEWER, STORM DRAIN AND CULVERT PIPE (15"-36")

CAD FILE : PIPESECT | DR-19 | DATE 3/25/2008 DRAWN BY C.W. | SCALE N.T.S. CK'D BY C.A.

| SIZE D IN. | MIN. SLOPE (FT) RCP | MIN. SLOPE (FT) CMP | CLEARANCE DIST. (FT) RCP | CLEARANCE DIST. (FT) CMP |
|---|---|---|---|---|
| 15 | 0.00325 | 0.01107 | 2.4 | 2.3 |
| 18 | 0.00255 | 0.00868 | 2.7 | 2.6 |
| 24 | 0.00174 | 0.00592 | 3.3 | 3.1 |
| 30 | 0.00129 | 0.00439 | 3.8 | 3.6 |
| 36 | 0.00101 | 0.00345 | 4.3 | 4.1 |
| 42 | 0.00082 | 0.00281 | 4.9 | 4.6 |
| 48 | 0.00069 | 0.00235 | 5.4 | 5.1 |

NOTES:
1. THE MAXIMUM PIPE VELOCITY SHALL NOT EXCEED 20 FT PER SEC., BUT SHALL NOT CAUSE SCOUR OR OTHER EROSION PROBLEMS IN THE RECEIVING CHANNEL.
2. SLOPES REQUIRED TO MAINTAIN MINIMUM VELOCITY OF 3 FT PER SEC. AT FULL FLOW.
3. THE MINIMUM SIZE STORM DRAIN PIPE SHALL BE 15 IN.
4. ALL STORM DRAINAGE PIPE USED WITHIN CITY RIGHT-OF-WAY SHALL BE REINFORCED CONCRETE PIPE (RCP). ALL RCP SHALL BE CLASS III OR HIGHER.
5. CLEARANCE DISTANCE IS DETERMINED FROM THE PIPE INVERT ELEVATION UP.

**A MINIMUM OF 6" OF #57 WASHED STONE IS REQUIRED FOR ALL PIPE INSTALLATION. SEE CITY CITY OF FAYETTEVILLE STANDARD DETAIL DR-1.**

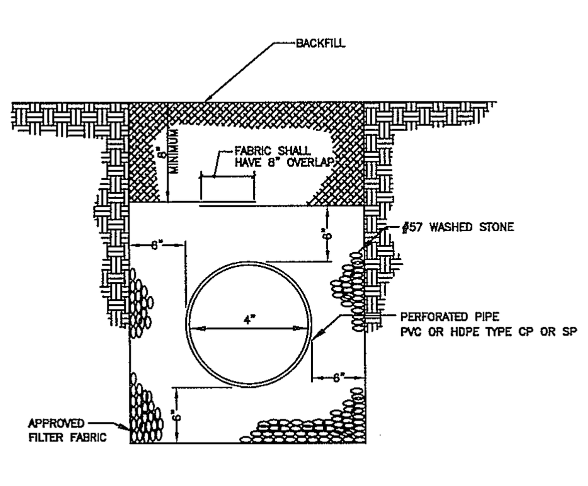
Fayetteville — ENGINEERING & INFRASTRUCTURE DEPT. CIVIL ENGINEERING DIVISION, 433 HAY ST. 28301, (910) 433-1656

MINIMUM SLOPE & COVER FOR STORM DRAIN AND CULVERT PIPE

CAD FILE : PIPESECT | DR-19.2 | DATE 9/16/2010 DRAWN BY C.W. | SCALE N.T.S. CK'D BY C.A.

NOTES:

1. A MINIMUM OF 6" FROM OUTSIDE DIAMETER OF PIPE TO SIDE OF TRENCH MUST BE ALLOWED FOR WASHED STONE. AN APPROVED FILTER FABRIC SHALL BE PLACED AROUND STONE AND OVERLAPPED 8" AT TOP WITHIN STREET RIGHT OF WAY.
2. SUBDRAIN IS TO BE A MINIMUM 4" DIAMETER PERFORATED PIPE; USE SCHEDULE 40 PVC PER ASTM D1785 OR HDPE PER AASHTO M252, TYPE CP (SINGLE-WALL, CORRUGATED) OR TYPE SP (DOUBLE-WALL, SMOOTH INTERIOR).
3. FILTER FABRIC SHALL BE AN APPROVED, TYPE 2 WATER PERMEABLE, SYNTHETIC FABRIC.
4. CLEAN-OUTS ARE RECOMMENDED AT ALL PIPE INTERSECTIONS AND AT A 100' MAXIMUM SEPARATION.
5. SUBDRAIN INVERTS AT CATCH BASINS SHOULD BE INSTALLED ABOVE THE BOTTOM A MIN OF 3" TO AVOID SURCHARGE OF SUBDRAIN SYSTEM.




NOT TO SCALE

LANDSCAPING SUBDRAIN DETAIL

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NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 033055 ANTHONY A. CHAMRA 1/31/14

URS NC CORP LICENSE : C-2243

Drawn JMM
Checked TAC
Date January 31, 2014
Revisions

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**FAST Multi-Modal Center**

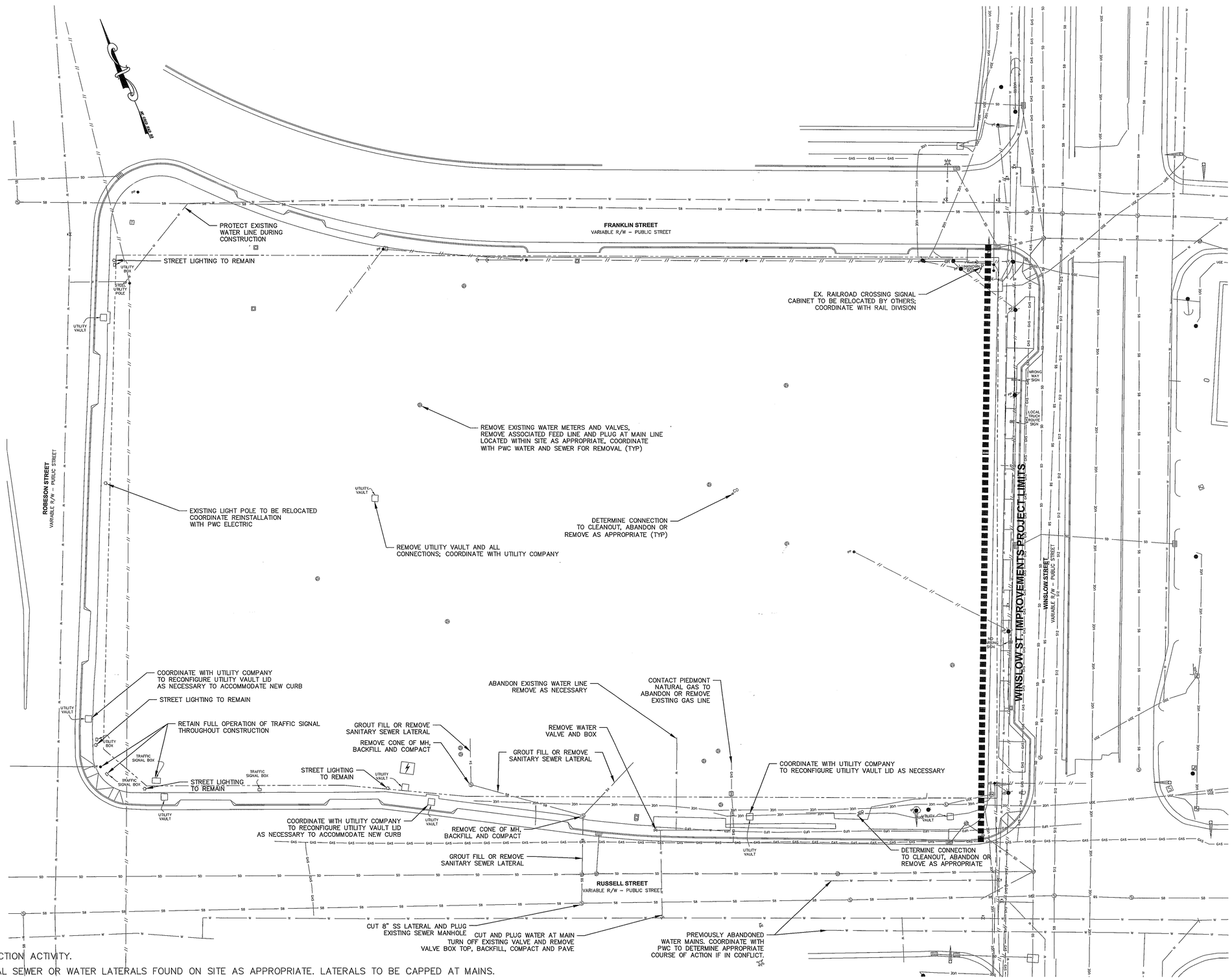
City of Fayetteville
Fayetteville, NC

Project Number 621A

Title
**DRAINAGE DETAILS**

Sheet
C204

Plate of




NOTES:

1. CONTACT NC811 BEFORE ANY CONSTRUCTION ACTIVITY.
2. GROUT FILL OR REMOVE ANY ADDITIONAL SEWER OR WATER LATERALS FOUND ON SITE AS APPROPRIATE. LATERALS TO BE CAPPED AT MAINS.
3. TURN OFF ALL EXISTING VALVES WITHIN THE SITE WHICH ARE ATTACHED TO PIPES WHICH ARE TO BE ABANDONED. REMOVE VALVE BOX TOP, BACKFILL AND COMPACT AS APPROPRIATE. LATERALS FROM THE MAIN TO THESE VALVES SHOULD BE REMOVED PER PWC REQUIREMENTS.
4. ALL WATER AND SEWER INSTALLATION AND ABANDONMENT SHALL BE DONE IN ACCORDANCE WITH PWC REQUIREMENTS. WATER METERS TO BE PRESERVED AND RETURNED TO PWC.
5. ALL WATER OUTAGES SHALL BE COORDINATED WITH PWC. PROVIDE A MINIMUM OF 48 HOURS NOTICE.
6. MAINTAIN OPERATION OF ALL SURROUNDING TRAFFIC SIGNALS THROUGHOUT CONSTRUCTION.
7. COORDINATE ALL ELECTRICAL WORK WITH PWC ELECTRIC.
8. BEFORE REMOVAL OR ADJUSTMENT OF UTILITIES, COORDINATE WITH APPROPRIATE UTILITY COMPANY TO DETERMINE PROPER REMOVAL OR RELOCATION PROCEDURES AND PROVIDE NOTICE TO ANY EFFECTED UTILITY CUSTOMERS.
9. INITIAL SITE DEMOLITION HAS BEEN COMPLETED UNDER SEPARATE CONTRACT. CONTRACTOR TO VERIFY EXISTING CONDITIONS.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NORTH CAROLINA PROFESSIONAL SEAL 032251 ENGINEER TIMOTHY A. CHAMBERS
1/31/14

URS NC CORP LICENSE : C-2243

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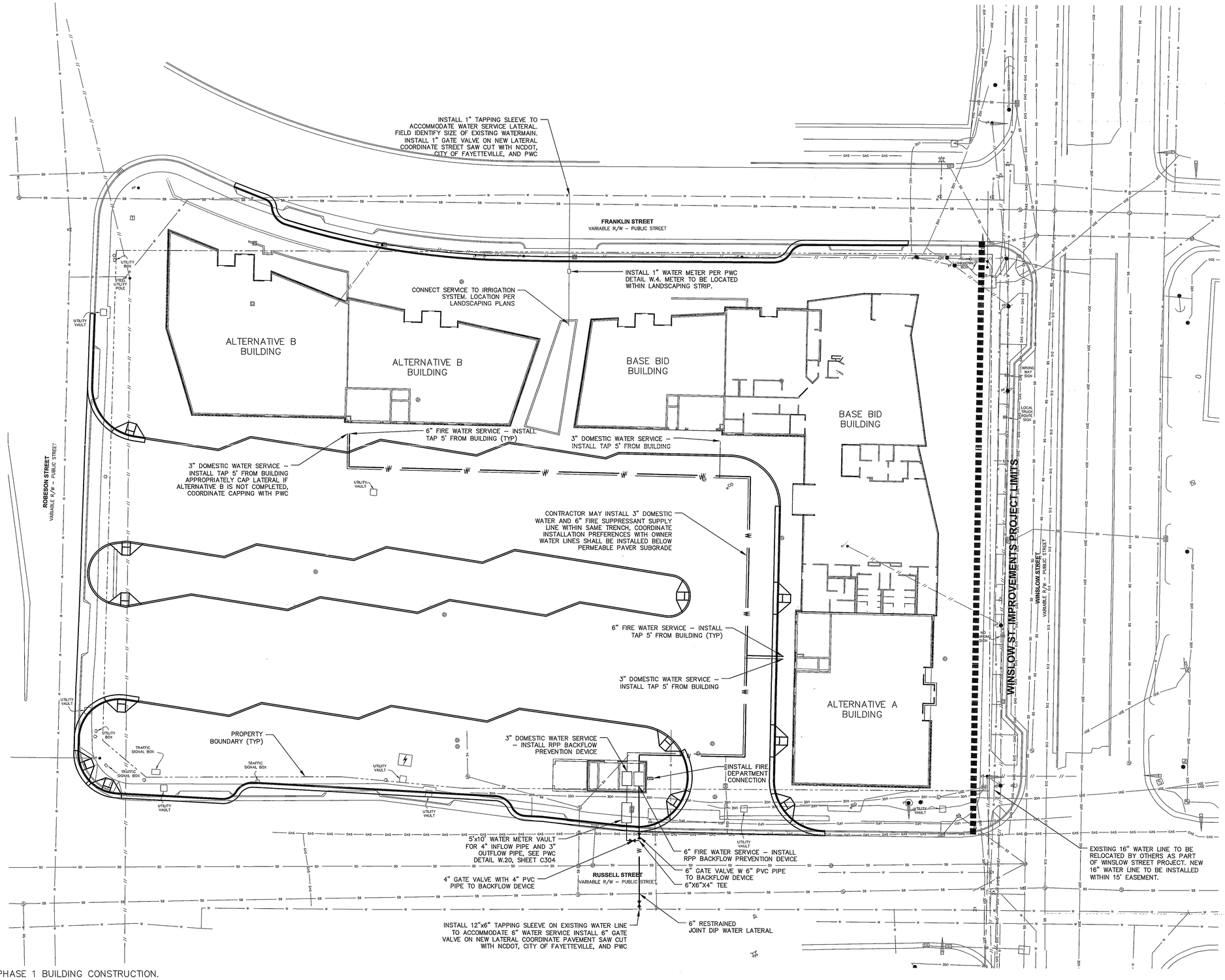
**FAST Multi-Modal Center**
City of Fayetteville
Fayetteville, NC

Project Number 621A

Title
**SITE UTILITY PLAN - UTILITY DEMOLITION**

Sheet
**C300**

Plate of




NOTES:

1. ALL UTILITY WORK TO OCCUR DURING PHASE 1 BUILDING CONSTRUCTION.
2. GROUT FILL OR REMOVE ANY ADDITIONAL SEWER OR WATER LATERALS FOUND ON SITE AS APPROPRIATE.
3. TURN OFF ALL EXISTING VALVES ATTACHED TO PIPES WHICH ARE TO BE ABANDONED. REMOVE VALVE BOX TOP, BACKFILL AND COMPACT AS APPROPRIATE.
4. ALL WATER AND SEWER INSTALLATION AND ABANDONMENT SHALL BE DONE IN ACCORDANCE WITH PWC REQUIREMENTS.
5. ALL WATER OUTAGES SHALL BE COORDINATED WITH PWC. PROVIDE A MINIMUM OF 48 HOURS NOTICE.
6. NEW WATER AND SEWER SERVICES SHALL BE TERMINATED AT A CLEANOUT LOCATED APPROXIMATELY 5' FROM THE PROPOSED BUILDING FACE
7. BACKFLOW PREVENTION DEVICES SHALL BE CHOSEN PER PWC REQUIREMENTS AND APPROVED BACKFLOW PREVENTION DEVICE LISTING.
8. COORDINATE EQUIPMENT FOR AND LOCATION OF FIRE DEPARTMENT CONNECTION (FDC) WITH CITY OF FAYETTEVILLE FIRE DEPARTMENT.

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NORTH CAROLINA PROFESSIONAL SEAL 024258 ENGINEER TIMOTHY A. CHAMBA
1/31/14

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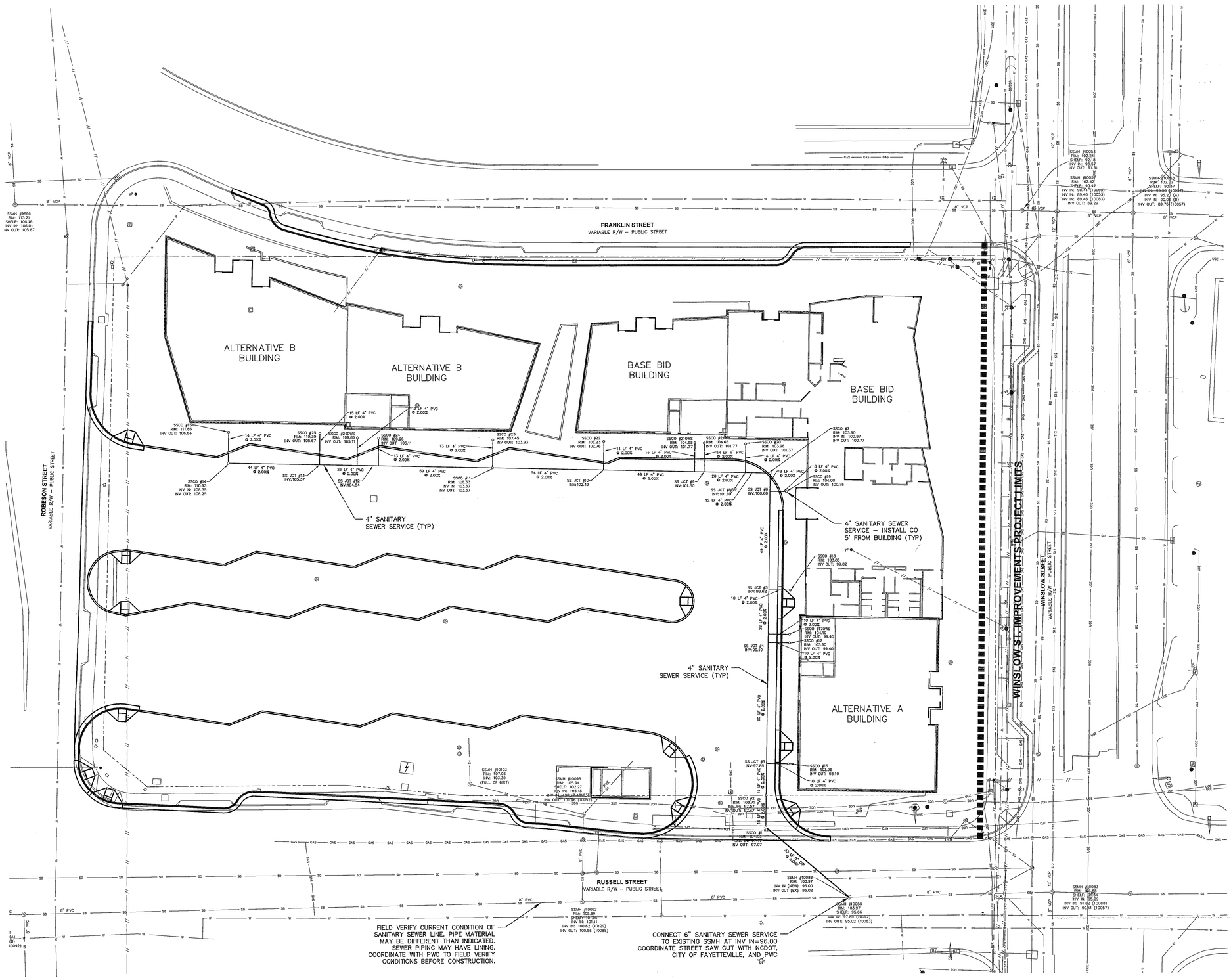
**FAST Multi-Modal Center**
City of Fayetteville
Fayetteville, NC

Project Number 621A

Title
**SITE UTILITY PLAN - WATER SYSTEM**

Sheet
**C301**

Plate of




NOTES:

1. ALL UTILITY WORK TO OCCUR DURING PHASE 1 BUILDING CONSTRUCTION.
2. GROUT FILL OR REMOVE ANY ADDITIONAL SEWER OR WATER LATERALS FOUND ON SITE AS APPROPRIATE.
3. TURN OFF ALL EXISTING VALVES ATTACHED TO PIPES WHICH ARE TO BE ABANDONED. REMOVE VALVE BOX TOP, BACKFILL AND COMPACT AS APPROPRIATE.
4. ALL WATER AND SEWER INSTALLATION AND ABANDONMENT SHALL BE DONE IN ACCORDANCE WITH PWC REQUIREMENTS.
5. ALL WATER OUTAGES SHALL BE COORDINATED WITH PWC. PROVIDE A MINIMUM OF 48 HOURS NOTICE.
6. NEW WATER AND SEWER SERVICES SHALL BE TERMINATED AT A CLEANOUT LOCATED APPROXIMATELY 5' FROM THE PROPOSED BUILDING FACE
7. BACKFLOW PREVENTION DEVICES SHALL BE CHOSEN PER PWC REQUIREMENTS AND APPROVED BACKFLOW PREVENTION DEVICE LISTING.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NORTH CAROLINA PROFESSIONAL SEAL 032025 ENGINEER ANTHONY A. CHAMMAS 1/31/14

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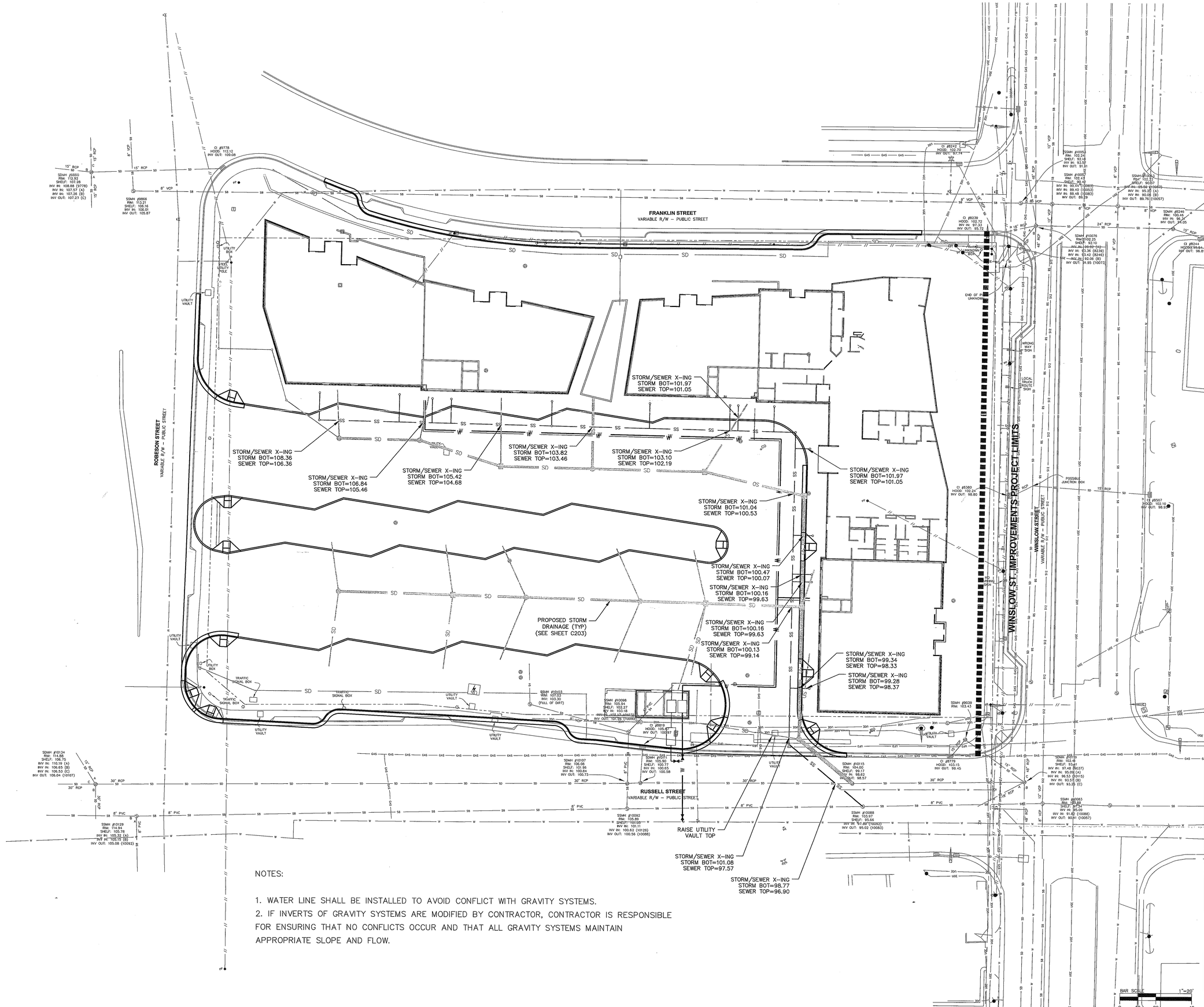
**FAST Multi-Modal Center**
City of Fayetteville
Fayetteville, NC

Project Number 621A

Title
**SITE UTILITY PLAN - SEWER SYSTEM**

Sheet
**C302**

Plate of




NOTES:

1. WATER LINE SHALL BE INSTALLED TO AVOID CONFLICT WITH GRAVITY SYSTEMS.
2. IF INVERTS OF GRAVITY SYSTEMS ARE MODIFIED BY CONTRACTOR, CONTRACTOR IS RESPONSIBLE FOR ENSURING THAT NO CONFLICTS OCCUR AND THAT ALL GRAVITY SYSTEMS MAINTAIN APPROPRIATE SLOPE AND FLOW.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**FAST Multi-Modal Center**
City of Fayetteville
Fayetteville, NC

Project Number 621A

Title
**SITE UTILITY PLAN - UTILITY COORDINATION**

Sheet
# C303

Plate of

1. CONTRACTOR SHALL REPAIR ALL WATER LATERALS AND MAINS DAMAGED DURING CONSTRUCTION. THE CONTRACTOR SHALL REPORT IMMEDIATELY ALL WATER MAIN AND LATERAL BREAKS TO THE PWC PROJECT COORDINATOR. THE CONTRACTOR SHALL INITIATE IMMEDIATE REPAIRS IN ACCORDANCE WITH PWC STANDARDS. CONTRACTOR SHALL NOT OPERATE PWC WATER MAIN VALVES WITHOUT PWC APPROVAL AND SHALL COORDINATE ALL VALVE CLOSINGS WITH PWC.
2. THE CONTRACTOR SHALL NOT USE HOUSE HOSE BIBBS OR ANY OTHER METHOD OF BLOW OFF WHICH ALLOWS DOMESTIC WATER CONTAINING SEDIMENTS OR HIGH LEVELS OF CHLORINE TO PASS THRU RESIDENT'S METERS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL DAMAGES RESULTING FROM ALLOWING "DIRTY" WATER TO ENTER RESIDENT'S PLUMBING SYSTEM, SUCH AS WATER HEATERS, STAINED CLOTHING, CLOGGED SCREENS, ETC.
3. WATER MAINS AND LATERALS SHALL BE INSTALLED UTILIZING A PWC APPROVED CUT-SHEET INDICATING INSTALLATION DEPTH.
4. TRANSFER OF WATER SERVICES SHALL BE ACCOMPLISHED AS FOLLOWS:
   A. INSTALL, TEST AND STERILIZE NEW MAIN AND LATERALS. LATERALS SHALL BE INSTALLED 18" INSIDE R/W UNLESS OTHERWISE DIRECTED BY PWC.
   B. TRANSFER EXISTING METER TO NEW METER BOX AND TIE THE NEW WATER LATERAL TO EXISTING DOMESTIC SERVICE UTILIZING BRASS FITTINGS. SAME METER NUMBER SHALL BE INSTALLED ON SAME ADDRESS AND/OR CUSTOMER. BLOW OFF SERVICE AT HOSE BIBB ON HOUSE ONLY AFTER METER HAS BEEN TRANSFERRED.
   C. AFTER ALL SERVICES ARE TRANSFERRED TO THE NEW SYSTEM, SHUT OFF VALVE ON EXISTING SYSTEM AND ABANDON EXISTING MAINS IN ACCORDANCE WITH PWC DETAILS.
   D. CONTRACTOR SHALL SUPPLY NEW METER BOXES AND DISPOSE OF EXISTING METER BOXES.
5. WHEN MAIN IS NOT TO BE ABANDONED, CONTRACTOR SHALL UNCOVER OLD CORPORATION AT MAIN, CLOSE AND PLUG CORPORATION TO ABANDON OLD SERVICE.
6. SEPARATION REQUIREMENTS:
   A. LATERAL SEPARATION OF SEWERS AND WATER MAINS: WATER MAINS SHALL BE LAID AT LEAST 10 FEET LATERALLY FROM EXISTING OR PROPOSED SEWER MAIN/LATERAL, UNLESS LOCAL CONDITIONS OR BARRIERS PREVENT A 10-FOOT LATERAL SEPARATION - IN WHICH CASE:
      i. THE WATER MAIN IS LAID IN A SEPARATE TRENCH, WITH THE ELEVATION OF THE BOTTOM OF THE WATER MAIN AT LEAST 18 INCHES ABOVE THE TOP OF THE SEWER MAIN/LATERAL; OR
      ii. THE WATER MAIN IS LAID IN THE SAME TRENCH AS THE SEWER MAIN/LATERAL WITH THE WATER MAIN LOCATED AT ONE SIDE ON A BENCH OF UNDISTURBED EARTH AND WITH THE ELEVATION OF THE BOTTOM OF THE WATER MAIN AT LEAST 18 INCHES ABOVE THE TOP OF THE SEWER MAIN/LATERAL.
   B. CROSSING A WATER MAIN OVER A SEWER: WHENEVER IT IS NECESSARY FOR A WATER MAIN TO CROSS OVER A SEWER MAIN/LATERAL, THE WATER MAIN SHALL BE LAID AT SUCH AN ELEVATION THAT THE BOTTOM OF THE WATER MAIN IS AT LEAST 18 INCHES ABOVE THE TOP OF THE SEWER MAIN/LATERAL, UNLESS LOCAL CONDITIONS OR BARRIERS PREVENT AN 18 INCH VERTICAL SEPARATION - IN WHICH CASE BOTH THE WATER MAIN AND SEWER MAIN/LATERAL SHALL BE DUCTILE IRON IN ACCORDANCE WITH PWC REQUIREMENTS.
   C. CROSSING WATER MAIN UNDER A SEWER: WHENEVER IT IS NECESSARY FOR A WATER MAIN TO CROSS UNDER A SEWER MAIN/LATERAL, BOTH THE WATER MAIN AND THE SEWER MAIN/LATERAL SHALL BE DUCTILE IRON IN ACCORDANCE WITH PWC REQUIREMENTS. A FULL JOINT OF DUCTILE IRON PIPE SHALL BE INSTALLED ON THE WATER MAIN CENTERED AT THE POINT OF CROSSING.
   D. CROSSING STORM DRAINAGE LINES: A MINIMUM OF 12-INCHES OF VERTICAL CLEARANCE SHALL BE MAINTAINED BETWEEN A WATER LINE CROSSING OVER A STORM DRAINAGE LINE UNLESS DUCTILE IRON PIPE IS USED. IN ADDITION, THREE AND A HALF (3.5) FEET OF COVER MUST BE MAINTAINED OVER THE WATER MAIN OR IT SHALL BE DUCTILE IRON. IF DUCTILE IRON PIPE IS USED THEN TWO AN A HALF (2.5) FEET OF COVER MUST BE MAINTAINED OVER THE WATER MAIN AND A MINIMUM OF 4-INCHES OF VERTICAL CLEARANCE SHALL BE MAINTAINED BETWEEN THE WATER MAIN AND THE STORM DRAINAGE LINE. WHERE A WATER MAIN CROSSES UNDER A STORM DRAINAGE LINE THE MINIMUM OF TWELVE (12) INCHES OF VERTICAL SEPARATION SHALL BE MAINTAINED AND THE WATER MAIN SHALL BE DUCTILE IRON FOR A DISTANCE OF 10-FEET ON EACH SIDE OF THE CROSSING.

WATER UTILITY NOTES — PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C. — WATER RESOURCES ENGINEERING DEPARTMENT
SHEET NO. 1 OF 2 | DWG. NO. W.1 | DWG. BY: PWC | DATE: JULY 01, 2013 | APPROVED BY: J.E.G.

| NO. | DATE | REVISION |
|---|---|---|
| 1 | JAN 05 | REVISED NOTE 5A |
| 2 | JUL 11 | REVISED NOTES & ADDED NOTE 6 |

2013-W1 WATER UTILITY NOTES.dwg

7. WATER OUTAGES: THE CONTRACTOR SHALL SCHEDULE A COORDINATION MEETING WITH THE PWC PROJECT COORDINATOR AND PROJECT ENGINEER A MINIMUM OF THREE (3) WORKING DAYS PRIOR TO ANY PLANNED WATER OUTAGE. THE COORDINATION MEETING SHALL BE CONDUCTED PRIOR TO ANY NOTICES BEING ISSUED. ADDITIONALLY, THE CONTRACTOR SHALL LOCATE (VERTICALLY AND HORIZONTALLY) ANY UTILITIES WITHIN THE WORK AREA, IN ACCORDANCE WITH THESE CONTRACT DOCUMENTS. THE LOCATIONS OF ALL UTILITIES WITHIN THE WORK AREA SHALL BE DETERMINED PRIOR TO THE COORDINATION MEETING. ANY CONFLICTS WITH THE PENDING WORK AND THE EXISTING UTILITIES SHALL BE IDENTIFIED, AND A PLAN FOR RESOLVING ANY CONFLICTS SHALL BE PRESENTED. THE PURPOSE OF THIS COORDINATION MEETING IS TO ENSURE THAT THE CONTRACTOR HAS A GOOD UNDERSTANDING OF THE REQUIREMENTS RELATED TO THE PENDING OUTAGE, VERIFY THAT THERE ARE NO UTILITY CONFLICTS THAT WILL PREVENT THE WORK FROM BEING COMPLETED, ALL EQUIPMENT IS IN GOOD WORKING ORDER, ALL EQUIPMENT IS FUNCTIONAL, ALL MATERIALS ARE ON SITE, ALL NECESSARY TOOLS ARE ON SITE, DISCUSS ANY NECESSARY CONTINGENCY PLANS, AND ANY OTHER ITEMS NECESSARY TO ENSURE THAT THE PUBLIC WORKS COMMISSION HAS CONFIDENCE THAT THE WORK CAN BE ACCOMPLISHED WITHIN THE GIVEN TIME PERIOD. SHOULD, FOR ANY REASON, THE PUBLIC WORKS COMMISSION DEEM THAT THE CONTRACTOR IS NOT PREPARED FOR THE PROPOSED OUTAGE, THE OUTAGE NOTIFICATIONS WILL NOT BE DISTRIBUTED AND THE OUTAGE SHALL BE POSTPONED A MINIMUM OF TWO (2) WEEKS. THE PUBLIC WORKS COMMISSION WILL PROVIDE WRITTEN NOTIFICATION TO THE CONTRACTOR OF THIS DECISION. NO ADDITIONAL CONTRACT TIME WILL BE GRANTED FOR THIS DELAY. SHOULD THE CONTRACT TIME EXPIRE WITHIN THAT TWO (2) WEEK PERIOD, THE PUBLIC WORKS COMMISSION RESERVES THE RIGHT TO ASSESS LIQUIDATED DAMAGES, AS OUTLINED IN THESE CONTRACT DOCUMENTS.

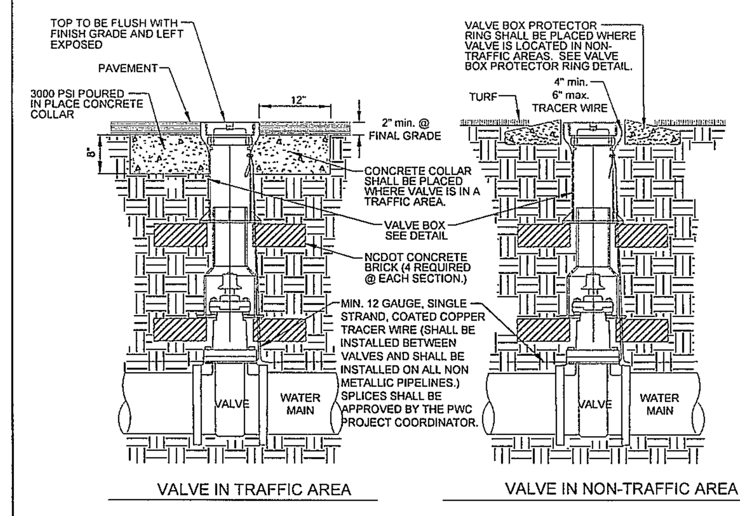
ONCE THE WATER OUTAGE NOTIFICATIONS HAVE BEEN ISSUED, A FOLLOW-UP COORDINATION MEETING WITH THE PWC PROJECT COORDINATOR AND PROJECT ENGINEER SHALL BE HELD A MINIMUM OF 24 HOURS PRIOR TO THE SCHEDULED OUTAGE. THE PURPOSE OF THIS MEETING IS TO VERIFY THAT THE CONTRACTOR IS PREPARED TO PROCEED WITH THE OUTAGE, AND THAT ALL EQUIPMENT, MATERIALS, TOOLS, AND ALL OTHER INCIDENTALS ARE ON THE PROJECT SITE AND FUNCTIONING. IF FOR ANY REASON THE PUBLIC WORKS COMMISSION DEEMS THAT THE CONTRACTOR IS NOT PREPARED, THE OUTAGE SHALL BE POSTPONED AND ALL CUSTOMERS IMMEDIATELY NOTIFIED OF THE CANCELLATION. THE OUTAGE SHALL BE POSTPONED A MINIMUM OF TWO (2) WEEKS. NO ADDITIONAL CONTRACT TIME WILL BE GRANTED FOR THIS DELAY. SHOULD THE CONTRACT TIME EXPIRE WITHIN THAT TWO (2) WEEK PERIOD, THE PUBLIC WORKS COMMISSION RESERVES THE RIGHT TO ASSESS LIQUIDATED DAMAGES, AS OUTLINED IN THESE CONTRACT DOCUMENTS.

THE CONTRACTOR SHALL COMPLETE THE REQUIRED WORK AND RESTORE WATER SERVICE WITHIN THE GIVEN TIME PERIOD FOR THE OUTAGE. SHOULD THE CONTRACTOR FAIL TO COMPLETE THE WORK WITHIN THE ALLOTTED TIME, THE PUBLIC WORKS COMMISSION SHALL ASSESS A PENALTY OF $500 PER 15-MINUTE INTERVAL OR ANY PORTION THEREOF UNTIL WATER SERVICE IS RESTORED. THIS PENALTY WILL BE DEDUCTED FROM THE CONTRACTOR'S PAY APPLICATION OR BE BILLED DIRECTLY TO THE CONTRACTOR. THE PENALTY MAY BE WAIVED FOR CIRCUMSTANCES BEYOND THE CONTRACTOR'S CONTROL, AS DEEMED BY THE PUBLIC WORKS COMMISSION. THE PWC PROJECT COORDINATOR AND/OR PROJECT ENGINEER RESERVE THE RIGHT TO CANCEL OR POSTPONE THE OUTAGE AT ANY GIVEN TIME, IF DEEMED NECESSARY.

WATER UTILITY NOTES — PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C. — WATER RESOURCES ENGINEERING DEPARTMENT
SHEET NO. 2 OF 2 | DWG. NO. W.1 | DWG. BY: PWC | DATE: JULY 01, 2013 | APPROVED BY: J.E.G.

| NO. | DATE | REVISION |
|---|---|---|
| 1 | JAN 05 | REVISED NOTE 5A |
| 2 | JUL 11 | REVISED NOTES & ADDED NOTE 6 |

2013-W1 WATER UTILITY NOTES.dwg

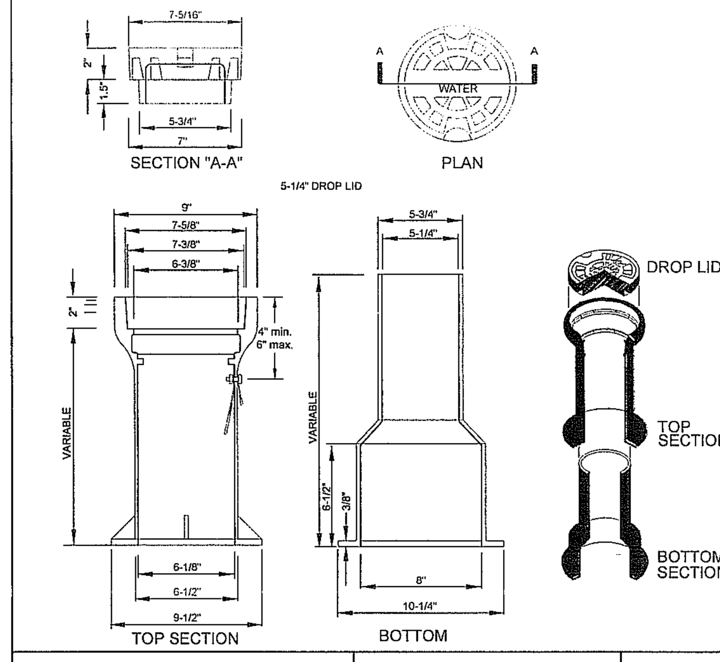



NOTES:
1. ALL MATERIALS SHALL BE IN ACCORDANCE WITH PWC STANDARDS.
2. RESILIENT WEDGE GATE VALVE SHALL BE AS MANUFACTURED BY MUELLER CORP., AMERICAN DARLING OR CLOW CORP.
3. ALL VALVES SHALL HAVE 2" SQUARE OPERATING NUT AND SHALL OPEN COUNTERCLOCKWISE.
4. VALVE BODY, BONNET AND GATE SHALL BE IN ACCORDANCE WITH AWWA C-509/C-515 AND NSF61.
5. VALVE BODY AND BONNET SHALL BE COATED ON ALL INTERIOR AND EXTERIOR SURFACES WITH A FUSION BONDED EPOXY IN ACCORDANCE WITH AWWA C-550-90.
6. ALL VALVES 24" AND SMALLER SHALL HAVE A SAFE WORKING PRESSURE OF 250 PSI.
7. SEE VALVE BOX DETAIL FOR ADDITIONAL INFORMATION.
8. SEE VALVE BOX PROTECTOR RING DETAIL FOR ADDITIONAL INFORMATION.
9. VALVE BOX SECTIONS ARE REQUIRED. THE USE OF PIPE IN LIEU OF VALVE BOX SECTIONS SHALL NOT BE PERMITTED.

GATE VALVE (N.T.S.) — PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C. — WATER RESOURCES ENGINEERING DEPARTMENT
SHEET NO. 1 OF 1 | DWG. NO. W.6 | DWG. BY: PWC | DATE: JULY 01, 2013 | APPROVED BY: J.E.G.

| NO. | DATE | REVISION |
|---|---|---|
| 1 | 6/05 | ADDED NOTE #9 |
| 2 | 7/09 | CLARIFIED NOTES |

2013-W6 GATEVALVE.dwg



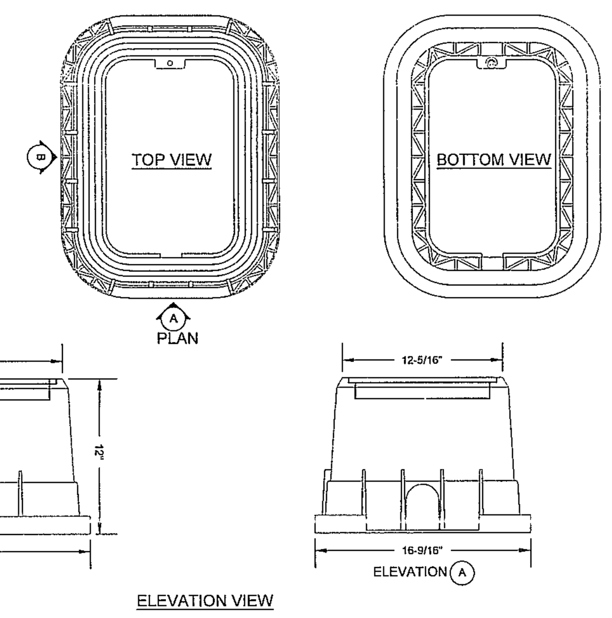

NOTES:
1. VALVE BOX SHALL BE 3 PART SLIP-TYPE MANUFACTURED BY ALABAMA PIPE CO., CHAPMAN VALVE CO., COLOMBIAN IRON WORKS, R.D. WOOD CO. OR APPROVED EQUAL.
2. VALVE BOX SHALL BE 3-PIECE CLOSE GRAINED CAST IRON SLIP-TYPE VALVE BOX WITH A MINIMUM THICKNESS OF 3/16".
3. VALVE BOX SHALL HAVE RAISED LETTERS "WATER" CAST INTO COVER.
4. VALVE BOX SHALL HAVE 3/8" HOLE DRILLED IN TOP SECTION THRU WHICH A 1/4"x1-1/2" GALVANIZED BOLT SHALL BE USED TO SECURE A MINIMUM 12 GAUGE, SINGLE STRAND, COATED COPPER TRACER WIRE FOR NON-FERROUS PIPE. A 1/2" WASHER SHALL BE USED BETWEEN NUT AND INSIDE OF BOX. TIGHTEN HAND TIGHT.
5. SCREW TYPE VALVE BOXES ARE NOT ACCEPTABLE.
6. DIMENSIONS SHOWN ARE FOR INFORMATION ONLY AND VARY BASED UPON THE MANUFACTURER.
7. VALVE BOX SECTIONS ARE REQUIRED. THE USE OF PIPE IN LIEU OF VALVE BOX SECTIONS SHALL NOT BE PERMITTED.
8. TRACING WIRE SHALL BE INSTALLED OUTSIDE OF BOX.

VALVE BOX (N.T.S.) — PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C. — WATER RESOURCES ENGINEERING DEPARTMENT
SHEET NO. 1 OF 1 | DWG. NO. W.7 | DWG. BY: PWC | DATE: JULY 01, 2013 | APPROVED BY: J.E.G.

| NO. | DATE | REVISION |
|---|---|---|
| 1 | 7/09 | ADDED NOTES 7, 8 & CLARIFIED NOTES |

2013-W7 VALVEBOX.dwg

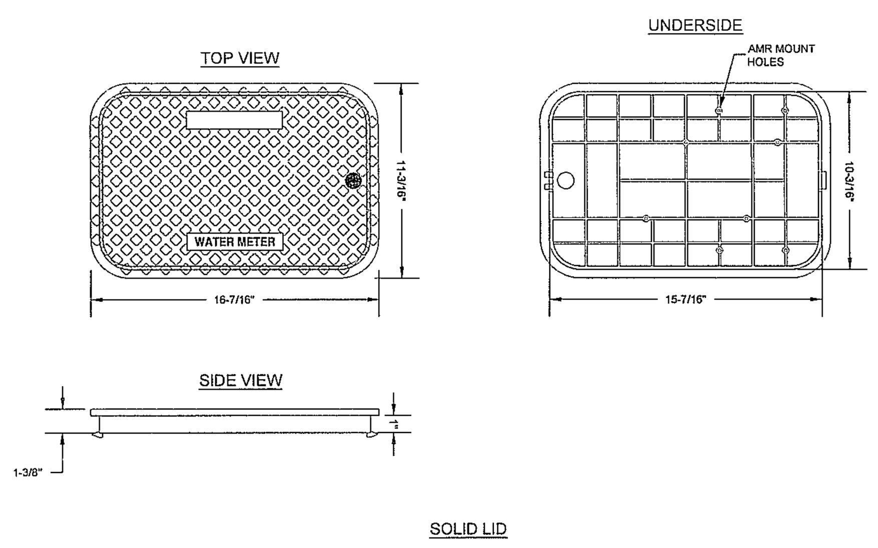
NOTES:
1. ALL MATERIALS SHALL BE APPROVED BY PWC. SEE DWG. W.4 SHT 2 OF 2 FOR METER BOX LID DETAIL.
2. METER BOX SHALL NOT BE LOCATED WHERE H-20 LOADINGS CAN IMPACT BOX OR COVER.
3. FOR 1" WATER LATERAL INSTALLATION SEE PWC DETAIL W.2
4. DIM'S ± 1/16 U.N.O.




1-INCH METER BOX DETAILS — PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C. — WATER RESOURCES ENGINEERING DEPARTMENT
SHEET NO. 1 OF 2 | DWG. NO. W.4 | DWG. BY: PWC | DATE: JULY 01, 2013 | APPROVED BY: J.E.G.

| NO. | DATE | REVISION |
|---|---|---|
| 1 | 3/10 | CHANGED BOX DIMENSIONS |

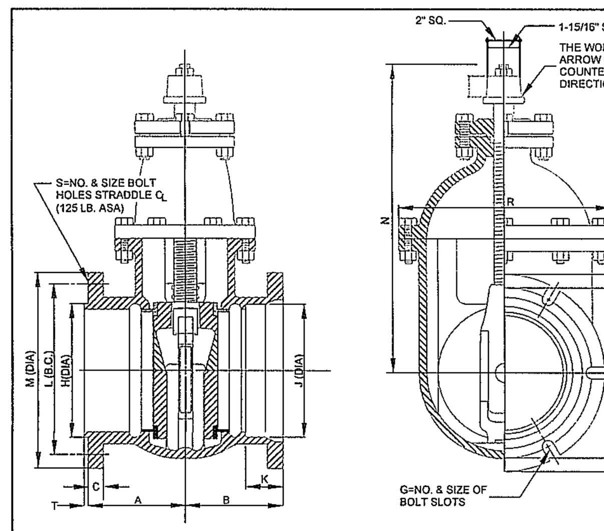
2013-W4 1IN METERBOX.dwg




1-INCH METER BOX LID — PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C. — WATER RESOURCES ENGINEERING DEPARTMENT
SHEET NO. 2 OF 2 | DWG. NO. W.4 | DWG. BY: PWC | DATE: JULY 01, 2013 | APPROVED BY: J.E.G.

| NO. | DATE | REVISION |
|---|---|---|
| 1 | 7/07 | REVISED LID |
| 1 | 3/10 | CHANGED BOX & LID DIMENSIONS |

2013-W4 1IN METERBOX.dwg



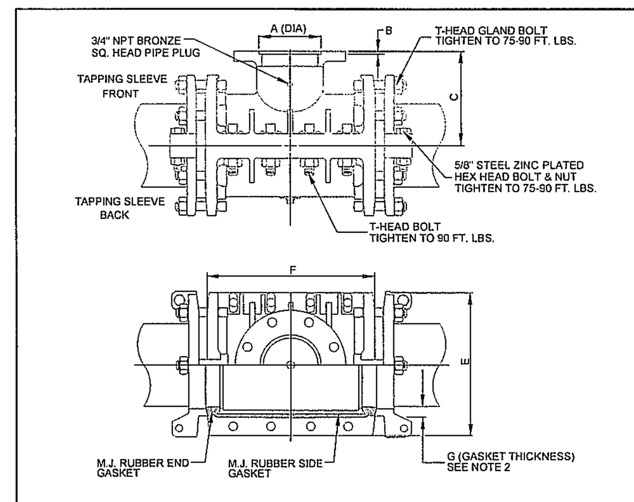

NOTES:
1. ALL MATERIALS SHALL BE IN ACCORDANCE WITH PWC STANDARDS.
2. RAISED MALE FACE SHALL BE REQUIRED TO PROVIDE FOR PROPER ALIGNMENT OF THE TAPPING SLEEVE.
3. ALL VALVES SHALL HAVE 2" SQUARE OPERATING NUT AND SHALL OPEN COUNTERCLOCKWISE.
4. RESILIENT WEDGE GATE VALVE SHALL BE AS MANUFACTURED BY MUELLER CORP., AMERICAN DARLING, CLOW CORP., OR APPROVED EQUAL.
5. VALVE BODY, BONNET AND GATE SHALL BE IN ACCORDANCE WITH AWWA C-509/C-515 AND NSF61.
6. VALVE BODY AND BONNET SHALL BE COATED ON ALL INTERIOR AND EXTERIOR SURFACES WITH A FUSION BONDED EPOXY IN ACCORDANCE WITH AWWA C-550-90.
7. ALL VALVES 24" AND SMALLER SHALL HAVE A SAFE WORKING PRESSURE OF 250 PSI.
8. SEE TAPPING SLEEVE (DETAILS W.10 OR W.11) FOR ADDITIONAL INFORMATION.
9. DIMENSIONS SHOWN ARE FOR REFERENCE AND MAY VARY BASED UPON MANUFACTURER. VALVES SHALL BE SIMILAR IN NATURE TO THAT SHOWN AND SHALL NOT DEVIATE IN ESSENTIAL DETAILS.
10. ALL TAPPING SLEEVES SHALL BE HYDROSTATICALLY PRESSURE TESTED IN ACCORDANCE WITH PWC SPECIFICATIONS. TEST SHALL BE WITNESSED AND APPROVED BY PWC PROJECT COORDINATOR PRIOR TO BEGINNING TAPPING PROCESS.

| VALVE SIZE | A | B | C | D | E | F | G | H | J | K | L | M | N | R | S | T | TURNS TO OPEN | WEIGHT W/ACC |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 4 | 4-3/8 | 5-7/8 | 15/16 | 1-1/2 | 9 | 7-1/2 | 4-7/8 | 4-63/64 | 4-29/32 | 2-1/2 | 7-1/2 | 9 | 14-1/8 | 9 | 8-3/4 | 1/4 | 14 | 118 |
| 6 | 6-7/8 | 6-1/4 | 1 | 1-5/8 | 11 | 9-1/2 | 6-7/8 | 6-63/64 | 7 | 2-1/2 | 9-1/2 | 11 | 17-5/8 | 11-3/4 | 8-7/8 | 1/4 | 21 | 175 |
| 8 | 6-1/2 | 7-1/4 | 1-1/8 | 1-3/4 | 13-1/4 | 11-3/4 | 6-7/8 | 8-63/64 | 9-5/32 | 2-1/2 | 11-3/4 | 13-1/2 | 21 | 14-1/4 | 8-7/8 | 1/4 | 28 | 274 |
| 12 | 7 | 8-1/4 | 1-1/4 | 1-3/4 | 17-7/8 | 16-1/4 | 8-7/8 | 12-63/64 | 13-5/16 | 2-1/2 | 17 | 19 | 28-1/4 | 19-1/8 | 12-1 | 1/4 | 39 | 570 |
| 16 | 8-1/2 | 9-1/8 | 1-7/16 | 2-1/16 | 23 | 21 | 12-7/8 | 16-15/16 | 17-35/64 | 3-1/2 | 21-1/4 | 23-1/2 | 38-5/8 | 26-1/8 | 16-1 1/8 | 1/4 | 55 | 1140 |
| 24 | 10-1/2 | 14-1/4 | 1-7/8 | 2-1/2 | 31-3/4 | 30 | 16-7/8 | 24-15/16 | 25-15/16 | 3-1/2 | 29-1/2 | 32 | 54-5/8 | 37-5/8 | 20-1 3/8 | 5/16 | 79 | 3225 |

TAPPING VALVE (N.T.S.) — PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C. — WATER RESOURCES ENGINEERING DEPARTMENT
SHEET NO. 1 OF 1 | DWG. NO. W.9 | DWG. BY: PWC | DATE: JULY 01, 2013 | APPROVED BY: J.E.G.

| NO. | DATE | REVISION |
|---|---|---|
| 1 | 7/09 | ADDED NOTE 10, REVISED 4 & 5 |
| 2 | 7/13 | REVISED NOTES 4, 8, 10 |

2013-W9 M.J.TAPPING VALVE.dwg




NOTES:
1. ALL MATERIALS SHALL BE IN ACCORDANCE WITH PWC STANDARDS. SLEEVE BODY SHALL BE DUCTILE IRON ASTM A536.
2. MECHANICAL JOINT TAPPING SLEEVES SHALL BE AS MANUFACTURED BY CLOW, M & H, MUELLER, OR AMERICAN AND SHALL BE FURNISHED WITH SPLIT GLANDS, SPLIT END GASKET, BOLTS, ETC. THE OUTLET FLANGE SHALL BE CL 125 PER ANSI B16.1 COMPATIBLE WITH APPROVED TAPPING VALVES.
3. DIMENSIONS SHOWN ARE FOR REFERENCE AND MAY VARY BASED UPON MANUFACTURER. SLEEVES SHALL BE SIMILAR IN NATURE TO THAT SHOWN AND SHALL NOT DEVIATE IN ESSENTIAL DETAILS.
4. PIPE SURFACES SHALL BE CLEANED THOROUGHLY TO PERMIT FOR A GOOD SEAL PRIOR TO INSTALLATION.
5. EXTERIOR OF TAPPING SLEEVE SHALL BE COATED w/2 COATS ASPHALTIC VARNISH MIL-C450.
6. ALL TAPPING SLEEVES SHALL BE HYDROSTATICALLY PRESSURE TESTED IN ACCORDANCE WITH PWC SPECIFICATIONS. TEST SHALL BE WITNESSED AND APPROVED BY PWC PROJECT COORDINATOR PRIOR TO BEGINNING TAPPING PROCESS.
7. SEE DETAILS W.9 AND W.17 FOR ADDITIONAL REQUIREMENTS.

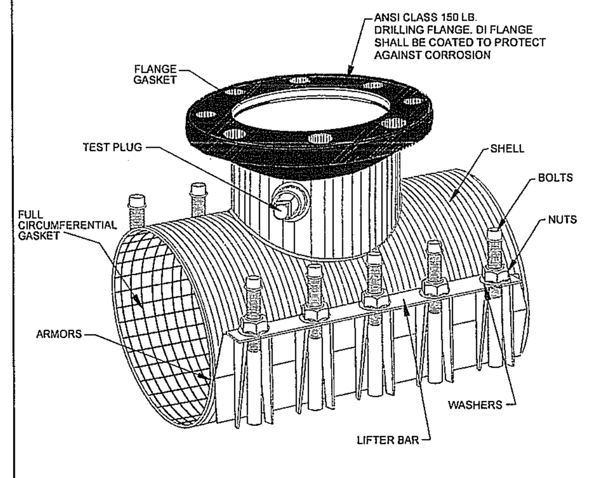
| SLEEVE FOR USE WITH CI OR DI PIPE | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SLEEVE SIZE PIPE X BRANCH | 6X6 | 8X6 | 8X8 | 12X6 | 12X8 | 12X12 | 16X6 | 16X8 | 16X12 | 24X6 | 24X8 | 24X12 | 24X16 | 24X24 | 30X6 | 30X8 | 30X12 | 30X16 | 30X24 |
| A DIA +.031-.000 | 7.016 | 7.016 | 9.016 | 7.016 | 9.016 | 13.016 | 7.016 | 9.016 | 13.016 | 11.00 | 13.5 | 19.0 | 23.5 | 32.0 | 11.00 | 13.5 | 19.0 | 23.5 | 32.0 |
| B | .31 | .31 | .31 | .31 | .31 | .31 | .31 | .31 | .31 | .31 | .31 | .31 | .31 | .31 | .31 | .31 | .31 | .31 | .31 |
| C | 7-7/8 | 9-1/16 | 9 | 11-5/8 | 11-7/8 | 12-7/8 | 14-1/8 | 14-1/2 | 14-7/8 | 19.5 | 19.5 | 19.5 | 20.5 | 20.5 | 23.25 | 23.25 | 23.25 | 23.75 | 23.75 |
| E | 11-3/4 | 13-7/8 | 13-7/8 | 18-1/2 | 18-1/2 | 18-1/2 | 23-1/2 | 23-1/2 | 23-1/2 | 35.5 | 35.5 | 35.5 | 35.5 | 35.5 | 43.37 | 43.37 | 43.37 | 43.37 | 43.37 |
| F | 13-1/2 | 15 | 15 | 19-1/2 | 19-1/2 | 19-1/2 | 22-1/2 | 22-1/2 | 22-1/2 | 18.0 | 18.0 | 24.0 | 30.0 | 36.0 | 24.0 | 24.0 | 24.0 | 36.0 | 36.0 |

DUCTILE IRON TAPPING SLEEVE — PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C. — WATER RESOURCES ENGINEERING DEPARTMENT
SHEET NO. 1 OF 1 | DWG. NO. W.10 | DWG. BY: PWC | DATE: JULY 01, 2013 | APPROVED BY: J.E.G.

| NO. | DATE | REVISION |
|---|---|---|
| 1 | 7/09 | REVISED NOTE 6/REMOVED NOTE 8. |
| 2 | 7/13 | REVISED NOTES 6, 7. |

2013-W10 TAPPING SLEEVE.dwg

| NOMINAL PIPE SIZE (INCH) | BRANCH SIZE | APPROX. WT. LBS. |
|---|---|---|
| 4" | 3",4" | 28,30 |
| 6" | 3",4",6" | 36,38,45 |
| 8" | 3",4",6",8" | 42,44,48,66 |
| 10" | 3",4",6",8",10" | 45,48,55,70,80, |
| 12" | 3",4",6",8",10",12" | 50,52,60,81,96,143 |
| 16" | 3",4",6",8",10",12" | 78,80,85,100,115,172 |
| 24" | 3",4",6",8",10",12" | 85,87,90,100,145,230 |

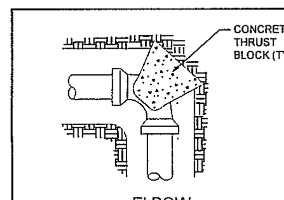



NOTES:
1. ALL MATERIALS SHALL BE IN ACCORDANCE WITH PWC STANDARDS.
2. TAPPING SLEEVES SHALL BE AS MANUFACTURED BY ROMAC, SMITH-BLAIR, OR APPROVED EQUAL.
3. STAINLESS STEEL TAPPING SLEEVE MAY BE UTILIZED FOR ALL TAPPING OF MAINS UP TO AND INCLUDING 24" DIAMETER WITH 12" OR LESS BRANCH. BRANCH GREATER THAN 12" SHALL REQUIRE FULL BODY D.I. M.J. TAPPING SLEEVE (SEE DETAIL W.10).
4. SHELL AND LUGS SHALL BE STAINLESS STEEL PER ASTM A 240, TYPE 304 AND 304L.
5. BOLTS SHALL BE 5/8" UNC ROLLED THREAD, STAINLESS STEEL PER ASTM A 193 TYPE 304 4" NOM. PIPE SIZE SHALL HAVE MIN. 1/2" BOLTS.
6. NUTS SHALL BE HEAVY HEX STAINLESS STEEL PER ASTM A-194, TYPE 304.
7. WASHERS SHALL BE STEEL AND PLASTIC LUBRICATING WASHER.
8. GASKETS SHALL BE VIRGIN SBR PER ASTM D 2000 MAA 610, COMPOUNDED FOR WATER AND SEWER SERVICE.
9. FLANGE SHALL BE DUCTILE IRON PER ASTM 536, GRADE 65-45-12, OR STAINLESS STEEL PER ASTM A-240, TYPE 304.
10. DIMENSIONS SHOWN ARE FOR REFERENCE AND MAY VARY BASED UPON MANUFACTURER. SLEEVES SHALL BE SIMILAR IN NATURE TO THAT SHOWN AND SHALL NOT DEVIATE IN ESSENTIAL DETAILS.
11. PIPE SURFACES SHALL BE CLEANED THOROUGHLY TO PERMIT A GOOD SEAL PRIOR TO INSTALLATION.
12. ALL TAPPING SLEEVES SHALL BE HYDROSTATICALLY PRESSURE TESTED IN ACCORDANCE WITH PWC SPECIFICATIONS. TEST SHALL BE WITNESSED AND APPROVED BY PWC PROJECT COORDINATOR PRIOR TO BEGINNING TAPPING PROCESS.
13. THE NUMBER OF BOLTS, NUTS AND WASHERS SHOWN ARE FOR ILLUSTRATION ONLY, ACTUAL QUANTITY SHALL BE AS RECOMMENDED BY THE SLEEVE MANUFACTURER FOR THE REQUIRED SERVICE.
14. SEE DETAILS W.9 AND W.17 FOR ADDITIONAL REQUIREMENTS.

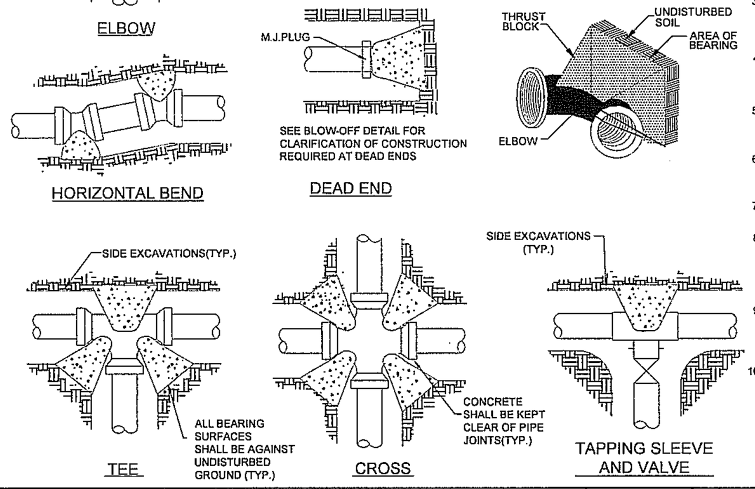
STAINLESS STEEL TAPPING SLEEVE (N.T.S.) — PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C. — WATER RESOURCES ENGINEERING DEPARTMENT
SHEET NO. 1 OF 1 | DWG. NO. W.11 | DWG. BY: PWC | DATE: JULY 01, 2013 | APPROVED BY: J.E.G.

| NO. | DATE | REVISION |
|---|---|---|
| 1 | 7/09 | ADDED NOTES 2, 12 & CLARIFIED NOTES |
| 2 | 7/13 | REVISED NOTES 3, 12, 14 |

2013-W11 SSTAPPING SLEEVE.dwg




| MIN. BEARING AREA EACH DIRECTION OF THRUST IN SQUARE FEET (based on soil supporting value of 2000 psf @ 200 psig test pressure) | | | | |
|---|---|---|---|---|
| PIPE SIZE | TEES & DEADENDS | 90° ELBOWS | 45° ELBOW & CROSSES | 22-1/2° ELBOWS |
| 6" | 4 | 6 | 3 | 2 |
| 8" | 7 | 10 | 5 | 3 |
| 12" | 15 | 21 | 11 | 6 |

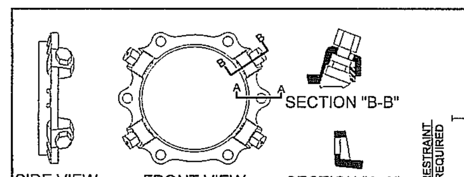



NOTES:
1. THRUST BLOCKS SHALL BE INSTALLED ON PVC WATER DISTRIBUTION LINES 6" THRU 12" DIA. IN THE MANNER SHOWN. SEE PWC STANDARD ALT. RESTRAINING DETAIL W.18 FOR ACCEPTABLE ALTERNATE RESTRAINING SYSTEMS.
2. PIPE GREATER THAN 12 INCH DIAMETER SHALL REQUIRE RESTRAINT JOINT PIPE FOR THE PROPER LENGTH.
3. COMPACT FITTINGS ARE NOT ACCEPTABLE. STANDARD FITTINGS SHALL BE USED WITH CONCRETE THRUST BLOCKING.
4. THRUST BLOCKS SHALL BE INSTALLED ON SEWER FORCE MAIN IN THE MANNER SHOWN.
5. IF SAC-CRETE IS USED, MIXING MUST BE ON SITE UTILIZING A MECHANICAL MIXER.
6. NO CONCRETE SHALL BE PLACED ON BOLTS. WRAP JOINT FITTINGS WITH PLASTIC.
7. CONCRETE SHALL BE A MINIMUM 3,000 psi.
8. ALL BEARING SURFACES SHALL BE AGAINST UNDISTURBED SOIL AND SHALL BE APPROVED BY PWC PROJ. COORDINATOR PRIOR TO PLACEMENT OF CONCRETE.
9. USE OF RESTRAINED JOINT DUCTILE IRON WILL BE REQUIRED IF SOIL CONDITIONS DO NOT ALLOW THE USE OF THRUST BLOCKS.
10. ALL VERTICAL BENDS SHALL BE RESTRAINED USING RESTRAINED JOINT DUCTILE IRON PIPE.

CONCRETE THRUST BLOCK DETAIL (N.T.S.) — PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C. — WATER RESOURCES ENGINEERING DEPARTMENT
SHEET NO. 1 OF 1 | DWG. NO. W.17 | DWG. BY: PWC | DATE: JULY 01, 2013 | APPROVED BY: J.E.G.

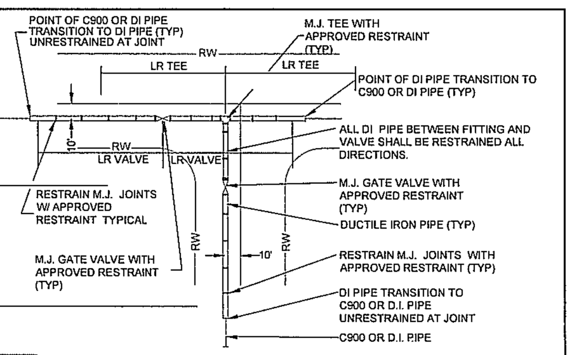
| NO. | DATE | REVISION |
|---|---|---|
| 1 | SEPT 05 | REVISED TABLE |
| 2 | FEB 07 | ADDED NOTES 9&10 |
| 3 | JULY 13 | ADDED TAPPING SLEEVE AND VALVE DETAIL |

2013-W17 THRUSTBLOCK.dwg



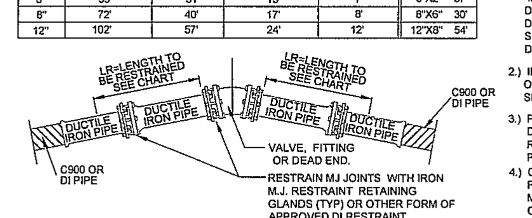

| IRON RETAINING GLAND M.J. RESTRAINT | | | |
|---|---|---|---|
| NOMINAL PIPE SIZE | WEDGES QUANTITY | BOLTS QUANTITY | PRESS RATING |
| 6" | 3 | 6 | 350 |
| 8" | 4 | 6 | 350 |
| 12" | 8 | 8 | 350 |

6" SIZE SHOWN 6" & 12" SIMILAR
IRON RETAINING GLAND M.J. RESTRAINT




RESTRAINED JOINT DETAIL FOR TYPICAL TEE INTERSECTION
4 WAY INTERSECTION SIMILARLY RESTRAINED

| LR (MIN. LENGTH OF RESTRAINT EACH DIRECTION OF THRUST IN LINEAR FEET) Based on 200 psig pressure, Safety Factor of 2.0:1, BARE DI PIPE AND ML Soil, 3.5' cover. Chart does not apply to pipes wrapped in polyethylene wrap | | | | | | |
|---|---|---|---|---|---|---|
| PIPE SIZE | VALVES DEAD ENDS TEES | 90° ELBOWS | 45° ELBOW & CROSSES | 22-1/2° ELBOWS | REDUCER | |
| 6" | 55' | 31' | 13' | 7' | 8"X2" | 67' |
| 8" | 72' | 40' | 17' | 8' | 8"X6" | 30' |
| 12" | 102' | 57' | 24' | 12' | 12"X8" | 54' |

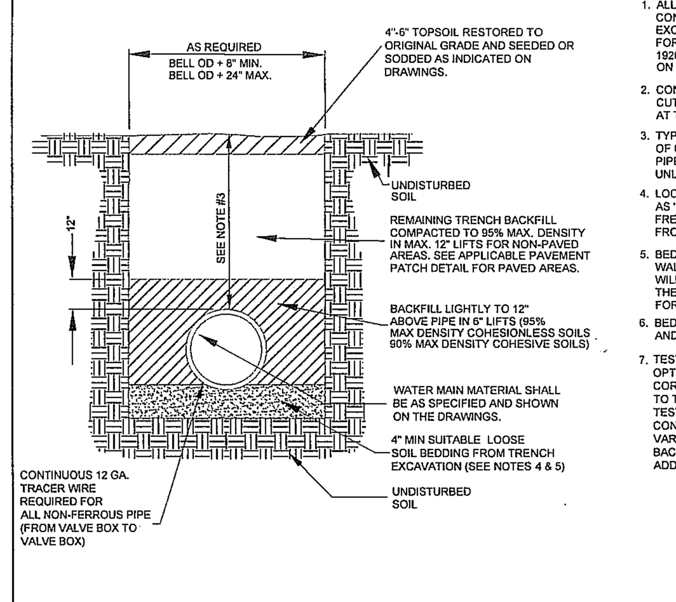



NOTES:
1.) THRUST RESTRAINT SHALL BE INSTALLED ON DUCTILE IRON WATER DISTRIBUTION LINES 6" THRU 12" DIAMETER IN THE MANNER SHOWN. SEE PWC STANDARD THRUST BLOCK DETAIL W.17 FOR PVC RESTRAINT.
2.) IRON RETAINING GLAND M.J. RESTRAINT OR OTHER FORMS OF IRON RESTRAINT SHALL NOT BE USED ON PVC PIPE.
3.) PIPE GREATER THAN 12 INCH DIAMETER SHALL REQUIRE RESTRAINED JOINT PIPE FOR THE PROPER LENGTH.
4.) COMPACT FITTINGS ARE ACCEPTABLE FOR USE WITH IRON RETAINING GLAND M.J. RESTRAINT AND OTHER FORMS OF DI RESTRAINT.
5.) THE MINIMUM LENGTH OF RESTRAINT INDICATED SHALL REQUIRE ALL JOINTS WITHIN THE LR DISTANCE TO BE RESTRAINED.
6.) RESTRAINT SYSTEM SHALL BE INSPECTED AND APPROVED PWC PRIOR TO BACKFILLING.
7.) RESTRAINT SYSTEMS MAY VARY BASED UPON THE ENGINEERS' DESIGN AS SHOWN ON THE PLAN AND PROFILE SHEETS.
8) GRIPPER RING AND FIELD LOK GASKETS ARE AN ACCEPTABLE METHOD OF RESTRAINT ON DUCTILE IRON PIPE ONLY.

ALTERNATE RESTRAINT DETAIL (DUCTILE IRON PIPE ONLY) — PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C. — WATER RESOURCES ENGINEERING DEPARTMENT
SHEET NO. 1 OF 1 | DWG. NO. W.18 | DWG. BY: PWC | DATE: JULY 01, 2013 | APPROVED BY: J.E.G.

| NO. | DATE | REVISION |
|---|---|---|
| 1 | 11/16/2007 | REVISED TABLE, ADDED NOTE 8 |

2013-W18 RESTRAINT DETAIL.dwg

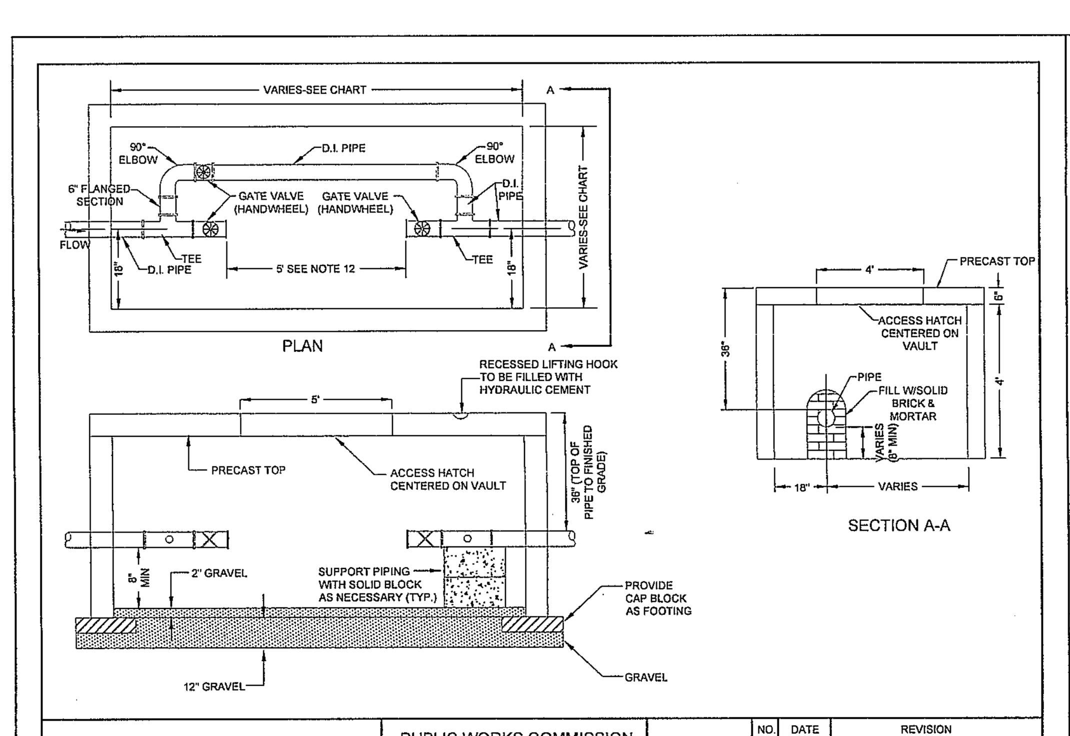



NOTES:
1. ALL EXCAVATIONS SHALL COMPLY WITH THE TERMS AND CONDITIONS OF THE CONSTRUCTION STANDARDS FOR EXCAVATIONS IN OSHA "SAFETY AND HEALTH REGULATIONS FOR CONSTRUCTION", CHAPTER XV11 OF TITLE 29, CFR, PART 1926. THE CONTRACTOR SHALL HAVE A COMPETENT PERSON ON SITE AT ALL TIMES DURING EXCAVATION AND BACKFILLING.
2. CONTRACTOR SHALL USE TRENCH BOX SHORING IN ALL OPEN CUTS IN PAVED AREAS. TRENCH WIDTH SHALL BE MAINTAINED AT THE MINIMUM PRACTICAL WIDTH.
3. TYPE 3 TRENCH CONDITIONS AND A MINIMUM OF 4' OF COVER MUST BE MAINTAINED WHERE RESTRAINT JOINT PIPE IS SPECIFIED AND 3.5' OF COVER IN ALL OTHER LOCATIONS UNLESS SHOWN OTHERWISE ON THE PLAN PROFILE.
4. LOOSE SOIL OR SELECT MATERIAL IS DEFINED AS "NATIVE" SOIL EXCAVATED FROM THE TRENCH, FREE OF ROCKS, FOREIGN MATERIAL, AND FROZEN EARTH.
5. BEDDING MATERIAL SHALL EXTEND TO UNDISTURBED TRENCH WALLS AND TRENCH BOTTOM. BEDDING MATERIAL WILL NOT BE PAID FOR UNLESS SPECIFICALLY APPROVED BY THE PROJECT REPRESENTATIVE AND ONLY FOR THE AUTHORIZED QUANTITY.
6. BEDDING MATERIAL SHALL BE PROPERLY RODDED AND COMPACTED AROUND THE PIPE HAUNCHES.
7. TEST FOR DENSITY OF COMPACTION MAY BE MADE AT THE OPTION OF THE ENGINEER AND DEFICIENCIES SHALL BE CORRECTED BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER. THE ENGINEER MAY HAVE COMPACTION TEST PERFORMED AFTER THE BACKFILL IS COMPLETE. CONTRACTOR SHALL BE REQUIRED TO EXCAVATE TO VARIOUS ELEVATIONS FOR DENSITY TESTING EXCAVATION, BACKFILL AND RECOMPACTION SHALL BE PERFORMED AT NO ADDITIONAL COSTS TO THE OWNER.

TYPE 3 TRENCH WATER MAIN BEDDING DETAIL — PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C. — WATER RESOURCES ENGINEERING DEPARTMENT
SHEET NO. 1 OF 1 | DWG. NO. W.19 | DWG. BY: PWC | DATE: JULY 01, 2013 | APPROVED BY: J.E.G.

| NO. | DATE | REVISION |
|---|---|---|
| | | |

2013-W19 WATER BEDDING.dwg




METER VAULT — PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C. — WATER RESOURCES DEPARTMENT
SHEET NO. 1 OF 2 | DWG. NO. W.20 | DWG. BY: PWC | DATE: JULY 01, 2013 | APPROVED BY: J.E.G.

| NO. | DATE | REVISION |
|---|---|---|
| 1 | 09/2010 | REVISED PIPE BURY DEPTH |
| 2 | | |
| 3 | | |

2013-W20 METER VAULT.dwg

| METER SIZE | MIN PIPE DIA | SPACING BETWEEN GATE VALVES (SEE NOTE 20) | VAULT SIZE (INSIDE DIM) |
|---|---|---|---|
| 3" | 4" | 5' | 5'X10' |
| 4" | 4" | 5' | 5'X10' |
| 6" | 6" | 5' | (SEE NOTE 19) 5'X10' |
| 8" | 8" | 5' | 6'X12' |

NOTES:
1. VAULTS SHALL BE PRECAST REINFORCED CONCRETE (4,000psi). VAULT CONSTRUCTION SHALL BE CERTIFIED BY MANUFACTURER TO WITHSTAND LOADING DUE TO BACKFILLING, IN ACCORDANCE WITH ACI 318.
2. BRICK VAULTS SHALL NOT BE ACCEPTABLE.
3. NO RISERS SHALL BE ALLOWED.
4. VAULTS SHALL HAVE INSIDE DIMENSIONS AS INDICATED ON CHART.
5. VAULT SHALL BE LOCATED OUTSIDE OF PAVED TRAFFIC AREAS.
6. METER VAULT SHALL BE LOCATED WITHIN PUBLIC ROW OR DEDICATED EASEMENT. IF IN EASEMENT, PROVIDE A MIN. 5' CLEARANCE AROUND VAULT.
7. CONTRACTOR SHALL PROVIDE ALL FITTINGS, PIPING, ETC. AS INDICATED.
8. THE VAULT SHALL BE LOCATED NO CLOSER THAN 5' FROM ANY STRUCTURE.
9. PIPING SHALL BE RESTRAINED JOINT DUCTILE IRON FROM TAP AT MAIN TO VAULT.
10. PIPE FITTINGS INSIDE VAULT SHALL BE FLANGED.
11. VAULT SHALL BE SET PLUMB AND LEVEL, MATCH FINISHED GRADE, AND SHALL HAVE POSITIVE DRAINAGE AWAY FROM IT.
12. PWC TO INSTALL METER AND FITTINGS UPON ACCEPTANCE OF PROJECT.
13. ACCESS HATCH SHALL BE 5'x4' DOUBLE DOOR CENTERED ON VAULT, SO AS TO PROVIDE CLEAR ACCESS TO METER.
14. ACCESS HATCH SHALL BE ALUMINUM, MOUNTED FLUSH AND SHALL BE CAPABLE OF BEARING INCIDENTAL TRAFFIC LOADS. ALL OTHER HATCHES SHALL BE APPROVED BY PWC PRIOR TO CONSTRUCTION. BOLTS, HINGES AND HOLD OPEN ARM SHALL BE 316 STAINLESS STEEL.
15. ACCESS HATCH SHALL LATCH AUTOMATICALLY UPON CLOSURE (SLAMLOCK). HATCH SHALL BE LOCKABLE USING A KEYED LOCKING MECHANISM INTEGRAL TO THE HATCH. HATCH MANUFACTURER SHALL PROVIDE ONE OPERATING KEY TO PWC.
16. ALL LIFTING HOLES SHALL BE FILLED WITH HYDRAULIC CEMENT.
17. LATERAL AND VAULT INSTALLATION SHALL BE APPROVED BY PWC PROJECT COORDINATOR PRIOR TO BACKFILL.
18. LATERAL AND PIPING INSIDE OF VAULT SHALL PASS HYDROSTATIC AND STERILIZATION TESTS (200psi).
19. IF USING 8" PIPING WITH A 6" METER, THE VAULT SHALL BE 6'x12'.
20. CONTRACTOR SHALL VERIFY VAULT DIMENSIONS, METER DIMENSIONS AND PIPE LAYOUT WITH PWC PRIOR TO ORDERING MATERIALS.

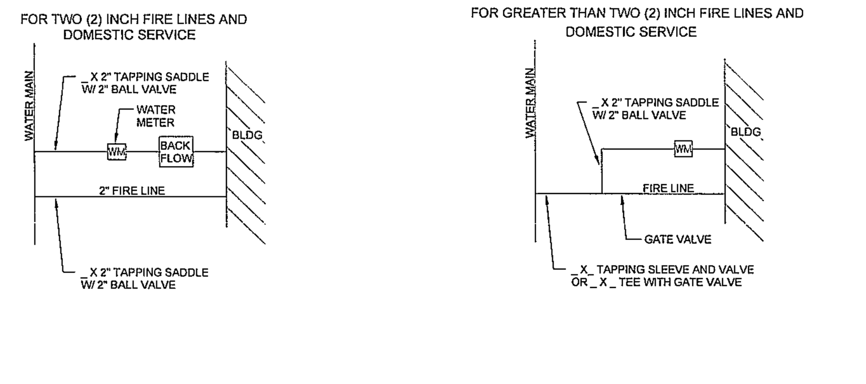
METER VAULT — PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C. — WATER RESOURCES ENGINEERING DEPARTMENT
SHEET NO. 2 OF 2 | DWG. NO. W.20 | DWG. BY: PWC | DATE: JULY 01, 2013 | APPROVED BY:

| NO. | DATE | REVISION |
|---|---|---|
| 1 | 09/2010 | REVISED NOTES |
| 2 | | |
| 3 | | |

2013-W20 METER VAULT.dwg

FOR TWO (2) INCH FIRE LINES AND DOMESTIC SERVICE

FOR GREATER THAN TWO (2) INCH FIRE LINES AND DOMESTIC SERVICE




NOTES:
1. DOMESTIC BACKFLOW MAY BE LOCATED INSIDE THE BUILDING.
2. THE FIRE LINE SHALL HAVE A BACKFLOW DEVICE WITHIN 100 FEET OF THE MAIN.
3. REFER TO THE CROSS CONNECTION CONTROL ORDINANCE FOR ADDITIONAL INFORMATION ON BACKFLOW REQUIREMENTS.

STANDARD TAPS — PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C. — WATER RESOURCES ENGINEERING DEPARTMENT
SHEET NO. 1 OF 1 | DWG. NO. W.21 | DWG. BY: PWC | DATE: JULY 01, 2013 | APPROVED BY: J.E.G.

| NO. | DATE | REVISION |
|---|---|---|
| | | |

2013-W21 STANDARD TAPS.dwg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NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 033255 ANTHONY A. CHAMRA 1/31/14

URS NC CORP LICENSE : C-2243

| | |
|---|---|
| Drawn | JMM |
| Checked | TAC |
| Date | January 31, 2014 |
| Revisions | |


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## FAST Multi-Modal Center

City of Fayetteville
Fayetteville, NC

Project Number 621A

Title
# WATER DETAILS

Sheet
# C304

Plate of

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URS NC CORP LICENSE : C-2243

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| Date | January 31, 2014 |
| Revisions | |


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# FAST Multi-Modal Center

City of Fayetteville
Fayetteville, NC

Project Number 621A

Title
# WATER DETAILS

Sheet
# C304

Plate of

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## WATER UTILITY NOTES (W.1, Sheet 1 of 2)

1. CONTRACTOR SHALL REPAIR ALL WATER LATERALS AND MAINS DAMAGED DURING CONSTRUCTION. THE CONTRACTOR SHALL REPORT IMMEDIATELY ALL WATER MAIN AND LATERAL BREAKS TO THE PWC PROJECT COORDINATOR. THE CONTRACTOR SHALL INITIATE IMMEDIATE REPAIRS IN ACCORDANCE WITH PWC STANDARDS. CONTRACTOR SHALL NOT OPERATE PWC WATER MAIN VALVES WITHOUT PWC APPROVAL AND SHALL COORDINATE ALL VALVE CLOSINGS WITH PWC.
2. THE CONTRACTOR SHALL NOT USE HOUSE HOSE BIBBS OR ANY OTHER METHOD OF BLOW OFF WHICH ALLOWS DOMESTIC WATER CONTAINING SEDIMENTS OR HIGH LEVELS OF CHLORINE TO PASS THRU RESIDENT'S METERS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL DAMAGES RESULTING FROM ALLOWING "DIRTY" WATER TO ENTER RESIDENT'S PLUMBING SYSTEM, SUCH AS WATER HEATERS, STAINED CLOTHING, CLOGGED SCREENS, ETC.
3. WATER MAINS AND LATERALS SHALL BE INSTALLED UTILIZING A PWC APPROVED CUT-SHEET INDICATING INSTALLATION DEPTH.
4. TRANSFER OF WATER SERVICES SHALL BE ACCOMPLISHED AS FOLLOWS:
   A. INSTALL, TEST AND STERILIZE NEW MAIN AND LATERALS. LATERALS SHALL BE INSTALLED 18" INSIDE R/W UNLESS OTHERWISE DIRECTED BY PWC.
   B. TRANSFER EXISTING METER TO NEW METER BOX AND TIE NEW WATER LATERAL TO EXISTING DOMESTIC SERVICE UTILIZING BRASS FITTINGS. SAME METER NUMBER SHALL BE INSTALLED ON SAME ADDRESS AND/OR CUSTOMER. BLOW OFF SERVICE AT HOSE BIBB ON HOUSE ONLY AFTER METER HAS BEEN TRANSFERRED.
   C. AFTER ALL SERVICES ARE TRANSFERRED TO THE NEW SYSTEM, SHUT OFF VALVE ON EXISTING SYSTEM AND ABANDON EXISTING MAINS IN ACCORDANCE WITH PWC DETAILS.
   D. CONTRACTOR SHALL SUPPLY NEW METER BOXES AND DISPOSE OF EXISTING METER BOXES.
5. WHEN MAIN IS NOT TO BE ABANDONED, CONTRACTOR SHALL UNCOVER OLD CORPORATION AT MAIN, CLOSE AND PLUG CORPORATION TO ABANDON OLD SERVICE.
6. SEPARATION REQUIREMENTS:
   A. LATERAL SEPARATION OF SEWERS AND WATER MAINS: WATER MAINS SHALL BE LAID AT LEAST 10 FEET LATERALLY FROM EXISTING OR PROPOSED SEWER MAIN/LATERAL, UNLESS LOCAL CONDITIONS OR BARRIERS PREVENT A 10-FOOT LATERAL SEPARATION - IN WHICH CASE:
      i. THE WATER MAIN IS LAID IN A SEPARATE TRENCH, WITH THE ELEVATION OF THE BOTTOM OF THE WATER MAIN AT LEAST 18 INCHES ABOVE THE TOP OF THE SEWER MAIN/LATERAL; OR
      ii. THE WATER MAIN IS LAID IN THE SAME TRENCH AS THE SEWER MAIN/LATERAL WITH THE WATER MAIN LOCATED AT ONE SIDE ON A BENCH OF UNDISTURBED EARTH AND WITH THE ELEVATION OF THE BOTTOM OF THE WATER MAIN AT LEAST 18 INCHES ABOVE THE TOP OF THE SEWER MAIN/LATERAL.
   B. CROSSING A WATER MAIN OVER A SEWER: WHENEVER IT IS NECESSARY FOR A WATER MAIN TO CROSS OVER A SEWER MAIN/LATERAL, THE WATER MAIN SHALL BE LAID AT SUCH AN ELEVATION THAT THE BOTTOM OF THE WATER MAIN IS AT LEAST 18 INCHES ABOVE THE TOP OF THE SEWER MAIN/LATERAL, UNLESS LOCAL CONDITIONS OR BARRIERS PREVENT AN 18 INCH VERTICAL SEPARATION - IN WHICH CASE BOTH THE WATER MAIN AND SEWER MAIN/LATERAL SHALL BE DUCTILE IRON IN ACCORDANCE WITH PWC REQUIREMENTS.
   C. CROSSING WATER MAIN UNDER A SEWER: WHENEVER IT IS NECESSARY FOR A WATER MAIN TO CROSS UNDER A SEWER MAIN/LATERAL, BOTH THE WATER MAIN AND THE SEWER MAIN/LATERAL SHALL BE DUCTILE IRON IN ACCORDANCE WITH PWC REQUIREMENTS. A FULL JOINT OF DUCTILE IRON PIPE SHALL BE INSTALLED ON THE WATER MAIN CENTERED AT THE POINT OF CROSSING.
   D. CROSSING STORM DRAINAGE LINES: A MINIMUM OF 12-INCHES OF VERTICAL CLEARANCE SHALL BE MAINTAINED BETWEEN A WATER LINE CROSSING OVER A STORM DRAINAGE LINE UNLESS DUCTILE IRON PIPE IS USED. IN ADDITION, THREE AND A HALF (3.5) FEET OF COVER MUST BE MAINTAINED OVER THE WATER MAIN OR IT SHALL BE DUCTILE IRON. IF DUCTILE IRON PIPE IS USED THEN TWO AN A HALF (2.5) FEET OF COVER MUST BE MAINTAINED OVER THE WATER MAIN AND A MINIMUM OF 4-INCHES OF VERTICAL CLEARANCE SHALL BE MAINTAINED BETWEEN THE WATER MAIN AND THE STORM DRAINAGE LINE. WHERE A WATER MAIN CROSSES UNDER A STORM DRAINAGE LINE THE MINIMUM OF TWELVE (12) INCHES OF VERTICAL SEPARATION SHALL BE MAINTAINED AND THE WATER MAIN SHALL BE DUCTILE IRON FOR A DISTANCE OF 10-FEET ON EACH SIDE OF THE CROSSING.

| WATER UTILITY NOTES | PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C. | NO. | DATE | REVISION |
|---|---|---|---|---|
| SHEET NO. 1 OF 2 · DWG. NO. W.1 · DWG. BY: PWC | WATER RESOURCES ENGINEERING DEPARTMENT | 1 | JAN 05 | REVISED NOTE 5A |
| DATE: JULY 01, 2013 · APPROVED BY: J.E.G. | | 2 | JUL 11 | REVISED NOTES & ADDED NOTE 6 |

2013-W1 WATER UTILITY NOTES.dwg

## WATER UTILITY NOTES (W.1, Sheet 2 of 2)

7. WATER OUTAGES: THE CONTRACTOR SHALL SCHEDULE A COORDINATION MEETING WITH THE PWC PROJECT COORDINATOR AND PROJECT ENGINEER A MINIMUM OF THREE (3) WORKING DAYS PRIOR TO ANY PLANNED WATER OUTAGE. THE COORDINATION MEETING SHALL BE CONDUCTED PRIOR TO ANY NOTICES BEING ISSUED. ADDITIONALLY, THE CONTRACTOR SHALL LOCATE (VERTICALLY AND HORIZONTALLY) ANY UTILITIES WITHIN THE WORK AREA, IN ACCORDANCE WITH THESE CONTRACT DOCUMENTS. THE LOCATIONS OF ALL UTILITIES WITHIN THE WORK AREA SHALL BE DETERMINED PRIOR TO THE COORDINATION MEETING. ANY CONFLICTS WITH THE PENDING WORK AND THE EXISTING UTILITIES SHALL BE IDENTIFIED, AND A PLAN FOR RESOLVING ANY CONFLICTS SHALL BE PRESENTED. THE PURPOSE OF THIS COORDINATION MEETING IS TO ENSURE THAT THE CONTRACTOR HAS A GOOD UNDERSTANDING OF THE REQUIREMENTS RELATED TO THE PENDING OUTAGE, VERIFY THAT THERE ARE NO UTILITY CONFLICTS THAT WILL PREVENT THE WORK FROM BEING COMPLETED, ALL EQUIPMENT IS IN GOOD WORKING ORDER, ALL EQUIPMENT IS FUNCTIONAL, ALL MATERIALS ARE ON SITE, ALL NECESSARY TOOLS ARE ON SITE, DISCUSS ANY NECESSARY CONTINGENCY PLANS, AND ANY OTHER ITEMS NECESSARY TO ENSURE THAT THE PUBLIC WORKS COMMISSION HAS CONFIDENCE THAT THE WORK CAN BE ACCOMPLISHED WITHIN THE GIVEN TIME PERIOD. SHOULD, FOR ANY REASON, THE PUBLIC WORKS COMMISSION DEEM THAT THE CONTRACTOR IS NOT PREPARED FOR THE PROPOSED OUTAGE, THE OUTAGE NOTIFICATIONS WILL NOT BE DISTRIBUTED AND THE OUTAGE SHALL BE POSTPONED A MINIMUM OF TWO (2) WEEKS. THE PUBLIC WORKS COMMISSION WILL PROVIDE WRITTEN NOTIFICATION TO THE CONTRACTOR OF THIS DECISION. NO ADDITIONAL CONTRACT TIME WILL BE GRANTED FOR THIS DELAY. SHOULD THE CONTRACT TIME EXPIRE WITHIN THAT TWO (2) WEEK PERIOD, THE PUBLIC WORKS COMMISSION RESERVES THE RIGHT TO ASSESS LIQUIDATED DAMAGES, AS OUTLINED IN THESE CONTRACT DOCUMENTS.

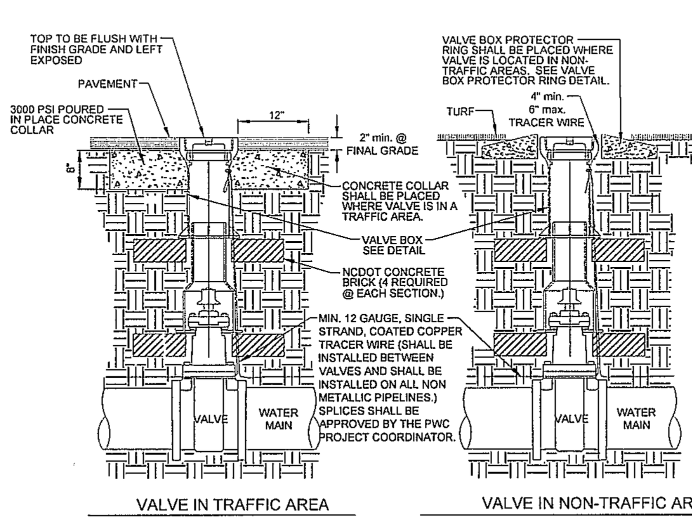
ONCE THE WATER OUTAGE NOTIFICATIONS HAVE BEEN ISSUED, A FOLLOW-UP COORDINATION MEETING WITH THE PWC PROJECT COORDINATOR AND PROJECT ENGINEER SHALL BE HELD A MINIMUM OF 24 HOURS PRIOR TO THE SCHEDULED OUTAGE. THE PURPOSE OF THIS MEETING IS TO VERIFY THAT THE CONTRACTOR IS PREPARED TO PROCEED WITH THE OUTAGE, AND THAT ALL EQUIPMENT, MATERIALS, TOOLS, AND ALL OTHER INCIDENTALS ARE ON THE PROJECT SITE AND FUNCTIONING. IF FOR ANY REASON THE PUBLIC WORKS COMMISSION DEEMS THAT THE CONTRACTOR IS NOT PREPARED, THE OUTAGE SHALL BE POSTPONED AND ALL CUSTOMERS IMMEDIATELY NOTIFIED OF THE CANCELLATION. THE OUTAGE SHALL BE POSTPONED A MINIMUM OF TWO (2) WEEKS. NO ADDITIONAL CONTRACT TIME WILL BE GRANTED FOR THIS DELAY. SHOULD THE CONTRACT TIME EXPIRE WITHIN THAT TWO (2) WEEK PERIOD, THE PUBLIC WORKS COMMISSION RESERVES THE RIGHT TO ASSESS LIQUIDATED DAMAGES, AS OUTLINED IN THESE CONTRACT DOCUMENTS.

THE CONTRACTOR SHALL COMPLETE THE REQUIRED WORK AND RESTORE WATER SERVICE WITHIN THE GIVEN TIME PERIOD FOR THE OUTAGE. SHOULD THE CONTRACTOR FAIL TO COMPLETE THE WORK WITHIN THE ALLOTTED TIME, THE PUBLIC WORKS COMMISSION SHALL ASSESS A PENALTY OF $500 PER 15-MINUTE INTERVAL OR ANY PORTION THEREOF UNTIL WATER SERVICE IS RESTORED. THIS PENALTY WILL BE DEDUCTED FROM THE CONTRACTOR'S PAY APPLICATION OR BE BILLED DIRECTLY TO THE CONTRACTOR. THE PENALTY MAY BE WAIVED FOR CIRCUMSTANCES BEYOND THE CONTRACTOR'S CONTROL, AS DEEMED BY THE PUBLIC WORKS COMMISSION. THE PWC PROJECT COORDINATOR AND/OR PROJECT ENGINEER RESERVE THE RIGHT TO CANCEL OR POSTPONE THE OUTAGE AT ANY GIVEN TIME, IF DEEMED NECESSARY.

| WATER UTILITY NOTES | PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C. | NO. | DATE | REVISION |
|---|---|---|---|---|
| SHEET NO. 2 OF 2 · DWG. NO. W.1 · DWG. BY: PWC | WATER RESOURCES ENGINEERING DEPARTMENT | 1 | JAN 05 | REVISED NOTE 5A |
| DATE: JULY 01, 2013 · APPROVED BY: J.E.G. | | 2 | JUL 11 | REVISED NOTES & ADDED NOTE 6 |

2013-W1 WATER UTILITY NOTES.dwg

## GATE VALVE (N.T.S.) (W.6)

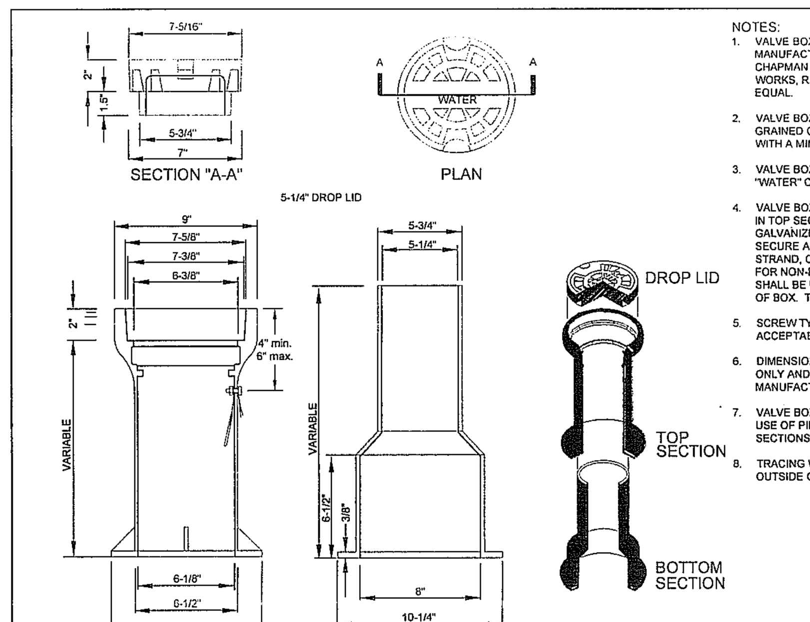



NOTES:
1. ALL MATERIALS SHALL BE IN ACCORDANCE WITH PWC STANDARDS.
2. RESILIENT WEDGE GATE VALVE SHALL BE AS MANUFACTURED BY MUELLER CORP., AMERICAN DARLING OR CLOW CORP.
3. ALL VALVES SHALL HAVE 2" SQUARE OPERATING NUT AND SHALL OPEN COUNTERCLOCKWISE.
4. VALVE BODY, BONNET AND GATE SHALL BE IN ACCORDANCE WITH AWWA C-509/C-515 AND NSF61.
5. VALVE BODY AND BONNET SHALL BE COATED ON ALL INTERIOR AND EXTERIOR SURFACES WITH A FUSION BONDED EPOXY IN ACCORDANCE WITH AWWA C-550-90.
6. ALL VALVES 24" AND SMALLER SHALL HAVE A SAFE WORKING PRESSURE OF 250 PSI.
7. SEE VALVE BOX DETAIL FOR ADDITIONAL INFORMATION.
8. SEE VALVE BOX PROTECTOR RING DETAIL FOR ADDITIONAL INFORMATION.
9. VALVE BOX SECTIONS ARE REQUIRED. THE USE OF PIPE IN LIEU OF VALVE BOX SECTIONS SHALL NOT BE PERMITTED.

| GATE VALVE (N.T.S.) | PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C. | NO. | DATE | REVISION |
|---|---|---|---|---|
| SHEET NO. 1 OF 1 · DWG. NO. W.6 · DWG. BY: PWC | WATER RESOURCES ENGINEERING DEPARTMENT | 1 | 6/06 | ADDED NOTE #9 |
| DATE: JULY 01, 2013 · APPROVED BY: J.E.G. | | 2 | 7/09 | CLARIFIED NOTES |

2013-W6 GATEVALVE.dwg

## VALVE BOX (N.T.S.) (W.7)



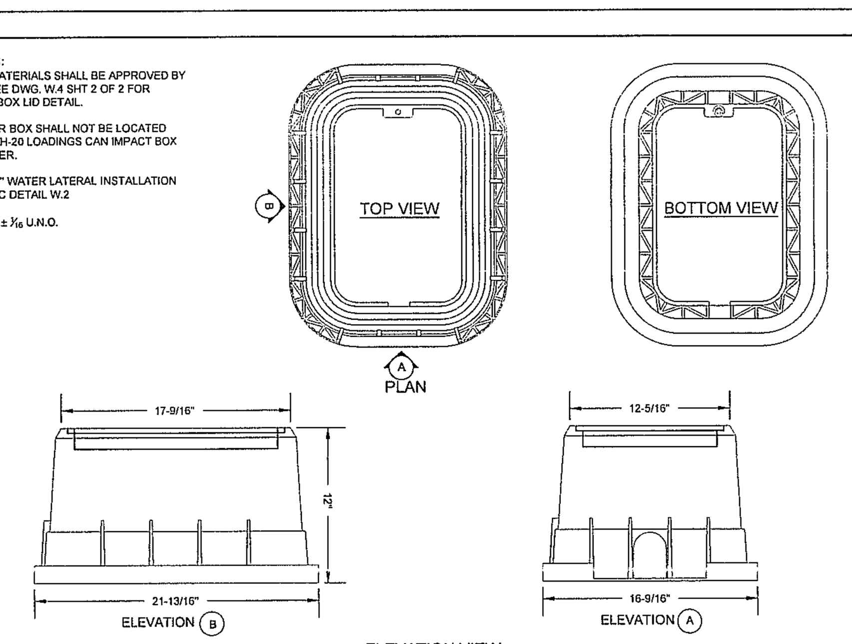

NOTES:
1. VALVE BOX SHALL BE 3 PART SLIP-TYPE MANUFACTURED BY ALABAMA PIPE CO., CHAPMAN VALVE CO., COLOMBIAN IRON WORKS, R.D. WOOD CO. OR APPROVED EQUAL.
2. VALVE BOX SHALL BE 3-PIECE CLOSE GRAINED CAST IRON SLIP-TYPE VALVE BOX WITH A MINIMUM THICKNESS OF 3/16".
3. VALVE BOX SHALL HAVE RAISED LETTERS "WATER" CAST INTO COVER.
4. VALVE BOX SHALL HAVE 3/8" HOLE DRILLED IN TOP SECTION THRU WHICH A 1/4"x1-1/2" GALVANIZED BOLT SHALL BE USED TO SECURE A MINIMUM 12 GAUGE, SINGLE STRAND, COATED COPPER TRACER WIRE FOR NON-FERROUS PIPE. A 1/2" WASHER SHALL BE USED BETWEEN NUT AND INSIDE OF BOX. TIGHTEN HAND TIGHT.
5. SCREW TYPE VALVE BOXES ARE NOT ACCEPTABLE.
6. DIMENSIONS SHOWN ARE FOR INFORMATION ONLY AND VARY BASED UPON THE MANUFACTURER.
7. VALVE BOX SECTIONS ARE REQUIRED. THE USE OF PIPE IN LIEU OF VALVE BOX SECTIONS SHALL NOT BE PERMITTED.
8. TRACING WIRE SHALL BE INSTALLED OUTSIDE OF BOX.

| VALVE BOX (N.T.S.) | PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C. | NO. | DATE | REVISION |
|---|---|---|---|---|
| SHEET NO. 1 OF 1 · DWG. NO. W.7 · DWG. BY: PWC | WATER RESOURCES ENGINEERING DEPARTMENT | 1 | 7/09 | ADDED NOTES 7, 8 & CLARIFIED NOTES |
| DATE: JULY 01, 2013 · APPROVED BY: J.E.G. | | | | |

2013-W7 VALVEBOX.dwg

## 1-INCH METER BOX DETAILS (W.4, Sheet 1 of 2)

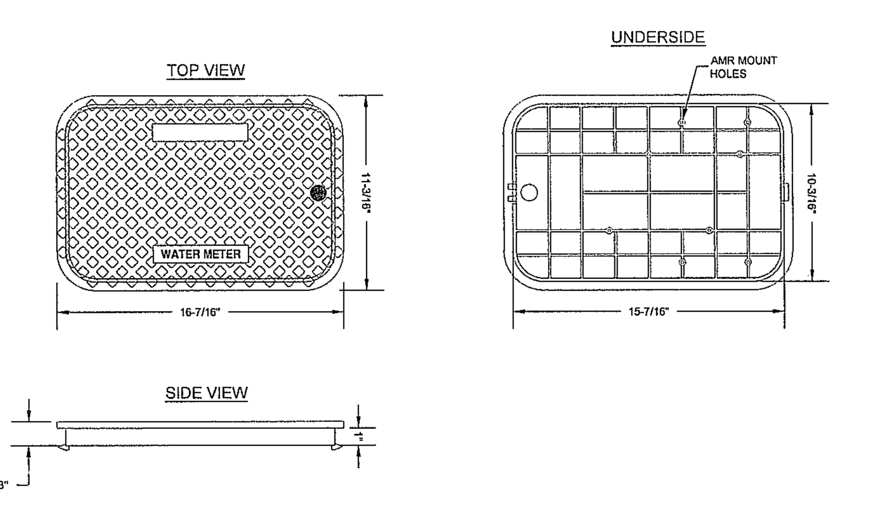
NOTES:
1. ALL MATERIALS SHALL BE APPROVED BY PWC. SEE DWG. W.4 SHT 2 OF 2 FOR METER BOX LID DETAIL.
2. METER BOX SHALL NOT BE LOCATED WHERE H-20 LOADINGS CAN IMPACT BOX OR COVER.
3. FOR 1" WATER LATERAL INSTALLATION SEE PWC DETAIL W.2
4. DIM'S ± 1/16 U.N.O.




| 1-INCH METER BOX DETAILS | PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C. | NO. | DATE | REVISION |
|---|---|---|---|---|
| SHEET NO. 1 OF 2 · DWG. NO. W.4 · DWG. BY: PWC | WATER RESOURCES ENGINEERING DEPARTMENT | 1 | 3/10 | CHANGED BOX DIMENSIONS |
| DATE: JULY 01, 2013 · APPROVED BY: J.E.G. | | | | |

2013-W4 1IN METERBOX.dwg

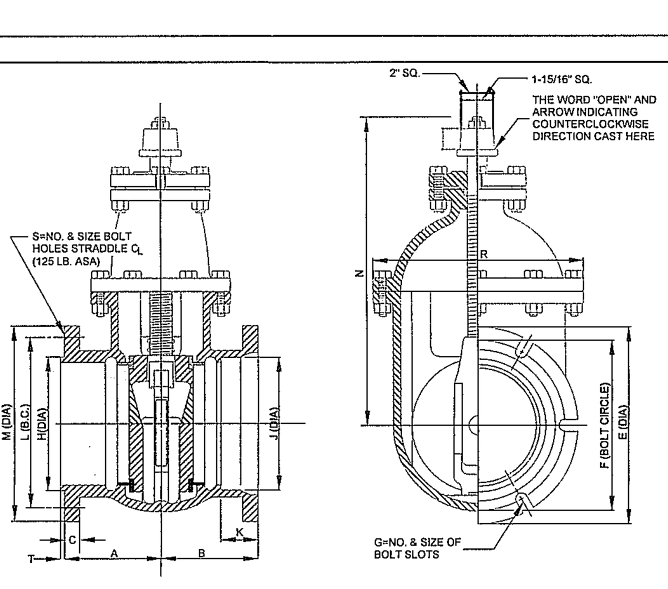
## 1-INCH METER BOX LID (W.4, Sheet 2 of 2)




| 1-INCH METER BOX LID | PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C. | NO. | DATE | REVISION |
|---|---|---|---|---|
| SHEET NO. 2 OF 2 · DWG. NO. W.4 · DWG. BY: PWC | WATER RESOURCES ENGINEERING DEPARTMENT | 1 | 7/07 | REVISED LID |
| DATE: JULY 01, 2013 · APPROVED BY: J.E.G. | | 1 | 3/10 | CHANGED BOX & LID DIMENSIONS |

2013-W4 1IN METERBOX.dwg

## TAPPING VALVE (N.T.S.) (W.9)



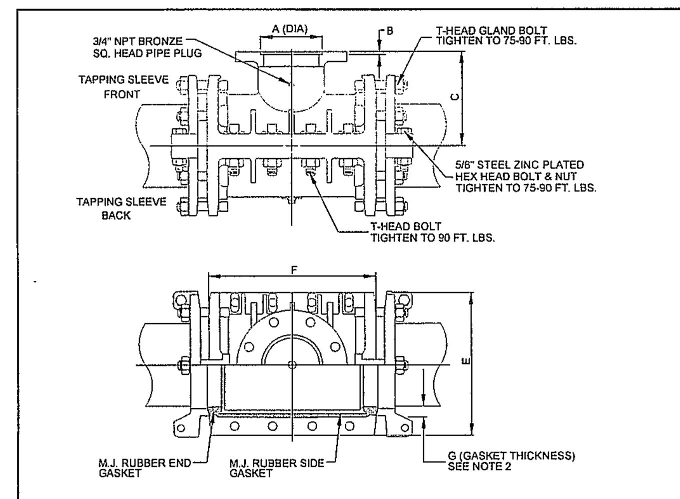

NOTES:
1. ALL MATERIALS SHALL BE IN ACCORDANCE WITH PWC STANDARDS.
2. RAISED MALE FACE SHALL BE REQUIRED TO PROVIDE FOR PROPER ALIGNMENT OF THE TAPPING SLEEVE.
3. ALL VALVES SHALL HAVE 2" SQUARE OPERATING NUT AND SHALL OPEN COUNTERCLOCKWISE.
4. RESILIENT WEDGE GATE VALVE SHALL BE AS MANUFACTURED BY MUELLER CORP., AMERICAN DARLING, CLOW CORP., OR APPROVED EQUAL.
5. VALVE BODY, BONNET AND GATE SHALL BE IN ACCORDANCE WITH AWWA C-509/C-515 AND NSF61.
6. VALVE BODY AND BONNET SHALL BE COATED ON ALL INTERIOR AND EXTERIOR SURFACES WITH A FUSION BONDED EPOXY IN ACCORDANCE WITH AWWA C-550-90.
7. ALL VALVES 24" AND SMALLER SHALL HAVE A SAFE WORKING PRESSURE OF 250 PSI.
8. SEE TAPPING SLEEVE (DETAILS W.10 OR W.11) FOR ADDITIONAL INFORMATION.
9. DIMENSIONS SHOWN ARE FOR REFERENCE AND MAY VARY BASED UPON MANUFACTURER. VALVES SHALL BE SIMILAR IN NATURE TO THAT SHOWN AND SHALL NOT DEVIATE IN ESSENTIAL DETAILS.
10. ALL TAPPING SLEEVES SHALL BE HYDROSTATICALLY PRESSURE TESTED IN ACCORDANCE WITH PWC SPECIFICATIONS. TEST SHALL BE WITNESSED AND APPROVED BY PWC PROJECT COORDINATOR PRIOR TO BEGINNING TAPPING PROCESS.

| VALVE SIZE | A | B | C | D | E | F | G | H | J | K | L | M | N | R | S | T | TURNS TO OPEN | WEIGHT W/ACC |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 4 | 4-3/8 | 5-7/8 | 15/16 | 1-1/2 | 9 | 7-1/2 | 4-7/8 | 4-63/64 | 4-29/32 | 2-1/2 | 7-1/2 | 9 | 14-1/8 | 9 | 8-3/4 | 1/4 | 14 | 118 |
| 6 | 6-7/8 | 6-1/4 | 1 | 1-5/8 | 11 | 9-1/2 | 6-7/8 | 6-63/64 | 7 | 2-1/2 | 9-1/2 | 11 | 17-5/8 | 11-3/4 | 8-7/8 | 1/4 | 21 | 175 |
| 8 | 6-1/2 | 7-1/4 | 1-1/8 | 1-3/4 | 13-1/4 | 11-3/4 | 6-7/8 | 8-63/64 | 9-5/32 | 2-1/2 | 11-3/4 | 13-1/2 | 21 | 14-1/4 | 8-7/8 | 1/4 | 28 | 274 |
| 12 | 7 | 8-1/4 | 1-1/4 | 1-3/4 | 17-7/8 | 16-1/4 | 8-7/8 | 12-63/64 | 13-5/16 | 2-1/2 | 17 | 19 | 28-1/4 | 19-1/8 | 12-1 | 1/4 | 39 | 570 |
| 16 | 8-1/2 | 9-1/8 | 1-7/16 | 2-1/16 | 23 | 21 | 12-7/8 | 16-15/16 | 17-35/64 | 3-1/2 | 21-1/4 | 23-1/2 | 38-5/8 | 26-1/8 | 16-1 1/8 | 1/4 | 55 | 1140 |
| 24 | 10-1/2 | 14-1/4 | 1-7/8 | 2-1/2 | 31-3/4 | 30 | 16-7/8 | 24-15/16 | 25-15/16 | 3-1/2 | 29-1/2 | 32 | 54-5/8 | 37-5/8 | 20-1 3/8 | 5/16 | 79 | 3225 |

| TAPPING VALVE (N.T.S.) | PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C. | NO. | DATE | REVISION |
|---|---|---|---|---|
| SHEET NO. 1 OF 1 · DWG. NO. W.9 · DWG. BY: PWC | WATER RESOURCES ENGINEERING DEPARTMENT | 1 | 7/09 | ADDED NOTE 10, REVISED 4 & 5 |
| DATE: JULY 01, 2013 · APPROVED BY: J.E.G. | | 2 | 7/13 | REVISED NOTES 4, 8, 10 |

2013-W9 M.J.TAPPING VALVE.dwg

## DUCTILE IRON TAPPING SLEEVE (W.10)




NOTES:
1. ALL MATERIALS SHALL BE IN ACCORDANCE WITH PWC STANDARDS. SLEEVE BODY SHALL BE DUCTILE IRON ASTM A536.
2. MECHANICAL JOINT TAPPING SLEEVES SHALL BE AS MANUFACTURED BY CLOW, M & H, MUELLER, OR AMERICAN AND SHALL BE FURNISHED WITH SPLIT GLANDS, SPLIT END GASKET, BOLTS, ETC. THE OUTLET FLANGE SHALL BE CL 125 PER ANSI B16.1 COMPATIBLE WITH APPROVED TAPPING VALVES.
3. DIMENSIONS SHOWN ARE FOR REFERENCE AND MAY VARY BASED UPON MANUFACTURER. SLEEVES SHALL BE SIMILAR IN NATURE TO THAT SHOWN AND SHALL NOT DEVIATE IN ESSENTIAL DETAILS.
4. PIPE SURFACES SHALL BE CLEANED THOROUGHLY TO PERMIT FOR A GOOD SEAL PRIOR TO INSTALLATION.
5. EXTERIOR OF TAPPING SLEEVE SHALL BE COATED w/2 COATS ASPHALTIC VARNISH MIL-C450.
6. ALL TAPPING SLEEVES SHALL BE HYDROSTATICALLY PRESSURE TESTED IN ACCORDANCE WITH PWC SPECIFICATIONS. TEST SHALL BE WITNESSED AND APPROVED BY PWC PROJECT COORDINATOR PRIOR TO BEGINNING TAPPING PROCESS.
7. SEE DETAILS W.9 AND W.17 FOR ADDITIONAL REQUIREMENTS.

SLEEVE FOR USE WITH CI OR DI PIPE

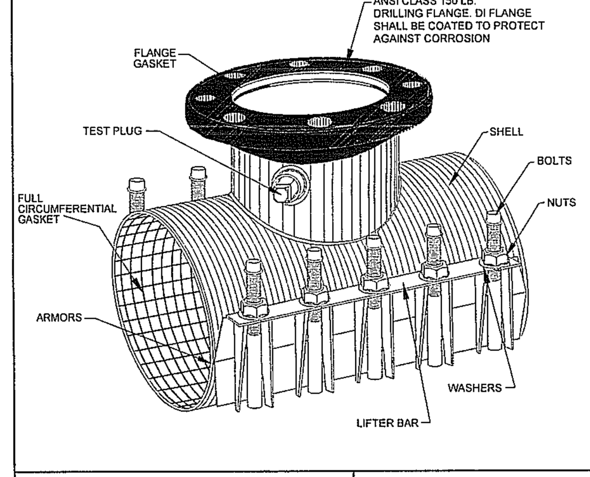
| SLEEVE SIZE PIPE X BRANCH | 6X6 | 8X6 | 8X8 | 12X6 | 12X8 | 12X12 | 16X6 | 16X8 | 16X12 | 24X6 | 24X8 | 24X12 | 24X16 | 24X24 | 30X6 | 30X8 | 30X12 | 30X16 | 30X24 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| A DIA +.031-.000 | 7.016 | 7.016 | 9.016 | 7.016 | 9.016 | 13.016 | 7.016 | 9.016 | 13.016 | 11.00 | 13.5 | 19.0 | 23.5 | 32.0 | 11.00 | 13.5 | 19.0 | 23.5 | 32.0 |
| B | .31 | .31 | .31 | .31 | .31 | .31 | .31 | .31 | .31 | .31 | .31 | .31 | .31 | .31 | .31 | .31 | .31 | .31 | .31 |
| C | 7-7/8 | 9-1/16 | 9 | 11-5/8 | 11-7/8 | 12-7/8 | 14-1/8 | 14-1/2 | 14-7/8 | 19.5 | 19.5 | 19.5 | 20.5 | 20.5 | 23.25 | 23.25 | 23.25 | 23.75 | 23.75 |
| E | 11-3/4 | 13-7/8 | 13-7/8 | 18-1/2 | 18-1/2 | 18-1/2 | 23-1/2 | 23-1/2 | 23-1/2 | 35.5 | 35.5 | 35.5 | 35.5 | 35.5 | 43.37 | 43.37 | 43.37 | 43.37 | 43.37 |
| F | 13-1/2 | 15 | 15 | 19-1/2 | 19-1/2 | 19-1/2 | 22-1/2 | 22-1/2 | 22-1/2 | 18.0 | 18.0 | 24.0 | 30.0 | 36.0 | 24.0 | 24.0 | 24.0 | 36.0 | 36.0 |

| DUCTILE IRON TAPPING SLEEVE | PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C. | NO. | DATE | REVISION |
|---|---|---|---|---|
| SHEET NO. 1 OF 1 · DWG. NO. W.10 · DWG. BY: PWC | WATER RESOURCES ENGINEERING DEPARTMENT | 1 | 7/09 | REVISED NOTE 6/REMOVED NOTE 8. |
| DATE: JULY 01, 2013 · APPROVED BY: J.E.G. | | 2 | 7/13 | REVISED NOTES 6, 7. |

2013-W10 TAPPING SLEEVE.dwg

## STAINLESS STEEL TAPPING SLEEVE (N.T.S.) (W.11)

| NOMINAL PIPE SIZE (INCH) | BRANCH SIZE | APPROX. WT. LBS. |
|---|---|---|
| 4" | 3",4" | 28,30 |
| 6" | 3",4",6" | 36,38,45 |
| 8" | 3",4",6",8" | 42,44,48,66 |
| 10" | 3",4",6",8",10" | 45,48,55,70,80, |
| 12" | 3",4",6",8",10",12" | 50,52,60,81,96,143 |
| 16" | 3",4",6",8",10",12" | 78,80,85,100,115,172 |
| 24" | 3",4",6",8",10",12" | 85,87,90,100,145,230 |




NOTES:
1. ALL MATERIALS SHALL BE IN ACCORDANCE WITH PWC STANDARDS.
2. TAPPING SLEEVES SHALL BE AS MANUFACTURED BY ROMAC, SMITH-BLAIR, OR APPROVED EQUAL.
3. STAINLESS STEEL TAPPING SLEEVE MAY BE UTILIZED FOR ALL TAPPING OF MAINS UP TO AND INCLUDING 24" DIAMETER WITH 12" OR LESS BRANCH. BRANCH GREATER THAN 12" SHALL REQUIRE FULL BODY D.I. M.J. TAPPING SLEEVE (SEE DETAIL W.10).
4. SHELL AND LUGS SHALL BE STAINLESS STEEL PER ASTM A 240, TYPE 304 AND 304L.
5. BOLTS SHALL BE 5/8" UNC ROLLED THREAD, STAINLESS STEEL PER ASTM A 193 TYPE 304 4" NOM. PIPE SIZE SHALL HAVE MIN. 1/2" BOLTS.
6. NUTS SHALL BE HEAVY HEX STAINLESS STEEL PER ASTM A-194, TYPE 304.
7. WASHERS SHALL BE STEEL AND PLASTIC LUBRICATING WASHER.
8. GASKETS SHALL BE VIRGIN SBR PER ASTM D 2000 MAA 610, COMPOUNDED FOR WATER AND SEWER SERVICE.
9. FLANGE SHALL BE DUCTILE IRON PER ASTM 536, GRADE 65-45-12, OR STAINLESS STEEL PER ASTM A-240, TYPE 304.
10. DIMENSIONS SHOWN ARE FOR REFERENCE AND MAY VARY BASED UPON MANUFACTURER. SLEEVES SHALL BE SIMILAR IN NATURE TO THAT SHOWN AND SHALL NOT DEVIATE IN ESSENTIAL DETAILS.
11. PIPE SURFACES SHALL BE CLEANED THOROUGHLY TO PERMIT A GOOD SEAL PRIOR TO INSTALLATION.
12. ALL TAPPING SLEEVES SHALL BE HYDROSTATICALLY PRESSURE TESTED IN ACCORDANCE WITH PWC SPECIFICATIONS. TEST SHALL BE WITNESSED AND APPROVED BY PWC PROJECT COORDINATOR PRIOR TO BEGINNING TAPPING PROCESS.
13. THE NUMBER OF BOLTS, NUTS AND WASHERS SHOWN ARE FOR ILLUSTRATION ONLY, ACTUAL QUANTITY SHALL BE AS RECOMMENDED BY THE SLEEVE MANUFACTURER FOR THE REQUIRED SERVICE.
14. SEE DETAILS W.9 AND W.17 FOR ADDITIONAL REQUIREMENTS.

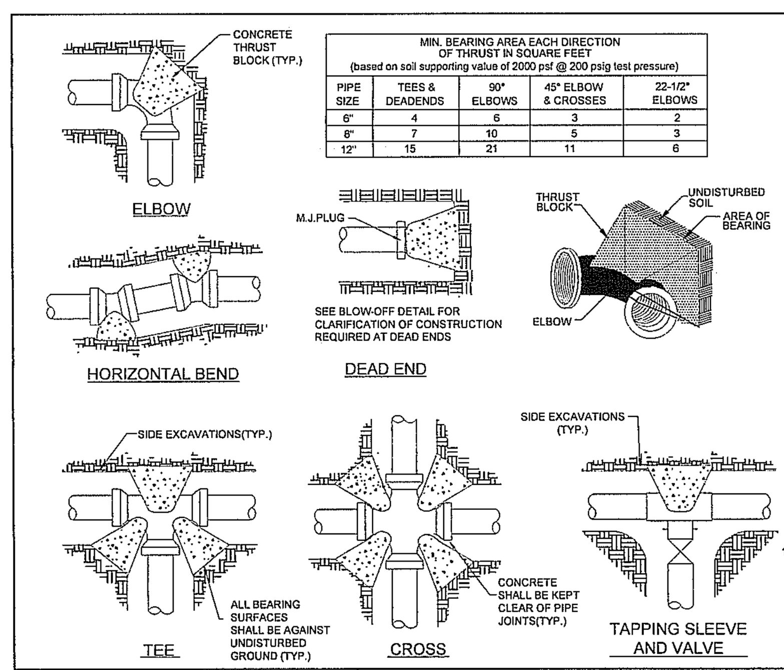
| STAINLESS STEEL TAPPING SLEEVE (N.T.S.) | PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C. | NO. | DATE | REVISION |
|---|---|---|---|---|
| SHEET NO. 1 OF 1 · DWG. NO. W.11 · DWG. BY: PWC | WATER RESOURCES ENGINEERING DEPARTMENT | 1 | 7/09 | ADDED NOTES 2, 12 & CLARIFIED NOTES |
| DATE: JULY 01, 2013 · APPROVED BY: J.E.G. | | 2 | 7/13 | REVISED NOTES 3, 12, 14 |

2013-W11 SSTAPPING SLEEVE.dwg

## CONCRETE THRUST BLOCK DETAIL (N.T.S.) (W.17)

MIN. BEARING AREA EACH DIRECTION OF THRUST IN SQUARE FEET
(based on soil supporting value of 2000 psf @ 200 psig test pressure)

| PIPE SIZE | TEES & DEADENDS | 90° ELBOWS | 45° ELBOW & CROSSES | 22-1/2° ELBOWS |
|---|---|---|---|---|
| 6" | 4 | 6 | 3 | 2 |
| 8" | 7 | 10 | 5 | 3 |
| 12" | 15 | 21 | 11 | 6 |

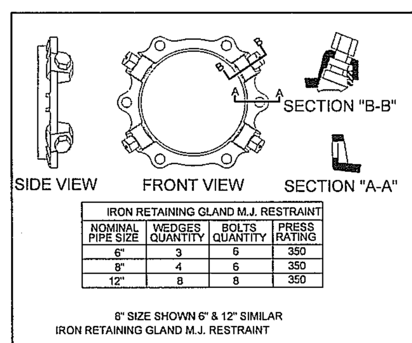



NOTES:
1. THRUST BLOCKS SHALL BE INSTALLED ON PVC WATER DISTRIBUTION LINES 6" THRU 12" DIA. IN THE MANNER SHOWN. SEE PWC STANDARD ALT. RESTRAINING DETAIL W.18 FOR ACCEPTABLE ALTERNATE RESTRAINING SYSTEMS.
2. PIPE GREATER THAN 12 INCH DIAMETER SHALL REQUIRE RESTRAINT JOINT PIPE FOR THE PROPER LENGTH.
3. COMPACT FITTINGS ARE NOT ACCEPTABLE. STANDARD FITTINGS SHALL BE USED WITH CONCRETE THRUST BLOCKING.
4. THRUST BLOCKS SHALL BE INSTALLED ON SEWER FORCE MAIN IN THE MANNER SHOWN.
5. IF SAC-CRETE IS USED, MIXING MUST BE ON SITE UTILIZING A MECHANICAL MIXER.
6. NO CONCRETE SHALL BE PLACED ON BOLTS. WRAP JOINT FITTINGS WITH PLASTIC.
7. CONCRETE SHALL BE A MINIMUM 3,000 psi.
8. ALL BEARING SURFACES SHALL BE AGAINST UNDISTURBED SOIL AND SHALL BE APPROVED BY PWC PROJ. COORDINATOR PRIOR TO PLACEMENT OF CONCRETE.
9. USE OF RESTRAINED JOINT DUCTILE IRON WILL BE REQUIRED IF SOIL CONDITIONS DO NOT ALLOW THE USE OF THRUST BLOCKS.
10. ALL VERTICAL BENDS SHALL BE RESTRAINED USING RESTRAINED JOINT DUCTILE IRON PIPE.

| CONCRETE THRUST BLOCK DETAIL (N.T.S.) | PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C. | NO. | DATE | REVISION |
|---|---|---|---|---|
| SHEET NO. 1 OF 1 · DWG. NO. W.17 · DWG. BY: PWC | WATER RESOURCES ENGINEERING DEPARTMENT | 1 | SEPT 05 | REVISED TABLE |
| DATE: JULY 01, 2013 · APPROVED BY: J.E.G. | | 2 | FEB 07 | ADDED NOTES 9&10 |
| | | 3 | JULY 13 | ADDED TAPPING SLEEVE AND VALVE DETAIL |

2013-W17 THRUSTBLOCK.dwg

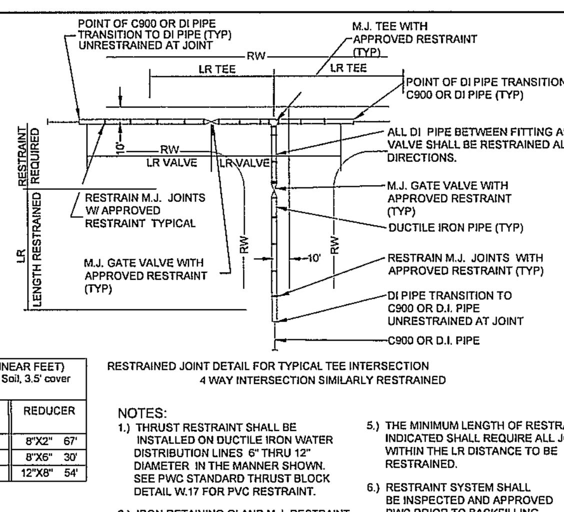
## ALTERNATE RESTRAINT DETAIL (DUCTILE IRON PIPE ONLY) (W.18)




IRON RETAINING GLAND M.J. RESTRAINT

| NOMINAL PIPE SIZE | WEDGES QUANTITY | BOLTS QUANTITY | PRESS RATING |
|---|---|---|---|
| 6" | 3 | 6 | 350 |
| 8" | 4 | 6 | 350 |
| 12" | 8 | 8 | 350 |

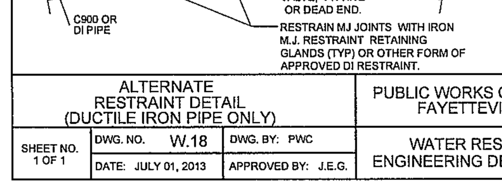
6" SIZE SHOWN 6" & 12" SIMILAR IRON RETAINING GLAND M.J. RESTRAINT




RESTRAINED JOINT DETAIL FOR TYPICAL TEE INTERSECTION
4 WAY INTERSECTION SIMILARLY RESTRAINED

LR (MIN. LENGTH OF RESTRAINT EACH DIRECTION OF THRUST IN LINEAR FEET)
Based on 200 psig pressure, Safety Factor of 2.0:1, BARE DI PIPE AND ML Soil, 3.5' cover
Chart does not apply to pipes wrapped in polyethylene wrap

| PIPE SIZE | VALVES DEAD ENDS TEES | 90° ELBOWS | 45° ELBOW & CROSSES | 22-1/2° ELBOWS | REDUCER |
|---|---|---|---|---|---|
| 6" | 55' | 31' | 13' | 7' | 8"X2" 67' |
| 8" | 72' | 40' | 17' | 8' | 8"X6" 30' |
| 12" | 102' | 57' | 24' | 12' | 12"X8" 54' |

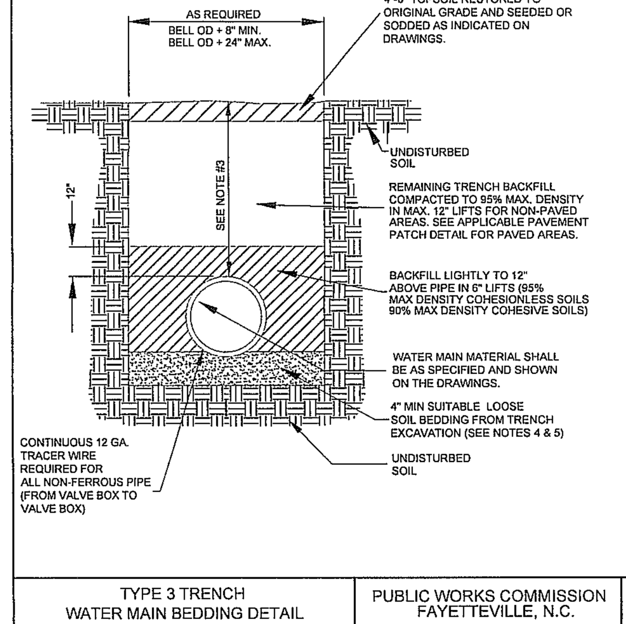



NOTES:
1.) THRUST RESTRAINT SHALL BE INSTALLED ON DUCTILE IRON WATER DISTRIBUTION LINES 6" THRU 12" DIAMETER IN THE MANNER SHOWN. SEE PWC STANDARD THRUST BLOCK DETAIL W.17 FOR PVC RESTRAINT.
2.) IRON RETAINING GLAND M.J. RESTRAINT OR OTHER FORMS OF IRON RESTRAINT SHALL NOT BE USED ON PVC PIPE.
3.) PIPE GREATER THAN 12 INCH DIAMETER SHALL REQUIRE RESTRAINED JOINT PIPE FOR THE PROPER LENGTH.
4.) COMPACT FITTINGS ARE ACCEPTABLE FOR USE WITH IRON RETAINING GLAND M.J. RESTRAINT AND OTHER FORMS OF DI RESTRAINT.
5.) THE MINIMUM LENGTH OF RESTRAINT INDICATED SHALL REQUIRE ALL JOINTS WITHIN THE LR DISTANCE TO BE RESTRAINED.
6.) RESTRAINT SYSTEM SHALL BE INSPECTED AND APPROVED PWC PRIOR TO BACKFILLING.
7.) RESTRAINT SYSTEMS MAY VARY BASED UPON THE ENGINEERS' DESIGN AS SHOWN ON THE PLAN AND PROFILE SHEETS.
8) GRIPPER RING AND FIELD LOK GASKETS ARE AN ACCEPTABLE METHOD OF RESTRAINT ON DUCTILE IRON PIPE ONLY.

| ALTERNATE RESTRAINT DETAIL (DUCTILE IRON PIPE ONLY) | PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C. | NO. | DATE | REVISION |
|---|---|---|---|---|
| SHEET NO. 1 OF 1 · DWG. NO. W.18 · DWG. BY: PWC | WATER RESOURCES ENGINEERING DEPARTMENT | 1 | 11/16/2007 | REVISED TABLE, ADDED NOTE 8 |
| DATE: JULY 01, 2013 · APPROVED BY: J.E.G. | | | | |

2013-W18 RESTRAINT DETAIL.dwg

## TYPE 3 TRENCH WATER MAIN BEDDING DETAIL (W.19)

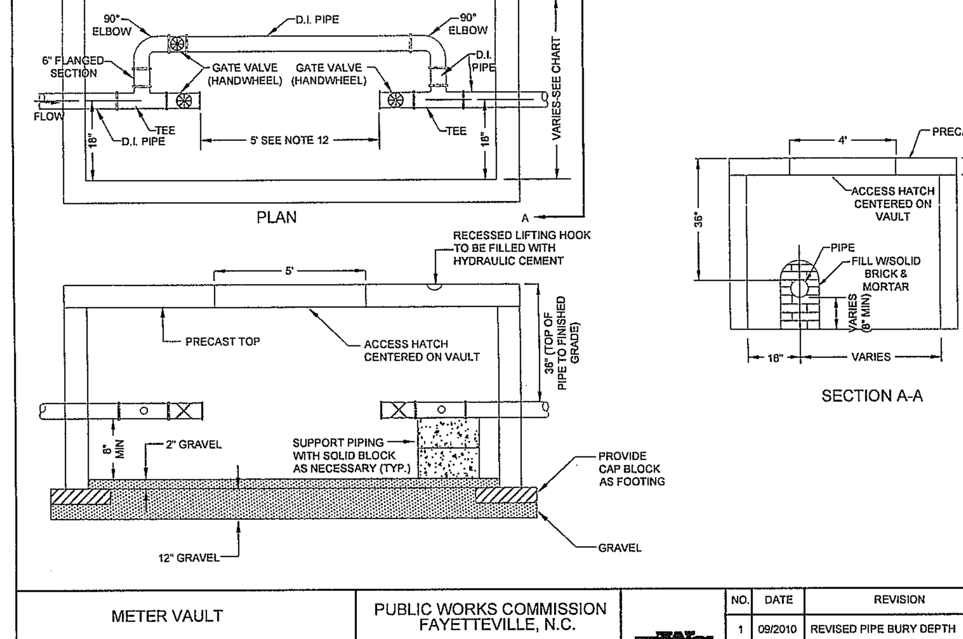



NOTES:
1. ALL EXCAVATIONS SHALL COMPLY WITH THE TERMS AND CONDITIONS OF THE CONSTRUCTION STANDARDS FOR EXCAVATIONS IN OSHA "SAFETY AND HEALTH REGULATIONS FOR CONSTRUCTION", CHAPTER XV11 OF TITLE 29, CFR, PART 1926. THE CONTRACTOR SHALL HAVE A COMPETENT PERSON ON SITE AT ALL TIMES DURING EXCAVATION AND BACKFILLING.
2. CONTRACTOR SHALL USE TRENCH BOX SHORING IN ALL OPEN CUTS IN PAVED AREAS. TRENCH WIDTH SHALL BE MAINTAINED AT THE MINIMUM PRACTICAL WIDTH.
3. TYPE 3 TRENCH CONDITIONS AND A MINIMUM OF 4' OF COVER MUST BE MAINTAINED WHERE RESTRAINT JOINT PIPE IS SPECIFIED AND 3.5' OF COVER IN ALL OTHER LOCATIONS UNLESS SHOWN OTHERWISE ON THE PLAN PROFILE.
4. LOOSE SOIL OR SELECT MATERIAL IS DEFINED AS "NATIVE" SOIL EXCAVATED FROM THE TRENCH, FREE OF ROCKS, FOREIGN MATERIAL, AND FROZEN EARTH.
5. BEDDING MATERIAL SHALL EXTEND TO UNDISTURBED TRENCH WALLS AND TRENCH BOTTOM. BEDDING MATERIAL WILL NOT BE PAID FOR UNLESS SPECIFICALLY APPROVED BY THE PROJECT REPRESENTATIVE AND ONLY FOR THE AUTHORIZED QUANTITY.
6. BEDDING MATERIAL SHALL BE PROPERLY RODDED AND COMPACTED AROUND THE PIPE HAUNCHES.
7. TEST FOR DENSITY OF COMPACTION MAY BE MADE AT THE OPTION OF THE ENGINEER AND DEFICIENCIES SHALL BE CORRECTED BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER. THE ENGINEER MAY HAVE COMPACTION TEST PERFORMED AFTER THE BACKFILL IS COMPLETE. CONTRACTOR SHALL BE REQUIRED TO EXCAVATE TO VARIOUS ELEVATIONS FOR DENSITY TESTING EXCAVATION, BACKFILL AND RECOMPACTION SHALL BE PERFORMED AT NO ADDITIONAL COSTS TO THE OWNER.

| TYPE 3 TRENCH WATER MAIN BEDDING DETAIL | PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C. | NO. | DATE | REVISION |
|---|---|---|---|---|
| SHEET NO. 1 OF 1 · DWG. NO. W.19 · DWG. BY: PWC | WATER RESOURCES ENGINEERING DEPARTMENT | | | |
| DATE: JULY 01, 2013 · APPROVED BY: J.E.G. | | | | |

2013-W19 WATER BEDDING.dwg

## METER VAULT (W.20, Sheet 1 of 2)




| METER VAULT | PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C. | NO. | DATE | REVISION |
|---|---|---|---|---|
| SHEET NO. 1 OF 2 · DWG. NO. W.20 · DWG. BY: PWC | WATER RESOURCES DEPARTMENT | 1 | 09/2010 | REVISED PIPE BURY DEPTH |
| DATE: JULY 01, 2013 · APPROVED BY: J.E.G. | | 2 | | |
| | | 3 | | |

2013-W20 METER VAULT.dwg

## METER VAULT (W.20, Sheet 2 of 2)

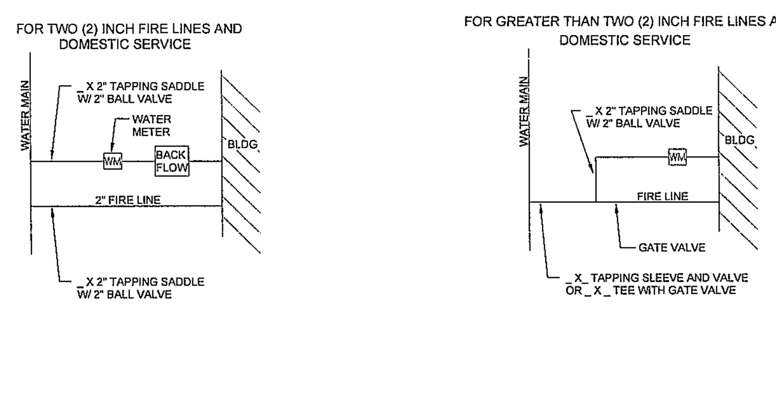
| METER SIZE | MIN PIPE DIA | SPACING BETWEEN GATE VALVES (SEE NOTE 20) | VAULT SIZE (INSIDE DIM) |
|---|---|---|---|
| 3" | 4" | 5' | 5'X10' |
| 4" | 4" | 5' | 5'X10' |
| 6" | 6" | 5' | (SEE NOTE 19) 5'X10' |
| 8" | 8" | 5' | 6'X12' |

NOTES:
1. VAULTS SHALL BE PRECAST REINFORCED CONCRETE (4,000psi). VAULT CONSTRUCTION SHALL BE CERTIFIED BY MANUFACTURER TO WITHSTAND LOADING DUE TO BACKFILLING, IN ACCORDANCE WITH ACI 318.
2. BRICK VAULTS SHALL NOT BE ACCEPTABLE.
3. NO RISERS SHALL BE ALLOWED.
4. VAULTS SHALL HAVE INSIDE DIMENSIONS AS INDICATED ON CHART.
5. VAULT SHALL BE LOCATED OUTSIDE OF PAVED TRAFFIC AREAS.
6. METER VAULT SHALL BE LOCATED WITHIN PUBLIC ROW OR DEDICATED EASEMENT. IF IN EASEMENT, PROVIDE A MIN. 5' CLEARANCE AROUND VAULT.
7. CONTRACTOR SHALL PROVIDE ALL FITTINGS, PIPING, ETC. AS INDICATED.
8. THE VAULT SHALL BE LOCATED NO CLOSER THAN 5' FROM ANY STRUCTURE.
9. PIPING SHALL BE RESTRAINED JOINT DUCTILE IRON FROM TAP AT MAIN TO VAULT.
10. PIPE FITTINGS INSIDE VAULT SHALL BE FLANGED.
11. VAULT SHALL BE SET PLUMB AND LEVEL, MATCH FINISHED GRADE, AND SHALL HAVE POSITIVE DRAINAGE AWAY FROM IT.
12. PWC TO INSTALL METER AND FITTINGS UPON ACCEPTANCE OF PROJECT.
13. ACCESS HATCH SHALL BE 5'x4' DOUBLE DOOR CENTERED ON VAULT, SO AS TO PROVIDE CLEAR ACCESS TO METER.
14. ACCESS HATCH SHALL BE ALUMINUM, MOUNTED FLUSH AND SHALL BE CAPABLE OF BEARING INCIDENTAL TRAFFIC LOADS. ALL OTHER HATCHES SHALL BE APPROVED BY PWC PRIOR TO CONSTRUCTION. BOLTS, HINGES AND HOLD OPEN ARM SHALL BE 316 STAINLESS STEEL.
15. ACCESS HATCH SHALL LATCH AUTOMATICALLY UPON CLOSURE (SLAMLOCK). HATCH SHALL BE LOCKABLE USING A KEYED LOCKING MECHANISM INTEGRAL TO THE HATCH. HATCH MANUFACTURER SHALL PROVIDE ONE OPERATING KEY TO PWC.
16. ALL LIFTING HOLES SHALL BE FILLED WITH HYDRAULIC CEMENT.
17. LATERAL AND VAULT INSTALLATION SHALL BE APPROVED BY PWC PROJECT COORDINATOR PRIOR TO BACKFILL.
18. LATERAL AND PIPING INSIDE OF VAULT SHALL PASS HYDROSTATIC AND STERILIZATION TESTS (200psi).
19. IF USING 8" PIPING WITH A 6" METER, THE VAULT SHALL BE 6'x12'.
20. CONTRACTOR SHALL VERIFY VAULT DIMENSIONS, METER DIMENSIONS AND PIPE LAYOUT WITH PWC PRIOR TO ORDERING MATERIALS.

| METER VAULT | PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C. | NO. | DATE | REVISION |
|---|---|---|---|---|
| SHEET NO. 2 OF 2 · DWG. NO. W.20 · DWG. BY: PWC | WATER RESOURCES ENGINEERING DEPARTMENT | 1 | 09/2010 | REVISED NOTES |
| DATE: JULY 01, 2013 · APPROVED BY: | | 2 | | |
| | | 3 | | |

2013-W20 METER VAULT.dwg

## STANDARD TAPS (W.21)




NOTES:
1. DOMESTIC BACKFLOW MAY BE LOCATED INSIDE THE BUILDING.
2. THE FIRE LINE SHALL HAVE A BACKFLOW DEVICE WITHIN 100 FEET OF THE MAIN.
3. REFER TO THE CROSS CONNECTION CONTROL ORDINANCE FOR ADDITIONAL INFORMATION ON BACKFLOW REQUIREMENTS.

| STANDARD TAPS | PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C. | NO. | DATE | REVISION |
|---|---|---|---|---|
| SHEET NO. 1 OF 1 · DWG. NO. W.21 · DWG. BY: PWC | WATER RESOURCES ENGINEERING DEPARTMENT | | | |
| DATE: JULY 01, 2013 · APPROVED BY: J.E.G. | | | | |

2013-W21 STANDARD TAPS.dwg

1. CONTRACTOR SHALL REPAIR ALL SEWER LATERALS AND MAINS DAMAGED DURING CONSTRUCTION. THE CONTRACTOR SHALL IMMEDIATELY REPORT ALL SEWER MAIN AND LATERAL BREAKS TO THE PWC PROJECT COORDINATOR. THE CONTRACTOR SHALL INITIATE IMMEDIATE REPAIRS IN ACCORDANCE WITH PWC STANDARDS.

2. SEWER MAINS, LATERALS, AND MANHOLES SHALL BE INSTALLED UTILIZING A PWC APPROVED CUT-SHEET, INDICATING INSTALLATION DEPTH.

3. TRANSFER OF SEWER SERVICES SHALL BE ACCOMPLISHED AS FOLLOWS:
   A. INSTALL AND TEST NEW MAINS, MANHOLES, AND LATERALS. CLEANOUTS SHALL BE INSTALLED ON ALL NEW LATERALS OTHERWISE DIRECTED BY PWC.
   B. DISCONNECT EXISTING PLUMBING FROM NEW LATERAL UTILIZING THE NECESSARY FITTINGS AS DIRECTED BY PWC.
   C. AFTER ALL SERVICES HAVE BEEN TRANSFERRED TO THE NEW MAIN, THE EXISTING SEWER SYSTEM SHALL BE ABANDONED IN ACCORDANCE WITH PWC REQUIREMENTS.

4. WHEN THE EXISTING MAIN IS NOT TO BE ABANDONED, THE CONTRACTOR SHALL UNCOVER THE EXISTING LATERAL AT THE MAIN, CUT AND PLUG BOTH ENDS, REMOVE THE EXISTING CLEANOUT AND COMBINATION, AND PLUG THE LATERAL TO ABANDON THE OLD SERVICE.

5. SEWER PLUGS SHALL BE INSTALLED TO ELIMINATE ANY DEBRIS OR OTHER MATERIAL FROM ENTERING THE ACTIVE SEWER SYSTEM. UPON ACCEPTANCE OF THE NEW SEWER SYSTEM, THE CONTRACTOR SHALL CLEAN THE NEW MAINS, REMOVE ALL DEBRIS, AND THEN REMOVE THE PLUG.

6. SEPARATION REQUIREMENTS:
   A. LATERAL SEPARATION OF SEWERS AND WATER MAINS: WATER MAINS SHALL BE LAID AT LEAST 10 FEET LATERALLY FROM EXISTING OR PROPOSED SEWER MAINS/LATERAL, UNLESS LOCAL CONDITIONS OR BARRIERS PREVENT A 10-FOOT LATERAL SEPARATION - IN WHICH CASE:
      i. THE WATER MAIN IS LAID IN A SEPARATE TRENCH, WITH THE ELEVATION OF THE BOTTOM OF THE WATER MAIN AT LEAST 18 INCHES ABOVE THE TOP OF THE SEWER MAIN/LATERAL; OR
      ii. THE WATER MAIN IS LAID IN THE SAME TRENCH AS THE SEWER MAIN/LATERAL WITH THE WATER MAIN LOCATED AT ONE SIDE ON A BENCH OF UNDISTURBED EARTH AND WITH THE ELEVATION OF THE BOTTOM OF THE WATER MAIN AT LEAST 18 INCHES ABOVE THE TOP OF THE SEWER MAIN/LATERAL

   B. CROSSING A WATER MAIN OVER A SEWER: WHENEVER IT IS NECESSARY FOR A WATER MAIN TO CROSS OVER A SEWER MAIN/LATERAL, THE WATER MAIN SHALL BE LAID AT SUCH AN ELEVATION THAT THE BOTTOM OF THE WATER MAIN IS AT LEAST 18 INCHES ABOVE THE TOP OF THE SEWER MAIN/LATERAL, UNLESS LOCAL CONDITIONS OR BARRIERS PREVENT AN 18 INCH VERTICAL SEPARATION - IN WHICH CASE BOTH THE WATER MAIN AND SEWER MAIN/LATERAL SHALL BE CONSTRUCTED OF FERROUS MATERIAL AND WITH JOINTS THAT ARE EQUIVALENT TO WATER MAIN STANDARDS FOR A DISTANCE OF 10 FEET ON EACH SIDE OF THE POINT OF CROSSING.

   C. CROSSING WATER MAIN UNDER A SEWER: WHENEVER IT IS NECESSARY FOR A WATER MAIN TO CROSS UNDER A SEWER MAIN/LATERAL, BOTH THE WATER MAIN AND THE SEWER MAIN/LATERAL SHALL BE CONSTRUCTED OF DUCTILE IRON MATERIAL AND WITH JOINTS EQUIVALENT TO WATER MAIN STANDARDS FOR A DISTANCE OF 10 FEET ON EACH SIDE OF THE POINT OF CROSSING. A SECTION OF WATER MAIN PIPE SHALL BE CENTERED AT THE POINT OF CROSSING.

   D. CROSSING STORM DRAINAGE LINES: A MINIMUM OF 12 INCHES OF VERTICAL CLEARANCE SHALL BE MAINTAINED BETWEEN A SEWER MAIN/LATERAL CROSSING UNDER A STORM DRAINAGE LINE UNLESS DUCTILE IRON PIPE IS USED. IF DUCTILE IRON PIPE IS USED, A MINIMUM OF SIX(6) INCHES OF SEPARATION SHALL BE MAINTAINED, UNLESS OTHERWISE APPROVED BY PWC.

| GENERAL NOTES SANITARY SEWER UTILITY | PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C. |
|---|---|
| SHEET NO. 1 OF 1 — DWG. NO. S.1 — DWG. BY: PWC — DATE: JULY 01, 2013 — APPROVED BY: J.E.G. | WATER RESOURCES ENGINEERING DEPARTMENT |

| NO. | DATE | REVISION |
|---|---|---|
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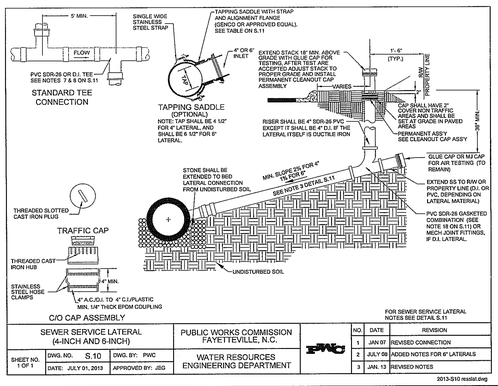
2013-S1 SEWER NOTES.dwg




| SEWER SERVICE LATERAL (4-INCH AND 6-INCH) | PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C. |
|---|---|
| SHEET NO. 1 OF 1 — DWG. NO. S.10 — DWG. BY: PWC — DATE: JULY 01, 2013 — APPROVED BY: JSG | WATER RESOURCES ENGINEERING DEPARTMENT |

FOR SEWER SERVICE LATERAL NOTES SEE DETAIL S.11

| NO. | DATE | REVISION |
|---|---|---|
| 1 | JAN 97 | REVISED CONNECTION |
| 2 | JULY 05 | ADDED NOTES FOR 6" LATERALS |
| 3 | JAN. 13 | REVISED NOTES |

2013-S10 resist.dwg

## SEWER SERVICE LATERAL NOTES

1. HOLE IN SANITARY SEWER MAIN MUST BE CUT WITH SHELL CUTTER NO HAMMER TAPS ALLOWED.
2. LATERAL SHALL CONFORM TO ASTM SPECS. D-3034 SDR-26 UNLESS OTHERWISE INDICATED AS D.I.
3. ALL PIPE & FITTINGS SHALL BE 4" OR 6" UNLESS OTHERWISE SPECIFIED.
4. ALL D.I. PIPE SHALL HAVE AN INTERIOR LINING OF CERAMIC EPOXY (PROTECTO 401). THE ENTIRE D.I. LATERAL SHALL BE COMPRESSED OF D.I. PIPE & MECHANICAL JOINT FITTINGS.
5. ALL CONNECTIONS SHALL HAVE RUBBER GASKET SEALS INSTALLED.
6. SANITARY SEWER SERVICE C/O STACK SHALL BE LOCATED 18" FROM WATER SERVICE LOCK VALVE WHEN IN THE SAME DITCH.
7. INSTALLATION OTHER THAN AS SHOWN MUST BE APPROVED BY THE PWC.
8. CONNECTIONS TO THE TOP OF MAIN SHALL NOT BE ALLOWED, UNLESS OTHERWISE APPROVED BY THE PWC PROJECT COORDINATOR.
9. SLOPE AND DEPTH OF THE SERVICE LATERAL SHALL BE DETERMINED BY THE TOPOGRAPHY OF THE LOT AS APPROVED BY THE PWC ENGINEER OR AS INDICATED ON THE DRAWINGS.
10. LATERAL SHALL CONFORM TO THE 2% MINIMUM SLOPE FOR THE 6" OR THE 1% MIMIMUM SLOPE FOR THE 8". MAXIMUM CLEAN OUT SPACING FOR 4" PIPE 75', 6" PIPE 100'.
11. SEE INTERIOR DROP STRUCTURE OR SLIDE, MORTAR SLIDE & SHELF DETAIL FOR VERTICAL DROPS OF MAINS AND LATERALS.
12. LATERALS LESS THAN 3' IN DEPTH OR GREATER THAN 20' DEPTH SHALL UTILIZE DUCTILE IRON PIPE AND FITTINGS WITH CERAMIC EPOXY (PROTECTO 401)
13. ENTIRE SEWER LATERAL ASSEMBLY SHALL BE AIR TESTED CONCURRENTLY WITH SEWER MAIN.
14. INDIVIDUAL LATERALS SHALL BE CLEANED AND FLUSHED PRIOR TO FLUSHING SANITARY SEWER MAINS.
15. LATERAL SHALL NOT BE BACK-FILLED UNTIL INSPECTED BY THE PWC PROJECT COORDINATOR.
16. WYE CONNECTIONS SHALL NOT BE USED TO TIE LATERALS INTO A MANHOLE.
17. 8" BENDS ARE APPROVED BY THE PROJECT COORDINATOR, STONE BEDDING IS REQUIRED TO BE INSTALLED FROM UNDISTURBED (SEE DETAIL S.12) SOIL TO BOTTOM OF BEND.
18. PVC COMBINATION SHALL BE A MOLDED WYE AND BEND, GASKETED, SCH26, AS MANUFACTURED BY HARCO, GPK OR APPROVED EQUAL.
19. NO MORE THAN 4, FOUR INCH LATERALS OR 3, SIX INCH LATERALS SHALL ENTER A 4" DIAMETER TERMINAL MANHOLE. NO MORE THAN 2 LATERALS REGARDLESS OF SIZE) SHALL ENTER ALL OTHER 5" DIAMETER MANHOLES. ALL LATERALS SHALL HAVE AN INDIVIDUAL TROUGH. 5' DIAMETER MANHOLES SHALL BE USED IF THE ABOVE CONDITIONS ARE NOT MET.
20. ALL LATERALS 6" AND 8") SHALL UTILIZE A 4" RISER (STACK).
21. REFER TO DETAIL S.12 FOR SEPARATION REQUIREMENTS.

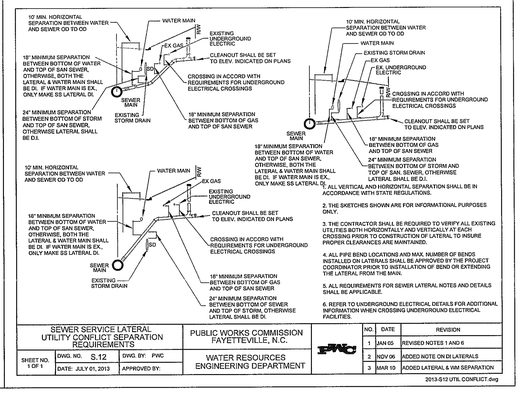
THE FOLLOWING TABLE SUMMARIZES THE MATERIALS TO BE UTILIZED FOR SEWER MAIN TO LATERAL CONNECTIONS:

| DI Lateral | PVC Main | DI Main |
|---|---|---|
| PVC Lateral | PVC fitting or saddle | MJ fitting with transition gasket or saddle |

| SEWER SERVICE LATERAL NOTES (4-INCH AND 6-INCH) | PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C. |
|---|---|
| SHEET NO. 1 OF 1 — DWG. NO. S.11 — DWG. BY: PWC — DATE: JULY 01, 2013 — APPROVED BY: JEG | WATER RESOURCES ENGINEERING DEPARTMENT |

| NO. | DATE | REVISION |
|---|---|---|
| 1 | JULY 08 | REVISED NOTES 6 & 8 ADDED NOTES 23, 23 |
| 2 | OCT 11 | REVISED NOTES |
| 3 | JAN. 13 | REVISED NOTES AND ADDED TABLE |

2013-S11 RESSLAT notes.dwg

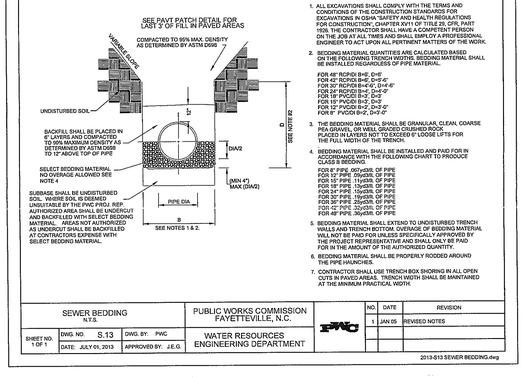



1. ALL VERTICAL AND HORIZONTAL SEPARATION SHALL BE IN ACCORDANCE WITH STATE REGULATIONS.
2. THE SKETCHES SHOWN ARE FOR INFORMATIONAL PURPOSES ONLY.
3. THE CONTRACTOR SHALL BE REQUIRED TO VERIFY ALL EXISTING UTILITIES BOTH HORIZONTALLY AND VERTICALLY AT EACH CROSSING PRIOR TO CONSTRUCTION OF LATERAL TO INSURE PROPER CLEARANCES ARE MAINTAINED.
4. ALL PIPE BEND LOCATIONS AND MAX. NUMBER OF BENDS INSTALLED ON LATERALS SHALL BE APPROVED BY THE PROJECT COORDINATOR PRIOR TO INSTALLATION OF BEND OR EXTENDING THE LATERAL FROM THE MAIN.
5. ALL REQUIREMENTS FOR SEWER LATERAL NOTES AND DETAILS SHALL BE APPLICABLE.
6. REFER TO UNDERGROUND ELECTRICAL DETAILS FOR ADDITIONAL INFORMATION WHEN CROSSING UNDERGROUND ELECTRICAL FACILITIES.

| SEWER SERVICE LATERAL UTILITY CONFLICT SEPARATION REQUIREMENTS | PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C. |
|---|---|
| SHEET NO. 1 OF 1 — DWG. NO. S.12 — DWG. BY: PWC — DATE: JULY 01, 2013 — APPROVED BY: | WATER RESOURCES ENGINEERING DEPARTMENT |

| NO. | DATE | REVISION |
|---|---|---|
| 1 | JAN 05 | REVISED NOTES 1 AND 6 |
| 2 | NOV 06 | ADDED NOTE ON DI LATERALS |
| 3 | MAR 10 | ADDED LATERAL & VM SEPARATION |

2013-S12 UTIL CONFLICT.dwg




NOTES:

1. ALL EXCAVATIONS SHALL COMPLY WITH THE TERMS AND CONDITIONS OF THE CONSTRUCTION STANDARDS FOR EXCAVATIONS IN OSHA "SAFETY AND HEALTH REGULATIONS FOR CONSTRUCTION", CHAPTER XVII OF TITLE 29, CFR, PART 1926. THE CONTRACTOR SHALL HAVE A COMPETENT PERSON ON THE JOB AT ALL TIMES AND SHALL EMPLOY A PROFESSIONAL ENGINEER TO ACT UPON ALL PERTINENT MATTERS OF THE WORK.
2. BEDDING MATERIAL QUANTITIES ARE CALCULATED BASED ON THE FOLLOWING TRENCH WIDTHS. BEDDING MATERIAL SHALL BE INSTALLED REGARDLESS OF PIPE MATERIAL.
   FOR 46" RCP/D-B=E, D=6'
   FOR 42" RCP/D-B=E, D=5'-6"
   FOR 30" RCP/D-B=E, D=4'-6"
   FOR 24" RCP/D-B=3', D=3'-9"
   FOR 18" PVC/D-B=3', D=3'
   FOR 15" PVC/D-B=3', D=3'
   FOR 12" PVC/D-B=2', D=3'-5"
   FOR 8" PVC/D-B=2', D=3'-0"
3. THE BEDDING MATERIAL SHALL BE GRANULAR, CLEAN, COARSE PEA GRAVEL, OR WELL GRADED CRUSHED ROCK PLACED IN LAYERS NOT TO EXCEED 6" LOOSE LIFTS FOR THE FULL WIDTH OF THE TRENCH.
4. BEDDING MATERIAL SHALL BE INSTALLED AND PAID FOR IN ACCORDANCE WITH THE FOLLOWING CHART TO PRODUCE CLASS B BEDDING
   FOR 8" PIPE...#57x3/4IL OF PIPE
   FOR 12" PIPE...#57x3/4IL OF PIPE
   FOR 15" PIPE...11yd3/4IL OF PIPE
   FOR 18" PIPE...15yd3/4IL OF PIPE
   FOR 24" PIPE...16yd3/4IL OF PIPE
   FOR 30" PIPE...25yd3/4IL OF PIPE
   FOR 36" PIPE...28yd3/4IL OF PIPE
   FOR 42" PIPE...32yd3/4IL OF PIPE
   FOR 48" PIPE...36yd3/4IL OF PIPE
5. BEDDING MATERIAL SHALL EXTEND TO UNDISTURBED TRENCH WALLS AND TRENCH BOTTOM. OVERAGE OF BEDDING MATERIAL WILL NOT BE PAID FOR UNLESS SPECIFICALLY APPROVED BY THE PROJECT REPRESENTATIVE AND SHALL ONLY BE PAID FOR IN THE AMOUNT OF THE AUTHORIZED QUANTITY.
6. BEDDING MATERIAL SHALL BE PROPERLY ROGGED AROUND THE PIPE HAUNCHES.
7. CONTRACTOR SHALL USE TRENCH BOX SHORING IN ALL OPEN CUTS IN PAVED AREAS. TRENCH WIDTH SHALL BE MAINTAINED AT THE MINIMUM PRACTICAL WIDTH.

| SEWER BEDDING N.T.S. | PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C. |
|---|---|
| SHEET NO. 1 OF 1 — DWG. NO. S.13 — DWG. BY: PWC — DATE: JULY 01, 2013 — APPROVED BY: J.E.G. | WATER RESOURCES ENGINEERING DEPARTMENT |

| NO. | DATE | REVISION |
|---|---|---|
| 1 | JAN 05 | REVISED NOTES |
| | | |
| | | |

2013-S13 SEWER BEDDING.dwg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NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 033348 JAMES E. GRIMES, JR. 1/31/14

URS NC CORP LICENSE : C-2243

| | |
|---|---|
| Drawn | JMM |
| Checked | TAC |
| Date | January 31, 2014 |
| Revisions | |


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**FAST Multi-Modal Center**
City of Fayetteville
Fayetteville, NC

Project Number 621A

Title
**SEWER DETAILS**

Sheet
# C305

Plate of

## PLANT SCHEDULE BASE BID

| TREES | QTY | BOTANICAL NAME | COMMON NAME | CONT | SIZE | SPAC | REMARKS |
|---|---|---|---|---|---|---|---|
| CORL | 9 | CORNUS FLORIDA | EASTERN DOGWOOD | B&B | 8'–10' HT. | A.I. | |
| COKM | 4 | CORNUS KOUSA 'MILKY WAY' | MILKY WAY KOUSA DOGWOOD | B&B | 8'–10' HT | A.I. | |
| HAMV | 1 | HAMAMELIS VIRGINIANA | COMMON WITCH HAZEL | B&B | 6'–8' HT. | A.I. | |
| LAIN | 1 | LAGERSTROEMIA INDICA 'TUSCARORA' | TUSCARORA CRAPE MYRTLE | B&B | 8'–10' HT | A.I. | 3–5 STALKS MAXIMUM |
| QUPH | 4 | QUERCUS PHELLOS 'HIGHTOWER' | HIGHTOWER WILLOW OAK | B&B | 2" CAL. | A.I. | |
| ZSGV | 13 | ZELKOVA SERRATA 'GREEN VASE' | JAPANESE ZELKOVA | B&B | 2" CAL. | A.I. | |

| SHRUBS | QTY | BOTANICAL NAME | COMMON NAME | CONT | SIZE | SPAC | REMARKS |
|---|---|---|---|---|---|---|---|
| ABEK | 79 | ABELIA GRANDIFLORA 'KALEIDOSCOPE' | KALEIDOSCOPE ABELIA | – | 12" HT | 2'–6" O.C. | FULL TO BASE |
| CEPP | 75 | CEPHALOTAXUS HARRINGTONIA PROSTRATA | PROSTRATE PLUM YEW | – | 24" HT. | 3' O.C. | FULL TO BASE |
| FOTB | 20 | FOTHERGILLA GARDENII 'BLUE MIST' | BLUE MIST FOTHERGILLA | – | 18"–24" HT. | 2' O.C. | FULL TO BASE |
| GARD | 46 | GARDENIA JASMINOIDES 'FROSTPROOF' | DWARF GARDENIA | – | 18"–24" HT. | 3' O.C. | FULL TO BASE |
| ILGS | 165 | ILEX GLABRA 'COMPACTA' | INKBERRY | – | 24"–30" HT. | 3' O.C. | FULL TO BASE |
| LEUF | 152 | LEUCOTHOE FONTANESIANA 'NANA' | DWARF DROOPING LEUCOTHOE | – | 20"–24" HT. | 3' O.C. | FULL TO BASE |
| ROSB | 14 | ROSA BANKSIAE | LADY BANKS ROSE | CONT. | 4'–5' HT. | A.I. | |
| ROSR | 68 | ROSA X 'RADYOO' | BLUSHING KNOCK OUT ROSE | – | 24"–30" HT. | 3' O.C. | |
| RUDS | 27 | RUDBECKIA FULGIDA 'GOLDSTURM' | GOLDSTURM BLACK–EYED SUSAN | 1 GAL | | 18" O.C. | |
| VIBC | 2 | VIBURNUM AWABUKI 'CHINDO' | CHINDO VIBURNUM | – | 6–8' HT | A.I. | FULL TO BASE |

| GROUND COVERS | QTY | BOTANICAL NAME | COMMON NAME | CONT | SIZE | SPAC | SPACING | REMARKS |
|---|---|---|---|---|---|---|---|---|
| CARD | 835 | CAREX X 'SILVER SCEPTRE' | SILVER SCEPTRE SEDGE | 1 GAL | 6"–8" HT. | 10" O.C. | 10" o.c. | |
| ERAC | 849 | ERAGROSTIS CURVULA | WEEPING LOVE GRASS | 1 GAL | 12" HT. | 18" O.C. | 18" o.c. | |
| JUCF | 108 | JUNIPERUS CONFERTA | COSTAL JUNIPER | 1 GAL | 15"–18" HT. | 36" O.C. | 36" o.c. | |
| LIRB | 2,571 | LIRIOPE MUSCARI 'BIG BLUE' | BIG BLUE LILYTURF | 4"POT | 6"–8" HT. | 12" O.C. | 12" o.c. | |
| * MESM | 17,834 SF | MEADOW SEED MIX | SEED MIX FROM ERNST CONSERVATION SEED | SEED | | | | |
| ** MUCA | 131 | MUHLENBERGIA CAPILLARIS | PINK MUHLY GRASS | 4"POT | 16"–18" HT. | 24" O.C. | 24" o.c. | |
| PACS | 1,820 | PACHYSANDRA TERMINALIS 'GREEN SHEEN' | PACHYSANDRA | 1 GAL | 6"–8" HT. | 1' O.C. | 12" o.c. | |

* BASE BID ONLY

** OR APPROVED EQUAL BY LANDSCAPE ARCHITECT

## NOTES

1. SIZE AND GRADING STANDARDS OF PLANT MATERIAL SHALL CONFORM TO THE LATEST EDITION OF "USA STANDARDS FOR NURSERY STOCK", BY THE AMERICAN ASSOCIATION OF NURSERYMAN, INC.
2. HEIGHT AND WIDTH SPECIFICATIONS INDICATED ON PLANT SCHEDULE SHALL TAKE PRECEDENCE OVER CONTAINER SIZE AND CALIPER.
3. ALL ANNUAL/PERENNIAL BEDS SHALL BE AMENDED BY THE CONTRACTOR PER THE SPECIFICATIONS AND RAISED 8" ABOVE EXISTING OR PROPOSED GRADE. CONTRACTOR SHALL PROVIDE TOPSOIL AS REQUIRED TO RAISE GRADES.
4. CONTRACTOR SHALL MULCH ALL SHRUB BEDS WITH 4" AGED SHREDDED HARDWOOD BARK. CONTRACTOR SHALL MULCH ALL ANNUAL/PERENNIAL BEDS WITH 1" PINE BARK FINES.
5. ALL DISTURBED AREAS NOT INDICATED TO RECEIVE SOD OR MULCH SHALL BE SEEDED BY THE CONTRACTOR.
6. CONTRACTOR SHALL REMOVE ALL HARD LUMPS OF CLAY, STONES OVER 1" IN DIAMETER, AND ALL CONSTRUCTION DEBRIS INCLUDING GRAVEL, ROOTS, LIMBS AND OTHER DELETERIOUS MATTER WHICH WOULD BE HARMFUL, OR PREVENT PROPER ESTABLISHMENT AND/OR MAINTENANCE OF LAWN AND PLANTING AREAS.
7. IN AREAS WHERE CONSTRUCTION GRAVEL IS EMBEDDED IN THE SOIL, CONTRACTOR SHALL REMOVE CONTAMINATED SOIL TO A DEPTH OF 8" AND FILL WITH CLEAN TOPSOIL. CONTRACTOR SHALL IMPORT TOPSOIL AT NO CHARGE TO OWNER IF REQUIRED TO FILL THESE EXCAVATIONS.
8. SEE DETAILS 1, 2, 3 SHEET L102 FOR PLANTING DETAILS.
9. CONTRACTOR SHALL RESEED/RESOD LAWN AREAS DAMAGED DUE TO PLANT MATERIAL INSTALLATION.
10. CONTRACTOR SHALL COORDINATE ALL PLANTING IN THE RIGHT–OF–WAY WITH THE NORTH CAROLINA DEPARTMENT OF TRANSPORTATION OR LOCAL TRANSPORTATION DEPARTMENT.
11. ALL STRAPPING AND TOP 2/3 OF WIRE BASKET SHALL BE CUT AWAY AND REMOVED BY THE CONTRACTOR FROM ROOT BALL PRIOR TO BACKFILLING PLANTING PIT. CONTRACTOR SHALL REMOVE TOP 1/3 OF THE BURLAP FROM ROOT BALL.
12. FOR NEW PLANTING AREAS, CONTRACTOR SHALL REMOVE ALL PAVEMENT, GRAVEL SUB–BASE AND CONSTRUCTION DEBRIS; REMOVE COMPACTED SOIL AND ADD 24" NEW TOPSOIL, OR AMEND THE TOP 24" OF EXISTING SOIL TO MEET SPECIFIED TOPSOIL/PLANTING MIX STANDARDS FOR TREES (WITHIN ENTIRE MINIMUM AREA OF 274 SQUARE FEET PER TREE)
13. LARGE MATURING TREES SHALL BE A MINIMUM 25 TO 30 FEET FROM THE OVERHEAD DISTRIBUTION OR TRANSMISSION LINES. IF TREES CONFLICT WITH POWER LINES OR SIGNS, CONTRACTOR SHALL CONTACT URBAN FORESTER TO RESOLVE BEFORE PLANTING.
14. CONTRACTOR SHALL CALL URBAN FORESTER FOR AN INSPECTION OF TREE PROTECTION AND/OR TREE PLANTING AREAS, SEVEN TO TEN DAYS PRIOR TO THE TEMPORARY OR FINAL CERTIFICATE OF OCCUPANCY DATE.
15. MINIMUM TREE SIZE AT PLANTING SHALL BE 3 INCH CALIPER FOR LARGE MATURING TREES AND 2 INCH CALIPER FOR SMALL MATURING TREES. ALL MULTI–STEM PLANTS SHALL BE TREE FORM, MAXIMUM THREE TO FIVE TRUNKS, AND A MINIMUM EIGHT FEET TALL.
16. EXISTING VEGETATION SHALL MEET THE REQUIREMENTS OF THE CITY OF FAYETTEVILLE. AND IT WILL BE SUPPLEMENTED (IF INSUFFICIENT) PER THE RECOMMENDATIONS OF THE INSPECTOR.
17. CANOPY TREES SHALL BE LOCATED AT LEAST 5' (FIVE) FROM ADJACENT HARDSCAPE.
18. TREES SHALL NOT BE LOCATED WITHIN WATER OR SEWER EASEMENTS OR OVER WATER/SEWER LINES.
19. ANY TREES LOCATED UNDER OVERHEAD UTILITY LINES SHALL COMPLY WITH PWC LIST.
20. PROPOSED LIGHT POLES SHALL BE A MINIMUM OF 15' (FIFTEEN) FROM PROPOSED TRUNK LOCATIONS.

## PLANT SCHEDULE ALTERNATE 'A'

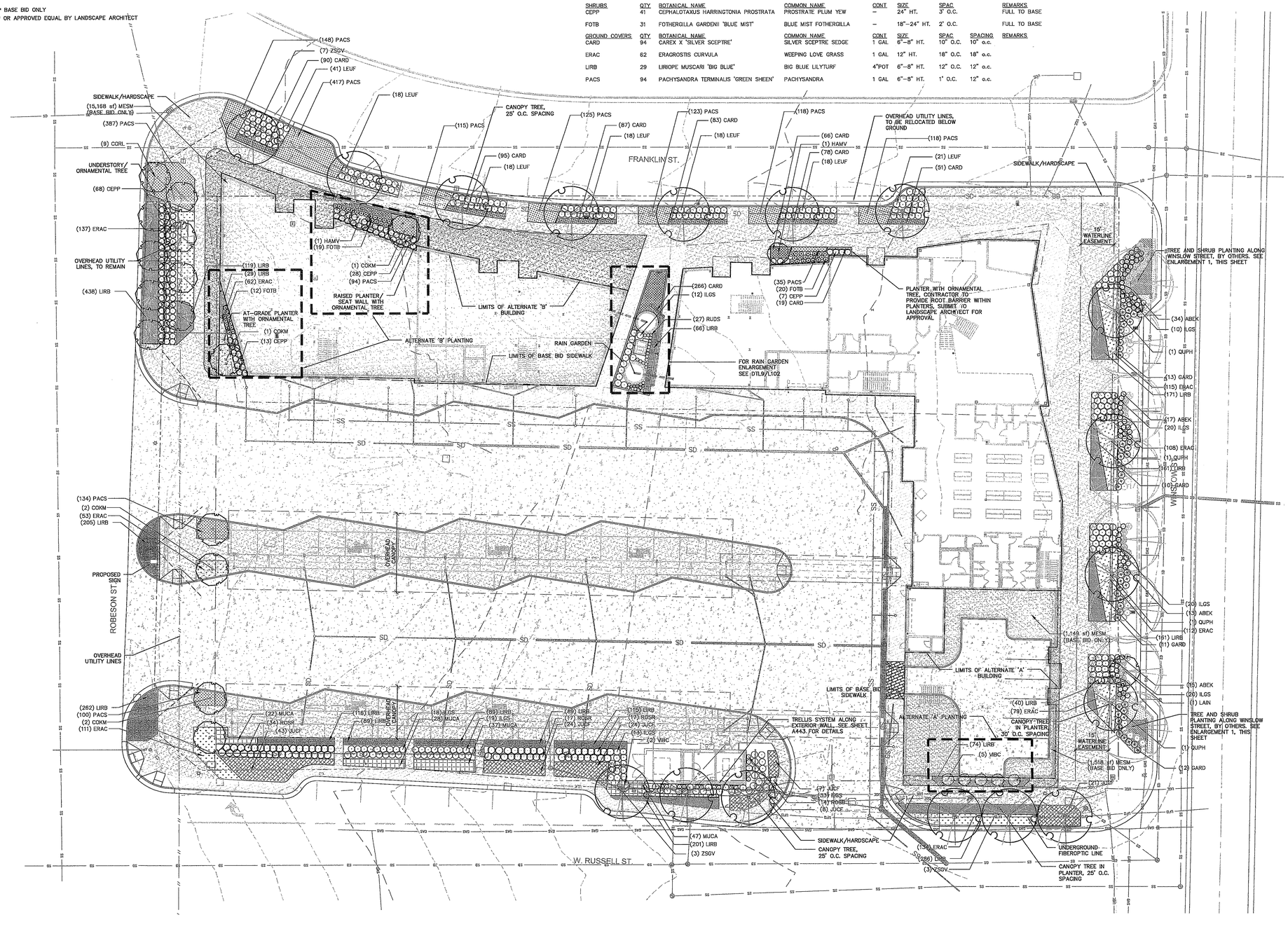
| SHRUBS | QTY | BOTANICAL NAME | COMMON NAME | CONT | SIZE | SPAC | | REMARKS |
|---|---|---|---|---|---|---|---|---|
| VIBC | 5 | VIBURNUM AWABUKI 'CHINDO' | CHINDO VIBURNUM | – | 6–8' HT | A.I. | | FULL TO BASE |
| GROUND COVERS | QTY | BOTANICAL NAME | COMMON NAME | CONT | SIZE | SPAC | SPACING | REMARKS |
| LIRB | 74 | LIRIOPE MUSCARI 'BIG BLUE' | BIG BLUE LILYTURF | 4"POT | 6"–8" HT. | 12" O.C. | 12" o.c. | |

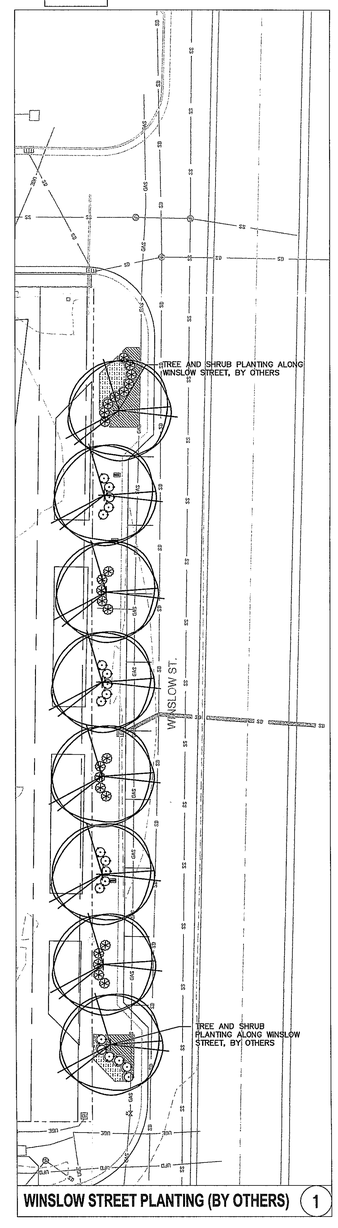
## PLANT SCHEDULE ALTERNATE 'B'

| TREES | QTY | BOTANICAL NAME | COMMON NAME | CONT | SIZE | SPAC | | REMARKS |
|---|---|---|---|---|---|---|---|---|
| COKM | 2 | CORNUS KOUSA 'MILKY WAY' | MILKY WAY KOUSA DOGWOOD | B&B | 8'–10' HT | A.I. | | |
| HAMV | 1 | HAMAMELIS VIRGINIANA | COMMON WITCH HAZEL | B&B | 6'–8' HT. | A.I. | | |
| SHRUBS | QTY | BOTANICAL NAME | COMMON NAME | CONT | SIZE | SPAC | | REMARKS |
| CEPP | 41 | CEPHALOTAXUS HARRINGTONIA PROSTRATA | PROSTRATE PLUM YEW | – | 24" HT. | 3' O.C. | | FULL TO BASE |
| FOTB | 31 | FOTHERGILLA GARDENII 'BLUE MIST' | BLUE MIST FOTHERGILLA | – | 18"–24" HT. | 2' O.C. | | FULL TO BASE |
| GROUND COVERS | QTY | BOTANICAL NAME | COMMON NAME | CONT | SIZE | SPAC | SPACING | REMARKS |
| CARD | 94 | CAREX X 'SILVER SCEPTRE' | SILVER SCEPTRE SEDGE | 1 GAL | 6"–8" HT. | 10" O.C. | 10" o.c. | |
| ERAC | 62 | ERAGROSTIS CURVULA | WEEPING LOVE GRASS | 1 GAL | 12" HT. | 18" O.C. | 18" o.c. | |
| LIRB | 29 | LIRIOPE MUSCARI 'BIG BLUE' | BIG BLUE LILYTURF | 4"POT | 6"–8" HT. | 12" O.C. | 12" o.c. | |
| PACS | 94 | PACHYSANDRA TERMINALIS 'GREEN SHEEN' | PACHYSANDRA | 1 GAL | 6"–8" HT. | 1' O.C. | 12" o.c. | |

## LEGEND

| SYMBOL | | DETAIL |
|---|---|---|
| | PROPOSED TREE BY OTHERS | –/– |
| | PROPOSED SHRUB/ GROUNDCOVER BY OTHERS | –/– |
| | PROPOSED TREE | 1,3/L102 |
| | PROPOSED SHRUBS | 2/L102 |
| | PROPOSED SEED/SOD | –/– |
| | PROPOSED GROUNDCOVER | –/– |
| | LIMITS OF IRRIGATION | –/– |
| | LIMITS OF SEED | –/– |
| | PROPOSED LIGHT FIXTURE | –/– |




WINSLOW STREET PLANTING (BY OTHERS) 1

SCALE: 1"=20'-0"
0 10 20 40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NORTH CAROLINA REGISTERED LANDSCAPE ARCHITECT 1221 JASON E. DOLAN 01/31/14

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| Drawn | CJS |
| Checked | CJS |
| Date | January 31, 2014 |
| Revisions | |


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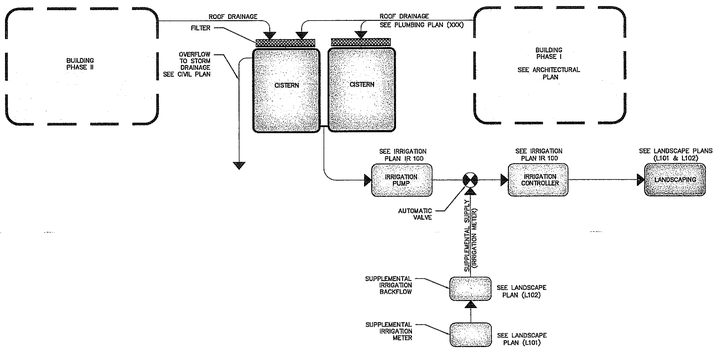
**FAST Multi-Modal Center**
City of Fayetteville
Fayetteville, NC

Project Number 621A

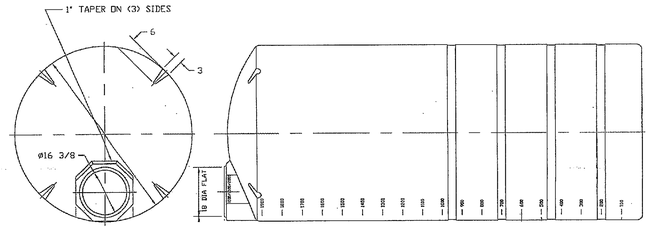
Title
**Planting Plan**

Sheet
# L101

Plate of

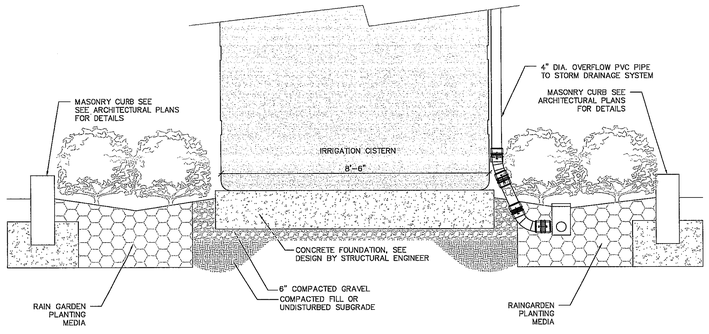



CISTERN RISER DIAGRAM — NOT TO SCALE 19




NOTES:
1. IRRIGATION CISTERN TO BE 5,000 GALLON POLYETHELENE CISTERN BY NORWESCO COMPANY OR APPROVED EQUAL. COLOR: WHITE.
2. CONNECTIONS TO ROOF DRAINAGE TO BE MADE WITH KITS AVAILABLE FROM MANUFACTURER AND TO BE MADE ON-SITE UPON INSTALLATION OF THE CISTERN.
3. EACH CISTERN WILL COME EQUIPPED WITH 2" FITTING AT THE BASE THAT WILL BE CONNECTED TO THE IRRIGATION CONTROLLER/PUMP.

IRRIGATION CISTERN — NOT TO SCALE 18




IRRIGATION CISTERN SECTION — NOT TO SCALE 17

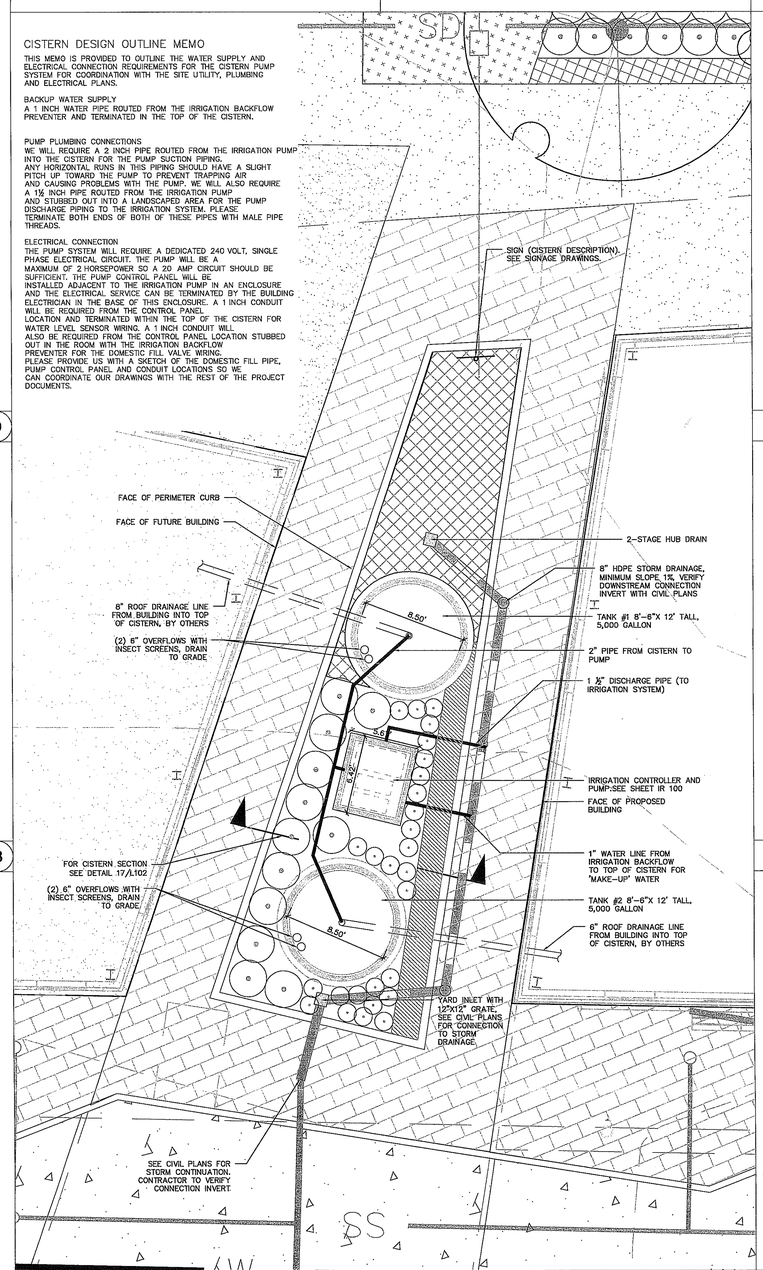
## CISTERN DESIGN OUTLINE MEMO

THIS MEMO IS PROVIDED TO OUTLINE THE WATER SUPPLY AND ELECTRICAL CONNECTION REQUIREMENTS FOR THE CISTERN PUMP SYSTEM FOR COORDINATION WITH THE SITE UTILITY, PLUMBING AND ELECTRICAL PLANS.

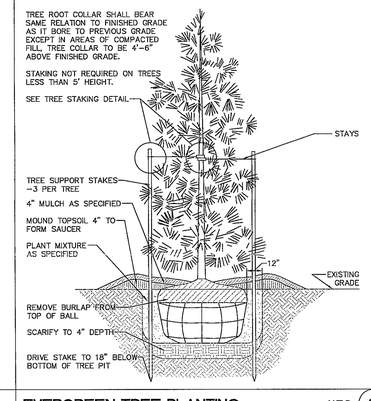
BACKUP WATER SUPPLY
A 1 INCH WATER PIPE ROUTED FROM THE IRRIGATION BACKFLOW PREVENTER AND TERMINATED IN THE TOP OF THE CISTERN.

PUMP PLUMBING CONNECTIONS
WE WILL REQUIRE A 2 INCH PIPE ROUTED FROM THE IRRIGATION PUMP INTO THE CISTERN FOR THE PUMP SUCTION PIPING. ANY HORIZONTAL RUNS IN THIS PIPING SHOULD HAVE A SLIGHT PITCH UP TOWARD THE PUMP TO PREVENT TRAPPING AIR AND CAUSING PROBLEMS WITH THE PUMP. WE WILL ALSO REQUIRE A 1½ INCH PIPE ROUTED FROM THE IRRIGATION PUMP AND STUBBED OUT INTO A LANDSCAPED AREA FOR THE PUMP DISCHARGE PIPING TO THE IRRIGATION SYSTEM. PLEASE TERMINATE BOTH ENDS OF BOTH OF THESE PIPES WITH MALE PIPE THREADS.

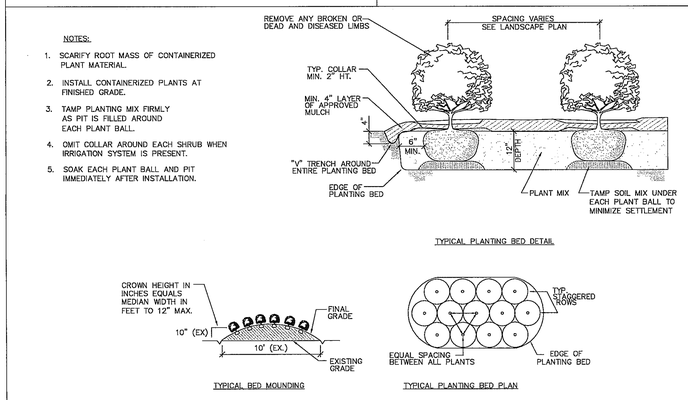
ELECTRICAL CONNECTION
THE PUMP SYSTEM WILL REQUIRE A DEDICATED 240 VOLT, SINGLE PHASE ELECTRICAL CIRCUIT. THE PUMP WILL BE A MAXIMUM OF 2 HORSEPOWER SO A 20 AMP CIRCUIT SHOULD BE SUFFICIENT. THE PUMP CONTROL PANEL WILL BE INSTALLED ADJACENT TO THE IRRIGATION PUMP IN AN ENCLOSURE AND THE ELECTRICAL SERVICE CAN BE TERMINATED BY THE BUILDING ELECTRICIAN IN THE BASE OF THIS ENCLOSURE. A 1 INCH CONDUIT WILL BE REQUIRED FROM THE CONTROL PANEL LOCATION AND TERMINATED WITHIN THE TOP OF THE CISTERN FOR WATER LEVEL SENSOR WIRING. A 1 INCH CONDUIT WILL ALSO BE REQUIRED FROM THE CONTROL PANEL LOCATION STUBBED OUT IN THE ROOM WITH THE IRRIGATION BACKFLOW PREVENTER FOR THE DOMESTIC FILL VALVE WIRING. PLEASE PROVIDE US WITH A SKETCH OF THE DOMESTIC FILL PIPE, PUMP CONTROL PANEL AND CONDUIT LOCATIONS SO WE CAN COORDINATE OUR DRAWINGS WITH THE REST OF THE PROJECT DOCUMENTS.




IRRIGATION CISTERN PLAN — SCALE : 1"=5' 9

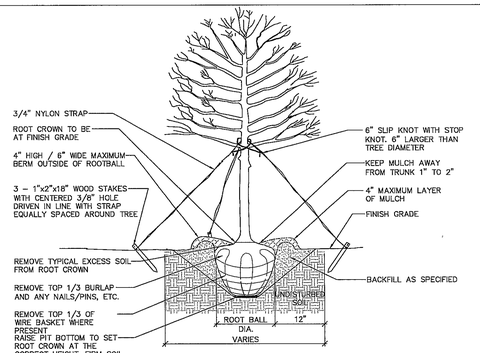



EVERGREEN TREE PLANTING — N.T.S. 3




SHRUB PLANTING BED — N.T.S. 2

NOTES:
1. REMOVE WIRE AND NYLON TWINE FROM BALL AND CANOPY
2. SOAK ROOT BALL AND PLANT PIT IMMEDIATELY AFTER INSTALLATION
3. STAKING IS REQUIRED FOR ALL TREES IN R.O.W. OR UPON REQUEST OF ARBORIST
4. REMOVE EXCESS SOIL FROM SITE AND DISPOSE OF IN A LEGAL MANNER.
5. RESEED UNMULCHED, DISTURBED AREAS




ALL TREES SHALL MEET AMERICAN STANDARD FOR NURSERY STOCK (ANSI Z60.1–2004) FOR EXAMPLE:

| CALIPER | HEIGHT (RANGE) | MAX. HEIGHT | MIN. ROOT BALL DIA. | MIN. ROOT BALL DEPTH |
|---|---|---|---|---|
| 2" | 12–14' | 16' | 24" | 16" |
| 3" | 14–16' | 18' | 32" | 21" |

TREE PLANTING (FOR SINGLE AND MULTI-STEM TREES) — N.T.S. 1

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NORTH CAROLINA REGISTERED LANDSCAPE ARCHITECT 1403 JASON E. DOLLAR 01/31/14

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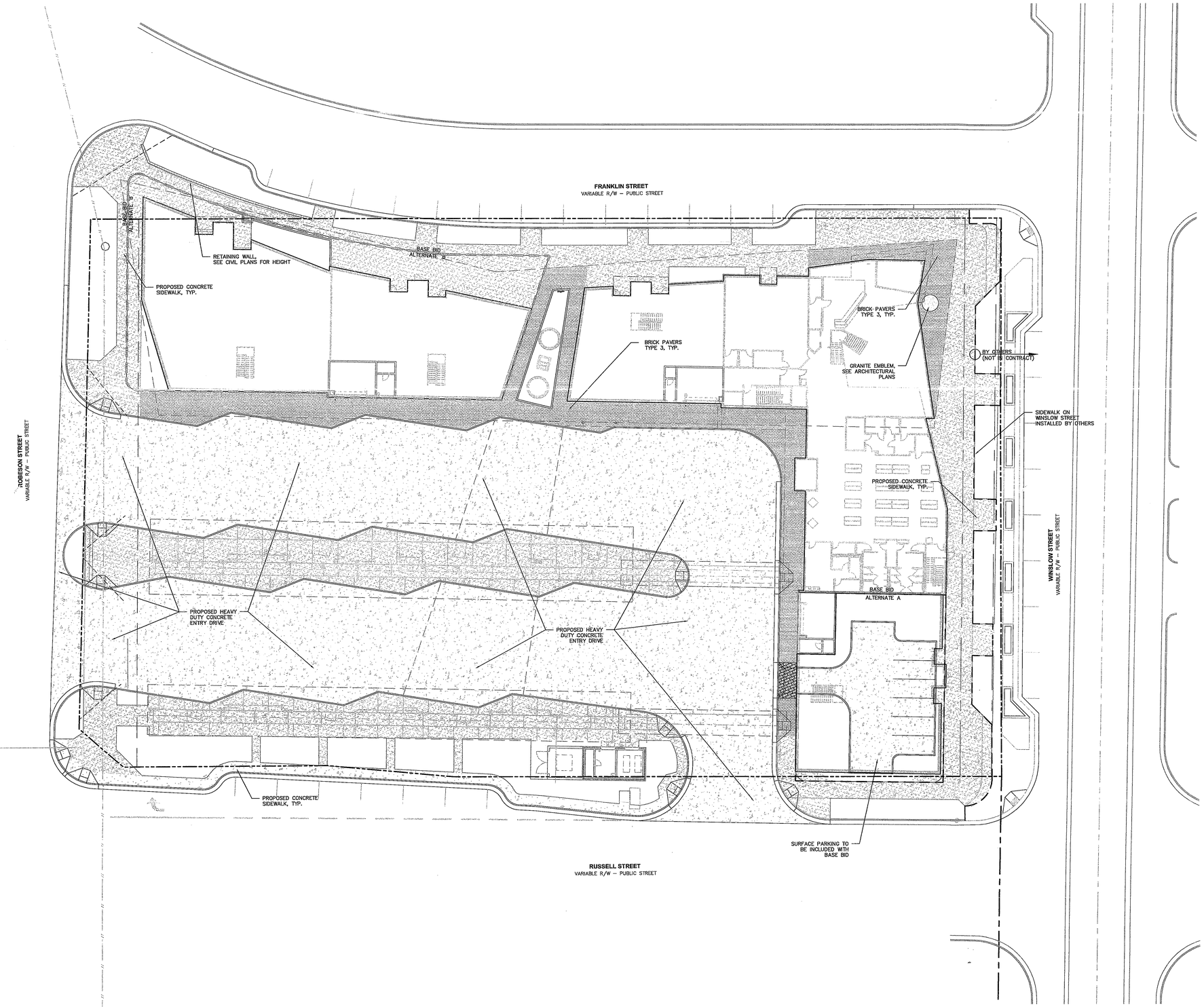
**FAST Multi-Modal Center**
City of Fayetteville
Fayetteville, NC

Project Number 621A
Title **Planting Details**
Sheet **L102**
Plate of




## LEGEND

| SYMBOL | | DETAIL |
|---|---|---|
| | PROPOSED SIDEWALK | –/– |
| | PROPOSED ACCESSIBLE RAMP | –/– |
| | LIGHT DUTY CONCRETE | –/– |
| | HEAVY DUTY CONCRETE | –/– |
| | PERMEABLE CONCRETE PAVERS TYPE 1<br>HEAVY–DUTY BELGARD AQUABRIC<br>COLOR: FOSSIL | –/– |
| | PERMEABLE CONCRETE PAVERS TYPE 2<br>HEAVY–DUTY BELGARD AQUABRIC<br>COLOR: WESTERWOOD | –/– |
| | CONCRETE PAVERS TYPE 3<br>LIGHT–DUTY BELGARD HOLLAND STONE PAVER<br>COLOR: FOSSIL | –/– |
| | PROPOSED 1'–6" CURB & GUTTER | –/– |
| | PROPOSED 2'–6" CURB & GUTTER | –/– |

## MATERIALS PLAN NOTES

1. SEE ARCHITECTURAL PLANS FOR BUILDING DIMENSIONS.
2. ALL DIMENSIONS ARE AT 90 DEGREES UNLESS OTHERWISE NOTED.
3. CONTRACTOR SHALL ESTABLISH AND VERIFY POINT OF BEGINNING (P.O.B.) AND STAKE SITE AS INDICATED ON CONSTRUCTION DOCUMENTS PRIOR TO COMMENCEMENT OF CONSTRUCTION. NOTIFY COLEJENEST & STONE, P.A. IMMEDIATELY OF ANY DISCREPANCIES.
4. ALL DIMENSIONS ARE TO BACK OF CURB, FACE OF BUILDING, OR CENTERLINE UNLESS OTHERWISE NOTED.
5. ALL DETAILS SHALL BE CONSTRUCTED IN STRICT COMPLIANCE WITH SPECIFICATIONS AND CONSTRUCTION DOCUMENTS.
6. ALL RADII SHALL BE 4'–6" (B.O.C.) UNLESS OTHERWISE NOTED.
7. STOP SIGNS SHALL BE R1–1 30"x30".
8. SIGHT TRIANGLES INDICATED ARE THE MINIMUM REQUIRED.

SCALE: 1"=20'
0 10 20 40

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NORTH CAROLINA REGISTERED LANDSCAPE ARCHITECT 1431 JASON E. DOWN 01/31/14

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Revisions

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**FAST Multi-Modal Center**
City of Fayetteville
Fayetteville, NC

Project Number 621A
Title
**Materials Plan**
Sheet
# L103
Plate of

IRRIGATION LEGEND

| SYMBOL | MAX. SPACING | DESCRIPTION |
|---|---|---|
| | 12"x18" | IN-LINE EMITTER DRIP TUBING ROWS |
| | | ISOLATION GATE VALVE (LINE SIZE) |
| | | 1" QUICK COUPLING VALVE |
| A | | AIR VACUUM RELIEF VALVE |
| F | | AUTOMATIC FLUSHING VALVE |
| | | 24 VOLT ELECTRIC ZONE VALVE W/ DISK FILTER (DRIP) (SEE VALVE DESIGNATOR FOR FLOW AND SIZES) |
| | | CLASS-200 PVC LATERAL PIPING (SIZE AS INDICATED, ALL UNLABELED PIPE TO BE 1 INCH) |
| | | CLASS-200 PVC MAINLINE PIPING |
| | | SCHEDULE 40 PVC PIPE SLEEVE (SIZE AS INDICATED) INSTALL SCH-40 PVC ELECTRICAL CONDUIT ADJACENT TO ALL MAINLINE PIPE SLEEVES, MINIMUM WIRE CONDUIT SIZE TO BE 2-INCH, UNLESS OTHERWISE NOTED. SEE SLEEVING DETAIL. |
| R | | AUTOMATIC RAIN SENSOR |
| A | | AUTOMATIC CONTROLLER |

VALVE DESIGNATION:
20 — FLOW
A — STATION NO.
1" — VALVE SIZE

SLEEVE/CONDUIT DESIGNATION:
1" — SIZE
4" SL — SLEEVE/CONDUIT INDICATOR
SL=SLEEVE WC=WIRE CONDUIT

IRRIGATION NOTES:

1. THE IRRIGATION SYSTEM WATER SUPPLY SHALL BE CAPABLE OF PROVIDING 20-GPM AT 45-PSI AT THE POINT OF CONNECTION TO A NEW CISTERN PUMP SYSTEM.

2. THE IRRIGATION CONTROLLER SHALL BE INSTALLED ON THE INTERIOR BUILDING WALL WHERE SHOWN ON THE DRAWING. THE ELECTRICAL SERVICE TO THE CONTROLLER SHALL BE PROVIDED BY THE SITE ELECTRICAL CONTRACTOR. INSTALL RAIN SENSOR ON AN ELEVATED SURFACE (WALL OR LIGHT POLE) A MINIMUM OF 10 FEET ABOVE FINISHED GRADE. RAIN SENSOR SHALL BE IN CONTACT WITH THE WEATHER AND OUT OF CONTACT FROM THE IRRIGATION SPRAY AND SHALL NOT BE OBSTRUCTED BY OVERHEAD STRUCTURES OR TREES.

3. QUICK COUPLING VALVES SHALL BE INSTALLED ON UNITIZED, THREE ELBOW PVC SWING JOINTS WITH BRASS INSERT AND STABILIZER SYSTEM.

4. WIRE SHALL BE SINGLE STRAND, DIRECT BURIAL AND RATED FOR 600 VOLTS. TURF ZONE CONTROL WIRE SHALL BE 14 AWG, RED IN COLOR. PLANTING BED ZONE CONTROL WIRE SHALL BE 14 AWG, BLUE IN COLOR. COMMON WIRE SHALL BE 12 AWG, WHITE IN COLOR. SPARE WIRE SHALL BE 14 AWG, GRAY IN COLOR.

5. REVIEW PIPE ROUTING IN REFERENCE TO DISTURBANCE TO EXISTING TREE ROOTS. NOTIFY THE OWNER'S REPRESENTATIVE OF CONFLICTS PRIOR TO BEGINNING WORK.

6. IRRIGATION PLANS ARE DIAGRAMMATIC IN NATURE. CONTRACTOR SHALL FIELD VERIFY LOCATIONS OF ALL EQUIPMENT AND REPORT ANY DISCREPANCIES TO THE OWNER'S REPRESENTATIVE.

7. CONTRACTOR SHALL COORDINATE HIS WORK WITH THE WORK OF OTHER TRADES TO PREVENT CONFLICTS DURING CONSTRUCTION.

8. CONTRACTOR TO SUBMIT PRODUCT CUT SHEETS FOR APPROVAL PRIOR TO STARTING CONSTRUCTION. SUBMITTALS SHALL BE AS REQUIRED IN THE PROJECT CONTRACT DOCUMENTS.

9. IN-LINE DRIP TUBING IN PLANTING BEDS SHALL BE INSTALLED IN ROWS 18-INCHES ON CENTER. ROWS SHALL BE CONNECTED USING PVC HEADERS AT EACH END AND AT THE CONNECTION TO THE CONTROL VALVE. TUBING SHALL BE PLACED UNDER THE MULCH AND STAKED EVERY 5 FEET TO PREVENT MOVEMENT.

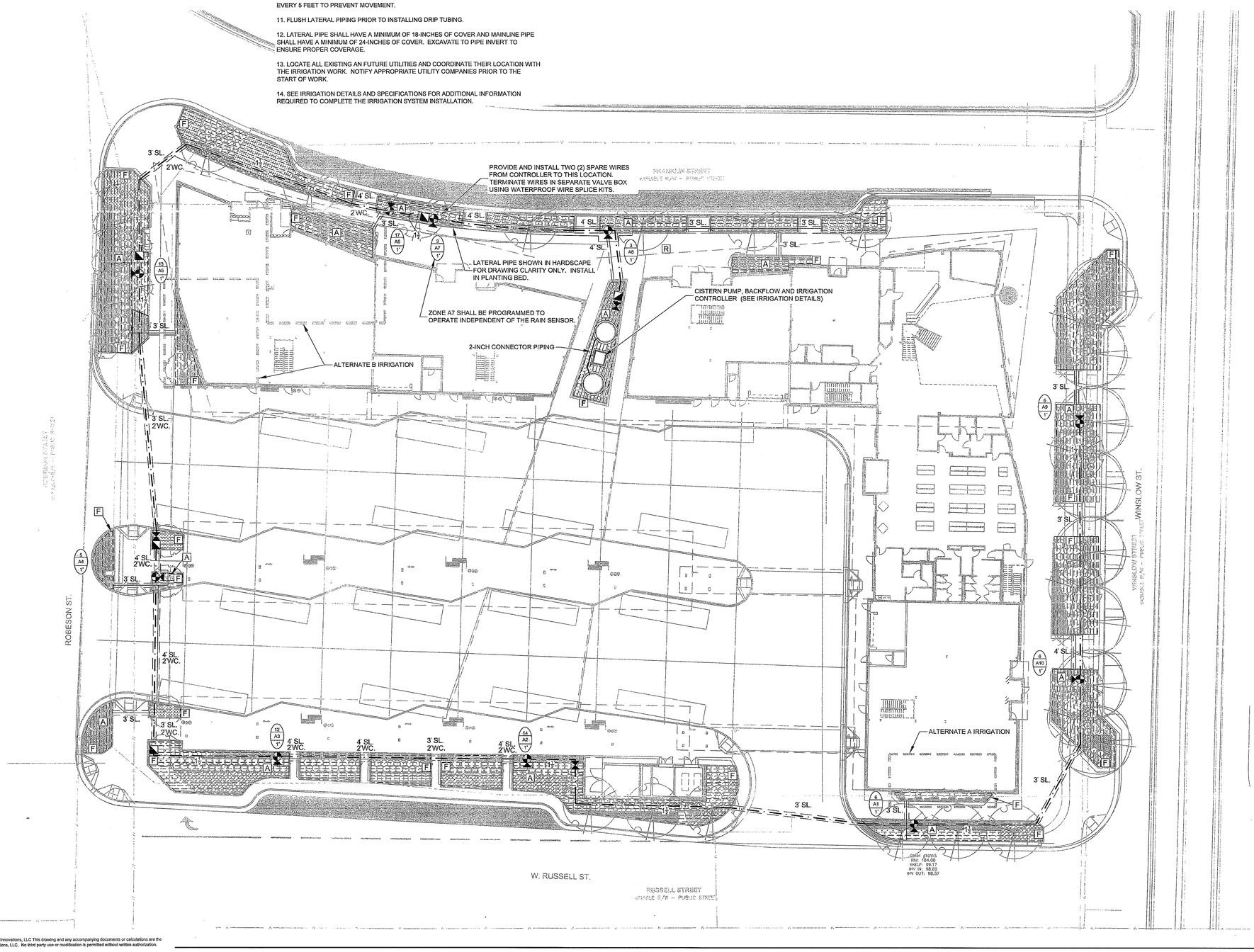
10. IN-LINE DRIP TUBING RINGS FOR TREES AND LARGE SHRUBS SHALL BE INSTALLED AS SHOWN ON THE DETAILS. RINGS SHALL BE PLACED UNDER THE MULCH AND STAKED EVERY 5 FEET TO PREVENT MOVEMENT.

11. FLUSH LATERAL PIPING PRIOR TO INSTALLING DRIP TUBING.

12. LATERAL PIPE SHALL HAVE A MINIMUM OF 18-INCHES OF COVER AND MAINLINE PIPE SHALL HAVE A MINIMUM OF 24-INCHES OF COVER. EXCAVATE TO PIPE INVERT TO ENSURE PROPER COVERAGE.

13. LOCATE ALL EXISTING AN FUTURE UTILITIES AND COORDINATE THEIR LOCATION WITH THE IRRIGATION WORK. NOTIFY APPROPRIATE UTILITY COMPANIES PRIOR TO THE START OF WORK.

14. SEE IRRIGATION DETAILS AND SPECIFICATIONS FOR ADDITIONAL INFORMATION REQUIRED TO COMPLETE THE IRRIGATION SYSTEM INSTALLATION.

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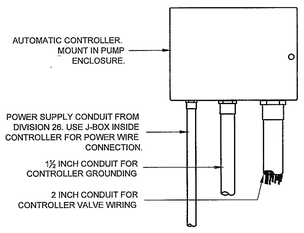
**FAST Multi-Modal Center**
City of Fayetteville
Fayetteville, NC

Project Number 621A

Title
**IRRIGATION PLAN**

Sheet
**IR100**

Plate of




1 AUTOMATIC CONTROLLER
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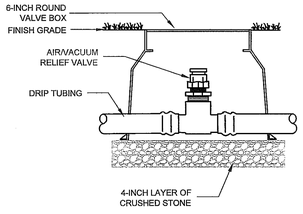
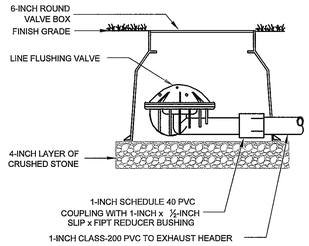



2 AIR/VACUUM RELIEF VALVE
NOT TO SCALE




3 LINE FLUSHING VALVE
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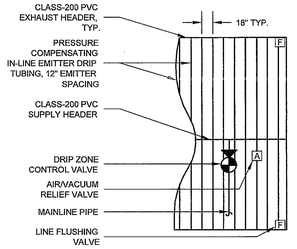


4 DRIP ZONE LAYOUT
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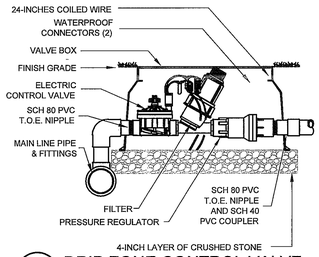


5 DRIP ZONE CONTROL VALVE
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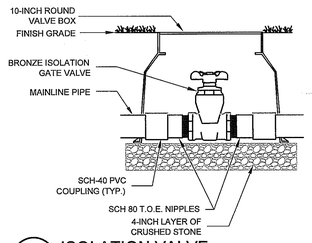
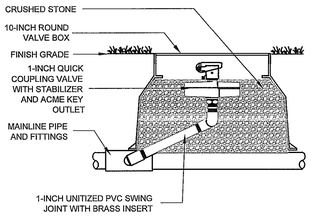



6 ISOLATION VALVE
NOT TO SCALE 2-1/2" AND SMALLER




7 QUICK COUPLING VALVE
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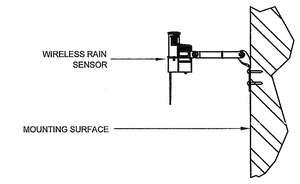


8 RAIN SENSOR
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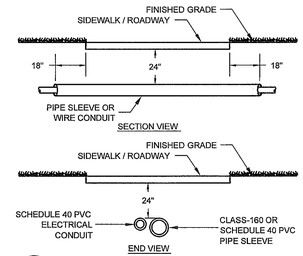


9 PIPE AND WIRE SLEEVE
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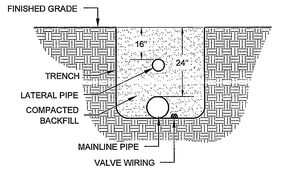


10 PIPE AND WIRE TRENCH
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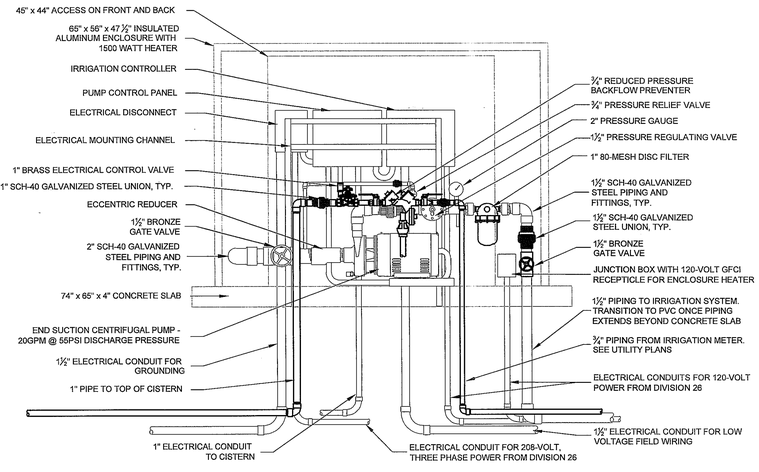
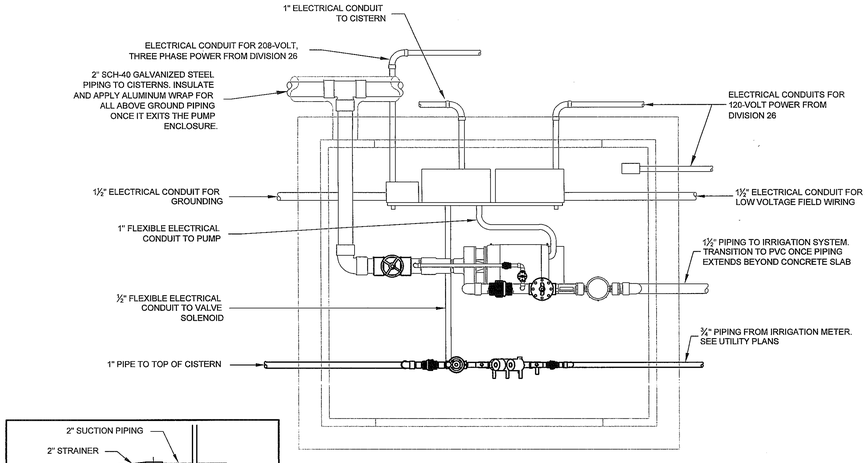
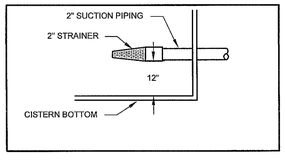



SECTION VIEW




PLAN VIEW




11 PUMP SYSTEM
NOT TO SCALE

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| Date | January 31, 2014 |
| Revisions | |

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**FAST Multi-Modal Center**
City of Fayetteville
Fayetteville, NC

Project Number 621A

Title
**IRRIGATION DETAILS**

Sheet
# IR200

Plate of

## GENERAL

1. THESE GENERAL NOTES ARE NOT INTENDED TO REPLACE SPECIFICATIONS. SEE SPECIFICATIONS FOR REQUIREMENTS IN ADDITION TO GENERAL NOTES.
2. THE STRUCTURAL DRAWINGS AND SPECIFICATIONS REPRESENT THE FINISHED STRUCTURE, AND, EXCEPT WHERE SPECIFICALLY SHOWN, DO NOT INDICATE THE METHOD OR MEANS OF CONSTRUCTION. THE CONTRACTOR SHALL SUPERVISE AND DIRECT THE WORK AND SHALL BE SOLELY RESPONSIBLE FOR ALL CONSTRUCTION MEANS, METHODS, PROCEDURES, TECHNIQUES, AND SEQUENCE. ALL APPLICABLE SAFETY REGULATIONS TO BE FOLLOWED STRICTLY.
3. THE STRUCTURE HAS BEEN DESIGNED TO RESIST DESIGN LOADS ONLY AS A COMPLETED STRUCTURE. APPLICATIONS OF CONSTRUCTION LOADS TO THE PARTIALLY COMPLETED STRUCTURE SHALL BE CONSIDERED BY THE CONTRACTOR AND SO INCLUDED IN THE DESIGN OF SHORING, BRACING, FORMWORK, AND ANY OTHER SUPPORTING ELEMENTS PROVIDED FOR CONSTRUCTION OF THE STRUCTURE. DURING ERECTION AND UNTIL ALL PERMANENT CONNECTIONS ARE MADE, THE CONTRACTOR MUST PROVIDE TEMPORARY BRACING FOR THE STRUCTURE IN ALL DIRECTIONS.
4. THE GENERAL CONTRACTOR SHALL CHECK AND VERIFY ALL DIMENSIONS AND GRADE CONDITIONS (BOTH NEW AND EXISTING), REPORTING ANY DISCREPANCIES TO THE ARCHITECT PRIOR TO ORDERING MATERIALS OR PROCEEDING WITH ANY PHASE OF THE WORK.
5. THE CONTRACTOR SHALL COMPARE STRUCTURAL SECTIONS WITH ARCHITECTURAL SECTIONS AND REPORT ANY DISCREPANCY TO THE ARCHITECT PRIOR TO FABRICATION OR INSTALLATION OF STRUCTURAL MEMBERS.
6. DO NOT SCALE DIMENSIONS FROM DRAWINGS. THE CONTRACTOR SHALL REQUEST, FROM THE ARCHITECT, NECESSARY DIMENSIONS NOT SHOWN ON THE DRAWINGS.
7. IF ANY BIDDER IS IN DOUBT AS TO THE INTENT OF THE PLANS OR SPECIFICATIONS, THEY SHALL REQUEST AN INTERPRETATION FROM THE ARCHITECT IN WRITING AT LEAST TEN (10) DAYS PRIOR TO THE SCHEDULED BID DATE.
8. PRINCIPAL OPENINGS IN THE STRUCTURE ARE SHOWN ON THESE DRAWINGS. THE GENERAL CONTRACTOR SHALL EXAMINE THE ARCHITECTURAL MECHANICAL, ELECTRICAL, AND PLUMBING DRAWINGS FOR REQUIRED OPENINGS AS THEY SHALL BE PROVIDED FOR WHETHER SHOWN ON THESE DRAWINGS OR NOT. GENERAL CONTRACTOR SHALL VERIFY SIZE AND LOCATION OF ALL OPENINGS WITH ALL SUB-CONTRACTORS PRIOR TO CONSTRUCTION.
9. SEE ARCHITECTURAL DRAWINGS FOR FLOOR ELEVATIONS, FLOOR SLOPES, AND THE LOCATION OF DEPRESSED FLOOR AREAS.
10. WHERE A CONFLICT BETWEEN DRAWINGS AND SPECIFICATIONS OCCUR THE MORE STRINGENT REQUIREMENT SHALL APPLY.
11. WHERE A DETAIL IS SHOWN FOR ONE CONDITION, IT SHALL APPLY FOR ALL LIKE OR SIMILAR CONDITIONS EVEN THOUGH NOT SPECIFICALLY REFERENCED ON THE DRAWINGS.

## DESIGN CRITERIA

1. APPLICABLE CODES:
   A. 2012 NORTH CAROLINA STATE BUILDING CODE (2009 INTERNATIONAL BUILDING CODE WITH REVISIONS)
   B. BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE (ACI 318-08)
   C. BUILDING CODE REQUIREMENTS FOR MASONRY STRUCTURES (ACI 530-08)
   D. STEEL CONSTRUCTION MANUAL, 13TH EDITION (AISC 325-05)
   E. SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS (AISC 360-05)
   F. AMERICAN WELDING SOCIETY STRUCTURAL WELDING CODE (D1.1-04)
   G. MINIMUM DESIGN LOADS FOR BUILDINGS AND OTHER STRUCTURES (ASCE 7-05)
   H. DESIGN OF COLD-FORMED STEEL STRUCTURAL MEMBERS (NAS-07)
2. DESIGN LIVE LOADS:

| DESIGN LIVE LOADS | UNIFORM | CONCENTRATED |
|---|---|---|
| ROOF | 20 PSF | N/A |
| OFFICE | 50 PSF+15 PSF PARTITION | 2,000 LB |
| PUBLIC AREAS, LOBBIES | 100 PSF | 2,000 LB |
| CORRIDORS (2ND AND ABOVE) | 80 PSF | 2,000 LB |
| CORRIDORS GROUND | 100 PSF | 2,000 LB |
| STAIRS | 100 PSF | 300 LB |
| STORAGE | 125 PSF | N/A |
| MECHANICAL ROOM | 150 PSF | N/A |

3. SNOW LOAD:
   GROUND SNOW LOAD (Pg) . . . . . . . . . . 10 PSF
   FLAT ROOF SNOW LOAD (Pf) . . . . . . . . . 10 PSF
   SNOW EXPOSURE FACTOR (Ce) . . . . . . . 1.0
   SNOW LOAD IMPORTANCE FACTOR(Is) . .1.0
   THERMAL FACTOR (Ct) . . . . . . . . . . . . . .1.0
4. WIND LOAD:
   BASIC DESIGN WIND VELOCITY . . . . .100 MPH
   OCCUPANCY CLASSIFICATION . . . . . . CATEGORY II
   EXPOSURE CATEGORY . . . . . . . . . . . C
   WIND IMPORTANCE FACTOR (Iw) . . . .1.0
   INTERNAL PRESSURE COEFF (GCpi) . . ±0.18
   WIND BASE SHEARS
      RETAIL BUILDING . . . . . . . . . . . . . Vx=118.1K Vy=250.8K
      MULTI-MODAL BUILDING . . . . . . . . Vx=169.2K Vy=83.1K
      CANOPY #1. . . . . . . . . . . . . . . . . Vx=40.3K Vy=8.0K
      CANOPY #2. . . . . . . . . . . . . . . . . Vx=40.3K Vy=8.0K
      CANOPY #3 & #4. . . . . . . . . . . . . Vx=2.5K Vy=14.7K
   COMPONENTS AND CLADDING:
      ALL BUILDING COMPONENTS AND CLADDING ENGINEERED BY THE COMPONENT MANUFACTURER ARE TO BE DESIGNED BY THE MANUFACTURER'S ENGINEER FOR WIND LOADS DETERMINED PER THE NORTH CAROLINA STATE BUILDING CODE FOR THE BASIC DESIGN WIND VELOCITY, IMPORTANCE FACTOR, AND EXPOSURE LISTED ABOVE.
5. SEISMIC LOAD:
   DESIGN METHOD: EQUIVALENT LATERAL FORCE PROCEDURE
   Ss . . . . . . . . . . . . . . . . 29.7 %g
   S1 . . . . . . . . . . . . . . . . 10.1 %g
   SDs . . . . . . . . . . . . . . . .30.9 %g
   SD1 . . . . . . . . . . . . . . . .16.2 %g
   SEISMIC RESPONSE COEFF (Cs) . . . . . x.xx
   SEISMIC IMPORTANCE FACTOR (Ie) . . 1.0
   SITE CLASS . . . . . . . . . . . . . . . . . . .D
   SEISMIC DESIGN CATEGORY . . . . . . . C
   BASIC SEISMIC-FORCE RESISTING SYSTEM:
      STEEL BRACED FRAMES NOT SPECIFICALLY DETAILED FOR SEISMIC RESISTANCE
      Rx=Ry=3 Cdx=Cdy=3
      INTERMEDIATE REINFORCED MASONRY SHEAR WALLS
      Rx=Ry=4 Cdx=Cdy=4
   SEISMIC BASE SHEARS
      RETAIL BUILDING . . . . . . . . . . Vx=143.51K, Vy=181.1K
      MULTI-MODAL BUILDING . . . . . Vx=Vy=184.1K
      CANOPY #1 . . . . . . . . . . . . . . Vx=Vy=45.7K
      CANOPY #2. . . . . . . . . . . . . . .Vx=Vy=28.6K
      CANOPY #3 & #4. . . . . . . . . . .Vx=Vy=7.9K
6. FUTURE LOADS: UNLESS SPECIFICALLY NOTED, THERE ARE NO PROVISIONS MADE FOR FUTURE FLOORS, ROOFS, OR OTHER LOADS.

## FOUNDATIONS

1. FOUNDATION DESIGN IS BASED ON THE GEOTECHNICAL INVESTIGATION REPORT BY S&ME DATED AUGUST 6, 2012. (PROJECT #1051-12-246). THE DESIGN ALLOWABLE SOIL BEARING PRESSURE IS 3000 PSF, BASED ON THIS REPORT WITH THE USE OF GROUTED AGGREGATE PIERS. THE GROUTED AGGREGATE PIER SUPPLIER IS RESPONSIBLE FOR ACHIEVING THIS ALLOWABLE SOIL BEARING PRESSURE.
2. FOOTINGS SHALL BE CARRIED TO LOWER ELEVATIONS THAN THOSE SHOWN ON THE DRAWINGS IF REQUIRED BY THE GEOTECHNICAL ENGINEER OR TESTING LAB TO REACH SOIL CAPABLE OF PROVIDING THE DESIGN ALLOWABLE SOIL BEARING PRESSURE.
3. THE SUBGRADE AND UNDERFLOOR FILL SHALL BE PREPARED TO A POINT THAT EXTENDS 3'-0" MINIMUM BEYOND THE LIMITS OF THE FOUNDATION.
4. MINIMUM SUBGRADE PREPARATION REQUIREMENTS ARE AS FOLLOWS: COMPACT ALL FILL UNDER BUILDING TO 95% MAX DENSITY UP UNTIL LAST 12" WHICH IS TO BE COMPACTED TO 98% AS DETERMINED BY ASTM D698. PLACE IN LAYERS OF 8" MAXIMUM LOOSE THICKNESS. VERIFY FIELD DENSITY, ASTM D1556, WITH AT LEAST ONE TEST PER 2000 SQUARE FEET PER LAYER. SEE SPECIFICATIONS FOR OTHER TESTING REQUIREMENTS. ALL FILL MATERIAL MUST BE COMPACTED AT A MOISTURE CONTENT WITHIN 2 PERCENT OF OPTIMUM MOISTURE.
5. WALLS RETAINING SOIL SHALL BE TEMPORARILY BRACED DURING BACKFILLING AND UNTIL ALL SUPPORTING SOIL AND SLABS ARE IN PLACE AND ARE AT DESIGN STRENGTH UNLESS NOTED OTHERWISE ON PLANS AND DETAILS.
6. UTILITY LINES SHALL NOT BE PLACED THROUGH OR BELOW FOUNDATIONS WITHOUT APPROVAL OF THE STRUCTURAL ENGINEER. CONTRACTOR SHALL SUBMIT DETAILED DRAWINGS OF ALL SUCH CONDITIONS PRIOR TO CONSTRUCTION.

## CONCRETE/REINFORCING STEEL

1. CONCRETE COMPRESSIVE STRENGTH IN 28 DAYS:
   BASEMENT, SITE WALLS. . . . . . . . . . . . . 4500 PSI, NORMAL WEIGHT
   ELEVATED SLABS ON METAL DECK . . . . . . . 4000 PSI, LIGHT WEIGHT
   COLUMNS, PIERS, SLAB ON GRADE . . . . . . 4000 PSI, NORMAL WEIGHT
   FOOTINGS . . . . . . . . . . . . . . . . . . . . . . 3000 PSI, NORMAL WEIGHT
2. REINFORCING:
   TYPICAL - ASTM A615, GRADE 60
   REINFORCING TO BE WELDED - ASTM A706 (INCLUDES DEFORMED BAR ANCHORS)
   WELDED WIRE FABRIC - ASTM A185 (FLAT SHEETS ONLY)
3. GROUT UNDER BASE PLATES TO BE HIGH STRENGTH (5000 PSI), NON-SHRINK.
4. REFER TO THE DRAWINGS FOR REINFORCING LAP REQUIREMENTS. WHERE LAP SPLICES ARE NOT SHOWN, LAP PER ACI 318 OR CRSI STANDARDS.
5. LAP WELDED WIRE FABRIC SHEETS 8" MINIMUM.
6. CLEAR COVER FROM FACE OF CONCRETE:
   CAST IN PLACE CONCRETE (MEASURE TO OUTERMOST REINFORCING):
      WALLS, PEDESTALS . . . . . . . . . . . . . . . . . . . 2"
      COLUMNS (EDGE OF TIES) . . . . . . . . . . . . . . 1-1/2"
      FOOTINGS . . . . . . . . . . . . . . . . . . . . . . . . . .3"
      SLABS EXPOSED TO EARTH AND WEATHER . . . . .1-1/2"
      ELEVATED SLABS . . . . . . . . . . . . . . . . . . . . . 3/4"
      CONCRETE EXPOSED TO EARTH/WEATHER . . . . 2"
7. PROVIDE REINFORCING IN SLABS ON GRADE, 1-1/2" FROM TOP OF SLAB:
   4" SLABS . . . . . . . . . . . . . . . . . . 6x6-W2.1xW2.1
   6" SLABS . . . . . . . . . . . . . . . . . . #3@12"OC EW CENTERED IN SLAB
8. WHERE SCHEDULED BARS ARE NOT PRESENT, PROVIDE CONTINUOUS #5 TOP AND BOTTOM BARS TO SUPPORT STIRRUPS AS REQUIRED FOR THE LENGTH OF THE STIRRUP SPACING IN ALL BEAMS.
9. WALL FOOTING REINFORCING SHALL BE CONTINUOUS THROUGH ADJACENT COLUMN FOOTINGS.
10. PROVIDE VERTICAL DOVETAIL SLOTS AT 24"OC WITH TIES AT 16"OC VERTICALLY IN ALL CONCRETE WALLS BACKING-UP MASONRY VENEER.
11. BAR SUPPORTS FOR CONCRETE EXPOSED TO VIEW SHALL HAVE PLASTIC COATED LEGS OR BE HOT DIP GALVANIZED AFTER FABRICATION.
12. MECHANICAL AND ELECTRICAL CONDUIT IN SLABS ON GRADE AND ELEVATED SLABS SHALL RUN UNDER TOP LAYER OF SLAB REINFORCING. PROVIDE A MINIMUM OF 1-1/2" CLEAR BETWEEN CONDUITS AND BETWEEN REINFORCING AND ADJACENT CONDUITS PARALLEL TO REINFORCING. IF MAXIMUM SIZE OF CONDUIT EXCEEDS ONE THIRD OF THE SLAB DEPTH, ADDITIONAL FRAMING OR REINFORCING MAY BE NECESSARY AT ENGINEER'S DISCRETION.
13. MECHANICAL AND ELECTRICAL CONDUIT IN ELEVATED SLABS ON METAL DECK IS NOT ALLOWED UNLESS SPECIFICALLY REVIEWED AND APPROVED BY THE STRUCTURAL ENGINEER PRIOR TO PLACEMENT.
14. HEADED CONCRETE ANCHORS SHALL CONFORM TO THE REQUIREMENTS OF ASTM A108, GRADES 1010, 1015, 1017, OR 1020. STUDS SHALL BE AUTOMATICALLY END WELDED IN THE SHOP OR FIELD IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.
15. EMBED PLATES MUST BE SET IN THE FORM BEFORE POURING CONCRETE, NOT PLACED INTO TOP OF WET CONCRETE. THE CONTRACTOR SHALL CONTACT THE ARCHITECT FOR CORRECTIVE DETAILS FOR ANY EMBED PLATES LEFT OUT OF CONCRETE POURS.
16. FOR SLABS ON GRADE, SLAB AND FOOTING REINFORCING SHALL BE HELD IN PLACE BY BAR SUPPORTS WITH SAND PLATES, OR PRECAST CONCRETE BAR SUPPORTS AS DESCRIBED IN CHAPTER 3 OF THE CRSI MANUAL OF STANDARD PRACTICE. BAR SUPPORTS SHALL BE SPACED AT A MAXIMUM OF 4'-0"OC BOTH WAYS. ROCKS, CMU, OR CLAY BRICK WILL NOT BE USED AS SUPPORTS.
17. THE CONTRACTOR SHALL ASSUME CONCRETE OVERAGES IN ELEVATED DECK POURS DUE TO MEMBER AND DECK DEFLECTIONS. UNLESS SHOWN ON PLANS, BEAMS ARE NOT CAMBERED. CONCRETE OVERAGES MAY BE CALCULATED BY THE CONTRACTOR FOR BEAM DEFLECTIONS EQUALING L/300 INCLUDING ADDITIONAL DEFLECTIONS DUE TO PONDING AND DECK DEFLECTIONS PER SDI.
18. REBAR SHALL NOT BE HEATED WITH A TORCH IN THE FIELD.
19. THE CONTRACTOR SHALL NOTIFY THE ARCHITECT/ENGINEER FAR ENOUGH IN ADVANCE (48 HOURS) OF EACH CONCRETE POUR TO ALLOW AMPLE TIME TO CHECK THE LAYOUT OF THE STEEL BEFORE THE BEGINNING OF THE ACTUAL POUR, BUT NOT PRIOR TO 90% OF THE STEEL HAVING BEEN PLACED.

## CONCRETE CONSTRUCTION JOINTS

1. CONTRACTOR SHALL PROVIDE NECESSARY CONSTRUCTION JOINTS IN MONOLITHIC CONCRETE POURS SO THAT THE QUALITY OF PLACEMENT AND FINISH MEETS THE REQUIREMENTS OF PLANS AND SPECIFICATIONS. THE CONTRACTOR SHALL SUBMIT A PLAN SHOWING THE LOCATION OF ALL CONSTRUCTION JOINTS TO THE STRUCTURAL ENGINEER FOR APPROVAL.
2. THERE SHALL BE NO HORIZONTAL CONSTRUCTION JOINTS IN CONCRETE POURS. ALL VERTICAL CONSTRUCTION JOINTS IN SLABS AND BEAMS SHALL BE MADE WITH BULKHEADS. ADDITIONAL REINFORCING AT CONSTRUCTION JOINTS SHALL BE AS SPECIFIED BY THE STRUCTURAL ENGINEER. SEE TYPICAL CONSTRUCTION JOINT DETAILS.

## STRUCTURAL MASONRY

1. LOAD-BEARING MASONRY WALLS, PILASTERS, PIERS, RETAINING WALLS, FOUNDATION WALLS AND ANY OTHER MASONRY SO DESIGNATED ON DRAWINGS IS CONSIDERED HERE TO BE STRUCTURAL MASONRY.
2. REQUIRED COMPRESSIVE STRENGTH OF MASONRY UNITS:
   SOLID CLAY UNITS . . . . . . . . . . . . 6200 PSI
   CONCRETE UNITS . . . . . . . . . . . . . 1900 PSI ON NET AREA
3. CONCRETE MASONRY UNITS (CMU) SHALL BE LIGHT WEIGHT (105 PCF) GRADE N, CONFORMING TO ASTM C90. REFER TO ARCHITECTURAL DRAWINGS AND SPECIFICATIONS FOR UNIT SIZE, FACE, COLOR, JOINTING, ETC.
4. MORTAR - TYPE S, ASTM C270.
5. GROUT FOR REINFORCED MASONRY - FINE GROUT, ASTM C476. MINIMUM 28-DAY COMPRESSIVE STRENGTH - 2000 PSI.
6. MINIMUM 28-DAY COMPRESSIVE STRENGTH (f'm) OF THE MASONRY WALLS SHALL BE 1500 PSI. MASONRY STRENGTH SHALL BE DETERMINED BY THE UNIT STRENGTH METHOD OR THE PRISM TEST METHOD AS DESCRIBED BY ACI 530.
7. REINFORCING:
   TYPICAL - ASTM A615, GRADE 60.
   ALL REINFORCING TO BE WELDED - ASTM A706.
8. REFER TO THE DRAWINGS FOR REINFORCING LAP TYPICAL DETAIL AND SCHEDULE REQUIREMENTS. WHERE LAP SPLICES ARE NOT SHOWN, LAP 72 BAR DIAMETERS PER ACI 530 AS MODIFIED BY THE STATE BUILDING CODE, UNLESS NOTED ON DRAWINGS.
9. MAXIMUM HEIGHT TO WHICH MASONRY SHALL BE LAID BEFORE GROUTING IS 5 FEET ABOVE CONSTRUCTION SURFACE OR PREVIOUSLY GROUTED MASONRY. IF GROUT POUR HEIGHT EXCEEDS 5 FEET, THEN "HIGH LIFT" GROUTING PROCEDURE MUST BE FOLLOWED. PROVIDE CLEANOUT OPENINGS AT THE BOTTOM OF EACH GROUT LIFT. CLEANOUT OPENINGS SHALL BE PROVIDED AT EACH CELL TO BE FILLED WITH GROUT.
10. ALL GROUT PLACED OVER 12" IN HEIGHT SHALL BE MECHANICALLY CONSOLIDATED DURING GROUTING. GROUT SHALL BE RECONSOLIDATED BY MECHANICAL VIBRATION AFTER INITIAL WATER LOSS AND SETTLEMENT HAS OCCURRED.
11. MAXIMUM GROUT LIFT (GROUT POURED IN ONE CONTINUOUS OPERATION) IS 5 FEET. THIS LIMIT ALSO APPLIES TO "HIGH LIFT" GROUTING.
12. REINFORCE MASONRY WHERE SHOWN ON STRUCTURAL DRAWINGS. TIE REINFORCING IN POSITION AND PLACE GROUT AROUND REINFORCING. DO NOT PUSH REINFORCING DOWN INTO PREVIOUSLY PLACED GROUT FILL. SET BOLTS SIMILARLY.
13. TIE MASONRY WYTHES WITH HORIZONTAL REINFORCING AS SPECIFIED.
14. PROVIDE VERTICAL BARS, SIZE MATCHING WALL REINFORCING, AT ALL CORNERS, ENDS OF WALLS, EACH SIDE OF CONTROL JOINTS AND EACH SIDE OF WALL OPENINGS. TIE EACH BAR TO THE FOUNDATION WITH A MATCHING DOWEL. SEE ARCHITECTURAL DRAWINGS FOR LOCATIONS OF CONTROL JOINTS.
15. ALL CORNERS AND INTERSECTIONS OF STRUCTURAL MASONRY WALLS SHALL BE CONSTRUCTED BY INTERLOCKING COURSES.
16. ALL LINTELS TO BEAR 8" MINIMUM EACH SIDE OF OPENING, UNLESS NOTED OTHERWISE.

## STRUCTURAL STEEL

1. STRUCTURAL STEEL:
   WIDE FLANGE SHAPES (W SECTIONS) - ASTM A992, GRADE 50 (FY=50 KSI)
   CHANNELS, ANGLES, RODS, AND BARS - A36 (FY=36 KSI)
   PLATES - ASTM A572, GRADE 50 (FY=50 KSI) OR ASTM A36 (FY=36 KSI)
   SQUARE AND RECTANGULAR TUBES - ASTM A500, GRADE B (FY=46 KSI)
   PIPES - ASTM A53, GRADE B (FY=35 KSI)
2. ANCHOR BOLTS AND THREADED RODS SHALL CONFORM TO ASTM F1554, GRADE 36, UNO.
3. DESIGN, FABRICATION AND ERECTION:
   SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS (AISC 360-05).
4. BEAM SIMPLE SHEAR CONNECTIONS NOT DETAILED ON STRUCTURAL DRAWINGS SHALL BE DESIGNED BY STEEL SUPPLIER FOR LOADS SHOWN ON DRAWINGS OR FOR REACTIONS DETERMINED BY USING THE ALLOWABLE UNIFORM LOAD AS TABULATED IN PART 3 OF THE AISC MANUAL OF STEEL CONSTRUCTION FOR THE SECTION, SPAN AND STRENGTH OF STEEL SPECIFIED. CONNECTIONS SHALL BE MADE WITH 3/4"-DIAMETER BOLTS, ASTM A325 TIGHTENED TO A SNUG-TIGHT CONDITION PER AISC REQUIREMENTS.
5. WHERE STEEL MEMBERS ARE WELDED AND NO SIZE IS SPECIFIED, PROVIDE FULL LENGTH FILLET WELDS BOTH SIDES OF MEMBER. WELD SIZES SHALL BE AS FOLLOWS UNLESS NOTED OTHERWISE:

| MEMBER THICKNESS (INCHES) | WELD SIZE (INCHES) |
|---|---|
| 3/16 | 3/16 |
| 1/4 | 3/16 |
| 5/16 | 3/16 |
| 3/8 | 1/4 |
| 7/16 | 1/4 |
| 1/2 | 5/16 |
| 9/16 | 3/8 |
| 5/8 | 7/16 |

6. SPLICING OF STRUCTURAL STEEL MEMBERS IS PROHIBITED WITHOUT PRIOR APPROVAL OF THE ENGINEER AS TO LOCATION AND TYPE OF SPLICE TO BE MADE. ANY MEMBER HAVING A SPLICE NOT SHOWN AND DETAILED ON SHOP DRAWINGS WILL BE REJECTED.
7. ALL WELDING SHALL CONFORM TO THE AMERICAN WELDING SOCIETY CODE. USE E70 SERIES ELECTRODES FOR ALL STRUCTURAL STEEL WELDS.
8. SEE THE ARCHITECTURAL AND STRUCTURAL DRAWINGS FOR ALL ITEMS REQUIRED TO BE HOT-DIP GALVANIZED AFTER FABRICATION.
9. STRUCTURAL STEEL SHALL BE PUNCHED FOR WOOD BLOCKING, NAILERS, CLIPS AND TIES IN ACCORDANCE WITH ARCHITECTURAL/STRUCTURAL DETAILS.
10. ULTRASONIC INSPECTION BY THE TESTING LABORATORY SHALL BE PROVIDED FOR ALL WELDS CALLED FOR ON THE STRUCTURAL DRAWINGS OR SHOP DRAWINGS AS PARTIAL OR FULL PENETRATION WELDS.
11. ALL STEEL EXPOSED TO VIEW SHALL BE CLASSIFIED AS ARCHITECTURALLY EXPOSED STRUCTURAL STEEL (AESS) AS DEFINED BY THE AISC CODE OF STANDARD PRACTICE AND SHALL BE TREATED AS SUCH.

## STEEL STAIRS

1. STEEL STAIRS AND LANDINGS AND ALL CONNECTIONS SHALL BE DESIGNED BY THE SUPPLIER FOR A LIVE LOAD OF 100 PSF. TREADS SHALL BE DESIGNED FOR A 300 POUND POINT LOAD DISTRIBUTED OVER 4 SQUARE INCHES. ALL HANDRAILS SHALL BE DESIGNED FOR A LATERAL LOAD OF 50 PLF APPLIED TO THE TOP OF THE RAIL OR A 200 POUND LOAD AT ANY POINT IN ANY DIRECTION, WHICHEVER GOVERNS THE DESIGN. ALL STAIR SHOP DRAWINGS SHALL BEAR THE SEAL OF A REGISTERED PROFESSIONAL ENGINEER LICENSED IN THE STATE IN WHICH THE PROJECT IS LOCATED. CALCULATIONS SHALL BE SUBMITTED UPON REQUEST.

## STEEL JOISTS

1. ALL STEEL JOISTS SHALL BE OPEN-WEB TYPE CONFORMING TO THE LATEST "STANDARD LOAD TABLE DESIGN, FABRICATION AND ERECTION REQUIREMENTS" PUBLISHED BY THE STEEL JOIST INSTITUTE.
2. PROVIDE BRIDGING PER STEEL JOIST INSTITUTE STANDARD SPECIFICATION. ALL BRIDGING SHALL BE BOLTED OR WELDED AT ALL JOISTS AND AT ALL CROSSINGS AND ANCHORED TO SPANDREL MEMBERS. ALL BRIDGING FOR JOISTS USED AS SPANDREL MEMBERS (AT EDGE OF DECK) SHALL BE "X" BRIDGING. SIZE OF BRIDGING SHALL BE DETERMINED BY THE JOIST SUPPLIER. JOIST SUPPLIER TO PROVIDE ADDITIONAL BRIDGING AS REQUIRED FOR UPLIFT LOADS.
3. ALL JOISTS SHALL HAVE ANGLE BOTTOM CHORD MEMBERS UNLESS OTHERWISE APPROVED.
4. ALL K-SERIES JOISTS SHALL BE WELDED TO SUPPORT STEEL WITH A MINIMUM OF 2" OF 1/8" FILLET WELD AT BOTH SIDES OF JOIST SEAT.
5. WHERE JOISTS FRAME TO COLUMNS, JOISTS SHALL BE FIELD BOLTED TO COLUMNS WITH TWO 1/2"-DIAMETER A307 BOLTS AT EACH END OF THE JOIST TO PROVIDE LATERAL STABILITY DURING CONSTRUCTION.
6. PROVIDE BOLTED DIAGONAL BRIDGING WHERE REQUIRED PER STEEL JOIST INSTITUTE STANDARD SPECIFICATIONS. JOIST SHOP DRAWINGS SHALL INDICATE ALL JOISTS WHICH SHALL HAVE A ROW OF BOLTED BRIDGING IN PLACE BEFORE SLACKENING OF HOISTING LINES.
7. JOIST MANUFACTURER SHALL BE PREPARED TO SUBMIT CALCULATIONS FOR ALL JOISTS AT ARCHITECT'S OR ENGINEER'S REQUEST. CALCULATIONS SHALL HAVE LOAD DIAGRAMS FOR EACH MEMBER CLEARLY INDICATING SPAN, UNIFORM AND CONCENTRATED LOADS. ALL CALCULATIONS SHALL BEAR THE SEAL OF A REGISTERED PROFESSIONAL ENGINEER LICENSED IN THE STATE IN WHICH THE PROJECT IS LOCATED.
8. JOISTS SHALL BE DESIGNED FOR A NET WIND UPLIFT LOAD OF 17 PSF UNLESS NOTED OTHERWISE.

## NON-LOAD BEARING COLD ROLLED STEEL - METAL STUDS

1. ALL COLD FORMED LIGHT GAGE METAL FRAMING AND CONNECTIONS SHALL BE DESIGNED BY THE SUPPLIER'S ENGINEER. AT ARCHITECT'S OR ENGINEER'S REQUEST CONTRACTOR SHALL SUBMIT CALCULATIONS FOR ALL COLD FORMED METAL FRAMING USED TO SUPPORT CEILINGS AND EXTERIOR CLADDING.
2. ALL MEMBERS SHALL BE MANUFACTURED IN ACCORDANCE WITH THE AMERICAN IRON AND STEEL INSTITUTE, "NORTH AMERICAN SPECIFICATION FOR THE DESIGN OF COLD-FORMED STEEL STRUCTURAL MEMBERS" (NAS-01 W/2004 SUPPLEMENT).
3. ALL MEMBERS SHALL HAVE A MINIMUM YIELD STRENGTH OF 33 KSI AND BE FORMED FROM STEEL HAVING A G-60 GALVANIZED COATING MEETING THE REQUIREMENTS OF ASTM A653 AND C955.
4. ALL THE COLD-FORMED STEEL STRUCTURAL MEMBERS SHALL COME FROM A SINGLE SOURCE MANUFACTURER; ONLY MANUFACTURERS WHO ARE MEMBERS OF THE STEEL STUD MANUFACTURERS ASSOCIATION (SSMA) WILL BE ACCEPTED. THE INSTALLATION SHALL COMPLY WITH THE MANUFACTURER'S RECOMMENDATIONS.
5. SUBMIT SHOP DRAWINGS FOR ALL COLD FORMED METAL FRAMING USED TO SUPPORT CEILINGS AND EXTERIOR CLADDING. SHOP DRAWINGS SHALL INDICATE PLACING OF ALL FRAMING MEMBERS SHOWING TYPE, SIZE, GAUGE, NUMBER, LOCATION AND SPACING. THEY SHALL ALSO INDICATE SUPPLEMENTAL STRAPPING, BRACING, SPLICES, BRIDGING, ACCESSORIES AND DETAILS REQUIRED FOR PROPER INSTALLATION.
6. SHOP DRAWINGS SHALL SHOW SIZE AND LENGTH OF WELDS FOR ALL WELDED CONNECTIONS AND TYPE, SIZE AND NUMBER OF SCREWS FOR ALL SCREWED CONNECTIONS. SUBMIT MANUFACTURER'S DATA GIVING STRENGTH VALUES FOR SCREWS USED.
7. SHOP DRAWINGS SUBMITTED MUST BE PREPARED UNDER THE SUPERVISION OF AND SEALED BY A REGISTERED PROFESSIONAL ENGINEER LICENSED IN THE STATE IN WHICH THE PROJECT IS LOCATED.
8. ALL STRUCTURAL FRAMING ACCESSORIES SHALL BE FORMED FROM STRUCTURAL QUALITY STEEL WITH A MINIMUM YIELD STRENGTH OF 50 KSI AND HAVE MINIMUM PROTECTIVE COATING EQUAL TO ASTM A653 G-60 GALVANIZED COATING.
9. VERTICAL DEFLECTION CLIPS ARE REQUIRED TO BE CAPABLE OF ACCOMMODATING UPWARD AND DOWNWARD VERTICAL DISPLACEMENT OF THE STRUCTURE THROUGH POSITIVE MECHANICAL ATTACHMENT TO STUD WEB. MECHANICAL ATTACHMENT TO STRUCTURE AND SCREW ATTACHMENT TO STUD WEB USING STEP-BUSHINGS TO PERMIT FRICTIONLESS VERTICAL MOVEMENT. CONNECTORS MUST BE TESTED IN ACCORDANCE TO ICC AC261 CRITERIA AND HOLD A VALID ICC-ES EVALUATION SERVICE REPORT TO BE ACCEPTABLE.

## EPOXY AND EPOXY GROUT

1. ANCHOR BOLTS, REINFORCING STEEL, THREADED RODS, STAIR HANDRAILS, AND OTHER EMBEDDED STEEL ITEMS SHALL BE SET INTO HARDENED CONCRETE WITH EPOXY OR EPOXY GROUT ONLY WHERE DETAILED ON THE DRAWINGS OR WHERE APPROVED BY THE ENGINEER.
2. MANUFACTURER'S DATA FOR ALL EPOXY AND EPOXY GROUT SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL PRIOR TO INSTALLATION. SUBMITTALS FOR EPOXY ANCHOR PRODUCTS SHALL INCLUDE ICC-ES CORE REPORTS. STRICTLY FOLLOW THE MANUFACTURER'S SPECIFICATIONS AND INSTALLATION INSTRUCTIONS.
   ACCEPTABLE EPOXY PRODUCTS ARE:
      FOR CONCRETE ANCHORING: HILTI HY150 MAX-SD, HILTI HIT RE500-SD, SIMPSON STRONG-TIE SET-XP, MASTER BUILDERS CONCRESIVE STANDARD PASTE, OR APPROVED EQUAL.
      FOR HOLLOW CMU ANCHORING: SIMPSON STRONG-TIE SET, HILTI HY20 OR APPROVED EQUAL.
   IN USING THE ABOVE PRODUCTS, FOLLOW STRICTLY THE MANUFACTURER'S SPECIFICATIONS AND DIRECTIONS FOR MIXING AND APPLICATION. HEED ALL LABEL WARNINGS. INSTALL IN ACCORDANCE WITH APPLICABLE SAFETY LAWS.
3. ALL EPOXY AND EPOXY GROUT SHALL DEVELOP A MINIMUM COMPRESSIVE STRENGTH OF 8,000 PSI AND TENSILE STRENGTH OF 2,300 PSI.
4. ALL HOLES SHALL BE DRILLED WITH A DIAMETER NO LARGER THAN 1/8" GREATER THAN THE DIAMETER OF THE STEEL MEMBER BEING INSTALLED.
5. ALL HOLES SHALL BE CLEANED WITH COMPRESSED AIR AND SHALL BE DRY PRIOR TO INSTALLATION OF EPOXY. HOLES SHALL BE FREE OF ALL DELETERIOUS MATERIAL SUCH AS LAITANCE, DUST, DIRT, AND OIL.
6. CONTRACTOR PERFORMING EPOXY WORK SHALL BE AN APPROVED CONTRACTOR BY THE MANUFACTURER FURNISHING THE EPOXY MATERIALS, AND SHALL HAVE NO LESS THAN FIVE YEARS EXPERIENCE IN THE VARIOUS TYPES OF EPOXY RELATED WORK REQUIRED IN THIS PROJECT. A NOTARIZED CERTIFICATION FROM THE MANUFACTURER ATTESTING TO THE TRAINING SHALL BE SUBMITTED TO THE ENGINEER/ARCHITECT ALONG WITH THE PROPOSAL TO DO THE WORK.

## REPRODUCTION

1. THE USE OF REPRODUCTIONS OF THESE CONTRACT DRAWINGS BY ANY CONTRACTOR, SUBCONTRACTOR, ERECTOR, FABRICATOR, OR MATERIAL SUPPLIER IN LIEU OF PREPARATION OF SHOP DRAWINGS SIGNIFIES HIS ACCEPTANCE OF ALL INFORMATION SHOWN HEREON AS CORRECT, AND OBLIGATES HIMSELF TO ANY JOB EXPENSE, REAL OR IMPLIED, ARISING DUE TO ANY ERRORS THAT MAY OCCUR HEREON.

## DEMOLITION

1. THE CONTRACTOR SHALL NOTIFY ALL LOCAL AGENCIES HAVING JURISDICTION, AND SHALL OBTAIN ALL NECESSARY PERMITS REQUIRED FOR THE DEMOLITION AND REMOVAL OF THE DEBRIS RESULTING FROM THE DEMOLITION.
2. CONTRACTOR SHALL RETAIN, AT THEIR EXPENSE, A REGISTERED PROFESSIONAL ENGINEER LICENSED IN THE STATE IN WHICH THE PROJECT IS LOCATED, TO DETERMINE ALL CONSTRUCTION PHASE SHORING REQUIREMENTS. CONTRACTOR SHALL SUBMIT TO THE OWNER AND THE ENGINEER OF RECORD, SIGNED AND SEALED DRAWINGS, OUTLINING OPERATIONAL SEQUENCES, SHORING CONCEPTUAL PLANS, METHODS USED FOR THE PROTECTION OF STRUCTURES TO REMAIN AND NEIGHBORING STRUCTURES.
3. CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR THE PROTECTION AND STABILITY OF EXISTING AND NEW STRUCTURES DURING CONSTRUCTION.
4. BEFORE UNDERTAKING ANY DEMOLITION WORK OR ORDERING MATERIAL, ASCERTAIN BY SURVEY THE EXISTING CONDITIONS OF THE PROPERTIES AND BUILDINGS ADJOINING OR IN CLOSE PROXIMITY TO THE PREMISES. THE ARCHITECT SHALL BE NOTIFIED OF ANY DISCREPANCY.
5. PROVIDE AND MAINTAIN BRACING AND SHORING AS NEEDED. KEEP SUPPORTING STRUCTURE IN PLACE DURING NEW CONSTRUCTION AND UNTIL NEW STRUCTURE IS COMPLETED.
6. STORE AND PROTECT ALL MATERIAL TO BE REMOVED AND REUSED.
7. IF SAFETY OR INTEGRITY OF STRUCTURAL SYSTEM APPEARS TO BE COMPROMISED, CEASE OPERATIONS IMMEDIATELY AND NOTIFY THE OWNER AND THE ENGINEER. PROPERLY BRACE AND SUPPORT STRUCTURE BEFORE RESUMING OPERATIONS.
8. ANY DAMAGE OCCURRING TO THE EXISTING STRUCTURE, ADJACENT STRUCTURES, STREETS, SIDEWALKS, UTILITY LINES OR ANY OTHER PUBLIC OR PRIVATE PROPERTIES, SHALL BE REINSTALLED TO THE ORIGINAL CONDITION BY THE CONTRACTOR AT NO COST TO THE OWNER OR THE ENGINEER.

## ABBREVIATION LIST

| | |
|---|---|
| @ | AT |
| & | AND |
| Ø | DIAMETER |
| AB | ANCHOR BOLTS |
| ACI | AMERICAN CONCRETE INSTITUTE |
| ADDL | ADDITIONAL |
| AFF | ABOVE FINISHED FLOOR |
| AISC | AMER. INSTITUTE OF STEEL CONSTRUCTION |
| AISI | AMERICAN IRON AND STEEL INSTITUTE |
| ALT | ALTERNATE |
| ARCH | ARCHITECT'S / ARCHITECTURAL |
| ASTM | AMER. SOCIETY FOR TESTING AND MATERIALS |
| AWS | AMERICAN WELDING SOCIETY |
| B/ or BOT | BOTTOM |
| BCX | BOTTOM CHORD EXTENSION |
| BFF | BELOW FINISHED FLOOR |
| BLDG | BUILDING |
| BM | BEAM |
| BOS | BOTTOM OF STEEL |
| BRG | BEARING |
| BTWN | BETWEEN |
| CANT | CANTILEVER BEAM |
| CJ | CONTROL JOINT |
| CL | CENTERLINE |
| CLR | CLEAR |
| CMU | CONCRETE MASONRY UNITS |
| COL | COLUMN |
| CONC | CONCRETE |
| CONN | CONNECTION |
| CONST JT | CONSTRUCTION JOINT |
| CONT | CONTINUOUS |
| CONTR | CONTRACTOR |
| CTRD | CENTERED |
| d | NAILS (PENNY) |
| DBA | DEFORMED BAR ANCHOR |
| DEFL | DEFLECTION |
| DEPR | DEPRESSION / DEPRESSED |
| DET | DETAIL |
| DIAG | DIAGONAL |
| DIM | DIMENSION |
| DIST | DISTANCE |
| DWG(S) | DRAWING(S) |
| DWL(S) | DOWEL(S) |
| EA | EACH |
| EE | EACH END |
| EF | EACH FACE |
| EJ | EXPANSION JOINT |
| ELEV | ELEVATION |
| EMBED | EMBEDDED / EMBEDMENT |
| ENGR | ENGINEER |
| EOD | EDGE OF DECK |
| EOS | EDGE OF SLAB |
| EQ | EQUAL |
| EQUIP | EQUIPMENT |
| EW | EACH WAY |
| EXIST | EXISTING |
| EXP | EXPANSION |
| EXT | EXTERIOR |
| FDN | FOUNDATION |
| FFE | FINISHED FLOOR ELEVATION |
| FOM | FACE OF MASONRY |
| FOW | FACE OF WALL |
| FS | FAR SIDE |
| FTG | FOOTING |
| GA | GAUGE |
| GALV | GALVANIZED |
| HD | HEADED |
| HI | HIGH |
| HORIZ | HORIZONTAL |
| HSS | HOLLOW STRUCTURAL SECTION |
| INT | INTERIOR |
| JT | JOINT |
| K | KIP(S) |
| KB | KNEE BRACE |
| KSI | KIPS PER SQUARE INCH |
| LB | LONG BAR |
| LBS | POUNDS |
| LLH | LONG LEG HORIZONTAL |
| LLV | LONG LEG VERTICAL |
| LO | LOW |
| LOC | LOCATION |
| LWC | LIGHT WEIGHT CONCRETE |
| MAX | MAXIMUM |
| MC | MOMENT CONNECTION |
| MECH | MECHANICAL |
| MFR | MANUFACTURER |
| MID | MIDDLE |
| MIN | MINIMUM |
| MISC | MISCELLANEOUS |
| MOW | MIDDLE OF WALL |
| MP | MASONRY PILASTER |
| No or # | NUMBER |
| NS | NEAR SIDE |
| NTS | NOT TO SCALE |
| NWC | NORMAL WEIGHT CONCRETE |
| OC | ON CENTER |
| OPNG | OPENING |
| OPP | OPPOSITE HAND |
| PAF | POWDER ACTUACTED FASTENER |
| PED | PEDESTAL |
| PL | PLATE |
| PSF | POUNDS PER SQUARE FOOT |
| PSI | POUNDS PER SQUARE INCH |
| PT | PRESSURE TREATED |
| REF | REFERENCE |
| REINF | REINFORCING |
| REQD | REQUIRED |
| SB | SHORT BAR |
| SCHD | SCHEDULE |
| SIM | SIMILAR |
| SOG | SLAB ON GRADE |
| SPEC(S) | SPECIFICATION(S) |
| SQ | SQUARE |
| STD | STANDARD |
| STIFF | STIFFENER |
| STIRR | STIRRUP(S) |
| STL | STEEL |
| STR | STRUCTURAL |
| T/ | TOP |
| TCX | TOP CHORD EXTENSION |
| TOC | TOP OF CONCRETE |
| TOS | TOP OF STEEL |
| TOW | TOP OF WALL |
| TYP | TYPICAL |
| UNO | UNLESS NOTED OTHERWISE |
| VERT | VERTICAL |
| VIF | VERIFY IN FIELD |
| W/ | WITH |
| WP | WORK POINT |
| WWF | WELDED WIRE FABRIC |

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NORTH CAROLINA PROFESSIONAL SEAL 024098 ENGINEER
2/28/14

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|---|---|
| Drawn | DJB |
| Checked | MAG |
| Date | January 31, 2014 |
| Revisions | |

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**FAST Multi-Modal Center**
City of Fayetteville
Fayetteville, NC

Project Number 621A

Title
**General Notes & Abbreviations**

Sheet
# S001

Plate of

# Statement of Special Inspections

Statement Date:

Project Name:
Building Permit Number:
Project Address:
Design Professional in Responsible Charge (DPIRC):

The following information is being submitted in accordance with the Special Inspection provisions of the North Carolina State Building Code. Attached is the Schedule of Special Inspections (SSI) required for this project. This completed form is required to be placed on the drawings for plan review. After permit issuance, a listing of the Special Inspection Firms (SIF) and the Designated Special Inspectors (DSI) for each inspection type will be attached to this form prior to scheduling the Pre-Construction Meeting with the governing authority. No work is permitted to be performed prior to the Special Inspections Pre-Construction Meeting..

The DSI is responsible for verifying all information on each document prior to signing/sealing
The DSI is responsible for verifying each document is the correct document
The DSI is responsible for correcting any documents that contain errors
The DSI is responsible for verifying all ASIs maintain current certifications during the course of the project, as failure to maintain current certifications may result in a voided document. At the conclusion of each individual Special Inspection type, the DSI will complete a Final Report

The Special Inspection program outlined herein, does not relieve the Contractor or any other entity of any contractual duties, including quality control, quality assurance, or safety. The Contractor is solely responsible for construction means, methods, and job site safety. Failure to adhere to the SI program as outlined herein may result in a stop work notice being issued by the Department.

Respectfully submitted,
The Design Professional in Responsible Charge,

NORTH CAROLINA PROFESSIONAL SEAL 024096 ENGINEER MICHAEL A CARDINAL

Signature

Licensed Professional Seal

Project Name:

Date:
Revised Date:

Posse Permit #:
Building Address:

Instructions for completing the Schedule of Special Inspections Form

1. Indicate the Inspection Type (IT#) required for this project per NCSBC Section 1704.
2. Indicate whether Special Inspections are continuous, periodic or both, by checking the appropriate box.
3. Insure the scope meets NCSBC Section 1704 and other applicable standards for each Inspection Type.

The construction divisions which require inspections for this project are as follows:

**IT-1 VERIFICATION OF SOILS**

| CHECK IF REQUIRED | INSPECTION TASK (Standard & Code Reference) | CONTINUOUS INSPECTIONS | PERIODIC INSPECTIONS | SPECIAL INSPECTIONS FIRM | NOTES & SCOPE |
|---|---|---|---|---|---|
| ☒ | Verification of Soils, 1704.7 & Chapter 18 NCSBC | ☐ | ☒ | | Inspections not required for fills less than 12'. inspect site preparation, material compliance, lift thickness, and in-place density are in conformance with the geotech report and the contract documents. |

**IT-2 EXCAVATION AND FILLING**

| CHECK IF REQUIRED | INSPECTION TASK (Standard & Code Reference) | CONTINUOUS INSPECTIONS | PERIODIC INSPECTIONS | SPECIAL INSPECTIONS FIRM | NOTES & SCOPE |
|---|---|---|---|---|---|
| ☒ | Excavation and Filling, NCSBC Section 1704.7 and 3304 | ☒ | ☐ | | |

**IT-3 PILING AND DRILLED PIERS**

| CHECK IF REQUIRED | INSPECTION TASK (Standard & Code Reference) | CONTINUOUS INSPECTIONS | PERIODIC INSPECTIONS | SPECIAL INSPECTIONS FIRM | NOTES & SCOPE |
|---|---|---|---|---|---|
| ☐ | Piling and Drilled Piers, NCSBC Section 1704.8-9, 1803.5.5 and 1810 | ☐ | ☐ | | Report on pile installation. Load test and cut off elevation. |

**IT-4 MODULAR RETAINING WALLS**

| CHECK IF REQUIRED | INSPECTION TASK (Standard & Code Reference) | CONTINUOUS INSPECTIONS | PERIODIC INSPECTIONS | SPECIAL INSPECTIONS FIRM | NOTES & SCOPE |
|---|---|---|---|---|---|
| ☐ | Modular Retaining Walls, NCSBC Section 1610 and 1704.15 | ☐ | ☐ | | Inspect joints and GEO fabric installation where wall height exceeds 5'-0". |

**IT-5 REINFORCED CONCRETE**

| CHECK IF REQUIRED | INSPECTION TASK (Standard & Code Reference) | CONTINUOUS INSPECTIONS | PERIODIC INSPECTIONS | SPECIAL INSPECTIONS FIRM | NOTES & SCOPE |
|---|---|---|---|---|---|
| ☒ | Inspection of reinforcing steel, including pretesting tendons, and placements. ACI 318:3.5, 7.1-7.7 1913.4 | ☐ | ☒ | | |
| ☒ | Inspection of reinforcing steel welding in accordance with Table 1704.3, Item 5B. AWS D1.4, ACI 318:3.5.2 | ☒ | ☐ | | Only permitted as directed by EOR |
| ☒ | Inspect bolts to be installed in concrete prior to and during placement of concrete where allowable loads have been increased. 1911.5, 1912.1 | ☒ | ☐ | | |
| ☒ | Verifying use of required design mix. ACI 318: Ch. 4, 5.2-5.4, 1904.3, 1913.2, 1913.3 | ☐ | ☒ | | |
| ☒ | Sampling fresh concrete and performing slump, air content and determining the temperature of fresh concrete at the time of making specimens for strength tests. ASTM C 172, ASTMC 31, ACI 318: 5.6, 5.8, 1913.10 | ☒ | ☐ | | |
| ☒ | Inspection of concrete and shotcrete placement for proper application techniques. ACI 318: 5.9, 5.10, 1913.6, 1913.7, 1913.8 | ☒ | ☐ | | |
| ☒ | Inspection for maintenance of specified curing temperature and techniques. ACI 318: 5.11, 5.13, 1913.9 | ☐ | ☒ | | |
| ☐ | Inspection of prestressed concrete: (A) Application of prestressing forces. (B) Grouting of bonded prestressing tendons in the seismic-force-resisting system. ACI 318: 18.20, 18.18.4 | ☒ | ☐ | | |
| ☐ | Erection of precast concrete members. ACI 318: Ch. 16 | ☐ | ☒ | | |
| ☐ | Verification of in-situ concrete strength, prior to stressing of tendons in positioned concrete, and prior to removal of shores and forms from beams and structural slabs. ACI 318: 6.2 | ☐ | ☒ | | |

**IT-6 POST TENSION SLAB-ON-GROUND AND POST TENSION CONCRETE**

| CHECK IF REQUIRED | INSPECTION TASK (Standard & Code Reference) | CONTINUOUS INSPECTIONS | PERIODIC INSPECTIONS | SPECIAL INSPECTIONS FIRM | NOTES & SCOPE |
|---|---|---|---|---|---|
| ☐ | All prestressed concrete design in construction to be in accordance with ACI 318.99 (NCSBC), TABLE 1704.4 Item 9 | ☐ | ☐ | | |

**IT-7 PRECAST CONCRETE ERECTION**

| CHECK IF REQUIRED | INSPECTION TASK (Standard & Code Reference) | CONTINUOUS INSPECTIONS | PERIODIC INSPECTIONS | SPECIAL INSPECTIONS FIRM | NOTES & SCOPE |
|---|---|---|---|---|---|
| ☐ | Precast Concrete Erection, NCSBC Table 1704.4, Item 10 | ☐ | ☐ | | |
| ☐ | Precast concrete fabricated in a plant, which is certified. NCSBC 1704.2 | ☐ | ☐ | | Inspection per 1704.2.1 unless excepted by 1704.2.2 |

**IT-8 PRESTRESSED CONCRETE**

| CHECK IF REQUIRED | INSPECTION TASK (Standard & Code Reference) | CONTINUOUS INSPECTIONS | PERIODIC INSPECTIONS | SPECIAL INSPECTIONS FIRM | NOTES & SCOPE |
|---|---|---|---|---|---|
| ☐ | All prestressed concrete design and construction to be in accordance with ACI 318.99 (NCSBC) | ☐ | ☐ | | |

**IT-9 INSPECTION OF PRE-CAST CONCRETE FABRICATORS**

| CHECK IF REQUIRED | INSPECTION TASK (Standard & Code Reference) | CONTINUOUS INSPECTIONS | PERIODIC INSPECTIONS | SPECIAL INSPECTIONS FIRM | NOTES & SCOPE |
|---|---|---|---|---|---|
| ☐ | Inspection of fabricators to be in accordance with the requirements set forth in the NCSBC Sec. 1704.2 | ☐ | ☐ | | Inspection per 1704.2.1 unless excepted by 1704.2.2 |

**IT-10 INSPECTION OF STRUCTURAL STEEL FABRICATORS**

| CHECK IF REQUIRED | INSPECTION TASK (Standard & Code Reference) | CONTINUOUS INSPECTIONS | PERIODIC INSPECTIONS | SPECIAL INSPECTIONS FIRM | NOTES & SCOPE |
|---|---|---|---|---|---|
| ☒ | Welding inspections shall be in compliance with AWSD1.1. The base for welding for qualifications shall be AWSD1.1. (NCSNC) | ☐ | ☒ | | Inspection per 1704.2.1 unless excepted by 1704.2.2 |

**IT-11 STRUCTURAL MASONRY ESSENTIAL FACILITIES**

| CHECK IF REQUIRED | INSPECTION TASK (Standard & Code Reference) | CONTINUOUS INSPECTIONS | PERIODIC INSPECTIONS | SPECIAL INSPECTIONS FIRM | NOTES & SCOPE |
|---|---|---|---|---|---|
| ☒ | As masonry construction begins, the following shall be verified to ensure compliance: (A) Proportions of site prepared mortar. (B) Construction of mortar joints. (C) Location of reinforcement and connectors. Art .2.6A, Art. 3.3B, Art. 3.4 | ☐ | ☒ | | |
| ☒ | The inspection program shall verify: (A) Size and location of structural elements. (B) Specified size, grade and type of reinforcement. (C) Protection of masonry during weather (temperature below 40° F) or hot weather (temperature above 90° F). Sec. 2108.9.2.11, Item 2, Sec. 2104.3, 2104.4, ACI Sec. 1.15.4, 2.1.2, Sec 2.1.8.6, 2.1.8.6.2, ACI 3.9G, Art. 2.4, 3.4, Art.1.8 | ☐ | ☒ | | |
| ☒ | Type, size and location of anchors, including other details of anchorage of masonry to structural members, frames or other construction. ACI Sec 1.2.2, Sec 1.16.1 | ☒ | ☐ | | |
| ☒ | Welding of reinforcing bars. ACI Sec 2.1.9.7.2, 3.3.3.4 | ☒ | ☐ | | Is not applicable unless directed by the engineer of record. |
| ☒ | Prior to grouting, the following shall be verified to ensure compliance: (A) Placement of reinforcement and connectors. (B) Proportions of site-prepared grout. (C) Construction of mortar joints. Sec. 1.12, Art. 3.2D, Art. 3.4, Art. 2.6B, Art. 3.3B | ☐ | ☒ | | |
| ☒ | Grout space is clean prior to grouting. Art. 3.2D | ☒ | ☐ | | |
| ☒ | Grout placement shall be verified to ensure compliance with code and construction provisions. Art. 3.5 | ☒ | ☐ | | |
| ☒ | Preparation of any required group specimens, mortar specimens and/or prisms shall be observed. Sec. 2105.3, 2105.4, 2105.5, Art. 1.4 | ☒ | ☐ | | |
| ☒ | Compliance with required inspection provisions of the construction documents and the approved submittals shall be verified. Art. 1.5 | ☐ | ☒ | | |
| ☒ | Verification of f'm prior to construction. Art. 1.4B | ☐ | ☒ | | |

**IT-12 WELDING**

| CHECK IF REQUIRED | INSPECTION TASK (Standard & Code Reference) | CONTINUOUS INSPECTIONS | PERIODIC INSPECTIONS | SPECIAL INSPECTIONS FIRM | NOTES & SCOPE |
|---|---|---|---|---|---|
| ☒ | Welding inspections shall be in compliance with AWSD1.1. The base for welding for qualifications shall be AWSD1.1. (NCSNC) | ☐ | ☒ | | |

**IT-13 HIGH-STRENGTH BOLTING AND STEEL FRAME INSPECTION**

| CHECK IF REQUIRED | INSPECTION TASK (Standard & Code Reference) | CONTINUOUS INSPECTIONS | PERIODIC INSPECTIONS | SPECIAL INSPECTIONS FIRM | NOTES & SCOPE |
|---|---|---|---|---|---|
| ☒ | Installation of high strength bolts shall be inspected wiin accordance with AISC specifications (ASTM A325 or ASTM A490) Bolts must be in accordance with AISC ASD or AISC LRFD | ☐ | ☒ | | |
| ☒ | Material verification of high-strength bolts, nuts and washers. (A) Identification markings to conform to ASTM standards specified in the approved construction documents. (B) Manufacturer's certificate of compliance required. ASTM, AISC ASD, Sec. A3.4, AISC LRFD, Sec. A3.3 | ☐ | ☒ | | |
| ☒ | Inspection of high-strength bolting: Bearing-type connections. AISC LRFD Sec. M2.5, 1704.3.3 | ☐ | ☒ | | |
| ☐ | Inspection of high-strength bolting: Slip-critical connections. AISC LRFD Sec. M2.5, 1704.3.3 | ☐ | ☐ | | |
| ☒ | Material verification of structural steel: (A) Identification markings to conform to ASTM standards specified in the approved construction documents. (B) Manufacturer's certified mill test reports. ASTM A 6 or ASTM A 568 | ☐ | ☒ | | |
| ☒ | Material verification of weld filler materials. (A) Identification markings to conform to AWS specification in the approved construction documents. (B) Manufacturer's certificate of compliance required. AISC, ASD, Sec. A3.6, AISC LRFD, Sec. A3.5 | ☐ | ☒ | | |
| ☒ | Inspection of welding: (A) Structural steel. (1) Complete and partial penetration groove welds. (2) Multi-pass filet welds. (3) Single-pass filet welds. 5/16" (7.9 mm). (4) Floor and deck welds. (B) Reinforcing steel. (1) Verification of weldability of reinforcing steel other than ASTM A 706. (2) Reinforcing steel-resisting flexural and axial forces in intermediate and special moment frames, and boundary elements of special reinforced concrete shear walls, and shear reinforcement. (3) Shear reinforcement. (4) Other reinforcing steel. AWS D1.1, AWS D1.3, AWS D1.4, ACI 318: 3.5.2, 1704.3.1 | ☒ | ☒ | | A) Refer to table 1704.3 for continuous versus periodic inspection.<br>B) Not applicable |
| ☒ | Inspection of steel frame joint details for compliance with approved construction documents: (A) Details such as bracing and stiffening. (B) Member locations. Application of joint details at each connection. 1704.3.2 | ☐ | ☒ | | |

**IT-14 SPRAYED FIRE-RESISTANT MATERIALS**

| CHECK IF REQUIRED | INSPECTION TASK (Standard & Code Reference) | CONTINUOUS INSPECTIONS | PERIODIC INSPECTIONS | SPECIAL INSPECTIONS FIRM | NOTES & SCOPE |
|---|---|---|---|---|---|
| ☒ | Spray - applied fire resistant materials, NCSBC 1704.12 | ☐ | ☒ | | Inspect surface conditions, application, thickness, density, and bond strength in accordance with 1704.11.1-1704.11.5 |

**IT-15 EXTERIOR INSULATION AND FINISH SYSTEM (EIFS)**

| CHECK IF REQUIRED | INSPECTION TASK (Standard & Code Reference) | CONTINUOUS INSPECTIONS | PERIODIC INSPECTIONS | SPECIAL INSPECTIONS FIRM | NOTES & SCOPE |
|---|---|---|---|---|---|
| ☐ | EIFS, NCSBC 1704.14 | ☐ | ☐ | | Except as noted in 1704.12 |

**IT-16 SEISMIC RESISTANCE**

| CHECK IF REQUIRED | INSPECTION TASK (Standard & Code Reference) | CONTINUOUS INSPECTIONS | PERIODIC INSPECTIONS | SPECIAL INSPECTIONS FIRM | NOTES & SCOPE |
|---|---|---|---|---|---|
| ☐ | A quality assurance plan with seismic requirements shall be provided in accordance with Section 1709. | ☐ | ☒ | | Refer to seismic quality assurance plan |

**IT-17 SMOKE CONTROL**

| CHECK IF REQUIRED | INSPECTION TASK (Standard & Code Reference) | CONTINUOUS INSPECTIONS | PERIODIC INSPECTIONS | SPECIAL INSPECTIONS FIRM | NOTES & SCOPE |
|---|---|---|---|---|---|
| ☐ | Inspection of smoke control, NCSBC 1704.16 | ☐ | ☐ | | Testing during duct work erection and prior to concealment |

**IT-18 DETENTION BASIN**

| CHECK IF REQUIRED | INSPECTION TASK (Standard & Code Reference) | CONTINUOUS INSPECTIONS | PERIODIC INSPECTIONS | SPECIAL INSPECTIONS FIRM | NOTES & SCOPE |
|---|---|---|---|---|---|
| ☒ | Detention basin, NCSBC 1704.15 | ☐ | ☒ | | |

**IT-19 SPECIAL CASE**

| CHECK IF REQUIRED | INSPECTION TASK (Standard & Code Reference) | CONTINUOUS INSPECTIONS | PERIODIC INSPECTIONS | SPECIAL INSPECTIONS FIRM | NOTES & SCOPE |
|---|---|---|---|---|---|
| ☐ | | ☐ | ☐ | | NCSBC 1704.15 |

SPECIAL INSPECTIONS REPORTING REQUIREMENTS:

1. Each Special Inspector to leave a written copy of their daily report on site, initialed by the contractor, and entered in the daily inspection log maintained by the General Contractor. Any corrections or discrepancies will be reviewed by the Special Inspector and the General Contractor prior to leaving site.
2. Each daily report must describe the area of the inspection, the structural items inspected, a brief description of what was built, and if it was in conformance with the construction documents.
3. Correction items not corrected before the special inspector leaves the site but do not require input from the design team will require a separate correction notice which will be given to the General Contractor and included in the monthly report. This is to be a separate report from the daily report. The correction will be added to the correction log.
4. Items which are discrepancies and require input from the design team will require in a separate discrepancy notice given to the General Contractor, Engineer of Record, and Architect of Record. This is to be a separate report from the daily report. The discrepancy will be added to the discrepancy log.
5. All corrections and discrepancy items on the logs will remain on the log until resolved. When the items are resolved the log or the notices are to indicate how and when the item was resolved.
6. A monthly report will be provided which will include the field reports for that month, the corrections, correction log, discrepancy, and the discrepancy log.
7. Bound monthly report to be submitted to the General Contractor, Engineer of Record, Architect of Record, Owner and Building official within the first week of the month.
8. Upon completion of the construction of the items specified in the Statement of Special Inspections, completion of all material tests, and correction of all open discrepancies, the Special Inspector shall submit a signed and sealed Final Statement of Special Inspections stating that the construction has been completed and that all discovered discrepancies have been resolved.

## Required Certifications for each Inspection Type

Each inspector performing the inspection type to submit certification to the engineer of record prior to performing the inspection.

IT-01 Verification of Soils; IBC Sections 1806 and 1808
- Current NICET Level II certification in Geotechnical Engineering Technology/Construction; or
- Current NICET Level II soils certificate in Construction Materials Testing; or
- Current ICC Soils Special Inspector certificate; or
- Licensed Geologist with one year related experience; or
- Engineer-In-Training (EIT) with one year related experience; or
- Geologist-in-Training (GIT) with one year related experience

IT-02 Excavation and Filling; IBC Sections 1704.7, 1804.4
- Current NICET Level II certificate in Geotechnical Engineering Technology/Construction; or
- Current NICET Level II soils certificate in Construction Materials Testing; or
- Current ICC Soils Special Inspector certificate; or
- Licensed Geologist with one year related experience; or
- Engineer-In-Training (EIT) with one year related experience; or
- Geologist-in-Training (GIT) with one year related experience

IT-05 Reinforced Concrete; IBC Sections 1704.4, 1808
- Current ICC Reinforced Concrete Special Inspector certificate; or
- ACI Concrete Construction Special Inspector certificate; or
- Engineer-In-Training (EIT) with one year related experience

IT-09 Inspection of Pre-Cast Concrete Fabricators; IBC Section 1704.2
- Current ICC Reinforced Concrete certificate; or
- Pre-Cast/Pre-Stressed Concrete Institute (PCI) Quality Control Technician/Inspector Level II certificate

IT-10 Inspection of Structural Steel Fabricators; IBC Section 1704.2
- Current AWS D1.1 Certified Welding Inspector; or
- Current Canadian Welding Bureau Certified Welding Inspector; or
- Current ICC Structural Steel and Welding certificate plus one year of related experience; or
- Current NDT Level II (along with in-house level III trainer's certificate) or Level III

IT-11 Structural Masonry; IBC Section 1704.5
- Current ICC Structural Masonry certificate and one year of related experience; or
- Engineer-In-Training (EIT) with one year related experience

IT-12 Welding; IBC Section 1704.3,3.1, 3.2, Table 1704.3 (5), Sections 1704.4 (2), 1707.2 and 2208
- Current AWS D1.1 Certified Welding Inspector; or
- Current Canadian Welding Bureau Certified Welding Inspector; or
- Current ICC Structural Steel and Welding certificate plus one year of related experience; or
- Current NDT Level II (along with in-house level III trainer's certificate) or Level III

IT-13 High-Strength Bolting and Steel Frame Inspection; IBC Section 1704.3.3 and Table 1704.3 Items 1, 2, 3 and 6
- Current ICC Structural Steel & Bolting certificate plus one year of related experience; or
- Engineer-In-Training (EIT) with one year related experience

IT-16 Seismic Resistance; IBC Sections 1707, 1708, 1710
- Professional Engineer or Architect registered in the State of North Carolina; or
- Any ASI working under the direct supervision of a qualified DSI. The DSI is to insure the ASI is qualified to inspect the type of work being reviewed.


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NORTH CAROLINA PROFESSIONAL SEAL 024096 ENGINEER MICHAEL A CARDINAL 1/28/14

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**FAST Multi-Modal Center**
City of Fayetteville
Fayetteville, NC

Project Number 621A

Title
**Special Inspections**

Sheet
**S002**

Plate of


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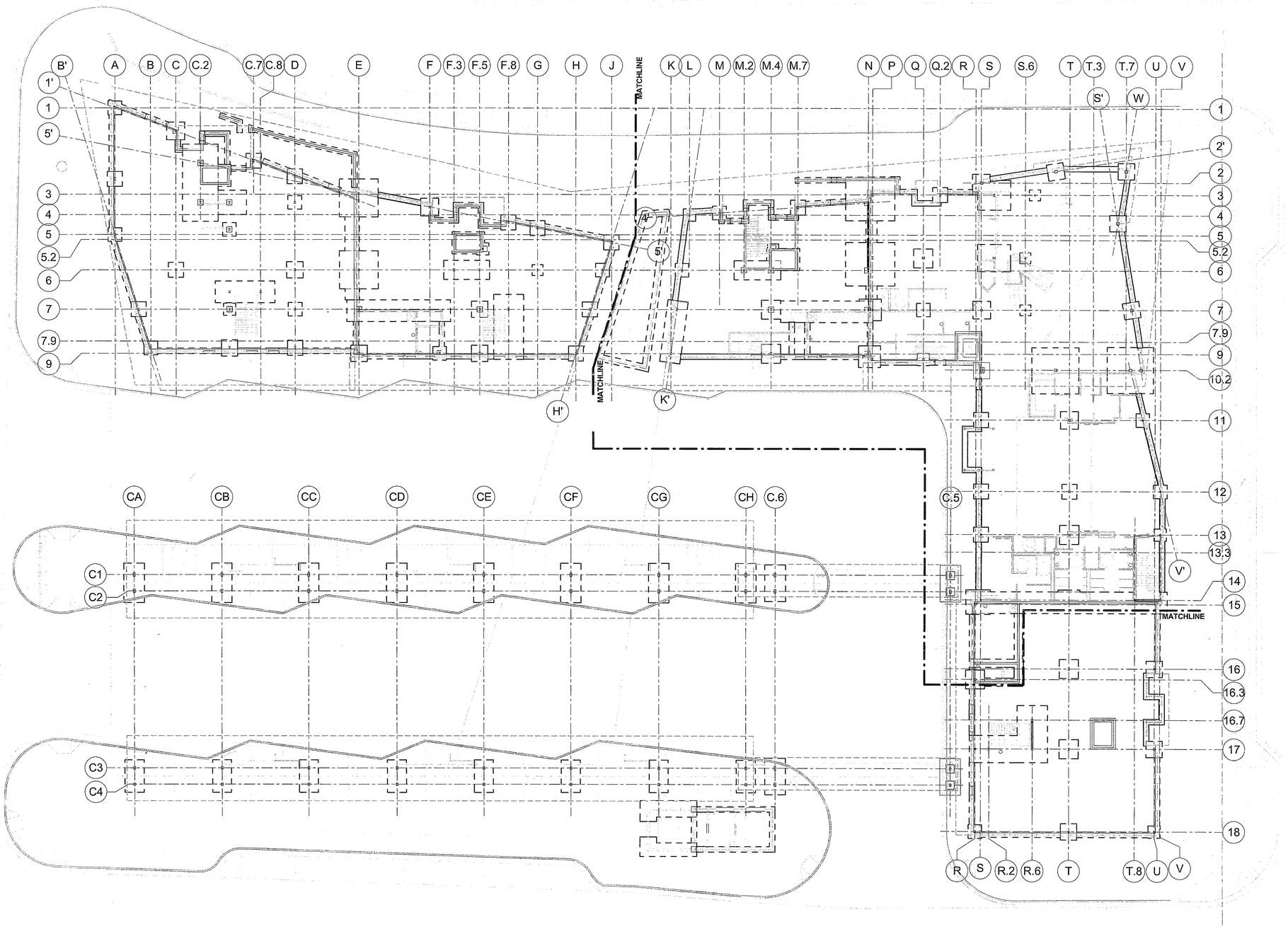


N

1 / S100a OVERALL FOUNDATION PLAN

1/16" = 1'-0"

NOTES:

1. SEE ARCHITECTURAL DRAWINGS FOR ALTERNATES.


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2/7/14

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**FAST Multi-Modal Center**
City of Fayetteville
Fayetteville, NC

Project Number 621A

Title
**Overall Foundation Plan**

Sheet
# S100a

Plate of


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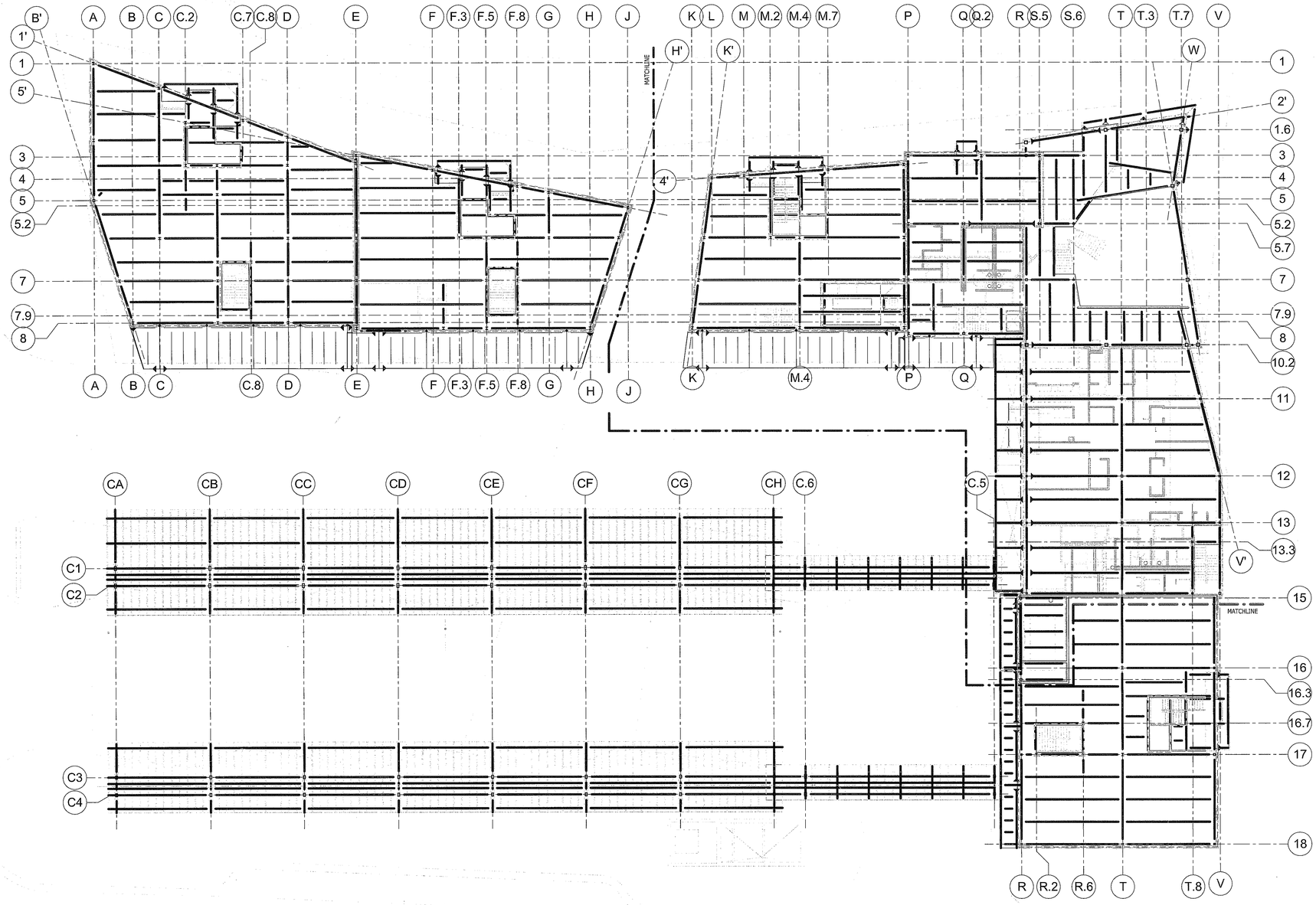


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1 / S100b OVERALL FLOOR FRAMING PLAN

1/16" = 1'-0"

NOTES:
1. SEE ARCHITECTURAL DRAWINGS FOR ALTERNATES.


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**FAST Multi-Modal Center**
City of Fayetteville
Fayetteville, NC

Project Number 621A

Title
**Overall Floor Framing Plan**

Sheet
# S100b

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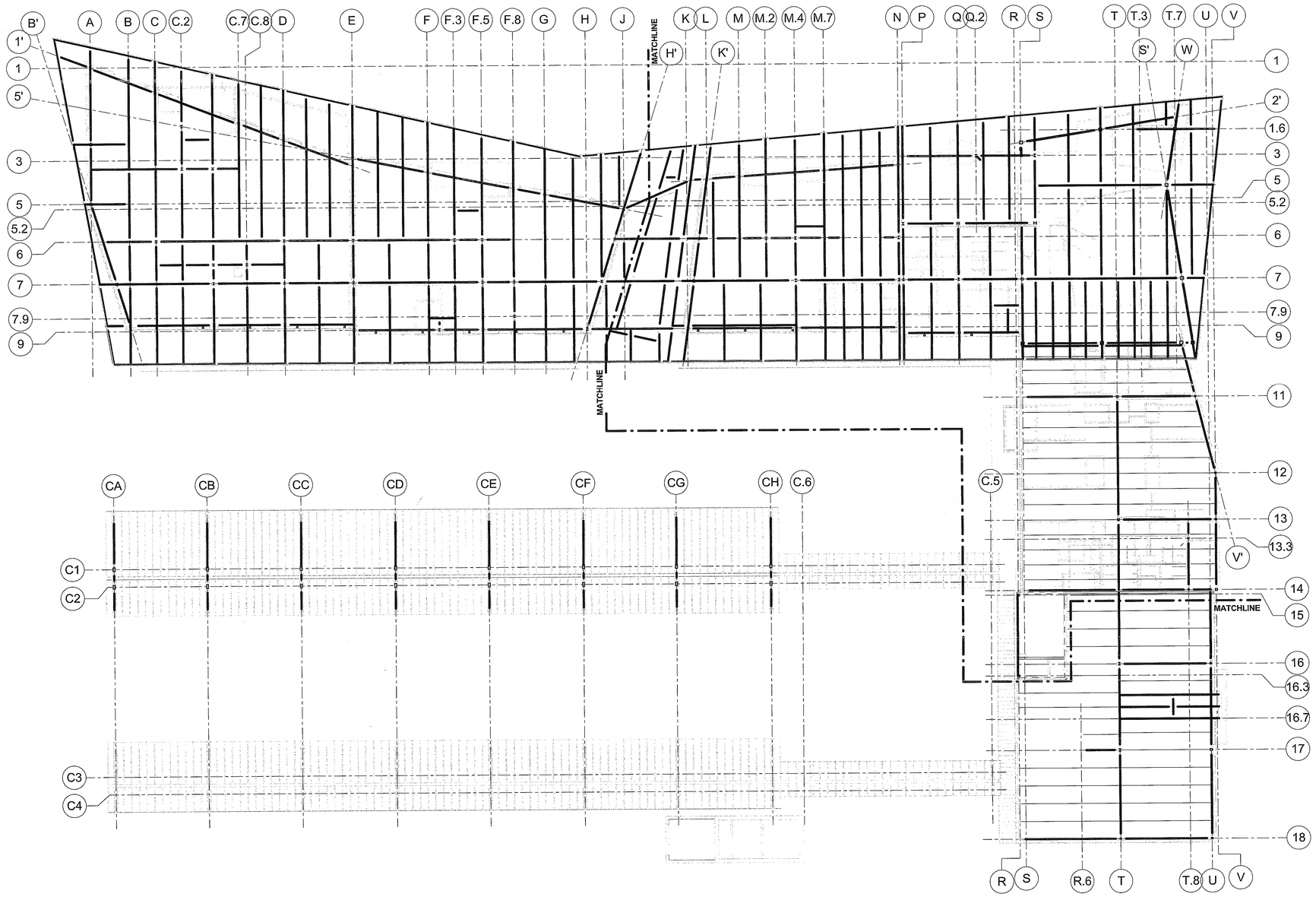


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1 / S100c OVERALL ROOF FRAMING PLAN

1/16" = 1'-0"

NOTES:
1. SEE ARCHITECTURAL DRAWINGS FOR ALTERNATES.


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**FAST Multi-Modal Center**
City of Fayetteville
Fayetteville, NC

Project Number 621A

Title
**Overall Roof Framing Plan**

Sheet
# S100c

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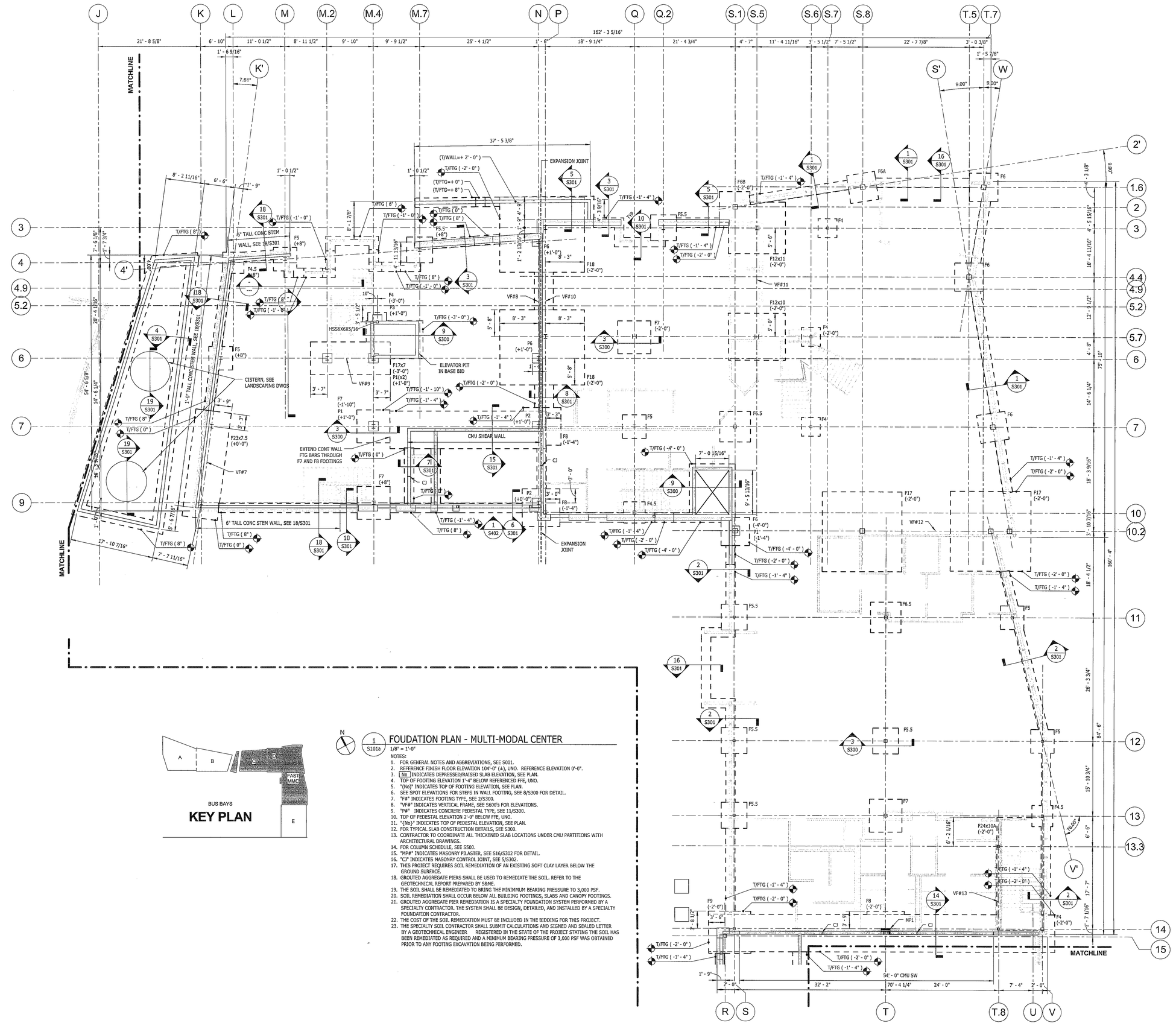





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1 / S101a

## FOUDATION PLAN - MULTI-MODAL CENTER

1/8" = 1'-0"

NOTES:

1. FOR GENERAL NOTES AND ABBREVIATIONS, SEE S001.
2. REFERENCE FINISH FLOOR ELEVATION 104'-0" (±), UNO. REFERENCE ELEVATION 0'-0".
3. (No) INDICATES DEPRESSED/RAISED SLAB ELEVATION, SEE PLAN.
4. TOP OF FOOTING ELEVATION 1'-6" BELOW REFERENCED FFE, UNO.
5. "(No)" INDICATES TOP OF FOOTING ELEVATION, SEE PLAN.
6. SEE SPOT ELEVATIONS FOR STEPS IN WALL FOOTING, SEE 8/S300 FOR DETAIL.
7. "F#" INDICATES FOOTING TYPE, SEE 2/S300.
8. "VF#" INDICATES VERTICAL FRAME, SEE S600's FOR ELEVATIONS.
9. "P#" INDICATES CONCRETE PEDESTAL TYPE, SEE 11/S300.
10. TOP OF PEDESTAL ELEVATION 2'-0" BELOW FFE, UNO.
11. "(No)" INDICATES TOP OF PEDESTAL ELEVATION, SEE PLAN.
12. FOR TYPICAL SLAB CONSTRUCTION DETAILS, SEE S300.
13. CONTRACTOR TO COORDINATE ALL THICKENED SLAB LOCATIONS UNDER CMU PARTITIONS WITH ARCHITECTURAL DRAWINGS.
14. FOR COLUMN SCHEDULE, SEE S500.
15. "MP#" INDICATES MASONRY PILASTER, SEE S16/S302 FOR DETAIL.
16. "CJ" INDICATES MASONRY CONTROL JOINT, SEE 5/S302.
17. THIS PROJECT REQUIRES SOIL REMEDIATION OF AN EXISTING SOFT CLAY LAYER BELOW THE GROUND SURFACE.
18. GROUTED AGGREGATE PIERS SHALL BE USED TO REMEDIATE THE SOIL. REFER TO THE GEOTECHNICAL REPORT PREPARED BY S&ME.
19. THE SOIL SHALL BE REMEDIATED TO BRING THE MINIMMUM BEARING PRESSURE TO 3,000 PSF.
20. SOIL REMEDIATION SHALL OCCUR BELOW ALL BUILDING FOOTINGS, SLABS AND CANOPY FOOTINGS.
21. GROUTED AGGREGATE PIER REMEDIATION IS A SPECIALTY FOUNDATION SYSTEM PERFORMED BY A SPECIALTY CONTRACTOR. THE SYSTEM SHALL BE DESIGN, DETAILED, AND INSTALLED BY A SPECIALTY FOUNDATION CONTRACTOR.
22. THE COST OF THE SOIL REMEDIATION MUST BE INCLUDED IN THE BIDDING FOR THIS PROJECT.
23. THE SPECIALTY SOIL CONTRACTOR SHALL SUBMIT CALCULATIONS AND SIGNED AND SEALED LETTER BY A GEOTECHNICAL ENGINEER REGISTERED IN THE STATE OF THE PROJECT STATING THE SOIL HAS BEEN REMEDIATED AS REQUIRED AND A MINIMUM BEARING PRESSURE OF 3,000 PSF WAS OBTAINED PRIOR TO ANY FOOTING EXCAVATION BEING PERFORMED.

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NORTH CAROLINA PROFESSIONAL SEAL 024096 ENGINEER MICHAEL A. GARDINER 3/25/14

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**FAST Multi-Modal Center**
City of Fayetteville
Fayetteville, NC

Project Number 621A

Title
**Foundation Plan - Multi-Modal Center**

Sheet
# S101a

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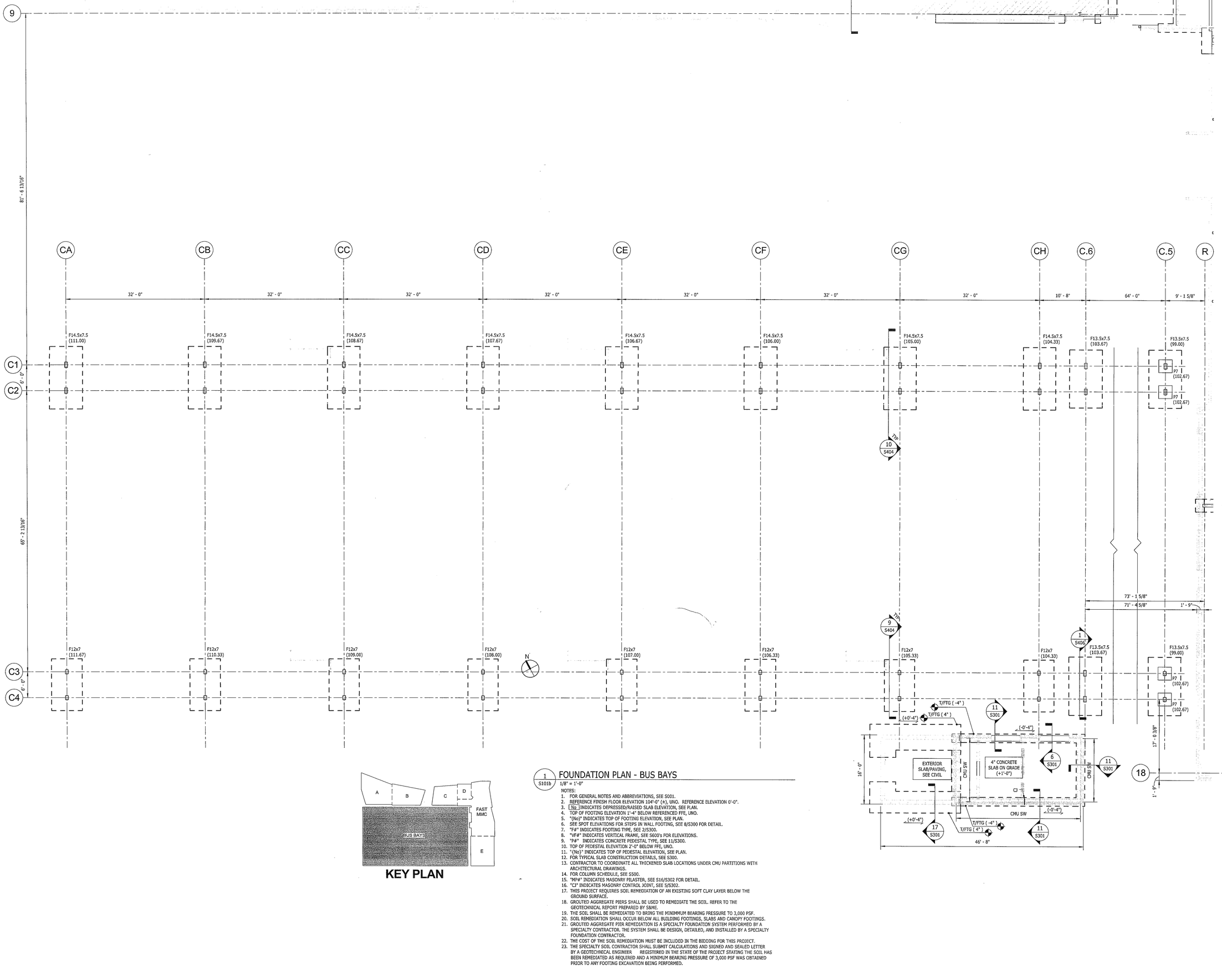





KEY PLAN

## 1 S101b FOUNDATION PLAN - BUS BAYS

1/8" = 1'-0"

NOTES:

1. FOR GENERAL NOTES AND ABBREVIATIONS, SEE S001.
2. REFERENCE FINISH FLOOR ELEVATION 104'-0" (±), UNO. REFERENCE ELEVATION 0'-0".
3. [No ] INDICATES DEPRESSED/RAISED SLAB ELEVATION, SEE PLAN.
4. TOP OF FOOTING ELEVATION 1'-4" BELOW REFERENCED FFE, UNO.
5. "(No)" INDICATES TOP OF FOOTING ELEVATION, SEE PLAN.
6. SEE SPOT ELEVATIONS FOR STEPS IN WALL FOOTING, SEE 8/S300 FOR DETAIL.
7. "F#" INDICATES FOOTING TYPE, SEE 2/S300.
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9. "P#" INDICATES CONCRETE PEDESTAL TYPE, SEE 11/S300.
10. TOP OF PEDESTAL ELEVATION 2'-0" BELOW FFE, UNO.
11. "(No)" INDICATES TOP OF PEDESTAL ELEVATION, SEE PLAN.
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14. FOR COLUMN SCHEDULE, SEE S500.
15. "MP#" INDICATES MASONRY PILASTER, SEE S16/S302 FOR DETAIL.
16. "CJ" INDICATES MASONRY CONTROL JOINT, SEE 5/S302.
17. THIS PROJECT REQUIRES SOIL REMEDIATION OF AN EXISTING SOFT CLAY LAYER BELOW THE GROUND SURFACE.
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**FAST Multi-Modal Center**
City of Fayetteville
Fayetteville, NC

Project Number 621A

Title
**Foundation Plan - Bus Bays**

Sheet
# S101b

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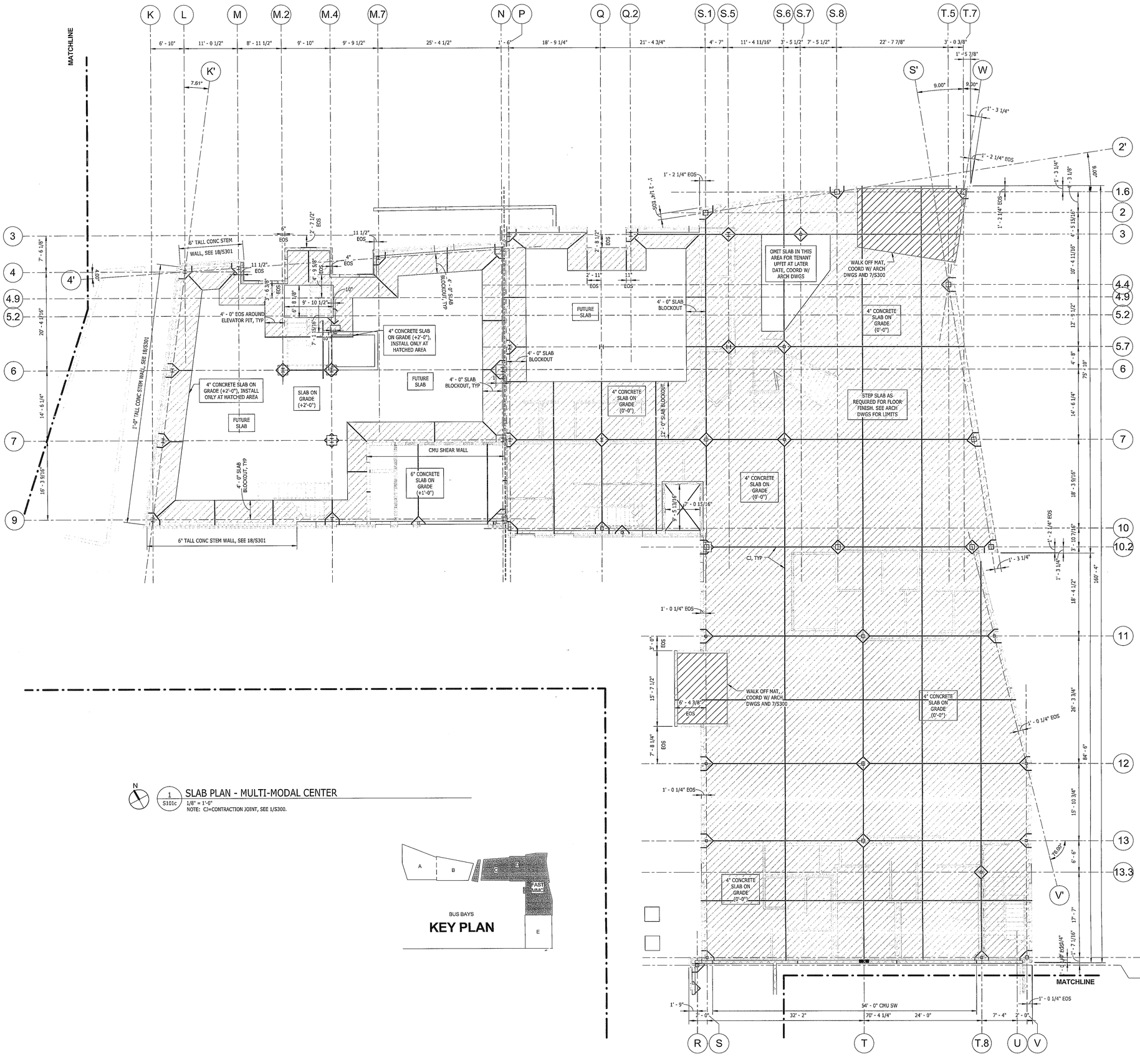


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1 / S101c SLAB PLAN - MULTI-MODAL CENTER

1/8" = 1'-0"

NOTE: CJ=CONTRACTION JOINT, SEE 1/S300.




KEY PLAN

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NORTH CAROLINA PROFESSIONAL SEAL 024108 ENGINEER MICHAEL A. GARDNER
2/26/14

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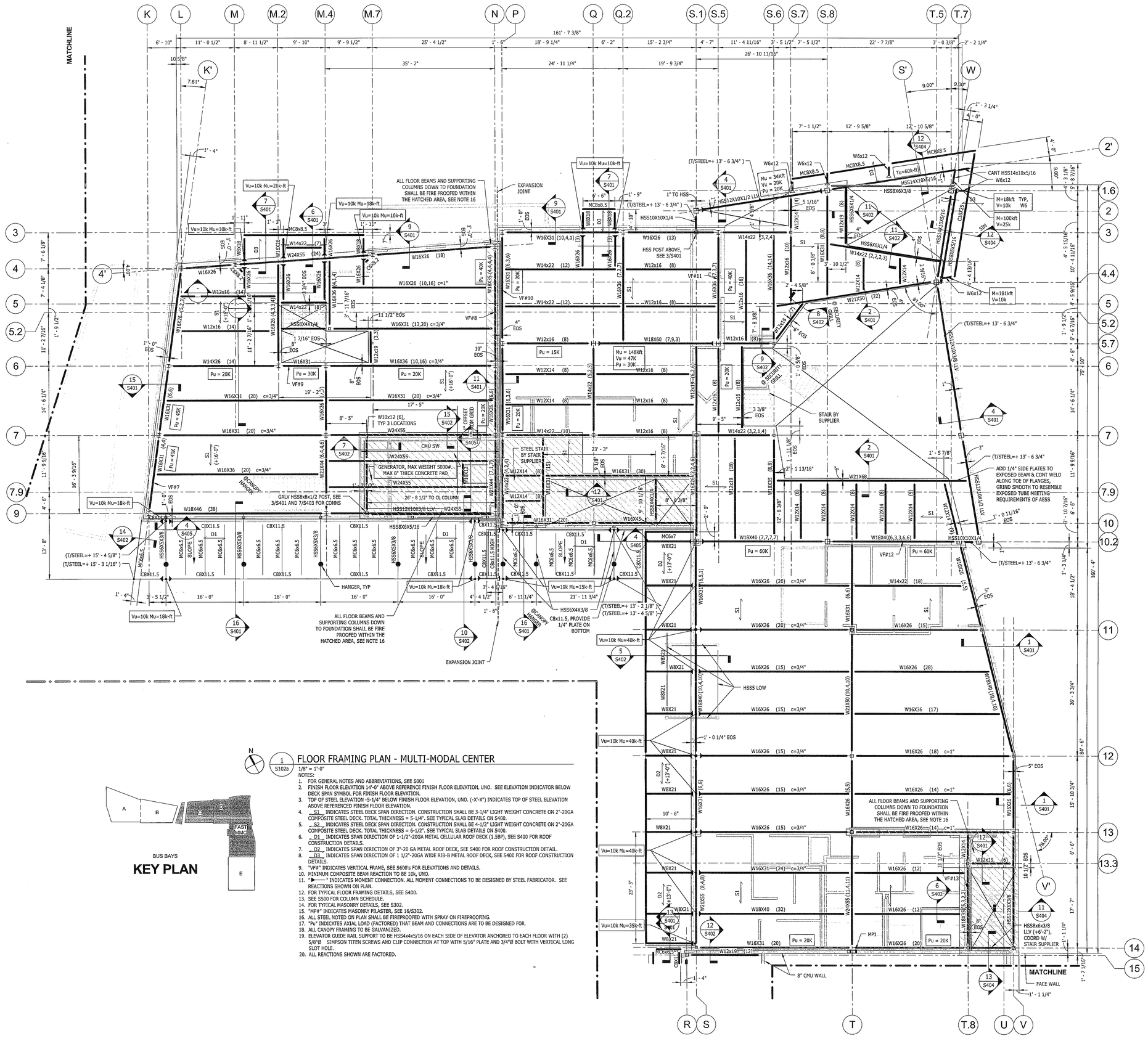
**FAST Multi-Modal Center**
City of Fayetteville
Fayetteville, NC

Project Number 621A

Title
**Control Joint Plan - Multi-Model Center**

Sheet
# S101c

Plate of







## KEY PLAN

## FLOOR FRAMING PLAN - MULTI-MODAL CENTER

1/8" = 1'-0"

NOTES:

1. FOR GENERAL NOTES AND ABBREVIATIONS, SEE S001
2. FINISH FLOOR ELEVATION 14'-0" ABOVE REFERENCE FINISH FLOOR ELEVATION, UNO. SEE ELEVATION INDICATOR BELOW DECK SPAN SYMBOL FOR FINISH FLOOR ELEVATION.
3. TOP OF STEEL ELEVATION -5-1/4" BELOW FINISH FLOOR ELEVATION, UNO. (-X'-X") INDICATES TOP OF STEEL ELEVATION ABOVE REFERENCED FINISH FLOOR ELEVATION.
4. _S1_ INDICATES STEEL DECK SPAN DIRECTION. CONSTRUCTION SHALL BE 3-1/4" LIGHT WEIGHT CONCRETE ON 2"-20GA COMPOSITE STEEL DECK. TOTAL THICKNESS = 5-1/4". SEE TYPICAL SLAB DETAILS ON S400.
5. _S2_ INDICATES STEEL DECK SPAN DIRECTION. CONSTRUCTION SHALL BE 4-1/2" LIGHT WEIGHT CONCRETE ON 2"-20GA COMPOSITE STEEL DECK. TOTAL THICKNESS = 6-1/2". SEE TYPICAL SLAB DETAILS ON S400.
6. _D1_ INDICATES SPAN DIRECTION OF 1-1/2"-20GA METAL CELLULAR ROOF DECK (1.5BP), SEE S400 FOR ROOF CONSTRUCTION DETAILS.
7. _D2_ INDICATES SPAN DIRECTION OF 3"-20 GA METAL ROOF DECK, SEE S400 FOR ROOF CONSTRUCTION DETAIL.
8. _D3_ INDICATES SPAN DIRECTION OF 1 1/2"-20GA WIDE RIB-B METAL ROOF DECK, SEE S400 FOR ROOF CONSTRUCTION DETAILS.
9. "VF#" INDICATES VERTICAL FRAME, SEE S600's FOR ELEVATIONS AND DETAILS.
10. MINIMUM COMPOSITE BEAM REACTION TO BE 10k, UNO.
11. "▶——" INDICATES MOMENT CONNECTION. ALL MOMENT CONNECTIONS TO BE DESIGNED BY STEEL FABRICATOR. SEE REACTIONS SHOWN ON PLAN.
12. FOR TYPICAL FLOOR FRAMING DETAILS, SEE S400.
13. SEE S500 FOR COLUMN SCHEDULE.
14. FOR TYPICAL MASONRY DETAILS, SEE S302.
15. "MP#" INDICATES MASONRY PILASTER, SEE 16/S302.
16. ALL STEEL NOTED ON PLAN SHALL BE FIREPROOFED WITH SPRAY ON FIREPROOFING.
17. "Pu" INDICATES AXIAL LOAD (FACTORED) THAT BEAM AND CONNECTIONS ARE TO BE DESIGNED FOR.
18. ALL CANOPY FRAMING TO BE GALVANIZED.
19. ELEVATOR GUIDE RAIL SUPPORT TO BE HSS4x4x5/16 ON EACH SIDE OF ELEVATOR ANCHORED TO EACH FLOOR WITH (2) 5/8"Ø SIMPSON TITEN SCREWS AND CLIP CONNECTION AT TOP WITH 5/16" PLATE AND 3/4"Ø BOLT WITH VERTICAL LONG SLOT HOLE.
20. ALL REACTIONS SHOWN ARE FACTORED.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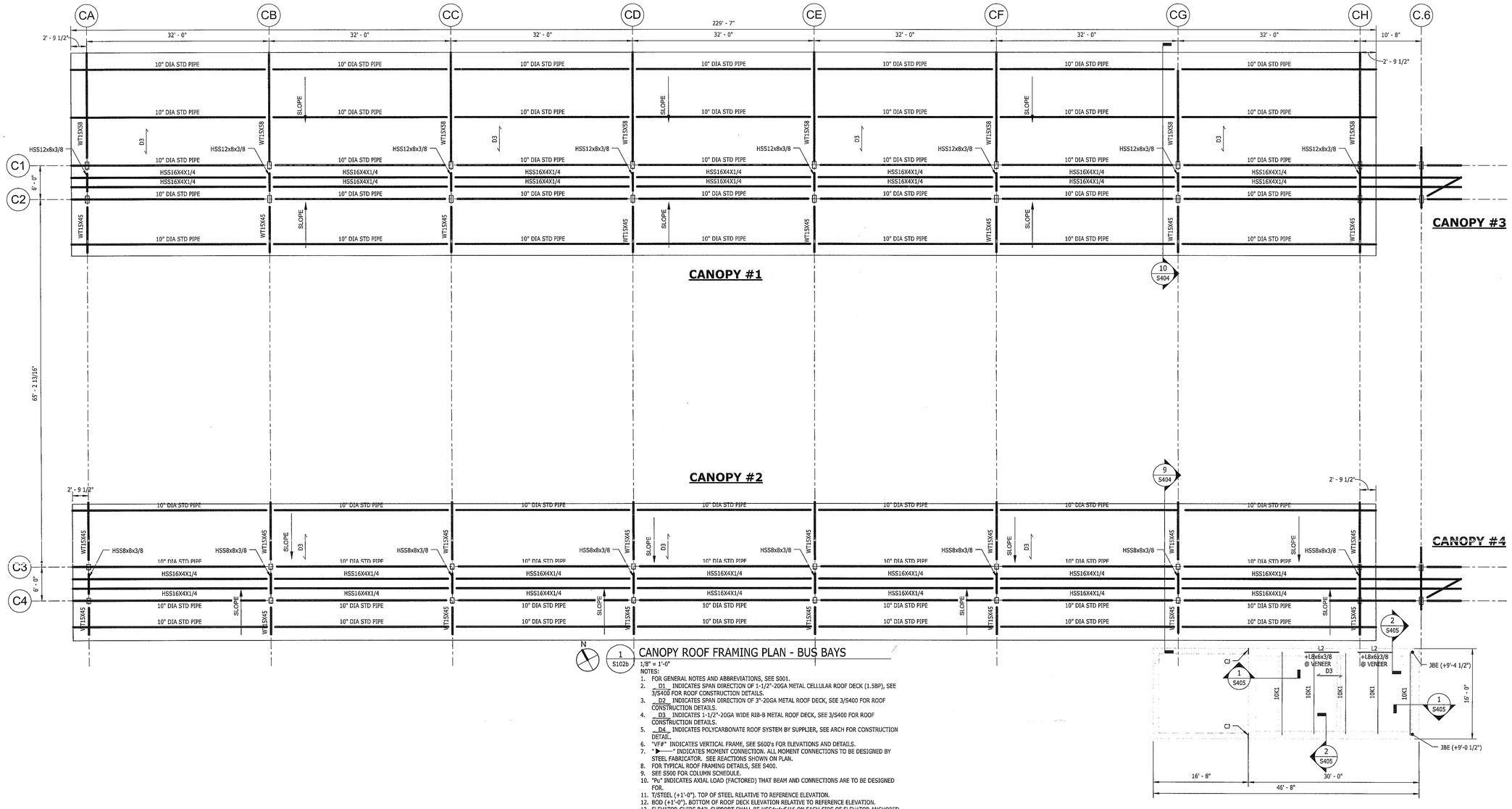
**FAST Multi-Modal Center**
City of Fayetteville
Fayetteville, NC

Project Number 621A

Title
**Floor Framing Plan - Multi-Modal Center**

Sheet
# S102a

Plate of

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1 S102b CANOPY ROOF FRAMING PLAN - BUS BAYS

1/8" = 1'-0"

NOTES:

1. FOR GENERAL NOTES AND ABBREVIATIONS, SEE S001.
2. D1 INDICATES SPAN DIRECTION OF 1-1/2"-20GA METAL CELLULAR ROOF DECK (1.5BP), SEE 3/S400 FOR ROOF CONSTRUCTION DETAILS.
3. D2 INDICATES SPAN DIRECTION OF 3"-20GA METAL ROOF DECK, SEE 3/S400 FOR ROOF CONSTRUCTION DETAILS.
4. D3 INDICATES 1-1/2"-20GA WIDE RIB-B METAL ROOF DECK, SEE 3/S400 FOR ROOF CONSTRUCTION DETAILS.
5. D4 INDICATES POLYCARBONATE ROOF SYSTEM BY SUPPLIER, SEE ARCH FOR CONSTRUCTION DETAIL.
6. "VF#" INDICATES VERTICAL FRAME, SEE S600's FOR ELEVATIONS AND DETAILS.
7. "►——" INDICATES MOMENT CONNECTION. ALL MOMENT CONNECTIONS TO BE DESIGNED BY STEEL FABRICATOR. SEE REACTIONS SHOWN ON PLAN.
8. FOR TYPICAL ROOF FRAMING DETAILS, SEE S400.
9. SEE S500 FOR COLUMN SCHEDULE.
10. "Pu" INDICATES AXIAL LOAD (FACTORED) THAT BEAM AND CONNECTIONS ARE TO BE DESIGNED FOR.
11. T/STEEL (+1'-0"). TOP OF STEEL RELATIVE TO REFERENCE ELEVATION.
12. BOD (+1'-0"). BOTTOM OF ROOF DECK ELEVATION RELATIVE TO REFERENCE ELEVATION.
13. ELEVATOR GUIDE RAIL SUPPORT SHALL BE HSS4x4x5/16 ON EACH SIDE OF ELEVATOR ANCHORED TO EACH FLOOR WITH (2) 5/8"Ø SIMPSON TITEN SCREWS AND CLIP CONNECTION AT TOP WITH 5/16" PLATE AND 3/4"Ø BOLT WITH VERTICAL LONG SLOT HOLE.
14. ALL STEEL NOTED ON PLAN SHALL BE FIREPROOFED WITH SPRAY ON FIREPROOFING.
15. T/STEEL (+1'-0"). TOP OF STEEL RELATIVE TO REFERENCE ELEVATION.
16. BOD (+1'-0"). BOTTOM OF ROOF DECK ELEVATION RELATIVE TO REFERENCE ELEVATION.
17. ELEVATOR GUIDE RAIL SUPPORT SHALL BE HSS4x4x5/16 ON EACH SIDE OF ELEVATOR ANCHORED TO EACH FLOOR WITH (2) 5/8"Ø SIMPSON TITEN SCREWS AND CLIP CONNECTION AT TOP WITH 5/16" PLATE AND 3/4"Ø BOLT WITH VERTICAL LONG SLOT HOLE.
18. ALL REACTIONS SHOWN ARE FACTORED.
19. "CJ" INDICATED MASONRY CONTROL JOINT, SEE ARCH DWGS FOR EXACT LOCATION.
20. JBE (+0'-0") ABOVE FINISH FLOOR.




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2 S102b ROOF FRAMING PLAN - BUS BAY DRIVETHRU

1/8" = 1'-0"

SEE 1/S102b FOR NOTES




KEY PLAN

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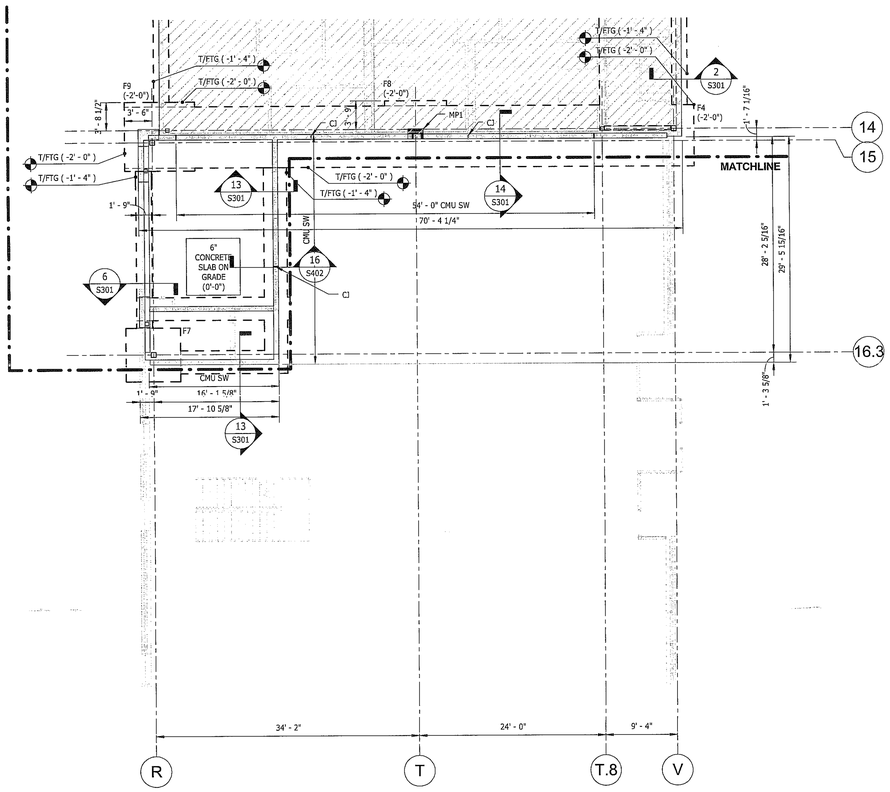
**FAST Multi-Modal Center**
City of Fayetteville
Fayetteville, NC

Project Number 621A

Title
**Framing Plans At Bus Bays**

Sheet
# S102b

Plate of

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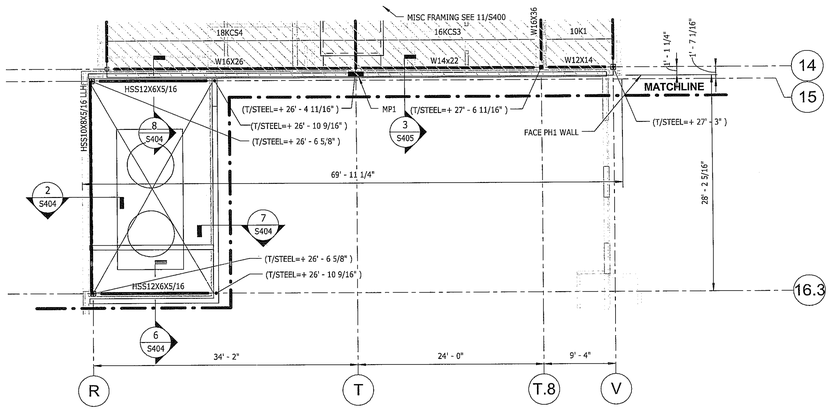
3 / S102c

## FOUNDATION PLAN -TENANT SPACES

1/8" = 1'-0"

NOTES:

1. FOR GENERAL NOTES AND ABBREVIATIONS, SEE S001.
2. REFERENCE FINISH FLOOR ELEVATION 104'-0" (±), UNO. REFERENCE ELEVATION 0'-0".
3. No INDICATES DEPRESSED/RAISED SLAB ELEVATION, SEE PLAN.
4. TOP OF FOOTING ELEVATION 1'-4" BELOW REFERENCED FFE, UNO.
5. "(No)" INDICATES TOP OF FOOTING ELEVATION, SEE PLAN.
6. SEE SPOT ELEVATIONS FOR STEPS IN WALL FOOTING, SEE 8/S300 FOR DETAIL.
7. "F#" INDICATES FOOTING TYPE, SEE 2/S300.
8. "VF#" INDICATES VERTICAL FRAME, SEE S600's FOR ELEVATIONS.
9. "P#" INDICATES CONCRETE PEDESTAL TYPE, SEE 11/S300.
10. TOP OF PEDESTAL ELEVATION 2'-0" BELOW FFE, UNO.
11. "(No)" INDICATES TOP OF PEDESTAL ELEVATION, SEE PLAN.
12. FOR TYPICAL SLAB CONSTRUCTION DETAILS, SEE S300.
13. CONTRACTOR TO COORDINATE ALL THICKENED SLAB LOCATIONS UNDER CMU PARTITIONS WITH ARCHITECTURAL DRAWINGS.
14. FOR COLUMN SCHEDULE, SEE S500.
15. "MP#" INDICATES MASONRY PILASTER, SEE S16/S302 FOR DETAIL.
16. "CJ" INDICATES MASONRY CONTROL JOINT, SEE 5/S302.
17. THIS PROJECT REQUIRES SOIL REMEDIATION OF AN EXISTING SOFT CLAY LAYER BELOW THE GROUND SURFACE.
18. GROUTED AGGREGATE PIERS SHALL BE USED TO REMEDIATE THE SOIL. REFER TO THE GEOTECHNICAL REPORT PREPARED BY S&ME.
19. THE SOIL SHALL BE REMEDIATED TO BRING THE MINIMMUM BEARING PRESSURE TO 3,000 PSF.
20. SOIL REMEDIATION SHALL OCCUR BELOW ALL BUILDING FOOTINGS, SLABS AND CANOPY FOOTINGS.
21. GROUTED AGGREGATE PIER REMEDIATION IS A SPECIALTY FOUNDATION SYSTEM PERFORMED BY A SPECIALTY CONTRACTOR. THE SYSTEM SHALL BE DESIGN, DETAILED, AND INSTALLED BY A SPECIALTY FOUNDATION CONTRACTOR.
22. THE COST OF THE SOIL REMEDIATION MUST BE INCLUDED IN THE BIDDING FOR THIS PROJECT.
23. THE SPECIALTY SOIL CONTRACTOR SHALL SUBMIT CALCULATIONS AND SIGNED AND SEALED LETTER BY A GEOTECHNICAL ENGINEER REGISTERED IN THE STATE OF THE PROJECT STATING THE SOIL HAS BEEN REMEDIATED AS REQUIRED AND A MINIMUM BEARING PRESSURE OF 3,000 PSF WAS OBTAINED PRIOR TO ANY FOOTING EXCAVATION BEING PERFORMED.

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1 / S102c

## ROOF FRAMING PLAN -TENANT SPACES

1/8" = 1'-0"

NOTES:

1. FOR GENERAL NOTES AND ABBREVIATIONS, SEE S001.
2. _D1_ INDICATES SPAN DIRECTION OF 1-1/2"-20GA METAL CELLULAR ROOF DECK (1.5BP), SEE 3/S400 FOR ROOF CONSTRUCTION DETAILS.
3. _D2_ INDICATES SPAN DIRECTION OF 3"-20GA METAL ROOF DECK, SEE 3/S400 FOR ROOF CONSTRUCTION DETAILS.
4. _D3_ INDICATES 1-1/2"-20GA WIDE RIB-B METAL ROOF DECK, SEE 3/S400 FOR ROOF CONSTRUCTION DETAILS.
5. _D4_ INDICATES POLYCARBONATE ROOF SYSTEM BY SUPPLIER, SEE ARCH FOR CONSTRUCTION DETAIL.
6. "VF#" INDICATES VERTICAL FRAME, SEE S600's FOR ELEVATIONS AND DETAILS.
7. "▶——" INDICATES MOMENT CONNECTION. ALL MOMENT CONNECTIONS TO BE DESIGNED BY STEEL FABRICATOR. SEE REACTIONS SHOWN ON PLAN.
8. FOR TYPICAL ROOF FRAMING DETAILS, SEE S400.
9. SEE S500 FOR COLUMN SCHEDULE.
10. "Pu" INDICATES AXIAL LOAD (FACTORED) THAT BEAM AND CONNECTIONS ARE TO BE DESIGNED FOR.
11. T/STEEL (+1'-0"). TOP OF STEEL RELATIVE TO REFERENCE ELEVATION.
12. BOD (+1'-0"). BOTTOM OF ROOF DECK ELEVATION RELATIVE TO REFERENCE ELEVATION.
13. ELEVATOR GUIDE RAIL SUPPORT SHALL BE HSS4x4x5/16 ON EACH SIDE OF ELEVATOR ANCHORED TO EACH FLOOR WITH (2) 5/8"Ø SIMPSON TITEN SCREWS AND CLIP CONNECTION AT TOP WITH 5/16" PLATE AND 3/4"Ø BOLT WITH VERTICAL LONG SLOT HOLE.
14. ALL STEEL NOTED ON PLAN SHALL BE FIREPROOFED WITH SPRAY ON FIREPROOFING.
15. T/STEEL (+1'-0"). TOP OF STEEL RELATIVE TO REFERENCE ELEVATION.
16. BOD (+1'-0"). BOTTOM OF ROOF DECK ELEVATION RELATIVE TO REFERENCE ELEVATION.
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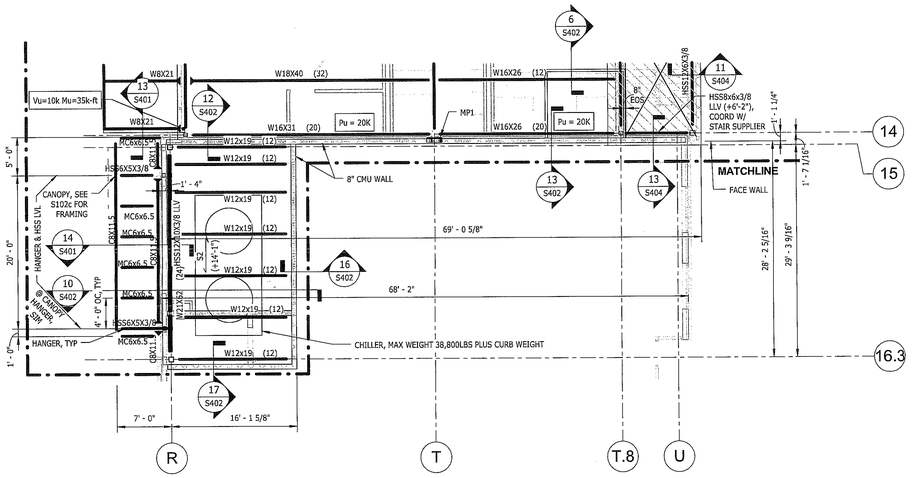
18. ALL REACTIONS SHOWN ARE FACTORED.

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2 / S102c

## FLOOR FRAMING PLAN -TENANT SPACES

1/8" = 1'-0"

NOTES:

1. FOR GENERAL NOTES AND ABBREVIATIONS, SEE S001
2. FINISH FLOOR ELEVATION 14'-0" ABOVE REFERENCE FINISH FLOOR ELEVATION, UNO. SEE ELEVATION INDICATOR BELOW DECK SPAN SYMBOL FOR FINISH FLOOR ELEVATION.
3. TOP OF STEEL ELEVATION -5-1/4" BELOW FINISH FLOOR ELEVATION, UNO. (-X'-X") INDICATES TOP OF STEEL ELEVATION ABOVE REFERENCED FINISH FLOOR ELEVATION.
4. _S1_ INDICATES STEEL DECK SPAN DIRECTION. CONSTRUCTION SHALL BE 3-1/4" LIGHT WEIGHT CONCRETE ON 2"-20GA COMPOSITE STEEL DECK. TOTAL THICKNESS = 5-1/4". SEE TYPICAL SLAB DETAILS ON S400.
5. _S2_ INDICATES STEEL DECK SPAN DIRECTION. CONSTRUCTION SHALL BE 4-1/2" LIGHT WEIGHT CONCRETE ON 2"-20GA COMPOSITE STEEL DECK. TOTAL THICKNESS = 6-1/2". SEE TYPICAL SLAB DETAILS ON S400.
6. _D1_ INDICATES SPAN DIRECTION OF 1-1/2"-20GA METAL CELLULAR ROOF DECK (1.5BP), SEE S400 FOR ROOF CONSTRUCTION DETAILS.
7. _D2_ INDICATES SPAN DIRECTION OF 3"-20 GA METAL ROOF DECK, SEE S400 FOR ROOF CONSTRUCTION DETAIL.
8. _D3_ INDICATES SPAN DIRECTION OF 1 1/2"-20GA WIDE RIB-B METAL ROOF DECK, SEE S400 FOR ROOF CONSTRUCTION DETAILS.
9. "VF#" INDICATES VERTICAL FRAME, SEE S600's FOR ELEVATIONS AND DETAILS.
10. MINIMUM COMPOSITE BEAM REACTION TO BE 10k, UNO.
11. "▶——" INDICATES MOMENT CONNECTION. ALL MOMENT CONNECTIONS TO BE DESIGNED BY STEEL FABRICATOR. SEE REACTIONS SHOWN ON PLAN.
12. FOR TYPICAL FLOOR FRAMING DETAILS, SEE S400.
13. SEE S500 FOR COLUMN SCHEDULE.
14. FOR TYPICAL MASONRY DETAILS, SEE S302.
15. "MP#" INDICATES MASONRY PILASTER, SEE 16/S302.
16. ALL STEEL NOTED ON PLAN SHALL BE FIREPROOFED WITH SPRAY ON FIREPROOFING.
17. "Pu" INDICATES AXIAL LOAD (FACTORED) THAT BEAM AND CONNECTIONS ARE TO BE DESIGNED FOR.
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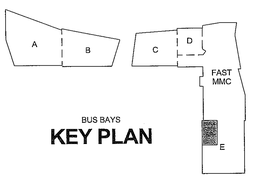
20. ALL REACTIONS SHOWN ARE FACTORED.




BUS BAYS

**KEY PLAN**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**FAST Multi-Modal Center**
City of Fayetteville
Fayetteville, NC

Project Number 621A

Title
**Framing Plans - Multi-Modal Center**

Sheet
**S102c**

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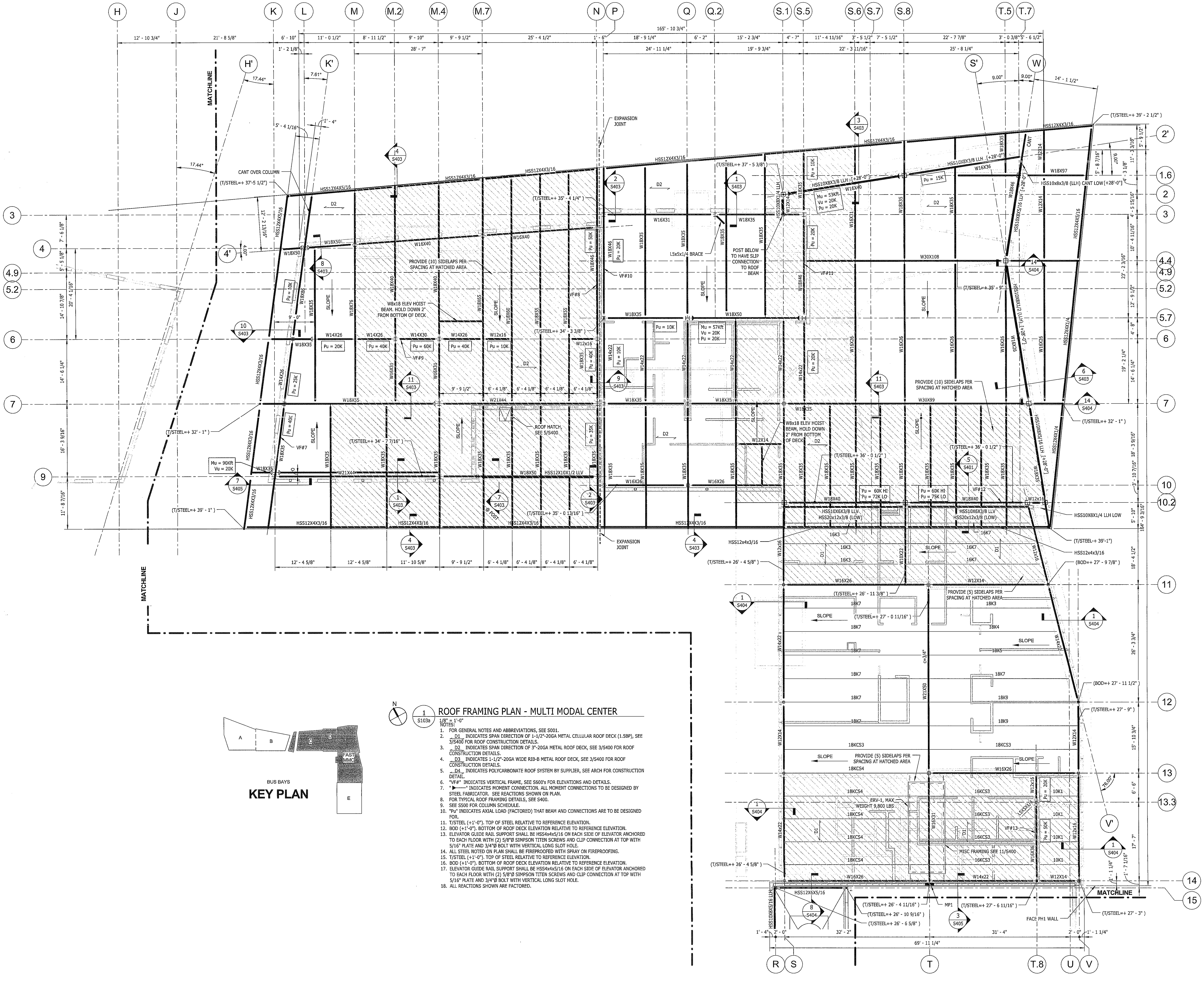


## KEY PLAN

## 1 / S103a ROOF FRAMING PLAN - MULTI MODAL CENTER

1/8" = 1'-0"

NOTES:

1. FOR GENERAL NOTES AND ABBREVIATIONS, SEE S001.
2. D1 INDICATES SPAN DIRECTION OF 1-1/2"-20GA METAL CELLULAR ROOF DECK (1.5BP), SEE 3/S400 FOR ROOF CONSTRUCTION DETAILS.
3. D2 INDICATES SPAN DIRECTION OF 3"-20GA METAL ROOF DECK, SEE 3/S400 FOR ROOF CONSTRUCTION DETAILS.
4. D3 INDICATES 1-1/2"-20GA WIDE RIB-B METAL ROOF DECK, SEE 3/S400 FOR ROOF CONSTRUCTION DETAILS.
5. D4 INDICATES POLYCARBONATE ROOF SYSTEM BY SUPPLIER, SEE ARCH FOR CONSTRUCTION DETAIL.
6. "VF#" INDICATES VERTICAL FRAME, SEE S600's FOR ELEVATIONS AND DETAILS.
7. "▶——" INDICATES MOMENT CONNECTION. ALL MOMENT CONNECTIONS TO BE DESIGNED BY STEEL FABRICATOR. SEE REACTIONS SHOWN ON PLAN.
8. FOR TYPICAL ROOF FRAMING DETAILS, SEE S400.
9. SEE S500 FOR COLUMN SCHEDULE.
10. "Pu" INDICATES AXIAL LOAD (FACTORED) THAT BEAM AND CONNECTIONS ARE TO BE DESIGNED FOR.
11. T/STEEL (+1'-0"). TOP OF STEEL RELATIVE TO REFERENCE ELEVATION.
12. BOD (+1'-0"). BOTTOM OF ROOF DECK ELEVATION RELATIVE TO REFERENCE ELEVATION.
13. ELEVATOR GUIDE RAIL SUPPORT SHALL BE HSS4x4x5/16 ON EACH SIDE OF ELEVATOR ANCHORED TO EACH FLOOR WITH (2) 5/8"Ø SIMPSON TITEN SCREWS AND CLIP CONNECTION AT TOP WITH 5/16" PLATE AND 3/4"Ø BOLT WITH VERTICAL LONG SLOT HOLE.
14. ALL STEEL NOTED ON PLAN SHALL BE FIREPROOFED WITH SPRAY ON FIREPROOFING.
15. T/STEEL (+1'-0"). TOP OF STEEL RELATIVE TO REFERENCE ELEVATION.
16. BOD (+1'-0"). BOTTOM OF ROOF DECK ELEVATION RELATIVE TO REFERENCE ELEVATION.
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**FAST Multi-Modal Center**
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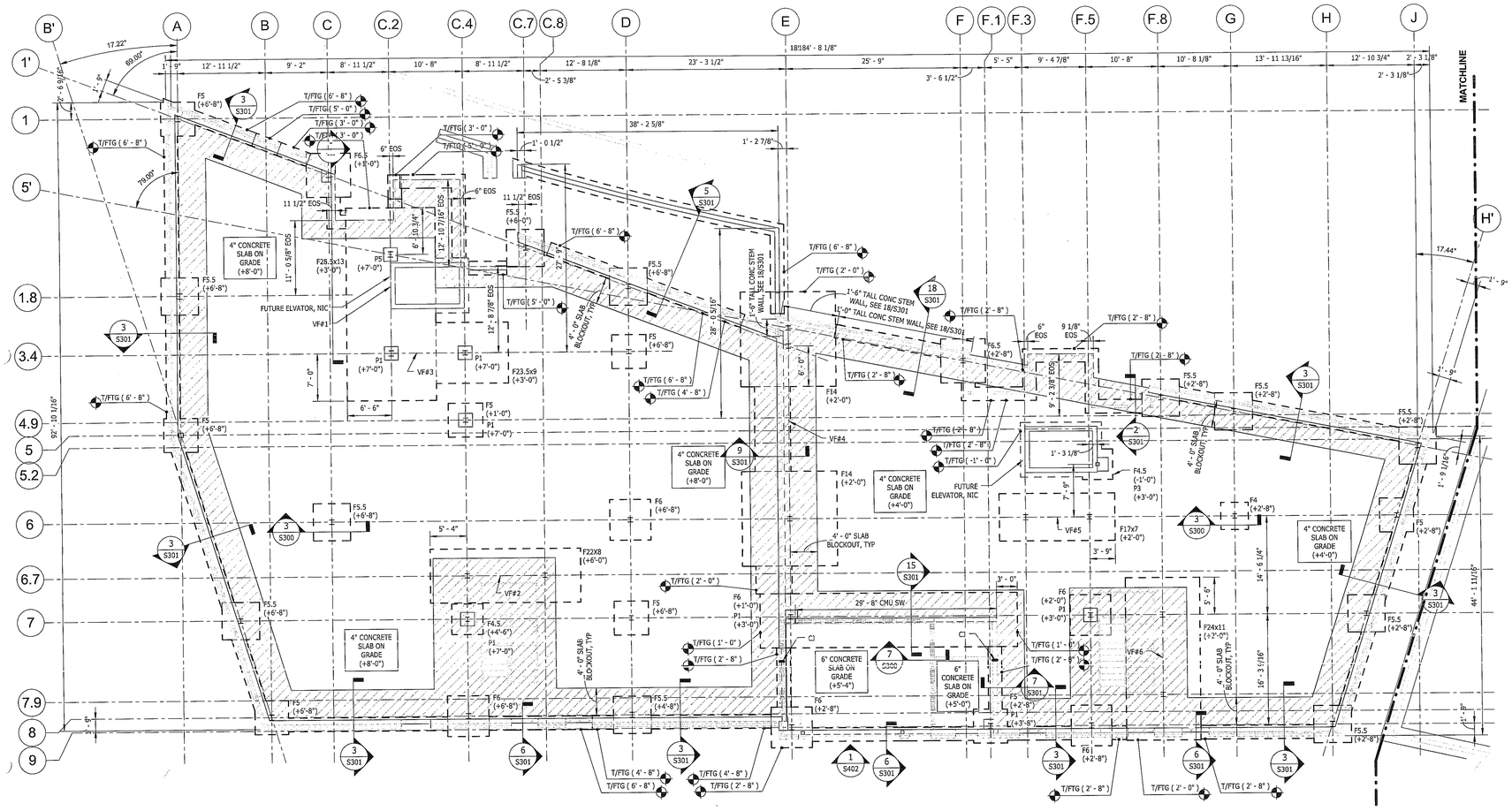
Fayetteville, NC

Project Number 621A

Title
**Roof Framing Plan - Multi-Modal Center**

Sheet
# S103a

Plate of

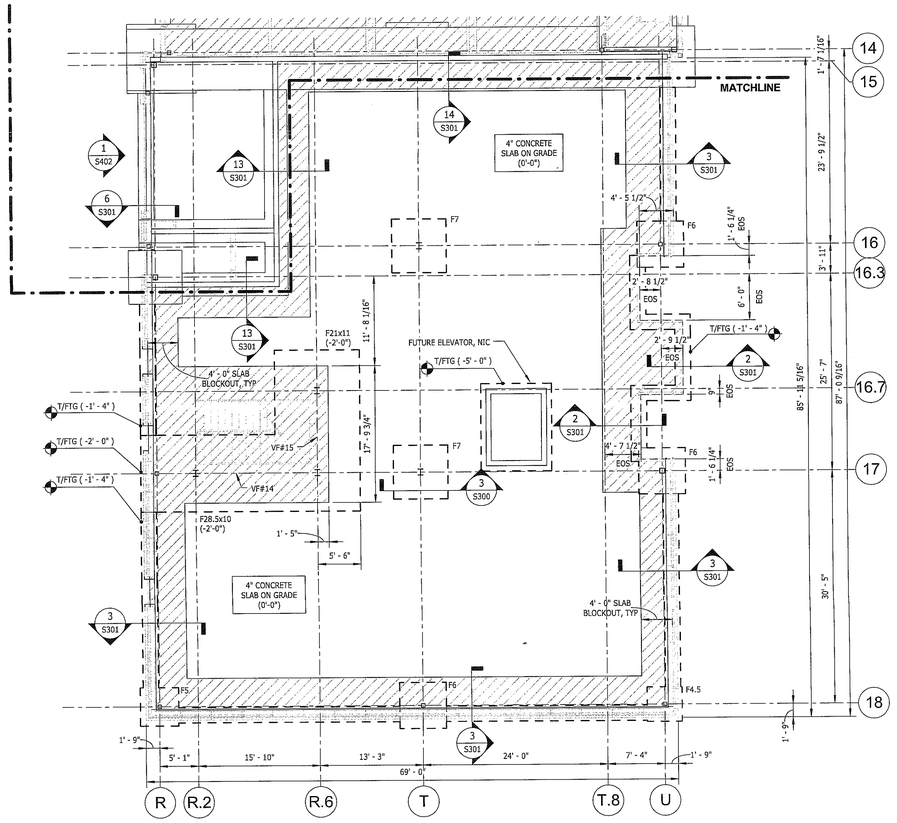



## 1 S104a FOUNDATION PLAN -TENANT SPACES

1/8" = 1'-0"

NOTES:

1. FOR GENERAL NOTES AND ABBREVIATIONS, SEE S001.
2. REFERENCE FINISH FLOOR ELEVATION 104'-0" (±), UNO. REFERENCE ELEVATION 0'-0".
3. [N6] INDICATES DEPRESSED/RAISED SLAB ELEVATION, SEE PLAN.
4. TOP OF FOOTING ELEVATION 1'-4" BELOW REFERENCED FFE, UNO.
5. "(No)" INDICATES TOP OF FOOTING ELEVATION, SEE PLAN.
6. SEE SPOT ELEVATIONS FOR STEPS IN WALL FOOTING, SEE 8/S300 FOR DETAIL.
7. "F#" INDICATES FOOTING TYPE, SEE 2/S300.
8. "VF#" INDICATES VERTICAL FRAME, SEE S600's FOR ELEVATIONS.
9. "P#" INDICATES CONCRETE PEDESTAL TYPE, SEE 11/S300.
10. TOP OF PEDESTAL ELEVATION 2'-0" BELOW FFE, UNO.
11. "(No)" INDICATES TOP OF PEDESTAL ELEVATION, SEE PLAN.
12. FOR TYPICAL SLAB CONSTRUCTION DETAILS, SEE S300.
13. CONTRACTOR TO COORDINATE ALL THICKENED SLAB LOCATIONS UNDER CMU PARTITIONS WITH ARCHITECTURAL DRAWINGS.
14. FOR COLUMN SCHEDULE, SEE S500.
15. "MP#" INDICATES MASONRY PILASTER, SEE S16/S302 FOR DETAIL.
16. "CJ" INDICATES MASONRY CONTROL JOINT, SEE 5/S302.
17. THIS PROJECT REQUIRES SOIL REMEDIATION OF AN EXISTING SOFT CLAY LAYER BELOW THE GROUND SURFACE.
18. GROUTED AGGREGATE PIERS SHALL BE USED TO REMEDIATE THE SOIL. REFER TO THE GEOTECHNICAL REPORT PREPARED BY S&ME.
19. THE SOIL SHALL BE REMEDIATED TO BRING THE MINIMUM BEARING PRESSURE TO 3,000 PSF.
20. SOIL REMEDIATION SHALL OCCUR BELOW ALL BUILDING FOOTINGS, SLABS AND CANOPY FOOTINGS.
21. GROUTED AGGREGATE PIER REMEDIATION IS A SPECIALTY FOUNDATION SYSTEM PERFORMED BY A SPECIALTY CONTRACTOR. THE SYSTEM SHALL BE DESIGN, DETAILED, AND INSTALLED BY A SPECIALTY FOUNDATION CONTRACTOR.
22. THE COST OF THE SOIL REMEDIATION MUST BE INCLUDED IN THE BIDDING FOR THIS PROJECT.
23. THE SPECIALTY SOIL CONTRACTOR SHALL SUBMIT CALCULATIONS AND SIGNED AND SEALED LETTER BY A GEOTECHNICAL ENGINEER REGISTERED IN THE STATE OF THE PROJECT STATING THE SOIL HAS BEEN REMEDIATED AS REQUIRED AND A MINIMUM BEARING PRESSURE OF 3,000 PSF WAS OBTAINED PRIOR TO ANY FOOTING EXCAVATION BEING PERFORMED.




## 2 S104a FOUNDATION PLAN -TENANT SPACES

1/8" = 1'-0"

NOTES:
SEE 1/S104a FOR NOTES.

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NORTH CAROLINA PROFESSIONAL SEAL 020090 ENGINEER MICHAEL A. GARDNER

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**FAST Multi-Modal Center**
City of Fayetteville
Fayetteville, NC

| | |
|---|---|
| Project Number | 621A |

Title
**Foundation Plan - Tenant Spaces**

Sheet
# S104a

Plate of


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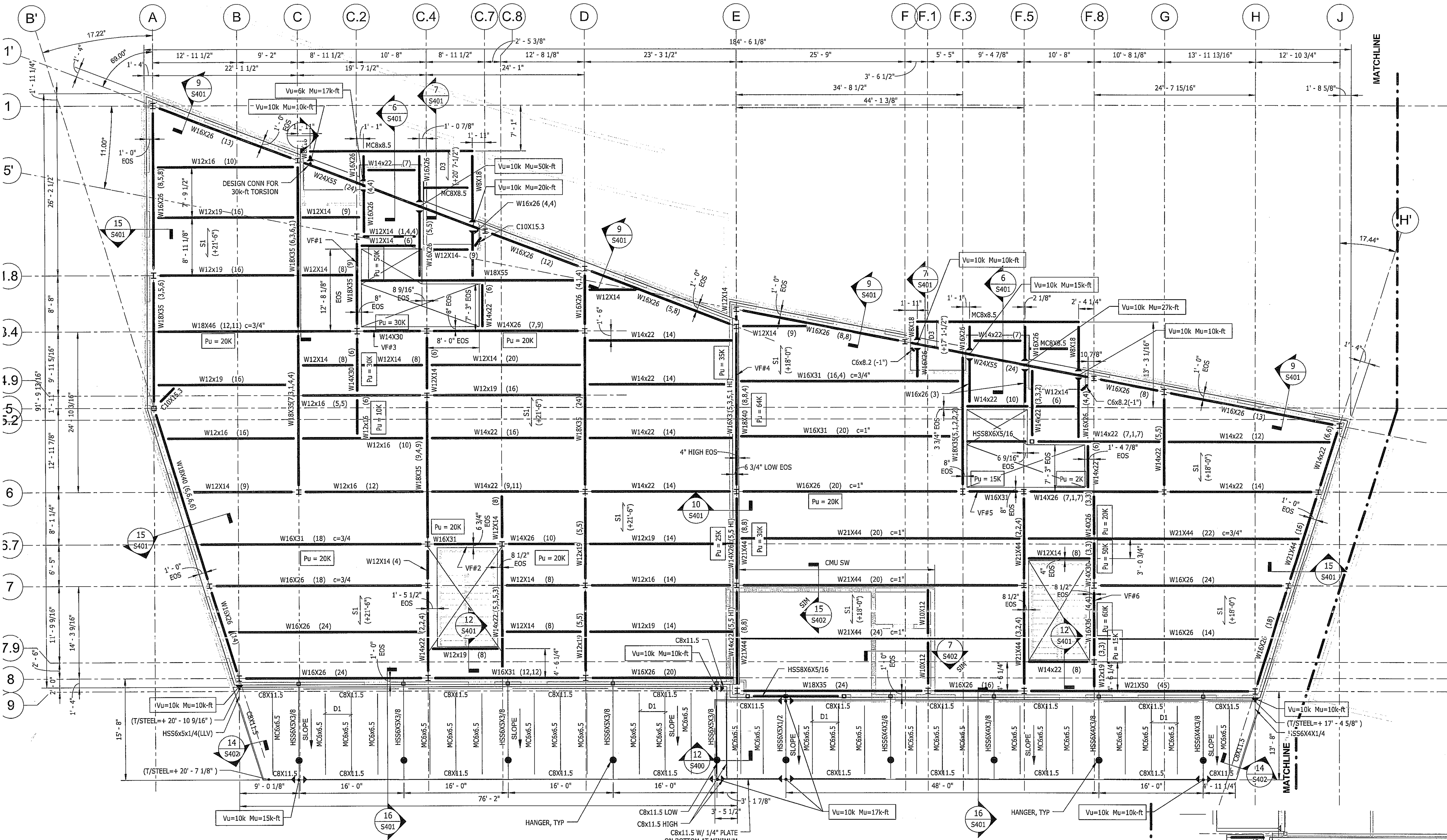


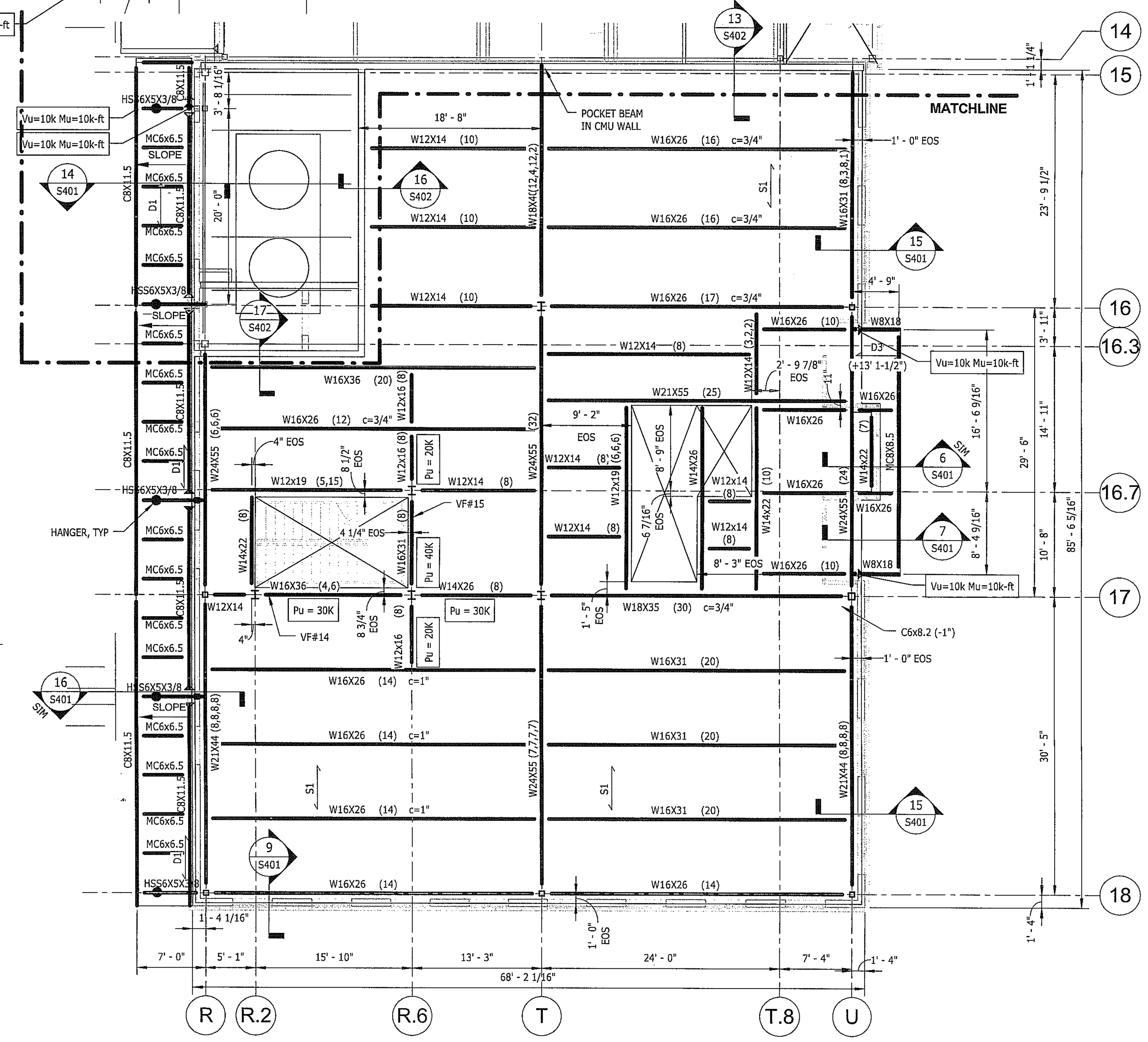
# FLOOR FRAMING PLAN -TENANT SPACES

1 / S104b

1/8" = 1'-0"

NOTES:

1. FOR GENERAL NOTES AND ABBREVIATIONS, SEE S001
2. FINISH FLOOR ELEVATION VARIES ABOVE REFERENCE FINISH FLOOR ELEVATION, UNO. SEE (-XX") INDICATOR BELOW SPAN DIRECTION SYMBOL FOR FINISH FLOOR ELEVATION
3. TOP OF STEEL ELEVATION -5-1/4" BELOW FINISH FLOOR ELEVATION, UNO.
4. S1 INDICATES STEEL DECK SPAN DIRECTION. CONSTRUCTION SHALL BE 3-1/4" LIGHT WEIGHT CONCRETE ON 2"-20GA COMPOSITE STEEL DECK. TOTAL THICKNESS = 5-1/4". SEE TYPICAL SLAB DETAILS ON S400.
5. S2 INDICATES STEEL DECK SPAN DIRECTION. CONSTRUCTION SHALL BE 4-1/4" LIGHT WEIGHT CONCRETE ON 2"-20GA COMPOSITE STEEL DECK. TOTAL THICKNESS = 6-1/4". SEE TYPICAL SLAB DETAILS ON S400.
6. D1 INDICATES SPAN DIRECTION OF 1-1/2"-20GA CELLULAR METAL ROOF DECK (1.5BP), SEE S400 FOR ROOF CONSTRUCTION DETAILS.
7. D2 INDICATES SPAN DIRECTION OF 3"-20GA METAL ROOF DECK, SEE S400 FOR ROOF CONSTRUCTION DETAIL.
8. D3 INDICATES SPAN DIRECTION OF 1-1/2"-20GA WIDE RIB-B METAL ROOF DECK, SEE S400 FOR ROOF CONSTRUCTION DETAILS.
9. "VF#" INDICATES VERTICAL FRAME, SEE S600's FOR ELEVATIONS AND DETAILS.
10. MINIMUM COMPOSITE BEAM REACTION TO BE 10k, UNO.
11. "▶——" INDICATES MOMENT CONNECTION. ALL MOMENT CONNECTIONS TO BE DESIGNED BY STEEL FABRICATOR, SEE REACTIONS SHOWN ON PLAN.
12. FOR TYPICAL FLOOR FRAMING DETAILS, SEE S400.
13. SEE S500 FOR COLUMN SCHEDULE.
14. FOR TYPICAL MASONRY DETAILS, SEE S302.
15. "Pu" INDICATES AXIAL LOAD (FACTORED) THAT BEAM AND CONNECTIONS ARE TO BE DESIGNED FOR.
16. ELEVATOR GUIDE RAIL SUPPORT SHALL BE HSS4x4x5/16 ON EACH SIDE OF ELEVATOR ANCHORED TO EACH FLOOR WITH (2) 5/8"Ø SIMPSON TITEN SCREWS AND CLIP CONNECTION AT TOP WITH 5/16" PLATE AND 3/4"Ø BOLT WITH VERTICAL LONG SLOT HOLE.
17. ALL REACTIONS SHOWN ARE FACTORED.

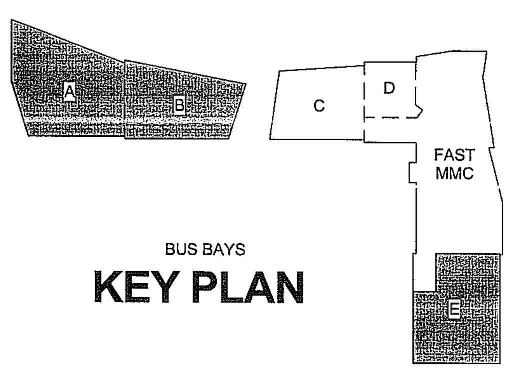


# FLOOR FRAMING PLAN -TENANT SPACES

2 / S104b

1/8" = 1'-0"

NOTES:
SEE 1/S104a FOR NOTES.

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**FAST Multi-Modal Center**

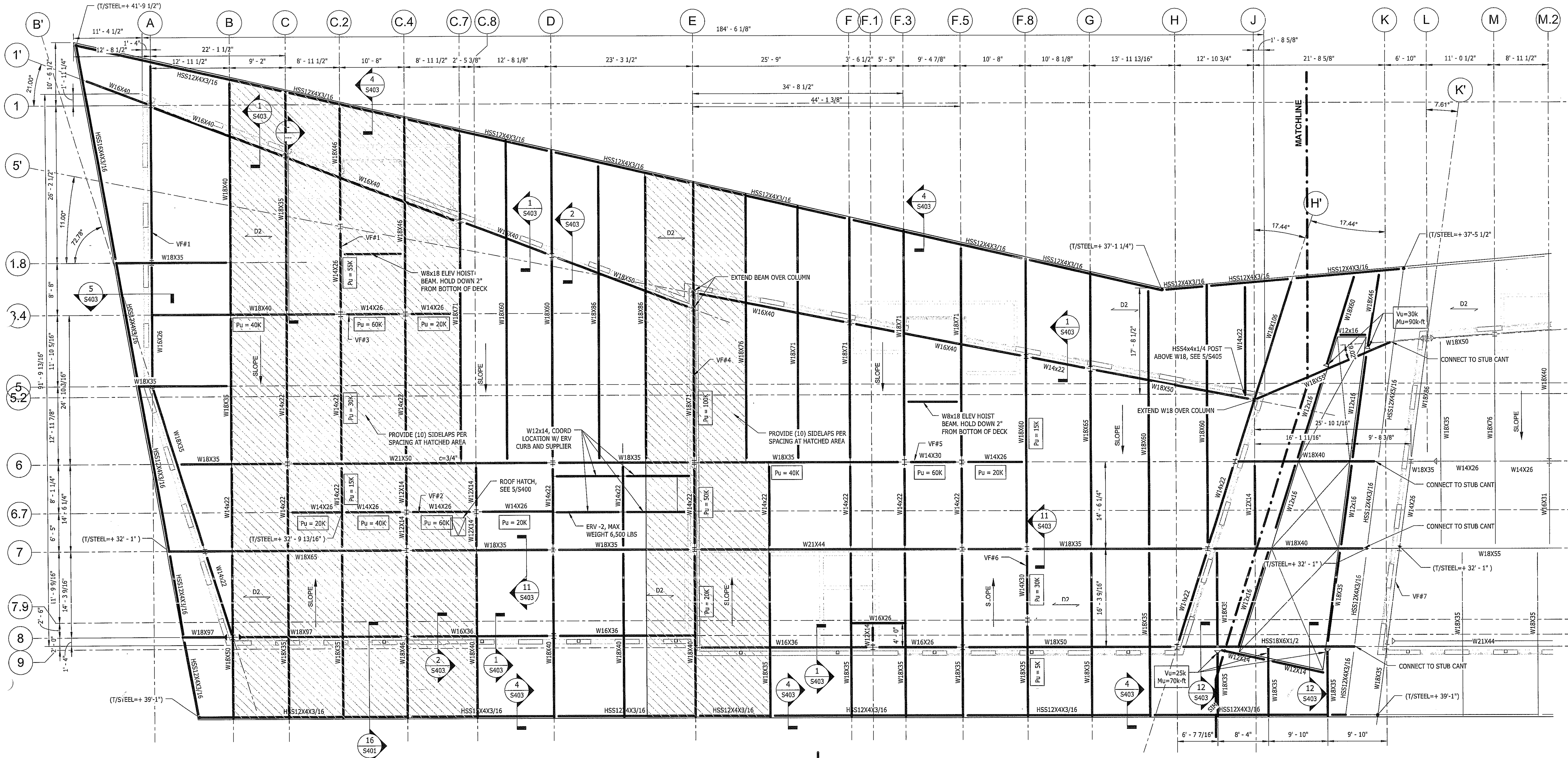
City of Fayetteville
Fayetteville, NC

Project Number 621A

Title
**Floor Framing Plan - Tenant Spaces**

Sheet
# S104b

Plate of



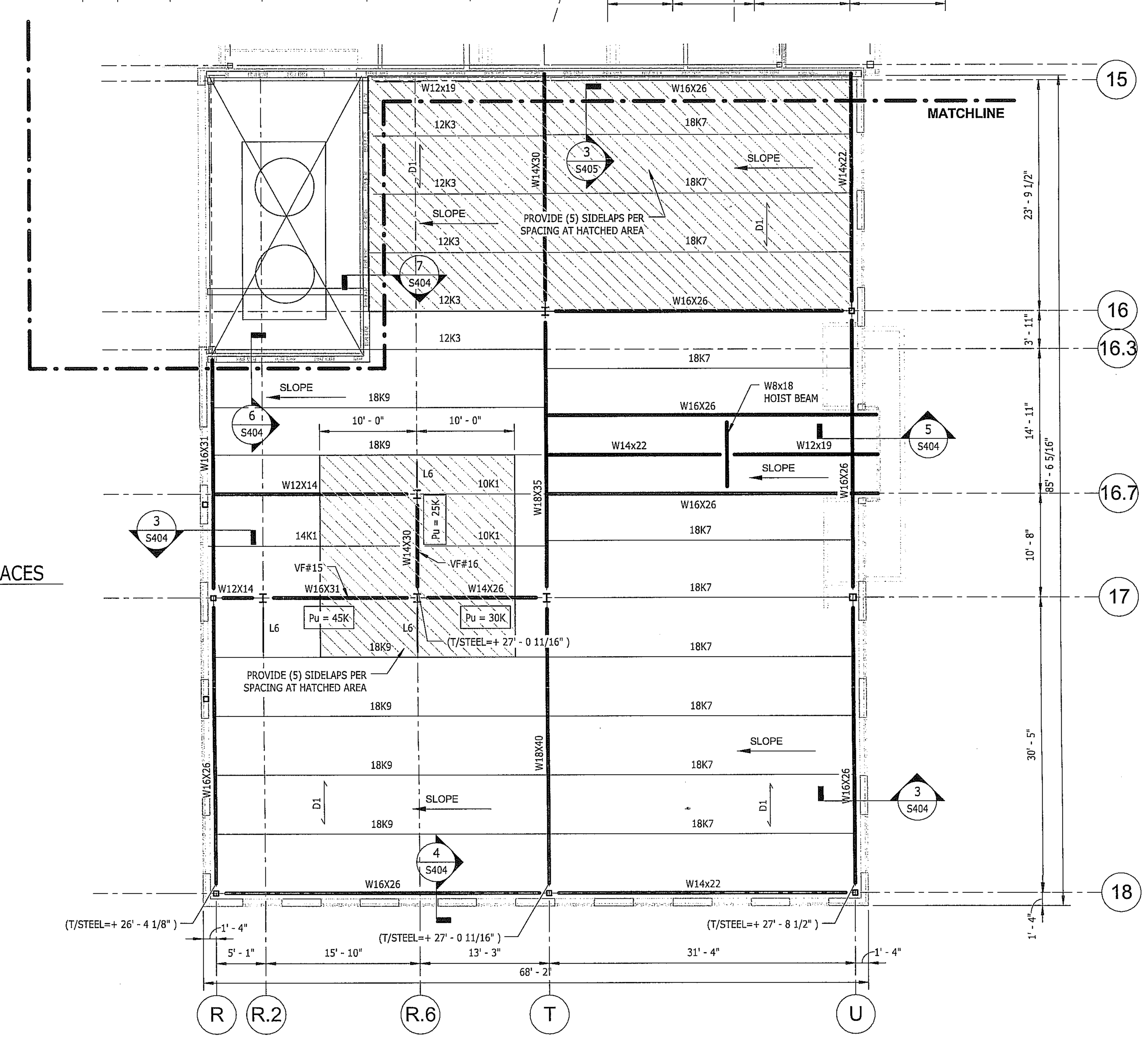

## ROOF FRAMING PLAN -TENANT SPACES

1 / S104c

1/8" = 1'-0"

NOTES:

1. FOR GENERAL NOTES AND ABBREVIATIONS, SEE S001.
2. D1 INDICATES SPAN DIRECTION OF 1-1/2"-20GA METAL CELLULAR ROOF DECK (1.5BP), SEE 3/S400 FOR ROOF CONSTRUCTION DETAILS.
3. D2 INDICATES SPAN DIRECTION OF 3"-20GA METAL ROOF DECK, SEE 3/S400 FOR ROOF CONSTRUCTION DETAILS.
4. D3 INDICATES 1-1/2"-20GA WIDE RIB-B METAL ROOF DECK, SEE 3/S400 FOR ROOF CONSTRUCTION DETAILS.
5. D4 INDICATES POLYCARBONATE ROOF SYSTEM BY SUPPLIER, SEE ARCH FOR CONSTRUCTION DETAIL.
6. "VF#" INDICATES VERTICAL FRAME, SEE S600's FOR ELEVATIONS AND DETAILS.
7. "▶——" INDICATES MOMENT CONNECTION. ALL MOMENT CONNECTIONS TO BE DESIGNED BY STEEL FABRICATOR. SEE REACTIONS SHOWN ON PLAN.
8. FOR TYPICAL ROOF FRAMING DETAILS, SEE S400.
9. SEE S500 FOR COLUMN SCHEDULE.
10. "Pu" INDICATES AXIAL LOAD (FACTORED) THAT BEAM AND CONNECTIONS ARE TO BE DESIGNED FOR.
11. T/STEEL (+1'-0"). TOP OF STEEL RELATIVE TO REFERENCE ELEVATION.
12. BOD (+1'-0"). BOTTOM OF ROOF DECK ELEVATION RELATIVE TO REFERENCE ELEVATION.
13. ELEVATOR GUIDE RAIL SUPPORT SHALL BE HSS4x4x5/16 ON EACH SIDE OF ELEVATOR ANCHORED TO EACH FLOOR WITH (2) 5/8"Ø SIMPSON TITEN SCREWS AND CLIP CONNECTION AT TOP WITH 5/16" PLATE AND 3/4"Ø BOLT WITH VERTICAL LONG SLOT HOLE.
14. ALL STEEL NOTED ON PLAN SHALL BE FIREPROOFED WITH SPRAY ON FIREPROOFING.
15. STEEL EXTENDING THRU AND BORDER BREEZEWAY SKYLIGHT SHALL BE GALVANIZED.



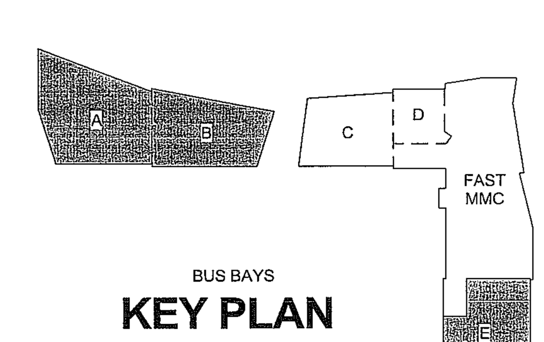

## ROOF FRAMING PLAN -TENANT SPACES

2 / S104c

1/8" = 1'-0"

NOTES:

SEE 1/S104c FOR NOTES.

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**FAST Multi-Modal Center**

City of Fayetteville
Fayetteville, NC

Project Number 621A

Title
**Roof Framing Plans - Tenant Spaces**

Sheet
# S104c

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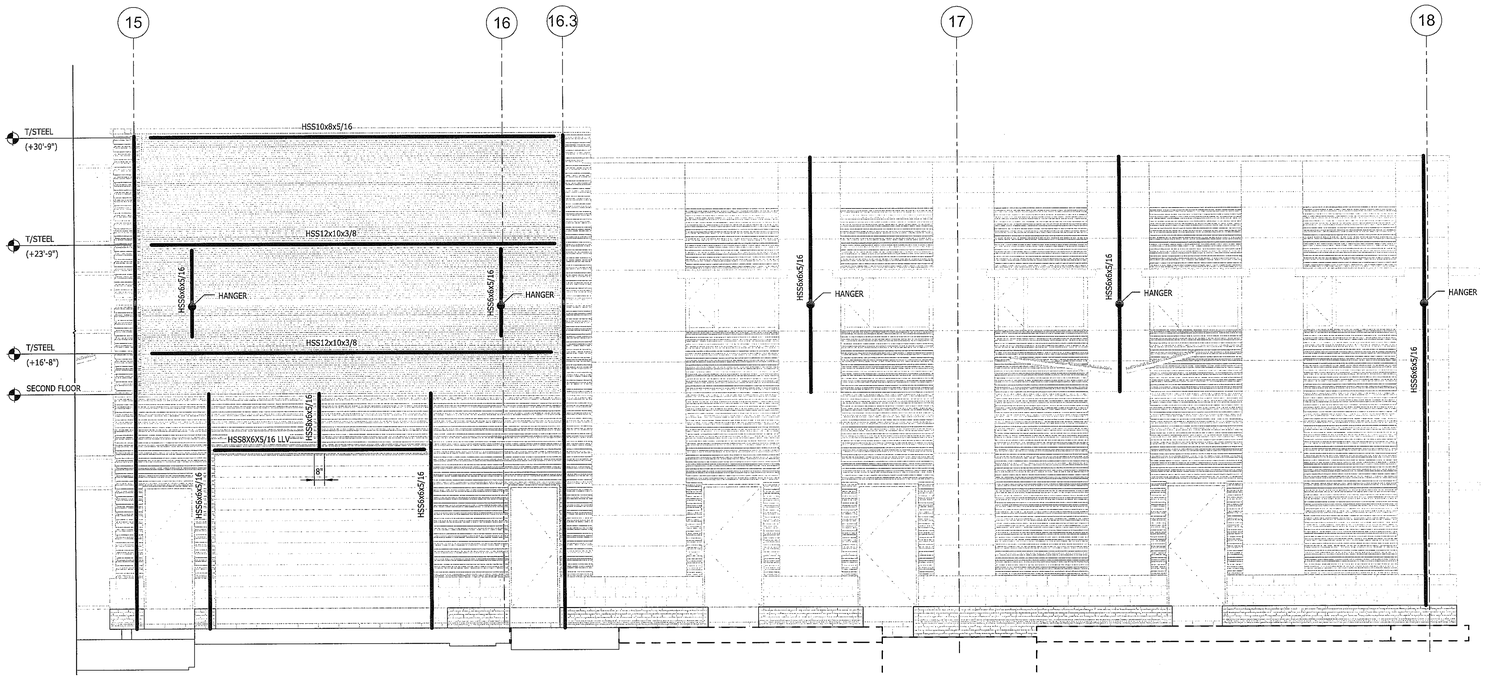
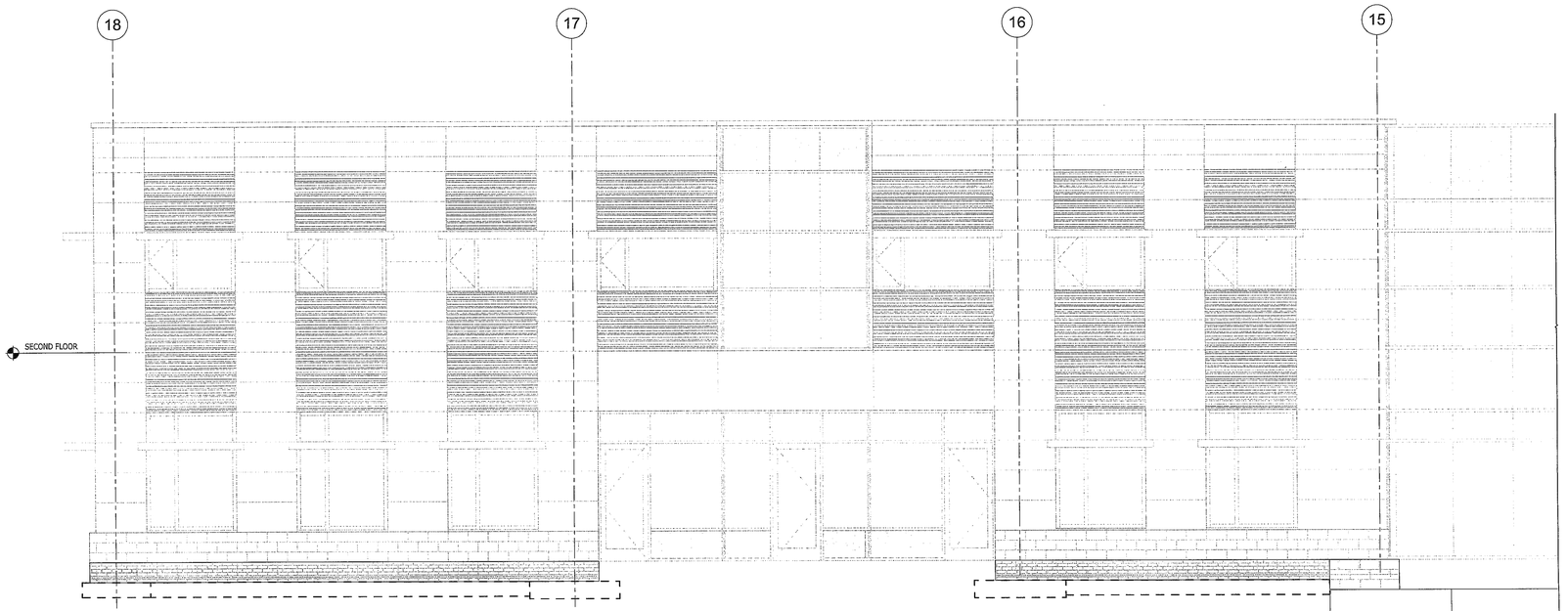



1 S200 WALL FRAME ELEVATION AREA E - WEST ELEVATION

1/4" = 1'-0"

NOTES:

1. PROVIDE HSS FRAMES AT LOCATIONS SHOWN ON ELEVATIONS, SEE 1/S402 FOR TYPICAL FRAMED DETAILS.
2. METAL STUD SUPPLIER TO DESIGN AND PROVIDE ALL FRAMING INCLUDING JAMB STUDS AT ALL OPENINGS WITHOUT STEEL FRAMES. COORDINATE ALL FRAMING WITH ARCHITECTURAL DRAWINGS. COORDINATE STUD DESIGN WITH WINDOW SHADE SUPPLIER, INCLUDING CONNECTIONS AND REACTIONS. PRELIMINARY REACTIONS AT EACH END OF 6'-0" LONG SUNSHADE IS 660lbs VERTICAL REACTION AND 600 ft-lb OVERTURNING MOMENT.




2 S200 WALL FRAME ELEVATION AREA E - EAST ELEVATION

1/4" = 1'-0"

FOR NOTES SEE 1/S200.

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**FAST Multi-Modal Center**
City of Fayetteville
Fayetteville, NC

Project Number 621A

Title
**Steel Window Frames**

Sheet
# S200

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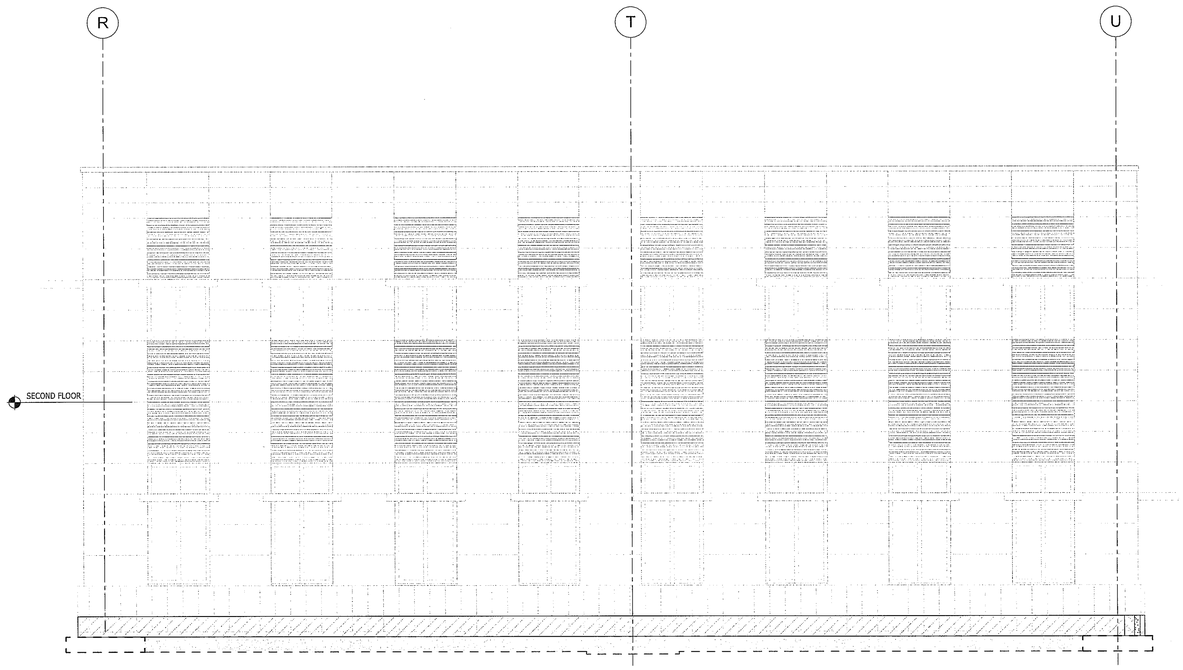
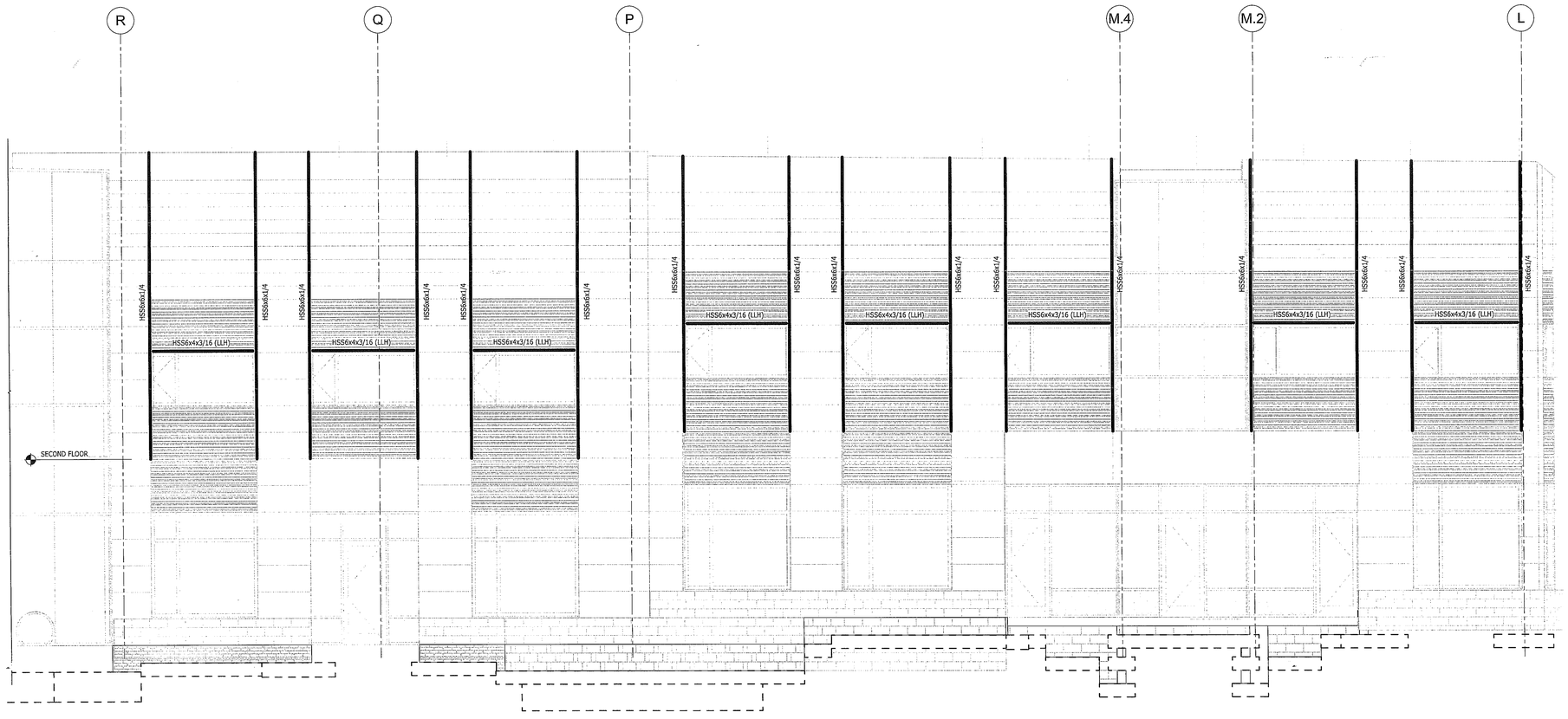



1 / S201 WALL FRAME ELEVATION AREA E - SOUTH ELEVATION

1/4" = 1'-0"

NOTES:

1. PROVIDE HSS FRAMES AT LOCATIONS SHOWN ON ELEVATIONS, SEE 1/S402 FOR TYPICAL FRAMED DETAILS.
2. METAL STUD SUPPLIER TO DESIGN AND PROVIDE ALL FRAMING INCLUDING JAMB STUDS AT ALL OPENINGS WITHOUT STEEL FRAMES. COORDINATE ALL FRAMING WITH ARCHITECTURAL DRAWINGS. COORDINATE STUD DESIGN WITH WINDOW SHADE SUPPLIER, INCLUDING CONNECTIONS AND REACTIONS. PRELIMINARY REACTIONS AT EACH END OF 6'-0" LONG SUNSHADE IS 660lbs VERTICAL REACTION AND 600 ft-lb OVERTURNING MOMENT.




2 / S201 WALL FRAME ELEVATION AREA C/D - NORTH ELEVATION

1/4" = 1'-0"

FOR NOTES SEE 1/S201.

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**FAST Multi-Modal Center**
City of Fayetteville
Fayetteville, NC

Project Number 621A

Title
**Steel Window Frames**

Sheet
# S201

Plate of

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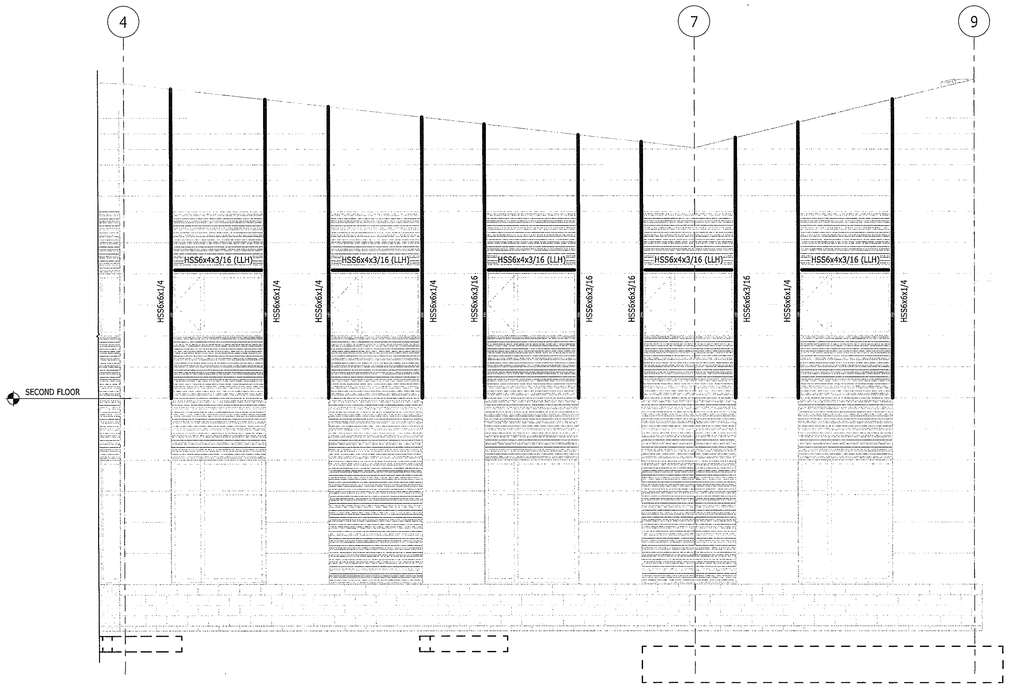
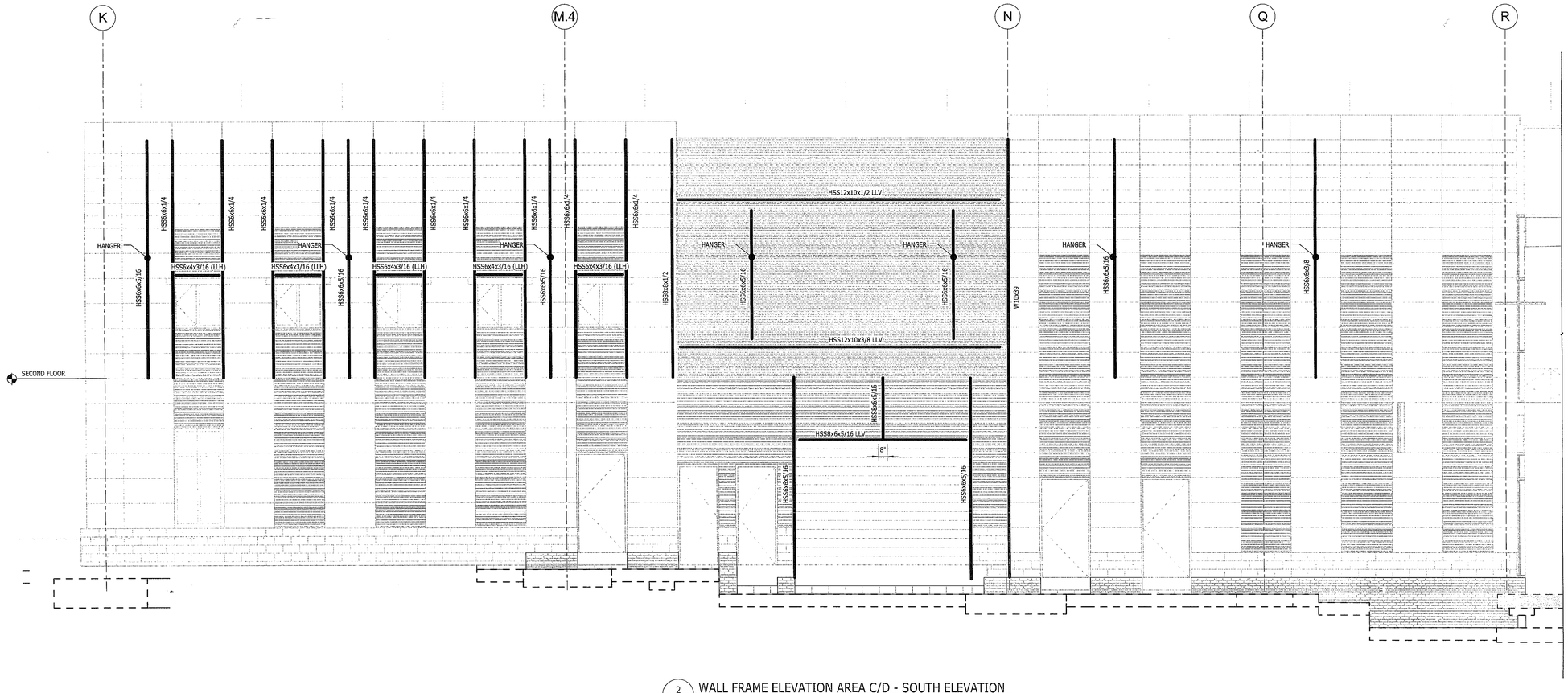



1 / S202 WALL FRAME ELEVATION AREA C - WEST ELEVATION

1/4" = 1'-0"

NOTES:

1. PROVIDE HSS FRAMES AT LOCATIONS SHOWN ON ELEVATIONS. SEE 1/S402 FOR TYPICAL FRAMED DETAILS.
2. METAL STUD SUPPLIER TO DESIGN AND PROVIDE ALL FRAMING INCLUDING JAMB STUDS AT ALL OPENINGS WITHOUT STEEL FRAMES. COORDINATE ALL FRAMING WITH ARCHITECTURAL DRAWINGS. COORDINATE STUD DESIGN WITH WINDOW SHADE SUPPLIER, INCLUDING CONNECTIONS AND REACTIONS. PRELIMINARY REACTIONS AT EACH END OF 6'-0" LONG SUNSHADE IS 660lbs VERTICAL REACTION AND 600 ft-lb OVERTURNING MOMENT.




2 / S202 WALL FRAME ELEVATION AREA C/D - SOUTH ELEVATION

1/4" = 1'-0"

FOR NOTES SEE 1/S202.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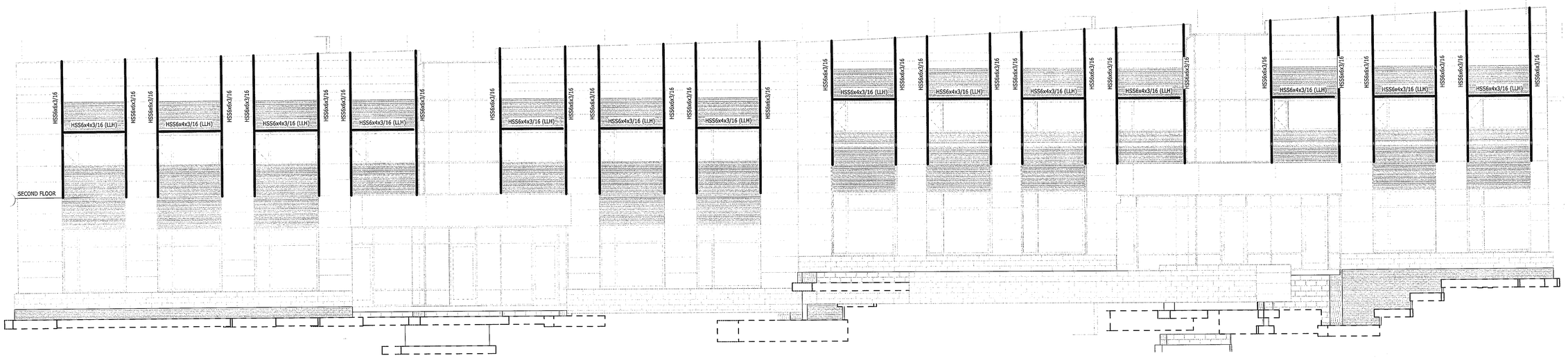
**FAST Multi-Modal Center**
City of Fayetteville
Fayetteville, NC

Project Number 621A

Title
**Steel Window Frames**

Sheet
# S202

Plate of

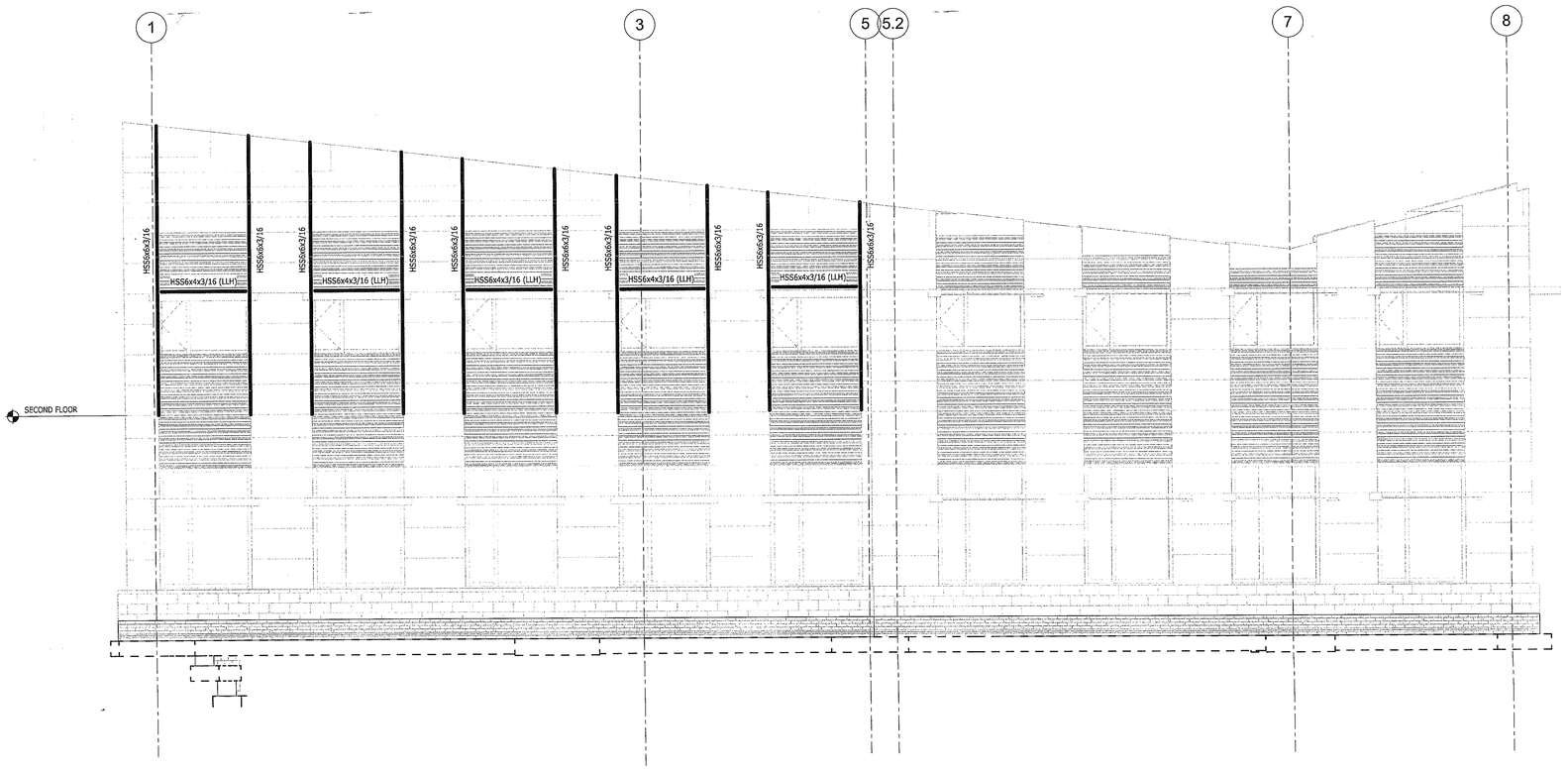



1 S203 WALL FRAME ELEVATION AREA A/B - NORTH ELEVATION

3/16" = 1'-0"

NOTES:

1. PROVIDE HSS FRAMES AT LOCATIONS SHOWN ON ELEVATIONS, SEE 1/S402 FOR TYPICAL FRAMED DETAILS.
2. METAL STUD SUPPLIER TO DESIGN AND PROVIDE ALL FRAMING INCLUDING JAMB STUDS AT ALL OPENINGS WITHOUT STEEL FRAMES. COORDINATE ALL FRAMING WITH ARCHITECTURAL DRAWINGS. COORDINATE STUD DESIGN WITH WINDOW SHADE SUPPLIER, INCLUDING CONNECTIONS AND REACTIONS. PRELIMINARY REACTIONS AT EACH END OF 6'-0" LONG SUNSHADE IS 660lbs VERTICAL REACTION AND 600 ft-lb OVERTURNING MOMENT.




2 S203 WALL FRAME ELEVATION AREA A - WEST ELEVATION

1/4" = 1'-0"

FOR NOTES SEE 1/S203.

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R11052

NORTH CAROLINA PROFESSIONAL SEAL 024096 ENGINEER MICHAEL K. GARDNER 1/28/14

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| Checked | MAG |
| Date | January 31, 2014 |
| Revisions | |

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**FAST Multi-Modal Center**
City of Fayetteville
Fayetteville, NC

Project Number 621A

Title
**Steel Window Frames**

Sheet
# S203

Plate of

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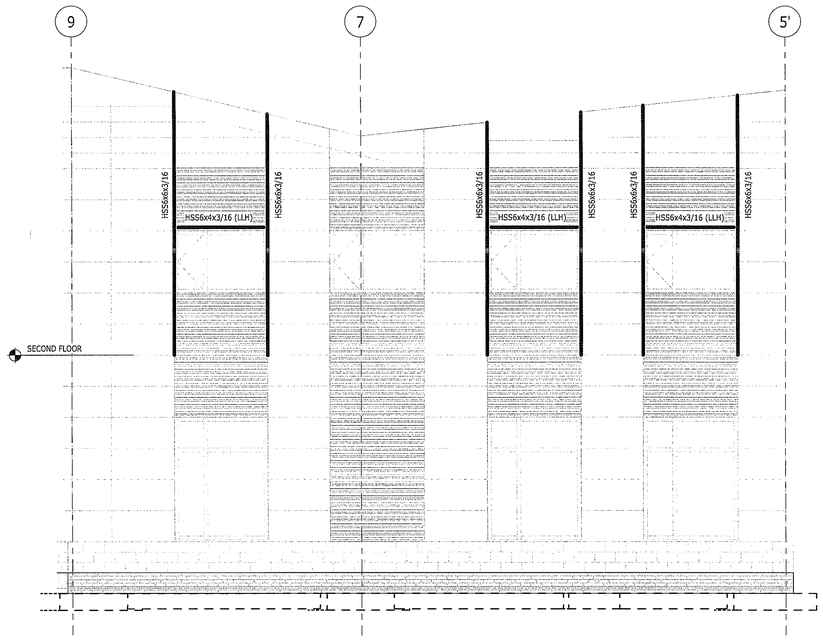
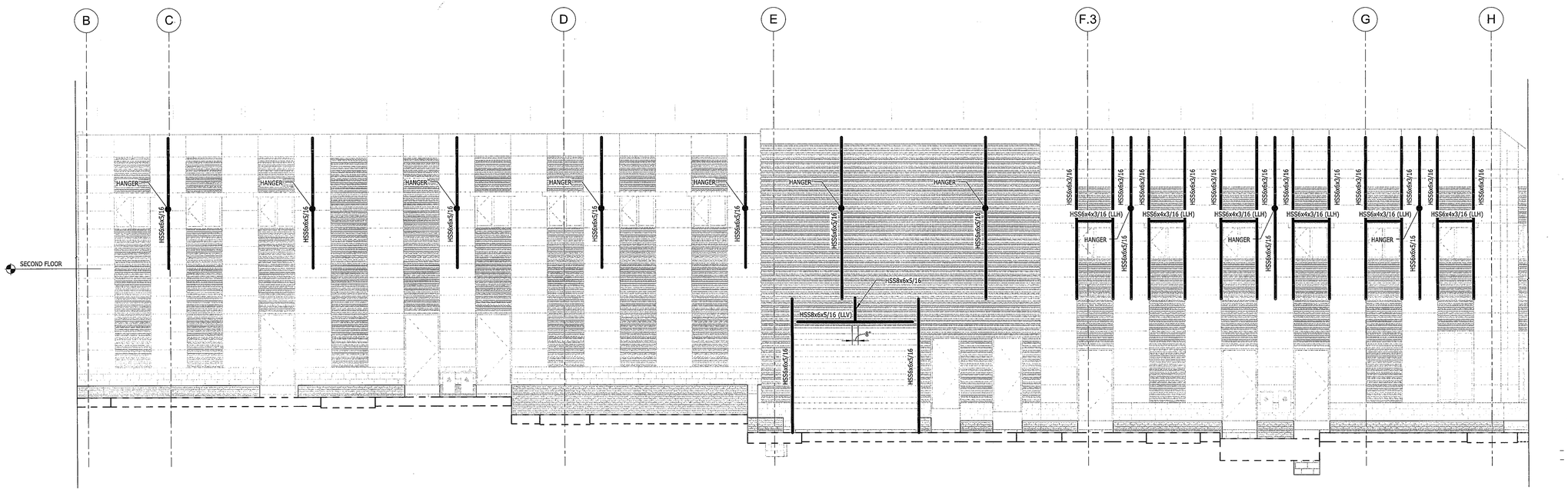



1 S204 WALL FRAME ELEVATION AREA B - EAST ELEVATION

1/4" = 1'-0"

NOTES:

1. PROVIDE HSS FRAMES AT LOCATIONS SHOWN ON ELEVATIONS, SEE 1/S402 FOR TYPICAL FRAMED DETAILS.
2. METAL STUD SUPPLIER TO DESIGN AND PROVIDE ALL FRAMING INCLUDING JAMB STUDS AT ALL OPENINGS WITHOUT STEEL FRAMES. COORDINATE ALL FRAMING WITH ARCHITECTURAL DRAWINGS. COORDINATE STUD DESIGN WITH WINDOW SHADE SUPPLIER, INCLUDING CONNECTIONS AND REACTIONS. PRELIMINARY REACTIONS AT EACH END OF 6'-0" LONG SUNSHADE IS 660lbs VERTICAL REACTION AND 600 ft-lb OVERTURNING MOMENT.




2 S204 WALL FRAME ELEVATION AREA A/B - SOUTH ELEVATION

3/16" = 1'-0"

FOR NOTES SEE 1/S204.

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NORTH CAROLINA PROFESSIONAL SEAL 024095 ENGINEER MICHAEL A GARRIGNA
12/5/14

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| Date | January 31, 2014 |
| Revisions | |

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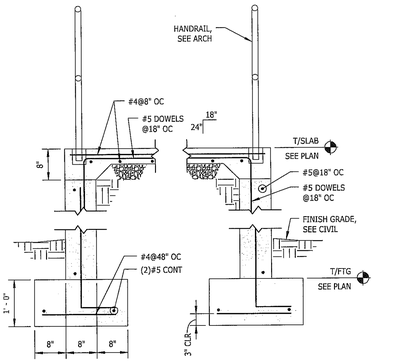
**FAST Multi-Modal Center**
City of Fayetteville
Fayetteville, NC

Project Number 621A

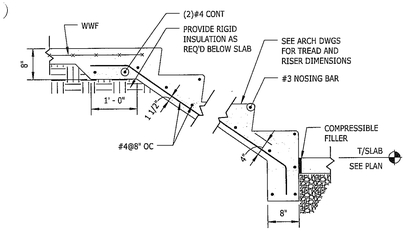
Title
**Steel Window Frames**

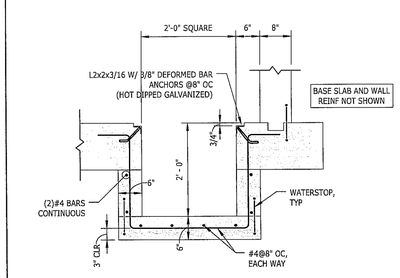
Sheet
# S204

Plate of

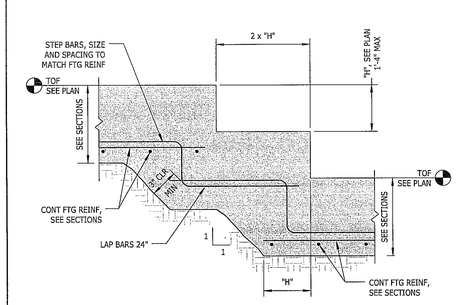



13 S300 STEPS ON GRADE
3/4" = 1'-0"

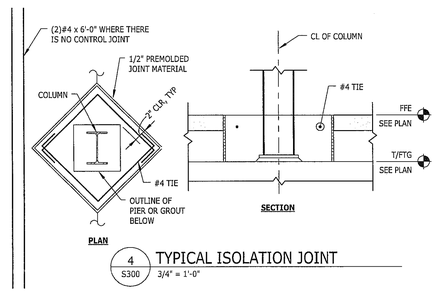


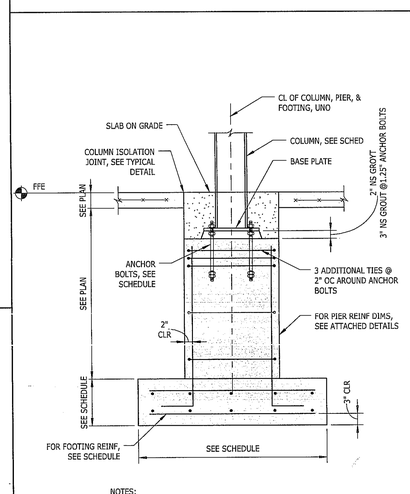

10 S300 ELEVATOR SUMP PIT
3/4" = 1'-0"



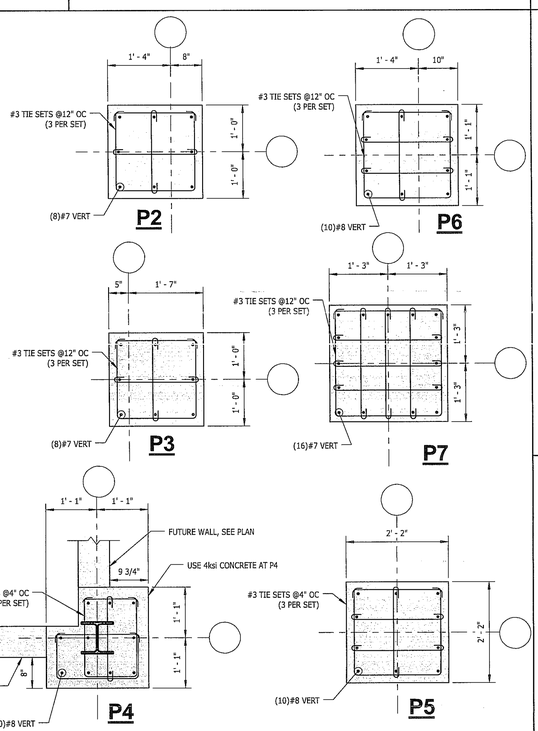

8 S300 TYPICAL FOOTING STEP
3/4" = 1'-0"

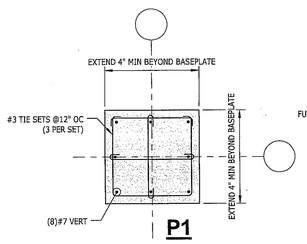



4 S300 TYPICAL ISOLATION JOINT
3/4" = 1'-0"




NOTES:
1. COAT BASE PLATE, ANCHOR BOLTS, AND COLUMN BELOW SLAB ON GRADE WITH AN APPROVED ASPHALT PAINT.
2. PROVIDE STANDARD ACI 90° HOOK AT BOTTOM END OF ALL VERTICAL BARS IN PIER.
3. CAST PIERS MONOTHICALLY WITH WALL.



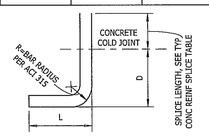

11 S300 TYPICAL PIER FOOTING AT STEEL COLUMN
3/4" = 1'-0"

| BAR SIZES | F'c=3 KSI | F'c=3.5 KSI | F'c=4 KSI |
|---|---|---|---|
| #3 | 1'-10" | 1'-8" | 1'-7" |
| #4 | 2'-4" | 2'-2" | 2'-1" |
| #5 | 3'-0" | 2'-9" | 2'-7" |
| #6 | 3'-7" | 3'-4" | 3'-1" |
| #7 | 5'-2" | 4'-10" | 4'-6" |
| #8 | 5'-11" | 5'-6" | 5'-2" |
| #9 | 6'-6" | 6'-2" | 5'-10" |
| #10 | 7'-6" | 7'-0" | 6'-6" |
| #11 | 8'-4" | 7'-9" | 7'-3" |

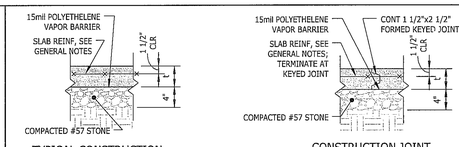
SPLICE LENGTH

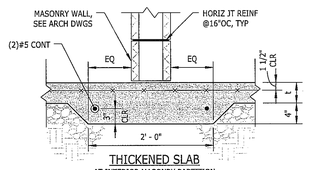
5 S300 CONCRETE REINFORCING SPLICES
3/4" = 1'-0"

| BAR SIZES | LEG-DIM "L" | EMBEDMENT "D" | | |
|---|---|---|---|---|
| | | 3 KSI | 3.5 KSI | 4 KSI |
| #3 | 6" | 9" | 8" | 7" |
| #4 | 8" | 11" | 10" | 10" |
| #5 | 10" | 1'-2" | 1'-1" | 1'-0" |
| #6 | 1'-0" | 1'-5" | 1'-3" | 1'-2" |
| #7 | 1'-2" | 1'-7" | 1'-6" | 1'-5" |
| #8 | 1'-4" | 1'-10" | 1'-8" | 1'-7" |
| #9 | 1'-7" | 2'-1" | 1'-11" | 1'-9" |
| #10 | 1'-10" | 2'-4" | 2'-2" | 2'-0" |
| #11 | 2'-0" | 2'-7" | 2'-5" | 2'-3" |




6 S300 CONCRETE REINFORCING DOWEL EMBED
3/4" = 1'-0"



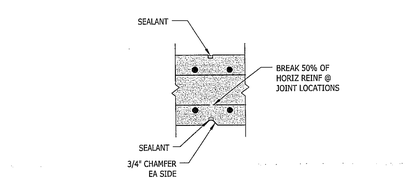




1 S300 TYPICAL SLAB ON GRADE DETAILS
1" = 1'-0"

NOTES:
1. 't' DENOTES SLAB THICKNESS, SEE PLANS.
2. SEE PLANS FOR LOCATION OF CONTROL JOINTS. WHERE NOT SHOWN ON PLAN, CONTACT THE ENGINEER.
3. SAW CUT CONTROL JOINTS WITHIN 8 HOURS OF SLAB POUR.

2 S300 Footing Schedule

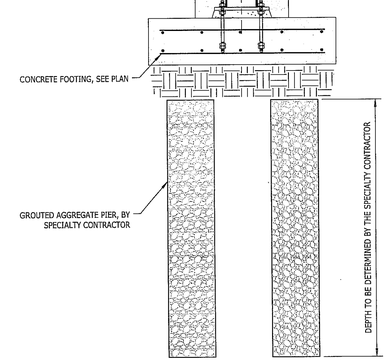
| MARK | SIZE LENGTH | SIZE WIDTH | SIZE DEPTH | REINFORCEMENT (EACH WAY) TOP BARS | REINFORCEMENT (EACH WAY) BOTTOM BARS |
|---|---|---|---|---|---|
| ELEVATOR | 11' - 5 5/16" | 9' - 8 1/2" | 1' - 0" | | |
| ELEVATOR @J&K | 11' - 4 9/16" | 9' - 3" | 1' - 0" | | |
| ELEVATOR @RETAIL A | 8' - 1 1/8" | 11' - 11 7/16" | 1' - 0" | | |
| ELEVATOR @RETAIL B&C | 8' - 1 1/8" | 11' - 11 7/16" | 1' - 0" | | |
| F4 | 4' - 0" | 4' - 0" | 1' - 0" | NA | (5)#5 |
| F4.5 | 4' - 6" | 4' - 6" | 1' - 0" | | (4)#5 |
| F5 | 5' - 0" | 5' - 0" | 1' - 0" | NA | (5)#5 |
| F5.5 | 5' - 6" | 5' - 6" | 1' - 1" | | (6)#5 |
| F6 | 6' - 0" | 6' - 0" | 1' - 2" | NA | (7)#5 |
| F6.5 | 6' - 6" | 6' - 6" | 1' - 4" | | (8)#5 |
| F6A | 6' - 0" | 6' - 0" | 1' - 8" | | (7)#6 |
| F6B | 6' - 6" | 6' - 6" | 2' - 3" | | |
| F7 | 7' - 0" | 7' - 0" | 1' - 5" | NA | (6)#6 |
| F8 | 8' - 0" | 8' - 0" | 1' - 7" | NA | (9)#6 |
| F9 | 9' - 0" | 9' - 0" | 1' - 10" | | (10)#6 |
| F12x7 | 12' - 0" | 7' - 0" | 1' - 8" | (8)#6LW, (13)#5SW | (8)#6LW, (13)#5SW |
| F12x10 | 10' - 0" | 12' - 0" | 2' - 4" | (8)#5 | (13)#7 |
| F12x11 | 11' - 0" | 12' - 0" | 2' - 3" | (8)#5 | (13)#7 |
| F13.5x7.5 | 13' - 6" | 7' - 6" | 2' - 4" | (9)#6LW, (17)#5SW | (9)#6LW, (17)#5SW |
| F14 | 14' - 0" | 14' - 0" | 2' - 8" | (15)#5 | (15)#7 |
| F14.5x7.5 | 14' - 6" | 7' - 6" | 1' - 8" | (8)#6LW, (15)#5SW | (8)#6LW, (15)#5SW |
| F17 | 17' - 0" | 17' - 0" | 3' - 0" | (18)#5 | (18)#8 |
| F17x7 | 7' - 0" | 17' - 0" | 2' - 2" | (7)#6LW, (17)#5SW | (8)#6LW, (17)#5SW |
| F18 | 16' - 0" | 18' - 0" | 3' - 0" | (18)#6 | (18)#8 |
| F21x11 | 11' - 0" | 21' - 0" | 2' - 6" | (11)#6LW, (25)#6SW | (13)#6LW, (25)#6SW |
| F22X8 | 8' - 0" | 22' - 0" | 2' - 6" | (7)#6LW, (21)#5SW | (9)#6LW, (21)#5SW |
| F23.5x9 | 23' - 6" | 9' - 0" | 2' - 6" | (10)#6LW, (24)#6SW | (12)#6LW, (24)#6SW |
| F23x7.5 | 7' - 6" | 23' - 0" | 2' - 4" | (8)#6LW, (24)#6SW | (8)#6LW, (24)#6SW |
| F24x10A | 10' - 0" | 24' - 0" | 2' - 6" | (11)#6LW, (25)#6SW | (11)#6LW, (25)#6SW |
| F24x11 | 11' - 0" | 24' - 0" | 2' - 5" | (11)#7LW, (24)#5SW | (11)#7LW, (24)#5SW |
| F28.5x10 | 10' - 0" | 28' - 6" | 2' - 6" | (11)#6LW, (25)#6SW | (13)#6LW, (25)#6SW |
| F28.5x13 | 13' - 0" | 28' - 6" | 3' - 0" | (13)#6LW, (29)#6SW | (15)#6LW, (29)#6SW |



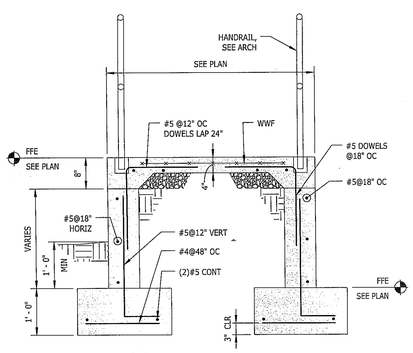

CONTROL JOINT (CJ)
(CONSTRUCTION JOINT SIMILAR)
(SPACE CONTROL JOINTS @ 20'-0"OC)

15 S300 TYPICAL JOINTS IN CONCRETE WALLS
3/4" = 1'-0"

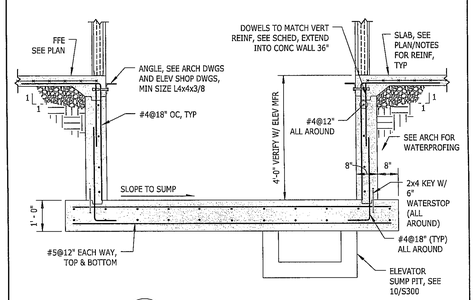
NOTES:
1. FOAM JOINT FILLER TO BE CLOSED CELL NEOPRENE FOAM.
2. SEALANT TO BE "TREMCO DYMERIC" OR EQUAL.
3. SUBMIT SAMPLES OF JOINT FILLER & SEALANT FOR APPROVAL.
4. ALL CHAMFERS TO BE ON EXPOSED FACE OF WALL.



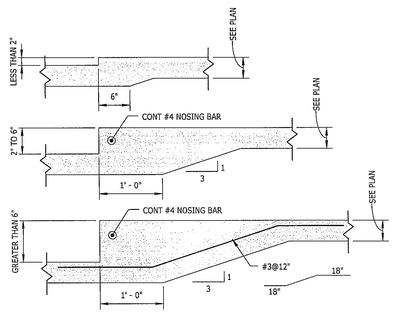

14 S300 GROUTED AGGREGATE PIER
3/4" = 1'-0"



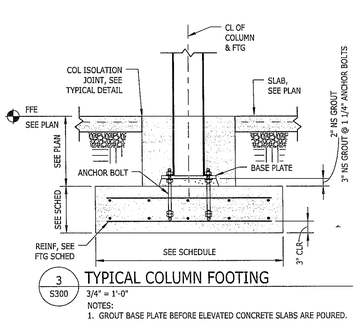

12 S300 RAMP
3/4" = 1'-0"




9 S300 ELEVATOR PIT
1/2" = 1'-0"




7 S300 TYPICAL AT DEPRESSIONS IN SLAB
1" = 1'-0"




3 S300 TYPICAL COLUMN FOOTING
3/4" = 1'-0"

NOTES:
1. GROUT BASE PLATE BEFORE ELEVATED CONCRETE SLABS ARE POURED.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| Revisions | |


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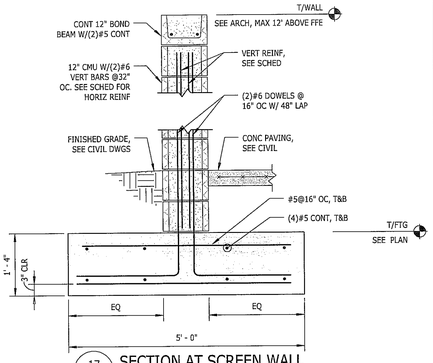
**FAST Multi-Modal Center**
City of Fayetteville
Fayetteville, NC

Project Number 621A

Title
**Foundation Details**

Sheet
# S300

Plate of

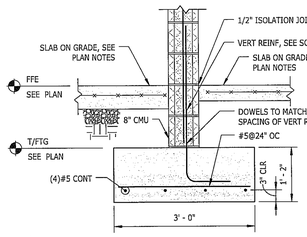



17 S301 SECTION AT SCREEN WALL

3/4" = 1'-0"

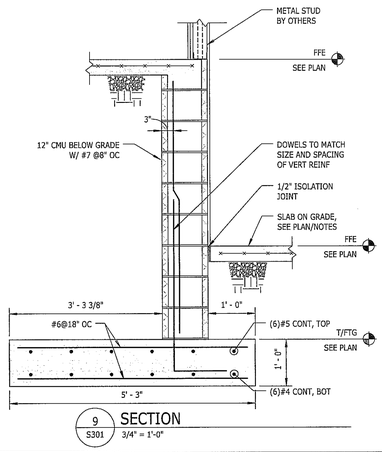
NOTES:

1. MINIMUM 3,000 PSF SOIL BEARING PRESSURE REQ'D.



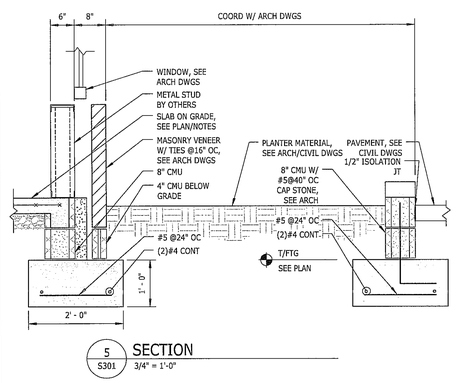

13 S301 SECTION

3/4" = 1'-0"



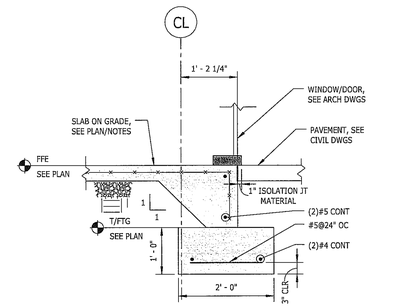

9 S301 SECTION

3/4" = 1'-0"




5 S301 SECTION

3/4" = 1'-0"

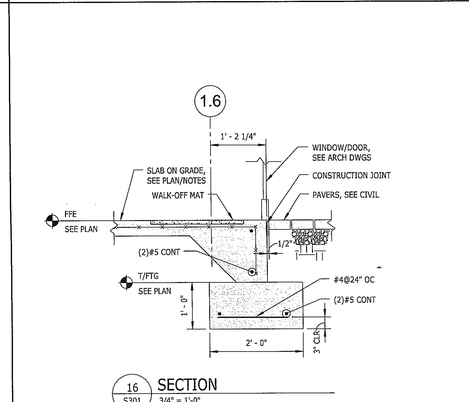



1 S301 SECTION

3/4" = 1'-0"

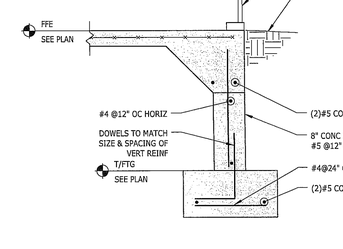
18 S301 SECTION

3/4" = 1'-0"




14 S301 SECTION

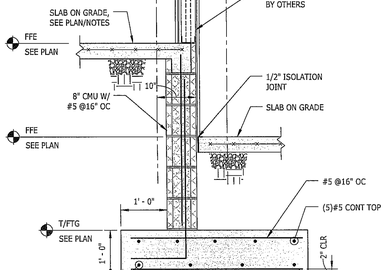
3/4" = 1'-0"




10 S301 SECTION AT DOOR

3/4" = 1'-0"

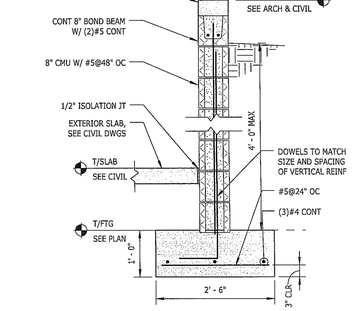
NOTE: SECTION APPLIES AT PEDESTRIAN DOORS.




6 S301 SECTION AT DOOR

3/4" = 1'-0"

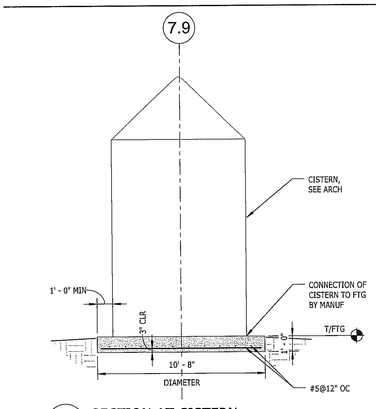
NOTE: THIS SECTION APPLIES TO OVERHEAD DOORS ONLY.




2 S301 SECTION

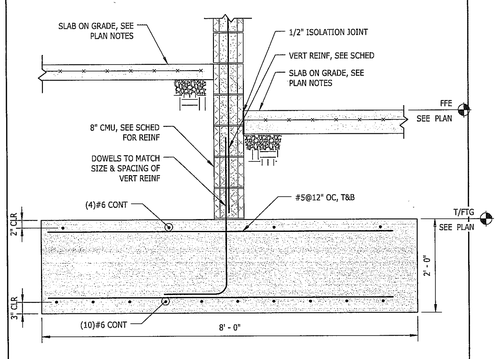
3/4" = 1'-0"

NOTE: SEE 12/S301 WHEN TOP OF FOOTING IS DEEPER THAN 2'-0" BELOW FFE.



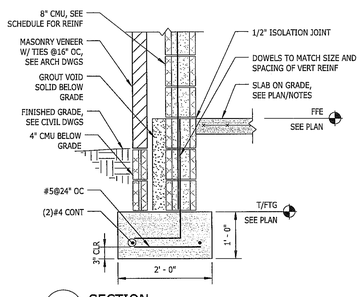

19 S301 SECTION AT CISTERN

1/4" = 1'-0"



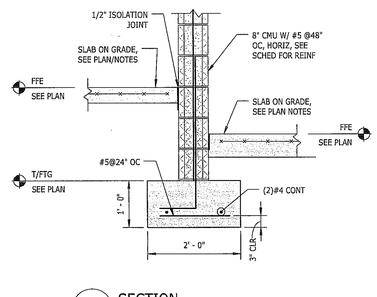

15 S301 SECTION

3/4" = 1'-0"



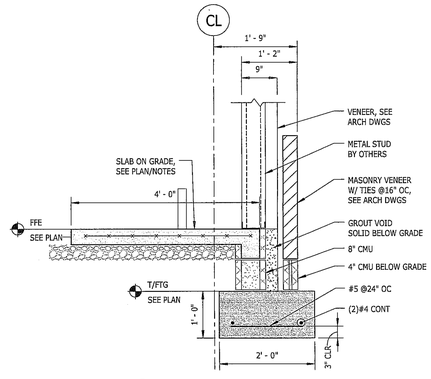

11 S301 SECTION

3/4" = 1'-0"




7 S301 SECTION

3/4" = 1'-0"




3 S301 SECTION

3/4" = 1'-0"

NOTE: SEE 12/S301 WHEN TOP OF FOOTING IS DEEPER THAN 2'-0" BELOW FFE.




16 S301 SECTION

3/4" = 1'-0"




12 S301 SECTION

3/4" = 1'-0"

NOTES:

1. BACKFILL BOTH SIDES OF WALL EVENLY.




8 S301 SECTION

3/4" = 1'-0"




4 S301 SECTION AT PLANTER

3/4" = 1'-0"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NORTH CAROLINA PROFESSIONAL SEAL 040496 ENGINEER MICHAEL A GARDNER

2/28/14

| | |
|---|---|
| Drawn | DJB |
| Checked | MAG |
| Date | January 31, 2014 |
| Revisions | |


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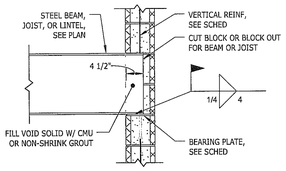
**FAST Multi-Modal Center**
City of Fayetteville
Fayetteville, NC

Project Number 621A

Title
**Foundation Details**

Sheet
# S301

Plate of




| LOCATION | WALL THICKNESS | PL SIZE | # OF (1/2Ø x6") STUDS |
|---|---|---|---|
| AT JOIST, BEAMS NOT SUPPORTING OTHER BEAMS, AND LINTELS | 8" | PL 1/2x7x0'-7" | 2 |
| AT BEAMS SUPPORTING JOIST OR OTHER BEAMS | 8" | PL 3/4x7x1'-0" | 4 |
| AT MP1 | 8" | PL 3/4x16x8" | 4 |

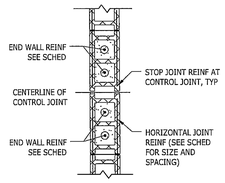
## 13 / S302 BEARING PLATE SCHEDULE
3/4" = 1'-0"

NOTE:
1. SEE PLAN FOR LOCATIONS NOT SHOWN IN SCHEDULE.

| CLEAR OPENING | LOOSE LINTEL ANGLE | WALL CONSTRUCTION |
|---|---|---|
| UP TO 5'-0" | L8x6x3/8 (LLH) | CMU + BRICK VENEER |

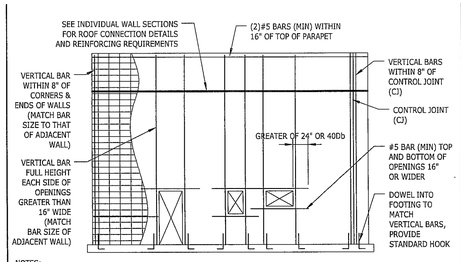
## 9 / S302 STEEL LOOSE LINTEL ANGLE SUPPORTING BRICK VENEER
3/4" = 1'-0"

NOTES:
1. ALL EXTERIOR LOOSE LINTELS SHALL BE GALVANIZED.
2. PROVIDE 8" MIN BEARING FOR OPENINGS UP TO 8'-0".
3. SEE ARCH DRAWINGS FOR ANGLE PLACEMENT AND FLASHING.
4. LOOSE LINTEL ANGLES ARE NOT SHOWN ON STRUCTURAL DRAWINGS. SEE ARCH DRAWINGS FOR ALL LOCATIONS OF OPENINGS REQUIRING ANGLES.
5. FOR ANY OPENINGS LARGER THAN THE SIZE SHOWN IN THE SCHEDULE, CONTACT THE STRUCTURAL ENGINEER.



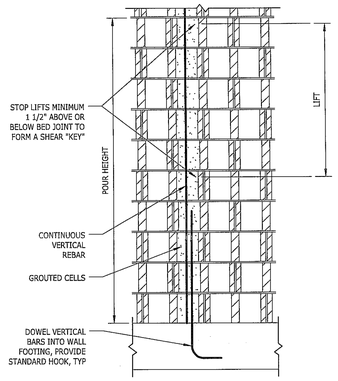

## 5 / S302 REINFORCING AT CMU CONTROL JOINT
3/4" = 1'-0"

NOTES:
1. COORDINATE CONTROL JOINT LOCATIONS WITH ARCHITECT.
2. ALL REINFORCING TO BE DOWELED INTO FOUNDATION.




NOTES:
1. REINFORCING SHOWN IS MINIMUM REQUIREMENT. INDIVIDUAL WALL SECTION REINFORCING REQUIREMENTS (SUCH AS NUMBER OR SIZE OF BARS) SHALL TAKE PRECEDENCE OVER THE REQUIREMENTS SHOWN HEREON. SEE INDIVIDUAL WALL SECTIONS AND SCHEDULES FOR VERTICAL REINFORCING REQUIREMENTS.
2. ALL DISCONTINUOUS REINFORCEMENT SHALL BE LAPPED PER SCHEDULE.
3. VERTICAL STEEL MUST BE SECURED IN PLACE BEFORE THE BLOCKS ARE LAID. ALL VERTICAL REINFORCEMENT SHALL BE CONTINUOUS THROUGH MASONRY LINTELS AND BOND BEAMS UNO.
4. AT OPENINGS WHERE STEEL BEAM LINTELS ARE PROVIDED REINFORCE THE JAMB CELL TO THE BEARING ELEVATION OF THE LINTEL, AND REINFORCE THE NEXT ADJACENT CELL PAST THE END OF THE BEAM FULL HEIGHT AS SHOWN IN THE DETAIL.
5. DETAIL DOES NOT APPLY TO INTERIOR NON-LOAD BEARING PARTITION WALLS.

## 3 / S302 MINIMUM CMU WALL GROUTING REQUIREMENTS
3/4" = 1'-0"

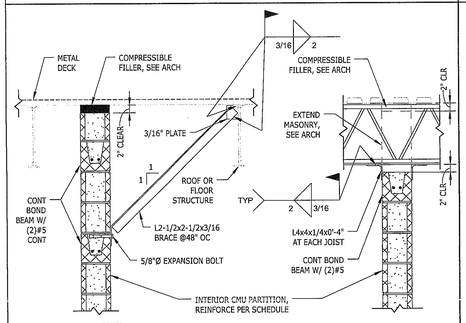



## 1 / S302 CMU GROUTING REQUIREMENTS
3/4" = 1'-0"

GENERAL GROUTING REQUIREMENTS
1. ALL REINFORCED CELLS SHALL BE GROUTED SOLID.
2. REINFORCING BARS SHALL BE IN PROPER POSITION PRIOR TO PLACEMENT OF GROUT, NOT PUSHED DOWN INTO PREVIOUSLY PLACED GROUT. SAME REQUIREMENT APPLIES FOR EMBEDDED BOLTS AND FASTENERS.
3. MORTAR BEDDING UNDER THE FIRST COURSE OF BLOCK CELLS TO BE GROUTED SHALL PERMIT GROUT TO COME INTO DIRECT CONTACT WITH FOUNDATION.
4. PLACE MORTAR ON CROSS WEBS ADJACENT TO ALL GROUTED CELLS.
5. MORTAR THAT PROJECTS MORE THAN 1/2" INTO CELLS THAT ARE TO BE GROUTED SHALL BE REMOVED.
6. GROUTED CELLS SHALL BE MECHANICALLY VIBRATED DURING PLACEMENT OF GROUT. TEN MINUTES AFTER PLACING GROUT, EACH GROUTED CELL SHALL BE RECONSOLIDATED WITH A VIBRATOR
7. METAL LATH SHALL BE PLACED UNDER ALL BOND BEAMS IN ORDER TO CONTAIN GROUT. AS AN ALTERNATE TO THIS, "U" SHAPED LINTEL BLOCKS MAY BE USED FOR BOND BEAMS.
8. EITHER LOW LIFT GROUTING OR HIGH LIFT GROUTING PROCEDURES MAY BE UTILIZED, AT THE CONTRACTORS OPTION.

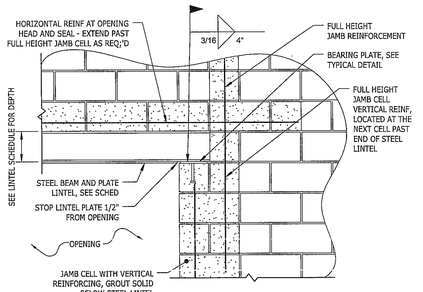
LOW LIFT GROUTING PROCEDURE
1. LAY WALL TO MAXIMUM OF 5'-0".
2. CLEAN MORTAR AND OTHER DEBRIS FROM CELLS TO BE GROUTED.
3. PLACE REINFORCING BARS IN PROPER POSITION.
4. PLACE GROUT UP TO LIFT HEIGHT AND VIBRATE.

HIGH LIFT GROUTING PROCEDURE
1. CLEANOUT OPENINGS SHALL BE PROVIDED IN THE FACE SHELLS OF THE BOTTOM COURSE OF ALL CELLS TO BE GROUTED. OPENINGS SHALL BE LARGE ENOUGH TO ALLOW REMOVAL OF DEBRIS.
2. LAY WALL TO MAXIMUM POUR HEIGHT AND CLEAN DEBRIS FROM OPENINGS. PLACE REINFORCING BARS IN PROPER POSITION.
3. PLACE GROUT TO THE FOLLOWING HEIGHTS: MAXIMUM LIFT HEIGHT IS 5'-0": MAXIMUM POUR HEIGHT IS 12'-0" UNLESS EXPRESSLY COORDINATED WITH THE STRUCTURAL ENGINEER.
4. AFTER INITIAL LIFT IS POURED AND VIBRATED, WAIT A MINIMUM OF 30 MINUTES AND A MAXIMUM OF 60 MINUTES BEFORE PLACING SUCCESSIVE LIFT. CONTINUE THIS PROCEDURE FOR A FULL POUR HEIGHT.

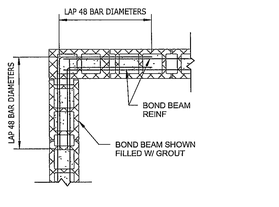



NOTES:
1. THIS DETAIL APPLIES WHERE THE DISTANCE BETWEEN INTERSECTING WALLS EXCEEDS 36 TIMES THE WALL THICKNESS.

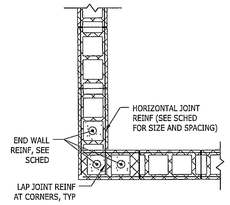
## 14 / S302 BRACING FOR INTERIOR CMU PARTITION, FULL HEIGHT WALLS
3/4" = 1'-0"




## 10 / S302 TYPICAL JAMB REINFORCING AT STEEL BEAM LINTEL
3/4" = 1'-0"

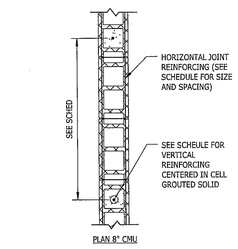



## 6 / S302 TYPICAL CORNER CMU BOND BEAM
3/4" = 1'-0"

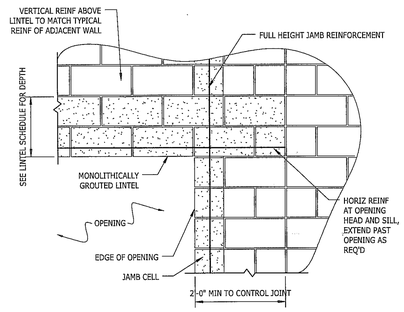



## 4 / S302 REINFORCING AT CORNER CMU
3/4" = 1'-0"

NOTE:
1. ALL REINFORCING TO BE DOWELED INTO FOUNDATION.

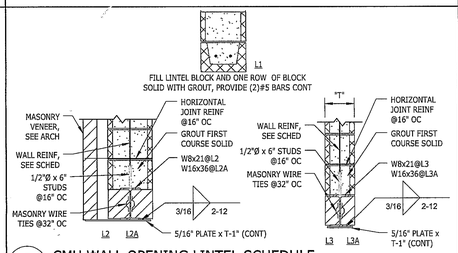



## 15 / S302 TYPICAL CMU WALL REINFORCING
3/4" = 1'-0"




## 11 / S302 TYPICAL CMU LINTEL/JAMB CONSTRUCTION
3/4" = 1'-0"

NOTES:
1. TYPICAL WALL REINFORCING AND CONTROL JOINT REINFORCING NOT SHOWN FOR CLARITY.




## 7 / S302 CMU WALL OPENING LINTEL SCHEDULE
3/4" = 1'-0"

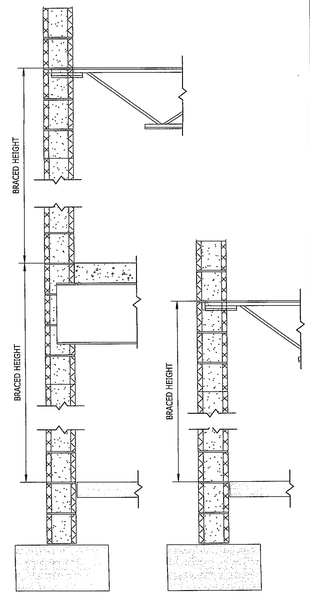
NOTES:
1. FOR LINTELS IN CMU WALLS, MATCH CORRESPONDING WALL WIDTH.
2. 1" MINIMUM CLEAR SPACE SHALL BE PROVIDED AROUND ALL REINFORCING.
3. WALL ABOVE LINTEL SHALL BE REINFORCED VERTICALLY SIMILAR TO WALL ON EITHER SIDE OF LINTEL.
4. HORIZONTAL REINFORCING SHALL EXTEND BEYOND EDGE OF OPENING PER LINTEL/JAMB REINFORCING DETAILS THIS SHEET.
5. LINTELS OVER OPENINGS NOT SHOWN ON PLAN SHALL BE AS FOLLOWS (INTERIOR OR EXTERIOR WALLS).
6. FOR OPENINGS UP TO 5'-0" PROVIDE TYPE L1 LINTEL. FOR OPENINGS UP TO 5'-0" IN CMU + BRICK WALL, PROVIDE TYPE L1 LINTEL AND SEE LOOSE LINTEL SCHEDULE FOR SIZE OF ANGLE.
7. FOR OPENINGS 5'-1" TO 10'-0" IN CMU + BRICK WALLS, PROVIDE TYPE L2 LINTEL WITH 8" BEARING. FOR OPENINGS 5'-1" TO 10'-0" IN CMU WALLS, PROVIDE TYPE L3 LINTEL WITH 8" BEARING.
8. FOR OPENINGS 10'-1" TO 16'-0" IN CMU + BRICK WALLS, PROVIDE TYPE L2A LINTEL WITH 8" BEARING. FOR OPENINGS 10'-1" TO 16'-0" IN CMU WALLS, PROVIDE TYPE L3A LINTEL WITH 8" BEARING.
9. ALL EXTERIOR LINTELS SHALL BE HOT-DIP GALVANIZED.
10. STEEL FABRICATOR TO INSTALL WIRE TIES TO BEAM DURING LINTEL FABRICATION. COORDINATE LOCATION AND SPACING WITH MASONRY CONTRACTOR.

| | BRACED WALL HEIGHT | VERTICAL REINFORCING | | HORIZONTAL REINFORCING |
|---|---|---|---|---|
| | | 8" CMU | | |
| | | VERTICAL REINFORCING | END WALL REINFORCING | |
| EXTERIOR, BEARING, AND NON-CANTILEVERED WALLS | UP TO 16'-0" | #6@48" OC | (1)#6 | 9 GA LADDER TYPE @ 16" OC |
| | OVER 16'-0" TO 24'-0" | #7@32" OC | (1)#7 | 9 GA LADDER TYPE @ 16" OC |
| SHEARWALLS | UP TO 16'-0" | #6@48" OC GROUT @24" OC | (3)#6 | 9 GA LADDER TYPE @ 16" OC |
| | OVER 16'-0" TO 24'-0" | #7@32" OC GROUT @24" OC | (2)#7 | 9 GA LADDER TYPE @ 16" OC |
| ALL OTHER WALLS SPANNING VERTICALLY | UP TO 16'-0" | #4@48" OC | (1)#4 | 9 GA LADDER TYPE @ 16" OC |
| | OVER 16'-0" TO 30'-0" | #6@40" OC | (1)#6 | 9 GA LADDER TYPE @ 16" OC |

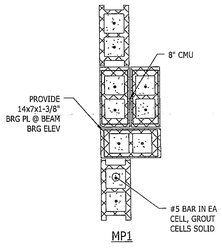
NOTES:
1. PROVIDE DOWELS EXTENDING INTO FOUNDATIONS FOR ALL VERTICAL REINFORCING BARS. SIZE AND LOCATION OF DOWELS TO MATCH VERTICAL REINFORCING.
2. ALL INTERIOR, NON-LOAD BEARING, NON-SHEARWALLS SHALL SPAN EITHER VERTICALLY OR HORIZONTALLY AT THE CONTRACTOR'S OPTION PER REQUIREMENTS BELOW.
3. ALL MASONRY WALLS TO BE ISOLATED FROM STEEL FRAMED STRUCTURE.
4. REFER TO PLAN FOR SHEAR WALL LOCATIONS, ENDS OF SHEAR WALLS OCCUR AT WALL INTERRUPTIONS DUE TO COLUMNS, WINDOWS, DOORS, END OF WALL, CONTROL JOINTS, EXPANSION JOINTS, ETC. REFER TO DETAILS AT END OF WALL REINFORCING.
5. EXTERIOR WALLS ARE ANY WALL WITH WIND EXPOSURE AT ANY POINT ALONG THE HEIGHT OF THE WALL.
6. PROVIDE (2)#5 BARS IN BOND BEAMS AT EACH FLOOR LEVEL AT TOPS OF WALLS NAD AS INDICATED IN SECTIONS AND SCHEDULES.
7. ALL MASONRY TO BE CONSTRUCTED IN RUNNING BOND PATTERN WITH INTERLOCKING CORNERS.
8. MORTAR TO BE MORTAR CEMENT, NOT MASONRY CEMENT.

HORIZONTAL SPANNING WALLS:
1. WALLS CON NOT SPAN HORIZONTALLY GREATER THAN 36 TIMES THE WALL THICKNESS.
2. WALLS TO BE INTERLOCKED WITH "T" TYPE HORIZONTAL LADDER TYPE REINFORCING.
3. PROVIDE MASONRY WIRE TIES @24" OC ON COLUMN ADJACENT TO HORIZONTALLY SPANNING MASONRY.

VERTICALLY SPANNING WALLS:
1. ALL VERTICALLY SPANNING WALLS ARE TO BE ANCHORED TO STEEL STRUCTURE PER DETAILS.
2. ALL WALLS NOT EXTENDING TO STRUCTURE SHALL BE LATERALLY BRACED IN ACCORDANCE WITH DETAILS.



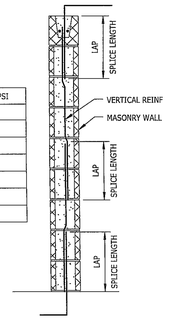

## 2 / S302 MASONRY WALL SCHEDULE
3/4" = 1'-0"




## 16 / S302 MASONRY PILASTER DETAIL
3/4" = 1'-0"

| BAR SIZE | f'm=1500 PSI, Fs= 24,000 PSI | | |
|---|---|---|---|
| | LAP SPLICE | | |
| #3 | 18" | | |
| #4 | 24" | | |
| #5 | 30" | | |
| #6 | 36" | | |
| #7 | 42" | | |
| #8 | 48" | | |

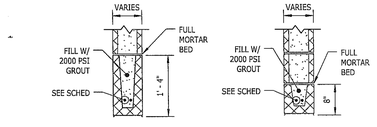
NOTE:
LAP SPLICE LENGTHS BASED ON A MAXIMUM STEEL STRESS EQUAL TO 80%*Fs




## 12 / S302 MINIMUM SPLICE AND EMBEDMENT LENGTHS
3/4" = 1'-0"

| OPENING SIZE \ LINTEL SIZE | 4"x8" | 6"x8" | 6"x16" | 8"X8" | 8"x16" | 12"x8" | 12"x16" |
|---|---|---|---|---|---|---|---|
| 3'-4" | 1#3 | 1#3 | | 1#3 | | 2#3 | |
| 4'-0" | 1#3 | 1#4 | | 2#3 | | 2#4 | |
| 4'-8" | 1#4 | 1#4 | | 2#4 | | 2#4 | |
| 5'-4" | 1#4 | 2#4 | | 2#4 | | 2#5 | |
| 6'-0" | 1#5 | 2#4 | 1#4 | 2#4 | 2#3 | 2#5 | 2#4 |
| 6'-8" | NA | NA | 1#5 | NA | 2#4 | 2#6 | 2#4 |

NOTES:
1. THIS SCHEDULE APPLIES TO OPENINGS AN ALL NON-LOAD BEARING WALLS AND PARTITIONS.
2. SEE ARCH DRAWINGS FOR SIZE AND LOCATIONS OF OPENINGS.
3. PROVIDE 8" OF BEARING AT EACH END OF ALL OPENINGS.
4. SEE 7/S302 WHERE OPENING EXCEEDS 6'-8".




## 8 / S302 INTERIOR NON-BEARING CMU LINTEL SCHEDULE
3/4" = 1'-0"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NORTH CAROLINA PROFESSIONAL SEAL 024096 ENGINEER RACHEL A. GARDNER 1/28/14

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| Date | January 31, 2014 |
| Revisions | |


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**FAST Multi-Modal Center**
City of Fayetteville
Fayetteville, NC

Project Number 621A

Title
**Typical Masonry Details**

Sheet
# S302

Plate of


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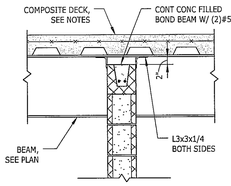
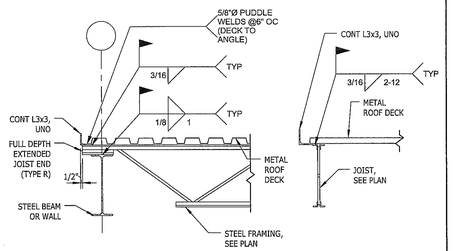



## 10 / S400 NON-LOAD BEARING CMU WALL BRACE

3/4" = 1'-0"

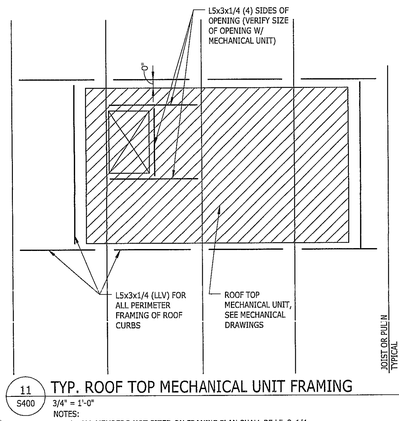
NOTES:
1. THIS DETAIL APPLIES WHERE THE DISTANCE BETWEEN INTERSECTING WALLS EXCEEDS 20'-0" FOR 8" CMU.
2. WHERE L2x2 BRACING ANGLES EXCEED 6'-0" IN LENGTH, USE L3x3x1/4 FOR LENGTHS BETWEEN 6'-0" AND 9'-0" AND USE L4x4x1/4 FOR LENGTHS LONGER THAN 9'-0" TO BE APPROVED BY THE ENGINEER.




## 6 / S400 TYPICAL FRAMING AT PERIMETER

3/4" = 1'-0"

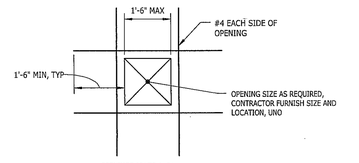
NOTES:
1. SEE OTHER DETAILS FOR INFORMATION NOT SHOWN.




## 11 / S400 TYP. ROOF TOP MECHANICAL UNIT FRAMING

3/4" = 1'-0"

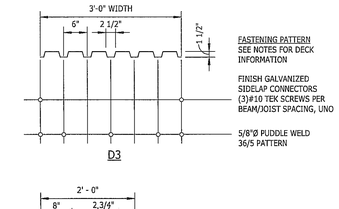
NOTES:
1. ALL MEMBERS NOT SIZED ON FRAMING PLAN SHALL BE L5x3x1/4.




## 7 / S400 TYPICAL FLOOR OPENING FRAMING

3/4" = 1'-0"

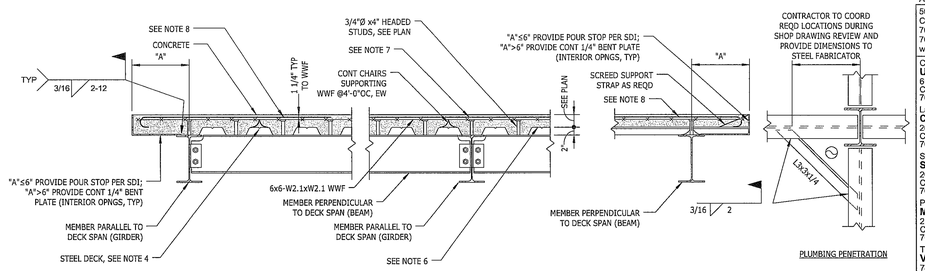
NOTES:
1. PROVIDE REINFORCING AROUND ALL DUCT PENETRATIONS, CHASES, ELECTRICAL BOXES, PLUMBING PIPES, AND OTHER OPENINGS IN SLABS, FOR OPENINGS FROM 10"x10" (OR 10"Ø) TO 2'-0"x2'-0" (OR 24"Ø).
2. OPENINGS THAT ARE SPACED CLOSER THAN 2x THE OPENING SIZE ARE CONSIDERED ONE OPENING.
3. MINIMUM DISTANCE BETWEEN OPENINGS IS 2'-0".
4. ANY OPENING THROUGH THE SLAB GREATER THAN 24"Ø NOT SHOWN ON THE DRAWINGS SHALL REQUIRE APPROVAL OF THE ENGINEER.




## 3 / S400 ROOF DECKING ATTACHMENT

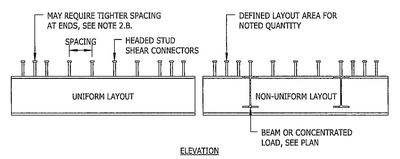
3/4" = 1'-0"

NOTES:
1. DECK SHALL BE CONTINUOUS OVER 3 OR MORE SPANS, TYPICAL.



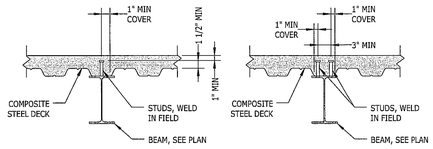

## COMPOSITE FLOOR CONSTRUCTION DETAIL

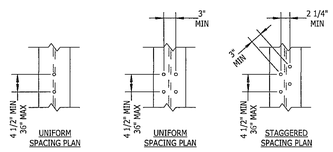
NOTES:
1. THIS DETAIL APPLIES TO DECK SUPPORTED COMPOSITE SLABS, AS INDICATED ON PLANS.
2. WELD DECK TO SUPPORTS PER FLOOR DECKING ATTACHMENT DETAIL.
3. SUPPORT DECK AROUND COLUMNS WITH COLUMN CLOSURE. WHERE PLUMBING LINES ARE ADJACENT TO COLUMNS, PROVIDE ANGLES TO SUPPORT DECK PER PLUMBING PENETRATION DETAIL.
4. MINIMUM STEEL DECK PROPERTIES: 2"-20 GAGE COMPOSITE DECK WITH Ip=0.409 in4/ft, In=0.406 in4/ft, Sp=0.341 in3/ft, Sn=0.346 in3/ft, AND Fy=50 ksi.
5. COMPOSITE SLABS HAVE BEEN DESIGNED AS "UNSHORED CONSTRUCTION".
6. DECK SHALL BE CONTINUOUS OVER (2) OR MORE SPANS, TYPICAL. IF A SINGLE SPAN CONDITION IS REQUIRED AND SUPPORT BEAM SPACING EXCEEDS 8'-5", CONTRACTOR SHALL SHORE AREA.
7. PROVIDE #4@12"OC x6'-0" LONG TOP BARS CENTERED OVER ALL GIRDERS RUNNING PARALLEL TO DECK SPAN. PLACE BARS OVER WWF AND PROVIDE 3/4" MINIMUM COVER. PROVIDE SUPPORT CHAIRS @4'-0"OC EACH WAY. ROTATE IF REQUIRED TO FIT IN SLAB THICKNESS.
8. AT INTERIOR SLAB EDGES, PROVIDE #4@12"OC x5'-0" LONG TOP BARS WITH STANDARD 180° HOOKS AT ONE END AS SHOWN WHERE DIMENSION "A" EXCEEDS 10". DIMENSION "A" SHALL NOT EXCEED 2'-2" UNLESS SPECIFICALLY DETAILED OTHERWISE.
9. THE CONTRACTOR SHALL ASSUME CONCRETE OVERAGES IN ELEVATED DECK POURS DUE TO MEMBER AND DECK DEFLECTIONS. UNLESS SHOWN ON PLANS, BEAMS ARE NOT CAMBERED. CONCRETE OVERAGES MAY BE CALCULATED BY THE CONTRACTOR FOR BEAM DEFLECTIONS EQUALING L/300 INCLUDING ADDITIONAL DEFLECTIONS DUE TO PONDING AND DECK DEFLECTIONS PER SDI.




## STUD LAYOUT

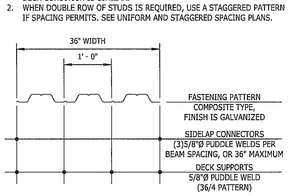
NOTES:
1. ALL STUDS SHALL BE FIELD WELDED TO CENTERLINE OF BEAMS, UNO.
2. UNIFORM LAYOUT:
   A. METAL DECK IS PARALLEL WITH BEAM - UNIFORMLY SPACE ALL STUDS EQUALLY ALONG THE ENTIRE LENGTH OF BEAM. FOLLOW MAXIMUM AND MINIMUM SPACING NOTED.
   B. METAL DECK IS PERPENDICULAR TO BEAM - TAKE THE TOTAL QUANTITY OF STUDS NOTED AND COMPARE TO THE NUMBER OF RIBS IN THE DECK. IF THE QUANTITY IS LESS THAN THE NUMBER OF RIBS, THEN LOCATE ONE STUD IN EVERY OTHER RIB ALONG THE LENGTH OF THE BEAM. THEN, STARTING AT THE SECOND RIB FROM THE END AT BOTH ENDS OF THE BEAM, LAYOUT THE REMAINING STUDS IN THE OPEN RIBS WORKING YOUR WAY TOWARD THE CENTER. YOU WILL END UP WITH A TIGHTER SPACING NEAR THE SUPPORTS. IF THE QUANTITY OF STUDS EXCEED THE NUMBER OF RIBS, THEN A DOUBLE ROW OF STUDS WILL BE REQUIRED NEAR THE ENDS OF THE BEAM. LOCATE ONE STUD IN EACH RIB ALONG THE LENGTH OF THE BEAM, KEEPING IN MIND THE CLEARANCES FOR A DOUBLE STUD INSTALLATION NEAR THE ENDS. THEN LOCATE THE ADDITIONAL STUDS STARTING AT THE FIRST RIB FROM THE SUPPORT AS A DOUBLE STUD INSTALLATION, WORKING YOUR WAY TOWARD THE CENTER FROM BOTH ENDS.
3. NON-UNIFORM LAYOUT:
   A. METAL DECK IS PARALLEL WITH BEAM - UNIFORMLY SPACE THE NOTED QUANTITY OF STUDS EQUALLY BETWEEN TWO FRAMING BEAMS OR CONCENTRATED LOADS BOUNDING THE AREA. FOLLOW MAXIMUM AND MINIMUM SPACINGS NOTED.
   B. METAL DECK IS PERPENDICULAR TO BEAM - FOLLOW THE SAME PROCEDURE NOTED IN ITEM 2.B. ABOVE. HOWEVER, THE LAYOUT OF THE STUDS FOR EACH QUANTITY IS LOCATED BETWEEN TWO FRAMING BEAMS OR CONCENTRATED LOADS BOUNDING THE AREA.
4. "(No)" INDICATES NUMBER OF SHEAR STUDS REQUIRED FOR ENTIRE BEAM LENGTH IF ONLY ONE QUANTITY IS NOTED. IF MULTIPLE QUANTITIES ARE NOTED, THEN NON-UNIFORM SPACING WILL BE REQUIRED.
5. "#k" INDICATES BEAM DESIGN END REACTION IN KIPS (UNFACTORED LOADS). MINIMUM BEAM REACTION TO BE 10k, UNO.
6. "C=No" INDICATES REQUIRED BEAM CAMBER IN INCHES.




## STUD CLEARANCES AND SPACING

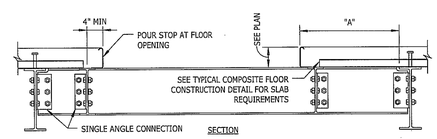
NOTES:
1. BEAM PARALLEL TO DECK CONDITION SHOWN. BEAM PERPENDICULAR TO DECK CONDITION IS SIMILAR.
2. WHEN DOUBLE ROW OF STUDS IS REQUIRED, USE A STAGGERED PATTERN IF SPACING PERMITS. SEE UNIFORM AND STAGGERED SPACING PLANS.




## FLOOR DECK ATTACHMENT DETAIL

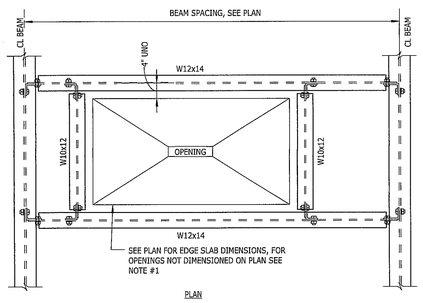
## 1 / S400 TYPICAL COMPOSITE SLAB CONSTRUCTION

3/4" = 1'-0"



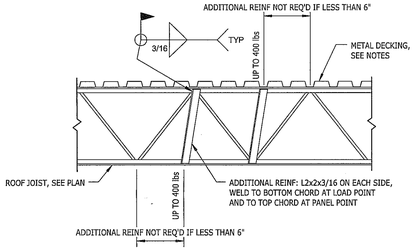

OPENINGS LARGER THAN 1'-6"

NOTES:
1. SEE ARCHITECTURAL, MECHANICAL & HVAC DRAWINGS FOR OPENING SIZES AND LOCATIONS.
2. SEE ARCHITECTURAL DRAWINGS FOR DETAILS OF CURBING AND MISCELLANEOUS STEEL.
3. ALL OPENING SIZES AND LOCATIONS SHALL BE VERIFIED WITH MECHANICAL CONTRACTOR.
4. PROVIDE SUPPORT FRAMING FOR OPENINGS 12" X 12" AND LARGER OR WHERE TWO OR MORE DECK RIBS ARE CUT FOR PENETRATIONS.
5. THIS DETAIL IS APPLICABLE FOR OPENINGS @ THE ROOF WHERE THE FRAMING CONSISTS OF BEAMS.
6. NO ADDITIONAL BEAM IS REQUIRED WHEN 'A' (DISTANCE FROM TIP OF FLANGE TO EDGEOF SLAB) IS LESS THAN 18", REFER TO TYPICAL COMPOSITE FLOOR CONSTRUCTION DETAIL FOR EDGE OF SLAB REQUIREMENTS FOR EDGE OF SLAB DETAIL WHEN ADDITIONALOPENING SUPPORT BEAM IS NOT REQUIRED.




## 8 / S400 TYPICAL FLOOR OPENING LARGER THAN 1'-6"

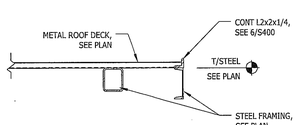
3/4" = 1'-0"




## 4 / S400 JOIST REINFORCING

3/4" = 1'-0"

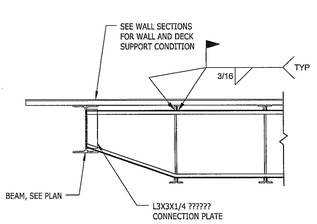
NOTES:
1. WHERE POSSIBLE ALL LOADS ARE TO BE SUPPORTED FROM PANEL POINTS. WHERE NOT POSSIBLE. PROVIDE REINFORCEMENT AS DETAILSED.
2. LOADS LESS THAN 150lbs REQUIRE NO ADDITIONAL REINFORCING. LOADS LARGER THAN 400lbs PER JOIST REQUIRE SPECIAL SUPPORT CONDITIONS TO BE APPROVED BY THE ENGINEER.
3. BOTTOM CHORDS EXTENDING UNSUPPORTED PAST THE FIRST BOTTOM PANEL POINT TOWARD JOIST BEARING LOCATION ARE NOT TO BE USED TO SUPPORT ANY LOAD WITHOUT WRITTEN PERMISSION FROM ENGINEER OF RECORD.




## 12 / S400 SECTION

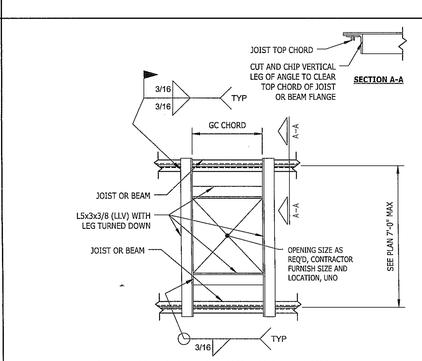
3/4" = 1'-0"

NOTE:
ALL STEEL TO BE AESS AND GALVANIZED.




## 9 / S400 TYPICAL JOIST BRIDGING

3/4" = 1'-0"

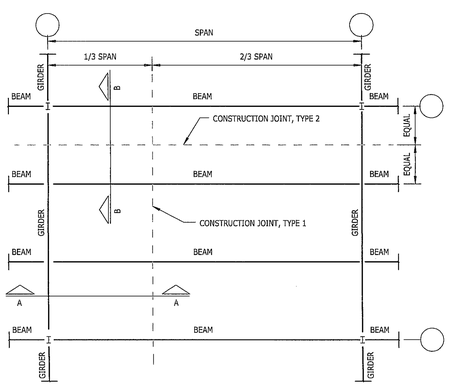



## FRAMING AROUND ROOF OPENINGS & BELOW ROOFTOP UNIT CURBS

## 5 / S400

3/4" = 1'-0"

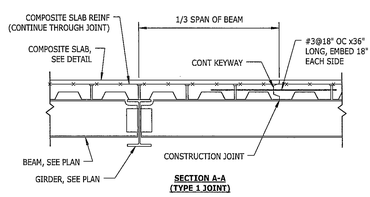
NOTES:
1. PROVIDE ANGLE FRAME AROUND ALL OPENINGS LARGER THAN 10"x10" (10"Ø).
2. SEE ARCHITECTURAL, MECHANICAL, AND HVAC DRAWINGS FOR ROOF OPENING SIZES AND LOCATIONS.
3. SEE ARCHITECTURAL DRAWINGS FOR DETAILS OF CURBING AND MISCELLANEOUS STEEL.
4. ALL ROOF OPENING SIZES AND LOCATIONS SHALL BE VERIFIED WITH MECHANICAL CONTRACTOR.



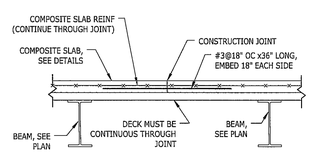

## 2 / S400 CONSTRUCTION JOINTS IN COMPOSITE DECK

1/8" = 1'-0"

NOTES:
1. CONTRACTOR SHALL SUBMIT LOCATIONS OF ALL CONSTRUCTION JOINTS FOR APPROVAL PRIOR TO CONSTRUCTION AND FABRICATION.




**SECTION A-A (TYPE 1 JOINT)**




**SECTION B-B (TYPE 2 JOINT)**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NORTH CAROLINA PROFESSIONAL SEAL 024096 ENGINEER MICHAEL A. GARDNER 2/6/14

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| Drawn | DJB |
| Checked | MAG |
| Date | January 31, 2014 |
| Revisions | |


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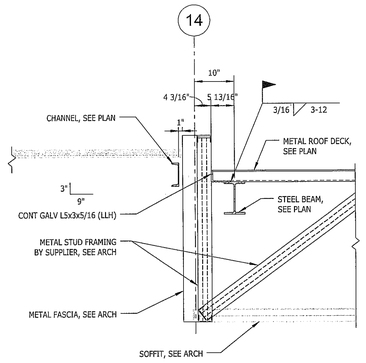
**FAST Multi-Modal Center**
City of Fayetteville
Fayetteville, NC

Project Number 621A

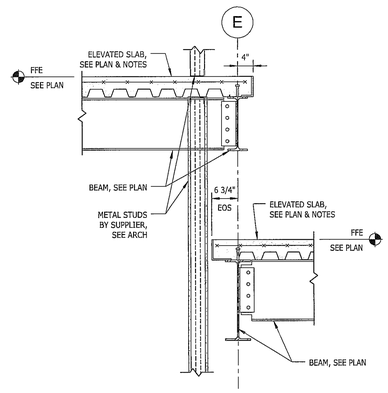
Title
**Framing Details**

Sheet
# S400

Plate of




13 S401 SECTION 3/4" = 1'-0"

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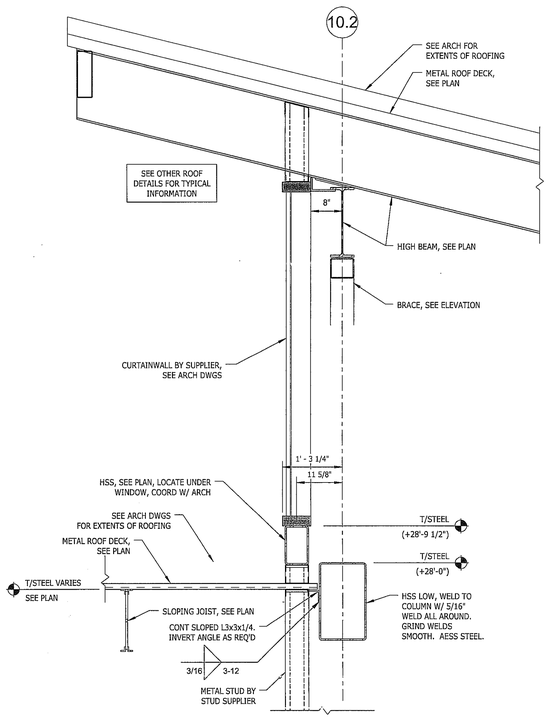
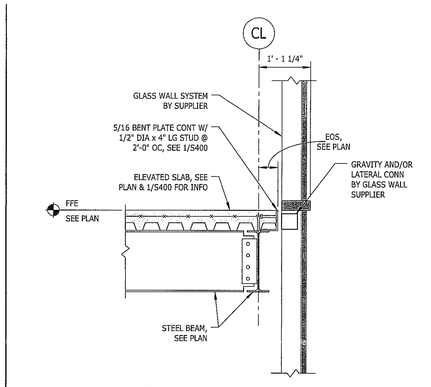
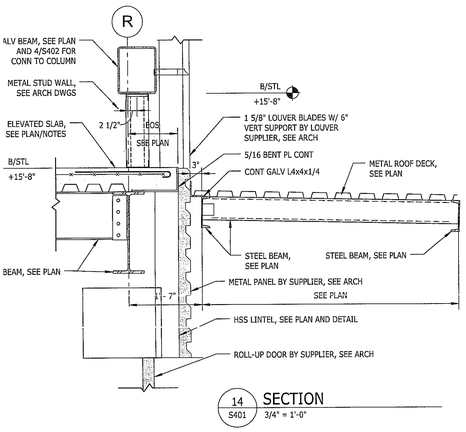


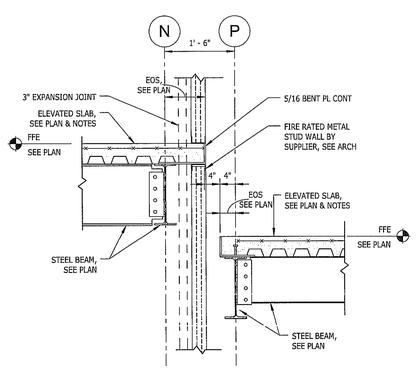

5 S401 SECTION 3/4" = 1'-0"



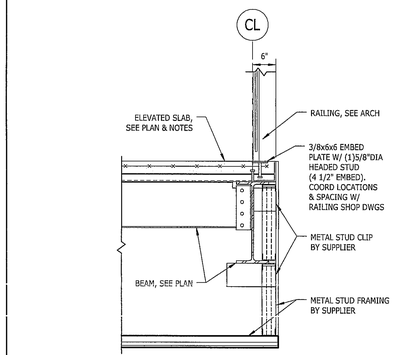

1 S401 SECTION 3/4" = 1'-0"



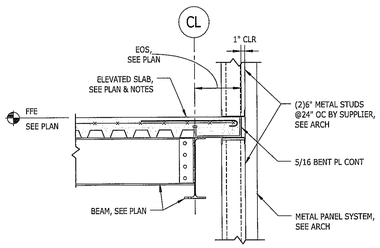

14 S401 SECTION 3/4" = 1'-0"



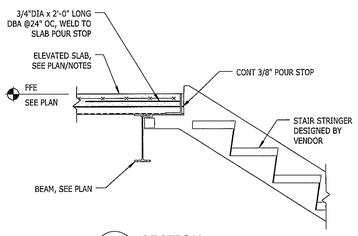

11 S401 SECTION 3/4" = 1'-0"



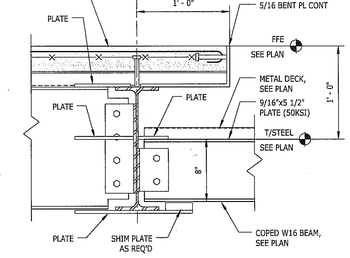

2 S401 SECTION 3/4" = 1'-0"




15 S401 SECTION 3/4" = 1'-0"

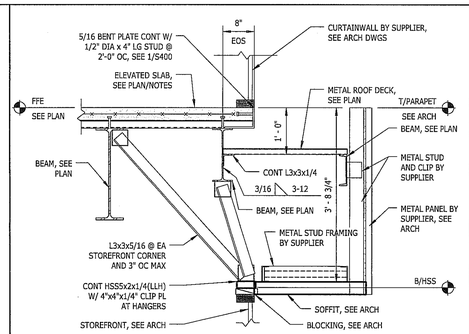



12 S401 SECTION 3/4" = 1'-0"



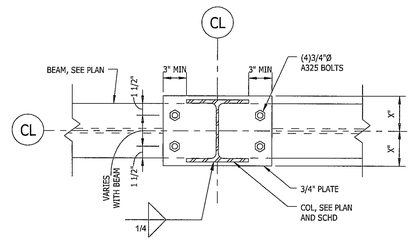

8 S401 DETAIL 1 1/2" = 1'-0"

NOTES:
1. CONNECTION TO BE DESIGNED BY STEEL FABRICATOR FOR REACTIONS PROVIDED ON PLAN.

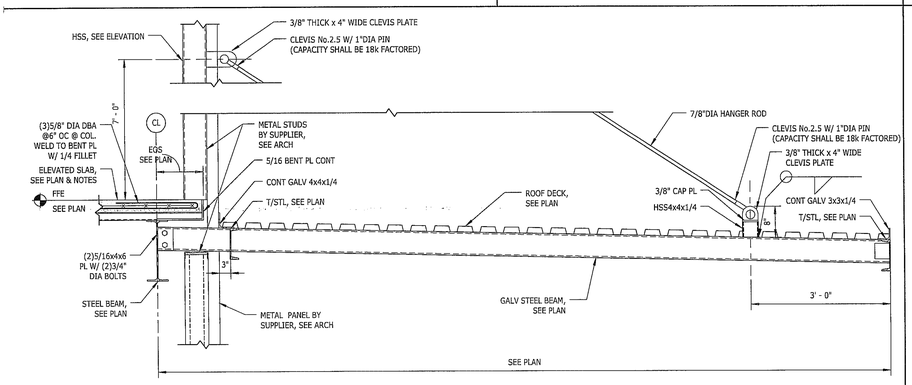



6 S401 SECTION 3/4" = 1'-0"

NOTE: COORDINATE LOCATION OF HSS WITH GLASS AND ARCH DWGS.

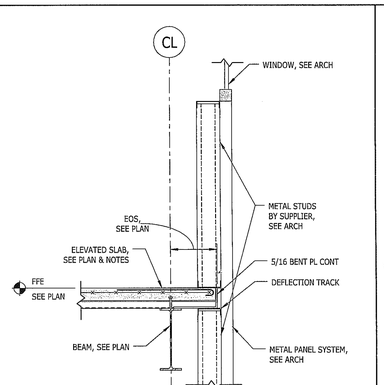



3 S401 DETAIL AT POST ABOVE 1 1/2" = 1'-0"

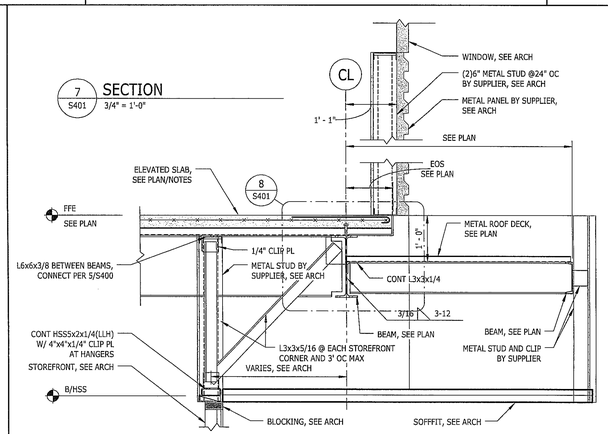


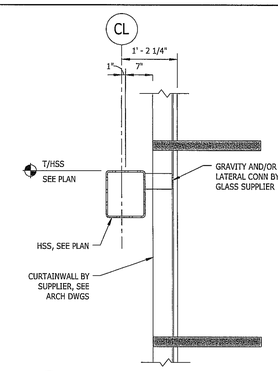

16 S401 SECTION AT CANOPY 3/4" = 1'-0"

NOTES:
1. ALL EXTERIOR STEEL TO BE AESS AND GALVANIZED.




9 S401 SECTION 3/4" = 1'-0"




4 S401 SECTION 3/4" = 1'-0"

NOTE: ALL EXPOSED STEEL TO RECIEVE AESS FINSIH. COORDINATE PAINT COLOR WITH ARCH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R11052


NORTH CAROLINA PROFESSIONAL SEAL 024098 ENGINEER MICHAEL A GARDINER
3/26/14

| | |
|---|---|
| Drawn | DJB |
| Checked | MAG |
| Date | January 31, 2014 |
| Revisions | |


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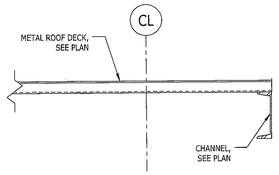
**FAST Multi-Modal Center**
City of Fayetteville
Fayetteville, NC

Project Number 621A

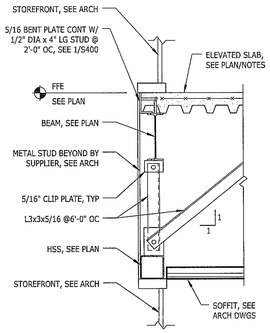
Title
**Framing Details**

Sheet
**S401**

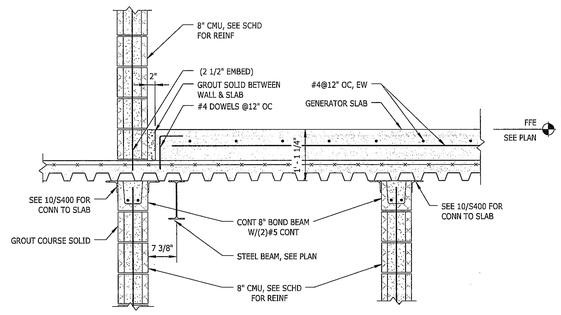
Plate of



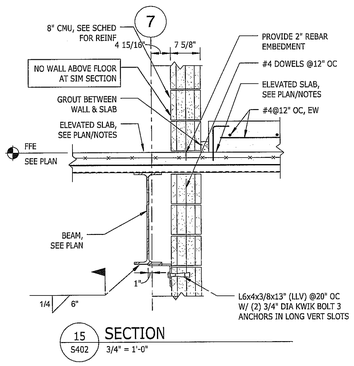

14 S402 SECTION
1 1/2" = 1'-0"



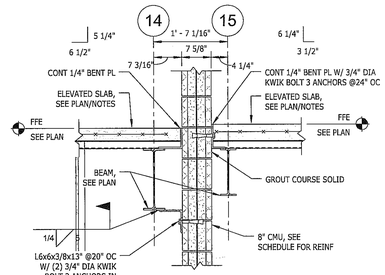

11 S402 SECTION
3/4" = 1'-0"
NOTE:
WELD ANGLES AFTER ADJUSTMENT



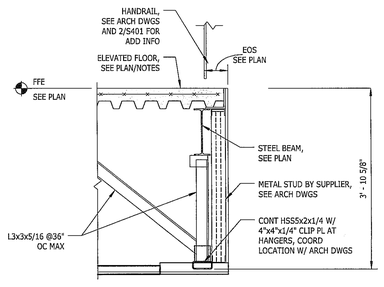

7 S402 SECTION
3/4" = 1'-0"



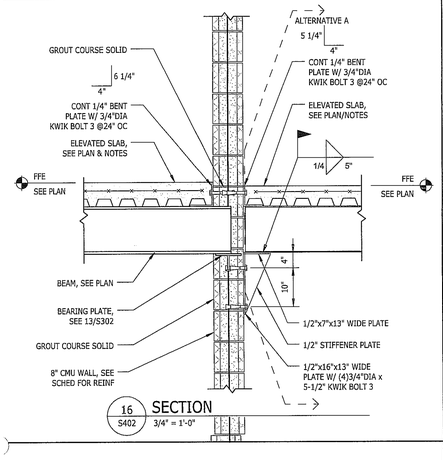

15 S402 SECTION
3/4" = 1'-0"



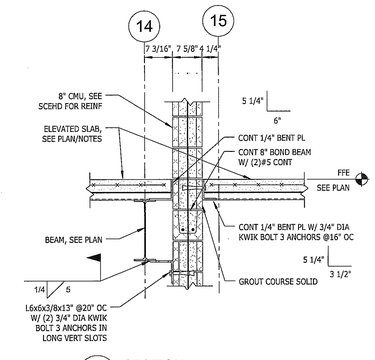

12 S402 SECTION
3/4" = 1'-0"



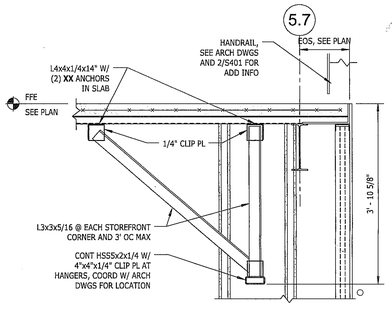

8 S402 SECTION AT GATE
3/4" = 1'-0"



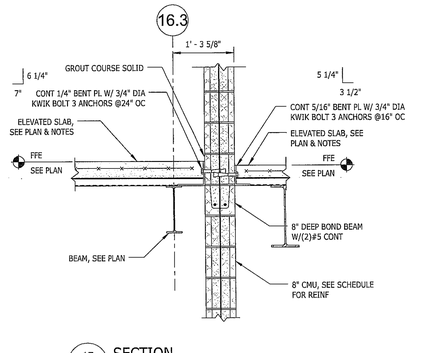

16 S402 SECTION
3/4" = 1'-0"



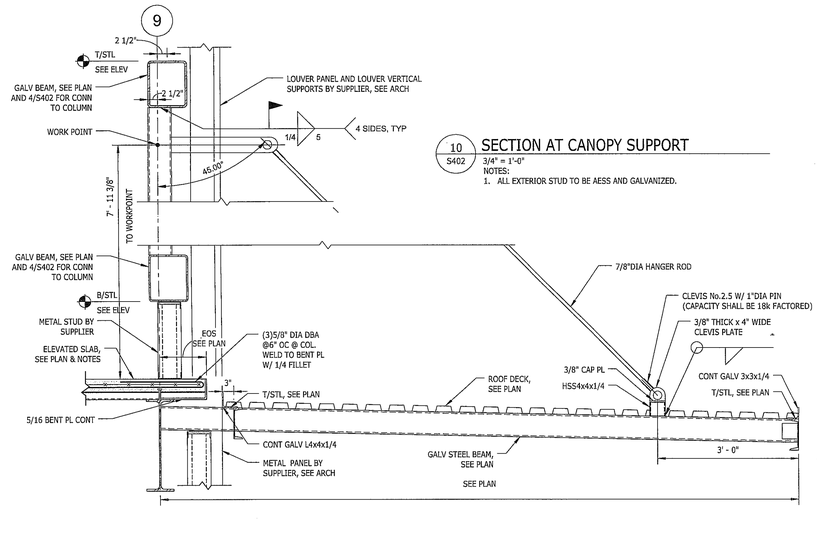

13 S402 SECTION
3/4" = 1'-0"



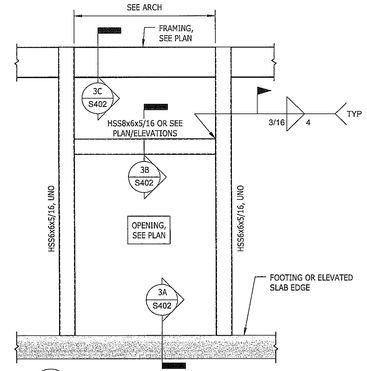

9 S402 SECTION AT GATE
3/4" = 1'-0"



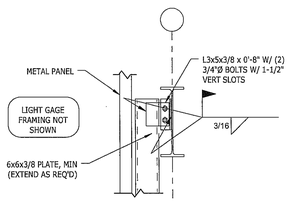

17 S402 SECTION
3/4" = 1'-0"



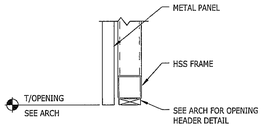

10 S402 SECTION AT CANOPY SUPPORT
3/4" = 1'-0"
NOTES:
1. ALL EXTERIOR STUD TO BE AESS AND GALVANIZED.



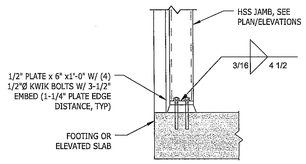

1 S402 HSS FRAME DETAIL
3/8" = 1'-0"




SECTION 3C

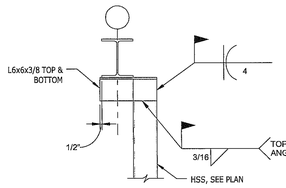



SECTION 3B

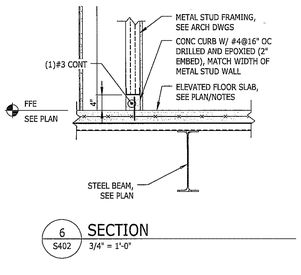



SECTION 3A

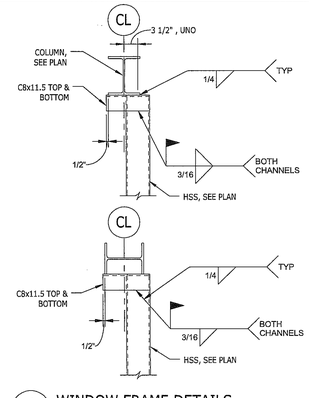
3 S402 HSS FRAME DETAILS
3/4" = 1'-0"



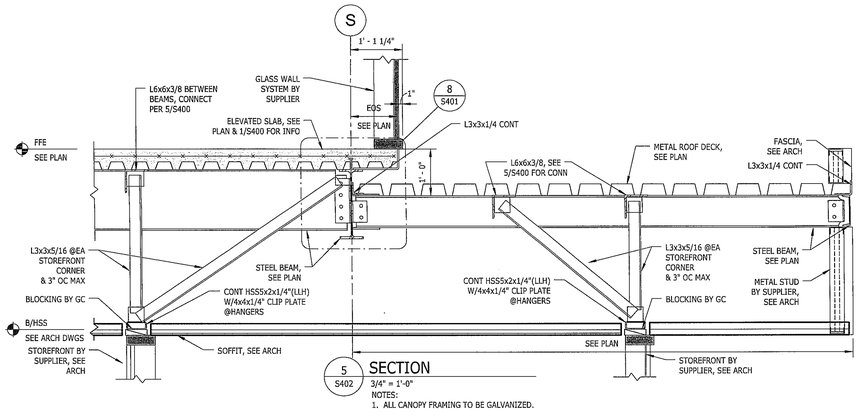

2 S402 WINDOW FRAME DETAILS
3/4" = 1'-0"




6 S402 SECTION
3/4" = 1'-0"




4 S402 WINDOW FRAME DETAILS
3/4" = 1'-0"




5 S402 SECTION
3/4" = 1'-0"
NOTES:
1. ALL CANOPY FRAMING TO BE GALVANIZED.

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R11052

NORTH CAROLINA PROFESSIONAL SEAL 024096 ENGINEER MICHAEL L. GARDNER

| | |
|---|---|
| Drawn | DJB |
| Checked | MAG |
| Date | January 31, 2014 |
| Revisions | |

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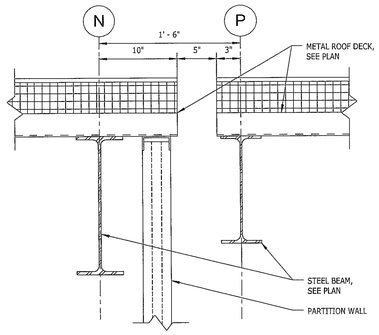
**FAST Multi-Modal Center**
City of Fayetteville
Fayetteville, NC

Project Number 621A

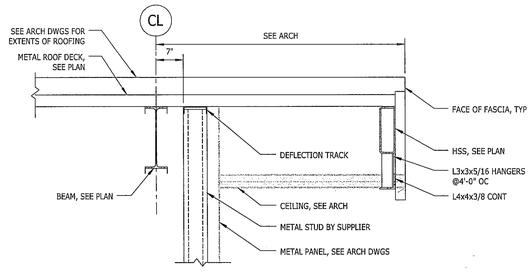
Title
**Framing Details**

Sheet
**S402**

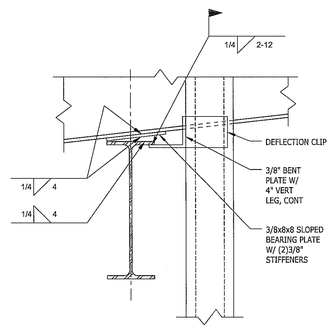
Plate of



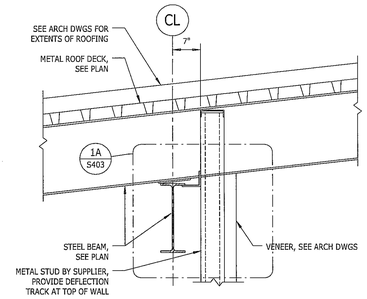

9 S403 ROOF SECTION AT EXPANSION JOINT
1 1/2" = 1'-0"



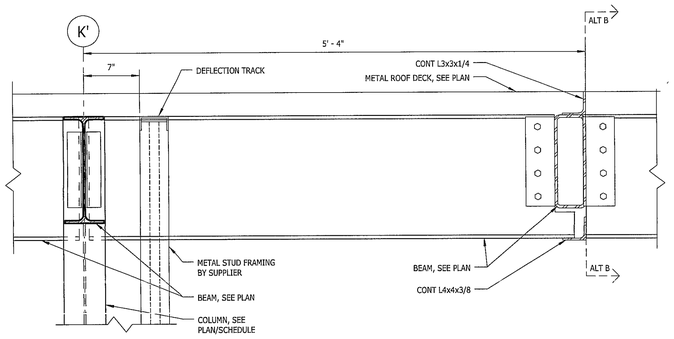

5 S403 SECTION
3/4" = 1'-0"



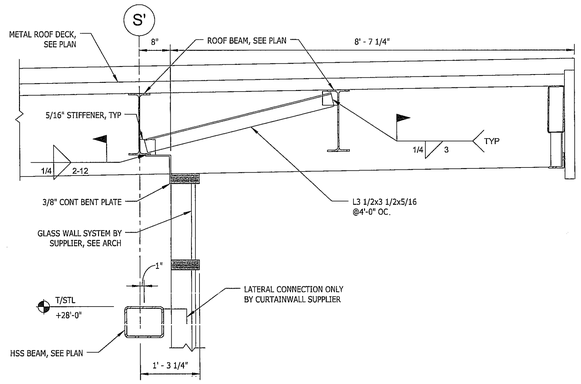

1A S403 CONNECTION DETAIL
1 1/2" = 1'-0"



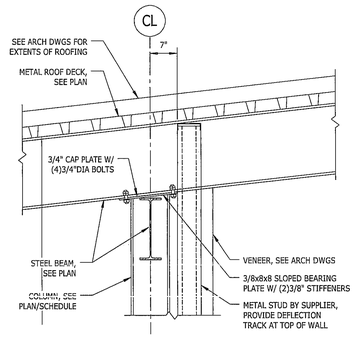

1 S403 SECTION
3/4" = 1'-0"



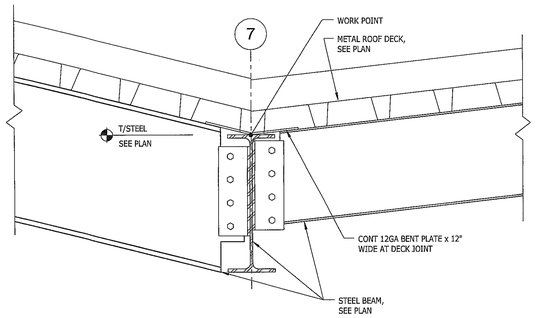

10 S403 SECTION AT GL-K'
1 1/2" = 1'-0"



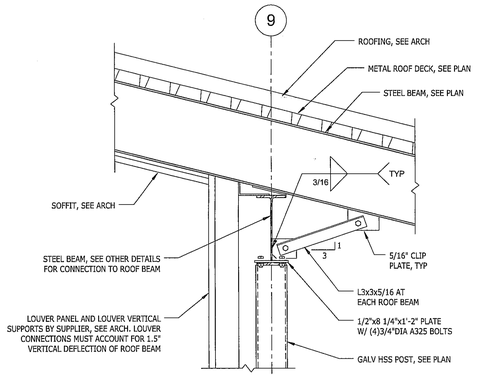

6 S403 ROOF SECTION AT EAST WALL
3/4" = 1'-0"



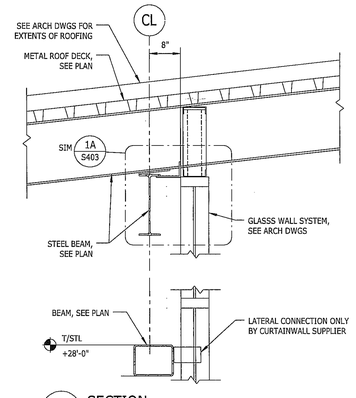

2 S403 SECTION
3/4" = 1'-0"
NOTE: WALL SUPPORT BENT PLATE NOT SHOWN FOR CLARITY.



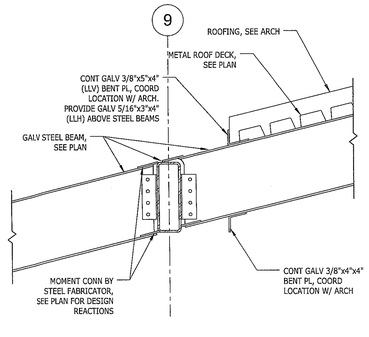

11 S403 ROOF VALLEY DETAIL
1 1/2" = 1'-0"



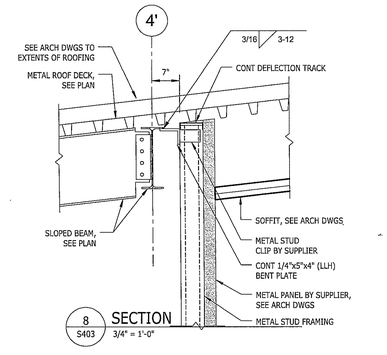

7 S403 SECTION
3/4" = 1'-0"



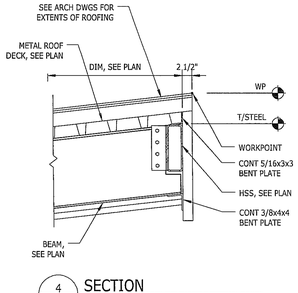

3 S403 SECTION
3/4" = 1'-0"




12 S403 SECTION
3/4" = 1'-0"
NOTES:
1. ALL EXTERIOR STEEL TO BE GALVANIZED.




8 S403 SECTION
3/4" = 1'-0"




4 S403 SECTION
3/4" = 1'-0"

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FIRM LICENSE #C-1051
R11052

NORTH CAROLINA PROFESSIONAL SEAL 034096 ENGINEER MICHAEL A GARDNIA 1/31/14

| | |
|---|---|
| Drawn | DJB |
| Checked | MAG |
| Date | January 31, 2014 |
| Revisions | |

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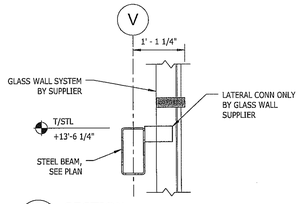
**FAST Multi-Modal Center**
City of Fayetteville
Fayetteville, NC

Project Number 621A

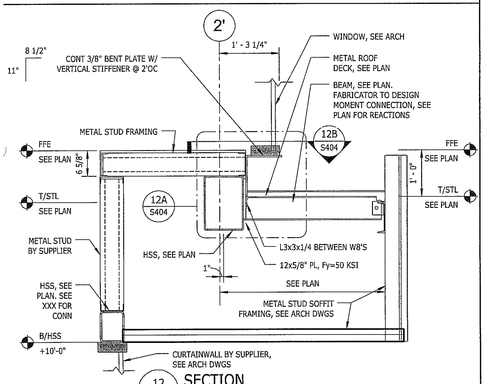
Title
**Framing Details**

Sheet
# S403

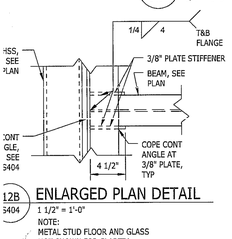
Plate of




11 S404 SECTION 3/4" = 1'-0"

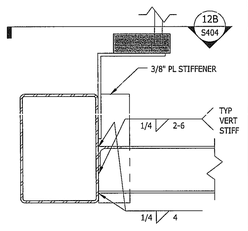



12 S404 SECTION 3/4" = 1'-0"

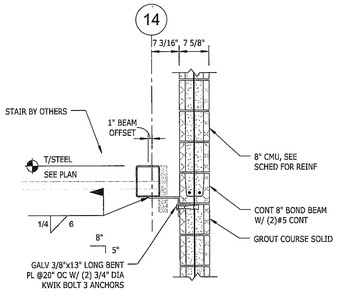



12B S404 ENLARGED PLAN DETAIL 1 1/2" = 1'-0"

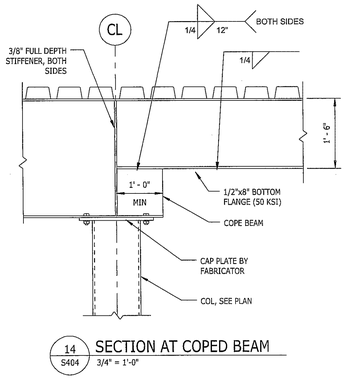
NOTE:
METAL STUD FLOOR AND GLASS NOT SHOWN FOR CLARITY.



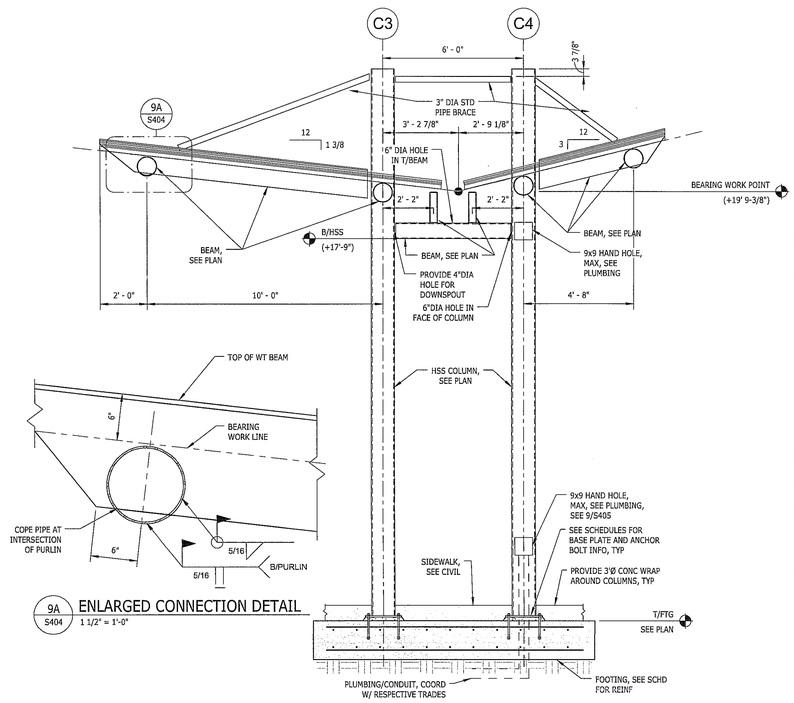

12A S404 CONNECTION DETAIL 1 1/2" = 1'-0"




13 S404 SECTION 3/4" = 1'-0"



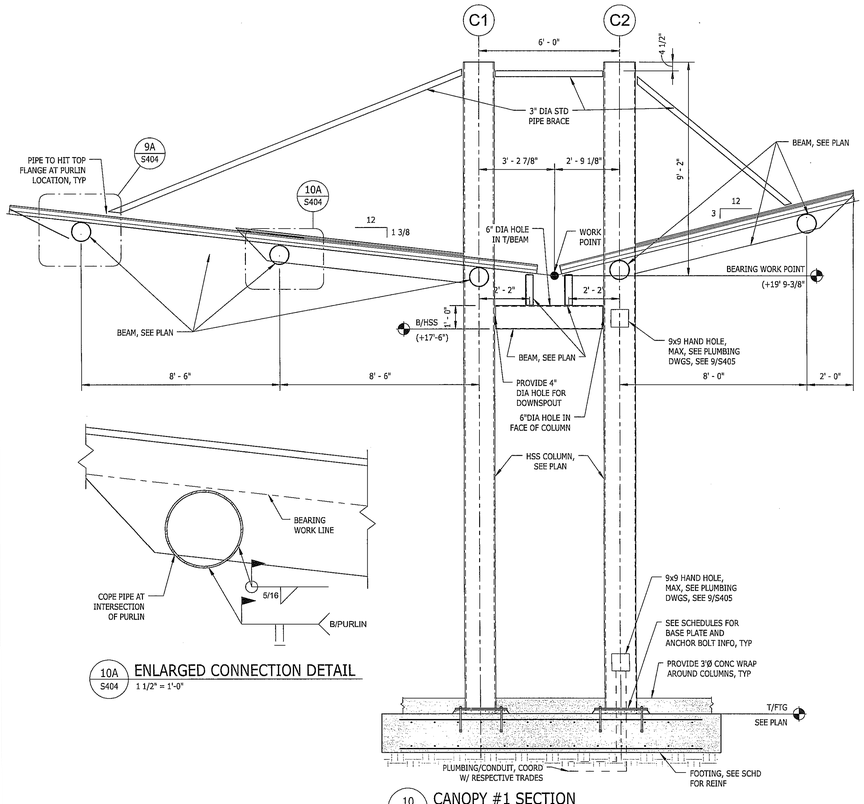

14 S404 SECTION AT COPED BEAM 3/4" = 1'-0"




9A S404 ENLARGED CONNECTION DETAIL 1 1/2" = 1'-0"

9 S404 CANOPY #2 SECTION 3/8" = 1'-0"

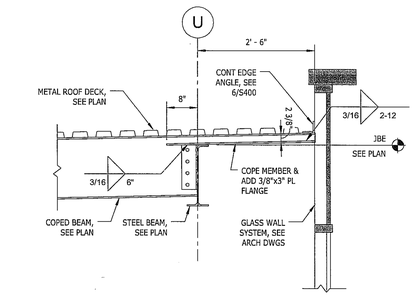
NOTE:
1. ALL STEEL TO BE GALVANIZED AESS.
2. SEE ARCH DRAWINGS FOR PAINT COLOR.
3. SEE ARCH, PLUMBING, AND ELECTRICAL DRAWINGS FOR ADDITIONAL HOLES FOR CONDUIT, ETC. MAX HOLE SIZE TO BE 2" UNLESS NOTED OTHERWISE.
4. WORK POINT ELEVATIONS ARE REFERENCED FROM 0'-0".



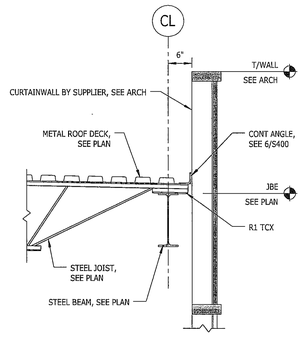

10A S404 ENLARGED CONNECTION DETAIL 1 1/2" = 1'-0"

10 S404 CANOPY #1 SECTION 3/8" = 1'-0"

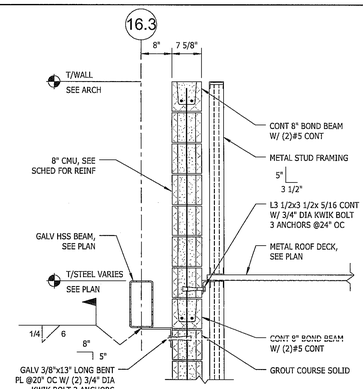
NOTE:
1. ALL STEEL TO BE GALVANIZED AESS.
2. SEE ARCH DRAWINGS FOR PAINT COLOR.
3. SEE ARCH, PLUMBING, AND ELECTRICAL DRAWINGS FOR ADDITIONAL HOLES FOR CONDUIT, ETC. MAX HOLE SIZE TO BE 2" UNLESS NOTED OTHERWISE.
4. WORK POINT ELEVATIONS ARE REFERENCED FROM 0'-0".




5 S404 SECTION 3/4" = 1'-0"

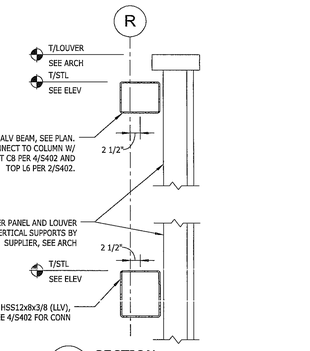



1 S404 SECTION 3/4" = 1'-0"

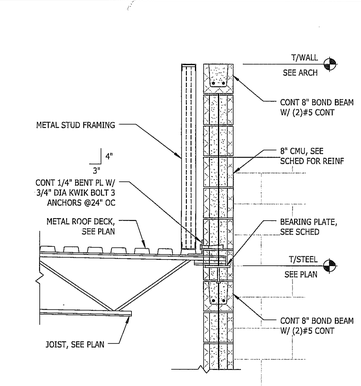



6 S404 SECTION 3/4" = 1'-0"

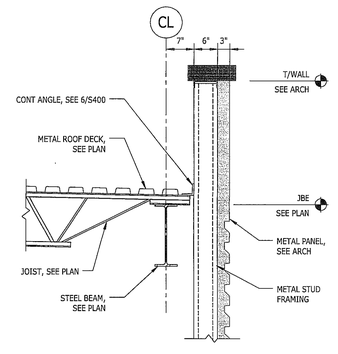
NOTE: GROUT MASONRY SOLID AT ALL ANCHOR LOCATIONS.



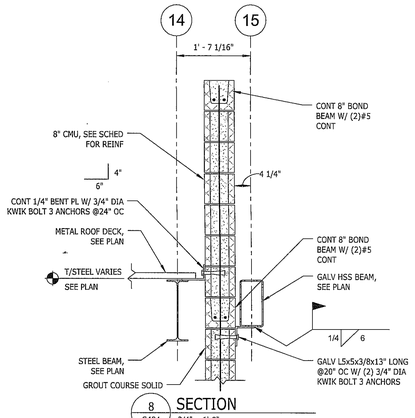

2 S404 SECTION 3/4" = 1'-0"



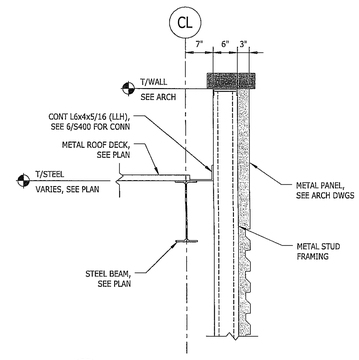

7 S404 SECTION 3/4" = 1'-0"




3 S404 SECTION 3/4" = 1'-0"




8 S404 SECTION 3/4" = 1'-0"




4 S404 SECTION 3/4" = 1'-0"

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NORTH CAROLINA PROFESSIONAL SEAL 024096 ENGINEER MICHAEL A. GARDNER
2/28/14

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| Revisions | |

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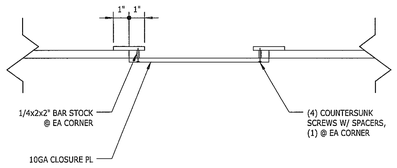
**FAST Multi-Modal Center**
City of Fayetteville
Fayetteville, NC

Project Number 621A

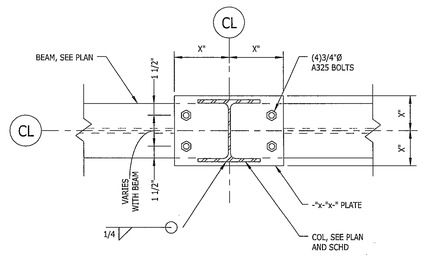
Title
**Framing Details**

Sheet
# S404

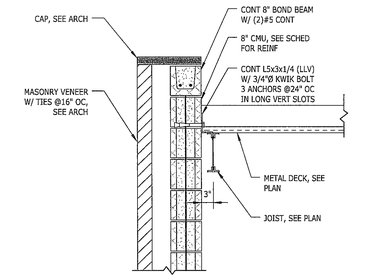
Plate of



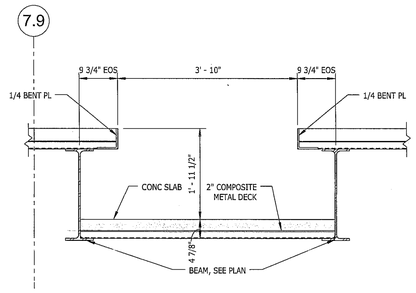

9 S405 HAND HELD CLOSURE PLATE
3" = 1'-0"



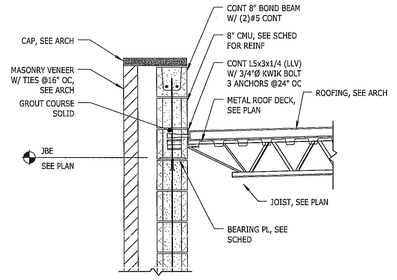

5 S405 TYPICAL COLUMN BEARING ON BEAM
1 1/2" = 1'-0"



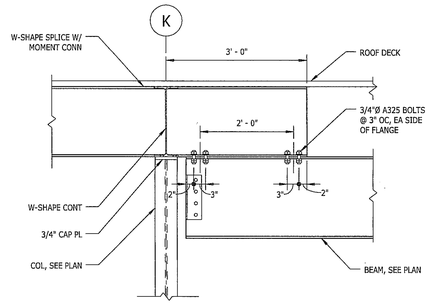

1 S405 SECTION
3/4" = 1'-0"



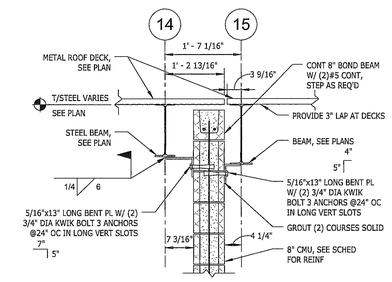

6 S405 GENERATOR ROOM SECTION
3/4" = 1'-0"



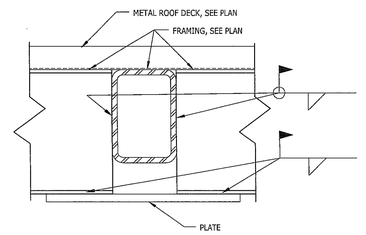

2 S405 SECTION
3/4" = 1'-0"




7 S405 SECTION
3/4" = 1'-0"




3 S405 SECTION
3/4" = 1'-0"




4 S405 SECTION AT CANOPY CANTILEVER
3" = 1'-0"
NOTE: CONNECTION TO BE DESIGNED BY STEEL FABRICATOR FOR REACTIONS NOTED ON PLANS.

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NORTH CAROLINA PROFESSIONAL SEAL 024096 ENGINEER MICHAEL A GARDNER
2/6/14

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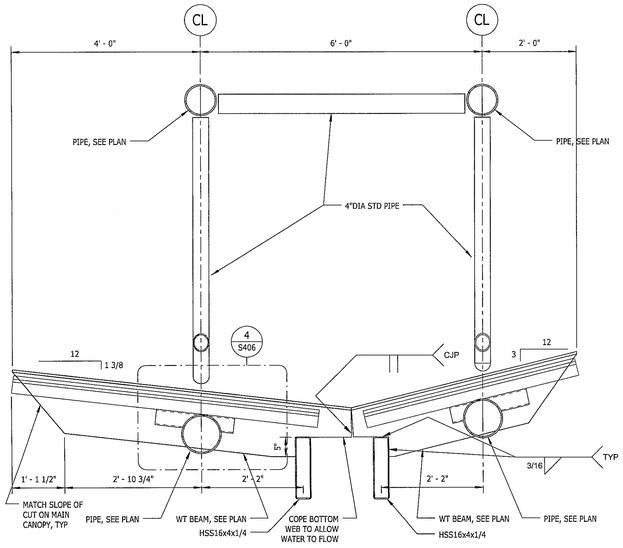
**FAST Multi-Modal Center**
City of Fayetteville
Fayetteville, NC

Project Number 621A

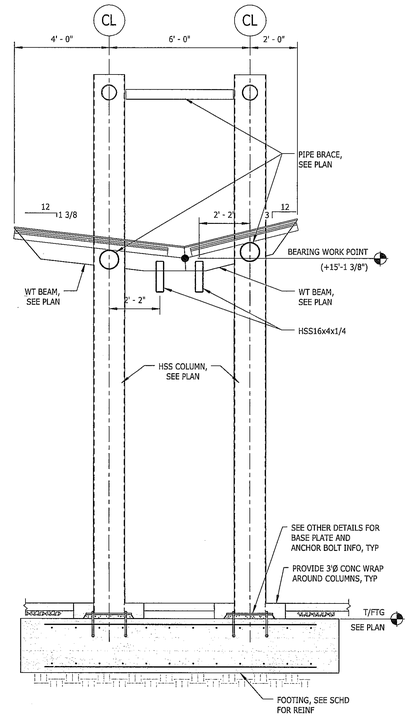
Title
**Framing Details**

Sheet
# S405

Plate of

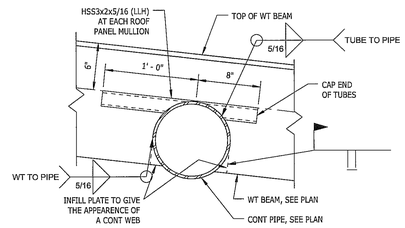



3 S406 CANOPY #3 & #4 SECTION
3/4" = 1'-0"



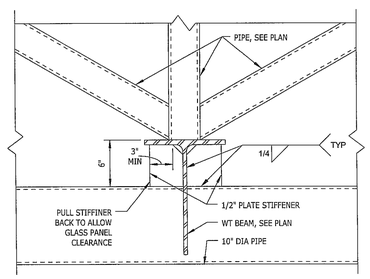

1 S406 CANOPY #3 & #4 SECTION
3/8" = 1'-0"

NOTE:
1. ALL STEEL TO BE GALVANIZED AESS.
2. SEE ARCH DRAWINGS FOR PAINT COLOR.
3. SEE ARCH, PLUMBING, AND ELECTRICAL DRAWINGS FOR ADDITIONAL HOLES FOR CONDUIT, ETC. MAX HOLE SIZE TO BE 2" UNLESS NOTED OTHERWISE.
4. WORK POINT ELEVATIONS ARE REFERENCED FROM 0'-0".

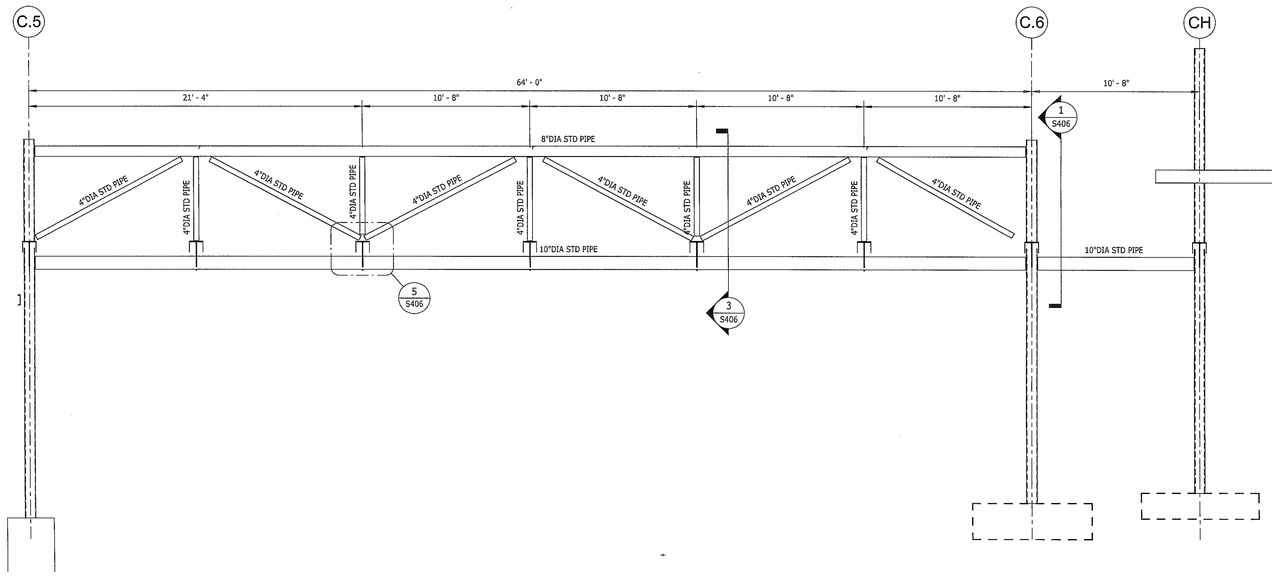



4 S406 ENLARGED CONNECTION DETAIL
1 1/2" = 1'-0"

NOTES:
1. WT BEAM MUST BE COPED AROUND PIPE SO PIPE IS CONT.




5 S406 CONNECTION DETAIL
1 1/2" = 1'-0"




2 S406 CANOPY #3 & #4 ELEVATION
1/4" = 1'-0"

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NORTH CAROLINA PROFESSIONAL SEAL 024090 ENGINEER MICHAEL A. GARDNER
2/6/14

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**FAST Multi-Modal Center**
City of Fayetteville
Fayetteville, NC

Project Number 621A

Title
**Canopy Details**

Sheet
# S406

Plate of

| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| OVERALL ROOF FRAMING PLAN | | | | | | | | | | | | | | | | | | | | | | | | | | | | | OVERALL ROOF FRAMING PLAN |
| 29' - 0" FLOOR FRAMING | W10X39 | W10X39 | HSS8X8X5/16 | W10X39 | W8X35 | W8X31 | W10X39 | W8X35 | W8X31 | W8X31 | W8X28 | W10X33 | W8X35 | W8X31 | W8X31 | W8X31 | W8X31 | W10X33 | W8X28 | W10X33 | W8X31 | W8X35 | W8X31 | W8X31 | W10X33 | W8X35 | W10X33 | W10X33 | W8X35 | W8X31 | 29' - 0" FLOOR FRAMING |
| 14' - 0" FOUNDATION PLAN | | | | | | | | | W8X31 | | | | | | | | W8X31 | | | | | | | | | | | | | 14' - 0" FOUNDATION PLAN |
| 0" | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 0" |
| Column Locations | A-1 | A-1.8 | A-5 | B-8 | C-1' | C-6 | C.2-3.4 | C.4-3.4 | C.4-4.9 | C.4-6.7 | C.4-7 | C.4-8 | C.7-1' | C.8-6.7 | D-1' | D-3.4 | D-6 | D-7 | D-8 | E-1' | E-5' | E-6 | E-7 | E-9 | F-5' | F.1-9 | F.3-6 | F.5-6 | F.5-7 | |

| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| OVERALL ROOF FRAMING PLAN | | | | | | | | | | | | | | | | | | | | | | | | | | | | | OVERALL ROOF FRAMING PLAN |
| 29' - 0" FLOOR FRAMING | W10X33 | W8X35 | W10X33 | W8X35 | W10X33 | W8X24 | W10X39 | W8X35 | W10X39 | W8X35 | W8X35 | W10X33 | W10X33 | W10X33 | W10X39 | W8X35 | W10X33 | W10X33 | W10X33 | W10X39 | W10X39 | W10X45 | W8X24 | W8X24 | W10X54 | W8X28 | HSS8X8X1/4 | W10X33 | HSS8X8X1/2 | 29' - 0" FLOOR FRAMING |
| 14' - 0" FOUNDATION PLAN | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 14' - 0" FOUNDATION PLAN |
| 0" | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 0" |
| Column Locations | F.5-9 | F.8-5' | F.8-7 | F.8-7.9 | G-5' | G-6 | H-9 | J-5' | K-9 | L-4 | M-4' | M.2-6 | M.4-6 | M.4-7 | M.4-9 | M.7-4' | N-4' | N-6 | N-7 | N-9 | P-3 | P-5.7 | P-7 | P-10 | Q-5.7 | Q-7 | Q-10 | Q.2-3 | R-15 | |

| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| OVERALL ROOF FRAMING PLAN | | | | | | | | | | | | | | | | | | | | | | | | | | | | | OVERALL ROOF FRAMING PLAN |
| 29' - 0" FLOOR FRAMING | HSS8X8X1/2 | HSS6X6X5/8 | HSS6X6X5/16 | W10X39 | W10X39 | W10X39 | HSS6X6X5/8 | HSS6X6X1/2 | HSS6X6X1/2 | HSS6X6X3/8 | HSS12X12X1/4 | W10X45 | W10X54 | HSS12X12X3/8 | HSS12X12X3/8 | HSS8X8X1/4 | HSS8X8X1/4 | HSS6X6X5/16 | W10X33 | W10X33 | HSS6X6X3/8 | HSS12X12X3/8 | HSS12X12X3/8 | HSS6X6X3/8 | HSS6X6X3/8 | HSS6X6X3/16 | | | 29' - 0" FLOOR FRAMING |
| 14' - 0" FOUNDATION PLAN | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 14' - 0" FOUNDATION PLAN |
| 0" | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 0" |
| Column Locations | R-16.3 | R-17 | R-18 | R.2-17 | R.6-16.7 | R.6-17 | S-11 | S-12 | S-13 | S-14 | S.1-10.2 | S.5-3 | S.5-5.7 | S.8-1.6 | S.8-10.2 | T-11 | T-12 | T-13 | T-16 | T-17 | T-18 | T.5-4.4 | T.7-1.6 | T.8-13.3 | T.8-14 | U-16 | | | | |


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R11052


NORTH CAROLINA PROFESSIONAL SEAL C24196 ENGINEER MICHAEL A GARLINGTON
2/26/14

| | |
|---|---|
| Drawn | DJB |
| Checked | MAG |
| Date | January 31, 2014 |
| Revisions | |


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**FAST Multi-Modal Center**
City of Fayetteville
Fayetteville, NC

Project Number 621A

Title
**Column Schedule**

Sheet
# S500

Plate of


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| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| OVERALL ROOF FRAMING PLAN | | | | | | | | | | | | | | | | | | | | | | | | | | | | | OVERALL ROOF FRAMING PLAN |
| 29' - 0"<br>FLOOR FRAMING | HSS8X8X3/8 | HSS6X6X1/4 | HSS6X6X1/4 | HSS6X6X5/16 | HSS8X8X3/8 | W4X31 | W8X31 | W8X31 | W8X31 | W10X33 | HSS12X12X3/8 | HSS12X12X3/8 | HSS6X6X1/4 | HSS16X8X3/8 | HSS12X8X1/2 | HSS12X8X1/2 | HSS16X8X3/8 | HSS16X8X3/8 | HSS16X8X3/8 | HSS16X8X5/8 | HSS16X8X5/8 | HSS16X8X7/8 | HSS16X8X5/8 | HSS16X8X5/8 | HSS16X8X5/8 | HSS16X8X7/8 | HSS16X8X5/8 | HSS16X8X1/2 | 29' - 0"<br>FLOOR FRAMING |
| 14' - 0"<br>FOUNDATION PLAN | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 14' - 0"<br>FOUNDATION PLAN |
| 0" | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 0" |
| Column Locations | U-17 | U-18 | V-12 | V-13 | V-14 | B'-7 | H'-6 | H'-7 | K'-6 | K'-7 | S'-10.2 | V'-10.2 | V'-11 | C.5-C1 | C.5-C3 | C.5-C4 | C.6-C1 | C.6-C2 | C.6-C3 | C.6-C4 | C1-CA | C1-CB | C1-CC | C1-CD | C1-CE | C1-CF | C1-CG | C1-CH | C2-CA | |

| | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| OVERALL ROOF FRAMING PLAN | | | | | | | | | | | | | | | | | | | | | | | OVERALL ROOF FRAMING PLAN |
| 29' - 0"<br>FLOOR FRAMING | HSS16X8X1/2 | HSS16X8X1/2 | HSS16X8X1/2 | HSS16X8X1/2 | HSS16X8X1/2 | HSS16X8X1/2 | HSS16X8X1/2 | HSS12X8X1/2 | HSS12X8X1/2 | HSS12X8X1/2 | HSS12X8X1/2 | HSS12X8X1/2 | HSS12X8X1/2 | HSS12X8X1/2 | HSS12X8X1/2 | HSS12X8X1/2 | HSS12X8X1/2 | HSS12X8X1/2 | HSS12X8X1/2 | HSS12X8X1/2 | HSS12X8X1/2 | HSS12X8X1/2 | 29' - 0"<br>FLOOR FRAMING |
| 14' - 0"<br>FOUNDATION PLAN | | | | | | | | | | | | | | | | | | | | | | | 14' - 0"<br>FOUNDATION PLAN |
| 0" | | | | | | | | | | | | | | | | | | | | | | | 0" |
| Column Locations | C2-CB | C2-CC | C2-CD | C2-CE | C2-CF | C2-CG | C2-CH | C3-CA | C3-CB | C3-CC | C3-CD | C3-CE | C3-CF | C3-CG | C3-CH | C4-CA | C4-CB | C4-CC | C4-CD | C4-CE | C4-CF | C4-CG | C4-CH | |


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R11052


NORTH CAROLINA PROFESSIONAL SEAL 024056 ENGINEER MICHAEL A. GABRIEL 2/25/14

| | |
|---|---|
| Drawn | DJB |
| Checked | MAG |
| Date | January 31, 2014 |
| Revisions | |


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**FAST Multi-Modal Center**
City of Fayetteville
Fayetteville, NC

Project Number 621A

Title
**Column Schedule Cont**

Sheet
# S501

Plate of

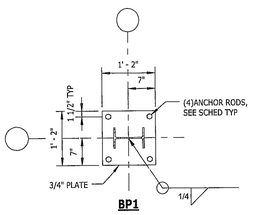
| ANCHOR ROD AND BASE PLATE SCHEDULE | | | |
|---|---|---|---|
| Column Location Mark | Type | ANCHOR ROD TYPE | BASE PLATE TYPE |
| A-1 | W10X39 | AR1 | BP2 |
| A-1.8 | W10X39 | AR1 | BP1 |
| A-5 | HSS8X8X5/16 | AR1 | BP3 |
| B'-7 | W8X31 | AR1 | BP1 |
| B-8 | W10X39 | AR1 | BP2 |
| C1-CA | HSS16X8X5/8 | AR2 | BP17 |
| C1-CB | HSS16X8X5/8 | AR2 | BP17 |
| C1-CC | HSS16X8X5/8 | AR2 | BP17 |
| C1-CD | HSS16X8X5/8 | AR2 | BP17 |
| C1-CE | HSS16X8X5/8 | AR2 | BP17 |
| C1-CF | HSS16X8X5/8 | AR2 | BP17 |
| C1-CG | HSS16X8X5/8 | AR2 | BP17 |
| C1-CH | HSS16X8X5/8 | AR2 | BP17 |
| C2-CA | HSS16X8X1/2 | AR2 | BP17 |
| C2-CB | HSS16X8X1/2 | AR2 | BP17 |
| C2-CC | HSS16X8X1/2 | AR2 | BP17 |
| C2-CD | HSS16X8X1/2 | AR2 | BP17 |
| C2-CE | HSS16X8X1/2 | AR2 | BP17 |
| C2-CF | HSS16X8X1/2 | AR2 | BP17 |
| C2-CG | HSS16X8X1/2 | AR2 | BP17 |
| C2-CH | HSS16X8X1/2 | AR2 | BP17 |
| C3-CA | HSS12X8X1/2 | AR2 | BP18 |
| C3-CB | HSS12X8X1/2 | AR2 | BP18 |
| C3-CC | HSS12X8X1/2 | AR2 | BP18 |
| C3-CD | HSS12X8X1/2 | AR2 | BP18 |
| C3-CE | HSS12X8X1/2 | AR2 | BP18 |
| C3-CF | HSS12X8X1/2 | AR2 | BP18 |
| C3-CG | HSS12X8X1/2 | AR2 | BP18 |
| C3-CH | HSS12X8X1/2 | AR2 | BP18 |
| C4-CA | HSS12X8X1/2 | AR2 | BP18 |
| C4-CB | HSS12X8X1/2 | AR2 | BP18 |
| C4-CC | HSS12X8X1/2 | AR2 | BP18 |
| C4-CD | HSS12X8X1/2 | AR2 | BP18 |

| ANCHOR ROD AND BASE PLATE SCHEDULE | | | |
|---|---|---|---|
| Column Location Mark | Type | ANCHOR ROD TYPE | BASE PLATE TYPE |
| C4-CE | HSS12X8X1/2 | AR2 | BP18 |
| C4-CF | HSS12X8X1/2 | AR2 | BP18 |
| C4-CG | HSS12X8X1/2 | AR2 | BP18 |
| C4-CH | HSS12X8X1/2 | AR2 | BP18 |
| C-1' | W8X35 | AR1 | BP1 |
| C-6 | W8X31 | AR1 | BP1 |
| C.2-3.4 | W10X39 | AR6 | BP13 |
| C.2-5' | W10X33 | AR6 | BP6A |
| C.4-3.4 | W8X35 | AR6 | BP13 |
| C.4-4.9 | W8X31 | AR1 | BP1 |
| C.4-6.7 | W8X31 | AR2 | BP5 |
| C.4-7 | W8X28 | AR1 | BP1 |
| C.4-8 | W10X33 | AR1 | BP2 |
| C.5-C1 | HSS16X8X3/8 | AR7 | BP19 |
| C.5-C2 | HSS16X8X3/8 | AR7 | BP19 |
| C.5-C3 | HSS12X8X1/2 | AR7 | BP19 |
| C.5-C4 | HSS12X8X1/2 | AR7 | BP19 |
| C.6-C1 | HSS16X8X3/8 | AR5 | BP19 |
| C.6-C2 | HSS16X8X3/8 | AR5 | BP19 |
| C.6-C3 | HSS16X8X3/8 | AR5 | BP19 |
| C.6-C4 | HSS16X8X3/8 | AR5 | BP19 |
| C.7-1' | W8X35 | AR1 | BP1 |
| C.8-6.7 | W8X31 | AR2 | BP5 |
| D-1' | W8X31 | AR1 | BP1 |
| D-3.4 | W8X31 | AR1 | BP1 |
| D-6 | W8X31 | AR1 | BP1 |
| D-7 | W8X28 | AR1 | BP1 |
| D-8 | W10X33 | AR1 | BP2 |
| E-1' | W8X31 | AR4 | BP11 |
| E-5' | W8X35 | AR1 | BP1 |
| E-6 | W8X31 | AR3 | BP6 |
| E-7 | W8X31 | AR1 | BP1 |
| E-9 | W10X33 | AR1 | BP2 |

| ANCHOR ROD AND BASE PLATE SCHEDULE | | | |
|---|---|---|---|
| Column Location Mark | Type | ANCHOR ROD TYPE | BASE PLATE TYPE |
| F-5' | W8X35 | AR1 | BP1 |
| F.1-9 | W10X33 | AR1 | BP2 |
| F.3-6 | W10X33 | AR2 | BP5A |
| F.5(1' - 3 1/8")-5.2(-3' - 5 7/16") | HSS6X6X5/16 | AR1 | BP3 |
| F.5-6 | W8X35 | AR2 | BP5A |
| F.5-7 | W8X31 | AR1 | BP1 |
| F.5-9 | W10X33 | AR1 | BP2 |
| F.8-5' | W8X35 | AR1 | BP1 |
| F.8-7 | W10X33 | AR3 | BP6 |
| F.8-7.9 | W8X35 | AR3 | BP6 |
| G-5' | W10X33 | AR1 | BP2 |
| G-6 | W8X24 | AR1 | BP1 |
| H'-6 | W8X31 | AR1 | BP1 |
| H'-7 | W8X31 | AR1 | BP1 |
| H-9 | W10X39 | AR1 | BP2 |
| J-5' | W8X35 | AR1 | BP1 |
| K'-6 | W8X31 | AR1 | BP1 |
| K'-7 | W10X33 | AR3 | BP5 |
| K-9 | W10X39 | AR3 | BP5 |
| L-4 | W8X35 | AR1 | BP1 |
| M-4' | W8X35 | AR1 | BP1 |
| M.2-6 | W10X33 | AR2 | BP5A |
| M.4(10")-5.2(-3' - 5 1/2") | HSS6X6X5/16 | AR1 | BP12 |
| M.4-6 | W10X33 | AR2 | BP5A |
| M.4-7 | W10X33 | AR1 | BP2 |
| M.4-9 | W10X39 | AR1 | BP2 |
| M.7-4' | W8X35 | AR1 | BP1 |
| N-4' | W10X33 | AR3 | BP15 |
| N-6 | W10X33 | AR3 | BP15 |
| N-7 | W10X33 | AR1 | BP16 |
| N-9 | W10X39 | AR1 | BP16 |
| P-3 | W10X39 | AR2 | BP5 |
| P-5.7 | W10X45 | AR2 | BP5 |

| ANCHOR ROD AND BASE PLATE SCHEDULE | | | |
|---|---|---|---|
| Column Location Mark | Type | ANCHOR ROD TYPE | BASE PLATE TYPE |
| P-7 | W8X24 | AR1 | BP1 |
| P-10 | W8X24 | AR1 | BP1 |
| Q-5.7 | W10X54 | AR2 | BP5 |
| Q-7 | W8X28 | AR1 | BP1 |
| Q-10 | HSS8X8X1/4 | AR1 | BP3 |
| Q.2-3 | W10X33 | AR1 | BP2 |
| R-15 | HSS8X8X1/2 | AR1 | BP3 |
| R-16.3 | HSS8X8X1/2 | AR1 | BP3 |
| R-17 | HSS6X6X3/8 | AR1 | BP3 |
| R-18 | HSS6X6X5/16 | AR1 | BP3 |
| R.2-17 | W10X39 | AR3 | BP7 |
| R.6-16.7 | W10X39 | AR2 | BP5A |
| R.6-17 | W10X39 | AR4 | BP14 |
| S'-7 | HSS12X12X3/8 | AR1 | BP4 |
| S'-10.2 | HSS12X12X3/8 | AR1 | BP4 |
| S-7 | HSS8X8X1/4 | AR1 | BP3 |
| S-11 | HSS6X6X5/8 | AR1 | BP3 |
| S-12 | HSS6X6X1/2 | AR1 | BP3 |
| S-13 | HSS6X6X1/2 | AR1 | BP3 |
| S-14 | HSS6X6X3/8 | AR1 | BP3 |
| S.1-2 | HSS12X12X3/8 | AR2 | BP8 |
| S.1-10.2 | HSS12X12X1/4 | AR1 | BP4 |
| S.5-3 | W10X45 | AR2 | BP5 |
| S.5-5.7 | W10X54 | AR3 | BP7 |
| S.6-5.7 | HSS6X6X5/16 | AR1 | BP3 |
| S.6-7 | HSS6X6X5/16 | AR1 | BP3 |
| S.7-3 | HSS6X6X1/4 | AR1 | BP3 |
| S.8-1.6 | HSS12X12X3/8 | AR2 | BP8 |
| S.8-10.2 | HSS12X12X3/8 | AR4 | BP9 |
| T-11 | HSS8X8X1/4 | AR1 | BP3 |
| T-12 | HSS8X8X1/4 | AR1 | BP3 |
| T-13 | HSS6X6X5/16 | AR1 | BP3 |
| T-16 | W10X33 | AR1 | BP2 |

| ANCHOR ROD AND BASE PLATE SCHEDULE | | | |
|---|---|---|---|
| Column Location Mark | Type | ANCHOR ROD TYPE | BASE PLATE TYPE |
| T-17 | W10X33 | AR1 | BP2 |
| T-18 | HSS6X6X3/8 | AR1 | BP3 |
| T.5-4.4 | HSS12X12X3/8 | AR1 | BP4 |
| T.7-1.6 | HSS12X12X3/8 | AR1 | BP4 |
| T.8-13.3 | HSS6X6X3/8 | AR3 | BP10 |
| T.8-14 | HSS6X6X3/8 | AR3 | BP10 |
| U-16 | HSS6X6X5/16 | AR1 | BP3 |
| U-17 | HSS8X8X3/8 | AR1 | BP3 |
| U-18 | HSS6X6X1/4 | AR1 | BP3 |
| V'-10.2 | HSS12X12X3/8 | AR5 | BP9 |
| V'-11 | HSS6X6X1/4 | AR1 | BP3 |
| V-12 | HSS6X6X1/4 | AR1 | BP3 |
| V-13 | HSS6X6X5/16 | AR1 | BP3 |
| V-14 | HSS8X8X3/8 | AR1 | BP3 |

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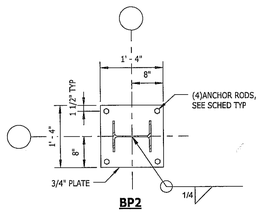


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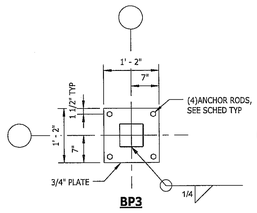


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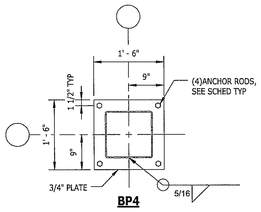


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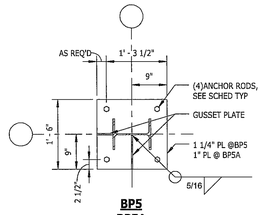
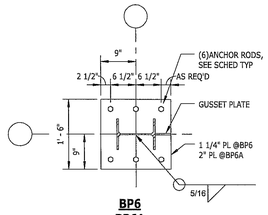



BP5
BP5A

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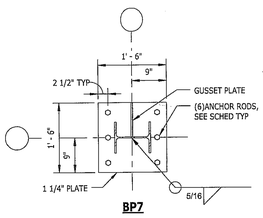


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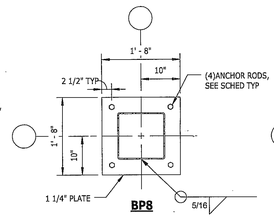


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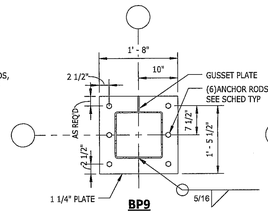


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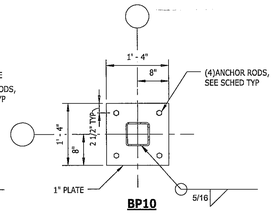


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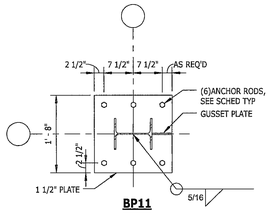


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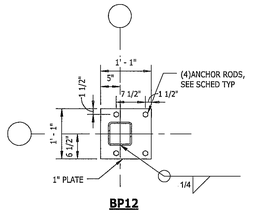


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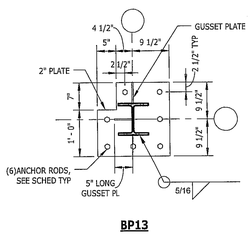


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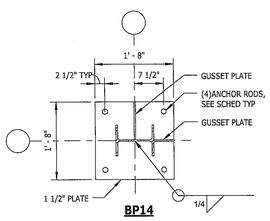


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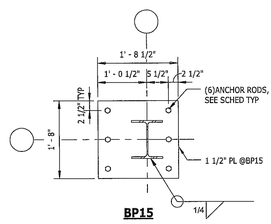


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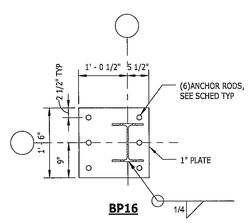


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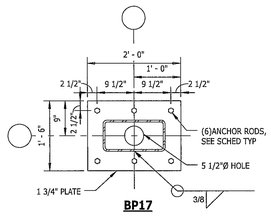


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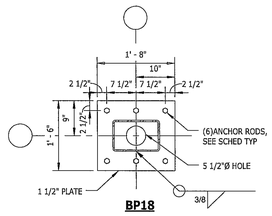


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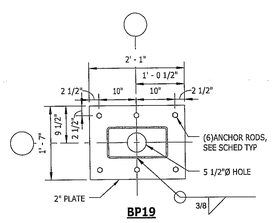
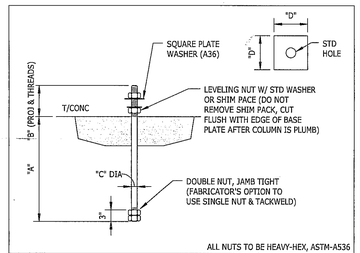



BP19

2 S502 BASE PLATE DETAILS
3/4" = 1'-0"




ALL NUTS TO BE HEAVY-HEX, ASTM-A536

| MARK | A | B | C DIA | PLATE WASHER D | PLATE WASHER THK | ROD GRADE | REMARKS |
|---|---|---|---|---|---|---|---|
| AR1 | 8" | 6" | 3/4" | 2" | 1/4" | F1554, GR 36 | |
| AR2 | 1'-4" | 8" | 1" | 3" | 3/8" | F1554, GR 55 | |
| AR3 | 2'-0" | 8" | 1" | 3" | 3/8" | F1554, GR 55 | |
| AR4 | 2'-0" | 10" | 1-1/4" | 3" | 1/2" | F1554, GR 55 | |
| AR5 | 2'-4" | 10" | 1-1/4" | 3" | 1/2" | F1554, GR 55 | |
| AR6 | 3'-3" | 9" | 1" | 3" | 3/8" | F1554, GR 55 | PROVIDE 2"x2"x1/4" PL AT END OF ANCHOR ROD |
| AR7 | 3'-3" | 10" | 1 1/4" | 3" | 1/2" | F1554, GR 55 | |

1 S502 ANCHOR ROD SCHEDULE
3/4" = 1'-0"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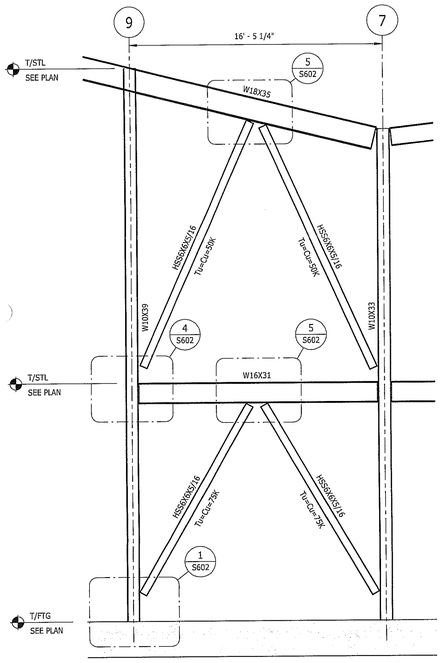
**FAST Multi-Modal Center**
City of Fayetteville
Fayetteville, NC

Project Number 621A

Title
**Schedules**

Sheet
# S502

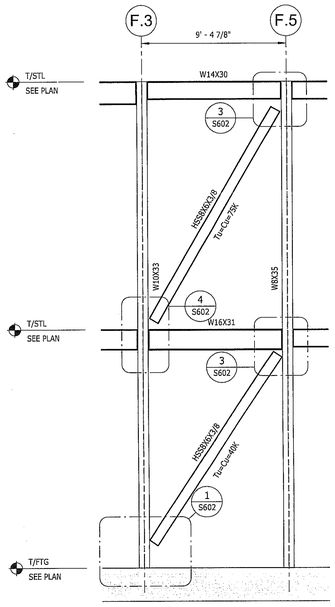
Plate of




7 / S600 VF#7

1/4" = 1'-0"

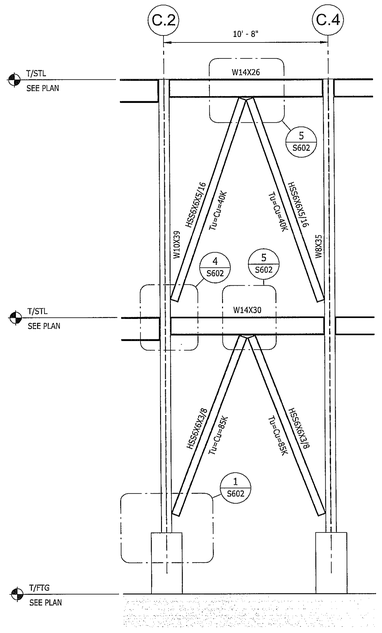
NOTES:
1. SEE 1/S600 FOR TYPICAL NOTES.




5 / S600 VF#5

1/4" = 1'-0"

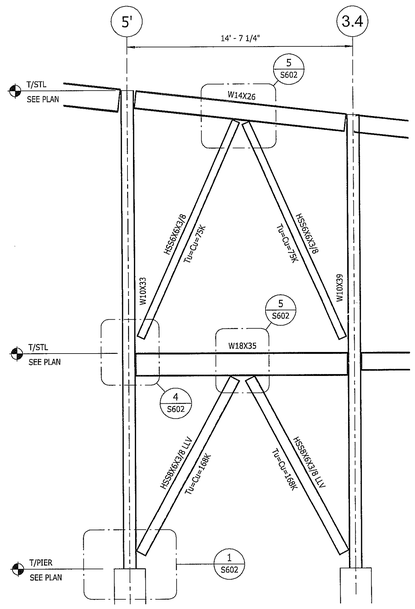
NOTES:
1. SEE 1/S600 FOR TYPICAL NOTES.




3 / S600 VF#3

1/4" = 1'-0"

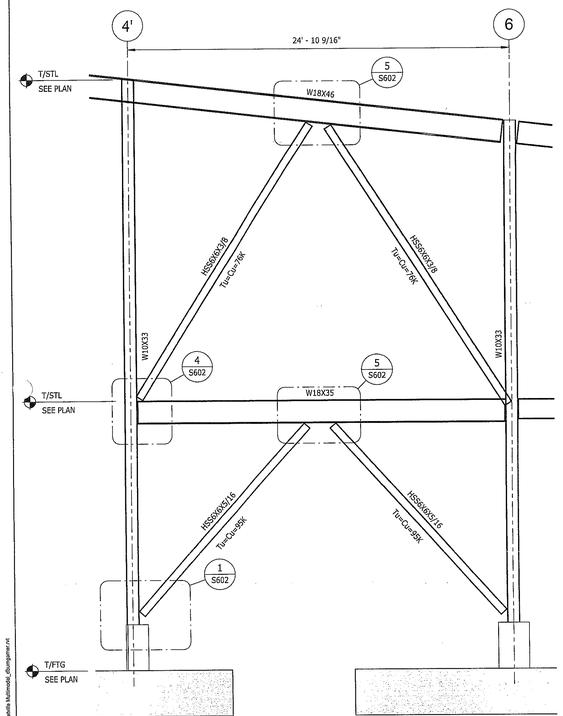
NOTES:
1. SEE 1/S600 FOR TYPICAL NOTES.




1 / S600 VF#1

1/4" = 1'-0"

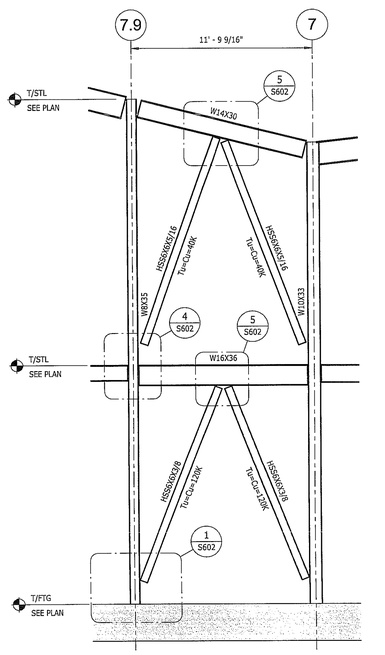
NOTES:
1. CENTROIDS OF MEMBERS SHALL COINCIDE, UNO.
2. [No] INDICATES BRACE AXIAL FORCE IN KIPS.
   "Tu" INDICATES TENSION FORCE.
   "Cu" INDICATES COMPRESSION FORCE.
   "TF" INDICATES TRANSFER FORCE FROM ADJACENT BEAM, SEE PLAN.
   ALL FRAME REACTIONS ARE FACTORED LOADS.
3. No INDICATES BEAM REACTION (IN KIPS).
4. FABRICATOR SHALL DESIGN ALL BEAM TO COLUMN CONNECTIONS WITHIN VERTICAL FRAME TO SUPPORT THE HORIZONTAL AND VERTICAL COMPONENTS OF THE BRACE FORCE PLUS THE BEAM REACTION SHOWN ON THE ELEVATION AND PLANS. ALLOWABLE STRESS INCREASES OR LOAD REDUCTIONS ARE NOT PERMITTED.




8 / S600 VF#8

1/4" = 1'-0"

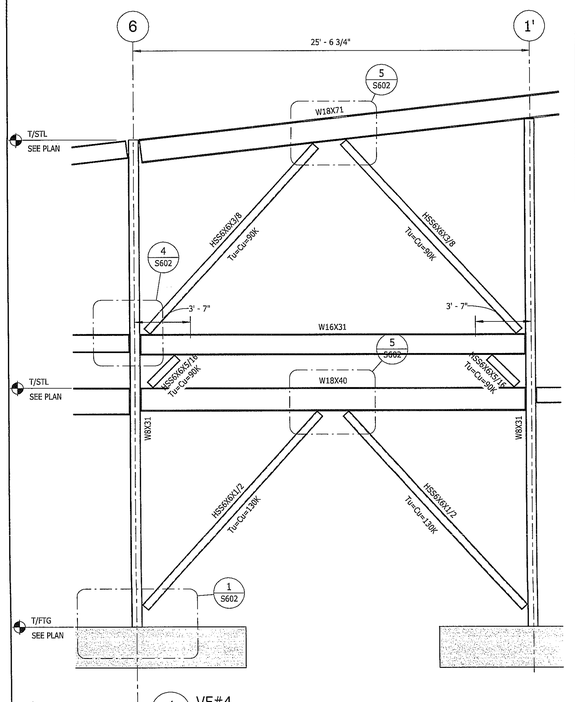
NOTES:
1. SEE 1/S600 FOR TYPICAL NOTES.




6 / S600 VF#6

1/4" = 1'-0"

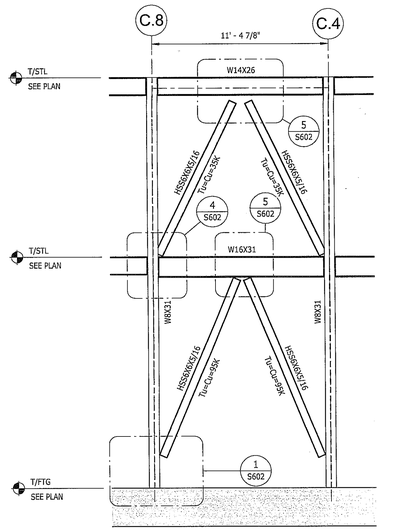
NOTES:
1. SEE 1/S600 FOR TYPICAL NOTES.




4 / S600 VF#4

1/4" = 1'-0"

NOTES:
1. SEE 1/S600 FOR TYPICAL NOTES.




2 / S600 VF#2

1/4" = 1'-0"

NOTES:
1. SEE 1/S600 FOR TYPICAL NOTES.

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NORTH CAROLINA PROFESSIONAL SEAL 024096 ENGINEER MICHAEL A. GARDINER
1/30/14

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**FAST Multi-Modal Center**

City of Fayetteville
Fayetteville, NC

| | |
|---|---|
| Project Number | 621A |

Title
**Vertical Frame Elevations**

Sheet
# S600

Plate of

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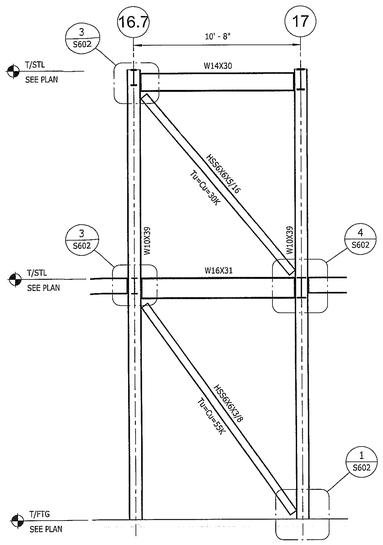
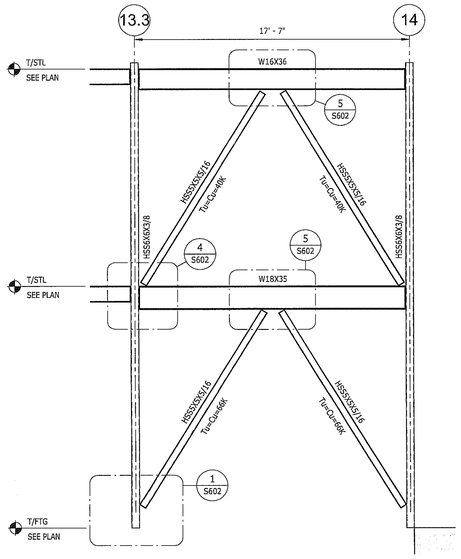
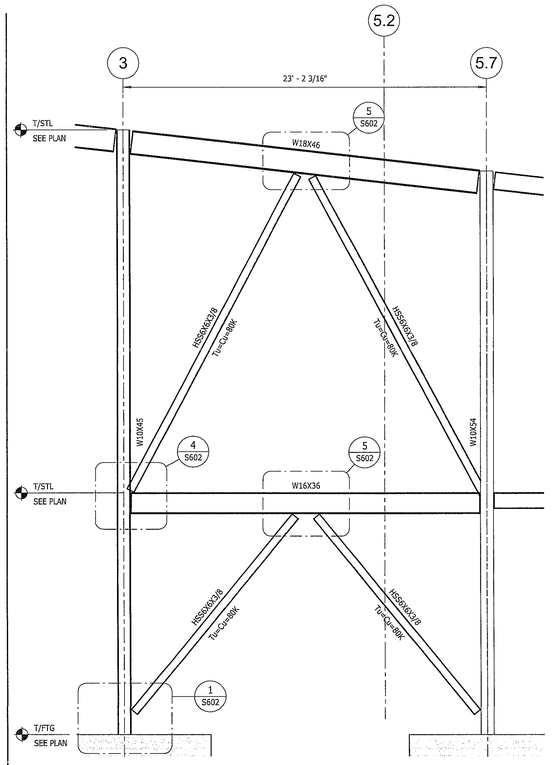


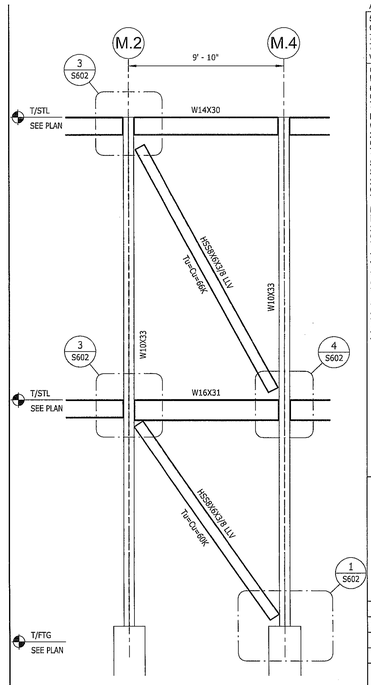

7 S601 VF#15
1/4" = 1'-0"
NOTES:
1. SEE 1/S600 FOR TYPICAL NOTES.



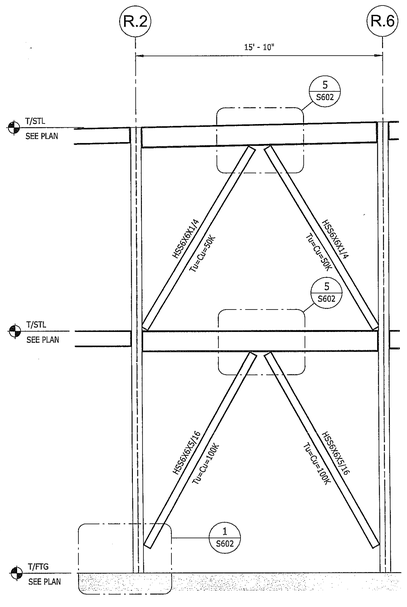

5 S601 VF#13
1/4" = 1'-0"
NOTES:
1. SEE 1/S600 FOR TYPICAL NOTES.



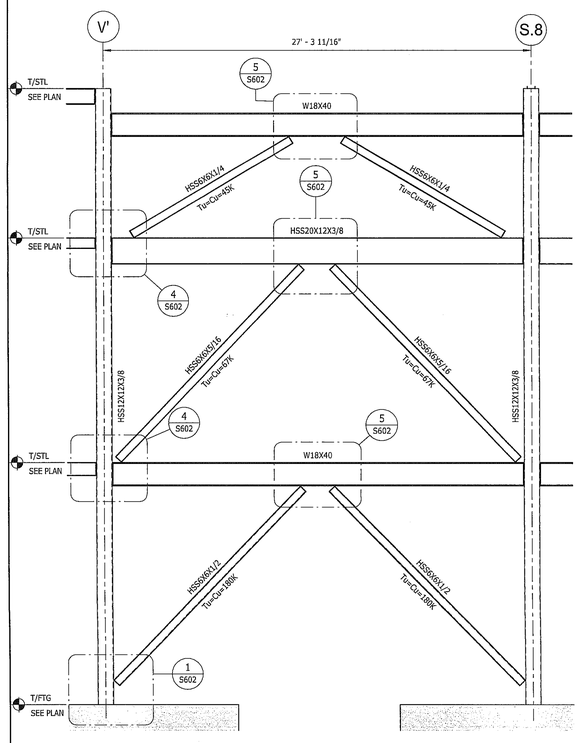

3 S601 VF#11
1/4" = 1'-0"
NOTES:
1. SEE 1/S600 FOR TYPICAL NOTES.



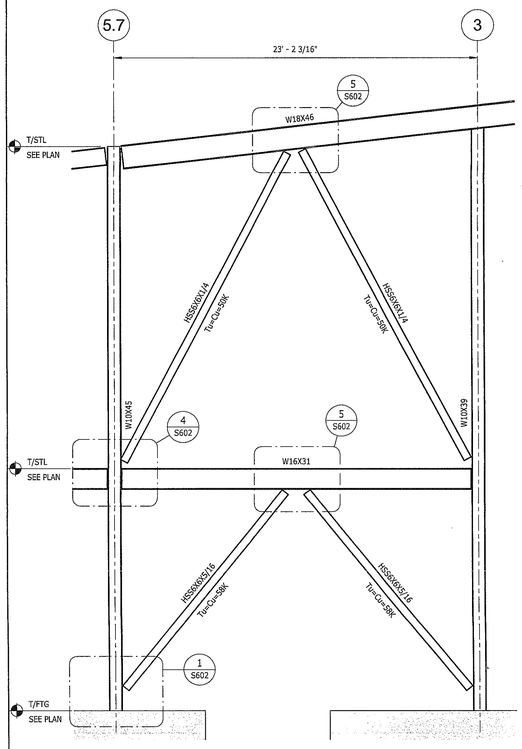

1 S601 VF#9
1/4" = 1'-0"
NOTES:
1. SEE 1/S600 FOR TYPICAL NOTES.




6 S601 VF#14
1/4" = 1'-0"
NOTES:
1. SEE 1/S600 FOR TYPICAL NOTES.




4 S601 VF#12
1/4" = 1'-0"
NOTES:
1. SEE 1/S600 FOR TYPICAL NOTES.




2 S601 VF#10
1/4" = 1'-0"
NOTES:
1. SEE 1/S600 FOR TYPICAL NOTES.

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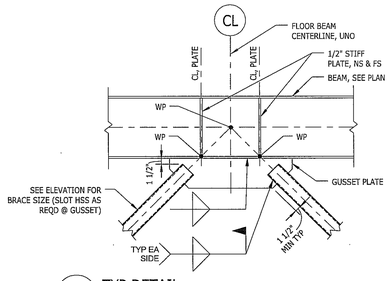
**FAST Multi-Modal Center**
City of Fayetteville
Fayetteville, NC

Project Number 621A

Title
**Vertical Frame Elevations**

Sheet
# S601

Plate of

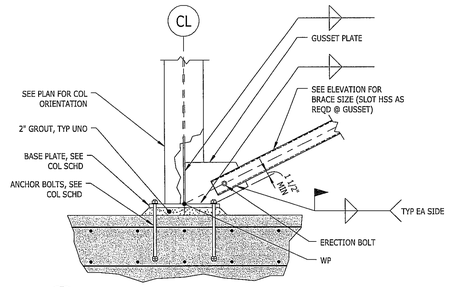



5 S602 TYP DETAIL

3/4" = 1'-0"

NOTES:

1. FABRICATOR SHALL DESIGN ALL BEAM TO COLUMN CONNECTIONS, GUSSET PLATES, AND WELDS WITHIN VERTICAL FRAME TO SUPPORT THE HORIZONTAL AND VERTICAL COMPONENTS OF THE BRACE FORCE PLUS THE BEAM REACTION SHOWN ON THE ELEVATION. ALLOWABLE STRESS INCREASES OR LOAD REDUCTIONS ARE NOT PERMITTED.

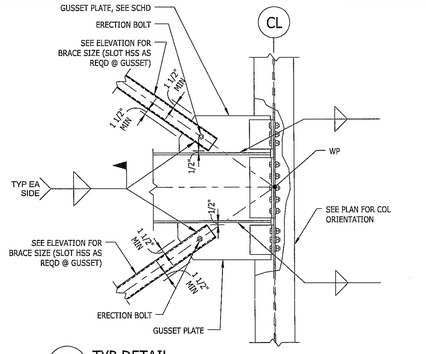



1 S602 TYP DETAIL

3/4" = 1'-0"

NOTES:

1. FABRICATOR SHALL DESIGN ALL BEAM TO COLUMN CONNECTIONS, GUSSET PLATES, AND WELDS WITHIN VERTICAL FRAME TO SUPPORT THE HORIZONTAL AND VERTICAL COMPONENTS OF THE BRACE FORCE PLUS THE BEAM REACTION SHOWN ON THE ELEVATION. ALLOWABLE STRESS INCREASES OR LOAD REDUCTIONS ARE NOT PERMITTED.

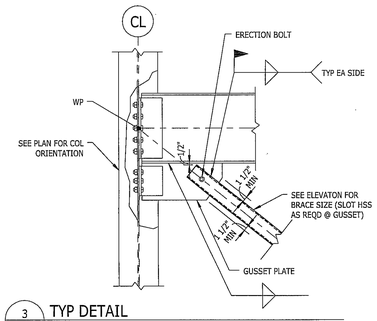



2 S602 TYP DETAIL

3/4" = 1'-0"

NOTES:

1. FABRICATOR SHALL DESIGN ALL BEAM TO COLUMN CONNECTIONS, GUSSET PLATES, AND WELDS WITHIN VERTICAL FRAME TO SUPPORT THE HORIZONTAL AND VERTICAL COMPONENTS OF THE BRACE FORCE PLUS THE BEAM REACTION SHOWN ON THE ELEVATION. ALLOWABLE STRESS INCREASES OR LOAD REDUCTIONS ARE NOT PERMITTED.

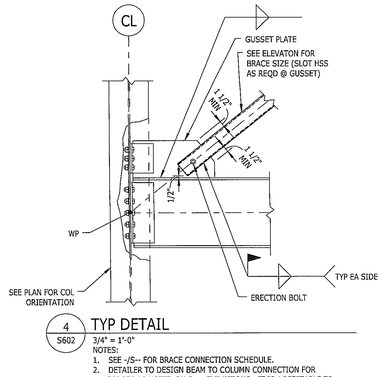



3 S602 TYP DETAIL

3/4" = 1'-0"

NOTES:

1. FABRICATOR SHALL DESIGN ALL BEAM TO COLUMN CONNECTIONS, GUSSET PLATES, AND WELDS WITHIN VERTICAL FRAME TO SUPPORT THE HORIZONTAL AND VERTICAL COMPONENTS OF THE BRACE FORCE PLUS THE BEAM REACTION SHOWN ON THE ELEVATION. ALLOWABLE STRESS INCREASES OR LOAD REDUCTIONS ARE NOT PERMITTED.




4 S602 TYP DETAIL

3/4" = 1'-0"

NOTES:

1. SEE -/S-- FOR BRACE CONNECTION SCHEDULE.
2. DETAILER TO DESIGN BEAM TO COLUMN CONNECTION FOR FORCES AS NOTED ON S--- ELEVATIONS. IT IS ACCEPTABLE TO PROVIDE GUSSET TO COLUMN CONNECTION.

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NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 034096 MICHAEL A. GARD 2/5/14

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**FAST Multi-Modal Center**
City of Fayetteville
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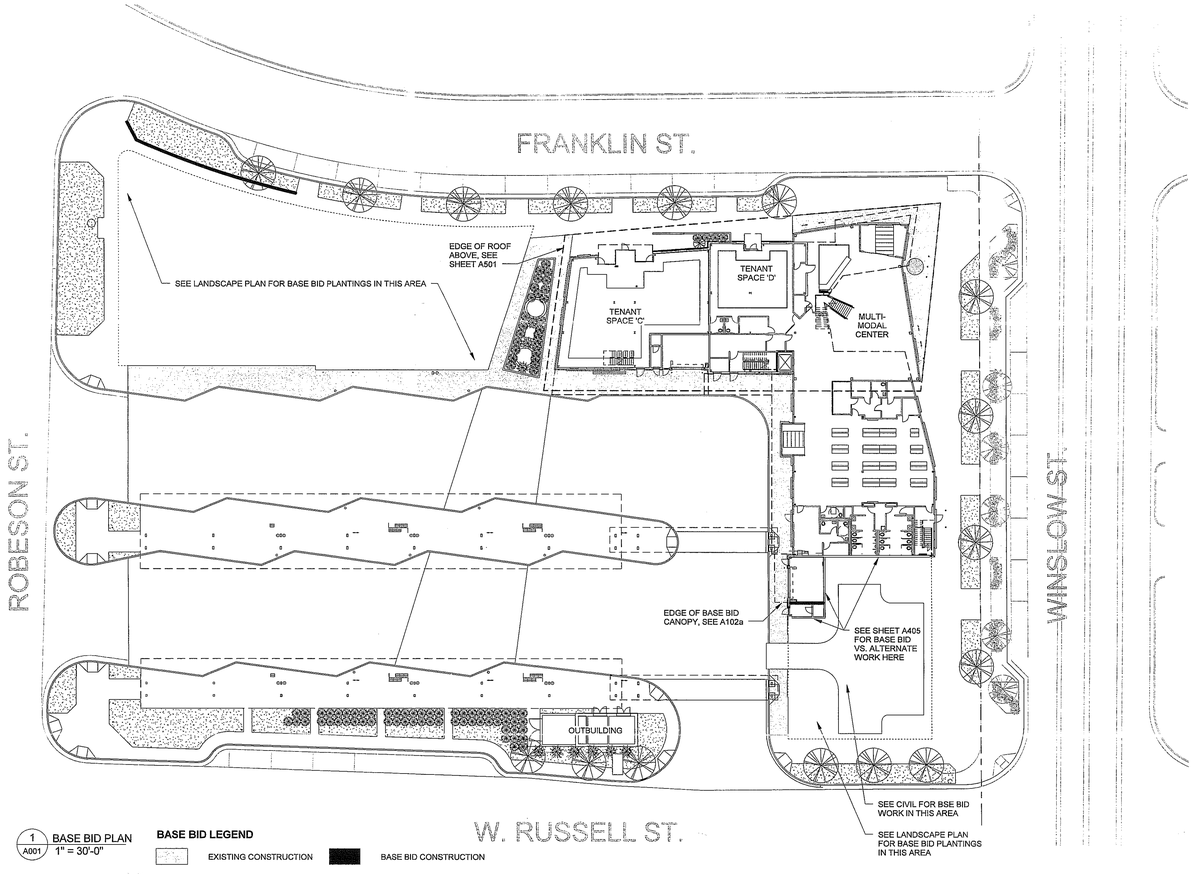
Project Number 621A

Title
**Vertical Frame Details**

Sheet
# S602

Plate of

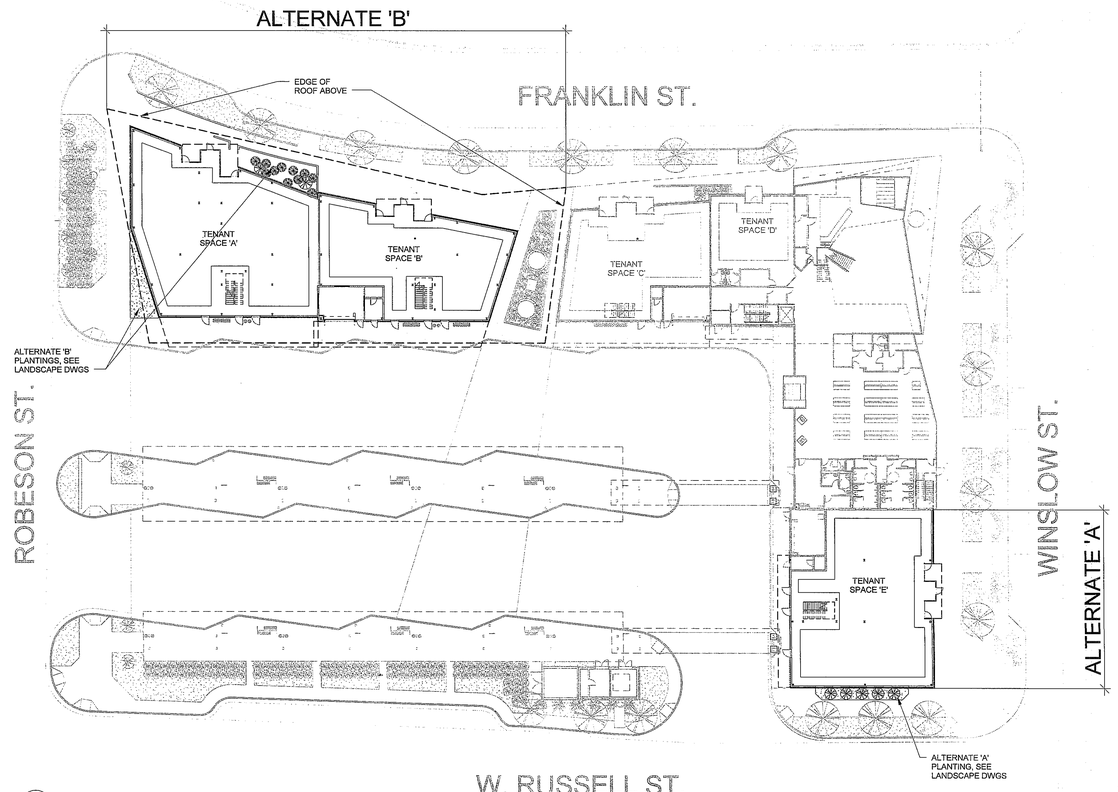



1 A001 BASE BID PLAN
1" = 30'-0"

**BASE BID LEGEND**

EXISTING CONSTRUCTION

BASE BID CONSTRUCTION




2 A001 ALTERNATE A & B PLANS
1" = 30'-0"

**ALTERNATES LEGEND**

EXISTING OR BASE BID CONSTRUCTION

ALTERNATES 'A' & 'B' CONSTRUCTION

# NOTES

1. DRAWINGS SHOW BASE BID & ALL ALTERNATES COMPLETED UNLESS OTHERWISE NOTED. SEE SHEETS A102a, A301-A304, A405, & A501, & OTHER DRAWINGS THAT SPECIFY SCOPE OF BASE BID & ALTERNATE WORK.

2. CANOPIES ATTACHED TO BUILDINGS ARE PART OF THAT BUILDING'S PHASE.

3. REFER TO ALL OTHER TRADES' DRAWINGS FOR RELEVANT SCOPE OF BASE BID & ALTERNATE WORK.

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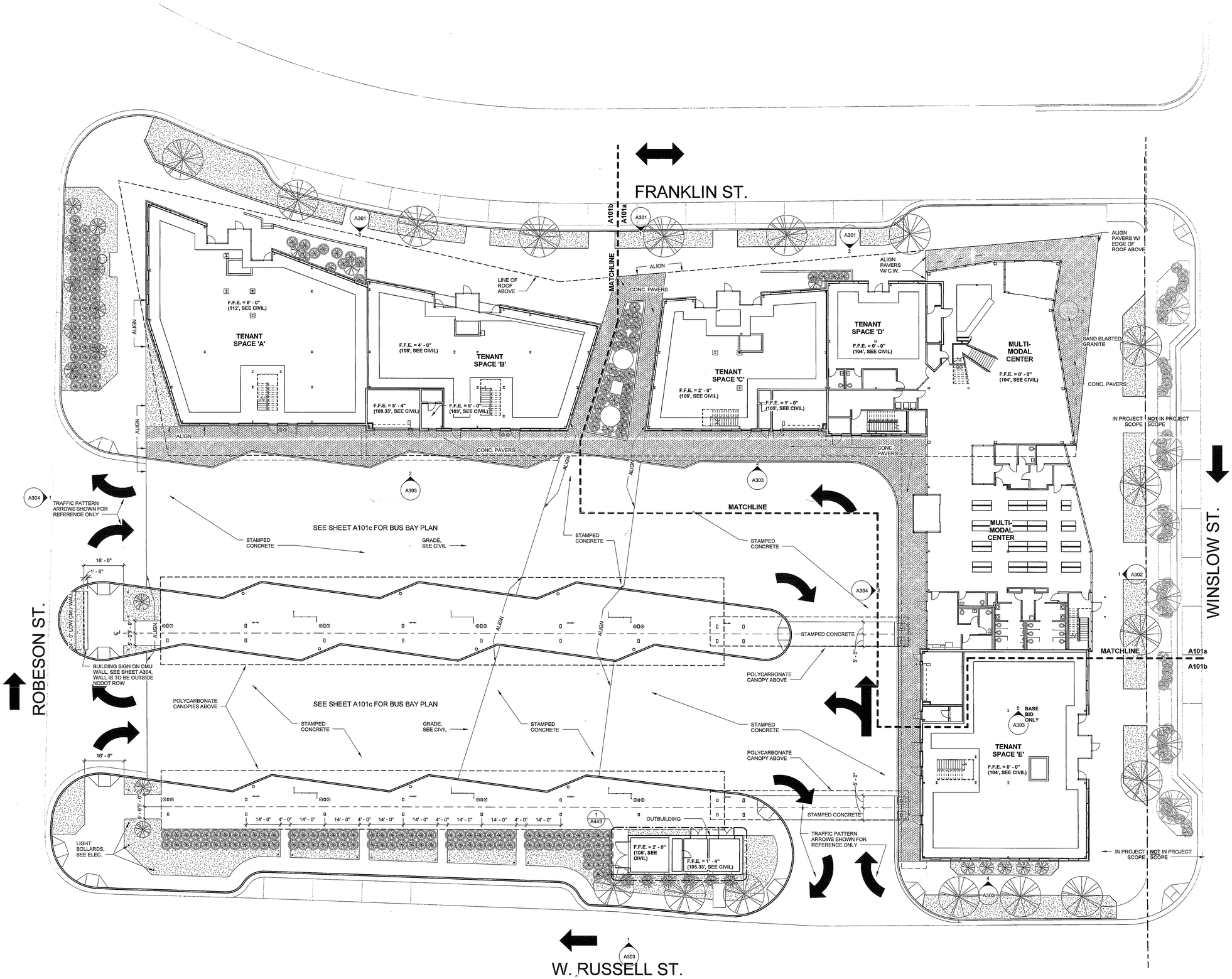
**FAST Multi-Modal Center**
City of Fayetteville
Fayetteville, NC

Project Number 621A

Title
**Phasing Plan and Phasing Notes**

Sheet
A001

Plate of




1 A100a SITE PLAN & LEVEL 1 OVERALL PLAN
1/16" = 1'-0"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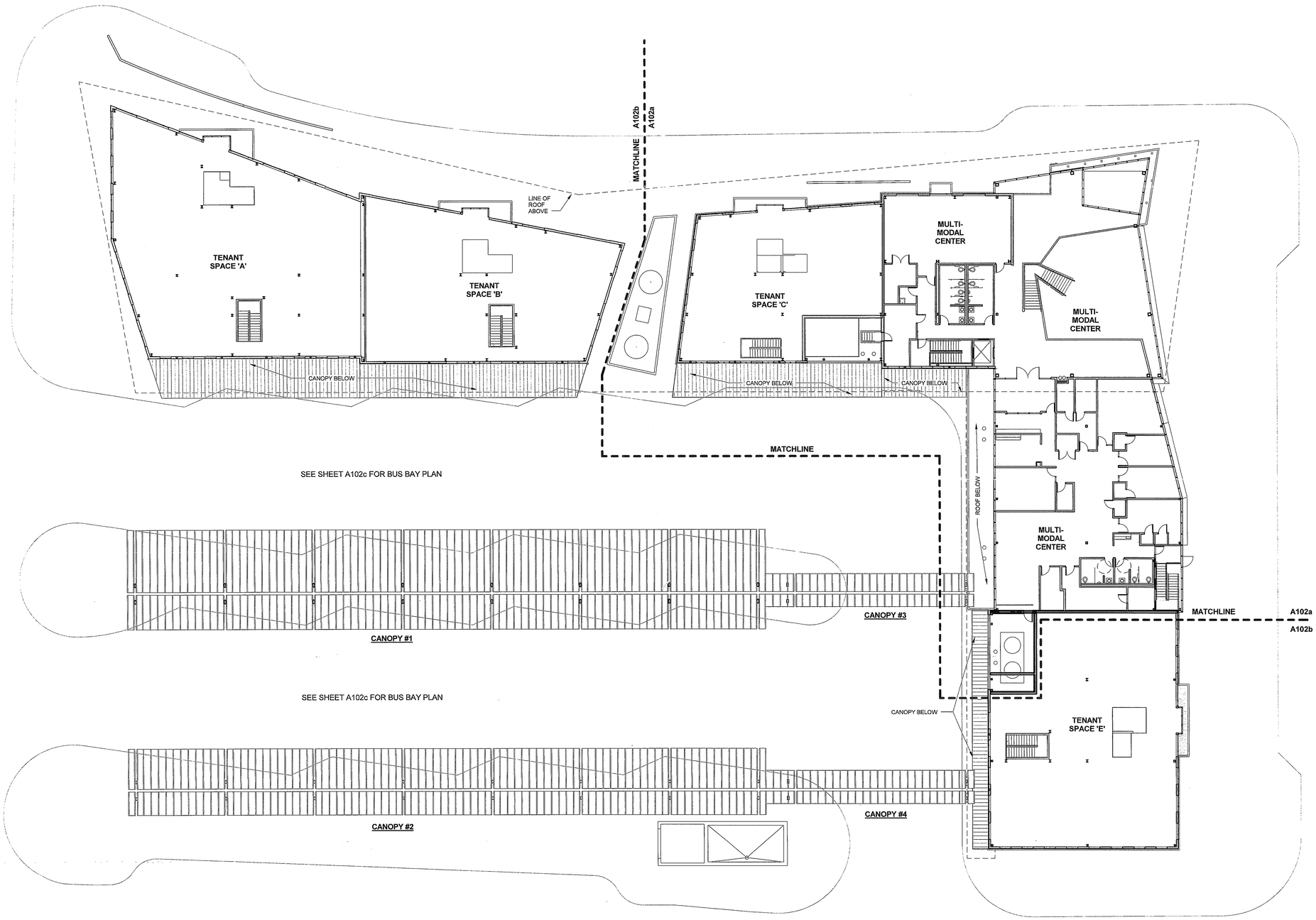
**FAST Multi-Modal Center**
City of Fayetteville
Fayetteville, NC

Project Number 621A

Title
**Site Plan & Level 1 Overall Plan**

Sheet
# A100a

Plate of




N

1 / A100b LEVEL 2 OVERALL PLAN
1/16" = 1'-0"

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**FAST Multi-Modal Center**
City of Fayetteville
Fayetteville, NC

Project Number 621A

Title
**Level 2 Overall Plan**

Sheet
# A100b

Plate of

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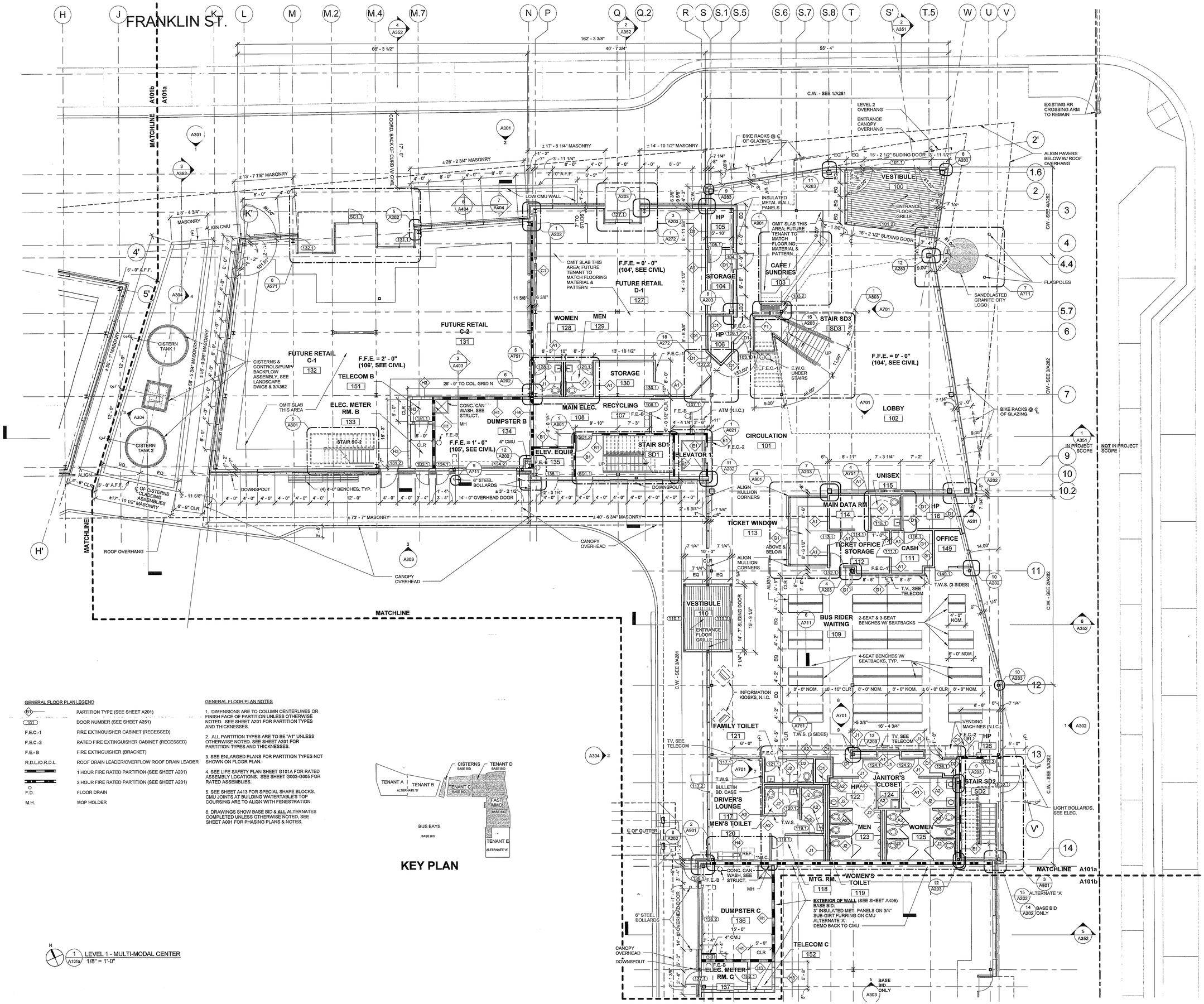


GENERAL FLOOR PLAN LEGEND

| | |
|---|---|
| (B1) | PARTITION TYPE (SEE SHEET A201) |
| (101) | DOOR NUMBER (SEE SHEET A251) |
| F.E.C.-1 | FIRE EXTINGUISHER CABINET (RECESSED) |
| F.E.C.-2 | RATED FIRE EXTINGUISHER CABINET (RECESSED) |
| F.E.- B | FIRE EXTINGUISHER (BRACKET) |
| R.D.L./O.R.D.L. | ROOF DRAIN LEADER/OVERFLOW ROOF DRAIN LEADER |
| | 1 HOUR FIRE RATED PARTITION (SEE SHEET A201) |
| | 2 HOUR FIRE RATED PARTITION (SEE SHEET A201) |
| F.D. | FLOOR DRAIN |
| M.H. | MOP HOLDER |

GENERAL FLOOR PLAN NOTES

1. DIMENSIONS ARE TO COLUMN CENTERLINES OR FINISH FACE OF PARTITION UNLESS OTHERWISE NOTED. SEE SHEET A201 FOR PARTITION TYPES AND THICKNESSES.

2. ALL PARTITION TYPES ARE TO BE "A1" UNLESS OTHERWISE NOTED. SEE SHEET A201 FOR PARTITION TYPES AND THICKNESSES.

3. SEE ENLARGED PLANS FOR PARTITION TYPES NOT SHOWN ON FLOOR PLAN.

4. SEE LIFE SAFETY PLAN SHEET G101A FOR RATED ASSEMBLY LOCATIONS. SEE SHEET G003-G005 FOR RATED ASSEMBLIES.

5. SEE SHEET A413 FOR SPECIAL SHAPE BLOCKS. CMU JOINTS AT BUILDING WATERTABLE'S TOP COURSING ARE TO ALIGN WITH FENESTRATION.

6. DRAWINGS SHOW BASE BID & ALL ALTERNATES COMPLETED UNLESS OTHERWISE NOTED. SEE SHEET A001 FOR PHASING PLANS & NOTES.

N

1 / A101a LEVEL 1 - MULTI-MODAL CENTER
1/8" = 1'-0"


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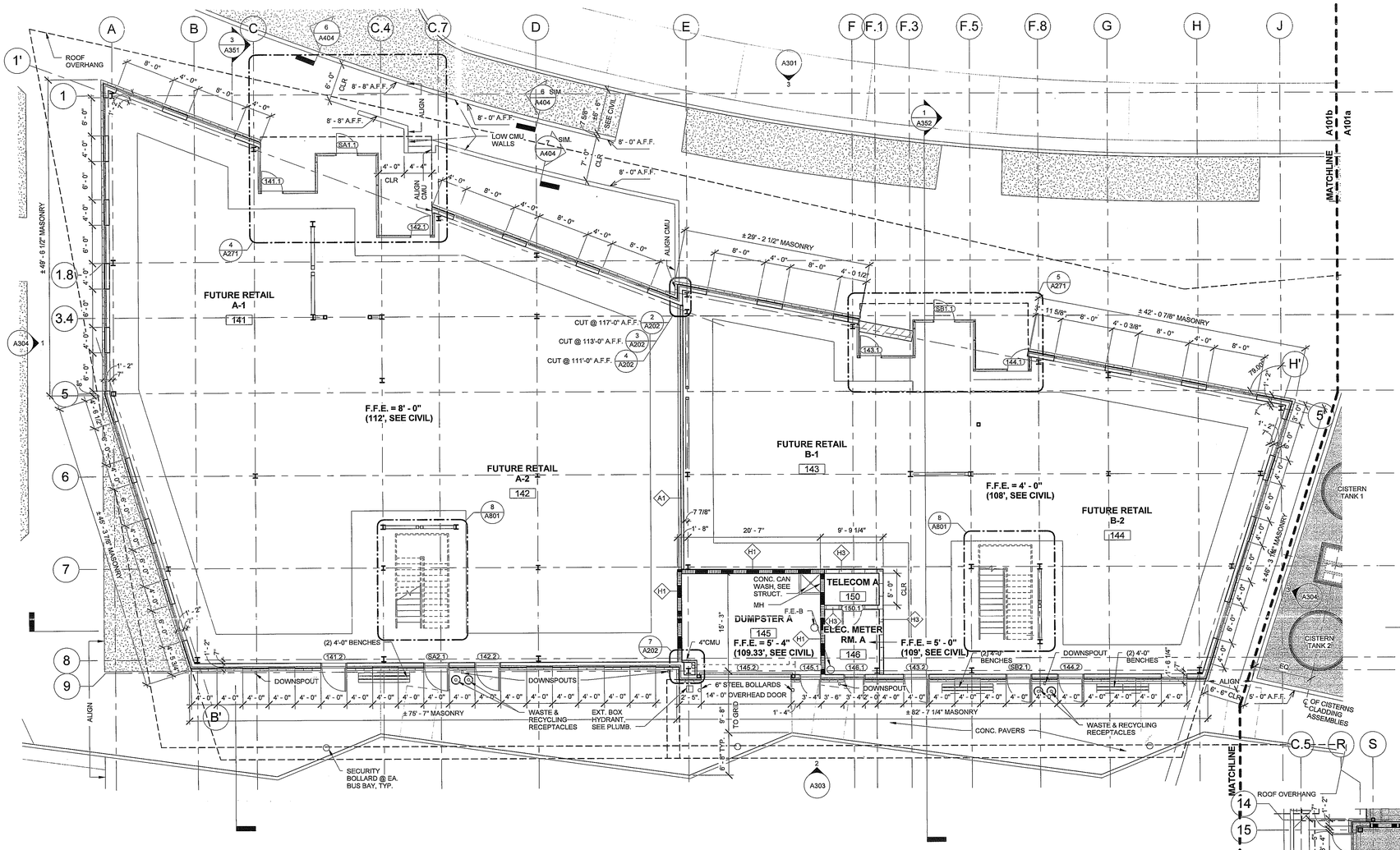
**FAST Multi-Modal Center**
City of Fayetteville
Fayetteville, NC

Project Number 621A

Title
**Level 1 Plan - Multi-Modal Center**

Sheet
# A101a

Plate of




N 1 A101b LEVEL 1 - TENANT SPACES A & B
1/8" = 1'-0"

GENERAL FLOOR PLAN LEGEND

| | |
|---|---|
| B1 | PARTITION TYPE (SEE SHEET A201) |
| 101 | DOOR NUMBER (SEE SHEET A251) |
| F.E.C.-1 | FIRE EXTINGUISHER CABINET (RECESSED) |
| F.E.C.-2 | RATED FIRE EXTINGUISHER CABINET (RECESSED) |
| F.E.- B | FIRE EXTINGUISHER (BRACKET) |
| R.D.L./O.R.D.L. | ROOF DRAIN LEADER/OVERFLOW ROOF DRAIN LEADER |
| | 1 HOUR FIRE RATED PARTITION (SEE SHEET A201) |
| | 2 HOUR FIRE RATED PARTITION (SEE SHEET A201) |
| F.D. | FLOOR DRAIN |
| M.H. | MOP HOLDER |

GENERAL FLOOR PLAN NOTES

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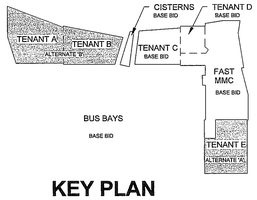
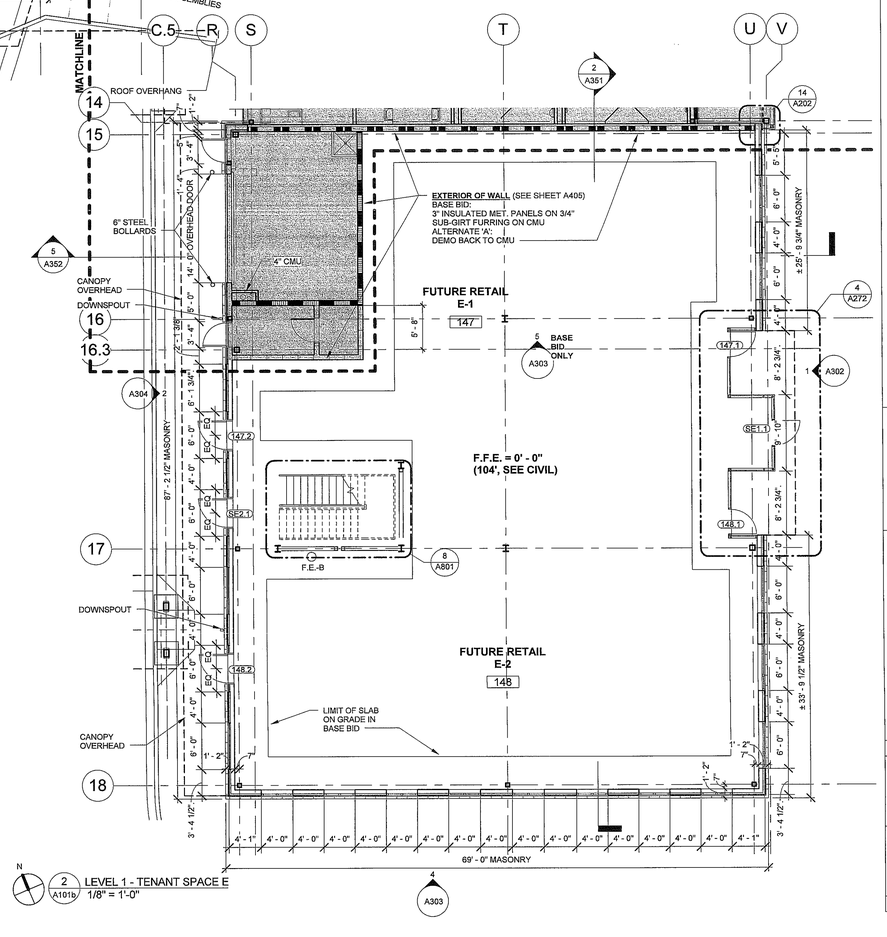



KEY PLAN




N 2 A101b LEVEL 1 - TENANT SPACE E
1/8" = 1'-0"

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# FAST Multi-Modal Center

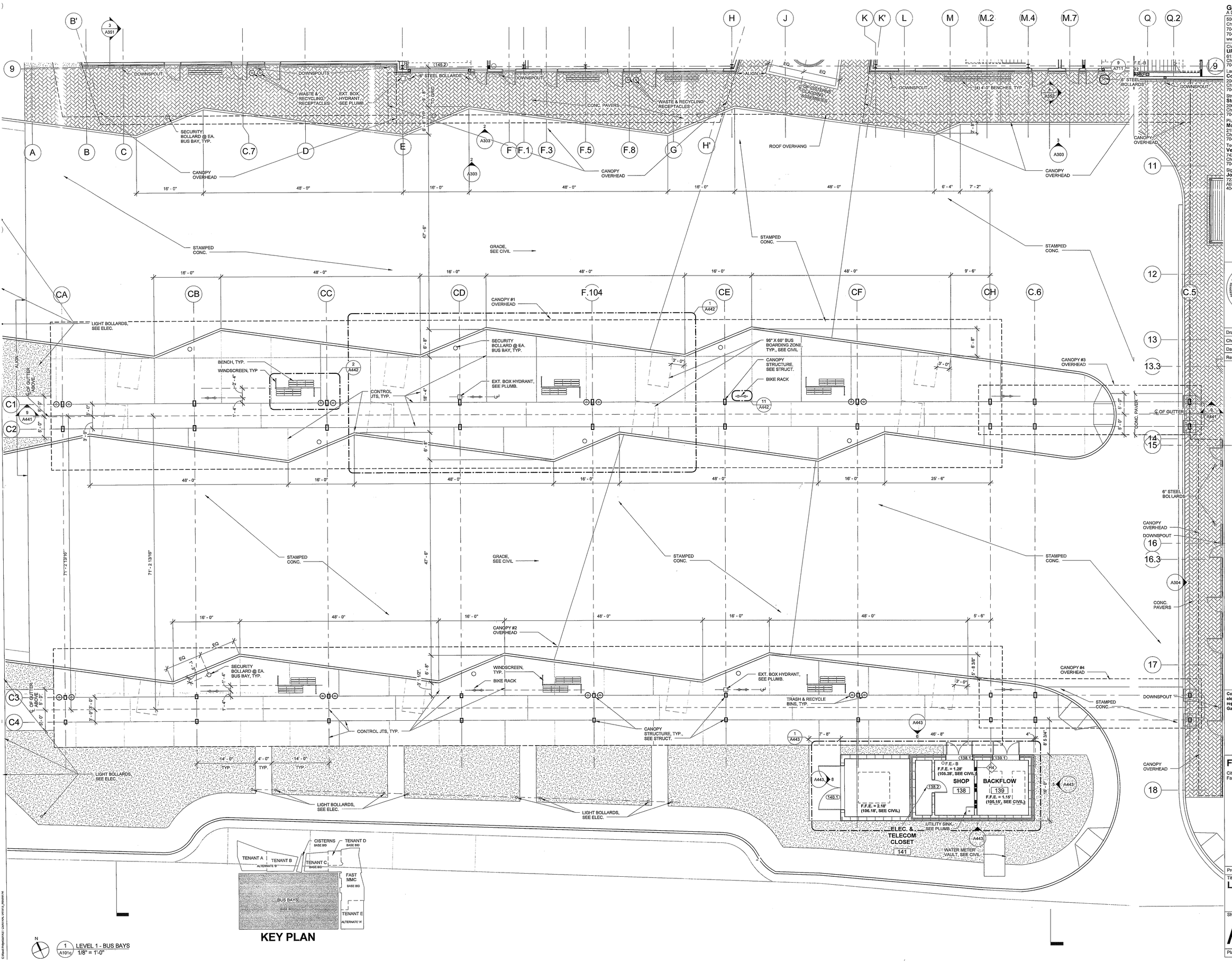
City of Fayetteville
Fayetteville, NC

Project Number 621A

Title
## Level 1 Plan - Tenant Spaces

Sheet
# A101b

Plate of

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**FAST Multi-Modal Center**
City of Fayetteville
Fayetteville, NC

Project Number 621A

Title
**Level 1 Plan - Bus Bays**

Sheet
# A101c

Plate of

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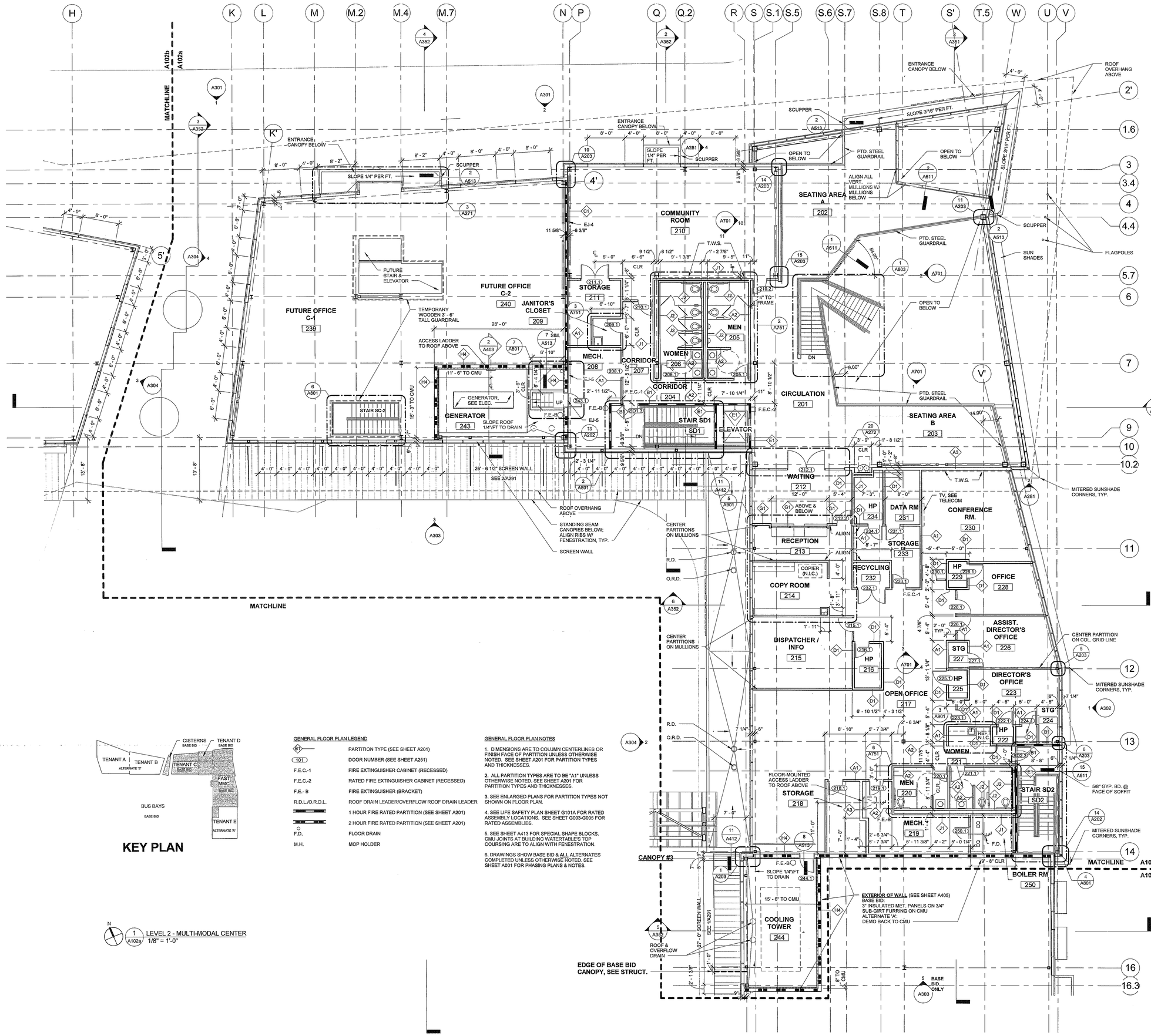





## KEY PLAN

GENERAL FLOOR PLAN LEGEND

| | |
|---|---|
| G1 | PARTITION TYPE (SEE SHEET A201) |
| 101 | DOOR NUMBER (SEE SHEET A251) |
| F.E.C.-1 | FIRE EXTINGUISHER CABINET (RECESSED) |
| F.E.C.-2 | RATED FIRE EXTINGUISHER CABINET (RECESSED) |
| F.E.- B | FIRE EXTINGUISHER (BRACKET) |
| R.D.L./O.R.D.L. | ROOF DRAIN LEADER/OVERFLOW ROOF DRAIN LEADER |
| | 1 HOUR FIRE RATED PARTITION (SEE SHEET A201) |
| | 2 HOUR FIRE RATED PARTITION (SEE SHEET A201) |
| F.D. | FLOOR DRAIN |
| M.H. | MOP HOLDER |

GENERAL FLOOR PLAN NOTES

1. DIMENSIONS ARE TO COLUMN CENTERLINES OR FINISH FACE OF PARTITION UNLESS OTHERWISE NOTED. SEE SHEET A201 FOR PARTITION TYPES AND THICKNESSES.
2. ALL PARTITION TYPES ARE TO BE "A1" UNLESS OTHERWISE NOTED. SEE SHEET A201 FOR PARTITION TYPES AND THICKNESSES.
3. SEE ENLARGED PLANS FOR PARTITION TYPES NOT SHOWN ON FLOOR PLAN.
4. SEE LIFE SAFETY PLAN SHEET G101A FOR RATED ASSEMBLY LOCATIONS. SEE SHEET G003-G005 FOR RATED ASSEMBLIES.
5. SEE SHEET A413 FOR SPECIAL SHAPE BLOCKS. CMU JOINTS AT BUILDING WATERTABLES TOP COURSING ARE TO ALIGN WITH FENESTRATION.
6. DRAWINGS SHOW BASE BID & ALL ALTERNATES COMPLETED UNLESS OTHERWISE NOTED. SEE SHEET A001 FOR PHASING PLANS & NOTES.

N

1 / A102a LEVEL 2 - MULTI-MODAL CENTER
1/8" = 1'-0"


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**FAST Multi-Modal Center**
City of Fayetteville
Fayetteville, NC

Project Number 621A

Title
**Level 2 Plan - Multi-Modal Center**

Sheet
# A102a

Plate of


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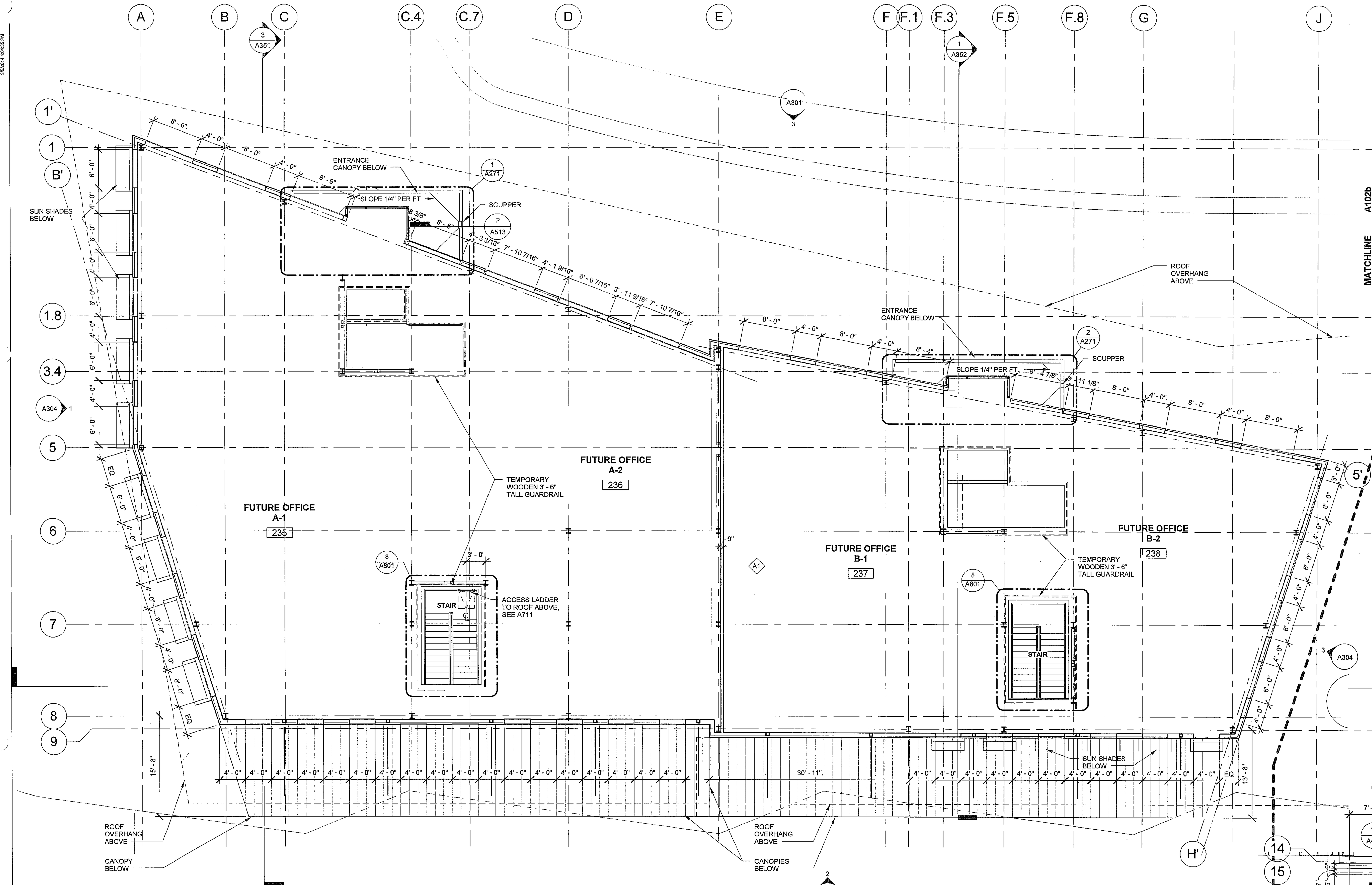
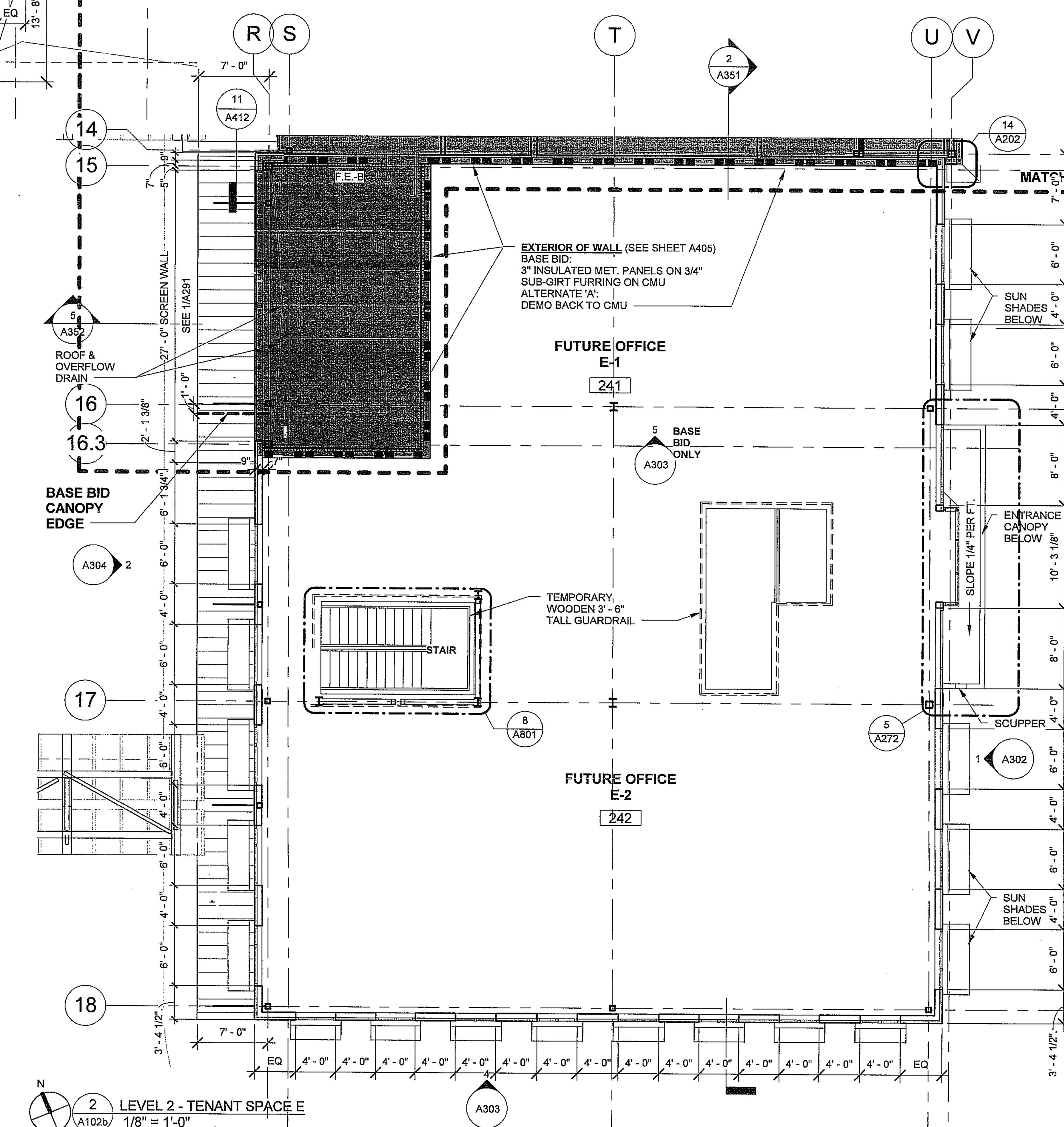



1 LEVEL 2 - TENANT SPACES A & B
A102b 1/8" = 1'-0"




2 LEVEL 2 - TENANT SPACE E
A102b 1/8" = 1'-0"

GENERAL FLOOR PLAN LEGEND

| | |
|---|---|
| B1 | PARTITION TYPE (SEE SHEET A201) |
| 101 | DOOR NUMBER (SEE SHEET A251) |
| F.E.C.-1 | FIRE EXTINGUISHER CABINET (RECESSED) |
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| F.E.- B | FIRE EXTINGUISHER (BRACKET) |
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| | 1 HOUR FIRE RATED PARTITION (SEE SHEET A201) |
| | 2 HOUR FIRE RATED PARTITION (SEE SHEET A201) |
| F.D. | FLOOR DRAIN |
| M.H. | MOP HOLDER |

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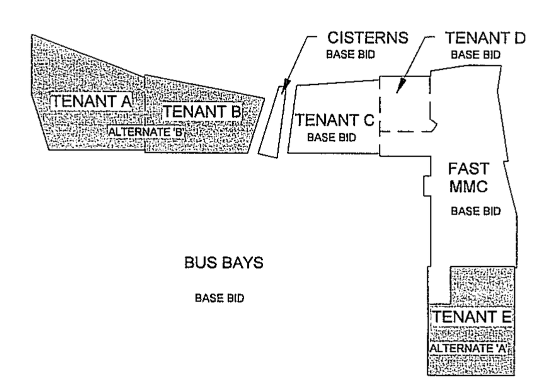


KEY PLAN


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| Revisions | |


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**FAST Multi-Modal Center**
City of Fayetteville
Fayetteville, NC

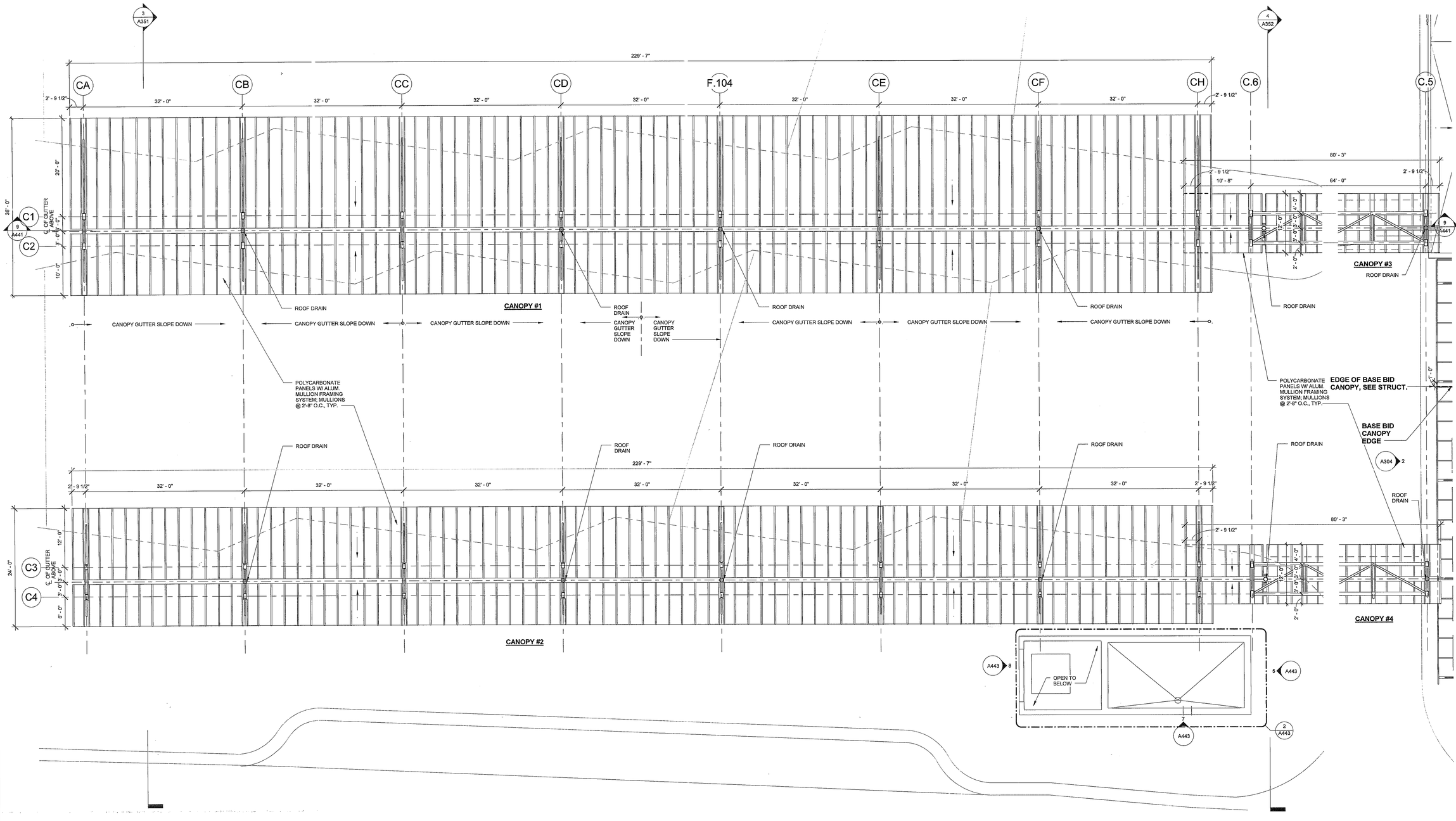
Project Number 621A

Title
**Level 2 Plan - Tenant Spaces**

Sheet
# A102b

Plate of


3/5/2014 4:04:35 PM
C:\Revit Projects\FAST CENTRAL 041513_mbutler.rvt




N

1 ROOF PLAN - BUS BAYS
A102c 1/8" = 1'-0"

GENERAL FLOOR PLAN LEGEND

| | |
|---|---|
| 01 | PARTITION TYPE (SEE SHEET A201) |
| 101 | DOOR NUMBER (SEE SHEET A251) |
| F.E.C.-1 | FIRE EXTINGUISHER CABINET (RECESSED) |
| F.E.C.-2 | RATED FIRE EXTINGUISHER CABINET (RECESSED) |
| F.E.-B | FIRE EXTINGUISHER (BRACKET) |
| R.D.L./O.R.D.L. | ROOF DRAIN LEADER/OVERFLOW ROOF DRAIN LEADER |
| | 1 HOUR FIRE RATED PARTITION (SEE SHEET A201) |
| | 2 HOUR FIRE RATED PARTITION (SEE SHEET A201) |
| O F.D. | FLOOR DRAIN |
| M.H. | MOP HOLDER |

GENERAL FLOOR PLAN NOTES

1. DIMENSIONS ARE TO COLUMN CENTERLINES OR FINISH FACE OF PARTITION UNLESS OTHERWISE NOTED. SEE SHEET A201 FOR PARTITION TYPES AND THICKNESSES.

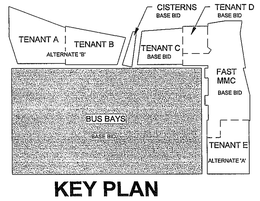
2. ALL PARTITION TYPES ARE TO BE "A1" UNLESS OTHERWISE NOTED. SEE SHEET A201 FOR PARTITION TYPES AND THICKNESSES.

3. SEE ENLARGED PLANS FOR PARTITION TYPES NOT SHOWN ON FLOOR PLAN.

4. SEE LIFE SAFETY PLAN SHEET G101A FOR RATED ASSEMBLY LOCATIONS. SEE SHEET G003-G005 FOR RATED ASSEMBLIES.

5. SEE SHEET A413 FOR SPECIAL SHAPE BLOCKS. CMU JOINTS AT BUILDING WATERTABLE'S TOP COURSING ARE TO ALIGN WITH FENESTRATION.

6. DRAWINGS SHOW BASE BID & ALL ALTERNATES COMPLETED UNLESS OTHERWISE NOTED. SEE SHEET A001 FOR PHASING PLANS & NOTES.




KEY PLAN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HARVEY B. GANTT REGISTERED ARCHITECT 2046 NORTH CAROLINA CHARLOTTE, NC

1/31/2014

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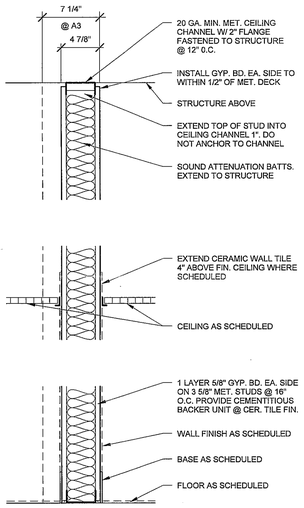
**FAST Multi-Modal Center**
City of Fayetteville
Fayetteville, NC

Project Number 621A

Title
**Level 2 Plan - Bus Bays**

Sheet
# A102c

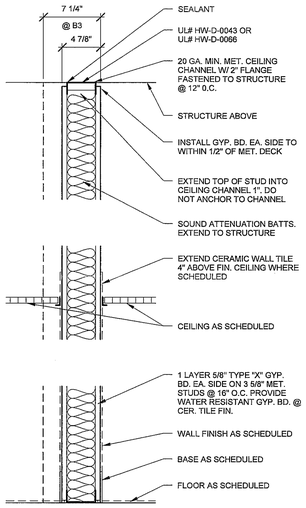
Plate of




**TYPE A1** — **NON-RATED - DEFAULT WALL TYPE U.O.N.**

TYPE A2 — SAME AS "A1" WITH CERAMIC TILE FINISH ON TOILET SIDE

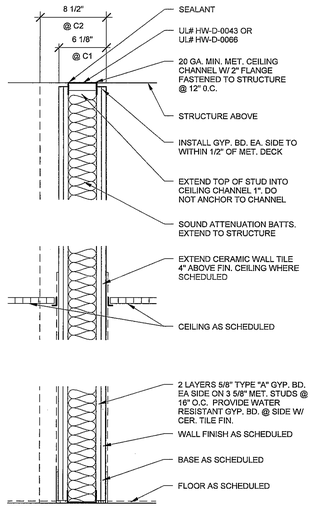
TYPE A3 — SAME AS "A1" EXCEPT 6" MET. STUDS @ 16" O.C. IN LIEW OF 3 5/8" MET. STUDS




TYPE B1 — 1 HOUR RATED BARRIER UL DESIGN #U465

TYPE B2 — SAME A "B1" WITH CERAMIC TILE FINISH ON TOILET SIDE

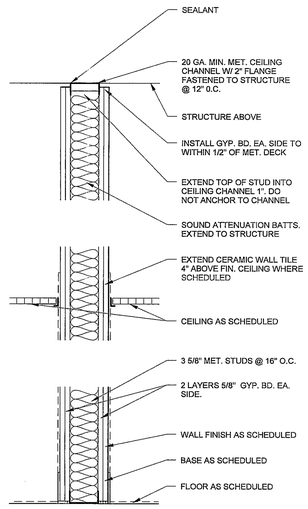
TYPE B3 — SAME A "B2" WITH 6" MET. STUDS




TYPE C1 — 2 HOUR RATED BARRIER UL DESIGN #U411

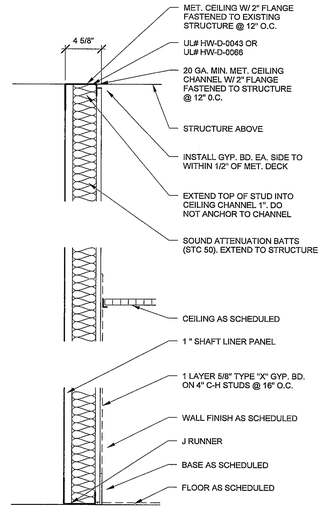
TYPE C2 — SAME AS "C1" EXCEPT CERAMIC TILE FINISH ON TOILET SIDE

TYPE C3 COLD- — SAME AS "C1" EXCEPT USE 6" FORMED MET. STUDS

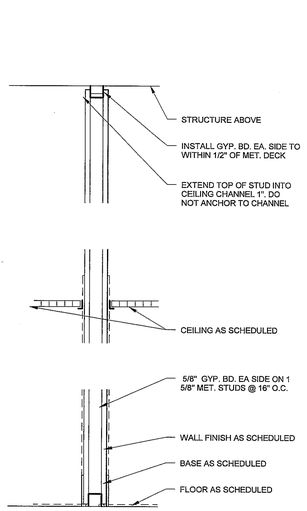



TYPE D1 — NON-RATED

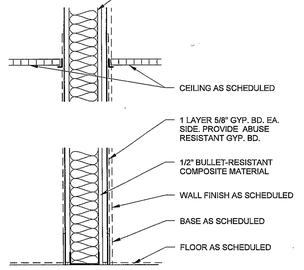
TYPE D2 — SAME AS "D1" EXCEPT WITH CERAMIC TILE FINISH ON TOILET SIDE. PROVIDE CEMENTITIOUS BACKER UNIT @ SIDE W/ CER. TILE FIN.



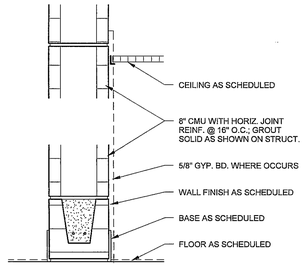

TYPE E1 — 1 HOUR RATED SHAFTWALL UL DESIGN #U415 SYSTEM A




TYPE F1 — NON-RATED




TYPE G1 — BULLET-RESISTANT PARTITION

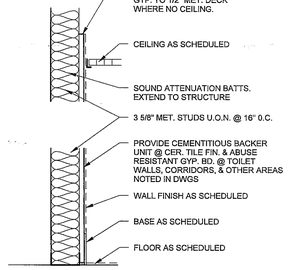



TYPE H1 — 1 HOUR RATED BARRIER UL DESIGN #U905

TYPE H2 — SAME AS TYPE "H1" WITH 1 LAYER 5/8" GYP. BD. ON CONDITIONED SIDE

TYPE H3 — NON-RATED CMU PARTITION

TYPE H4 — 2 HOUR RATED BARRIER UL DESIGN #U905



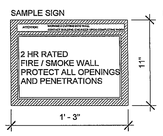

TYPE J1 — FURRED WALL USED WITH VARIOUS PARTITION TYPES

TYPE J2 — SAME AS "J1" WITH CERAMIC TILE FINISH

**NOTE:**
**ALL UNTAGGED WALLS ARE CONSIDERED TYPE "A1" U.O.N. REFER TO DRAWINGS.**

1 A201 PARTITION TYPES
1 1/2" = 1'-0"

SAMPLE SIGN




NOTES:

1. FIRE RATED WALLS SHALL BE EFFECTIVELY AND PERMANENTLY IDENTIFIED WITH SIGNS OR STENCILING IN A MANNER ACCEPTABLE TO THE AUTHORITY HAVING JURISDICTION. SUCH IDENTIFICATION SHALL BE ABOVE ANY DECORATIVE CEILING AND IN CONCEALED SPACES.
2. SIGNS SHALL BE STENCILED OR HUNG ALONG BOTH SIDES OF ALL FIRE RATED AND/OR SMOKE WALLS EVERY 12 LINEAR FEET O.C. THEY SHALL BE WORDED AS ILLUSTRATED.

2 A201 RATED WALL SIGNAGE
1 1/2" = 1'-0"

**EXPANSION JOINT SCHEDULE**

| MARK | MANUF. - MODEL # | FIRE RATING | COMMENTS |
|---|---|---|---|
| EJ-1 | C-S GROUP - SF-500 | - | - |
| EJ-2 | C-S GROUP - AFW-500 | - | - |
| EJ-3 | C-S GROUP - SRJ-500 | - | - |
| EJ-4 | C-S GROUP - SGRW-500 | - | - |
| EJ-5 | C-S GROUP - PCW-500 | - | - |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# FAST Multi-Modal Center

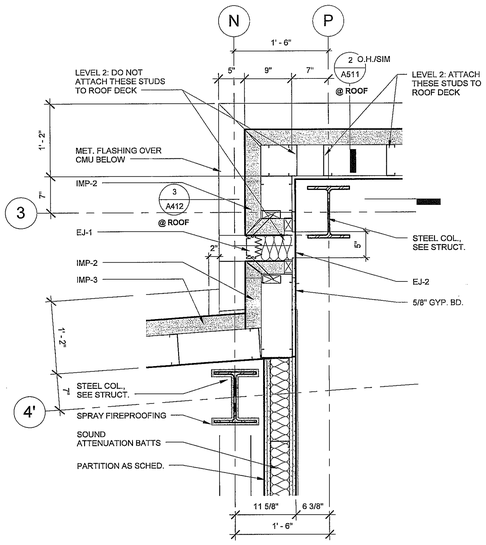
City of Fayetteville
Fayetteville, NC

Project Number 621A

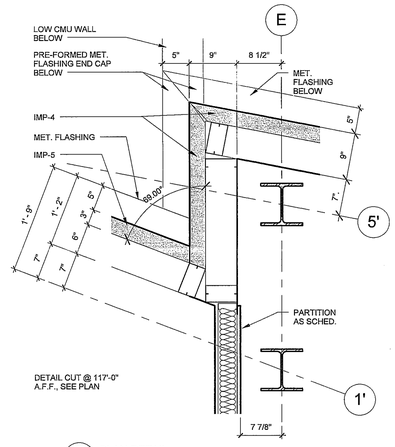
Title
## Partition Types

Sheet
# A201

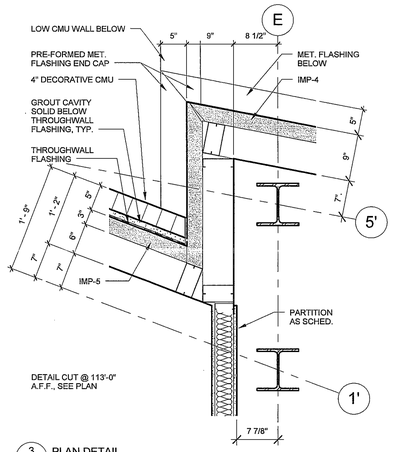
Plate of




1 A202 EXPANSION JOINT - NORTH END
1" = 1'-0"




2 A202 PLAN DETAIL
1" = 1'-0"




3 A202 PLAN DETAIL
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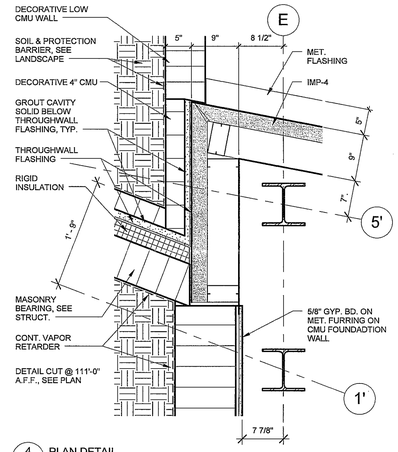
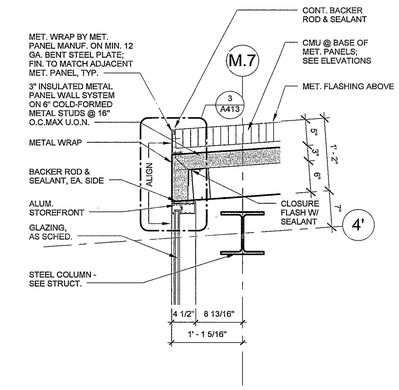



4 A202 PLAN DETAIL
1" = 1'-0"




5 A202 PLAN DETAIL
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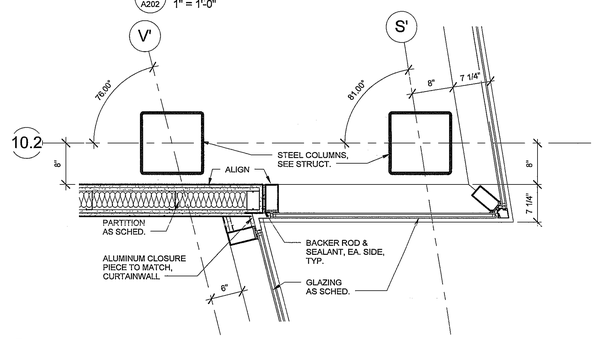
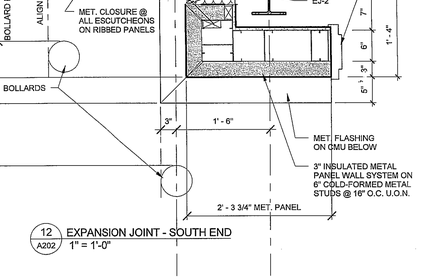
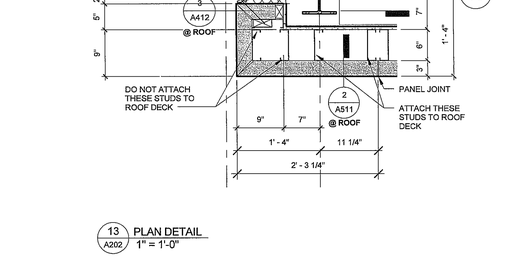



9 A202 PLAN DETAIL
1" = 1'-0"




6 A202 RATED EXPANSION JOINT
1" = 1'-0"




7 A202 PLAN DETAIL
1" = 1'-0"




8 A202 PLAN DETAIL
1" = 1'-0"

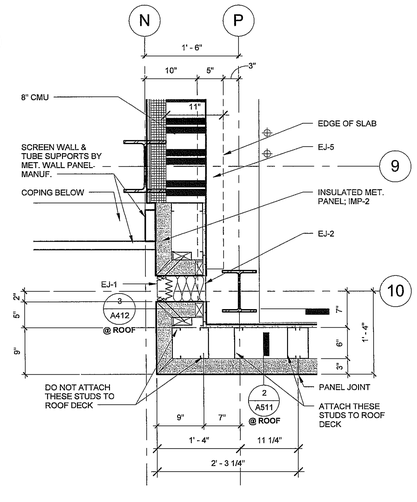



10 A202 PLAN DETAIL
1" = 1'-0"

11 A202 PLAN DETAIL
1" = 1'-0"




12 A202 EXPANSION JOINT - SOUTH END
1" = 1'-0"




13 A202 PLAN DETAIL
1" = 1'-0"




14 A202 BASE BID PLAN DETAIL
1" = 1'-0"




15 A202 PLAN DETAIL
1" = 1'-0"

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REGISTERED ARCHITECTURAL CORPORATION 52852 NORTH CAROLINA CHARLOTTE, NC

HARVEY B. GANTT REGISTERED ARCHITECT 4048 NORTH CAROLINA CHARLOTTE, NC

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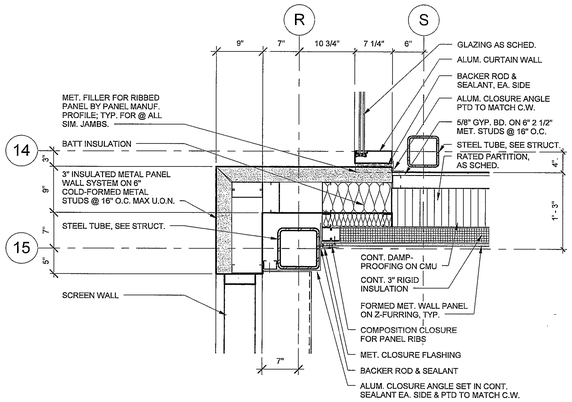
**FAST Multi-Modal Center**
City of Fayetteville
Fayetteville, NC

Project Number 621A

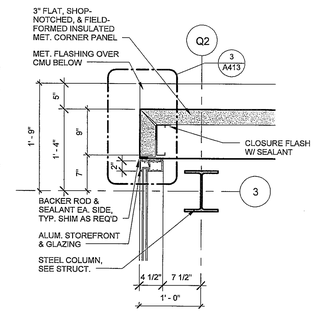
Title
**Plan Details**

Sheet
# A202

Plate of




1 PLAN DETAIL
A203 1" = 1'-0"

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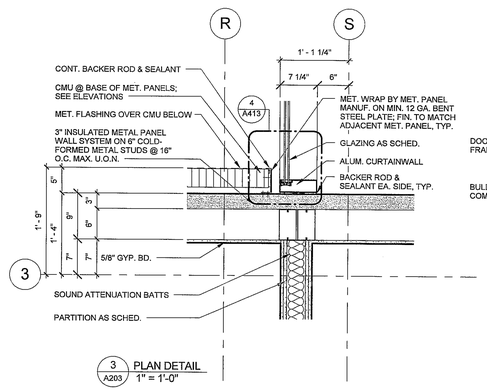


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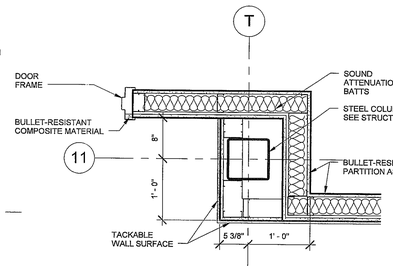


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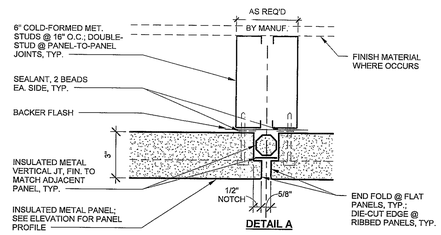
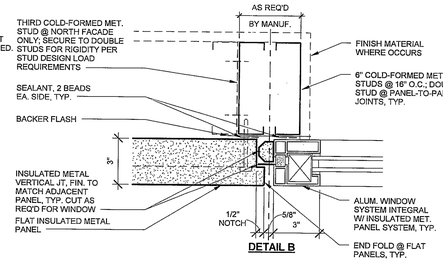



DETAIL A

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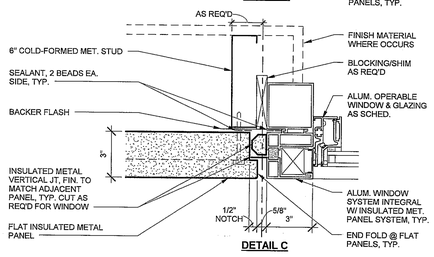


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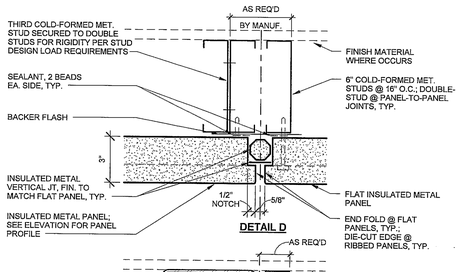


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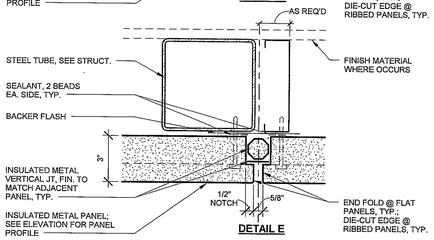


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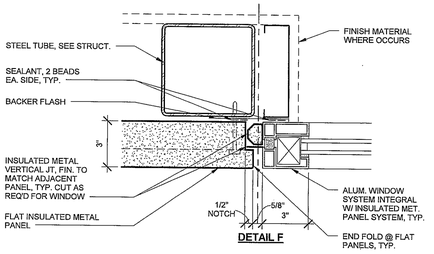
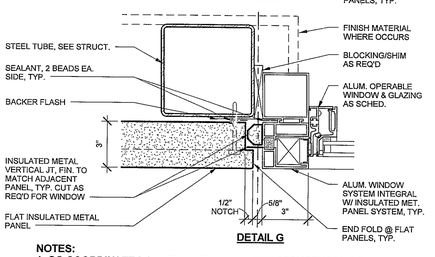
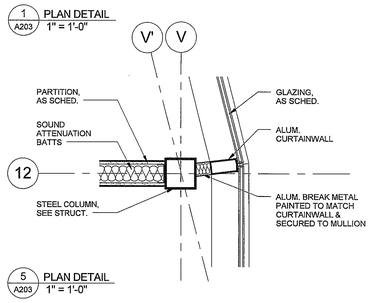


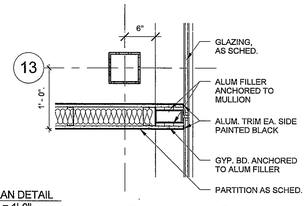

DETAIL F



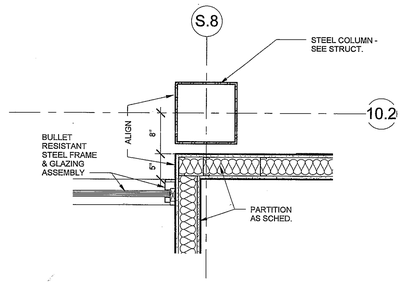

DETAIL G




5 PLAN DETAIL
A203 1" = 1'-0"




6 PLAN DETAIL
A203 1" = 1'-0"

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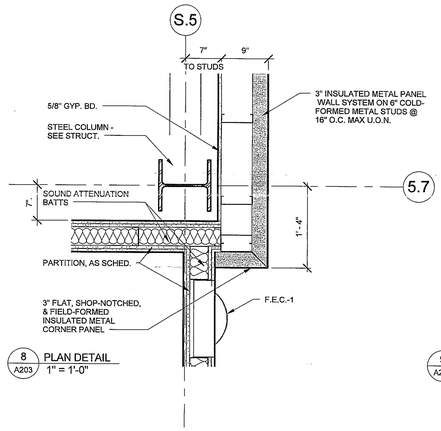
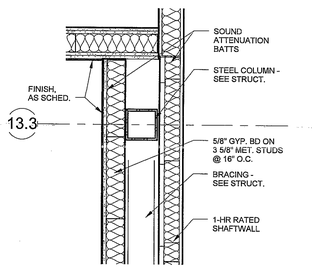
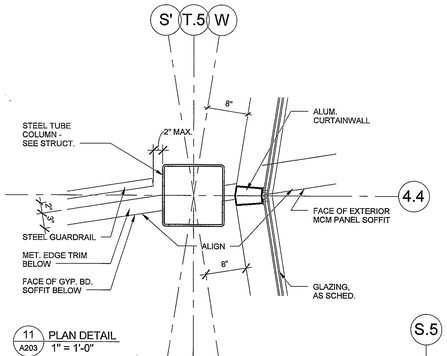



8 PLAN DETAIL
A203 1" = 1'-0"



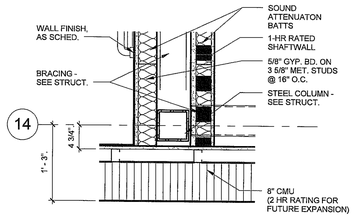

9 PLAN DETAIL
A203 1" = 1'-0"



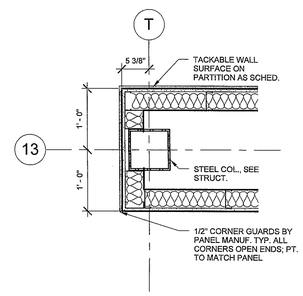

10 PLAN DETAIL
A203 1" = 1'-0"



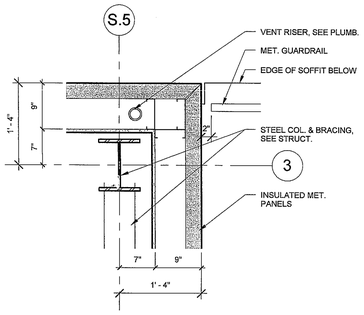

11 PLAN DETAIL
A203 1" = 1'-0"



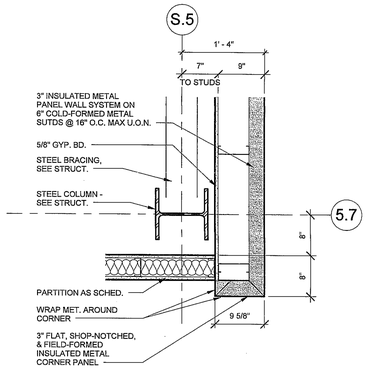

12 PLAN DETAIL
A203 1" = 1'-0"



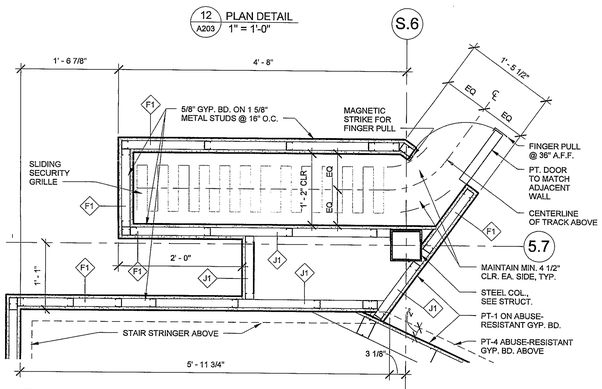

13 PLAN DETAIL
A203 1" = 1'-0"




14 PLAN DETAIL
A203 1" = 1'-0"




15 PLAN DETAIL
A203 1" = 1'-0"




16 PLAN DETAIL
A203 1" = 1'-0"

**NOTES:**
1. GC COORDINATE LOCATION OF STEEL WITH STRUCTURAL DRAWINGS
2. SEE ELEVATION SHEETS A301-A304 FOR LOCATIONS

17 TYPICAL INSULATED METAL PANEL VERTICAL JOINTS
A203 3" = 1'-0"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1/31/2014

| | |
|---|---|
| Drawn | MVS |
| Checked | LW |
| Date | January 31, 2014 |
| Revisions | |


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**FAST Multi-Modal Center**
City of Fayetteville
Fayetteville, NC

Project Number 621A

Title
**Plan Details**

Sheet
# A203

Plate of


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## ROOM FINISH SCHEDULE - BASE BID

| ROOM NO. | ROOM NAME | FLOOR | BASE | WALL MATERIAL | WALL FINISH | CEILING MATERIAL | CEILING FINISH | REMARKS |
|---|---|---|---|---|---|---|---|---|
| LEVEL 1 | | | | | | | | |
| 100 | VESTIBULE | ENTRANCE GRILLE | - | C.W. | - | AMPC / GYP. BD. | AMPC / PT-4 | SEE A221 FOR TERRAZZO FLOOR PATTERN |
| 101 | CIRCULATION | TZO | RES. BASE | GYP. BD. 2 / C.W. | PT / - | AMPC / GYP. BD. | AMPC / PT-4 | SEE A221 FOR TERRAZZO FLOOR PATTERN |
| 102 | LOBBY | TZO | RES. BASE | GYP. BD. 2 / C.W. | PT / - | AMPC / GYP. BD. | AMPC / PT-4 | SEE A221 FOR TERRAZZO FLOOR PATTERN |
| 103 | CAFE / SUNDRIES | TZO / GRADE | RES. BASE | GYP. BD. 2 / IMP / C.W. | PT / IMP / - | LAY-IN / GYP. BD. | APC-2 / PT-4 | SEE A221 FOR TERRAZZO FLOOR PATTERN |
| 104 | STORAGE | SEALED CONC. | RES. BASE | GYP. BD. | PT | OPEN TO STRUCT. | PT-4 | |
| 105 | HP | SEALED CONC. | RES. BASE | GYP. BD. | PT | OPEN TO STRUCT. | - | |
| 106 | HP | SEALED CONC. | RES. BASE | GYP. BD. | PT | OPEN TO STRUCT. | - | |
| 107 | RECYCLING | SEALED CONC. | RES. BASE | GYP. BD. | PT | OPEN TO STRUCT. | PT-4 | |
| 108 | MAIN ELEC. | SEALED CONC. | RES. BASE | GYP. BD. | PT | OPEN TO STRUCT. | PT-4 | |
| 109 | BUS RIDER WAITING | TZO | RES. BASE | GYP. BD. 2 / C.W. | PT / TWS-1 | GYP. BD. | PT-4 | SEE PLANS & SHEET A701 FOR LOCATION AND LAYOUT OF TWS |
| 110 | VESTIBULE | ENTRANCE GRILLE | - | C.W. | - | GYP. BD. | PT-4 | |
| 111 | CASH | LINOLEUM 2 | RES. BASE | GYP. BD. | PT | LAY-IN | APC-1 | |
| 112 | TICKET OFFICE / STORAGE | LINOLEUM 2 | RES. BASE | GYP. BD. | PT | LAY-IN | APC-1 | SEE A701 FOR CERAMIC WALL PANEL LOCATIONS |
| 113 | TICKET WINDOW | CARPET TILE | RES. BASE | GYP. BD. | PT | GYP. BD. | PT-4 | |
| 114 | MAIN DATA RM | SEALED CONC. | RES. BASE | GYP. BD. / PLYWOOD | PT | OPEN TO STRUCT. | PT-4 | |
| 115 | UNISEX | CER. TILE | RES. BASE | GYP. BD. | PT | LAY-IN | APC-1 | CER. TILE @ WET WALL ONLY |
| 116 | HP | SEALED CONC. | RES. BASE | GYP. BD. | PT | OPEN TO STRUCT. | - | |
| 117 | DRIVER'S LOUNGE | TZO-1 | RES. BASE | GYP. BD. / C.W. | PT / TWS-1 | GYP. BD. | PT-4 | SEE PLANS & SHEET A701 FOR LOCATION AND LAYOUT OF TWS |
| 118 | MTG. RM. | TZO-1 | RES. BASE | GYP. BD. | PT | LAY-IN | APC-1 | |
| 119 | WOMEN'S TOILET | CER. TILE | CWT | CWT / GYP. BD. | CWT 1 & PT | LAY-IN | APC-1 | CER. TILE @ WET WALL ONLY |
| 120 | MEN'S TOILET | CER. TILE | CWT | CWT / GYP. BD. | CWT 1 & PT | LAY-IN | APC-1 | CER. TILE @ WET WALL ONLY |
| 121 | FAMILY TOILET | TZO-1 | CWT | CWT / GYP. BD. 2 | CWT 1 & PT | LAY-IN | APC-1 | CER. TILE @ WET WALL ONLY |
| 122 | HP | SEALED CONC. | RES. BASE | GYP. BD. | PT | OPEN TO STRUCT. | - | |
| 123 | MEN | TZO-1 | CWT / RES. BASE | CWT / GYP. BD. 2 | CWT 1,2,3 & PT | LAY-IN / GYP. BD. | APC-1 / PT-4 | |
| 124 | JANITOR'S CLOSET | TZO-1 | RES. BASE | GYP. BD. 2 | EPOXY PT. | OPEN TO STRUCT. | PT-4 | |
| 125 | WOMEN | TZO-1 | CWT / RES. BASE | CWT / GYP. BD. 2 | CWT 1,2,3 & PT | LAY-IN / GYP. BD. | APC-1 / PT-4 | |
| 126 | HP | SEALED CONC. | RES. BASE | GYP. BD. | PT | OPEN TO STRUCT. | - | |
| 127 | FUTURE RETAIL D-1 | CONC. / GRADE | - | GYP. BD. | TSS | OPEN TO STRUCT. | - | |
| 128 | WOMEN | CONC. | - | GYP. BD. | TSS | OPEN TO STRUCT. | - | |
| 129 | MEN | CONC. | - | GYP. BD. | TSS | OPEN TO STRUCT. | - | |
| 130 | STORAGE | CONC. | - | GYP. BD. | TSS | OPEN TO STRUCT. | - | |
| 131 | FUTURE RETAIL C-2 | CONC./GRADE | - | - | - | OPEN TO STRUCT. | - | |
| 132 | FUTURE RETAIL C-1 | CONC./GRADE | - | - | - | OPEN TO STRUCT. | - | |
| 133 | ELEC. METER RM. B | SEALED CONC. | - | GYP. BD. 2 / CMU | EPOXY PT. | OPEN TO STRUCT. | - | |
| 134 | DUMPSTER B | SEALED CONC. | - | GYP. BD. 2 / CMU | EPOXY PT. | OPEN TO STRUCT. | PT-4 | |
| 135 | ELEV. EQUIP. | SEALED CONC. | RES. BASE | GYP. BD. | PT | OPEN TO STRUCT. | PT-4 | |
| 136 | DUMPSTER C | SEALED CONC. | - | GYP. BD. 2 / CMU | EPOXY PT. | OPEN TO STRUCT. | PT-4 | |
| 137 | ELEC. METER RM. C | SEALED CONC. | - | GYP. BD. 2 / CMU | EPOXY PT. | OPEN TO STRUCT. | - | |
| 138 | SHOP | SEALED CONC. | - | CMU | EPOXY PT. | OPEN TO STRUCT. | - | |
| 139 | BACKFLOW | SEALED CONC. | - | CMU | EPOXY PT. | OPEN TO STRUCT. | - | |
| 140 | TRANSFORMER | SEALED CONC. | - | CMU | EPOXY PT. | NO CEILING OR ROOF | - | |
| 141 | ELEC. & TELECOM CLOSET | SEALED CONC. | - | CMU | EPOXY PT. | OPEN TO STRUCT. | - | |
| 149 | OFFICE | LINOLEUM 2 | RES. BASE | GYP. BD. | PT | LAY-IN | APC-1 | |
| 151 | TELECOM B | SEALED CONC. | - | CMU / PLYWOOD | PT | OPEN TO STRUCT. | - | SEE TELECOM FOR PLYWOOD MOUNTING |
| 152 | TELECOM C | SEALED CONC. | - | CMU / PLYWOOD | PT | OPEN TO STRUCT. | - | SEE TELECOM FOR PLYWOOD MOUNTING |
| SD1 | STAIR SD1 | SEALED CONC. & RUB | RES. BASE | GYP. BD. | PT | OPEN TO STRUCT. | PT-4 | |
| SD2 | STAIR SD2 | RUB | RES. BASE | GYP. BD. / C.W. | PT / - | LAY-IN | APC-1 | |
| SD3 | STAIR SD3 | TZO-1 | - | - | - | AMPC | AMPC | PRECAST TREADS & PTD. STEEL RISERS - SEE A803 |
| LEVEL 2 | | | | | | | | |
| 201 | CIRCULATION | LINOLEUM 1,2 | RES. BASE | GYP. BD. 2 | PT-1 | AMPC | AMPC | |
| 202 | SEATING AREA A | LINOLEUM 1,2 | RES. BASE | IMP / C.W. | IMP / - | AMPC | AMPC | |
| 203 | SEATING AREA B | LINOLEUM 1,2 | RES. BASE | GYP. BD. 2 | PT | AMPC | AMPC | |
| 204 | CORRIDOR | LINOLEUM 2 | RES. BASE | GYP. BD. 2 | PT | GYP. BD. | PT-4 | |
| 205 | MEN | CER. TILE | CWT | CWT / GYP. BD. 2 | CWT 1,2,3 | LAY-IN | APC-1 | SEE TOILET ELEVATIONS FOR LOCATION AND PATTERNS OF CWT |
| 206 | WOMEN | CER. TILE | CWT | CWT / GYP. BD. 2 | CWT 1,2,3 | LAY-IN | APC-1 | SEE TOILET ELEVATIONS FOR LOCATION AND PATTERNS OF CWT |
| 207 | CORRIDOR | LINOLEUM 2 | RES. BASE | GYP. BD. 2 | PT-1 | GYP. BD. | PT-4 | |
| 208 | MECH. | R.F. | 4" R.F. COVE BASE | GYP. BD. | PT | OPEN TO STRUCT. | PT-4 | |
| 209 | JANITOR'S CLOSET | LINOLEUM 2 | RES. BASE | CER. TILE / GYP. BD. | EPOXY PT. | OPEN TO STRUCT. | PT-4 | |
| 210 | COMMUNITY ROOM | CARPET TILE | RES. BASE | GYP. BD. 2 | PT / TWS-2 | LAY-IN | AMPC | WHITEBOARD PT PER DETAIL 9/A701; TWS PER DETAIL 10/A701 |
| 211 | STORAGE | CARPET TILE | RES. BASE | GYP. BD. | PT | LAY-IN | APC-3 | |
| 212 | WAITING | CARPET TILE | RES. BASE | GYP. BD. / C.W. | PT / - | LAY-IN | APC-1 | SEE A701 FOR CERAMIC WALL PANEL LOCATIONS |
| 213 | RECEPTION | CARPET TILE | RES. BASE | GYP. BD. / C.W. | PT / - | LAY-IN | APC-1 | |
| 214 | COPY ROOM | CARPET TILE | RES. BASE | GYP. BD. / C.W. | PT / - | LAY-IN | APC-1 | |
| 215 | DISPATCHER / INFO | CARPET TILE | RES. BASE | GYP. BD. / C.W. | PT / - | LAY-IN | APC-1 | |
| 216 | HP | SEALED CONC. | RES. BASE | GYP. BD. | PT | OPEN TO STRUCT. | - | |
| 217 | OPEN OFFICE | CARPET TILE | RES. BASE | GYP. BD. / C.W. | PT / - | LAY-IN | APC-1 | CER. TILE @ KITCHENETTE AREA |
| 218 | STORAGE | CARPET TILE | RES. BASE | GYP. BD. / CMU | PT | LAY-IN | APC-3 | |
| 219 | MECH. | R.F. | 4" R.F. COVE BASE | GYP. BD. | PT | OPEN TO STRUCT. | PT-4 | |
| 220 | MEN | CER. TILE | CWT | CWT / GYP. BD. | CWT 1,2,3 & PT | LAY-IN | APC-1 | SEE TOILET ELEVATIONS FOR LOCATION AND PATTERNS OF CWT |
| 221 | WOMEN | CER. TILE | CWT | CWT / GYP. BD. | CWT 1,2,3 & PT | LAY-IN | APC-1 | SEE TOILET ELEVATIONS FOR LOCATION AND PATTERNS OF CWT |
| 222 | HP | SEALED CONC. | RES. BASE | GYP. BD. | PT | OPEN TO STRUCT. | - | |
| 223 | DIRECTOR'S OFFICE | CARPET TILE | RES. BASE | GYP. BD. / C.W. | PT / - | LAY-IN | APC-1 | |
| 224 | STG | CARPET TILE | RES. BASE | GYP. BD. | PT | LAY-IN | APC-3 | |
| 225 | HP | SEALED CONC. | RES. BASE | GYP. BD. | PT | OPEN TO STRUCT. | - | |
| 226 | ASSIST. DIRECTOR'S OFFICE | CARPET TILE | RES. BASE | GYP. BD. / C.W. | PT / - | LAY-IN | APC-1 | |
| 227 | STG | CARPET TILE | RES. BASE | GYP. BD. | PT | LAY-IN | APC-3 | |
| 228 | OFFICE | CARPET TILE | RES. BASE | GYP. BD. / C.W. | PT / - | LAY-IN | APC-1 | |
| 229 | HP | SEALED CONC. | RES. BASE | GYP. BD. | PT | OPEN TO STRUCT. | - | |
| 230 | CONFERENCE RM. | CARPET TILE | RES. BASE | GYP. BD. / C.W. | PT / - | LAY-IN | APC-1 | |
| 231 | DATA RM | SEALED CONC. | RES. BASE | GYP. BD. | PT | OPEN TO STRUCT. | PT-4 | |
| 232 | RECYCLING | LINOLEUM 2 | RES. BASE | GYP. BD. | PT | LAY-IN | APC-3 | |
| 233 | STORAGE | CARPET TILE | RES. BASE | GYP. BD. | PT | LAY-IN | APC-3 | |
| 234 | HP | SEALED CONC. | RES. BASE | GYP. BD. | PT | OPEN TO STRUCT. | - | |
| 239 | FUTURE OFFICE C-1 | CONC. | - | - | - | OPEN TO STRUCT. | - | |
| 240 | FUTURE OFFICE C-2 | CONC. | - | - | - | OPEN TO STRUCT. | - | |
| 243 | GENERATOR | MEMBRANE ROOFING | - | METAL SIDING | - | OPEN TO STRUCT. | PT-4 | |
| 244 | COOLING TOWER | MEMBRANE ROOFING | - | METAL SIDING | - | NO CEILING OR ROOF | - | |
| 250 | BOILER RM | R.F. | 4" R.F. COVE BASE | GYP. BD. | PT | OPEN TO STRUCT. | - | |

## ROOM FINISH SCHEDULE - ALTERNATE 'A'

| ROOM NO. | ROOM NAME | FLOOR | BASE | WALL MATERIAL | WALL FINISH | CEILING MATERIAL | CEILING FINISH | REMARKS |
|---|---|---|---|---|---|---|---|---|
| LEVEL 1 | | | | | | | | |
| 147 | FUTURE RETAIL E-1 | CONC./GRADE | - | - | - | OPEN TO STRUCT. | - | UNFINISHED SHELL |
| 148 | FUTURE RETAIL E-2 | CONC./GRADE | - | - | - | OPEN TO STRUCT. | - | UNFINISHED SHELL |
| LEVEL 2 | | | | | | | | |
| 241 | FUTURE OFFICE E-1 | CONC. | - | - | - | OPEN TO STRUCT. | - | UNFINISHED SHELL |
| 242 | FUTURE OFFICE E-2 | CONC. | - | - | - | OPEN TO STRUCT. | - | UNFINISHED SHELL |

## ROOM FINISH SCHEDULE - ALTERNATE 'B'

| ROOM NO. | ROOM NAME | FLOOR | BASE | WALL MATERIAL | WALL FINISH | CEILING MATERIAL | CEILING FINISH | REMARKS |
|---|---|---|---|---|---|---|---|---|
| LEVEL 1 | | | | | | | | |
| 141 | FUTURE RETAIL A-1 | CONC./GRADE | - | - | - | OPEN TO STRUCT. | - | UNFINISHED SHELL |
| 142 | FUTURE RETAIL A-2 | CONC./GRADE | - | - | - | OPEN TO STRUCT. | - | UNFINISHED SHELL |
| 143 | FUTURE RETAIL B-1 | CONC./GRADE | - | - | - | OPEN TO STRUCT. | - | UNFINISHED SHELL |
| 144 | FUTURE RETAIL B-2 | CONC./GRADE | - | - | - | OPEN TO STRUCT. | - | UNFINISHED SHELL |
| 145 | DUMPSTER A | SEALED CONC. | - | GYP. BD. 2 / CMU | EPOXY PT. | OPEN TO STRUCT. | PT-4 | |
| 146 | ELEC. METER RM. A | SEALED CONC. | - | CMU | EPOXY PT. | OPEN TO STRUCT. | - | |
| 150 | TELECOM A | SEALED CONC. | - | CMU / PLYWOOD | - | OPEN TO STRUCT. | - | SEE TELECOM FOR PLYWOOD MOUNTING |
| LEVEL 2 | | | | | | | | |
| 235 | FUTURE OFFICE A-1 | CONC. | - | - | - | OPEN TO STRUCT. | - | UNFINISHED SHELL |
| 236 | FUTURE OFFICE A-2 | CONC. | - | - | - | OPEN TO STRUCT. | - | UNFINISHED SHELL |
| 237 | FUTURE OFFICE B-1 | CONC. | - | - | - | OPEN TO STRUCT. | - | UNFINISHED SHELL |
| 238 | FUTURE OFFICE B-2 | CONC. | - | - | - | OPEN TO STRUCT. | - | UNFINISHED SHELL |

## ABBREVIATIONS

| | |
|---|---|
| AMPC | ACOUSTICAL METAL PANEL |
| APC | ACOUSTICAL PANEL CEILING |
| CONC. | CONCRETE |
| C.W. | CURTAIN WALL |
| CER. TILE | CERAMIC FLOOR TILE |
| CWT | CERAMIC WALL TILE |
| CMU | CONCRETE MASONRY UNIT |
| GYP. BD. | GYPSUM BOARD |
| GYP. BD. 2 | HIGH IMPACT GYPSUM BOARD |
| IMP | INSULATED METAL PANELS |
| PL | PLASTIC LAMINATE |
| PT | PAINT |
| RES. BASE | RESILIENT BASE |
| RF | RESINOUS FLOORING |
| TSS | TAPE / SPACKLE / SAND |
| TWS | TACKABLE WALL SURFACE |
| TZO | TERRAZZO |

## FINISH SCHEDULE NOTES

**INTERIOR FINISH NOTES** (SEE A221 & A222 FOR FINISH PLANS & A601a-A602b FOR REFLECTED CEIL. PLANS)

1. TERRAZZO - 3/8" THICK, PRODUCT NUMBERS FROM TERRAZZO & MARBLE SUPPLY
   - TZO-1: TM #13-280
   - TZO-2: TM #13-189
   - TZO-3: TM #13-190
   - TZO-4: TM #12-282
2. PRECAST TERRAZZO STAIR TREADS
   - MATCH TZO-1
3. CARPET TILE
   - BOLYU, JETSET, J5306 IN CROWD
4. SHEET LINOLEUM
   - L-1: FORBO, MARMOLEUM, DUAL TILE, T2713 CALICO
   - L-2: FORBO, MARMOLEUM, FRESCO, 3872 VOLCANIC ASH
   - L-3: FORBO, MARMOLEUM, 3228 RED AMARANTH
5. CERAMIC FLOOR TILE
   - CROSSVILLE, BLUESTONE, AV203 PENN-BLUE
6. CERAMIC WALL TILE
   - CWT1: CROSSVILLE, CROSS COLORS, A215 EMPRESS WHITE 12x12, MATTE
   - CWT2: CROSSVILLE, RETRO ACTIVE, EBONY A890 4x12
   - CWT3: CROSSVILLE, RETRO ACTIVE, MAPLE SUGAR C360 4x12
7. CERAMIC WALL PANELS
   - LEA CERAMICHE, STREETS, COLOR: KYOTO MACRO, SIZE 39 1/2" x 118 1/2" x 1/8"
8. RESILIENT BASE
   - JOHNSONITE, 24 GREY HAZE
9. RUBBER STAIR TREADS
   - JOHNSONITE, HAMMERED PATTERN, COLOR 20 CHARCOAL
10. WALL PAINT (COLORS USED FOR VARIOUS MATERIALS)
    - PT-1: PPG, 513-4 WHISKERS - TYPICAL FOR WALLS U.O.N.
    - PT-2: SHERWIN WILLIAMS, SW7674 PEPPERCORN - TYPICAL FOR SUPERFONT GRAPHICS
    - PT-3: PPG, 317-5 CRACKER BITZ
    - PT-4: MATCH CURTAIN WALL - TYPICAL FOR CEILINGS & SOFFITS U.O.N.
    - WHITEBOARD PT. - MATCH CURTAIN WALL
11. ALUMINUM REVEALS
    - SHAPES AS INDICATED ON DRAWINGS
    - COLORS TO MATCH ADJACENT SURFACE
12. ACOUSTICAL METAL PAN CEILING (ALUM. PREFINISHED)
    - ARMSTRONG, METALWORKS TORSION SPRING, WHITE PERFORATED, 2' X 8'
13. ACOUSTICAL PANEL CEILING
    - APC-1: USG MILLENNIA CLIMA PLUS WITH FINELINE REVEAL GRID, 2' X 2'
    - APC-2: USG CLIMA PLUS SHEETROCK LAY-IN CEILING PANEL, 2' X 2'
    - APC-3: USG, FINE FISSURED, SQUARE EDGE W/ 15/16 GRID, 2' X 2'
14. PAINTED STEEL
    - STRINGERS, RAILINGS, HAINDRAILS AND WELDED WIRE INFILL PANELS: PT-4
    - DOOR FRAMES: FACTORY PRIMED, FIELD PAINTED, MATCH ADJACENT WALL COLOR
    - EXPOSED COLUMNS, BEAMS, VERT. FRAMES, TRUSSES, MET. DECK, ETC. - PT-4
15. WOOD DOORS
    - MAPLE - COLOR TO BE SELECTED BY ARCHITECT
16. STEEL DOORS
    - MATCH ADJACENT SURFACE COLOR
17. STEEL ENAMELED ELEVATOR DOORS
    - MATCH ADJACENT WALL COLOR
18. SOLID SURFACE
    - COUNTER TOPS - CORIAN, EARTH
    - BOWLS - CORIAN, CAMEO WHITE
    - WINDOW SILLS - CORIAN, GLACIER ICE
19. TOILET PARTITIONS AND DOORS
    - COMTEC INDUSTRIES, EVERTUFF CLASSIC, CL-14 CHARCOAL GRAY
20. PLASTIC LAMINATE
    - PL-1: ABET LAMINATI 435
    - PL-2: FORMICA, 7012-58 AMBER MAPLE
21. GRANITE THRESHOLD
    - VIRGINIA SLATE COMPANY, HODGES GRANITE OR APPROVED EQUAL
22. ENTRANCE GRILLES
    - GRILLES & FRAMES: STAINLESS STEEL
23. ROLLER SHADES
    - MECHOSHADE 2113 GREY (2100 SERIES - 3% OPENNESS) SEE REFLECTED CEILING PLANS FOR LOCATIONS
24. TACKABLE WALL SURFACE
    - TWS-1: WALLTALKERS, TAC WALL, COLOR: 04 STONE
    - TWS-2: WALLTALKERS, TAC WALL, COLOR: 02 CHARCOAL
25. BENCHES
    - LANDSCAPE FORMS, "STAY" SERIES, COLOR: CRANBERRY
26. TRASH / RECYCLE
    - HAUSER, PS-749-24 TERMINAL, LAMINATE INSERT FROM FULL RANGE OF LAMINATE MANUFACTURER'S OPTIONS
27. ELEVATOR CAB FINISHES
    - FLOOR: LINOLEUM L2
    - WALLS: PLASTIC LAMINATE
    - CEILING: METAL PANELS WITH DOWN LIGHTS
    - HANDRAIL: SATIN STAINLESS STEEL
28. RESINOUS FLOORING
    - COLOR: GRAY
29. INSULATED METAL PANELS
    - SEE EXTERIOR FINISH NOTES
30. INTERIOR ALUMINUM STOREFRONT
    - MATCH ADJACENT WALL COLOR

**EXTERIOR FINISH NOTES** (SEE A301-A304 FOR ELEVATIONS, A351-A352 FOR BUILDING SECTIONS, & OTHER DWGS AS NOTED)

1. ALUMINUM CURTAIN WALL
   - VISTAWAL, RELIANCE THERMAL COMPOSITE, INSIDE GLAZED, WHITE FROM MANUF. FULL RANGE (SUBMIT SAMPLES FOR APPROVAL),
2. INSULATED METAL PANELS
   - CENTRIA DIMENSION & GRAPHIX SERIES 3"-T, FLAT AND RIBBED (DS80-T) PANELS AS SHOWN IN DRAWINGS
     - RIBBED PANELS
       - IMP-1: CENTRIA 9946 SILVERSMITH (UNLESS OTHERWISE NOTED)
     - FLAT PANELS
       - IMP-2: COLOR TO MATCH GLIDDEN GENTRY BLUE, ORDER #A1951, #70BG 28/060
       - IMP-3: CENTRIA 971 CHROMIUM GRAY
       - IMP-4: CENTRIA 9923 GRANITE
       - IMP-5: CENTRIA 177 SLATE BLUE
3. METAL WINDOWS IN INSULATED METAL PANEL WALL SYSTEM
   - ANNODIZED ALUMINUM (SUBMIT SAMPLES FOR APPROVAL)
4. METAL SUN SHADES: BRACKETS & BLADES
   - AT IMP WALL SYSTEM, ANNODIZED ALUMINUM (SUBMIT SAMPLES FOR APPROVAL)
   - AT CURTAIN WALL, COLOR TO MATCH CURTAIN WALL
5. METAL SCREEN WALL
   - COLOR TO MATCH IMP-1 (SUBMIT SAMPLES FOR APPROVAL)
6. FORMED METAL WALL PANELS
   - COLOR TO MATCH IMP-1, (SUBMIT SAMPLES FOR APPROVAL)
7. ALUMINUM STOREFRONT
   - TO MATCH KAWNEER TRIFAB VERSAGLAZE 451T, COLOR TO MATCH CURTAIN WALL (SUBMIT SAMPLES FOR APPROVAL)
8. METAL COMPOSITE MATERIAL (MCM)
   - COLOR TO MATCH CURTAIN WALL (SUBMIT SAMPLES FOR APPROVAL)
9. STANDING SEAM METAL CANOPY ROOF
   - COLOR TO MATCH IMP-5 (SUBMIT SAMPLES FOR APPROVAL)
10. METAL PAN SOFFIT
    - ARMSTRONG, METALWORKS 2' X 8'; COLOR TO MATCH CURTAIN WALL (SUBMIT SAMPLES FOR APPROVAL)
11. ALUMINUM COPING, EXPOSED GUTTERS, DOWNSPOUTS
    - WHITE TO MATCH CURTAIN WALL U.O.N. IN DWGS (SUBMIT SAMPLES FOR APPROVAL)
12. EXTERIOR H.M. DOORS, FRAMES, AND OVERHEAD COILING DOORS
    - PT-4
13. BOLLARDS
    - LIGHT BOLLARDS: WHITE TO MATCH CURTAIN WALL (SEE ELEC.)
    - STEEL BOLLARDS: PT-4
14. PAINTED STEEL STRUCTURE
    - EXPOSED COLUMNS, BEAMS, BUS CANOPY STRUCTURE, MET. DECK, ETC. - PT-4
15. POLYCARBONATE PANELING
    - TO MATCH GALLINA USA, OPAL
16. CONCRETE MASONRY UNITS
    - GROUND FACE - TO MATCH ADAMS PRODUCTS, POLISHED CONCRETE MASONRY 2010, COLOR: 9114
17. EXTERIOR CONCRETE PAVERS
    - SEE LANDSCAPE PLANS FOR PAVER SELECTION
18. CONCRETE WALKS
    - SEE CIVIL AND PER CITY OF FAYETTEVILLE UNIFIED DEVELOPMENT ORDINANCE
19. EXTERIOR SIGNAGE
    - SEE SIGNAGE DRAWINGS
20. EXTERIOR SEALANTS
    - COLOR TO MATCH ADJACENT SURFACES AS SELECTED BY ARCHITECT (SUBMIT SAMPLES FOR APPROVAL)
21. ROOF WALK PADS
    - STANDARD WHITE
22. BENCHES
    - TO MATCH LANDSCAPE FORMS, "STAY" SERIES, COLOR: CRANBERRY
23. BIKE RACKS
    - TO MATCH LANDSCAPE FORMS, RING BIKE RACK, COLOR: CRANBERRY
24. TRASH / RECYCLE RECEPTACLES
    - TO MATCH LANDSCAPE FORMS, PLEXUS, FREESTANDING, 16" DIA / 32" H, COLOR: CRANBERRY

**FLOOR TRANSITION MATRIX**

| | TERRAZZO | CARPET TILE | SHEET LINOLEUM | SEALED CONC. | CERAMIC TILE | RUBBER STAIR LANDING |
|---|---|---|---|---|---|---|
| **TERRAZZO** | | | | | | |
| **CARPET TILE** | N/A | | | | | |
| **SHEET LINOLEUM** | SCHLUTER RENO-U | RUBBER TRANSITION (SEE SPEC) | | | | |
| **SEALED CONC.** | SCHLUTER RENO-U | RUBBER TRANSITION (SEE SPEC) | RUBBER TRANSITION (SEE SPEC) | | | |
| **CERAMIC TILE** | GRANITE THRESHOLD | GRANITE THRESHOLD | GRANITE THRESHOLD | N/A | | |
| **RUBBER STAIR LANDING** | SCHLUTER RENO-U | RUBBER TRANSITION (SEE SPEC) | N/A | RUBBER TRANSITION (SEE SPEC) | GRANITE THRESHOLD | |
| **RESINOUS FLOORING** | N/A | GRANITE THRESHOLD | N/A | N/A | N/A | N/A |

NOTE:
1. PROVIDE PRODUCTS LISTED OR APPROVED EQUAL
2. SEE DETAIL 6/A251FOR GRANITE THRESHOLD
3. SEE DETAIL 7/A251FOR TRANSITION OF SAME MATERIAL BENEATH DOOR


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1/31/2014

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| Revisions | |


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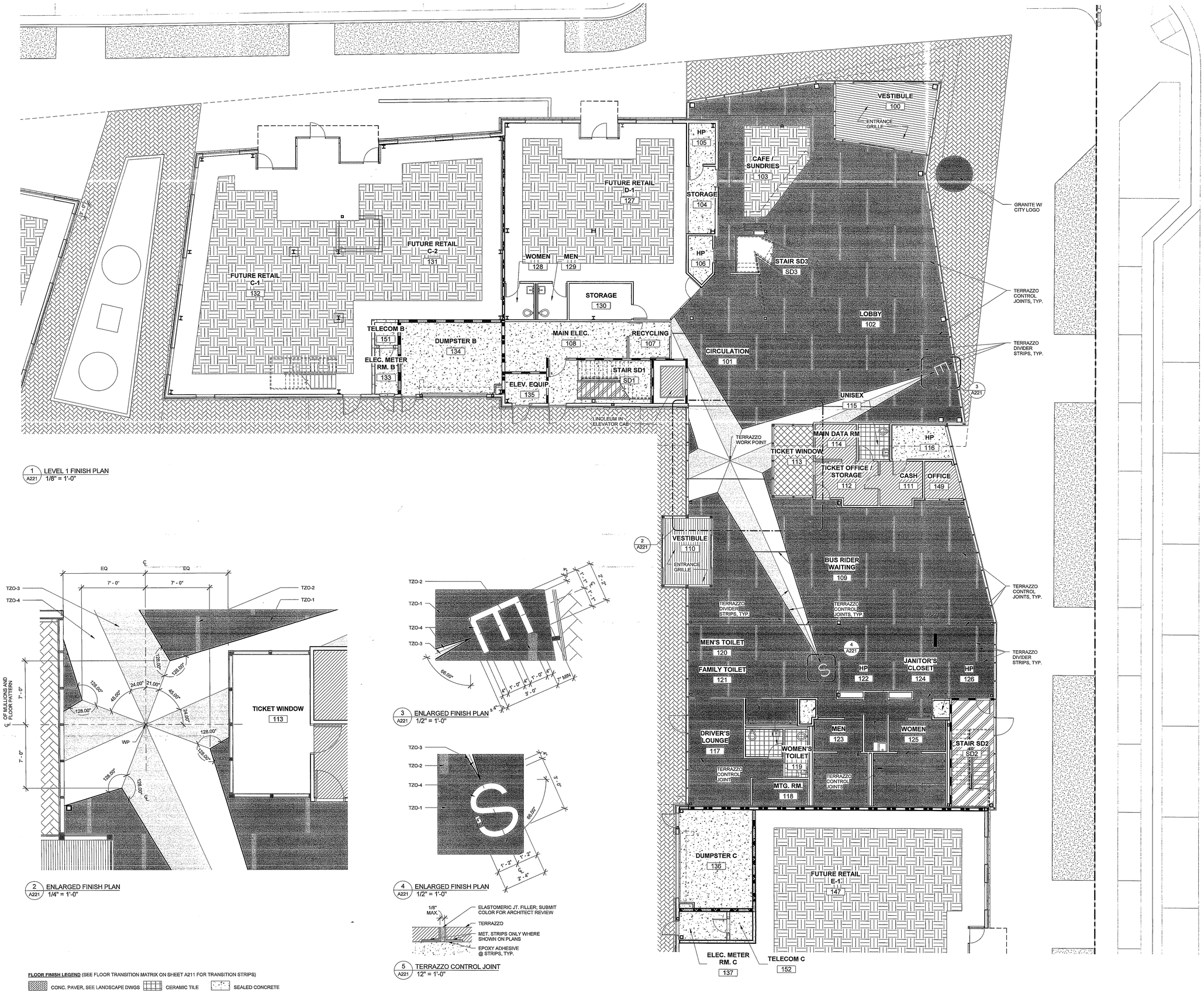
**FAST Multi-Modal Center**
City of Fayetteville
Fayetteville, NC

Project Number 621A

Title
**Finish Schedule & Finish Notes**

Sheet
# A211

Plate of




1 A221 LEVEL 1 FINISH PLAN
1/8" = 1'-0"




2 A221 ENLARGED FINISH PLAN
1/4" = 1'-0"




3 A221 ENLARGED FINISH PLAN
1/2" = 1'-0"




4 A221 ENLARGED FINISH PLAN
1/2" = 1'-0"




5 A221 TERRAZZO CONTROL JOINT
12" = 1'-0"

**FLOOR FINISH LEGEND** (SEE FLOOR TRANSITION MATRIX ON SHEET A211 FOR TRANSITION STRIPS)

- CONC. PAVER, SEE LANDSCAPE DWGS
- TZO-1 / TZO-2 / TZO-3 / TZO-4
- CARPET
- CERAMIC TILE
- GRADE
- CONCRETE
- SEALED CONCRETE
- RUBBER FLOORS, STAIR TREADS AND LANDINGS
- LINO 1 / LINO 2

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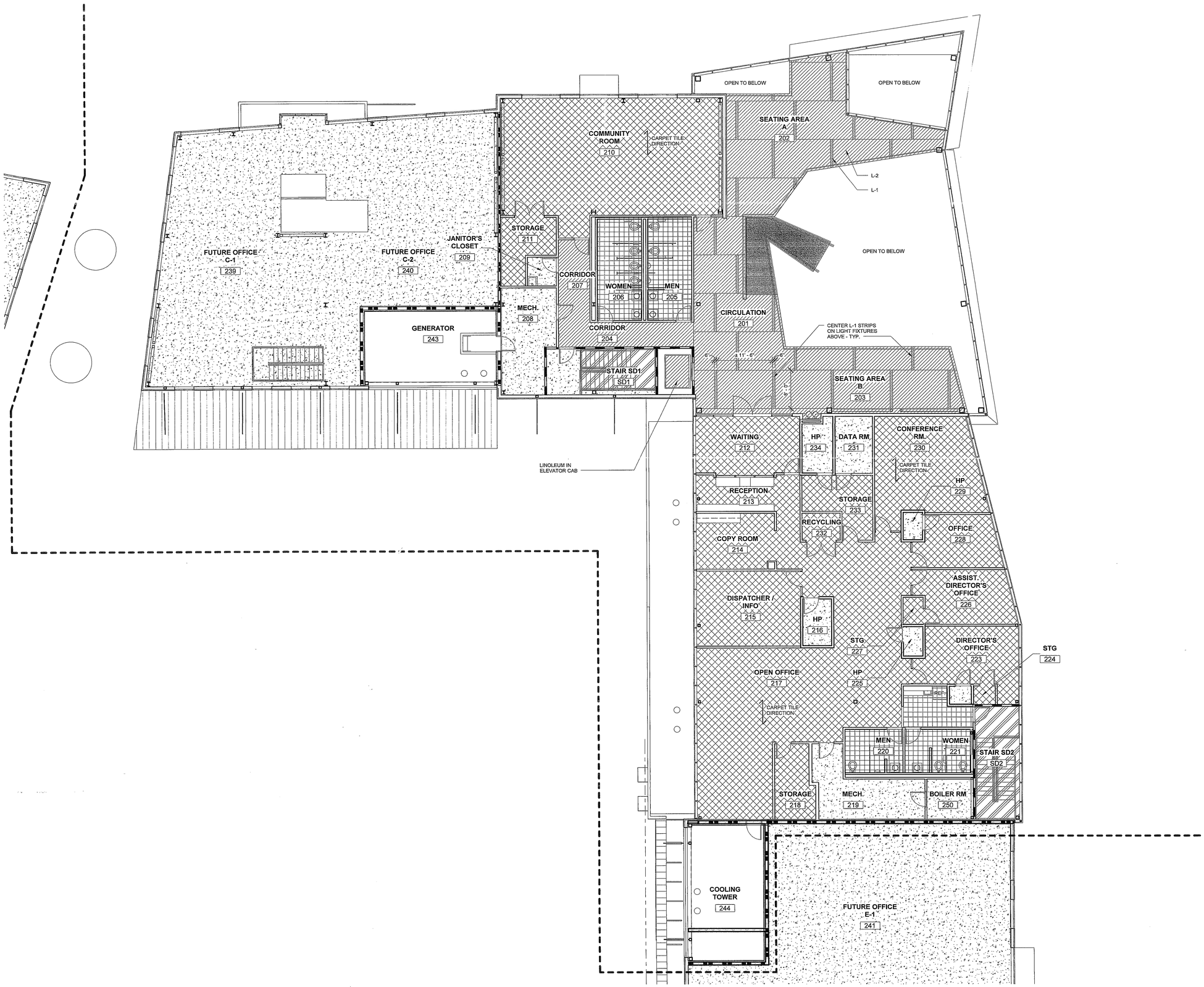
**FAST Multi-Modal Center**
City of Fayetteville
Fayetteville, NC

Project Number 621A

Title
**Level 1 Finish Plan**

Sheet
A221

Plate of




1 / A222 LEVEL 2 FINISH PLAN
1/8" = 1'-0"

**FLOOR FINISH LEGEND** (SEE FLOOR TRANSITION MATRIX ON SHEET A211 FOR TRANSITION STRIPS)

- CONC. PAVER, SEE LANDSCAPE DWGS
- TZO-1 / TZO-2 / TZO-3 / TZO-4
- CARPET
- CERAMIC TILE
- GRADE
- CONCRETE
- SEALED CONCRETE
- RUBBER FLOORS, STAIR TREADS AND LANDINGS
- LINO 1 / LINO 2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# FAST Multi-Modal Center

City of Fayetteville
Fayetteville, NC

Project Number 621A

Title
## Level 2 Finish Plan

Sheet
# A222

Plate of

## DOOR SCHEDULE - BASE BID

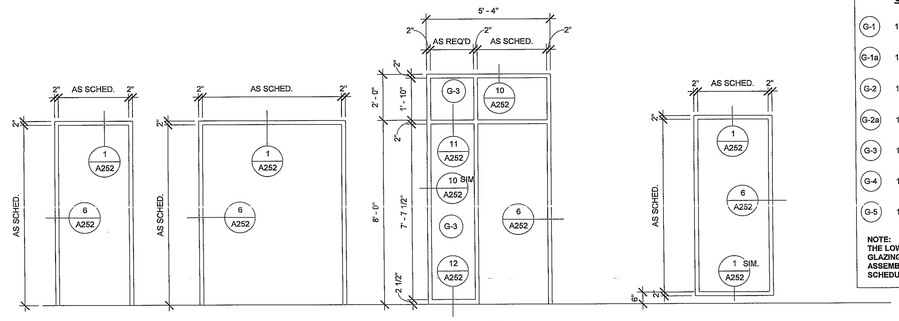
| DOOR NO. | DOOR TYPE | DOOR MATERIAL | FIRE RATING | DOOR WIDTH | DOOR HEIGHT | DOOR THICK | FRAME TYPE | FRAME MATERIAL | HEAD | JAMB | T'HOLD | HARDWARE SET | COMMENTS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Main Level 1 | | | | | | | | | | | | | |
| 101.1 | E | ALUM | | 15' - 0" | 7' - 9 1/2" | - | 1/A281 | ALUM | 14/A283 | 20/A283 | 18/A283 | 32.0 | AUTOMATIC SLIDING DOOR - CLAD TO MATCH CURTAIN WALL |
| 101.2 | E | ALUM | | 15' - 0" | 7' - 9 1/2" | - | - | ALUM | 14/A283 | 20/A283 | 19/A283 | 32.0 | AUTOMATIC SLIDING DOOR - CLAD TO MATCH CURTAIN WALL |
| 103.1 | A | WOOD | | 3' - 0" | 7' - 10" | 0' - 1 3/4" | F-1 | STEEL | 1/A252 | 6/A252 | 7/A251 | 25 | |
| 103.2 | A | WOOD | | 1' - 0" | 10' - 0" | 0' - 1 3/4" | | - | - | 16/A203 | | 34 | CONCEALED POCKET DOOR @ SECURITY GRILLE; PT. FRAME & DOOR TO MATCH ADJACENT PARTITION |
| 104.1 | A | STEEL | | 3' - 8" | 7' - 10" | 0' - 1 3/4" | F-1 | STEEL | 3/A252 SIM. | 8/A252 SIM. | | 19 | THERMALLY BROKEN FRAME NOT REQ'D; FIN. TO MATCH INSULATED MET. PANEL ABOVE |
| 105.1 | A | WOOD | | 3' - 0" | 7' - 10" | 0' - 1 3/4" | F-1 | STEEL | 1/A252 | 6/A252 | | 27.1 | |
| 106.1 | A | WOOD | | 3' - 0" | 7' - 10" | 0' - 1 3/4" | F-1 | STEEL | 1/A252 | 6/A252 | | 27.1 | |
| 107.1 | A | WOOD | | 3' - 0" | 7' - 10" | 0' - 1 3/4" | F-1 | STEEL | 1/A252 | 6/A252 | | 12 | |
| 108.1 | A | WOOD | | 3' - 0" | 7' - 10" | 0' - 1 3/4" | F-1 | STEEL | 1/A252 | 6/A252 | | 11 | |
| 110.1 | E | ALUM | | 14' - 7" | 7' - 9 1/2" | - | 3/A281 | ALUM | 14/A283 | 15/A283 | 18/A283 | 32 | AUTOMATIC SLIDING DOOR - CLAD TO MATCH CURTAIN WALL |
| 110.2 | E | ALUM | | 14' - 7" | 7' - 9 1/2" | - | - | ALUM | 14/A283 | 15/A283 | 19/A283 | 32 | AUTOMATIC SLIDING DOOR - CLAD TO MATCH CURTAIN WALL |
| 111.1 | B | WOOD | | 3' - 0" | 7' - 10" | 0' - 1 3/4" | F-1 | STEEL | 1/A252 | 6/A252 | | 26 | |
| 112.1 | F | WOOD | | 3' - 0" | 7' - 10" | 0' - 1 3/4" | F-1 | STEEL | 2/A252 | 7/A252 | | 17 | BULLET-RESISTANT DOOR WITH LITE |
| 113.1 | B | WOOD | | 3' - 0" | 7' - 10" | 0' - 1 3/4" | F-1 | STEEL | 1/A252 | 6/A252 | | 28.1 | |
| 114.1 | A | WOOD | | 3' - 0" | 7' - 10" | 0' - 1 3/4" | F-1 | STEEL | 1/A252 | 6/A252 | | 28.2 | |
| 115.1 | A | WOOD | | 3' - 0" | 7' - 10" | 0' - 1 3/4" | F-1 | STEEL | 1/A252 | 6/A252 | | 21 | |
| 116.1 | A | WOOD | | 3' - 0" | 7' - 10" | 0' - 1 3/4" | F-1 | STEEL | 1/A252 | 6/A252 | | 27.1 | |
| 117.1 | A | WOOD | | 3' - 0" | 7' - 10" | [illegible] | F-1 | STEEL | 1/A252 | 6/A252 | | 14 | |
| 117.2 | C | ALUM | | 3' - 9 1/2" | 7' - 9 1/2" | 0' - 1 3/4" | 3/A281 | ALUM | 7/A283 | 6/A283 | 8/A253 | 2.1 | |
| 118.1 | A | WOOD | | 3' - 0" | 7' - 10" | 0' - 1 3/4" | F-1 | STEEL | 1/A252 | 6/A252 | | 23 | |
| 119.1 | A | WOOD | | 3' - 0" | 7' - 10" | 0' - 1 3/4" | F-1 | STEEL | 1/A252 | 6/A252 | 6/A251 | 22 | |
| 120.1 | A | WOOD | | 3' - 0" | 7' - 10" | 0' - 1 3/4" | F-1 | STEEL | 1/A252 | 6/A252 | 6/A251 | 22 | |
| 121.1 | A | WOOD | | 3' - 0" | 7' - 10" | 0' - 1 3/4" | F-1 | STEEL | 1/A252 | 6/A252 | 6/A251 | 22 | |
| 124.1 | A | WOOD | | 3' - 0" | 7' - 10" | 0' - 1 3/4" | F-1 | STEEL | 1/A252 | 6/A252 | | 27 | |
| 124.2 | A | WOOD | | 3' - 0" | 7' - 10" | 0' - 1 3/4" | F-1 | STEEL | 1/A252 | 6/A252 | | 27 | |
| 126.1 | A | WOOD | | 3' - 0" | 7' - 10" | [illegible] | F-1 | STEEL | 1/A252 | 6/A252 | | 27.1 | |
| 127.1 | C | ALUM | | 3' - 2" | 7' - 10" | [illegible] | 2/A272 | ALUM | - | 14/A272 | | 1 | |
| 127.2 | C | ALUM | | 3' - 2" | 7' - 10" | 0' - 1 3/4" | 19/A272 | ALUM | - | 14/A272 | | 30 | |
| 128.1 | A | WOOD | | 3' - 0" | 7' - 10" | 0' - 1 3/4" | F-1 | STEEL | 1/A252 | 6/A252 | | 22 | |
| 129.1 | A | WOOD | | 3' - 0" | 7' - 10" | 0' - 1 3/4" | F-1 | STEEL | 1/A252 | 6/A252 | | 22 | |
| 130.1 | A | WOOD | | 3' - 0" | 7' - 10" | 0' - 1 3/4" | F-1 | STEEL | 1/A252 | 6/A252 | | 18 | |
| 131.1 | C | ALUM | | 3' - 2" | 7' - 10" | 0' - 1 3/4" | 7/A271 | ALUM | | 14&15/A272 | | 1.0 | |
| 131.2 | A | STEEL | | 3' - 8" | 7' - 10" | [illegible] | F-1 | STEEL | 3/A252 | 8/A252 | | 3.0 | |
| 132.1 | C | ALUM | | 3' - 2" | 7' - 10" | 0' - 1 3/4" | 7/A271 | ALUM | | 14&15/A272 | | 1 | |
| 133.1 | A | STEEL | | 3' - 0" | 7' - 10" | 0' - 1 3/4" | F-1 | STEEL | 3/A252 | 8/A252 | | 5 | |
| 134.1 | A | STEEL | | 3' - 0" | 7' - 10" | [illegible] | F-1 | STEEL | 3/A252 | 8/A252 | | 4 | |
| 134.2 | D | STEEL | | 14' - 0" | 10' - 0" | 0' - 2" | - | STEEL | 5/A252 | 15/A252 | | 33 | INSULATED EXTERIOR OVERHEAD COILING DOOR |
| 135.1 | A | STEEL | | 3' - 8" | 7' - 10" | 0' - 1 3/4" | F-1 | STEEL | 3/A252 | 8/A252 | | 5 | |
| 136.1 | A | STEEL | | 3' - 0" | 7' - 10" | [illegible] | F-1 | STEEL | 3/A252 | 8/A252 | | 4 | |
| 136.2 | D | STEEL | | 14' - 0" | 10' - 0" | 0' - 2" | - | STEEL | 5/A252 | 15/A252 | | 33 | INSULATED EXTERIOR OVERHEAD COILING DOOR |
| 137.1 | A | STEEL | | 6' - 4" | 7' - 10" | 0' - 1 3/4" | F-1 | STEEL | 3/A252 | 8/A252 | | 5 | |
| 138.1 | A | STEEL | | 3' - 4" | 7' - 2" | 0' - 1 3/4" | F-2 | STEEL | 13/A443 | 14/A443 | | 6 | PAIR |
| 138.2 | A | STEEL | | 6' - 4" | 6' - 10" | 0' - 1 3/4" | F-1 | ALUM | 14/A252 | 20/A252 | | | |
| 139.1 | A | STEEL | | 3' - 4" | 7' - 2" | [illegible] | F-2 | STEEL | 13/A443 | 14/A443 | | 6 | PAIR |
| 140.1 | 3/A443 | ALUM | | 10' - 8" | 8' - 8 3/4" | 0' - 1 3/4" | - | ALUM | - | 12/A443 | | | PAIR (GATE) |
| 149.1 | C | WOOD | | 3' - 0" | 7' - 10" | 0' - 1 3/4" | F-3 | STEEL | 1/A252 | 6/A252 | | 23.1 | |
| 151.1 | A | STEEL | | 3' - 0" | 7' - 10" | 0' - 1 3/4" | F-1 | STEEL | 14/A252 | 20/A252 | | 27.0 | |
| 152.1 | A | STEEL | | 3' - 0" | 7' - 10" | [illegible] | F-1 | STEEL | 14/A252 | 20/A252 | | 27.0 | |
| SC1.1 | C | ALUM | | 3' - 2" | 7' - 10" | 0' - 1 3/4" | 7/A271 | ALUM | | 14/A272 | | 2 | |
| SD1.1 | A | STEEL | | 3' - 8" | 7' - 10" | 0' - 1 3/4" | F-1 | STEEL | 3/A252 | 8/A252 | | 3 | |
| SD1.2 | A | WOOD | 45 MIN. | 3' - 8" | 7' - 10" | [illegible] | F-1 | STEEL | 1/A252 | 6/A252 | | 10 | |
| SD2.1 | C | ALUM | | 3' - 9 1/2" | 7' - 9 1/2" | 0' - 1 3/4" | 1/A282 | ALUM | 7/A283 | 6/A283 | 8/A283 | 2 | |
| SD2.2 | A | WOOD | 45 MIN. | 3' - 0" | 7' - 10" | 0' - 1 3/4" | F-1 | STEEL | 1/A252 | 6/A252 | | 13 | |
| Main Level 2 | | | | | | | | | | | | | |
| 205.1 | A | WOOD | | 3' - 0" | 7' - 10" | 0' - 1 3/4" | F-1 | STEEL | 1/A252 | 6/A252 | 6/A251 | 20 | |
| 206.1 | A | WOOD | | 3' - 0" | 7' - 10" | 0' - 1 3/4" | F-1 | STEEL | 1/A252 | 6/A252 | 6/A251 | 20 | |
| 208.1 | A | WOOD | | 3' - 0" | 7' - 10" | 0' - 1 3/4" | F-1 | STEEL | 1/A252 | 6/A252 | | 28.3 | |
| 209.1 | A | WOOD | | 3' - 0" | 7' - 10" | 0' - 1 3/4" | F-1 | STEEL | 1/A252 | 6/A252 | | 26 | |
| 210.1 | B | WOOD | | 3' - 0" | 7' - 10" | 0' - 1 3/4" | F-1 | STEEL | 1/A252 | 6/A252 | | 9 | |
| 210.2 | B | WOOD | | 6' - 0" | 7' - 10" | 0' - 1 3/4" | F-1 | STEEL | 1/A252 | 6/A252 | | 9 | |
| 211.1 | A | WOOD | | 3' - 0" | 7' - 10" | [illegible] | F-2 | STEEL | 1/A252 | 6/A252 | | 31 | PAIR |
| 212.1 | C | ALUM | | 7' - 10 7/8" | 7' - 10" | 0' - 1 3/4" | 21/A272 | ALUM | | 14/A272 | | 8 | PAIR |
| 212.2 | F | WOOD | | 3' - 0" | 7' - 10" | 0' - 1 3/4" | F-1 | STEEL | 2/A252 | 7/A252 | | 16 | BULLET-RESISTANT DOOR WITH LITE |
| 215.1 | C | WOOD | | 3' - 0" | 7' - 10" | 0' - 1 3/4" | F-3 | STEEL | 1/A252 | 6/A252 | | 24 | |
| 216.1 | A | WOOD | | 3' - 0" | 7' - 10" | 0' - 1 3/4" | F-1 | STEEL | 1/A252 | 6/A252 | | 26.1 | |
| 218.1 | A | WOOD | | 3' - 0" | 7' - 10" | 0' - 1 3/4" | F-1 | STEEL | 1/A252 | 6/A252 | | 28 | |
| 219.1 | A | WOOD | | 3' - 0" | 7' - 10" | 0' - 1 3/4" | F-1 | STEEL | 1/A252 | 6/A252 | | 28.3 | |
| 220.1 | A | WOOD | | 3' - 0" | 7' - 10" | 0' - 1 3/4" | F-1 | STEEL | 1/A252 | 6/A252 | 6/A251 | 20 | |
| 221.1 | A | WOOD | | 3' - 0" | 7' - 10" | 0' - 1 3/4" | F-1 | STEEL | 1/A252 | 6/A252 | 6/A251 | 20 | |
| 222.1 | A | WOOD | | 3' - 0" | 7' - 10" | 0' - 1 3/4" | F-1 | STEEL | 1/A252 | 6/A252 | | 27.1 | |
| 223.1 | C | WOOD | | 3' - 0" | 7' - 10" | 0' - 1 3/4" | F-3 | STEEL | 1/A252 | 6/A252 | | 23 | |
| 224.1 | A | WOOD | | 3' - 0" | 7' - 10" | 0' - 1 3/4" | F-1 | STEEL | 1/A252 | 6/A252 | | 18 | |
| 225.1 | A | WOOD | | 3' - 0" | 7' - 10" | 0' - 1 3/4" | F-1 | STEEL | 1/A252 | 6/A252 | | 27.1 | |
| 226.1 | C | WOOD | | 3' - 0" | 7' - 10" | 0' - 1 3/4" | F-3 | STEEL | 1/A252 | 6/A252 | | 23 | |
| 227.1 | A | WOOD | | 3' - 0" | 7' - 10" | 0' - 1 3/4" | F-1 | STEEL | 1/A252 | 6/A252 | | 18 | |
| 228.1 | C | WOOD | | 3' - 0" | 7' - 10" | 0' - 1 3/4" | F-3 | STEEL | 1/A252 | 6/A252 | | 23 | |
| 229.1 | A | WOOD | | 3' - 0" | 7' - 10" | 0' - 1 3/4" | F-1 | STEEL | 1/A252 | 6/A252 | | 27.1 | |
| 230.1 | C | WOOD | | 3' - 0" | 7' - 10" | 0' - 1 3/4" | F-3 | STEEL | 1/A252 | 6/A252 | | 23 | |
| 231.1 | A | WOOD | | 6' - 0" | 7' - 10" | 0' - 1 3/4" | F-1 | STEEL | 1/A252 | 6/A252 | | 27.0 | |
| 232.1 | A | WOOD | | 3' - 0" | 7' - 10" | 0' - 1 3/4" | F-2 | STEEL | 1/A252 | 6/A252 | | 31 | PAIR |
| 233.1 | A | WOOD | | 3' - 0" | 7' - 10" | 0' - 1 3/4" | F-1 | STEEL | 1/A252 | 6/A252 | | 26.0 | |
| 234.1 | A | WOOD | | 3' - 0" | 7' - 10" | 0' - 1 3/4" | F-1 | STEEL | 1/A252 | 6/A252 | | 27.1 | |
| 243.1 | A | STEEL | 90 MIN. | 3' - 0" | 7' - 10" | 0' - 1 3/4" | F-1 | STEEL | 4/A252 SIM. | 9/A252 SIM. | | 5.1 | |
| 244.1 | A | STEEL | 90 MIN. | 3' - 0" | 6' - 6" | 0' - 1 3/4" | F-1 | STEEL | 4/A252 | 9/A252 | 8/A513 | 5.1 | BOTTOM OF DOOR @ 1' - 4" A.F.F. |
| 250.1 | A | WOOD | | 3' - 0" | 7' - 6" | 0' - 1 3/4" | F-4 | STEEL | 1/A252 | 6/A252 | | 27 | BOTTOM OF DOOR @ 4" A.F.F. |
| SD1.3 | A | WOOD | 45 MIN. | 3' - 0" | 7' - 10" | 0' - 1 3/4" | F-1 | STEEL | 1/A252 | 6/A252 | | 10 | |
| SD2.3 | A | WOOD | 45 MIN. | 3' - 0" | 7' - 10" | 0' - 1 3/4" | F-1 | STEEL | 1/A252 | 6/A252 | | 29 | |

## DOOR SCHEDULE - ALTERNATE 'A'

| DOOR NO. | DOOR TYPE | DOOR MATERIAL | FIRE RATING | DOOR WIDTH | DOOR HEIGHT | DOOR THICK | FRAME TYPE | FRAME MATERIAL | HEAD | JAMB | T'HOLD | HARDWARE SET | COMMENTS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Main Level 1 | | | | | | | | | | | | | |
| 147.1 | C | ALUM | | 3' - 2" | 7' - 10" | - | 6/A272 | ALUM | | 14&15/A272 | | 1 | |
| 147.2 | A | STEEL | | 3' - 8" | 7' - 10" | 0' - 1 3/4" | F-1 | STEEL | 3/A252 | 8/A252 | | 3 | |
| 148.1 | C | ALUM | | 3' - 1 7/8" | 7' - 10" | - | 6/A272 | ALUM | | 14&15/A272 | | 1 | |
| 148.2 | A | STEEL | | 3' - 8" | 7' - 10" | 0' - 1 3/4" | F-1 | STEEL | 3/A252 | 8/A252 | | 3 | |
| SE1.1 | C | ALUM | | 3' - 2" | 7' - 10" | - | 6/A272 | ALUM | | 14/A272 | | 2 | |
| SE2.1 | A | STEEL | | 3' - 8" | 7' - 10" | 0' - 1 3/4" | F-1 | STEEL | 3/A252 | 8/A252 | | 3 | |

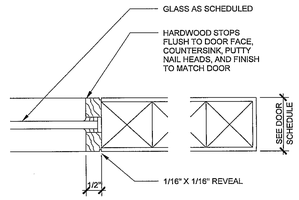
## DOOR SCHEDULE - ALTERNATE 'B'

| DOOR NO. | DOOR TYPE | DOOR MATERIAL | FIRE RATING | DOOR WIDTH | DOOR HEIGHT | DOOR THICK | FRAME TYPE | FRAME MATERIAL | HEAD | JAMB | T'HOLD | HARDWARE SET | COMMENTS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Main Level 1 | | | | | | | | | | | | | |
| 141.1 | C | ALUM | | 3' - 2" | 7' - 10" | - | 7/A271/SIM | ALUM | | 14&15/A272 | | 1 | |
| 141.2 | A | STEEL | | 3' - 8" | 7' - 10" | 0' - 1 3/4" | F-1 | STEEL | 3/A252 | 8/A252 | | 3 | |
| 142.1 | C | ALUM | | 3' - 0 5/8" | 7' - 10" | | 7/A271/SIM | ALUM | | 14&15/A272 | | 1 | |
| 142.2 | A | STEEL | | 3' - 8" | 7' - 10" | 0' - 1 3/4" | F-1 | STEEL | 3/A252 | 8/A252 | | 3 | |
| 143.1 | C | ALUM | | 3' - 2" | 7' - 10" | | 7/A271/SIM | ALUM | | 14&15/A272 | | 1 | |
| 143.2 | A | STEEL | | 3' - 8" | 7' - 10" | 0' - 1 3/4" | F-1 | STEEL | 3/A252 | 8/A252 | | 3 | |
| 144.1 | C | ALUM | | 3' - 2" | 7' - 10" | | 7/A271/SIM | ALUM | | 14&15/A272 | | 1 | |
| 144.2 | A | STEEL | | 3' - 8" | 7' - 10" | 0' - 1 3/4" | F-1 | STEEL | 3/A252 | 8/A252 | | 3 | |
| 145.1 | A | STEEL | | 3' - 0" | 7' - 10" | 0' - 1 3/4" | F-1 | STEEL | 3/A252 | 8/A252 | | 4 | |
| 145.2 | D | STEEL | | 14' - 0" | 9' - 0" | - | - | STEEL | 5/A252 | 15/A252 | | 33 | INSULATED EXTERIOR OVERHEAD COILING DOOR |
| 146.1 | A | STEEL | | 3' - 0" | 8' - 2" | 0' - 1 3/4" | F-1 | STEEL | 3/A252 | 8/A252 | | 5 | |
| 150.1 | A | STEEL | | 3' - 0" | 7' - 10" | 0' - 1 3/4" | F-1 | STEEL | 14/A252 | 20/A252 | | 27.0 | |
| SA1.1 | C | ALUM | | 3' - 2" | 7' - 10" | - | 7/A271/SIM | ALUM | | 14/A272 | | 2 | |
| SA2.1 | A | STEEL | | 3' - 8" | 7' - 10" | 0' - 1 3/4" | F-1 | STEEL | 3/A252 | 8/A252 | | 3 | |
| SB1.1 | C | ALUM | | 3' - 2" | 7' - 10" | - | 7/A271/SIM | ALUM | | 14/A272 | | 2 | |
| SB2.1 | A | STEEL | | 3' - 8" | 7' - 10" | 0' - 1 3/4" | F-1 | STEEL | 3/A252 | 8/A252 | | 3 | |

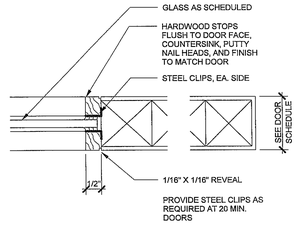



NOTE: TAGS ARE TYPICAL UNLESS OTHERWISE NOTED

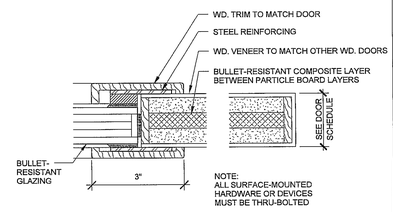
2 / A251 STEEL FRAME ELEVATIONS
3/8" = 1'-0"



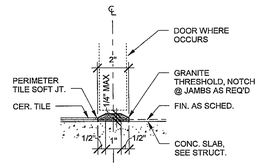

3 / A251 WOOD DOOR DETAIL
6" = 1'-0"



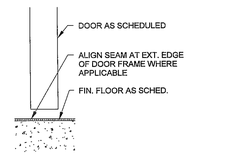

4 / A251 WOOD DOOR DETAIL - FIRE RATED
6" = 1'-0"




5 / A251 WOOD DOOR DETAIL - BULLET-RESISTANT
6" = 1'-0"




6 / A251 GRANITE THRESHOLD
3" = 1'-0"

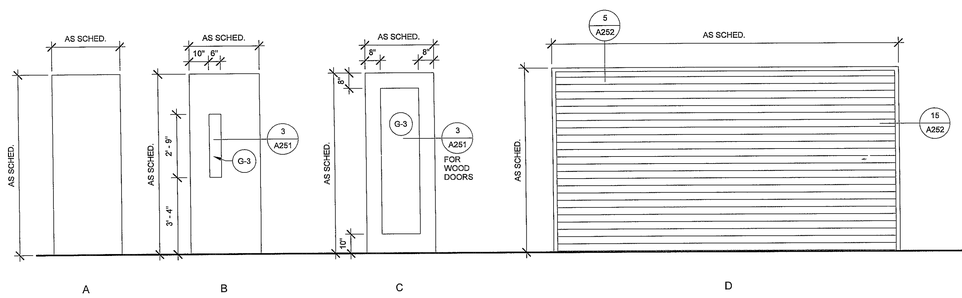



7 / A251 THRESHOLD - TYPICAL
3" = 1'-0"

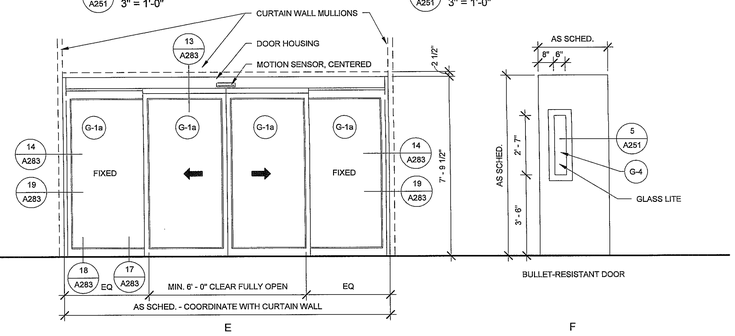
### GLASS SCHEDULE

| | |
|---|---|
| G-1 | 1" CLEAR LOW-E INSULATED |
| G-1a | 1" CLEAR LOW-E INSULATED, TEMPERED |
| G-2 | 1" SPANDREL LOW-E INSULATED |
| G-2a | 1" SPANDREL LOW-E INSULATED, TEMPERED |
| G-3 | 1/4" CLEAR TEMPERED |
| G-4 | 1 3/16" CLEAR BULLET-RESISTANT |
| G-5 | 1/2" CLEAR TEMPERED |

**NOTE:**
**THE LOWEST GLAZING UNITS FOR ALL LEVEL 1 GLAZING IN STOREFRONT AND CURTAIN WALL ASSEMBLIES ARE TO BE TEMPERED AS SCHEDULED, SEE ELEVATIONS.**




1 / A251 DOOR ELEVATIONS
3/8" = 1'-0"





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Atlanta, GA 30308-1416
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HARVEY B. GANTT REGISTERED ARCHITECT 2046 NORTH CAROLINA CHARLOTTE, NC

1/31/2014

| | |
|---|---|
| Drawn | MGB/CCM |
| Checked | LW |
| Date | January 31, 2014 |
| Revisions | |


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**FAST Multi-Modal Center**
City of Fayetteville
Fayetteville, NC

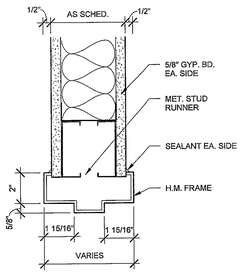
Project Number 621A

Title
**Door Schedule and Frame Elevations**

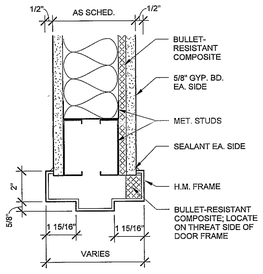
Sheet
# A251

Plate of


3/5/2014 4:07:19 PM
C:\Revit_LocalFiles\1 CENTRAL\A251_Schedules.rvt




1 A252 HEAD DETAIL
3" = 1'-0"




2 A252 HEAD DETAIL
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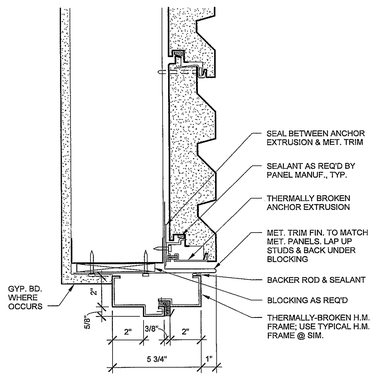


3 A252 HEAD DETAIL
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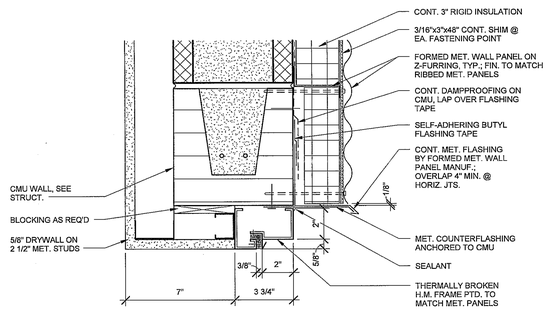


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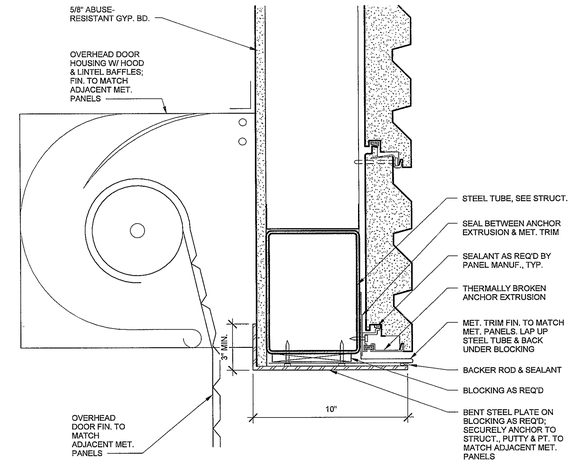


5 A252 HEAD DETAIL
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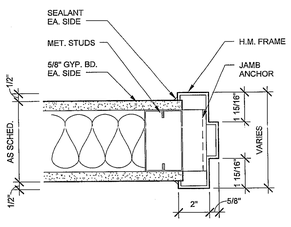


6 A252 JAMB DETAIL
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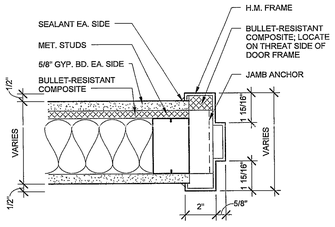


7 A252 JAMB DETAIL
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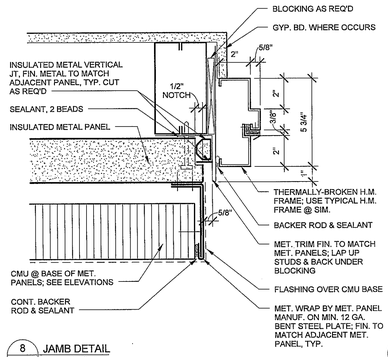
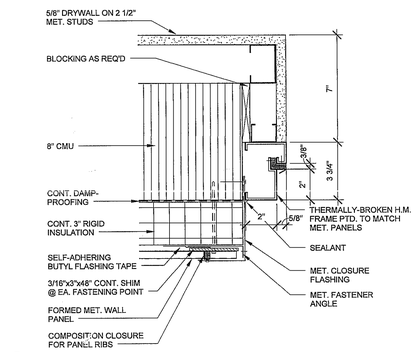



8 A252 JAMB DETAIL
3" = 1'-0"




9 A252 JAMB DETAIL
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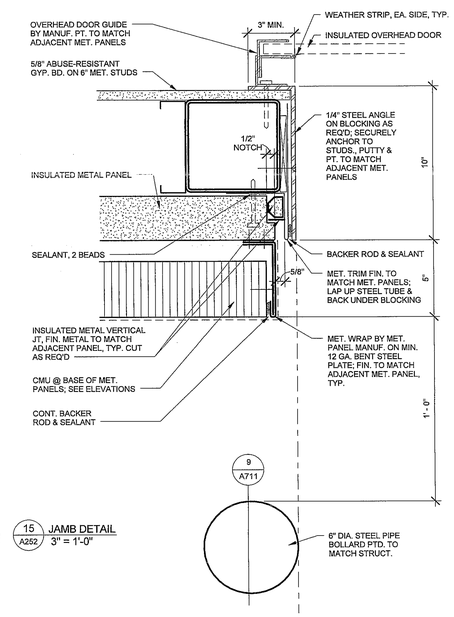
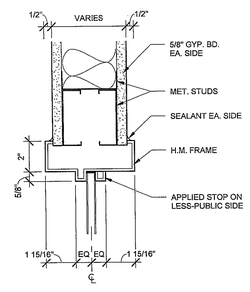
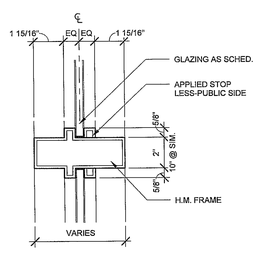



15 A252 JAMB DETAIL
3" = 1'-0"




10 A252 FRAME DETAIL
3" = 1'-0"




11 A252 FRAME DETAIL
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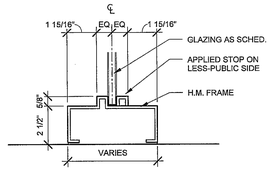


12 A252 FRAME DETAIL
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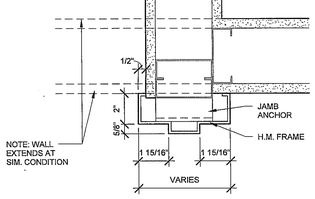
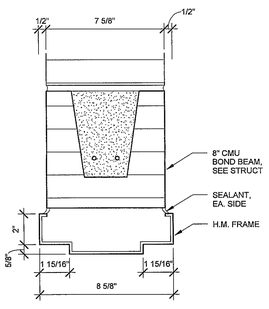
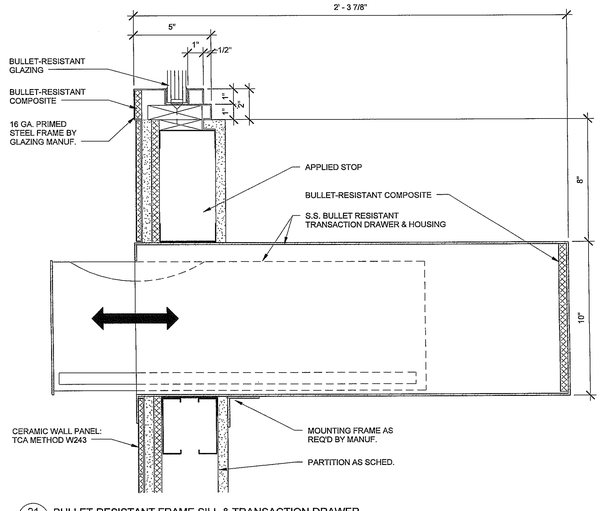


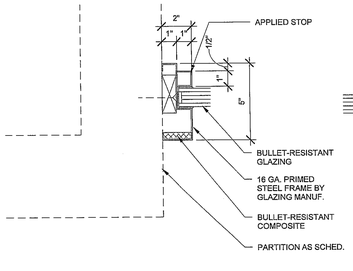

13 A252 JAMB DETAIL @ INTERSECTION PARTITION
3" = 1'-0"



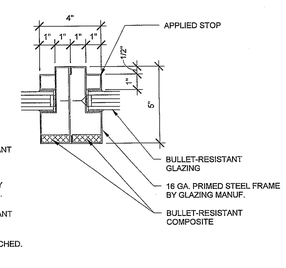

14 A252 HEAD DETAIL
3" = 1'-0"



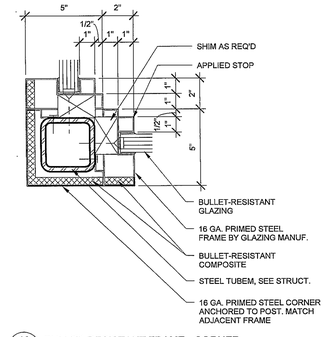

21 A252 BULLET-RESISTANT FRAME SILL & TRANSACTION DRAWER
3" = 1'-0"



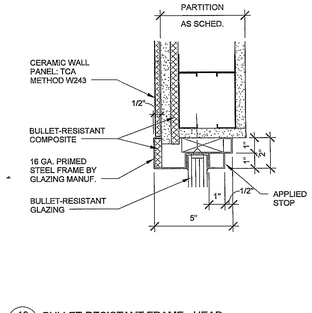

16 A252 BULLET-RESISTANT FRAME - JAMB
3" = 1'-0"



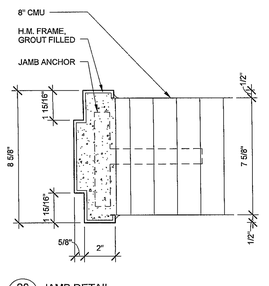

17 A252 BULLET-RESISTANT FRAME - INTERMEDIATE JAMB
3" = 1'-0"




18 A252 BULLET-RESISTANT FRAME - CORNER
3" = 1'-0"




19 A252 BULLET-RESISTANT FRAME - HEAD
3" = 1'-0"




20 A252 JAMB DETAIL
3" = 1'-0"

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HARVEY B. GANTT REGISTERED ARCHITECT 2040 NORTH CAROLINA CHARLOTTE, NC

1/31/2014

| | |
|---|---|
| Drawn | CCM/MGB |
| Checked | LW |
| Date | January 31, 2014 |
| Revisions | |

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# FAST Multi-Modal Center

City of Fayetteville
Fayetteville, NC

Project Number 621A

Title
## Steel Frame Details

Sheet
# A252

Plate of

3/5/2014 4:53:31 PM

DOOR HARDWARE SCHEDULE

Hardware Set No. 1

| | | | |
|---|---|---|---|
| 1 Pivot Set | 195 | 626 | RF |
| 2 Intermediate Pivot | M19 | 626 | RF |
| 1 Rim Exit Device | ED5200 K157 | 630 | RU |
| 1 Cylinder | RECORE CYLINDER AS REQUIRED | 626 | SC |
| 1 Permanent Core | 23-030 | 626 | SC |
| 1 Door Pull | RM301 MTG 12XHD | US32D | RO |
| 1 Door Closer | DC6210 A11 | 689 | RU |
| 1 Threshold | 171A | | PE |
| 1 Set Weatherstrip | BY DOOR MANUFACTURER | | 00 |

Hardware Set No. 2

| | | | |
|---|---|---|---|
| 1 Pivot Set | 195 | 626 | RF |
| 2 Intermediate Pivot | M19 | 626 | RF |
| 1 Rim Exit Device | ED5200 EO | 630 | RU |
| 1 Door Closer | DC6210 A11 | 689 | RU |
| 1 Threshold | 171A | | PE |
| 1 Set Weatherstrip | BY DOOR MANUFACTURER | | 00 |

Hardware Set No. 2.1

| | | | |
|---|---|---|---|
| 1 Pivot Set | 195 | 626 | RF |
| 1 Intermediate Pivot | M19 | 626 | RF |
| 1 Elect Pivot | EM19 | 626 | RF |
| 1 Elect Rim Exit Device | ED5200 K157 M92 M94 | 630 | RU |
| 1 Cylinder | RECORE CYLINDER AS REQUIRED | 626 | SC |
| 1 Permanent Core | 23-030 | 626 | SC |
| 1 Door Pull | RM301 MTG 12XHD | US32D | RO |
| 1 Door Closer | DC6210 A11 | 689 | RU |
| 1 Threshold | 171A | | PE |
| 1 Set Weatherstrip | BY DOOR MANUFACTURER | | 00 |
| 1 Card Reader | FURNISHED IN OTHER SECTION | | 00 |
| 1 Controller | 781N-120 | | RU |

NOTE: DOOR TO BE CLOSED AND LOCKED AT ALL TIMES. PRESENTATION OF A VALID CARD SIGNALS LATCH PULLBACK ALLOWING INGRESS. EGRESS AT ALL TIMES BY EXIT DEVICE PUSH BAR.

Hardware Set No. 3

| | | | |
|---|---|---|---|
| Hinge | T4A3386 x NRP | US32D | MK |
| 1 Rim Exit Device | ED5200 TH957 | 630 | RU |
| 1 Cylinder | RECORE CYLINDER AS REQUIRED | 626 | SC |
| 1 Permanent Core | 23-030 | 626 | SC |
| 1 Door Closer | DC6210 A4 | 689 | RU |
| 1 Kick Plate | K1050 8" x 2" LDW | US32D | RO |
| 1 Threshold | 2005AT | | PE |
| 1 Set Weatherstrip | 303AS | | PE |
| 1 Door Bottom Sweep | 3452CNB | | PE |

Hardware Set No. 4

| | | | |
|---|---|---|---|
| Hinge | T4A3386 x NRP | US32D | MK |
| 1 Electric Hinge | T4A3386 x CC | US32D | MK |
| 1 Electrified Lock | L9080EU T 03A REX | 630 | SC |
| 1 Permanent Core | 23-030 | 626 | SC |
| 1 Door Closer | DC6210 A4 | 689 | RU |
| 1 Kick Plate | K1050 8" x 2" LDW | US32D | RO |
| 1 Threshold | 2005AT | | PE |
| 1 Set Weatherstrip | 303AS | | PE |
| 1 Door Bottom Sweep | 3452CNB | | PE |
| 1 Card Reader | FURNISHED IN OTHER SECTION | | 00 |
| 1 Power Supply | AQD3 | | SU |

OPERATION: DOOR TO BE CLOSED AND LOCKED AT ALL TIMES. PRESENTATION OF A VALID CARD UNLOCKS OUTSIDE LEVER ALLOWING INGRESS. EGRESS AT ALL TIMES BY INSIDE LEVER.

Hardware Set No. 5

| | | | |
|---|---|---|---|
| Hinge | T4A3386 x NRP | US32D | MK |
| 1 Storeroom Security Lock | L9480 T 03A | 630 | SC |
| 1 Permanent Core | 23-030 | 626 | SC |
| 1 Door Closer | DC6210 A4 | 689 | RU |
| 1 Kick Plate | K1050 8" x 2" LDW | US32D | RO |
| 1 Threshold | 2005AT | | PE |
| 1 Set Weatherstrip | 303AS | | PE |
| 1 Door Bottom Sweep | 3452CNB | | PE |

Hardware Set No. 5.1

| | | | |
|---|---|---|---|
| Hinge | T4A3386 x NRP | US32D | MK |
| 1 Storeroom Security Lock | L9480 T 03A | 630 | SC |
| 1 Permanent Core | 23-030 | 626 | SC |
| 1 Door Closer | DC6210 A4 | 689 | RU |
| 1 Kick Plate | K1050 8" x 2" LDW | US32D | RO |
| 1 Aluminum Plate | 14/1A DRILL FOR HOLES (WIDTH x LENGTH AS REQ) | | PE |
| 1 Threshold | 290ASSTOP | | PE |
| 1 Set Weatherstrip | 303AS | | PE |
| 1 Door Bottom Sweep | 3452CNB | | PE |

Hardware Set No. 6

| | | | |
|---|---|---|---|
| Hinge | T4A3386 x NRP | US32D | MK |
| 2 Flush Bolt | 555 | US26D | RO |
| 1 Dust Proof Strike | 570 | US26D | RO |
| 1 Storeroom Security Lock | L9480 T 03A | 630 | SC |
| 2 Overhead Holder/Stop | 8-X26 | 630 | RF |
| 1 Threshold | 2005AT | | PE |
| 1 Set Weatherstrip | 303AS | | PE |
| 2 Door Bottom Sweep | 3452CNB | | PE |
| 2 Astragal | 18041CNB | | PE |

Hardware Set No. 7

NOT USED

Hardware Set No. 8

| | | | |
|---|---|---|---|
| 2 Pivot Set | 195 | 626 | RF |
| 2 Intermediate Pivot | M19 | 626 | RF |
| 2 Elect Pivot | EM19 | 626 | RF |
| 1 Elect CVR Exit Device | ED5860 F957 M55 M92 M94 | 630 | RU |
| 1 Elect CVR Exit Device | ED5860 M55 M92 M94 | 630 | RU |
| 1 Cylinder | RECORE CYLINDER AS REQUIRED | 626 | SC |
| 1 Permanent Core | 23-030 | 626 | SC |
| 2 Door Pull | RM301 MTG 12XHD | US32D | RO |
| 2 Door Closer | DC6210 A4 | 689 | RU |
| 1 Card Reader | FURNISHED IN OTHER SECTION | | 00 |
| 1 Controller | 781N-120 | | RU |

OPERATION: DOORS TO BE CLOSED AND LOCKED AT ALL TIMES UNLESS EXIT DEVICE PUSH BARS ARE LOCKED IN THE DOGGED POSITION. PRESENTATION OF A VALID CARD SIGNALS LATCH RETRACTION ALLOWING INGRESS. EGRESS AT ALL TIMES BY EXIT DEVICE PUSH BARS.

Hardware Set No. 9

| | | | |
|---|---|---|---|
| Hinge | TA2714 | US26D | MK |
| 1 Rim Fire Exit Device | ED5200A L955 | 630 | RU |
| 1 Cylinder | RECORE CYLINDER AS REQUIRED | 626 | SC |
| 1 Permanent Core | 23-030 | 626 | SC |
| 1 Door Closer | DC6210 A4 | 689 | RU |
| 1 Kick Plate | K1050 8" x 2" LDW | US32D | RO |
| 1 Set Door Seals | S773D | | PE |

Hardware Set No. 10

| | | | |
|---|---|---|---|
| Hinge | TA2714 | US26D | MK |
| 1 Rim Fire Exit Device | ED5202A L955 | 630 | RU |
| 2 Cylinder | RECORE CYLINDER AS REQUIRED | 626 | SC |
| 2 Permanent Core | 23-030 | 626 | SC |
| 1 Door Closer | DC6200 | 689 | RU |
| 1 Kick Plate | K1050 8" x 2" LDW | US32D | RO |
| 1 Door Stop | 482 | US26D | RO |
| 1 Set Door Seals | S773D | | PE |

Hardware Set No. 11

| | | | |
|---|---|---|---|
| Hinge | TA2714 | US26D | MK |
| 1 Rim Fire Exit Device | ED5200A L957 | 630 | RU |
| 1 Cylinder | RECORE CYLINDER AS REQUIRED | 626 | SC |
| 1 Permanent Core | 23-030 | 626 | SC |
| 1 Door Closer | DC6210 | 689 | RU |
| 1 Kick Plate | K1050 8" x 2" LDW | US32D | RO |
| 1 Door Stop | 482 | US26D | RO |
| 1 Set Door Seals | S773D | | PE |

Hardware Set No. 12

| | | | |
|---|---|---|---|
| Hinge | TA2714 | US26D | MK |
| 1 Rim Exit Device | ED5200 L957 | 630 | RU |
| 1 Cylinder | RECORE CYLINDER AS REQUIRED | 626 | SC |
| 1 Permanent Core | 23-030 | 626 | SC |
| 1 Door Closer | DC6210 | 689 | RU |
| 1 Kick Plate | K1050 8" x 2" LDW | US32D | RO |
| 1 Door Stop | 482 | US26D | RO |
| 1 Set Door Seals/Silencers | S773D/608 AS REQUIRED | | PE |

Hardware Set No. 13

| | | | |
|---|---|---|---|
| Hinge | TA2714 | US26D | MK |
| 1 Electric Hinge | TA2714 x QC | US26D | MK |
| 1 Alarmed Rim Fire Exit Device | ED5200A L957 M61 M93 | 630 | RU |
| 1 Remote Power Harness | 709F989 | | RU |
| 1 Door Closer | DC6200 | 689 | RU |
| 1 Kick Plate | K1050 8" x 2" LDW | US32D | RO |
| 1 Door Stop | 482 | US26D | RO |
| 1 Set Door Seals | S773D | | PE |
| 1 Power Supply | 784 | | RU |
| 1 Wiring Diagram | | | RU |

Hardware Set No. 14

| | | | |
|---|---|---|---|
| Hinge | TA2714 | US26D | MK |
| 1 Electric Hinge | TA2714 x CC | US26D | MK |
| 1 Electrified Lock | L9080EU T 03A REX | 630 | SC |
| 1 Cylinder | RECORE CYLINDER AS REQUIRED | 626 | SC |
| 1 Permanent Core | 23-030 | 626 | SC |
| 1 Door Closer | DC6200 | 689 | RU |
| 1 Kick Plate | K1050 8" x 2" LDW | US32D | RO |
| 1 Door Stop | 406/441CU | US26D | RO |
| 1 Set Door Seals/Silencers | S773D/608 AS REQUIRED | | PE |
| 1 Card Reader | FURNISHED IN OTHER SECTION | | 00 |
| 1 Power Supply | AQD3 | | SU |

OPERATION: DOOR TO BE CLOSED AND LOCKED AT ALL TIMES. PRESENTATION OF A VALID CARD UNLOCKS OUTSIDE LEVER ALLOWING INGRESS. EGRESS AT ALL TIMES BY INSIDE LEVER.

Hardware Set No. 15

NOT USED

Hardware Set No. 16

| | | | |
|---|---|---|---|
| 1 Elect Continuous Hinge | ETAP CE FM-300 | 630 | MR |
| 1 Electrified Lock | L9080EU T 03A REX | 630 | SC |
| 1 Permanent Core | 23-030 | 626 | SC |
| 1 Door Closer | DC6210 A4 | 689 | RU |
| 1 Kick Plate | K1050 8" x 2" LDW | US32D | RO |
| 1 Set Door Seals | S773D | | PE |
| 1 Card Reader | FURNISHED IN OTHER SECTION | | 00 |

Hardware Set No. 16, cont'd.

| | | | |
|---|---|---|---|
| 1 Push Button | PB3ER | | SU |
| 1 Power Supply | AQD3 | | SU |

OPERATION: DOOR TO BE CLOSED AND LOCKED AT ALL TIMES. PRESENTATION OF A VALID CARD OR REMOTE RELEASE (@ RECEPTION) UNLOCKS OUTSIDE LEVER ALLOWING INGRESS. EGRESS AT ALL TIMES BY INSIDE LEVER.

Hardware Set No. 17

| | | | |
|---|---|---|---|
| 1 Elect Continuous Hinge | ETAP CE FM-300 | 630 | MR |
| 1 Electrified Lock | L9080EU T 03A REX | 630 | SC |
| 1 Permanent Core | 23-030 | 626 | SC |
| 1 Door Closer | DC6200 | 689 | RU |
| 1 Kick Plate | K1050 8" x 2" LDW | US32D | RO |
| 1 Door Stop | 406/441CU | US26D | RO |
| 1 Set Door Seals/Silencers | S773D/608 AS REQUIRED | | PE |
| 1 Card Reader | FURNISHED IN OTHER SECTION | | 00 |
| 1 Power Supply | AQD3 | | SU |

Hardware Set No. 18

| | | | |
|---|---|---|---|
| Hinge | TA2714 | US26D | MK |
| 1 Passage Set | L9010 03A | 630 | SC |
| 1 Overhead Stop | 10-X36 | 630 | RF |
| 3 Silencer | 608 | | RO |

Hardware Set No. 19

| | | | |
|---|---|---|---|
| Hinge | T4A3786 | US26D | MK |
| 1 Passage Set | L9010 03A | 630 | SC |
| 1 Overhead Stop | 9-X36 | 630 | RF |
| 3 Silencer | 608 | | RO |

Hardware Set No. 20

| | | | |
|---|---|---|---|
| Hinge | TA2714 | US26D | MK |
| 1 Passage Set | L9010 03A | 630 | SC |
| 1 Door Closer | DC6200 | 689 | RU |
| 1 Kick Plate | K1050 8" x 2" LDW | US32D | RO |
| 1 Door Stop | 482 | US26D | RO |
| 1 Set Door Seals/Silencers | S773D/608 AS REQUIRED | | PE |

Hardware Set No. 21

| | | | |
|---|---|---|---|
| Hinge | TA2714 | US26D | MK |
| 1 Privacy Set | L9040 03A | 630 | SC |
| 1 Door Stop | 406/441CU | US26D | RO |
| 1 Set Door Seals | S773D | | PE |

Hardware Set No. 22

| | | | |
|---|---|---|---|
| Hinge | TA2714 | US26D | MK |
| 1 Privacy Set | L9040 03A | 630 | SC |
| 1 Door Closer | DC6200 | 689 | RU |

Hardware Set No. 22, cont'd.

| | | | |
|---|---|---|---|
| 1 Kick Plate | K1050 8" x 2" LDW | US32D | RO |
| 1 Door Stop | 406/441CU | US26D | RO |
| 1 Set Door Seals | S773D | | PE |

Hardware Set No. 23

| | | | |
|---|---|---|---|
| Hinge | TA2714 | US26D | MK |
| 1 Office Lock | L9050 T 03A | 630 | SC |
| 1 Permanent Core | 23-030 | 626 | SC |
| 1 Door Stop | 406/441CU | US26D | RO |
| 3 Silencer | 608 | | RO |

Hardware Set No. 23.1

| | | | |
|---|---|---|---|
| Hinge | TA2714 | US26D | MK |
| 1 Office Lock | L9050 T 03A | 630 | SC |
| 1 Permanent Core | 23-030 | 626 | SC |
| 1 Overhead Stop | 10-X36 | 630 | RF |
| 3 Silencer | 608 | | RO |

Hardware Set No. 24

| | | | |
|---|---|---|---|
| Hinge | T4A3786 | US26D | MK |
| 1 Office Lock | L9050 T 03A | 630 | SC |
| 1 Permanent Core | 23-030 | 626 | SC |
| 1 Door Stop | 406/441CU | US26D | RO |
| 3 Silencer | 608 | | RO |

Hardware Set No. 25

| | | | |
|---|---|---|---|
| Hinge | TA2714 | US26D | MK |
| 1 Classroom Lock | L9070 T 03A | 630 | SC |
| 1 Permanent Core | 23-030 | 626 | SC |
| 1 Door Closer | DC6200 | 689 | RU |
| 1 Kick Plate | K1050 8" x 2" LDW | US32D | RO |
| 1 Door Stop | 406/441CU | US26D | RO |
| 1 Set Door Seals/Silencers | S773D/608 AS REQUIRED | | PE |

Hardware Set No. 26

| | | | |
|---|---|---|---|
| Hinge | TA2714 | US26D | MK |
| 1 Storeroom Lock | L9080 T 03A | 630 | SC |
| 1 Permanent Core | 23-030 | 626 | SC |
| 1 Door Stop | 406/441CU | US26D | RO |
| 3 Silencer | 608 | | RO |

Hardware Set No. 26.1

| | | | |
|---|---|---|---|
| Hinge | TA2714 | US26D | MK |
| 1 Storeroom Lock | L9080 T 03A | 630 | SC |
| 1 Permanent Core | 23-030 | 626 | SC |
| 1 Door Stop | 406/441CU | US26D | RO |

Hardware Set No. 26.1, cont'd.

| | | | |
|---|---|---|---|
| 1 Set Door Seals | S88D | | PE |
| 1 Auto Door Bottom | 434ARL | | PE |

Hardware Set No. 27

| | | | |
|---|---|---|---|
| Hinge | TA2714 | US26D | MK |
| 1 Storeroom Lock | L9080 T 03A | 630 | SC |
| 1 Permanent Core | 23-030 | 626 | SC |
| 1 Overhead Stop | 10-X36 | 630 | RF |
| 3 Silencer | 608 | | RO |

Hardware Set No. 27.1

| | | | |
|---|---|---|---|
| Hinge | TA2714 | US26D | MK |
| 1 Storeroom Lock | L9080 T 03A | 630 | SC |
| 1 Permanent Core | 23-030 | 626 | SC |
| 1 Overhead Stop | 10-X36 | 630 | RF |
| 1 Auto Door Bottom | 434ARL | | PE |

Hardware Set No. 28

| | | | |
|---|---|---|---|
| Hinge | TA2714 | US26D | MK |
| 1 Storeroom Lock | L9080 T 03A | 630 | SC |
| 1 Permanent Core | 23-030 | 626 | SC |
| 1 Door Closer | DC6200 | 689 | RU |
| 1 Kick Plate | K1050 8" x 2" LDW | US32D | RO |
| 1 Door Stop | 406/441CU | US26D | RO |
| 1 Set Door Seals/Silencers | S773D/608 AS REQUIRED | | PE |

Hardware Set No. 28.1

| | | | |
|---|---|---|---|
| Hinge | TA2714 | US26D | MK |
| 1 Storeroom Lock | L9080 T 03A | 630 | SC |
| 1 Permanent Core | 23-030 | 626 | SC |
| 1 Door Closer | DC6210 | 689 | RU |
| 1 Kick Plate | K1050 8" x 2" LDW | US32D | RO |
| 1 Door Stop | 406/441CU | US26D | RO |
| 1 Set Door Seals/Silencers | S773D/608 AS REQUIRED | | PE |

Hardware Set No. 28.2

| | | | |
|---|---|---|---|
| Hinge | TA2714 | US26D | MK |
| 1 Storeroom Lock | L9080 T 03A | 630 | SC |
| 1 Permanent Core | 23-030 | 626 | SC |
| 1 Door Closer | DC6210 A4 | 689 | RU |
| 1 Kick Plate | K1050 8" x 2" LDW | US32D | RO |
| 1 Set Door Seals/Silencers | S773D/608 AS REQUIRED | | PE |

Hardware Set No. 28.3

| | | | |
|---|---|---|---|
| Hinge | TA2714 | US26D | MK |
| 1 Storeroom Lock | L9080 T 03A | 630 | SC |

Hardware Set No. 28.3, cont'd.

| | | | |
|---|---|---|---|
| 1 Permanent Core | 23-030 | 626 | SC |
| 1 Door Closer | DC6200 | 689 | RU |
| 1 Kick Plate | K1050 8" x 2" LDW | US32D | RO |
| 1 Door Stop | 406/441CU | US26D | RO |
| 1 Set Door Seals | S88D | | PE |
| 1 Auto Door Bottom | 4301CRL | | PE |

Hardware Set No. 29

| | | | |
|---|---|---|---|
| Hinge | TA2714 | US26D | MK |
| 1 Entrance Lock | L9080 T 03A | 630 | SC |
| 2 Permanent Core | 23-030 | 626 | SC |
| 1 Door Closer | DC6200 | 689 | RU |
| 1 Kick Plate | K1050 8" x 2" LDW | US32D | RO |
| 1 Door Stop | 406/441CU | US26D | RO |
| 1 Set Door Seals | S773D | | PE |

Hardware Set No. 30

| | | | |
|---|---|---|---|
| 1 Pivot Set | 195 | 626 | RF |
| 2 Intermediate Pivot | M19 | 626 | RF |
| 1 Dbl Storeroom Lock | L9482 T 03A | 630 | SC |
| 1 Permanent Core | 23-030 | 626 | SC |
| 1 Door Closer | DC6200 A10 | 689 | RU |
| 1 Door Stop | 482 | US26D | RO |

Hardware Set No. 31

| | | | |
|---|---|---|---|
| Hinge | TA2714 | US26D | MK |
| 2 Flush Bolt | 555 | US26D | RO |
| 1 Dust Proof Strike | 570 | US26D | RO |
| 1 Storeroom Lock | L9080 T 03A | 630 | SC |
| 2 Permanent Core | 23-030 | 626 | SC |
| 2 Overhead Holder | 9-X26 | 630 | RF |
| 2 Silencer | 608 | | RO |

Hardware Set No. 31.1

| | | | |
|---|---|---|---|
| Hinge | TA2714 | US26D | MK |
| 2 Flush Bolt | 555 | US26D | RO |
| 1 Dust Proof Strike | 570 | US26D | RO |
| 1 Passage Set | L9010 03A | 630 | SC |
| 2 Overhead Holder | 9-X26 | 630 | RF |
| 2 Silencer | 608 | | RO |

Hardware Set No. 32

| | | | |
|---|---|---|---|
| 1 Cylinder | RECORE CYLINDER AS REQUIRED | 626 | SC |
| 1 Permanent Core | 23-030 | 626 | SC |

NOTE: BALANCE FURNISHED BY DOOR MANUFACTURER.

Hardware Set No. 33

| | | | |
|---|---|---|---|
| 1 Cylinder | RECORE CYLINDER AS REQUIRED | 626 | SC |
| 1 Permanent Core | 23-030 | 626 | SC |

NOTE: BALANCE FURNISHED BY DOOR MANUFACTURER.

Hardware Set No. 34

| | | | |
|---|---|---|---|
| 1 Continuous Hinge | FM300 | 630 | MR |
| 1 Roller Latch | 592 | US26D | RO |
| 1 Edge Pull | RM753 | US32D | RO |

MANUFACTURER'S ABBREVIATIONS:
MC - McKinney
MK - Markar
RF - Rixson
RO - Rockwood
SC - Schlage
RU - Corbin Russwin
PE - Pemko
00 - Other
SU – Securitron


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HARVEY B. GANTT REGISTERED ARCHITECT 2045 NORTH CAROLINA CHARLOTTE, NC

1/31/2014

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|---|---|
| Drawn | LW |
| Checked | LW |
| Date | January 31, 2014 |
| Revisions | |


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**FAST Multi-Modal Center**
City of Fayetteville
Fayetteville, NC

Project Number 621A

Title
**Hardware Schedule**

Sheet
**A253**

Plate of

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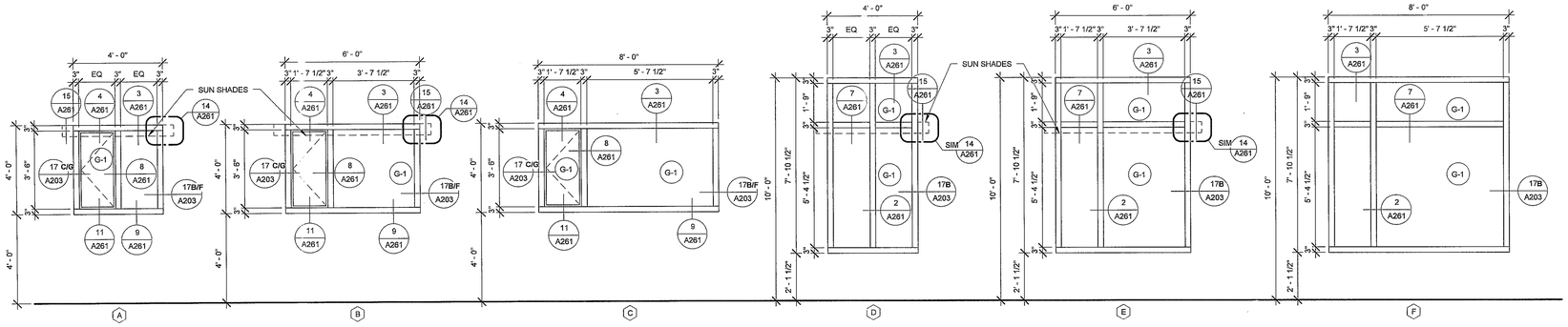
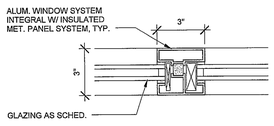



1 A261 WINDOW ELEVATIONS
3/8" = 1'-0"

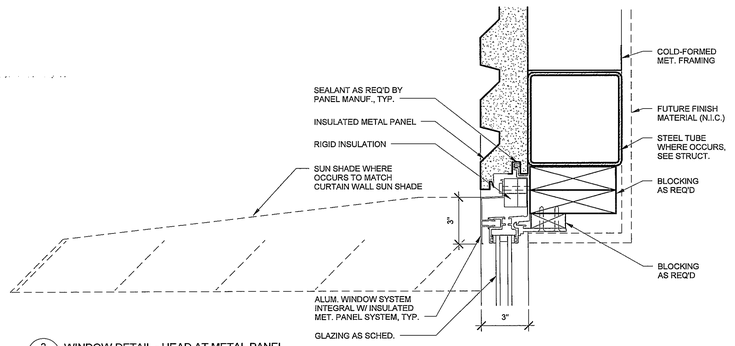
**GLASS SCHEDULE**

| | |
|---|---|
| G-1 | 1" CLEAR LOW-E INSULATED |
| G-1a | 1" CLEAR LOW-E INSULATED, TEMPERED |
| G-2 | 1" SPANDREL LOW-E INSULATED |
| G-2a | 1" SPANDREL LOW-E INSULATED, TEMPERED |
| G-3 | 1/4" CLEAR TEMPERED |
| G-4 | 1 3/16" CLEAR BULLET-RESISTANT |
| G-5 | 1/2" CLEAR TEMPERED |

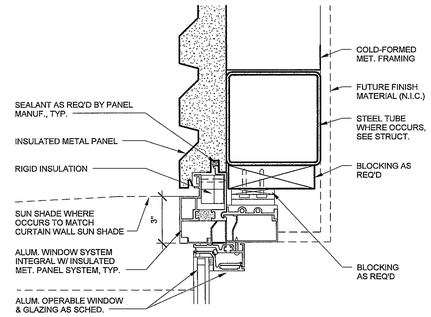
**NOTE:**
**THE LOWEST GLAZING UNITS FOR ALL LEVEL 1 GLAZING IN STOREFRONT AND CURTAIN WALL ASSEMBLIES ARE TO BE TEMPERED AS SCHEDULED, SEE ELEVATIONS.**



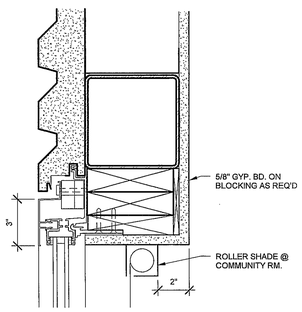

2 A261 WINDOW DETAIL - INTERMEDIATE VERTICAL MULLION
3" = 1'-0"



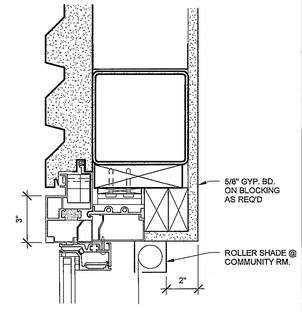

3 A261 WINDOW DETAIL - HEAD AT METAL PANEL
3" = 1'-0"



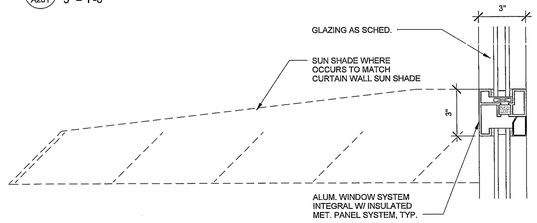

4 A261 WINDOW DETAIL - OPERABLE HEAD
3" = 1'-0"



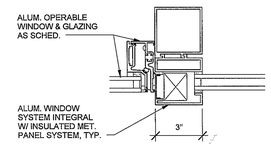

5 A261 WINDOW DETAIL - FINISHED HEAD AT METAL PANEL
3" = 1'-0"



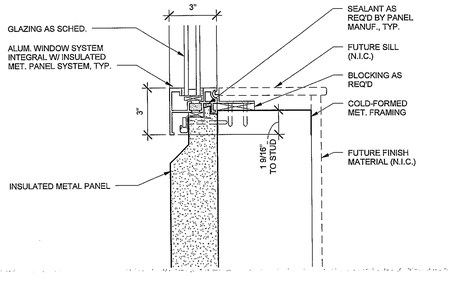

6 A261 WINDOW DETAIL - FINISHED OPERABLE HEAD
3" = 1'-0"



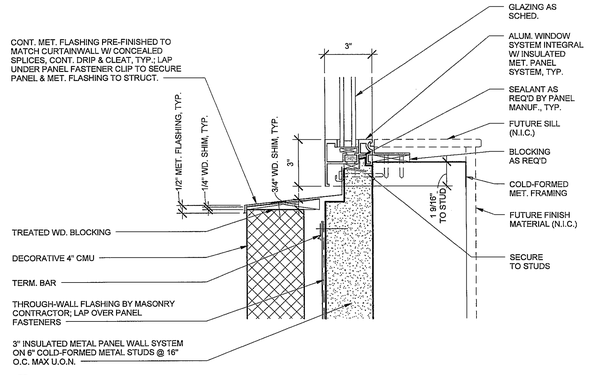

7 A261 WINDOW DETAIL - INTERMEDIATE HORIZONTAL MULLION
3" = 1'-0"



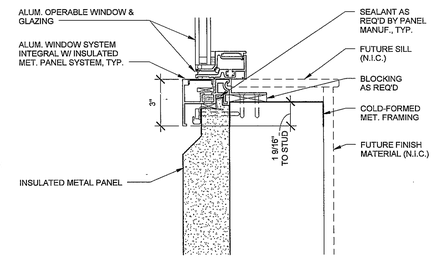

8 A261 WINDOW DETAIL - INTERMEDIATE OPERABLE MULLION
3" = 1'-0"



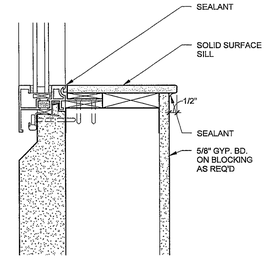

9 A261 WINDOW DETAIL - SILL AT METAL PANEL
3" = 1'-0"



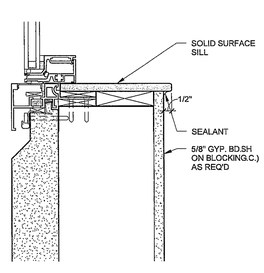

10 A261 WINDOW DETAIL - SILL AT CMU BASE
3" = 1'-0"



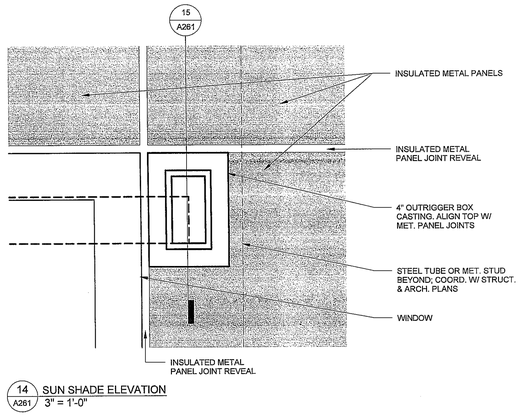

11 A261 WINDOW DETAIL - OPERABLE SILL
3" = 1'-0"



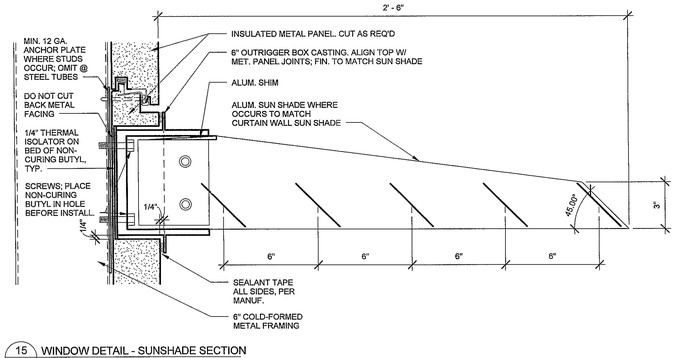

12 A261 WINDOW DETAIL - FINISHED SILL AT METAL PANEL
3" = 1'-0"




13 A261 WINDOW DETAIL - FINISHED OPERABLE SILL
3" = 1'-0"




14 A261 SUN SHADE ELEVATION
3" = 1'-0"




15 A261 WINDOW DETAIL - SUNSHADE SECTION
3" = 1'-0"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Structural Engineer
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Plumbing, Mechanical and Electrical Engineer
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Technology Consultant
**Vertex Technology Consultants**
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Charlotte, NC 28227
704.622.6264 Tel

Signage Consultant
**Jones Worley**
723 Piedmont Avenue, NE
Atlanta, GA 30308-1416
404.876.8272 Tel


REGISTERED ARCHITECTS, ARCHITECTURAL COMPANY, P.A. 52852 NORTH CAROLINA CHARLOTTE, NC

HARVEY B. GANT REGISTERED ARCHITECT 2048 NORTH CAROLINA CHARLOTTE, NC

1/31/2014

| | |
|---|---|
| Drawn | MGB/CCM |
| Checked | LW |
| Date | January 31, 2014 |
| Revisions | |


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**FAST Multi-Modal Center**
City of Fayetteville
Fayetteville, NC

Project Number 621A

Title
**Window Elevations and Details**

Sheet
# A261

Plate of

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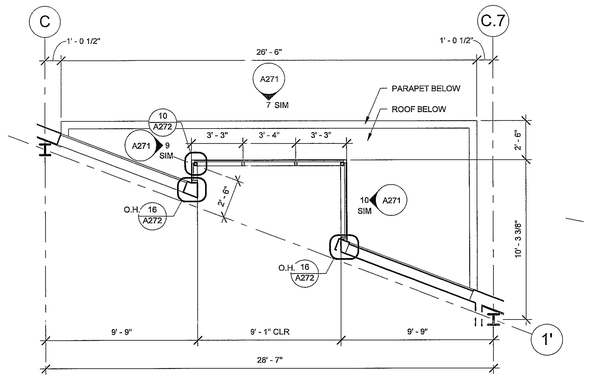
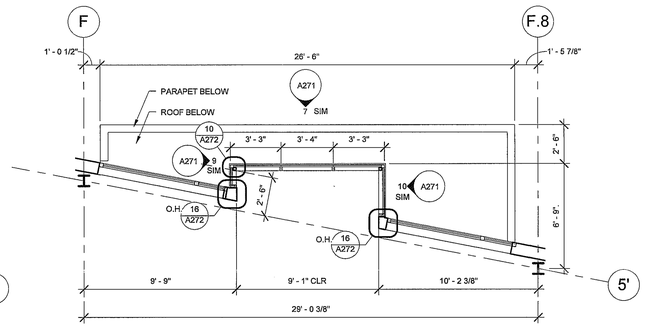
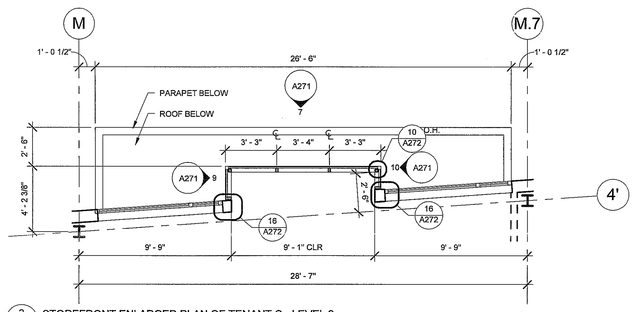


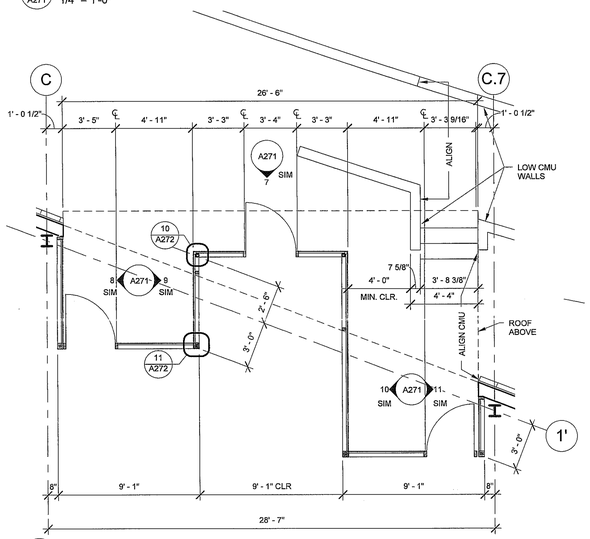

1 A271 STOREFRONT ENLARGED PLAN OF TENANT A - LEVEL 2
1/4" = 1'-0"



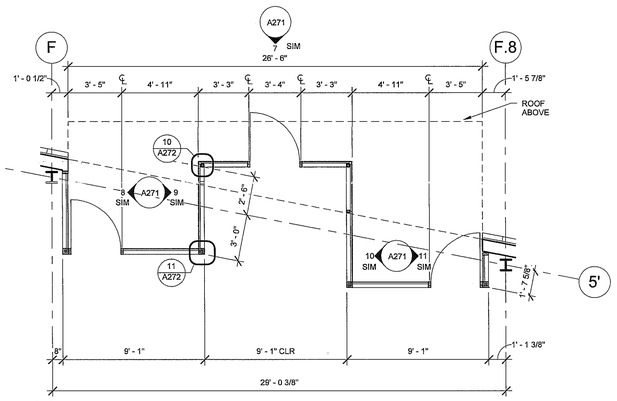

2 A271 STOREFRONT ENLARGED PLAN OF TENANT B - LEVEL 2
1/4" = 1'-0"



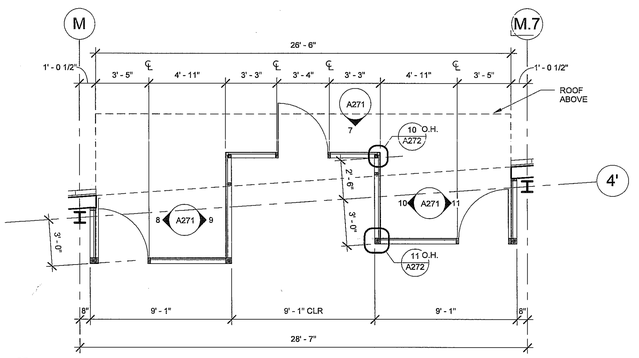

3 A271 STOREFRONT ENLARGED PLAN OF TENANT C - LEVEL 2
1/4" = 1'-0"



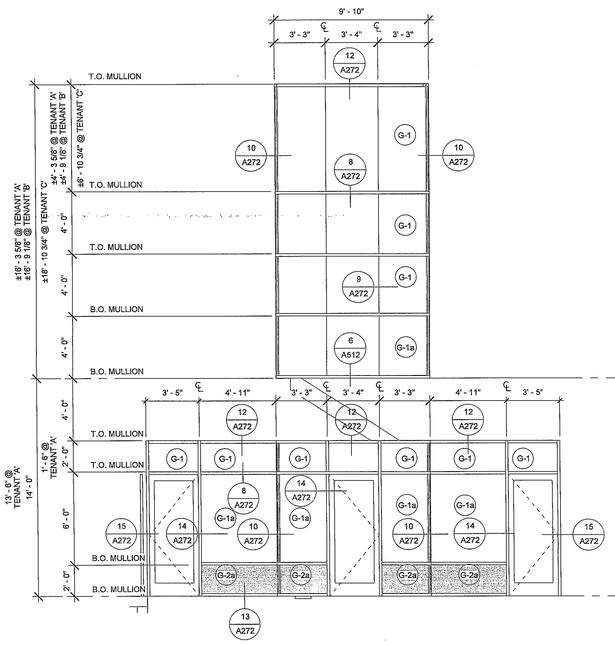

4 A271 STOREFRONT ENLARGED PLAN OF TENANT A - LEVEL 1
1/4" = 1'-0"



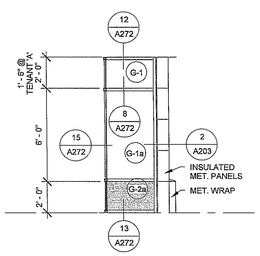

5 A271 STOREFRONT ENLARGED PLAN OF TENANT B - LEVEL 1
1/4" = 1'-0"



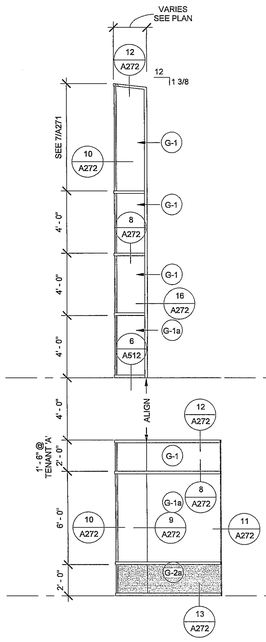

6 A271 STOREFRONT ENLARGED PLAN OF TENANT C - LEVEL 1
1/4" = 1'-0"



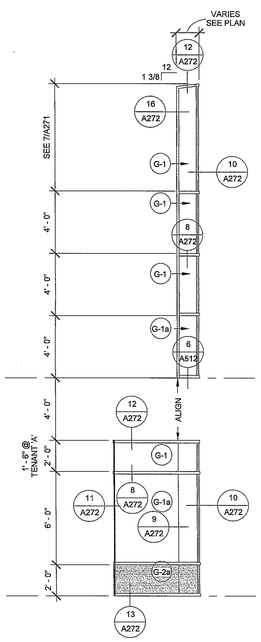

7 A271 STOREFRONT ELEVATION
1/4" = 1'-0"



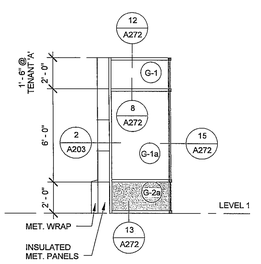

8 A271 STOREFRONT ELEVATION
1/4" = 1'-0"




9 A271 STOREFRONT ELEVATION
1/4" = 1'-0"




10 A271 STOREFRONT ELEVATION
1/4" = 1'-0"




11 A271 STOREFRONT ELEVATION
1/4" = 1'-0"

**GLASS SCHEDULE**

| | |
|---|---|
| G-1 | 1" CLEAR LOW-E INSULATED |
| G-1a | 1" CLEAR LOW-E INSULATED, TEMPERED |
| G-2 | 1" SPANDREL LOW-E INSULATED |
| G-2a | 1" SPANDREL LOW-E INSULATED, TEMPERED |
| G-3 | 1/4" CLEAR TEMPERED |
| G-4 | 1 3/16" CLEAR BULLET-RESISTANT |
| G-5 | 1/2" CLEAR TEMPERED |

**NOTE:**
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Signage Consultant
**Jones Worley**
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Atlanta, GA 30308-1416
404.876.9272 Tel


1/31/2014

| | |
|---|---|
| Drawn | CCM/MGB |
| Checked | LW |
| Date | January 31, 2014 |
| Revisions | |


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**FAST Multi-Modal Center**
City of Fayetteville
Fayetteville, NC

Project Number 621A

Title
**Storefront Plans and Elevations**

Sheet
# A271

Plate of


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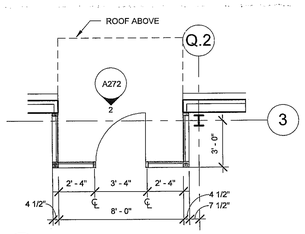
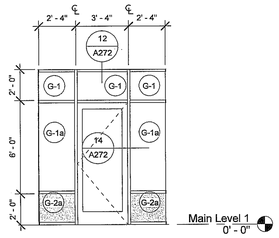
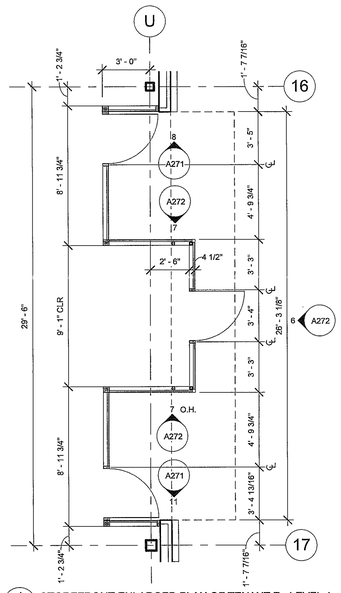


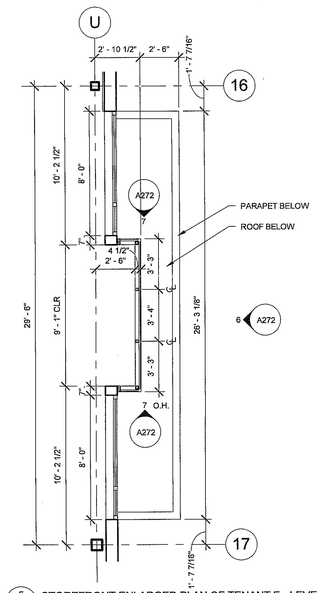

1 A272 STOREFRONT ENLARGED PLAN OF TENANT D
1/4" = 1'-0"



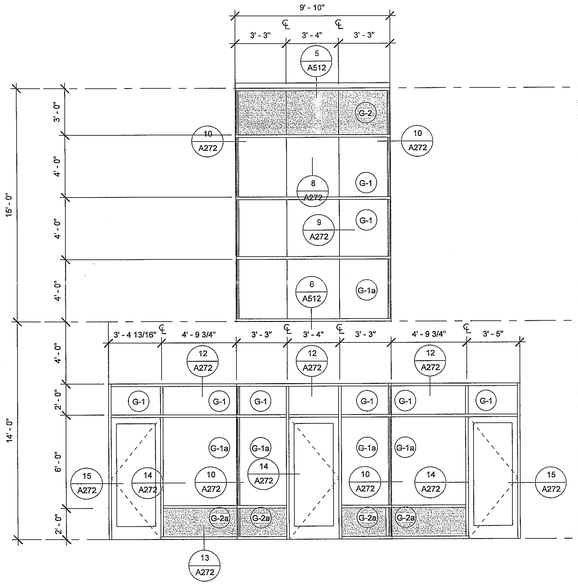

2 A272 STOREFRONT ELEVATION
1/4" = 1'-0"



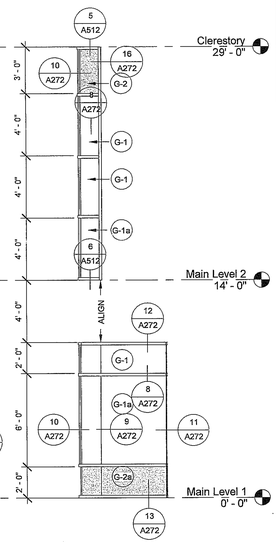

4 A272 STOREFRONT ENLARGED PLAN OF TENANT E - LEVEL 1
1/4" = 1'-0"



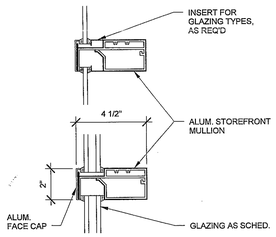

5 A272 STOREFRONT ENLARGED PLAN OF TENANT E - LEVEL 2
1/4" = 1'-0"



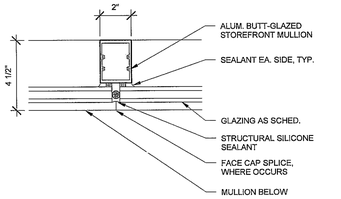

6 A272 STOREFRONT ELEVATION
1/4" = 1'-0"



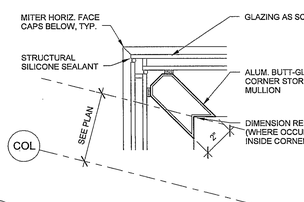

7 A272 STOREFRONT ELEVATION
1/4" = 1'-0"



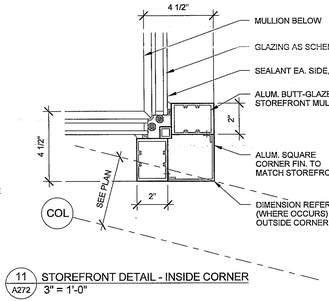

8 A272 STOREFRONT DETAIL - INTERMEDIATE HORIZ. MULLION
3" = 1'-0"



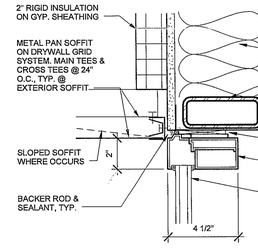

9 A272 STOREFRONT DETAIL - INTERMEDIATE VERTICAL MULLION
3" = 1'-0"



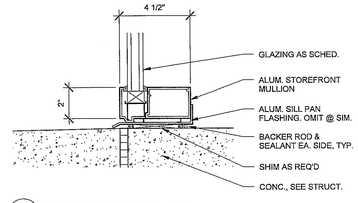

10 A272 STOREFRONT DETAIL - OUTSIDE CORNER
3" = 1'-0"



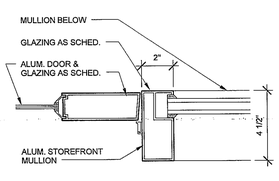

11 A272 STOREFRONT DETAIL - INSIDE CORNER
3" = 1'-0"



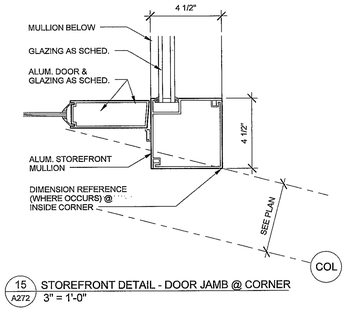

12 A272 STOREFRONT DETAIL - HEAD
3" = 1'-0"



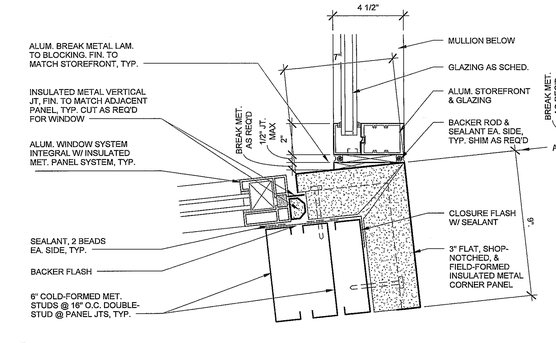

13 A272 STOREFRONT DETAIL - SILL
3" = 1'-0"



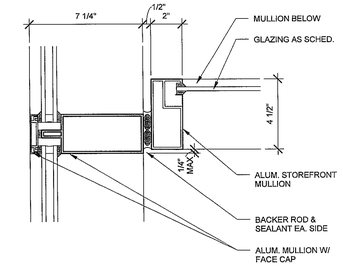

14 A272 STOREFRONT DETAIL - DOOR JAMB
3" = 1'-0"



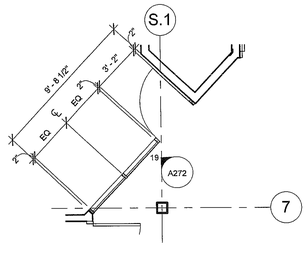

15 A272 STOREFRONT DETAIL - DOOR JAMB @ CORNER
3" = 1'-0"



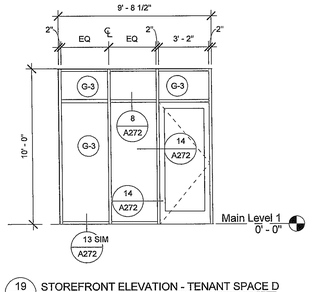

16 A272 STOREFRONT - JAMB @ LEVEL 2
3" = 1'-0"



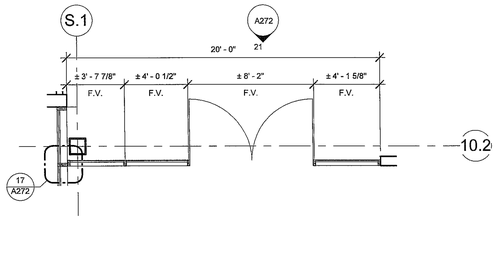

17 A272 STOREFRONT - JAMB @ CURTAIN WALL
3" = 1'-0"



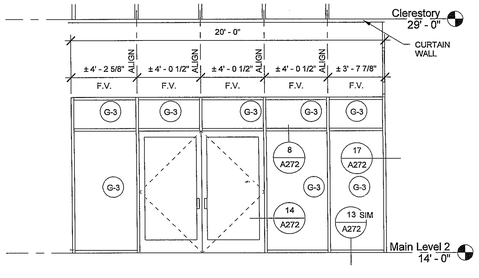

18 A272 STOREFRONT ENLARGED PLAN OF TENANT D
1/4" = 1'-0"




19 A272 STOREFRONT ELEVATION - TENANT SPACE D
1/4" = 1'-0"




20 A272 STOREFRONT ENLARGED PLAN @ WAITING
1/4" = 1'-0"




21 A272 STOREFRONT ELEVATION - WAITING
1/4" = 1'-0"

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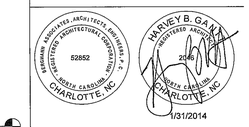


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| Date | January 31, 2014 |
| Revisions | |

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# FAST Multi-Modal Center

City of Fayetteville
Fayetteville, NC

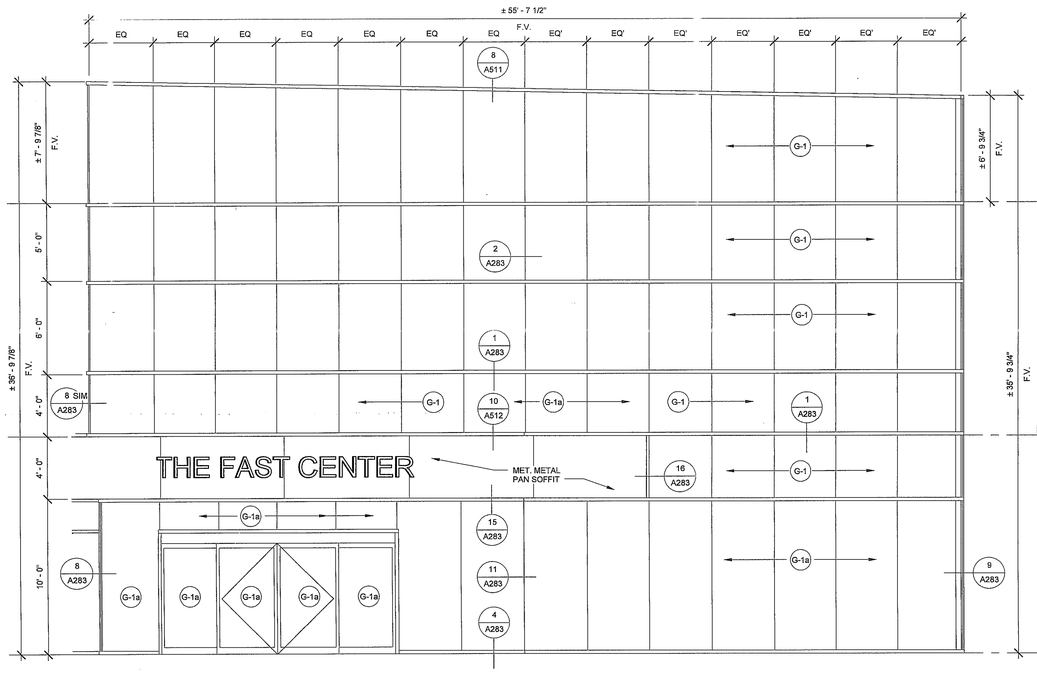
Project Number 621A

Title
## Storefront Plans, Elevations, and Details

Sheet
# A272

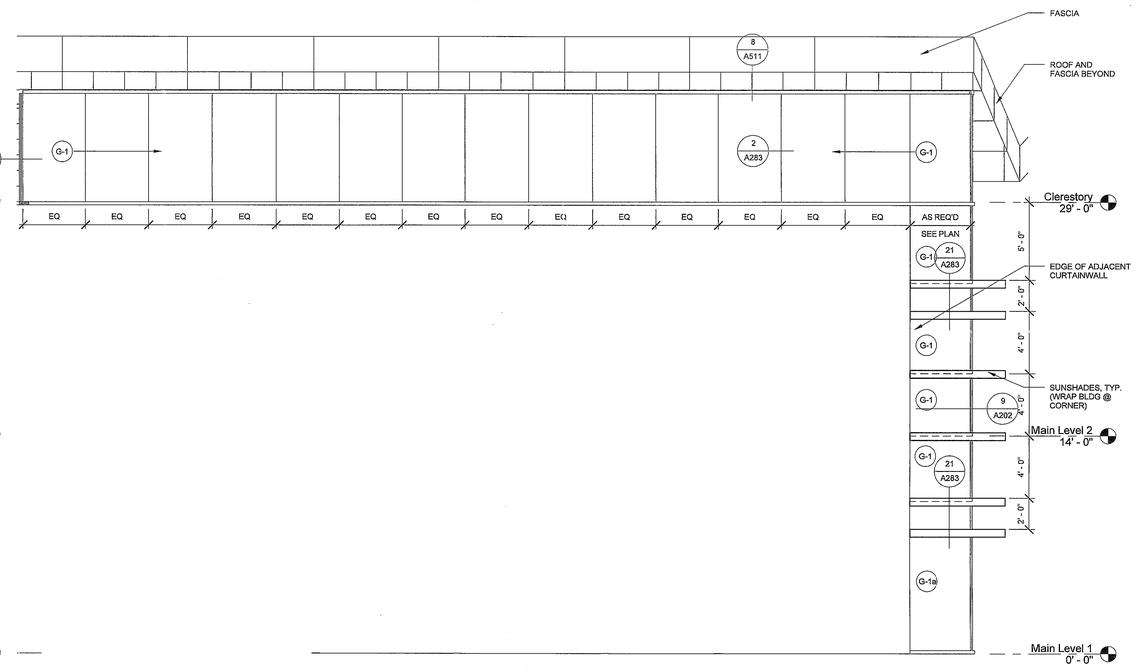
Plate of

C:\Revit Projects\FAST CENTRAL 041513_chrisbrun.rvt




NOTE: HORIZONTAL JOINT DIMENSIONS ARE TO CENTERLINE OF GLAZING BUTT JOINT

1 / A281 CURTAINWALL - NORTH
1/4" = 1'-0"




2 / A281 CURTAINWALL - SOUTH
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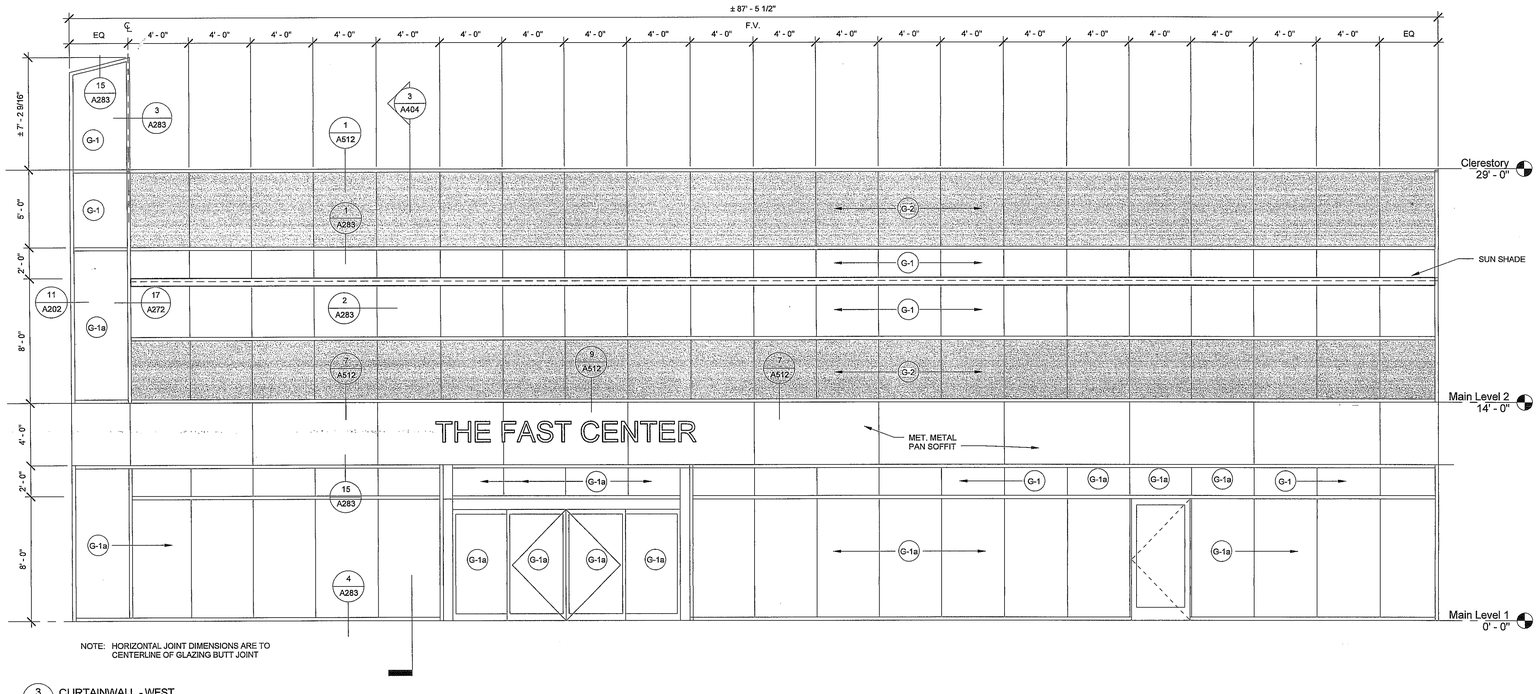
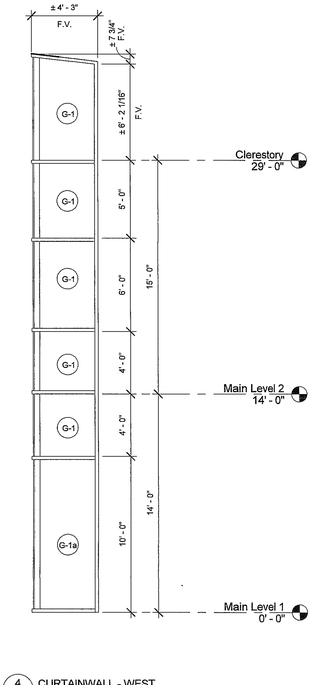



NOTE: HORIZONTAL JOINT DIMENSIONS ARE TO CENTERLINE OF GLAZING BUTT JOINT

3 / A281 CURTAINWALL - WEST
1/4" = 1'-0"




4 / A281 CURTAINWALL - WEST
1/4" = 1'-0"

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# FAST Multi-Modal Center

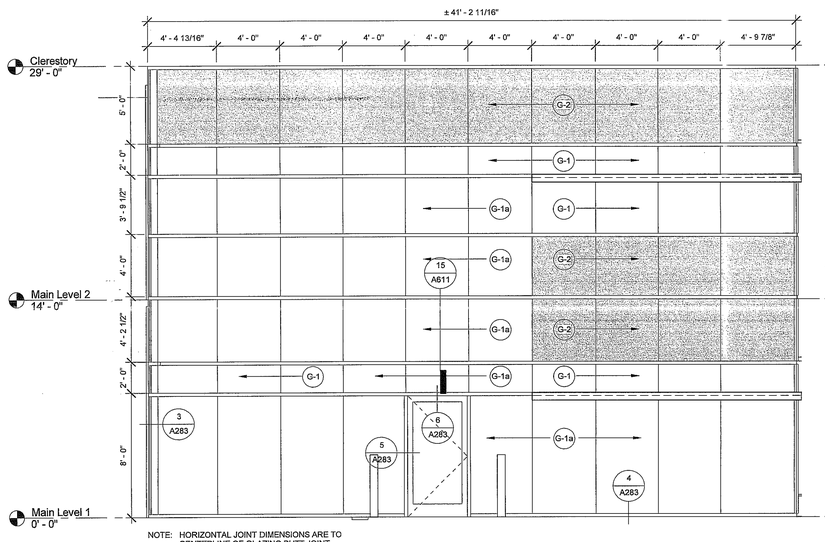
City of Fayetteville
Fayetteville, NC

Project Number 621A

Title
## Curtainwall Elevations

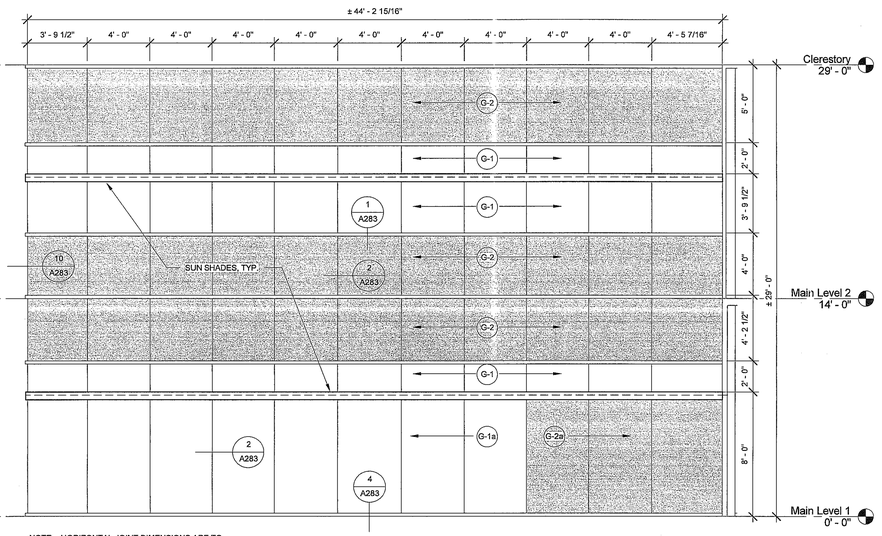
Sheet
# A281

Plate of



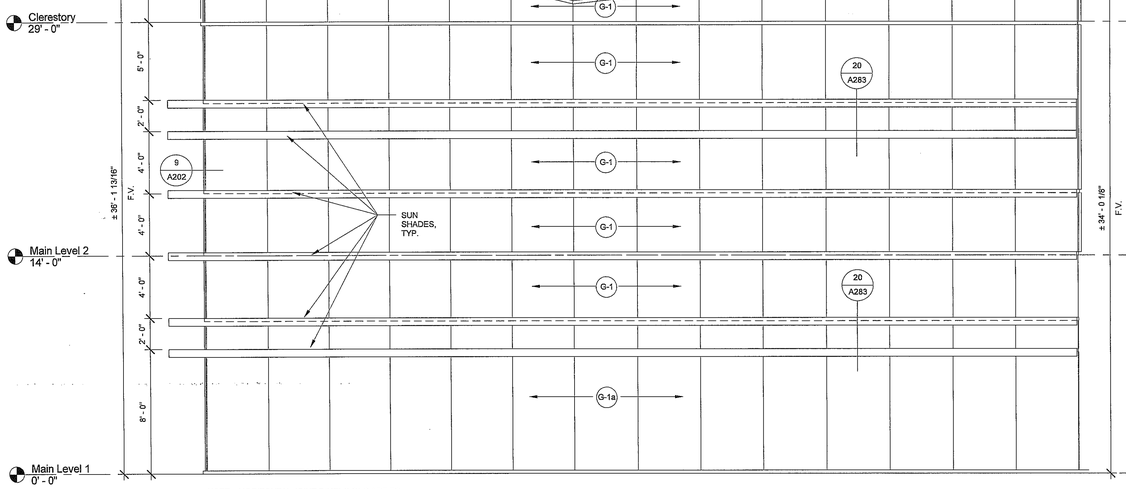

NOTE: HORIZONTAL JOINT DIMENSIONS ARE TO CENTERLINE OF GLAZING BUTT JOINT

1 A282 CURTAINWALL - EAST
1/4" = 1'-0"



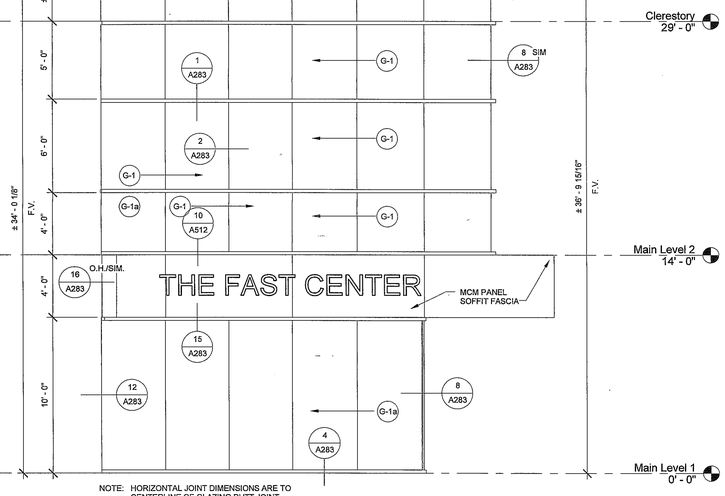

NOTE: HORIZONTAL JOINT DIMENSIONS ARE TO CENTERLINE OF GLAZING BUTT JOINT

2 A282 CURTAINWALL - EAST
1/4" = 1'-0"




NOTE: HORIZONTAL JOINT DIMENSIONS ARE TO CENTERLINE OF GLAZING BUTT JOINT

3 A282 CURTAINWALL - EAST
1/4" = 1'-0"




NOTE: HORIZONTAL JOINT DIMENSIONS ARE TO CENTERLINE OF GLAZING BUTT JOINT

4 A282 CURTAINWALL - EAST
1/4" = 1'-0"

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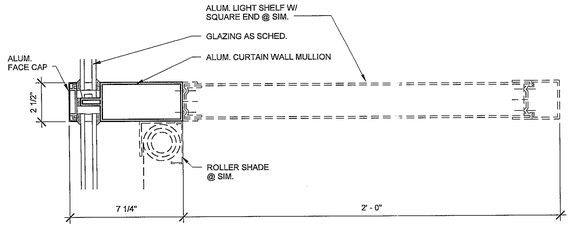
**FAST Multi-Modal Center**
City of Fayetteville
Fayetteville, NC

Project Number 621A

Title
**Curtainwall Elevations**

Sheet
# A282

Plate of




1 A283 CURTAIN WALL - TYP. HORIZONTAL MULLION
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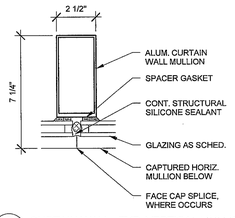


2 A283 CURTAIN WALL - TYP. VERTICAL MULLION
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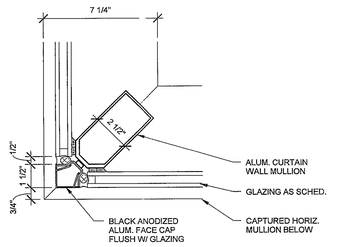
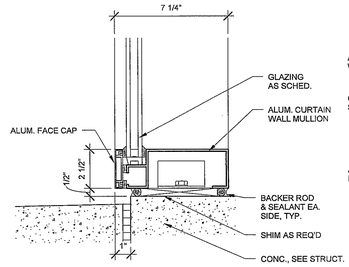



3 A283 CURTAIN WALL - TYP. VERTICAL MULLION AT OUTSIDE CORNER
3" = 1'-0"




4 A283 CURTAIN WALL DETAIL - SILL
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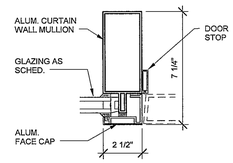


5 A283 CURTAIN WALL - DOOR JAMB
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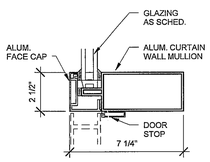


6 A283 CURTAIN WALL - DOOR HEAD
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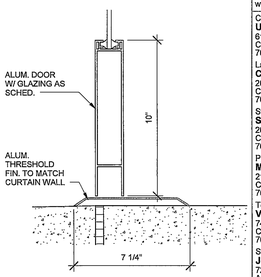


7 A283 CURTAIN WALL - DOOR SILL
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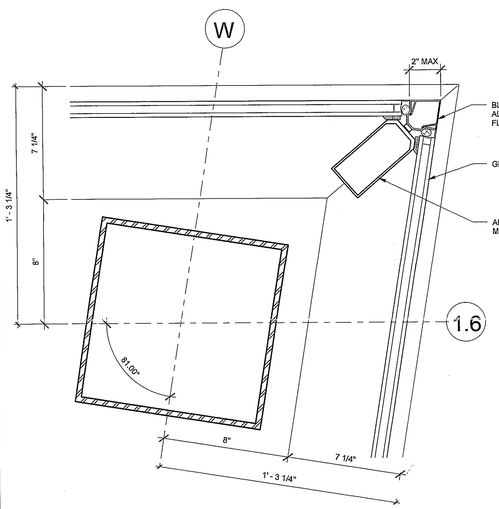
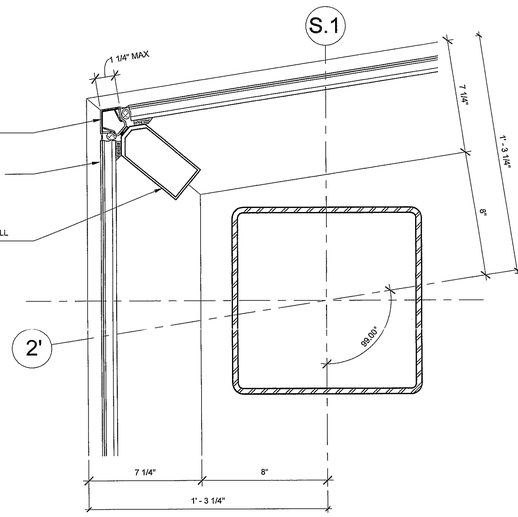
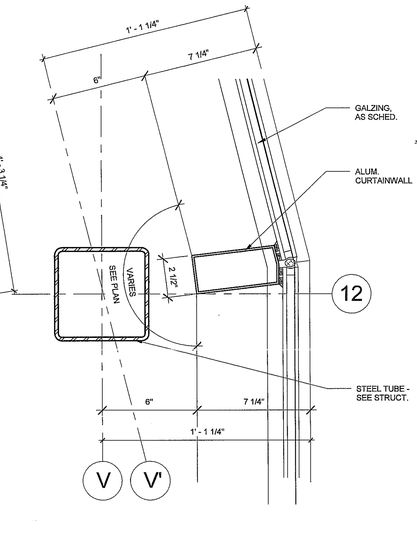



8 A283 CURTAINWALL - VERTICAL MULLION AT OUTSIDE CORNER W/ COLUMN
3" = 1'-0"




9 A283 CURTAINWALL - VERTICAL MULLION AT OUTSIDE CORNER W/COLUMN
3" = 1'-0"




10 A283 CURTAIN WALL - VERTICAL MULLION AT OUTSIDE ANGLE
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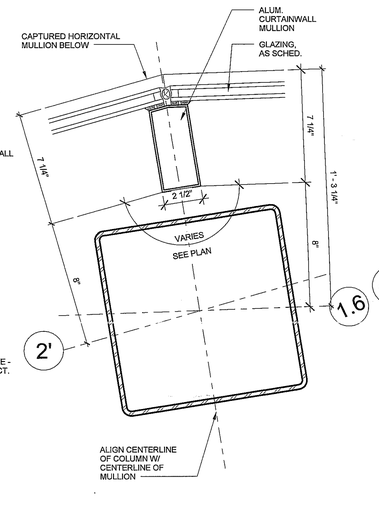


11 A283 CURTAIN WALL - VERTICAL MULLION AT OUTSIDE ANGLE
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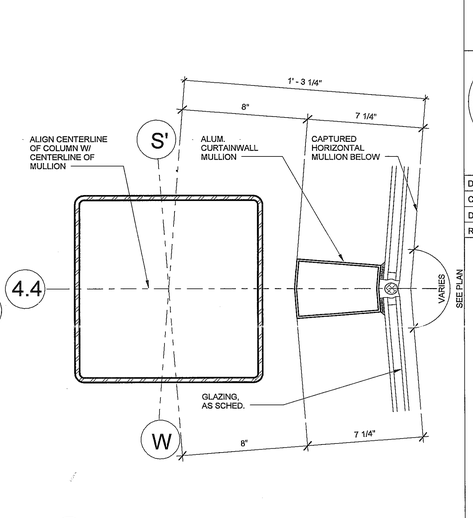
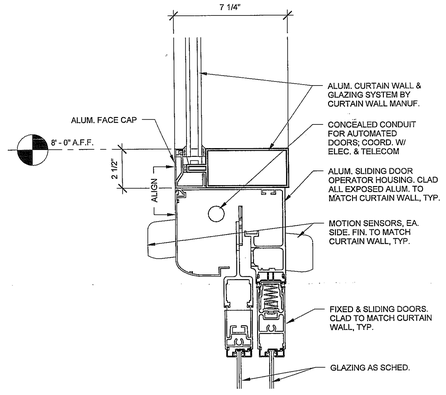
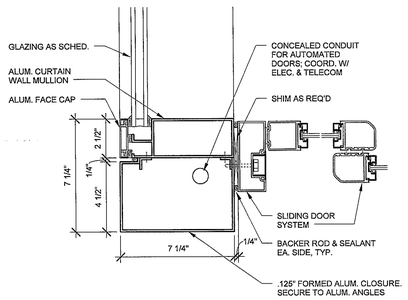



12 A283 CURTAIN WALL - VERTICAL MULLION AT INTSIDE CORNER
3" = 1'-0"




13 A283 SLIDING DOOR - HEAD
3" = 1'-0"




14 A283 SLIDING DOOR - JAMB
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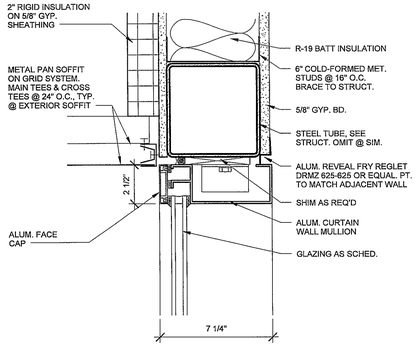


15 A283 CURTAIN WALL DETAIL - HEAD
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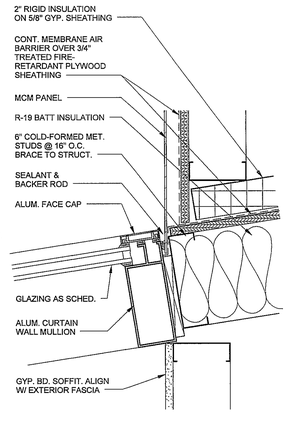


16 A283 CURTAIN WALL - PLAN DETAIL @ CANOPY FASCIA
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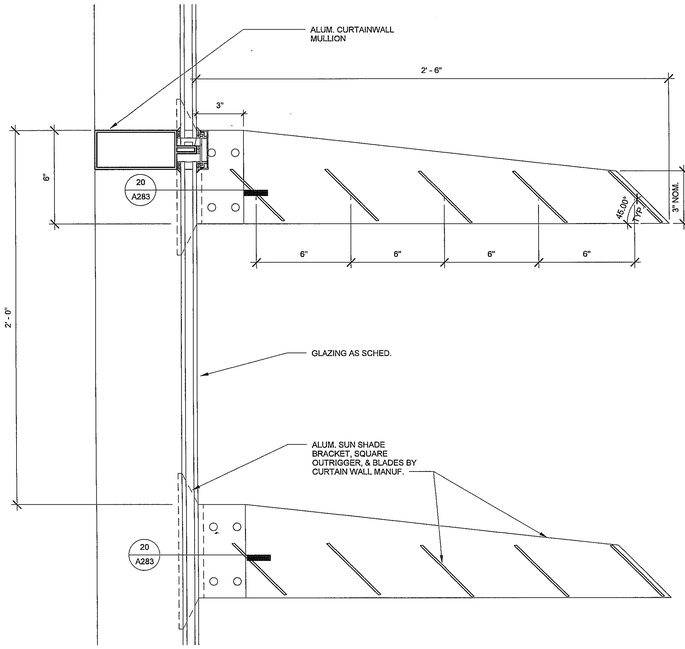
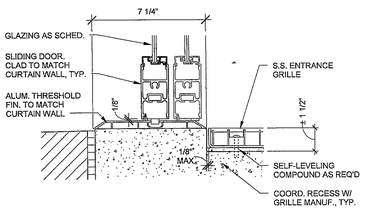



21 A283 SUN SHADE SECTION
3" = 1'-0"




17 A283 SLIDING DOOR - SILL @ EXTERIOR
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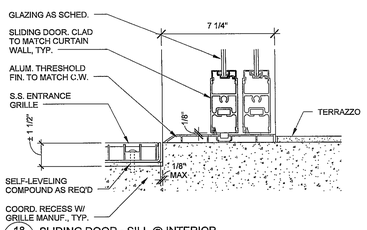


18 A283 SLIDING DOOR - SILL @ INTERIOR
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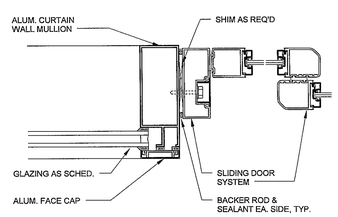


19 A283 SLIDING DOOR - JAMB
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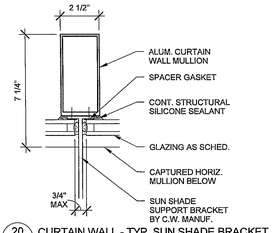


20 A283 CURTAIN WALL - TYP. SUN SHADE BRACKET
3" = 1'-0"

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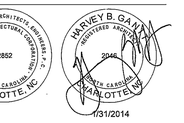


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**FAST Multi-Modal Center**
City of Fayetteville
Fayetteville, NC

Project Number 621A

Title
**Curtainwall Details**

Sheet
**A283**

Plate of

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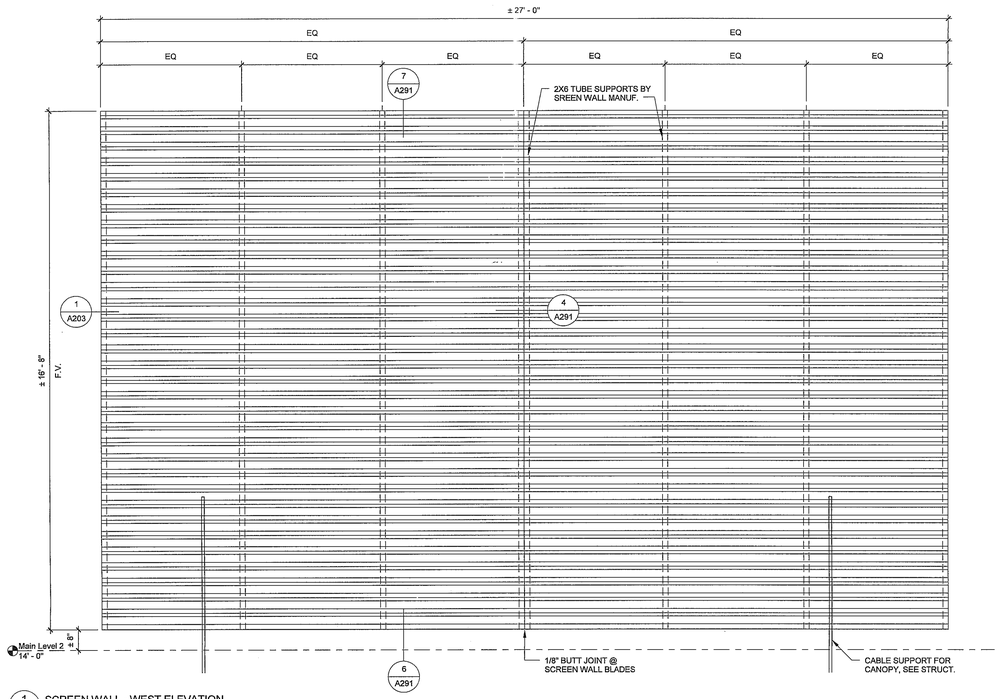
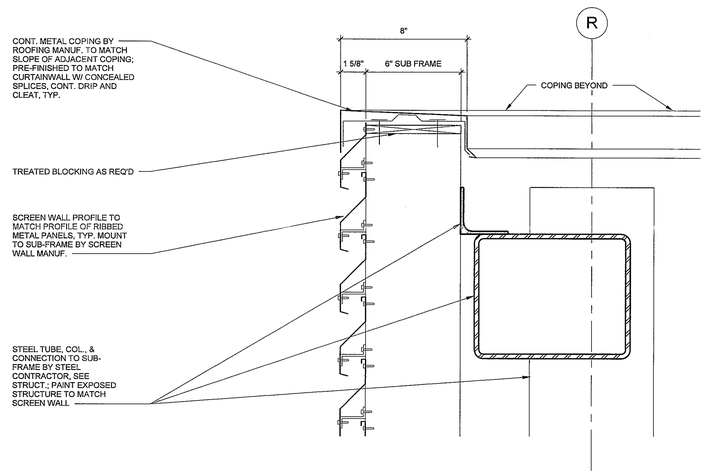
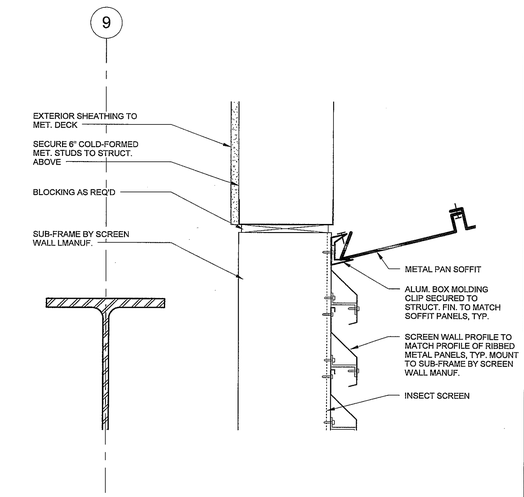


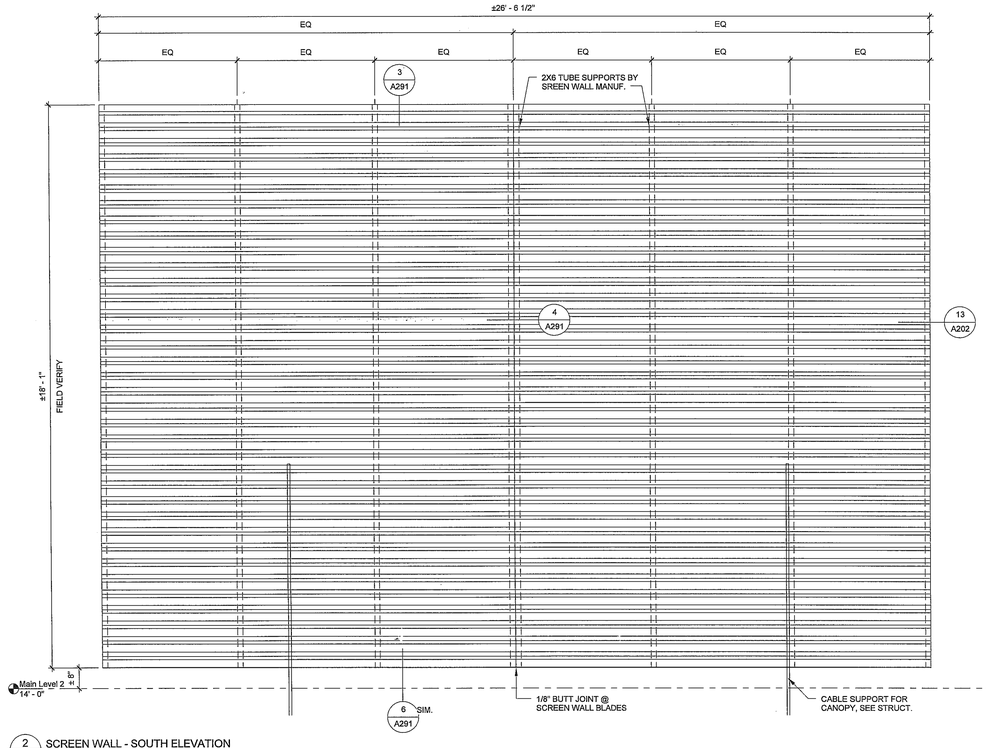

1 A291 SCREEN WALL - WEST ELEVATION
1/2" = 1'-0"



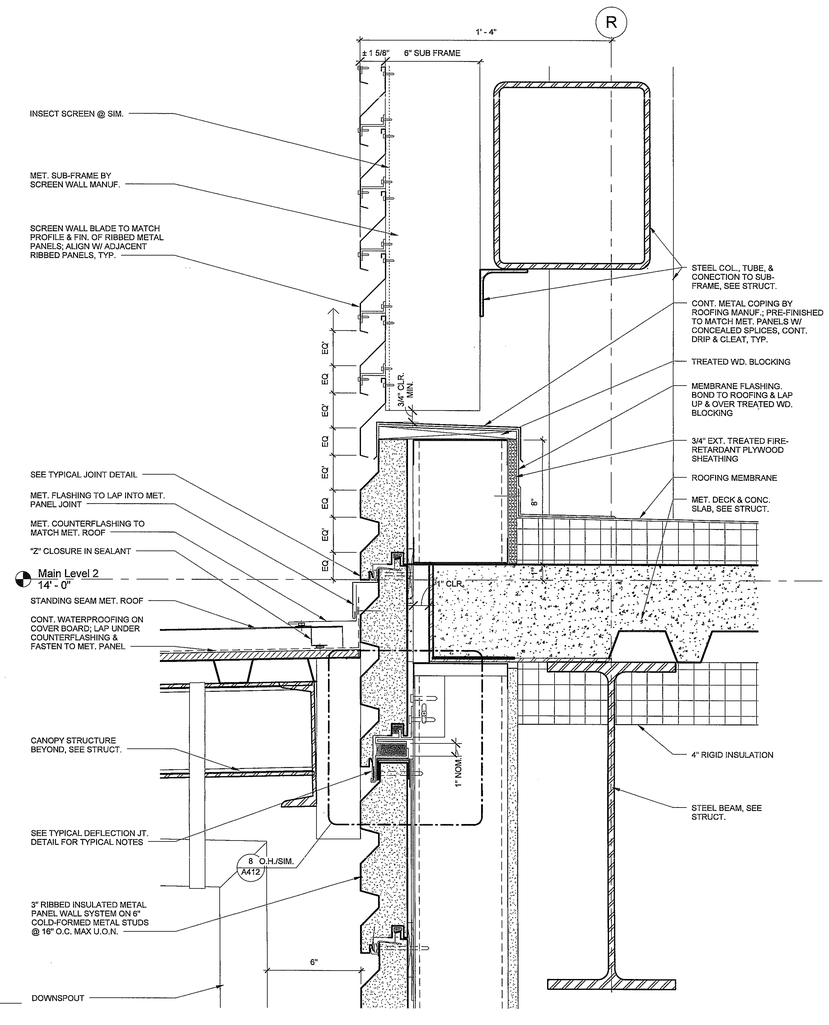

7 A291 SCREEN WALL PARAPET @ COOLING TOWER
3" = 1'-0"



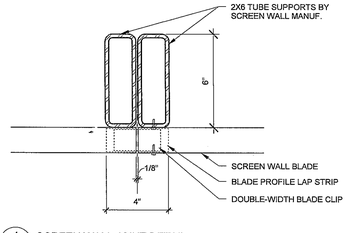

3 A291 SCREEN WALL HEAD DETAIL @ GENERATOR
3" = 1'-0"




2 A291 SCREEN WALL - SOUTH ELEVATION
1/2" = 1'-0"




6 A291 SCREEN WALL SILL DETAIL
3" = 1'-0"




4 A291 SCREEN WALL JOINT DETAIL
3" = 1'-0"

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REGISTERED ARCHITECTS, ENGINEERS & LANDSCAPE ARCHITECTS CORPORATION 52852 NORTH CAROLINA CHARLOTTE, NC

HARVEY B. GANTT REGISTERED ARCHITECT 3246 NORTH CAROLINA CHARLOTTE, NC

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**FAST Multi-Modal Center**
City of Fayetteville
Fayetteville, NC

Project Number 621A

Title
**Screen Wall Elevations and Details**

Sheet
# A291

Plate of

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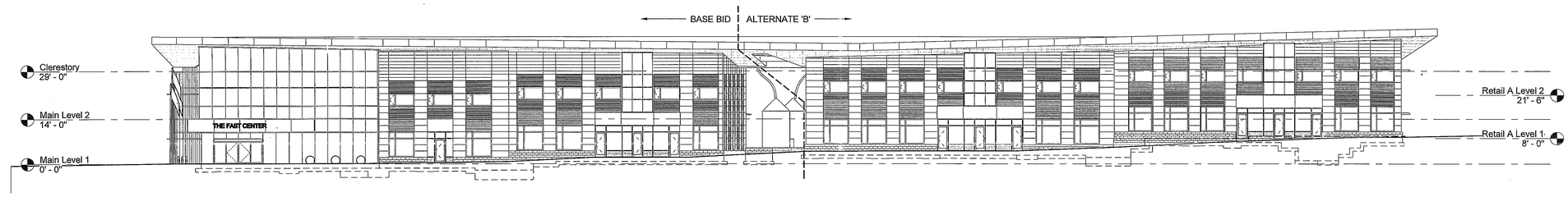
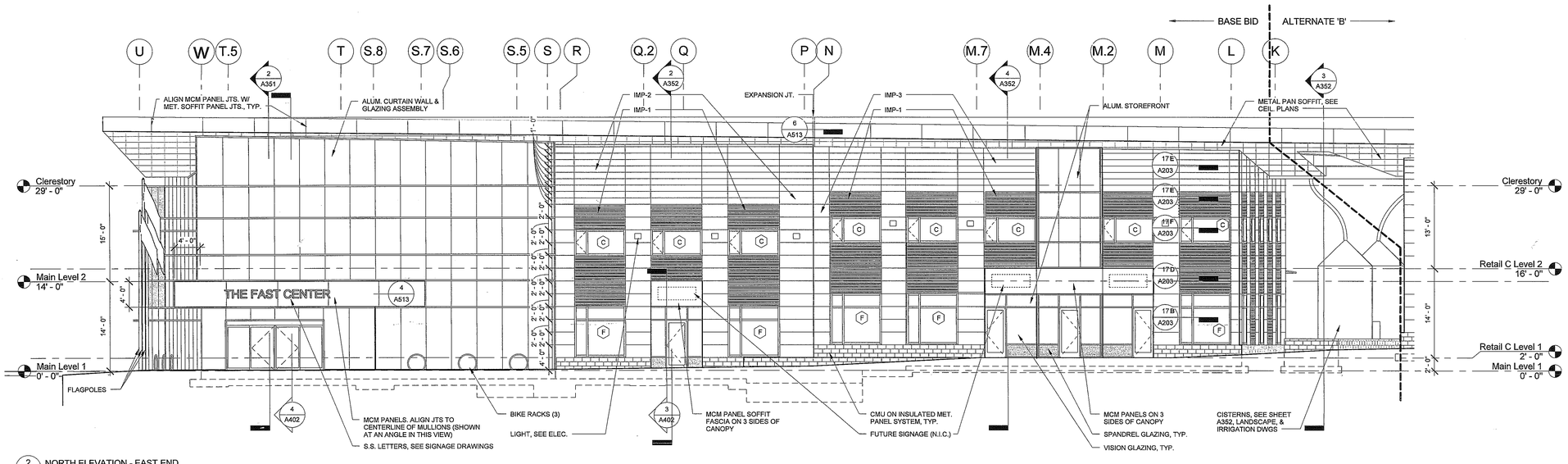
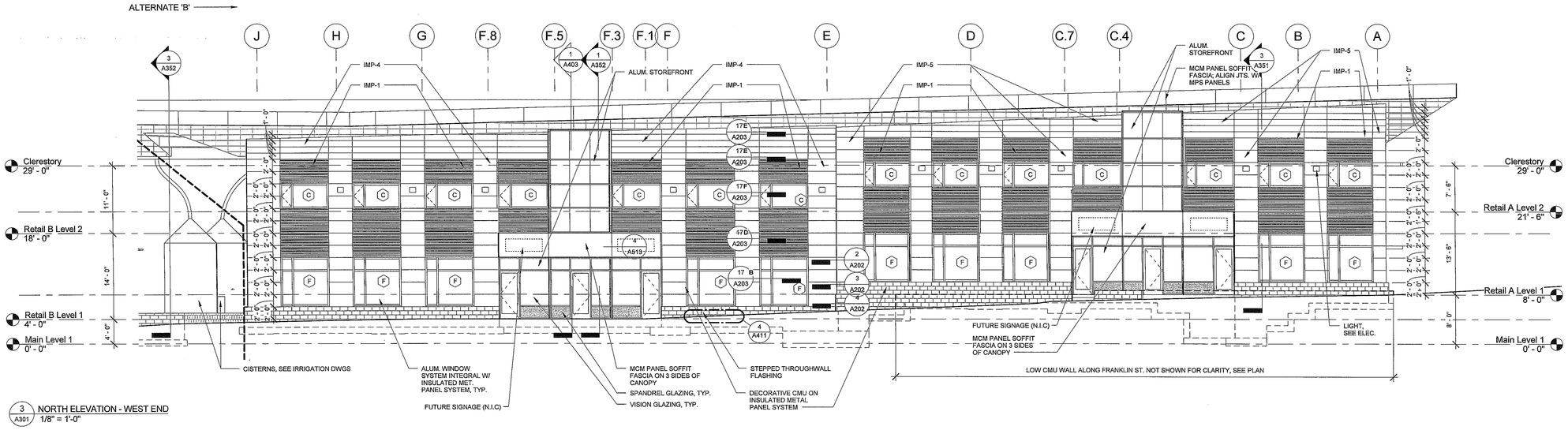



1 A301 NORTH ELEVATION - OVERALL (PHASES 1 & 2)
1/16" = 1'-0"




2 A301 NORTH ELEVATION - EAST END
1/8" = 1'-0"




3 A301 NORTH ELEVATION - WEST END
1/8" = 1'-0"

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REGISTERED ARCHITECTURAL ASSOCIATES - ARCHITECTS - ENGINEERS, P.C. 52852 NORTH CAROLINA CHARLOTTE, NC

HARVEY B. GANTT REGISTERED ARCHITECT 2440 NORTH CAROLINA CHARLOTTE, NC

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**FAST Multi-Modal Center**
City of Fayetteville
Fayetteville, NC

Project Number 621A

Title
**North Elevation**

Sheet
# A301

Plate of

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REGISTERED ARCHITECTS, ARCHITECTURAL CORPORATION 52852 SOUTH CAROLINA CHARLOTTE, NC

HARVEY B. GANTT REGISTERED ARCHITECT 2014 NORTH CAROLINA CHARLOTTE, NC

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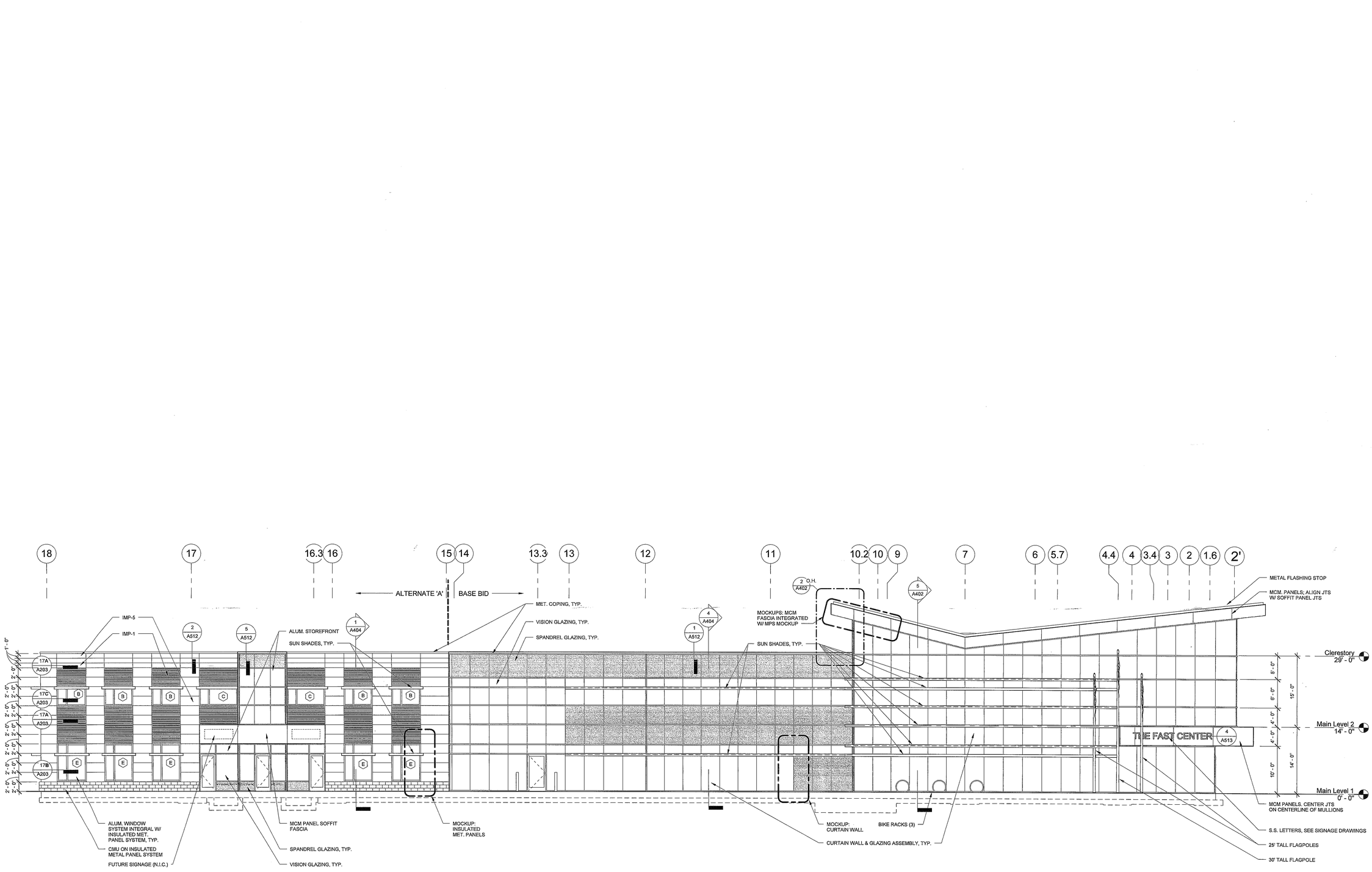


1 A302 EAST ELEVATION
1/8" = 1'-0"

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# FAST Multi-Modal Center

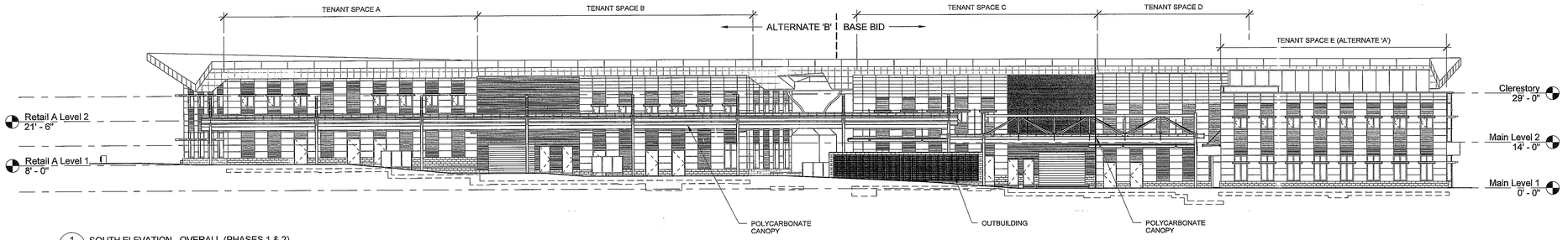
City of Fayetteville
Fayetteville, NC

Project Number 621A

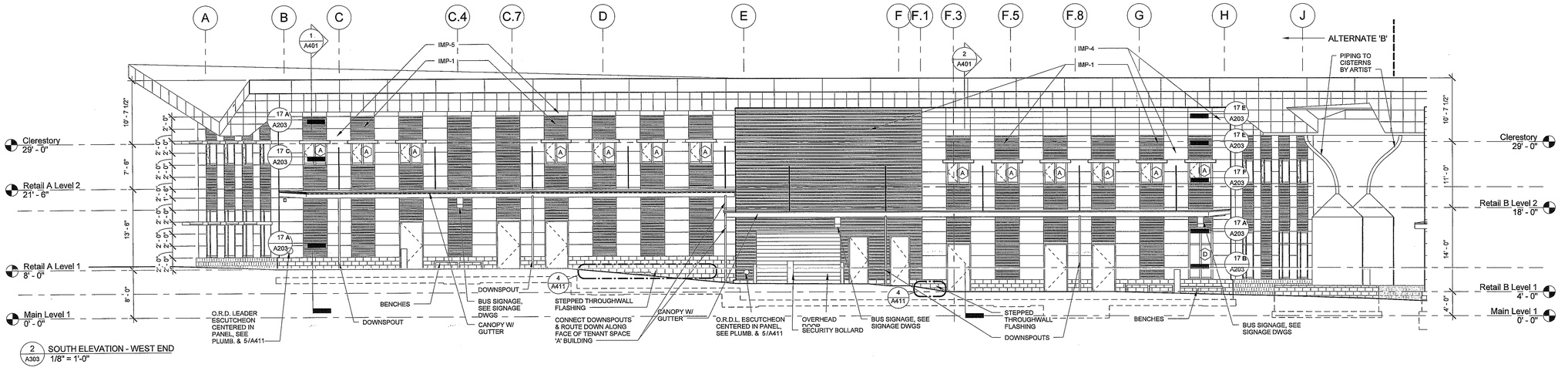
Title
## East Elevation

Sheet
# A302

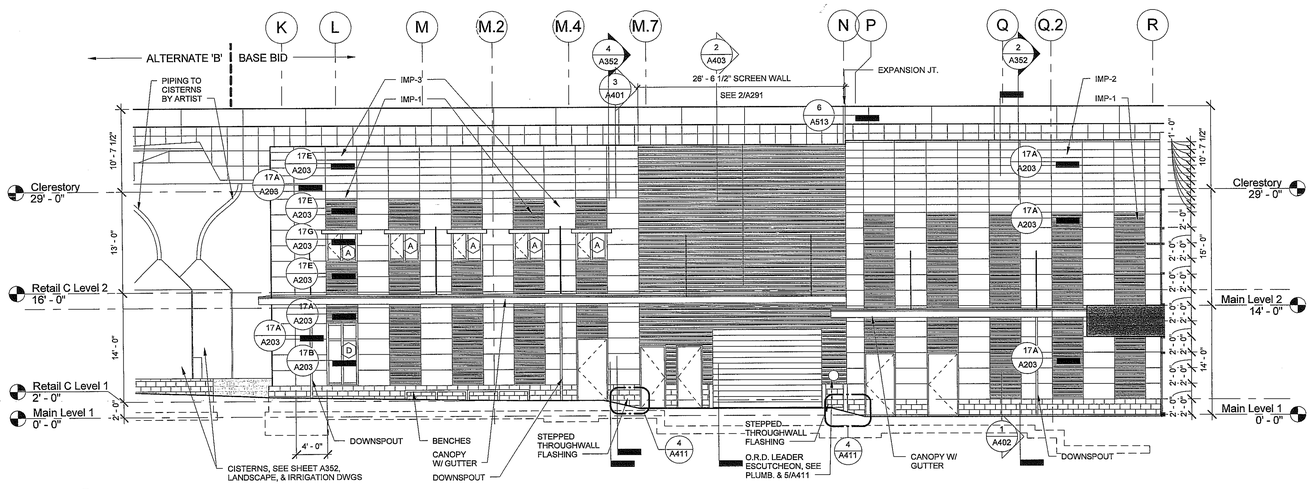
Plate of



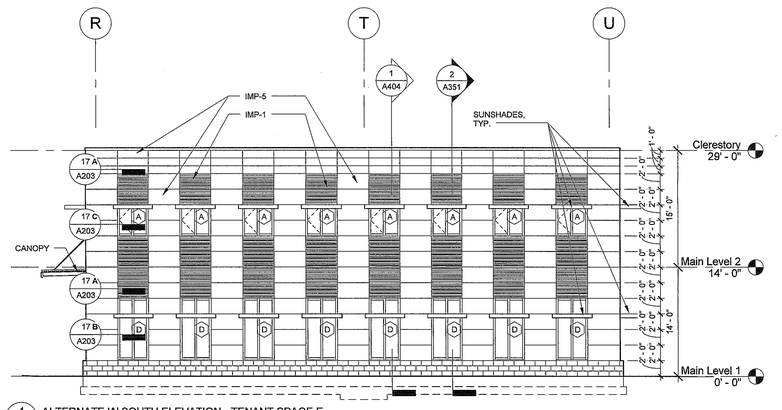

1 A303 SOUTH ELEVATION - OVERALL (PHASES 1 & 2) 1/16" = 1'-0"



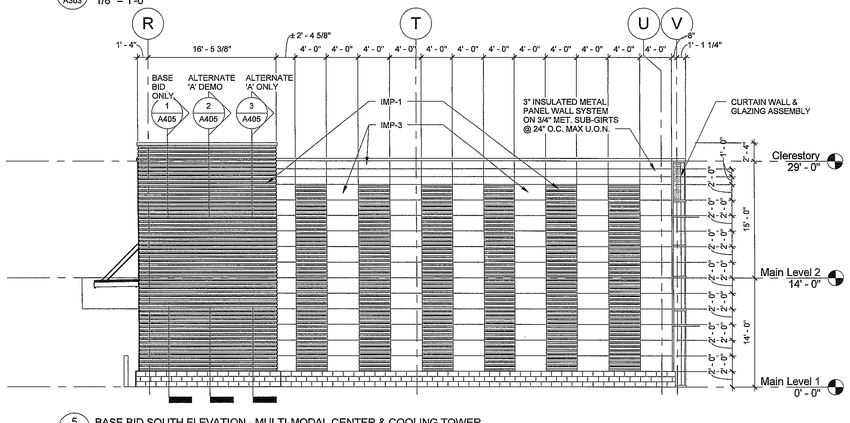

2 A303 SOUTH ELEVATION - WEST END 1/8" = 1'-0"




3 A303 SOUTH ELEVATION - EAST END 1/8" = 1'-0"




4 A303 ALTERNATE 'A' SOUTH ELEVATION - TENANT SPACE E 1/8" = 1'-0"




5 A303 BASE BID SOUTH ELEVATION - MULTI-MODAL CENTER & COOLING TOWER 1/8" = 1'-0"

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HARVEY B. GANTT — REGISTERED ARCHITECT — 2046 — NORTH CAROLINA — CHARLOTTE, NC

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**FAST Multi-Modal Center**
City of Fayetteville
Fayetteville, NC

| | |
|---|---|
| Project Number | 621A |

Title
**South Elevation**

Sheet
# A303

Plate of

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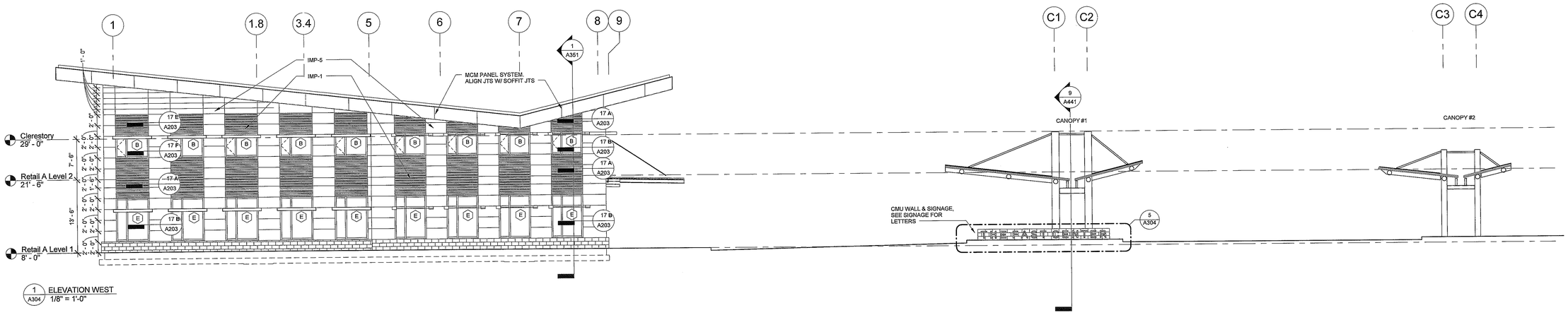
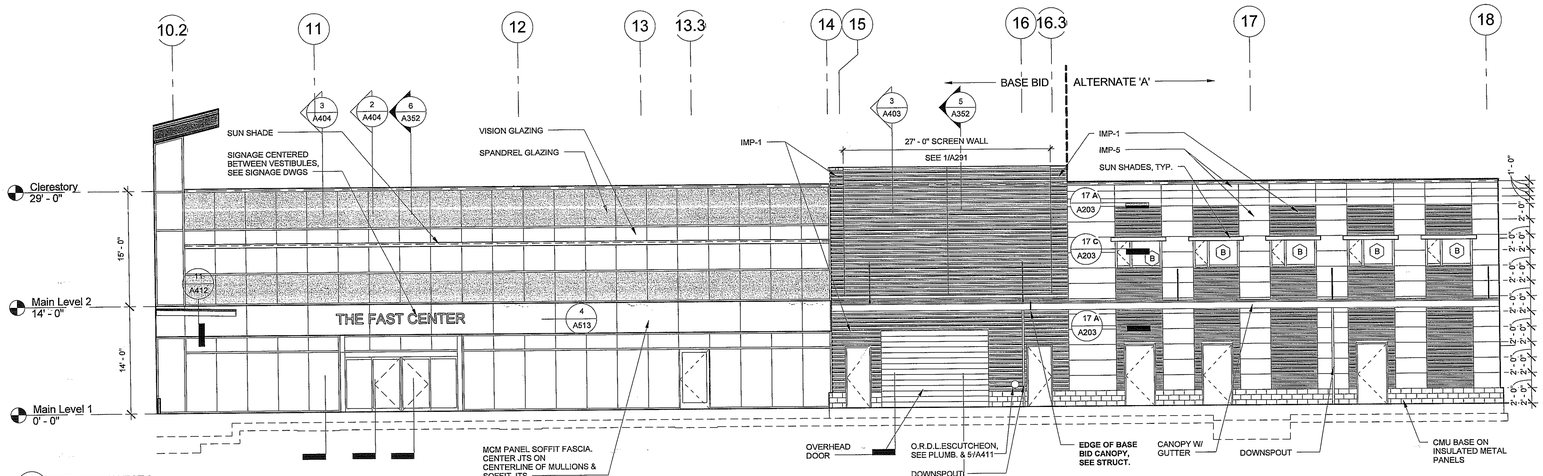
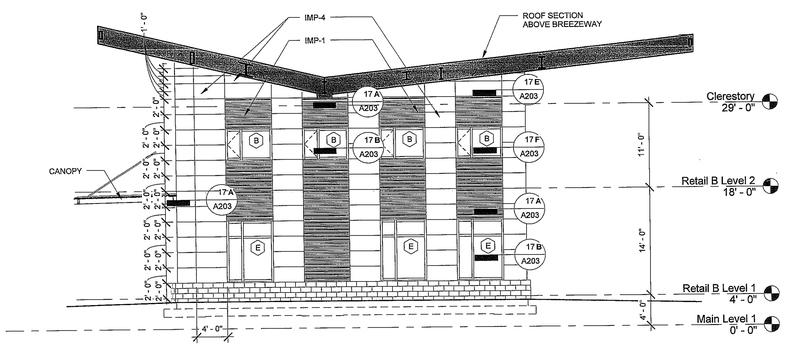


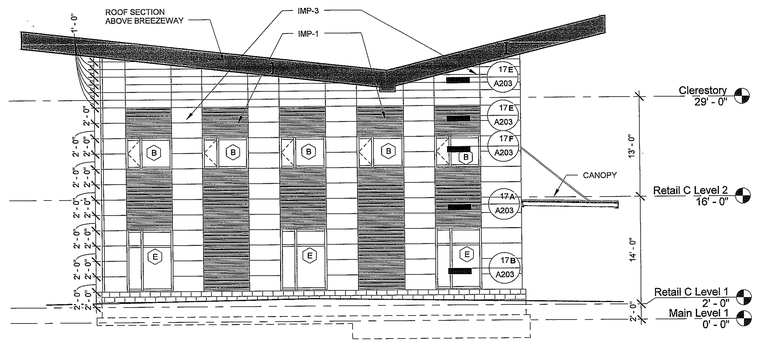

1 A304 ELEVATION WEST
1/8" = 1'-0"



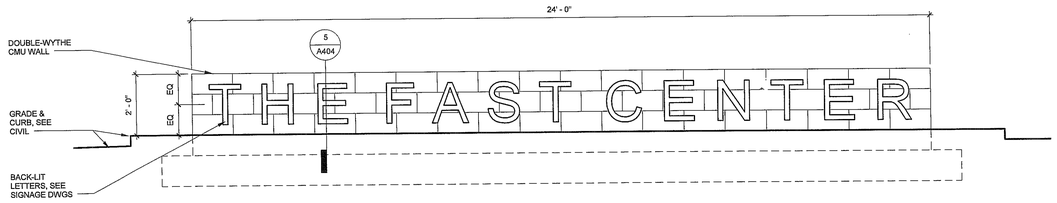

2 A304 ELEVATION WEST 2
1/8" = 1'-0"




3 A304 EAST ELEVATION OF TENANT SPACE B
1/8" = 1'-0"




4 A304 WEST ELEVATION OF TENANT SPACE C
1/8" = 1'-0"




5 A304 ELEVATION - ROBESON STREET SIGNAGE WALL
1/2" = 1'-0"

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**FAST Multi-Modal Center**
City of Fayetteville
Fayetteville, NC

Project Number 621A

Title
**West Elevation**

Sheet
A304

Plate of

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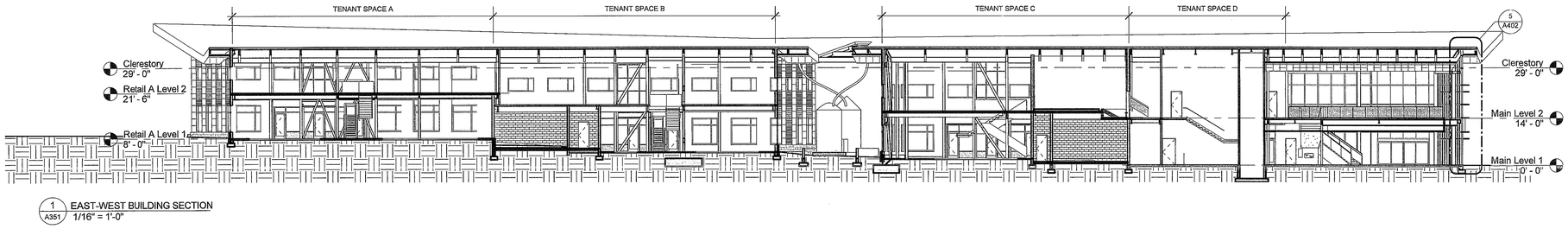
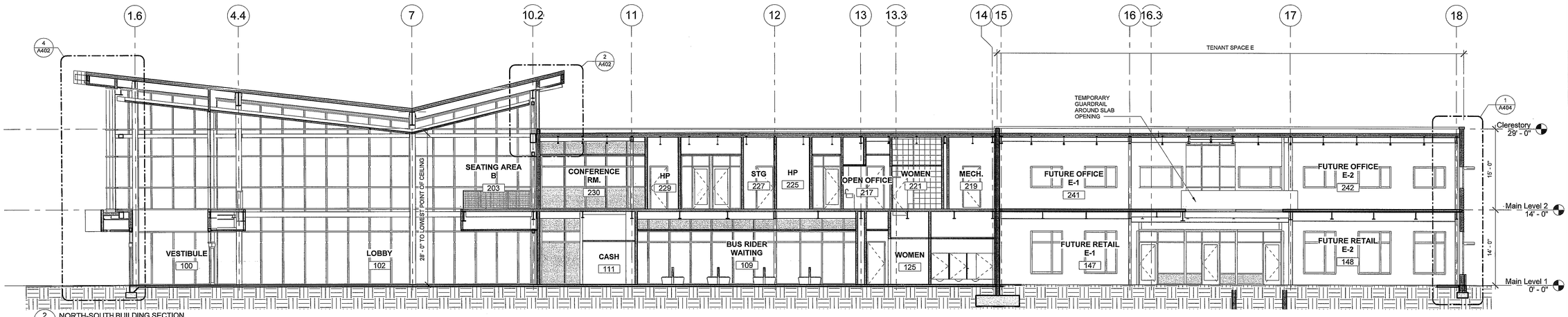
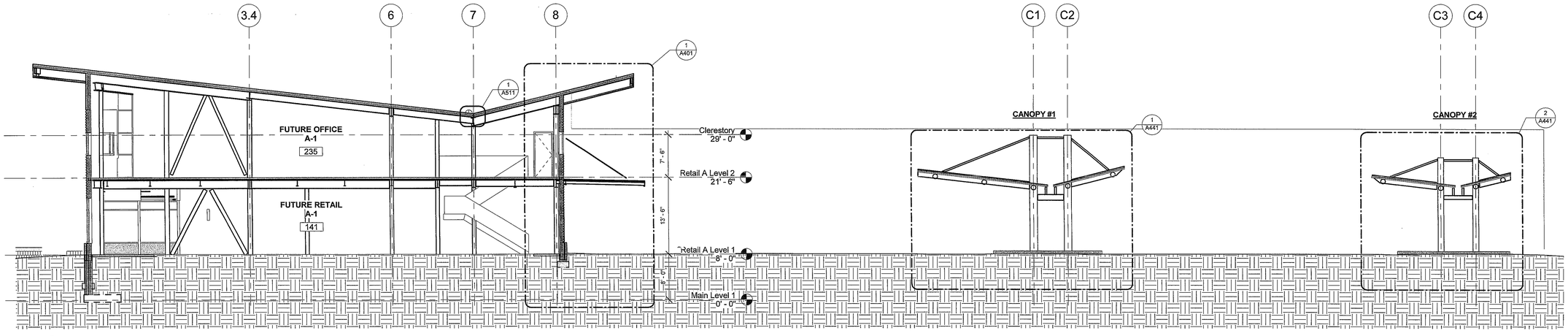



1 A351 EAST-WEST BUILDING SECTION
1/16" = 1'-0"




2 A351 NORTH-SOUTH BUILDING SECTION
1/8" = 1'-0"




3 A351 BUILDING SECTION THROUGH TENANT SPACE A
1/8" = 1'-0"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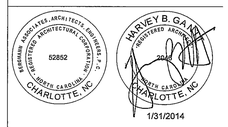


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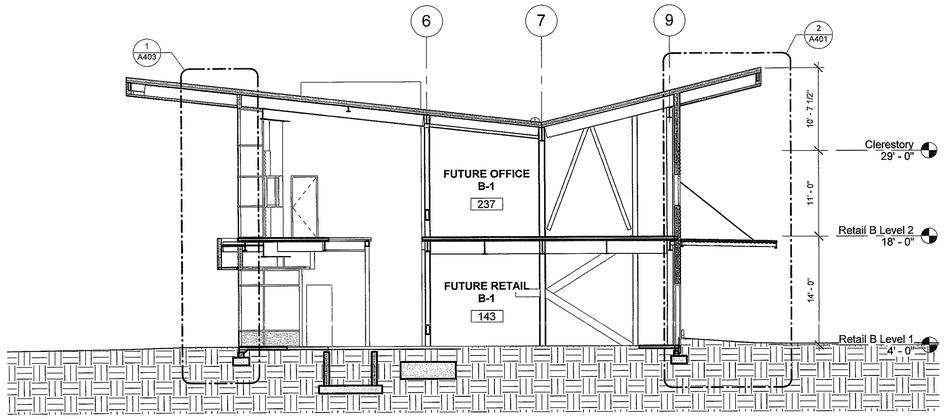
**FAST Multi-Modal Center**
City of Fayetteville
Fayetteville, NC

Project Number 621A

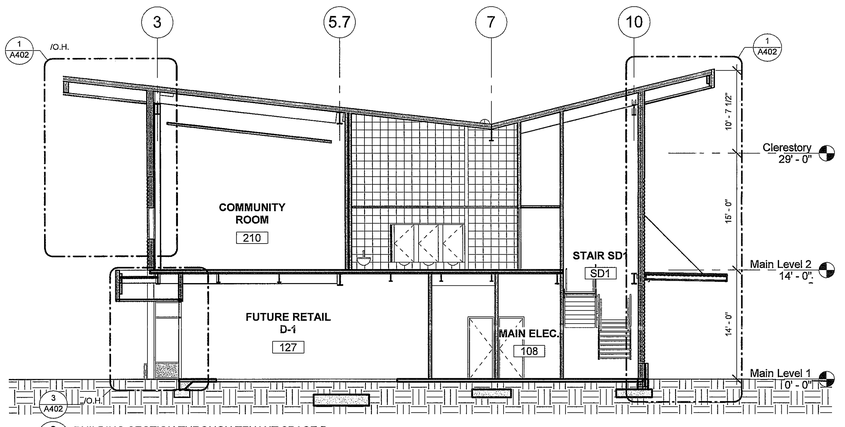
Title
**Building Sections**

Sheet
# A351

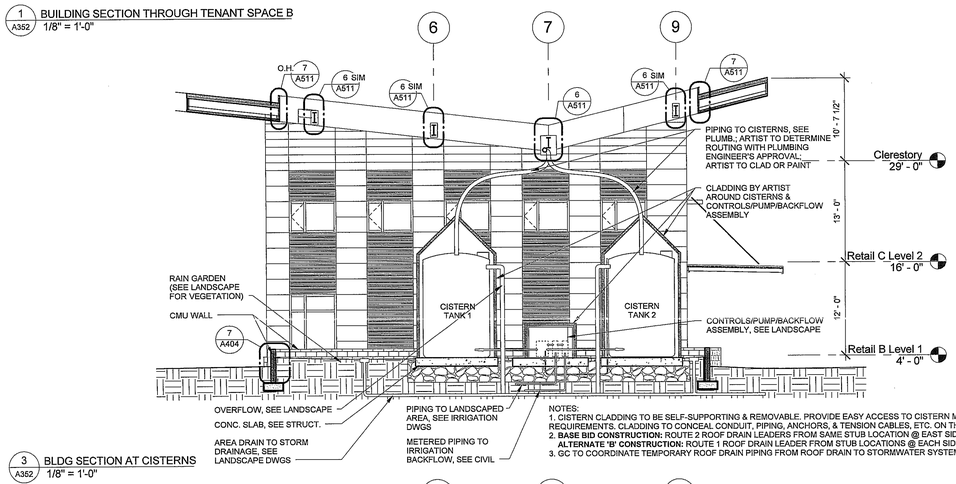
Plate of




1 A352 BUILDING SECTION THROUGH TENANT SPACE B
1/8" = 1'-0"

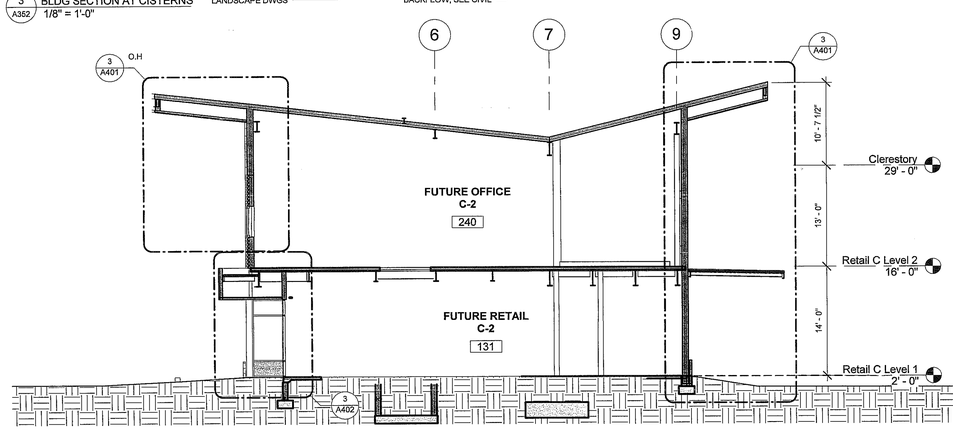



2 A352 BUILDING SECTION THROUGH TENANT SPACE D
1/8" = 1'-0"

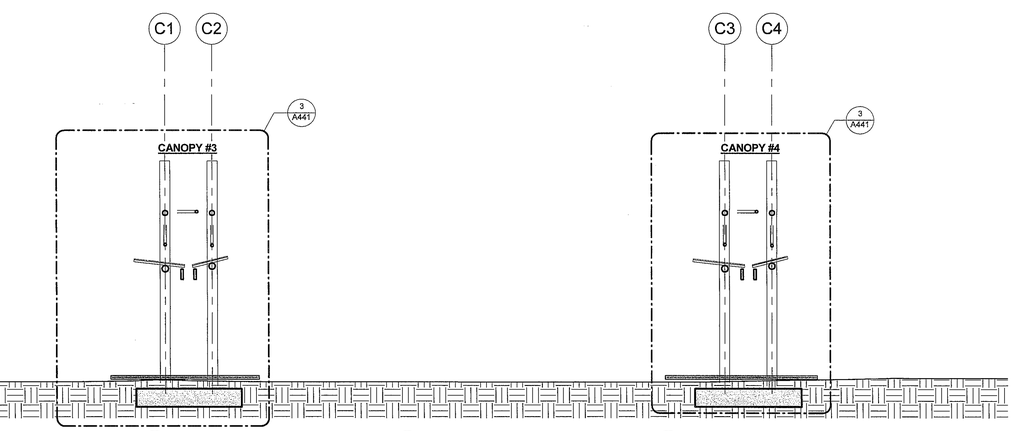


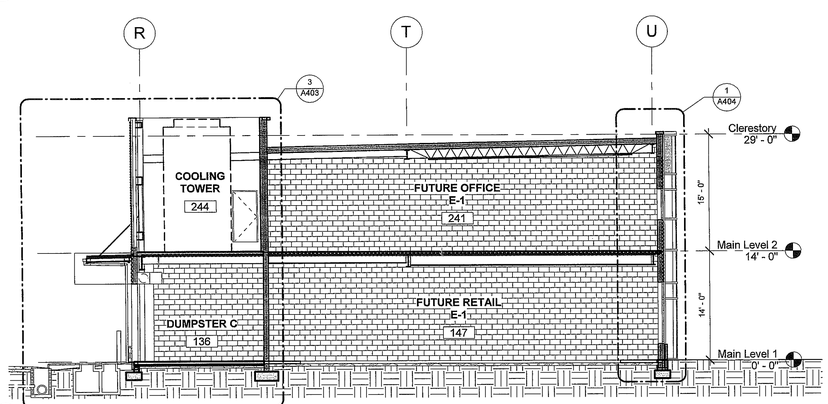

NOTES:
1. CISTERN CLADDING TO BE SELF-SUPPORTING & REMOVABLE. PROVIDE EASY ACCESS TO CISTERN MANHOLE ACCORDING TO MANUF. REQUIREMENTS. CLADDING TO CONCEAL CONDUIT, PIPING, ANCHORS, & TENSION CABLES, ETC. ON THE EXTERIOR OF CISTERN TANK.
2. **BASE BID CONSTRUCTION:** ROUTE 2 ROOF DRAIN LEADERS FROM SAME STUB LOCATION @ EAST SIDE OF ROOF OPENING TO BOTH CISTERNS.
**ALTERNATE 'B' CONSTRUCTION:** ROUTE 1 ROOF DRAIN LEADER FROM STUB LOCATIONS @ EACH SIDE OF ROOF OPENING TO BOTH CISTERNS.
3. GC TO COORDINATE TEMPORARY ROOF DRAIN PIPING FROM ROOF DRAIN TO STORMWATER SYSTEM UNTIL INSTALLATION OF PERMANENT PIPING.

3 A352 BLDG SECTION AT CISTERNS
1/8" = 1'-0"

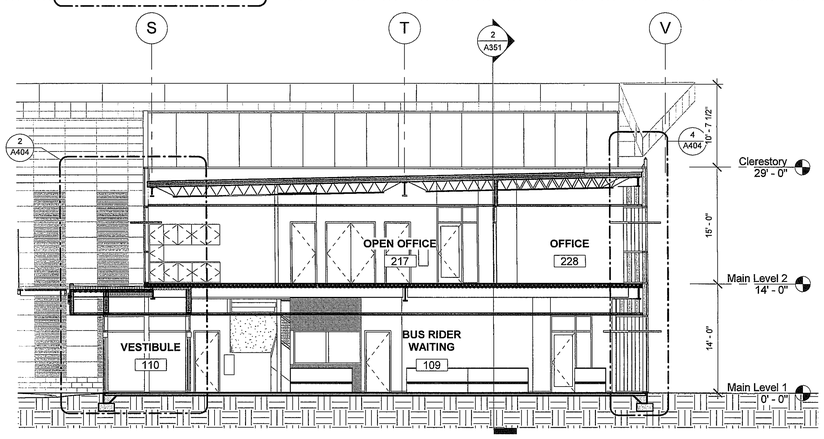



4 A352 BUILDING SECTION THROUGH TENANT SPACE C
1/8" = 1'-0"




5 A352 BUILDING SECTION THROUGH TENANT SPACE E
1/8" = 1'-0"




6 A352 BUILDING SECTION THROUGH OFFICES
1/8" = 1'-0"

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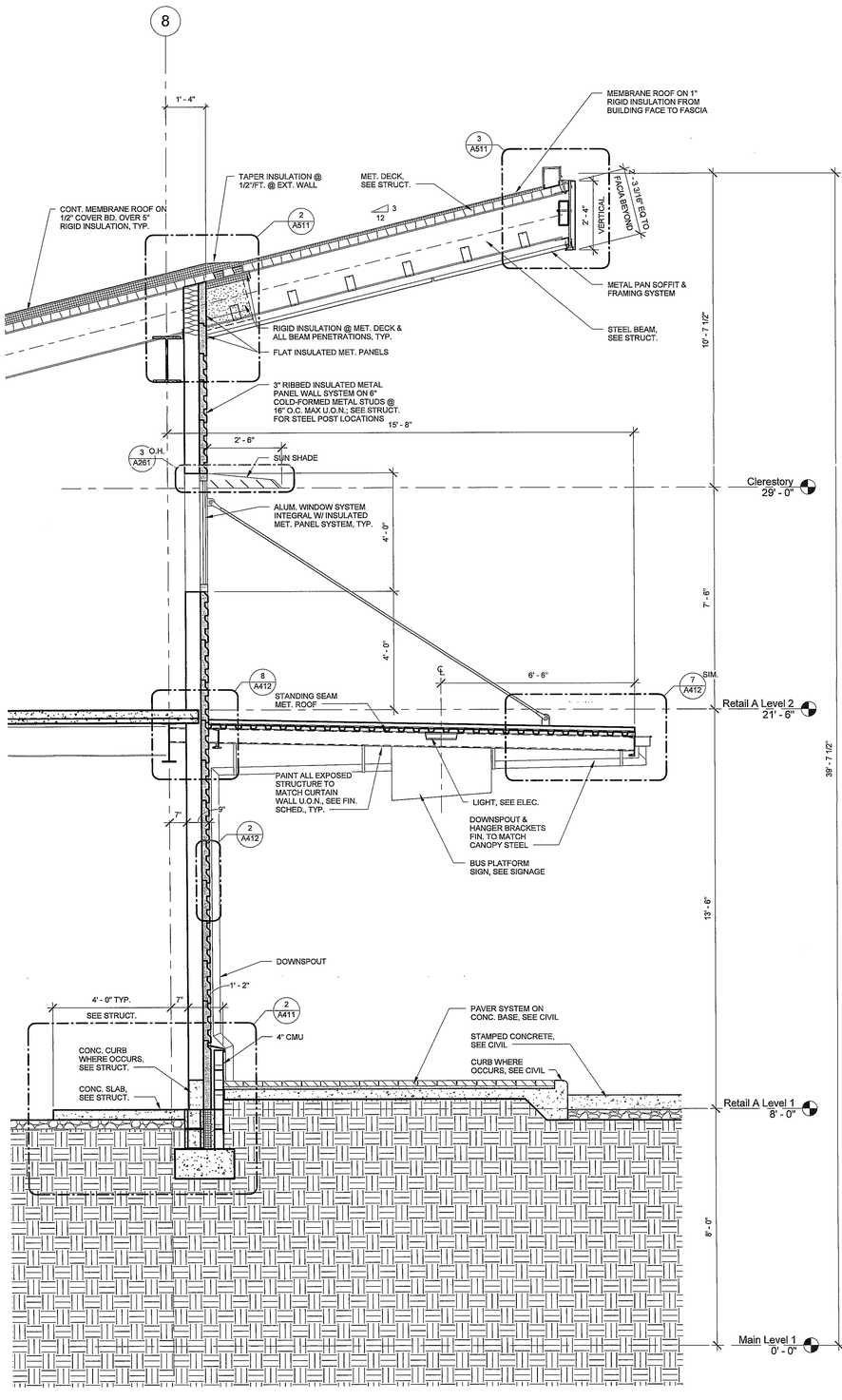
**FAST Multi-Modal Center**
City of Fayetteville
Fayetteville, NC

Project Number 621A

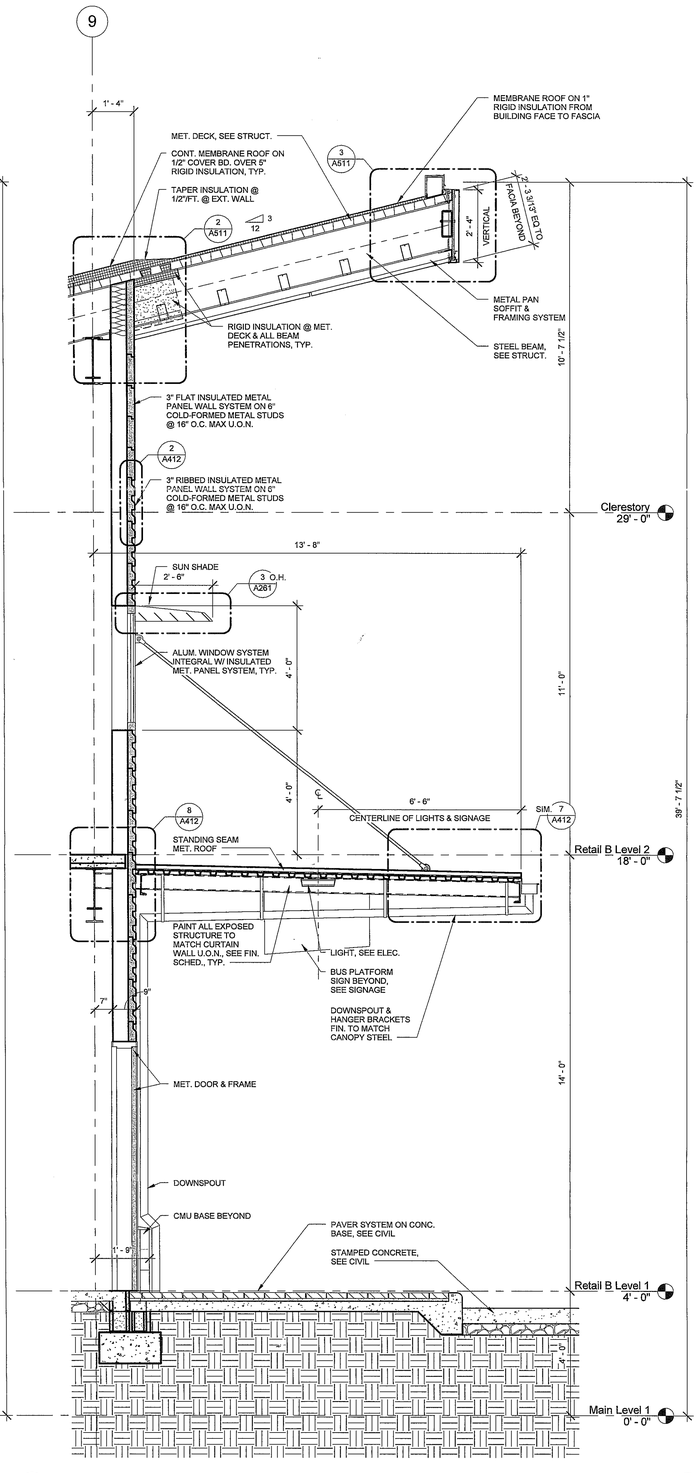
Title
**Building Sections**

Sheet
# A352

Plate of




1 A401 WALL SECTION @ TENANT SPACE A
1/2" = 1'-0"




2 A401 WALL SECTION @ TENANT SPACE B
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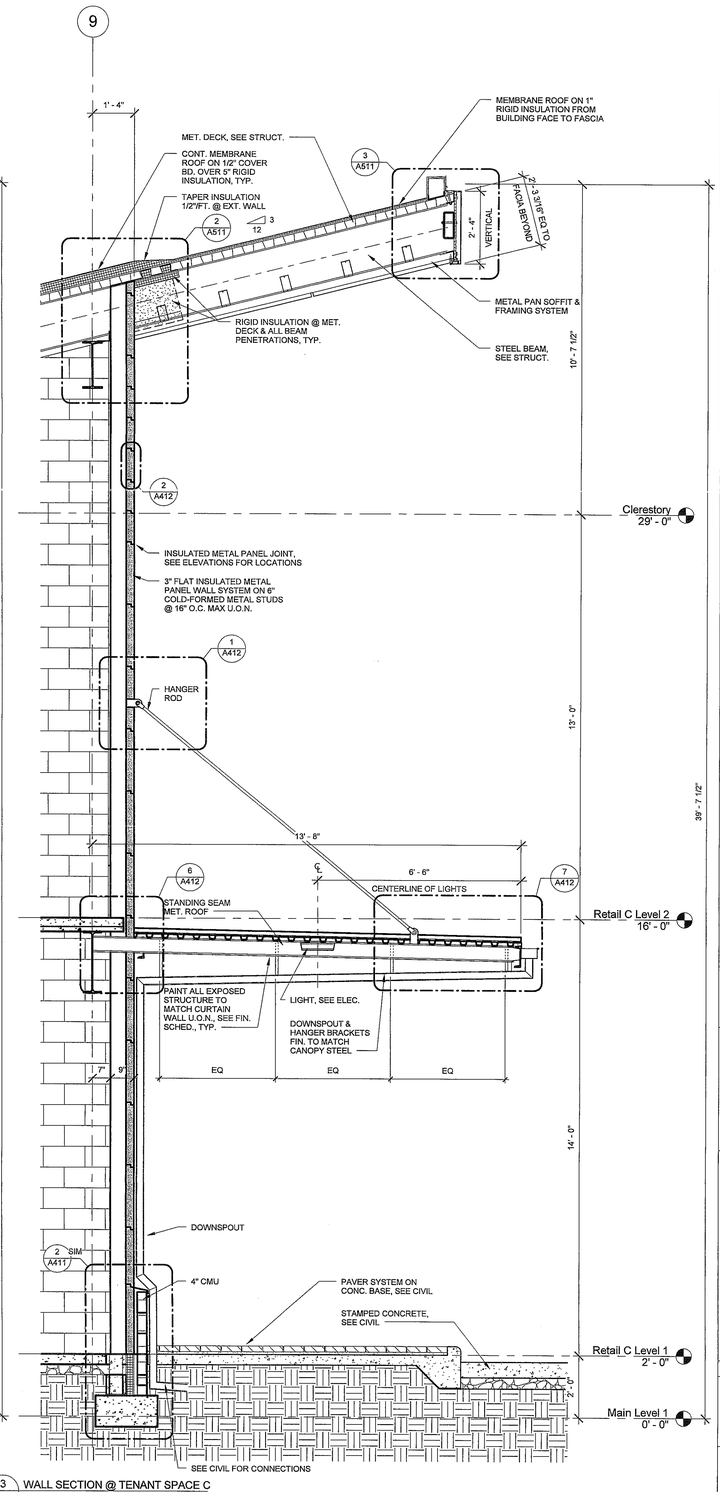


3 A401 WALL SECTION @ TENANT SPACE C
1/2" = 1'-0"


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# FAST Multi-Modal Center

City of Fayetteville
Fayetteville, NC

Project Number 621A

Title
## Wall Sections

Sheet
# A401

Plate of


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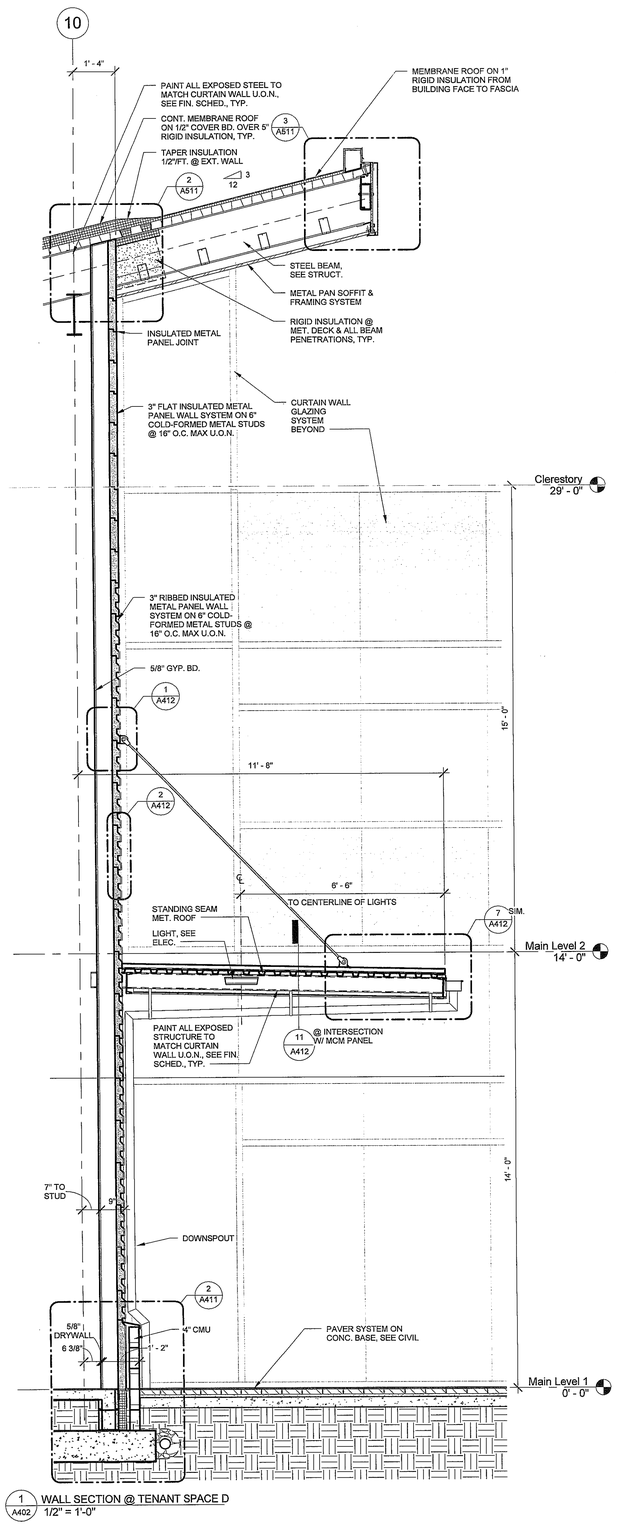
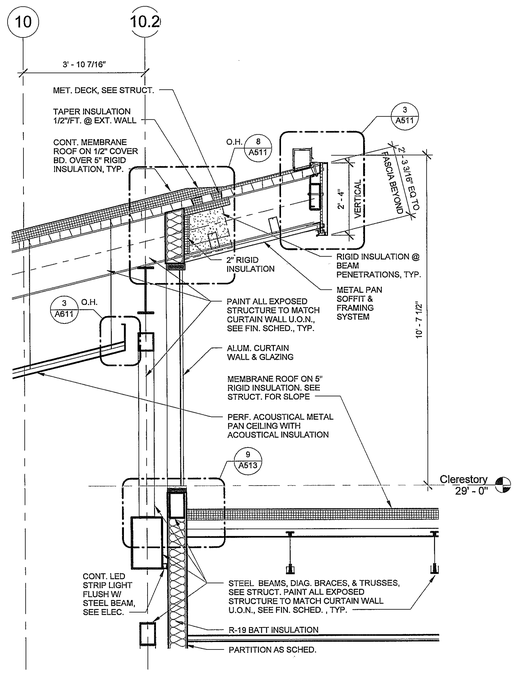



1 A402 WALL SECTION @ TENANT SPACE D
1/2" = 1'-0"




2 A402 PARTIAL WALL SECTION @ LOBBY CLERESTORY
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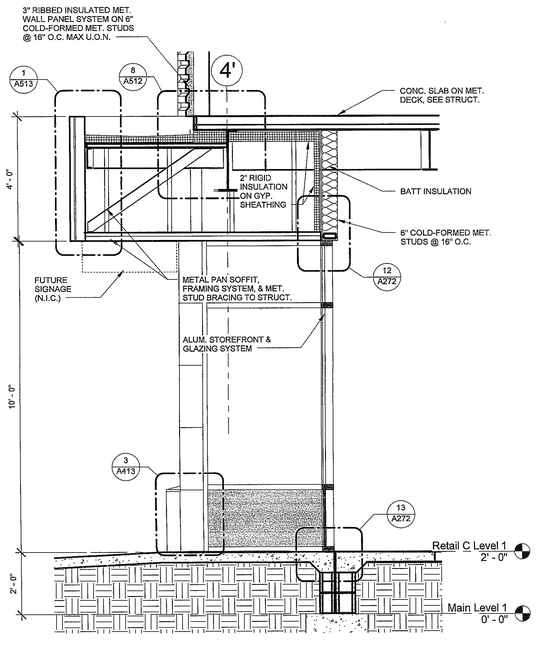
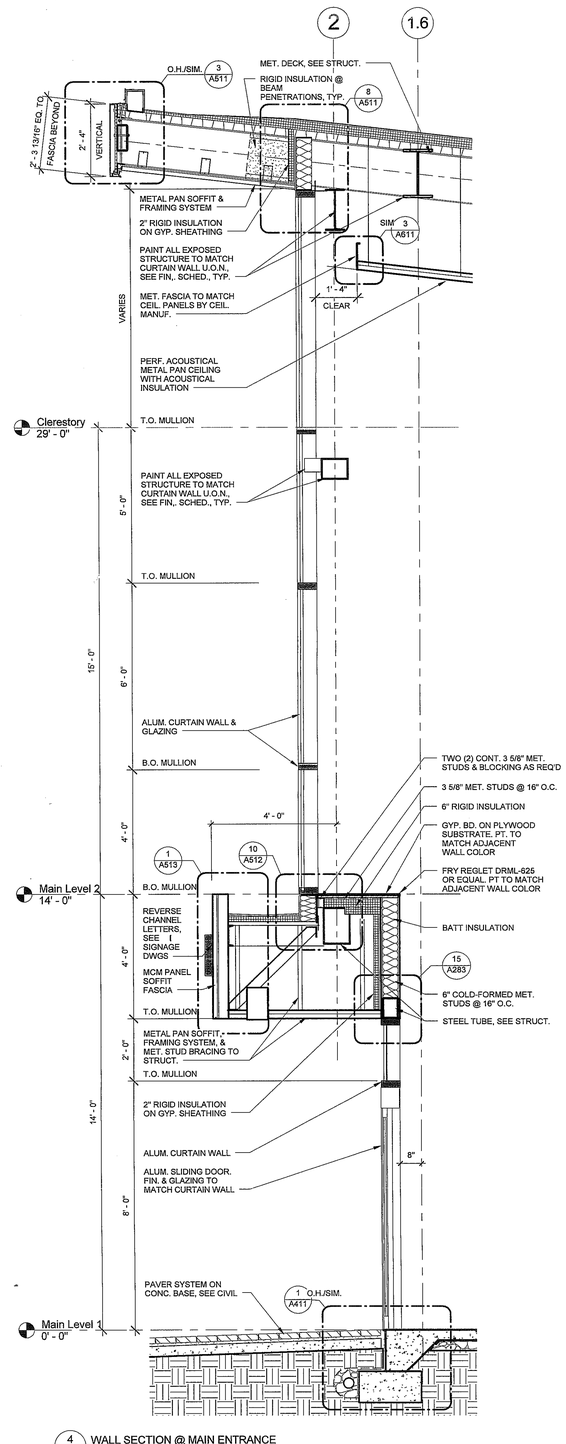



3 A402 WALL SECTION @ TENANT SPACE ENTRANCE
1/2" = 1'-0"




4 A402 WALL SECTION @ MAIN ENTRANCE
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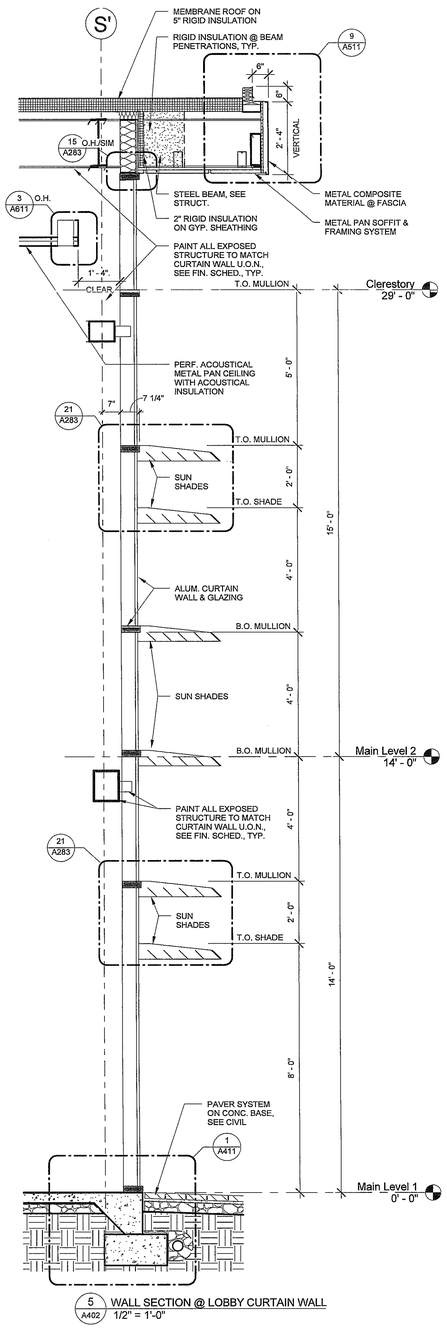


5 A402 WALL SECTION @ LOBBY CURTAIN WALL
1/2" = 1'-0"

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2048
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CHARLOTTE, NC

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# FAST Multi-Modal Center

City of Fayetteville
Fayetteville, NC

Project Number 621A

Title
## Wall Sections

Sheet
# A402

Plate of

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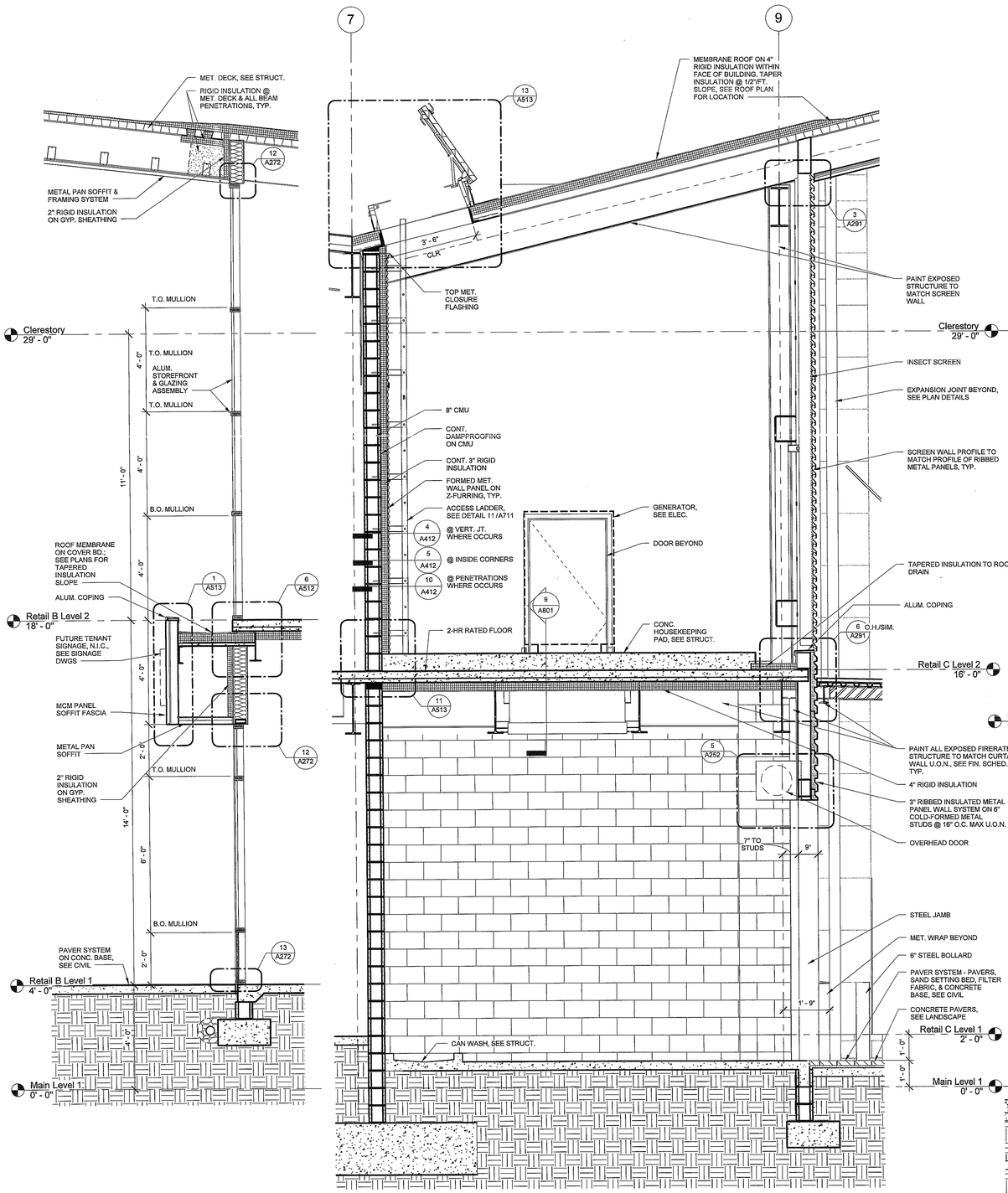


1 A403 WALL SECTION @ TENANT SPACE B STAIRS
1/2" = 1'-0"

2 A403 WALL SECTION @ GENERATOR
1/2" = 1'-0"

3 A403 WALL SECTION @ CHILLER
1/2" = 1'-0"

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**FAST Multi-Modal Center**
City of Fayetteville
Fayetteville, NC

Project Number 621A

Title
**Wall Sections**

Sheet
# A403

Plate of

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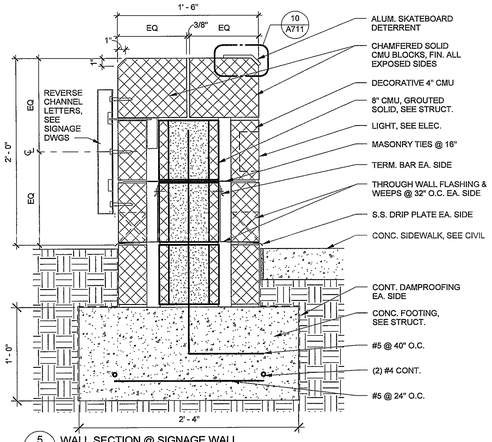
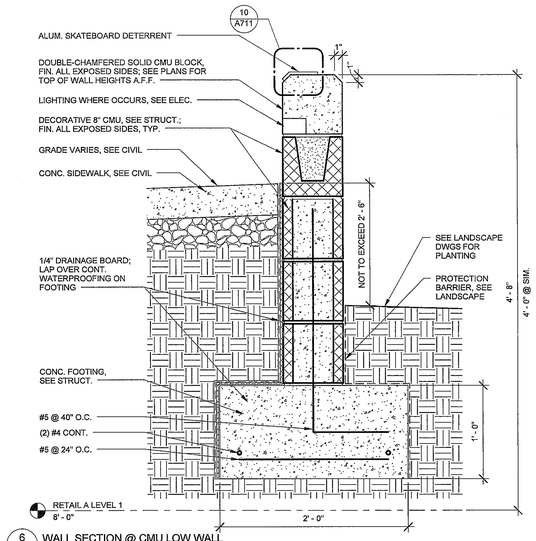
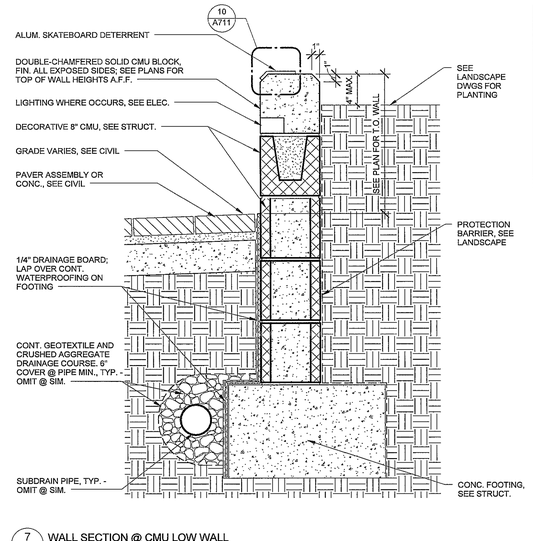


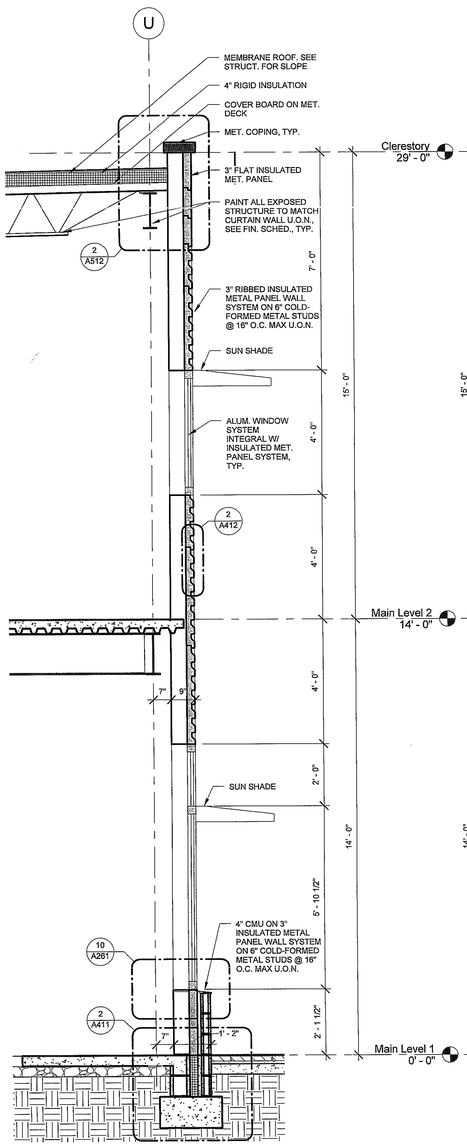

5 / A404 WALL SECTION @ SIGNAGE WALL
1 1/2" = 1'-0"



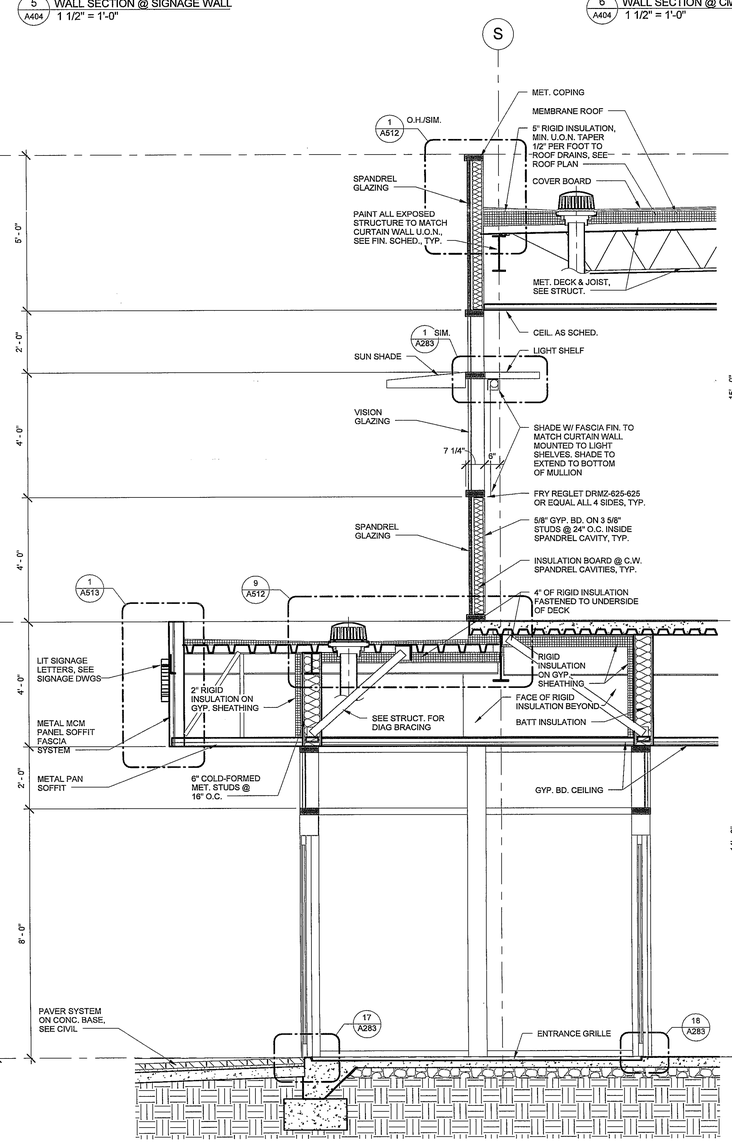

6 / A404 WALL SECTION @ CMU LOW WALL
1 1/2" = 1'-0"



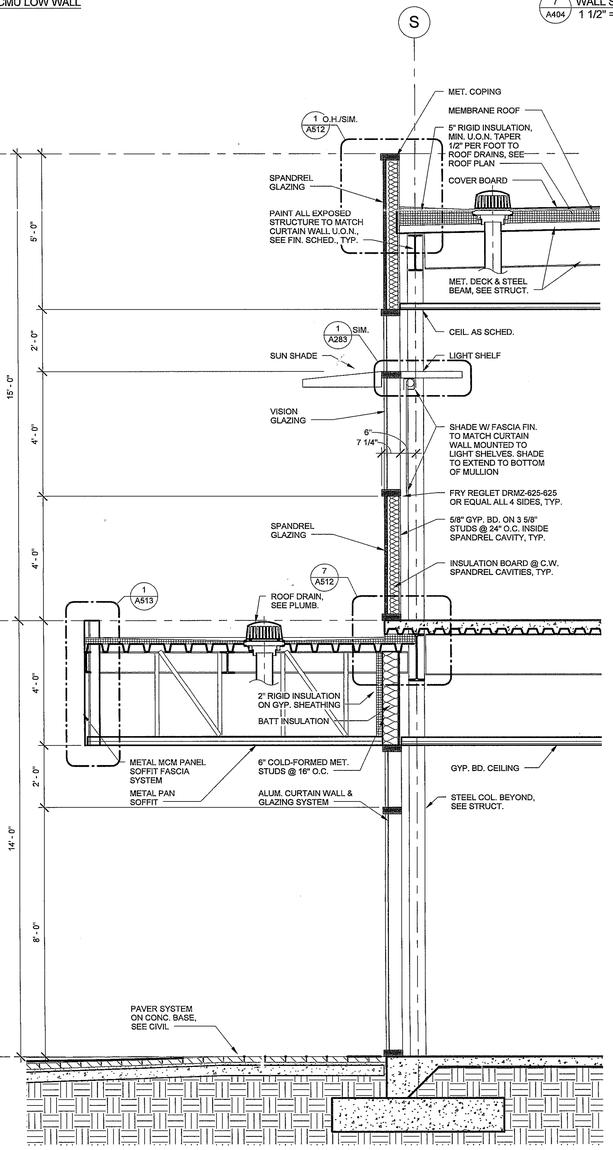

7 / A404 WALL SECTION @ CMU LOW WALL
1 1/2" = 1'-0"



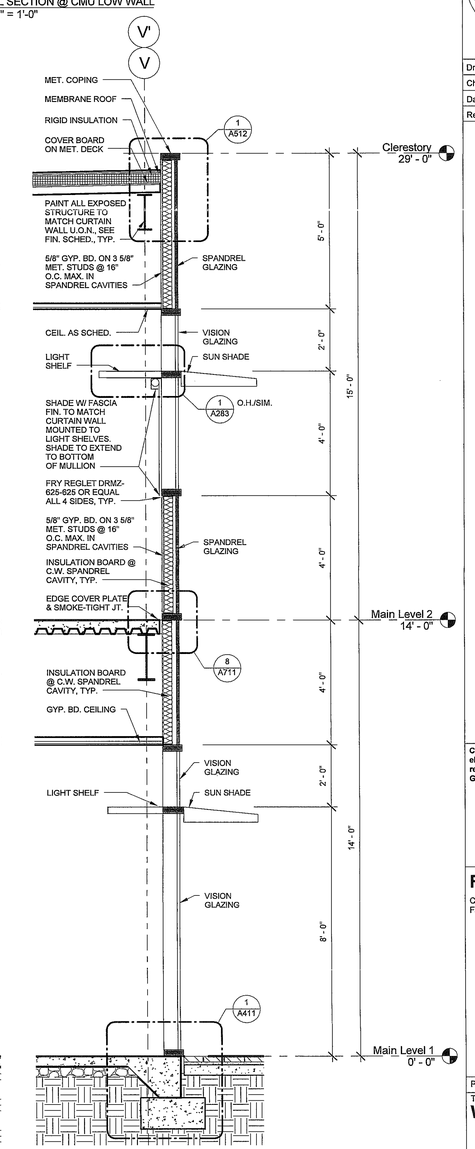

1 / A404 WALL SECTION @ TENANT SPACE E
1/2" = 1'-0"




2 / A404 WALL SECTION @ OFFICES & VESTIBULE
1/2" = 1'-0"




3 / A404 WALL SECTION @ OFFICES - WEST
1/2" = 1'-0"




4 / A404 WALL SECTION @ OFFICES - EAST
1/2" = 1'-0"

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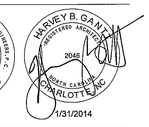


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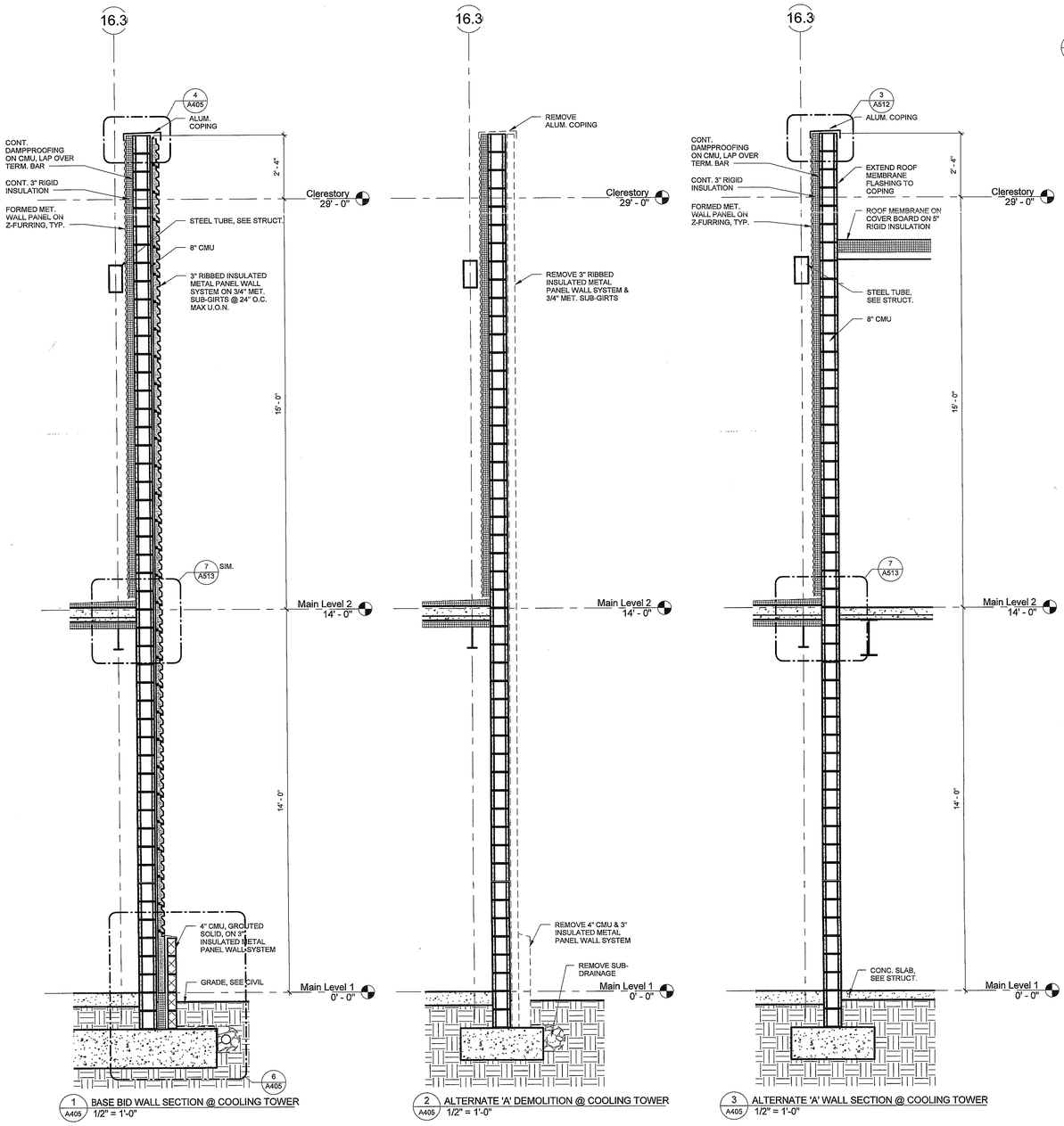
**FAST Multi-Modal Center**
City of Fayetteville
Fayetteville, NC

Project Number 621A

Title
**Wall Sections**

Sheet
# A404

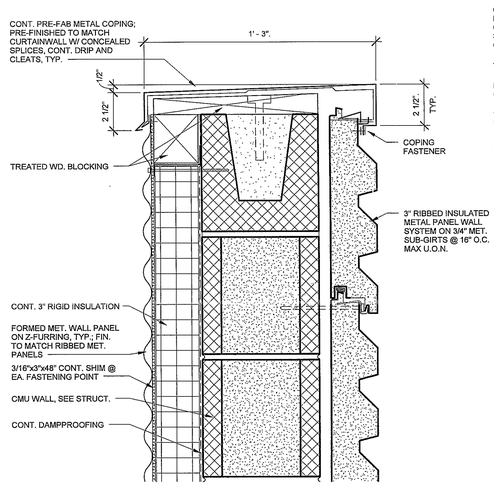
Plate of



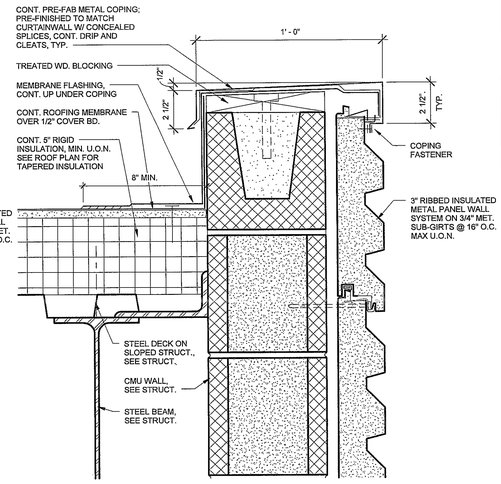

1 A405 BASE BID WALL SECTION @ COOLING TOWER
1/2" = 1'-0"

2 A405 ALTERNATE 'A' DEMOLITION @ COOLING TOWER
1/2" = 1'-0"

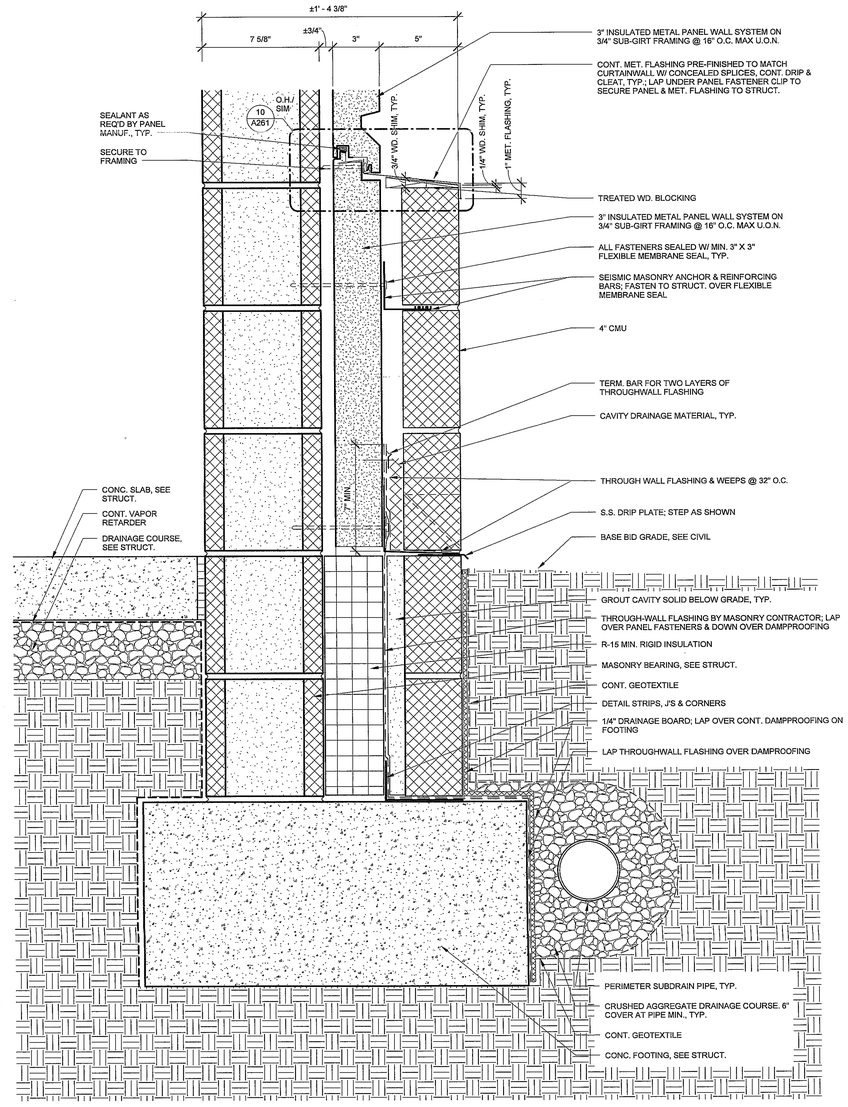
3 A405 ALTERNATE 'A' WALL SECTION @ COOLING TOWER
1/2" = 1'-0"




4 A405 ROOF DETAIL - ALTERNATE 'A' PARAPET @ PHASE 1 COOLING TOWER WALL
3" = 1'-0"




5 A405 ROOF DETAIL - PHASE 1 PARAPET AT ALTERNATE 'A' WALL
3" = 1'-0"




6 A405 FOUNDATION DETAIL @ PHASE 1 WALL
3" = 1'-0"

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MARJEY B. GANTT REGISTERED ARCHITECT 2046 NORTH CAROLINA CHARLOTTE, NC

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**FAST Multi-Modal Center**
City of Fayetteville
Fayetteville, NC

Project Number 621A

Title
**Base Bid and Alternate 'A' Wall Sections and Details**

Sheet
# A405

Plate of

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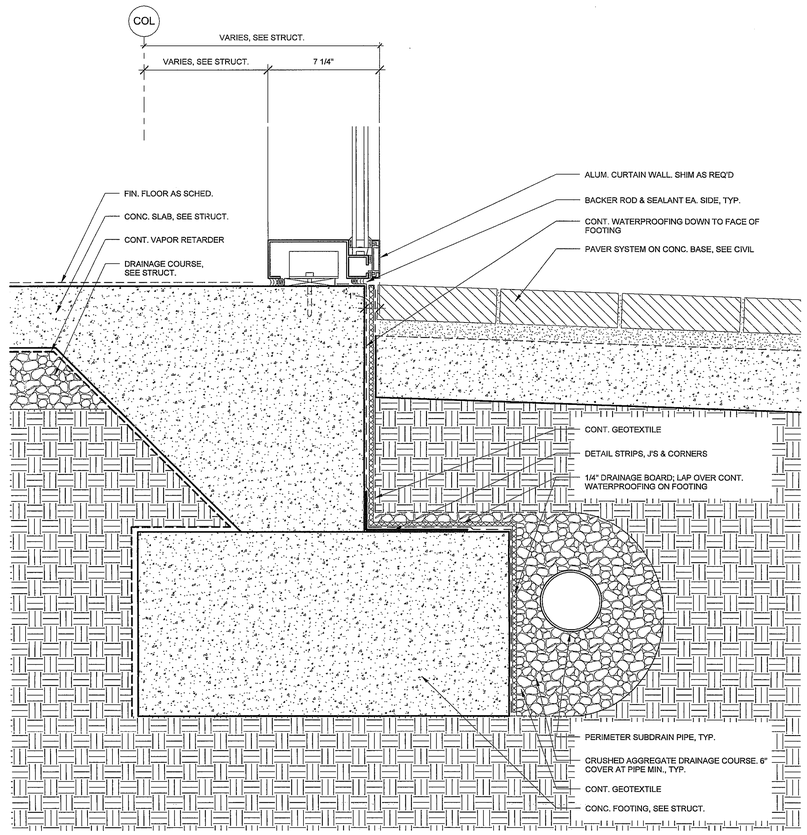
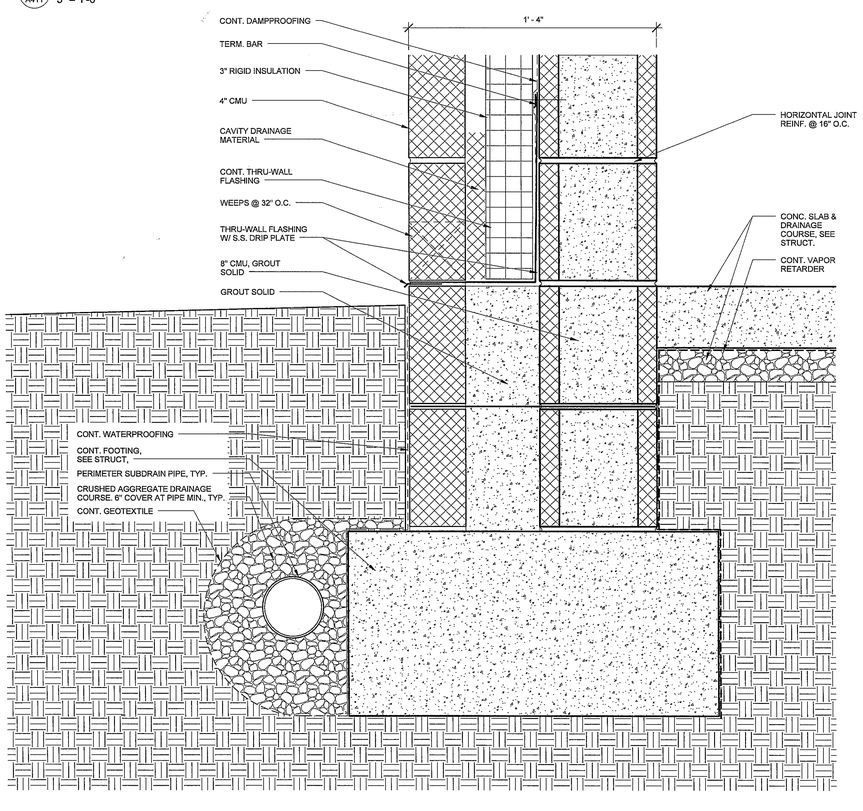
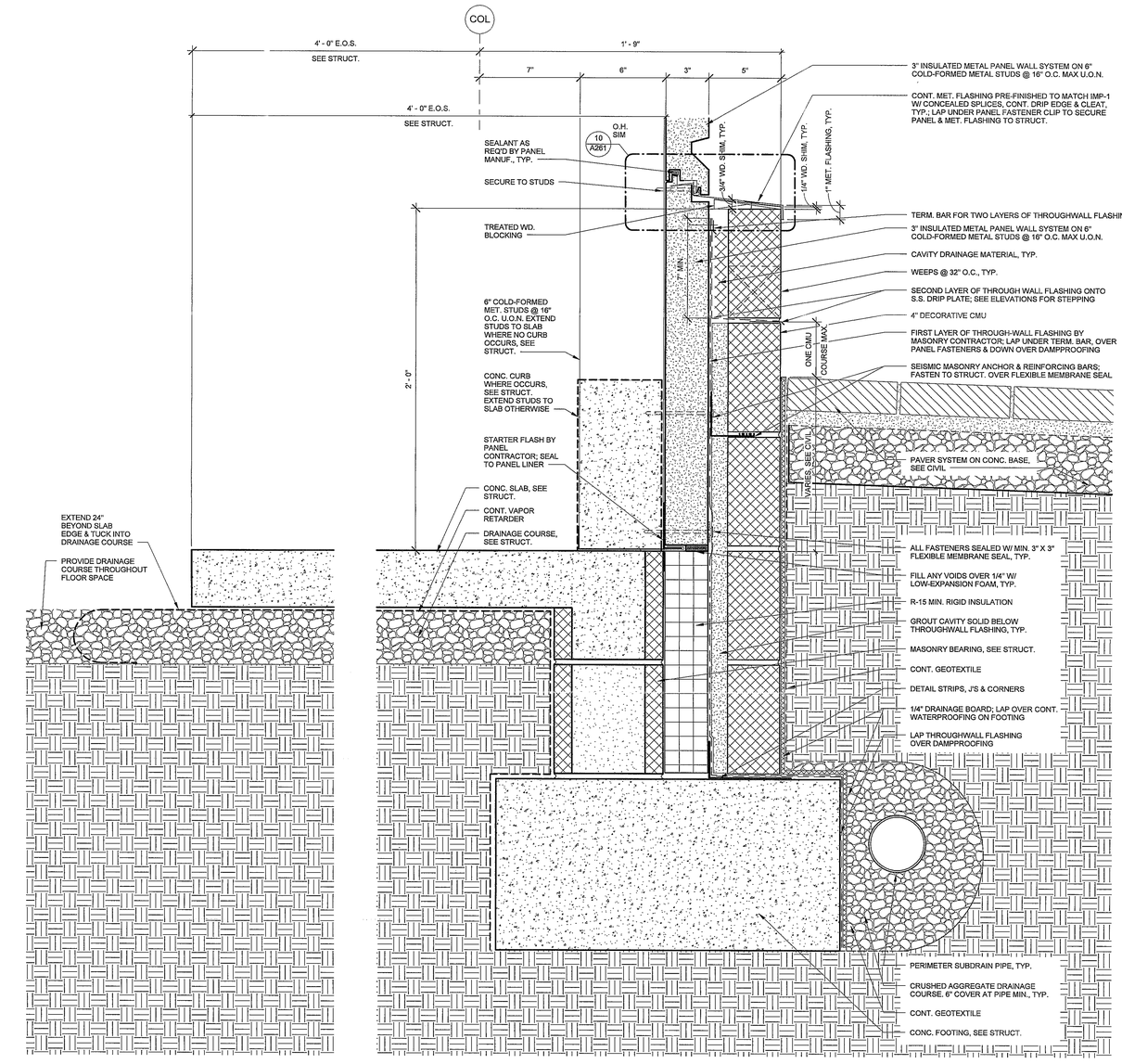


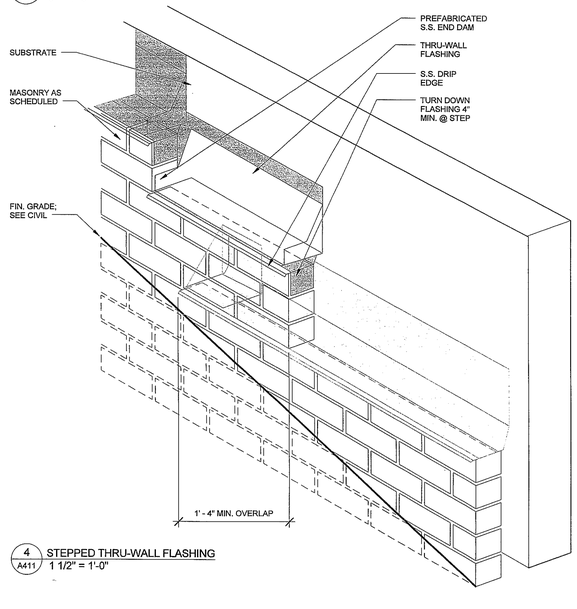

1 A411 FOUNDATION DETAIL @ CURTAIN WALL
3" = 1'-0"



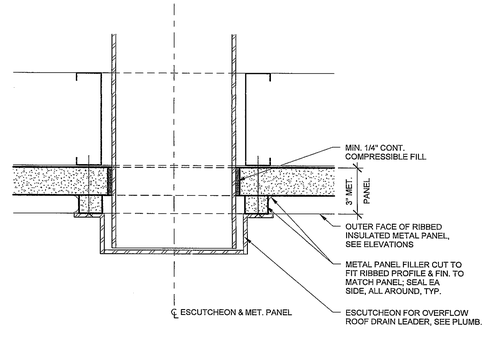

3 A411 FOUNDATION DETAIL @ OUTBUILDING
3" = 1'-0"




2 A411 TYPICAL FOUNDATION DETAIL
3" = 1'-0"




4 A411 STEPPED THRU-WALL FLASHING
1 1/2" = 1'-0"




5 A411 OVERFLOW ROOF DRAIN LEADER ESCUTCHEON DETAIL
3" = 1'-0"

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HARVEY B. GANTT, REGISTERED ARCHITECT, 2046, NORTH CAROLINA, CHARLOTTE, NC

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| Revisions | |

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**FAST Multi-Modal Center**
City of Fayetteville
Fayetteville, NC

Project Number 621A

Title
**Exterior Details**

Sheet
# A411

Plate of

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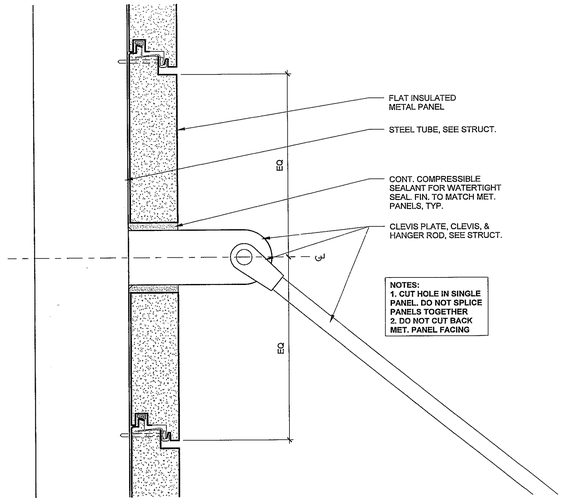
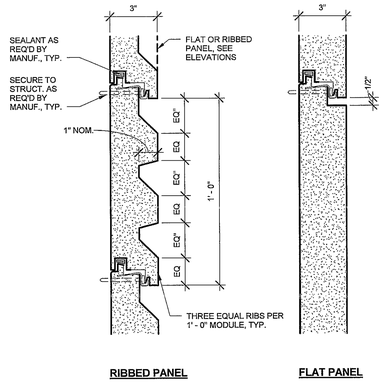
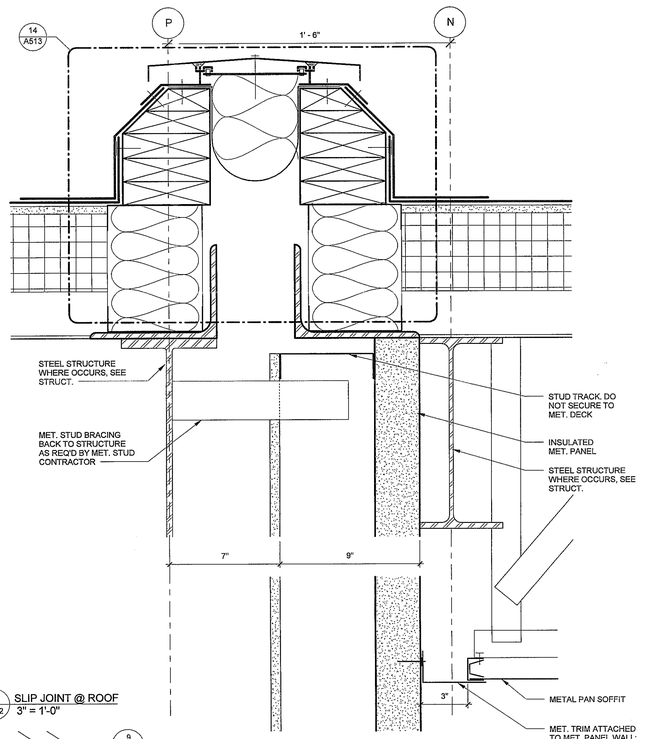


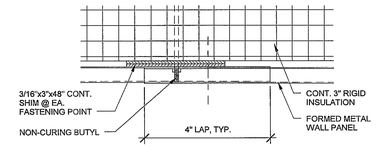

1 A412 CLEVIS PLATE PENETRATION @ METAL PANEL
3" = 1'-0"



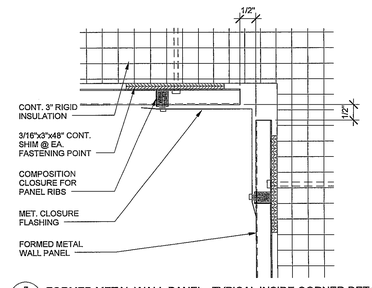

**NOTE**
1. REFER TO ELEVATIONS AND WALL SECTIONS FOR LOCATIONS OF EACH PROFILE
2. SEE ELEVATIONS FOR PANEL HEIGHTS

2 A412 TYPICAL INSULATED METAL PANEL PROFILES
3" = 1'-0"



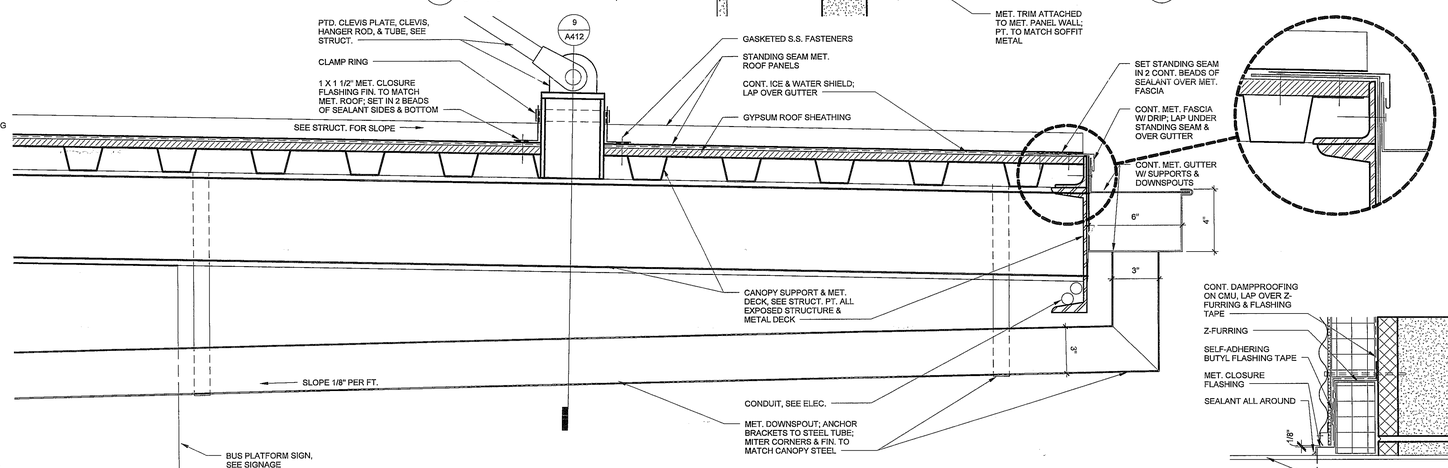




4 A412 FORMED METAL WALL PANEL - TYPICAL END LAP DETAIL
6" = 1'-0"

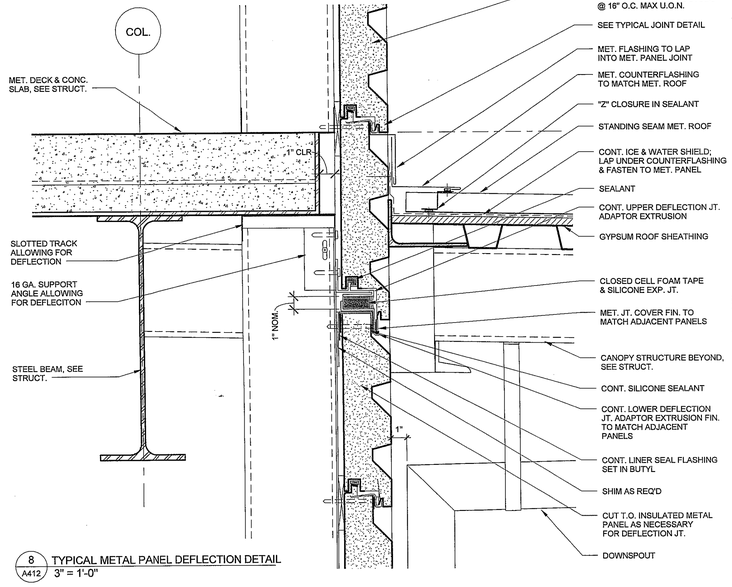



5 A412 FORMED METAL WALL PANEL - TYPICAL INSIDE CORNER DETAIL
6" = 1'-0"

3 A412 SLIP JOINT @ ROOF
3" = 1'-0"



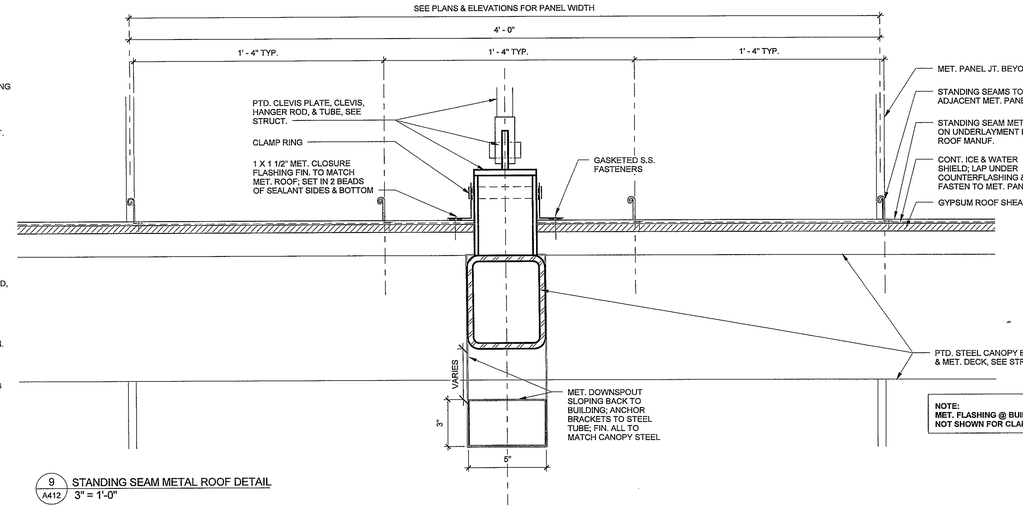

7 A412 CANOPY FASCIA
3" = 1'-0"



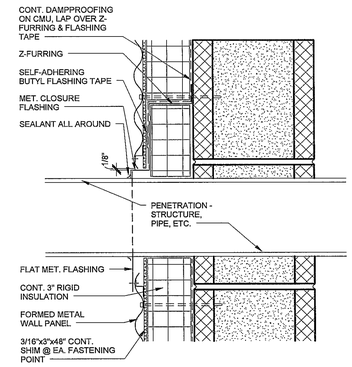

6 A412 TYPICAL METAL PANEL BEAM PENETRATION DETAIL
3" = 1'-0"



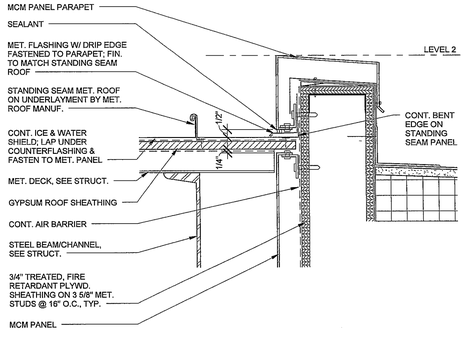

8 A412 TYPICAL METAL PANEL DEFLECTION DETAIL
3" = 1'-0"




9 A412 STANDING SEAM METAL ROOF DETAIL
3" = 1'-0"




10 A412 FORMED METAL WALL PANEL - TYPICAL PENETRATION DETAIL
3" = 1'-0"




11 A412 CANOPY SECTION @ INTERSECTION
3" = 1'-0"

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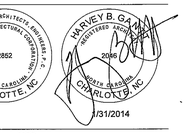


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**FAST Multi-Modal Center**
City of Fayetteville
Fayetteville, NC

Project Number 621A

Title
**Exterior Details**

Sheet
# A412

Plate of

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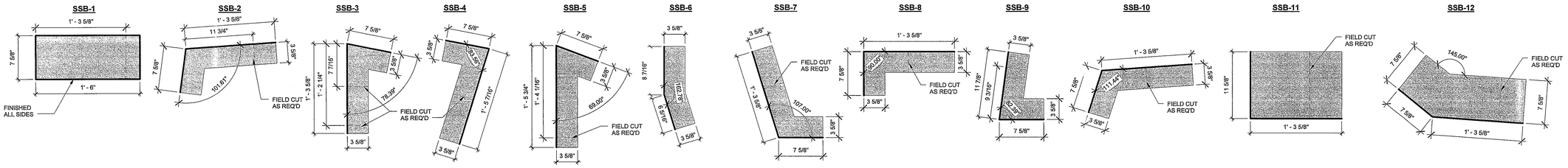
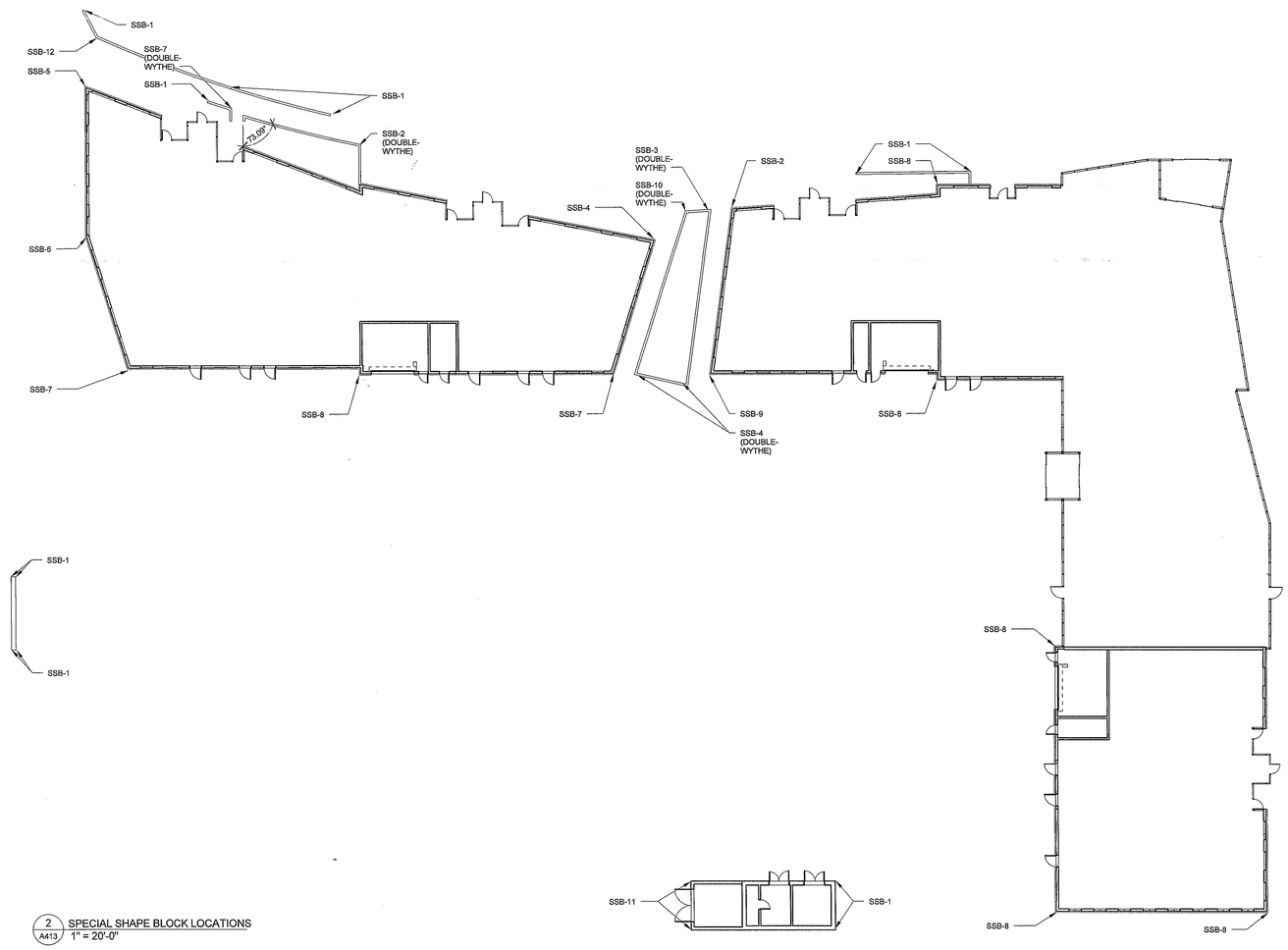


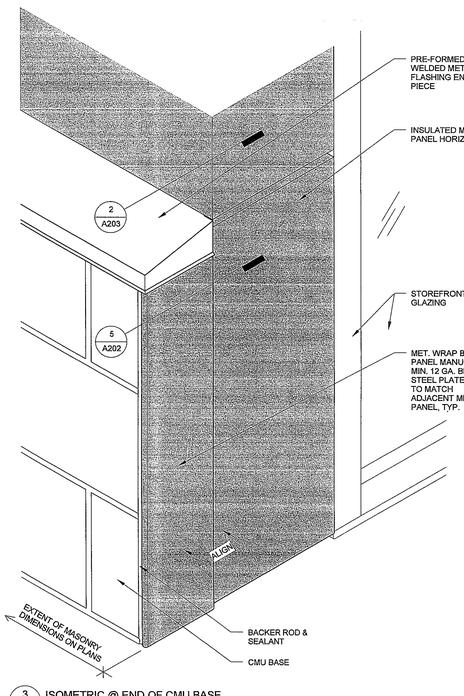

1 A413 SPECIAL SHAPE BLOCKS
1 1/2" = 1'-0"

**NOTES:**
1. REFER TO SHEET A404 FOR SOLID CHAMFERED BLOCKS
2. UNIQUE BLOCK DIMENSIONS ARE BASED ON ADJACENT WINDOWS BEING USED AS WORK POINTS. GC TO FIELD VERIFY PRIOR TO FABRICATING BLOCKS & FIELD CUTTING
3. FLIP BLOCKS OVER FOR ALTERNATE COURSING

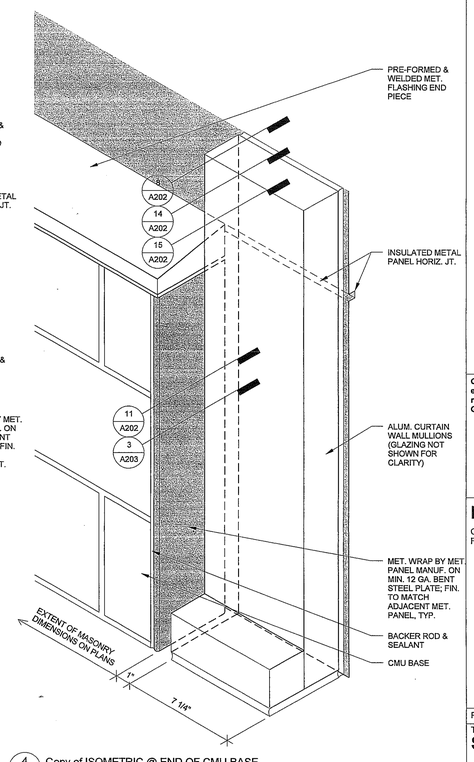



2 A413 SPECIAL SHAPE BLOCK LOCATIONS
1" = 20'-0"

**NOTE:**
**ALIGN ALL MASONRY JOINTS TO ADJACENT FENESTRATION. SPECIAL SHAPE BLOCKS ARE SIZED ACCORDING TO THIS.**




3 A413 ISOMETRIC @ END OF CMU BASE
3" = 1'-0"




4 A413 Copy of ISOMETRIC @ END OF CMU BASE
3" = 1'-0"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**FAST Multi-Modal Center**
City of Fayetteville
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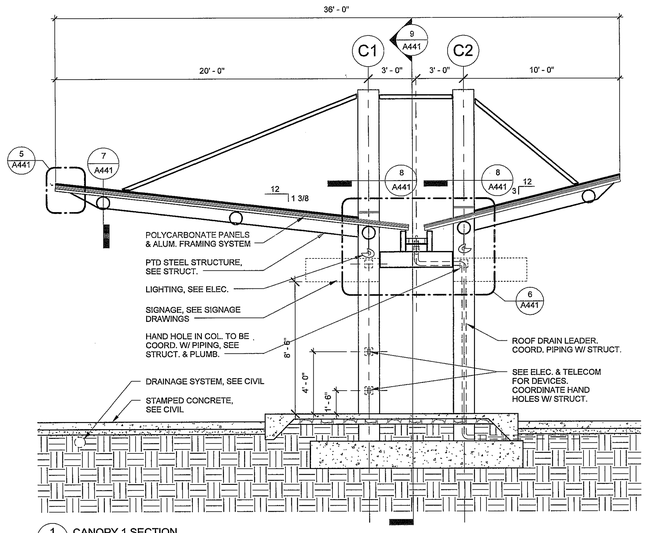
|---|---|
| Project Number | 621A |

Title
**Special Shape Blocks**

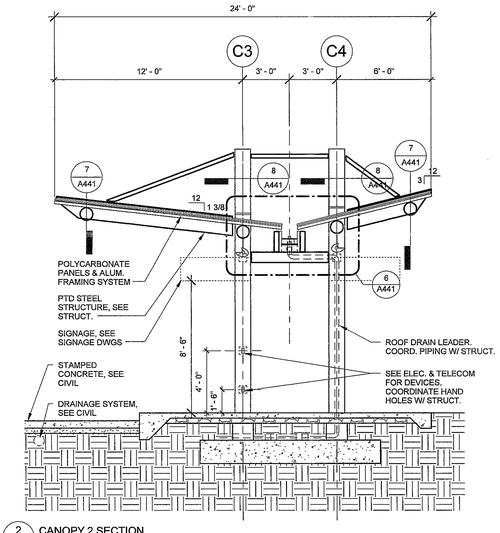
Sheet
# A413

Plate of

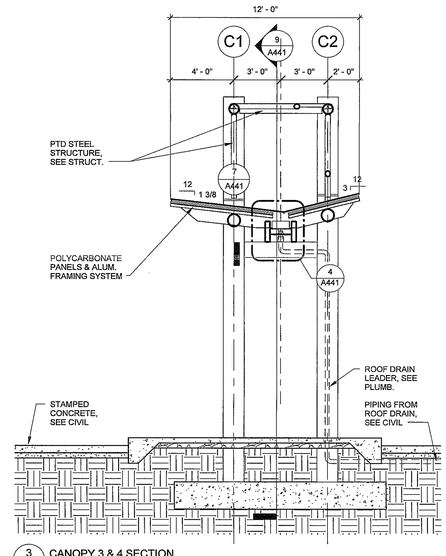

Licensed Architect: Harvey B. Gantt, AIA



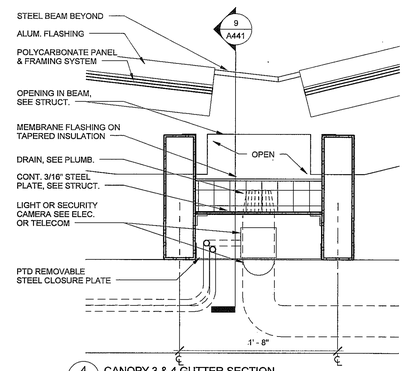

1 A441 CANOPY 1 SECTION
1/4" = 1'-0"



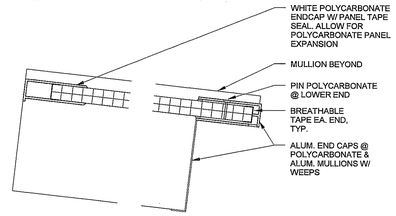

2 A441 CANOPY 2 SECTION
1/4" = 1'-0"



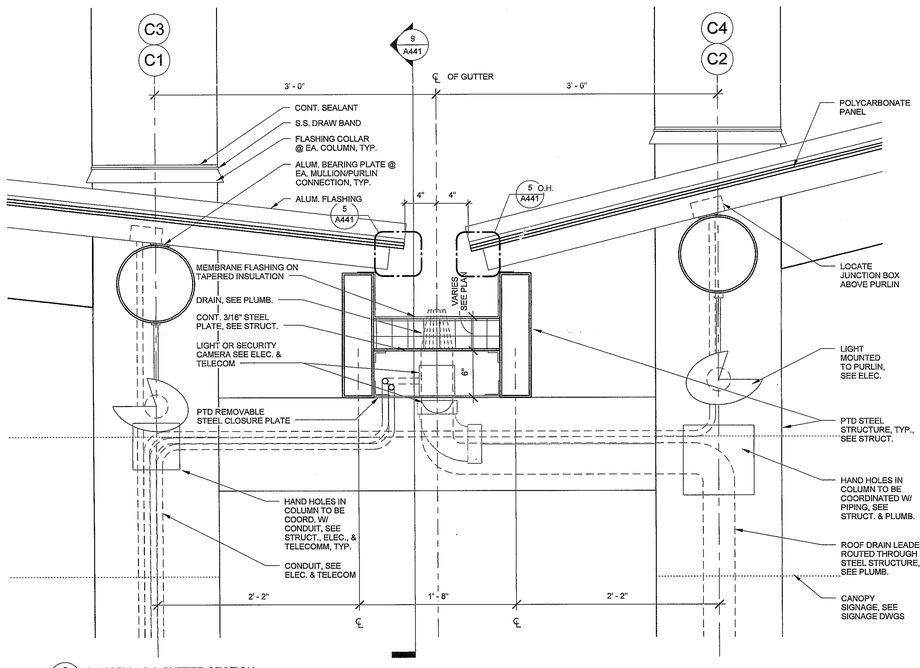

3 A441 CANOPY 3 & 4 SECTION
1/4" = 1'-0"



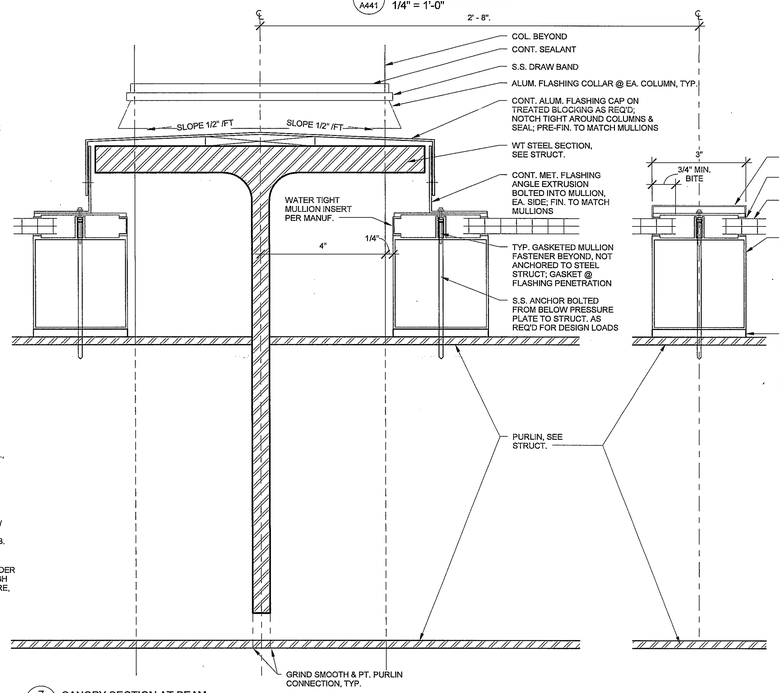

4 A441 CANOPY 3 & 4 GUTTER SECTION
1 1/2" = 1'-0"



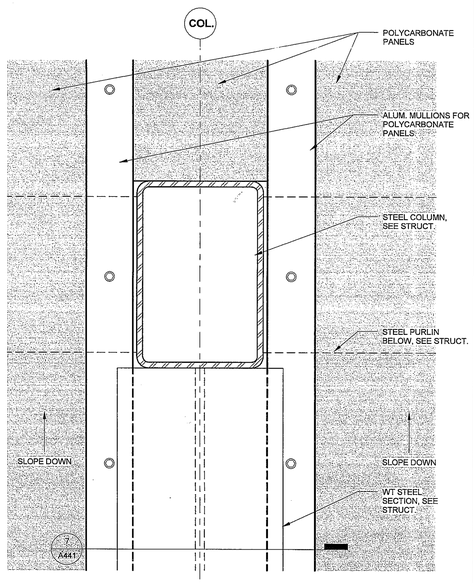

5 A441 CANOPY SECTION AT POLYCARBONATE PANEL
6" = 1'-0"




6 A441 CANOPY 1 & 2 GUTTER SECTION
1 1/2" = 1'-0"

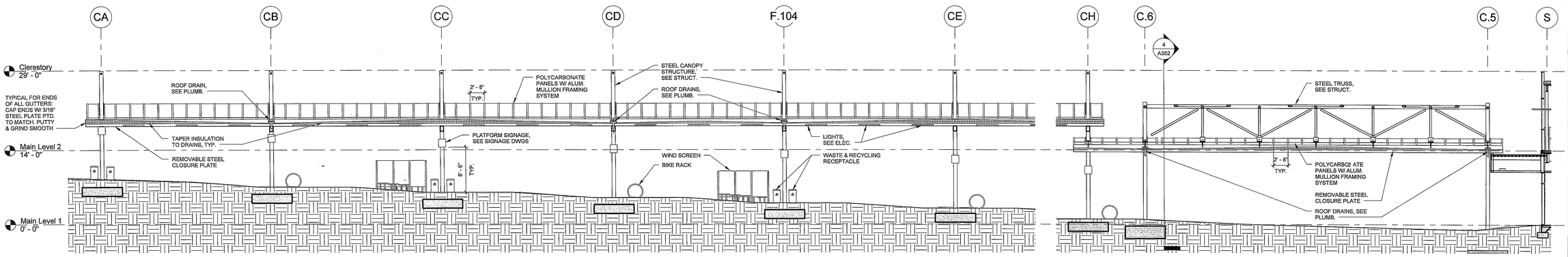



7 A441 CANOPY SECTION AT BEAM
6" = 1'-0"




NOTE:
ALUM. FLASHING & COLLAR NOT SHOWN FOR CLARITY

8 A441 CANOPY PLAN DETAIL AT COLUMN
3" = 1'-0"




9 A441 SECTION THROUGH CANOPY 1 & 3 GUTTER
1/8" = 1'-0"

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**FAST Multi-Modal Center**
City of Fayetteville
Fayetteville, NC

Project Number 621A

Title
**Canopy Sections and Details**

Sheet
# A441

Plate of

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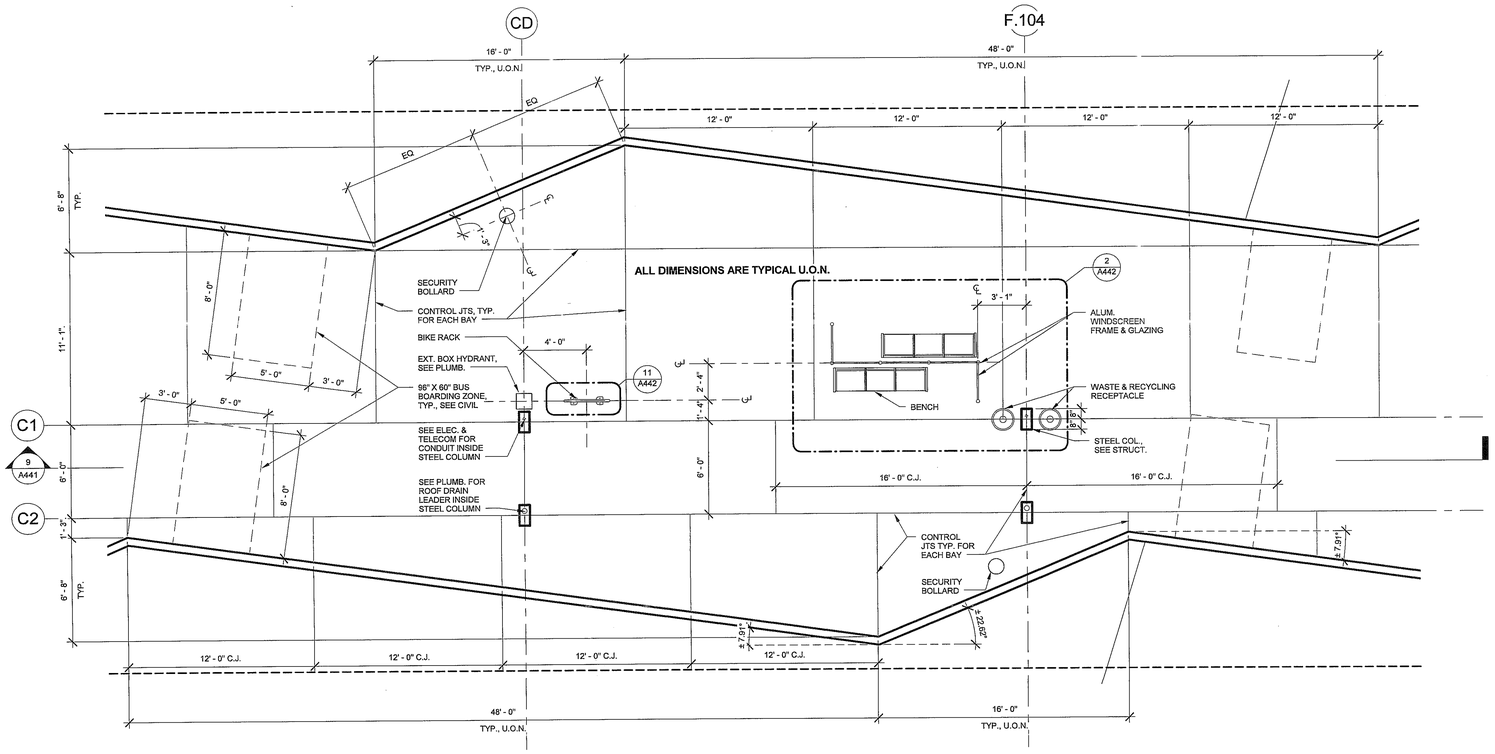
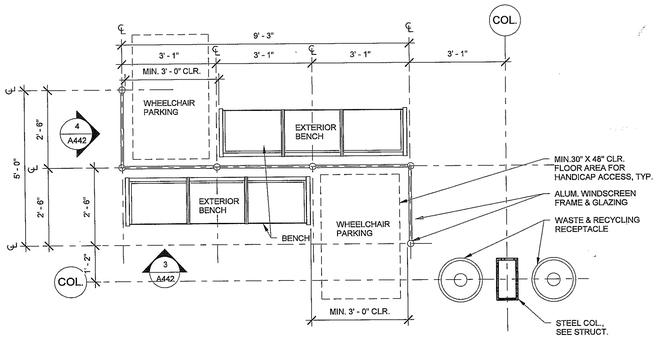



1 A442 BUS BAY - TYPICAL ENLARGED PLAN
1/4" = 1'-0"

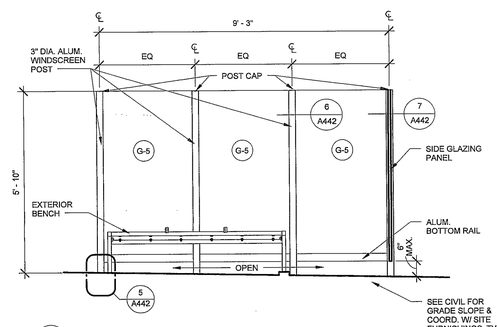
## GLASS SCHEDULE

| | |
|---|---|
| G-1 | 1" CLEAR LOW-E INSULATED |
| G-1a | 1" CLEAR LOW-E INSULATED, TEMPERED |
| G-2 | 1" SPANDREL LOW-E INSULATED |
| G-2a | 1" SPANDREL LOW-E INSULATED, TEMPERED |
| G-3 | 1/4" CLEAR TEMPERED |
| G-4 | 1 3/16" CLEAR BULLET-RESISTANT |
| G-5 | 1/2" CLEAR TEMPERED |

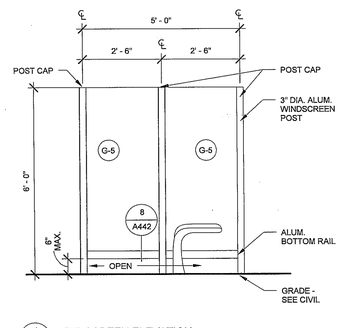
**NOTE:**
**THE LOWEST GLAZING UNITS FOR ALL LEVEL 1 GLAZING IN STOREFRONT AND CURTAIN WALL ASSEMBLIES ARE TO BE TEMPERED AS SCHEDULED, SEE ELEVATIONS.**



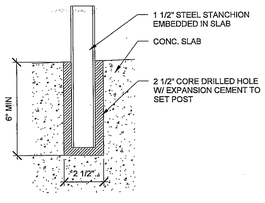

2 A442 ENLARGED PLAN - TYPICAL WINDSCREEN
1/2" = 1'-0"



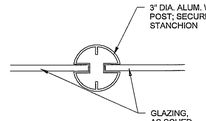

3 A442 WINDSCREEN ELEVATION
1/2" = 1'-0"



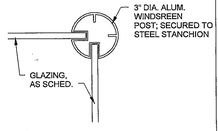

4 A442 WINDSCREEN ELEVATION
1/2" = 1'-0"



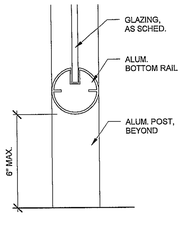

5 A442 WINDSCREEN - ANCHOR DETAIL
3" = 1'-0"



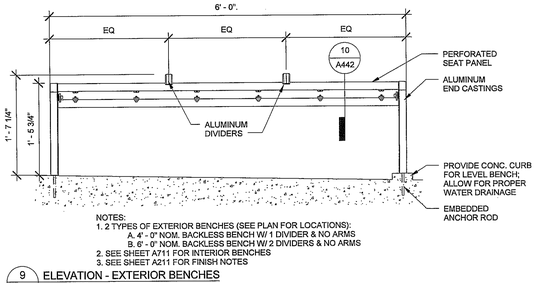

6 A442 WINDSCREEN SECTION TYP.
3" = 1'-0"



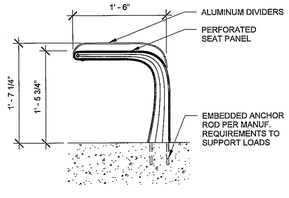

7 A442 WINDSCREEN SECTION @ CORNER
3" = 1'-0"



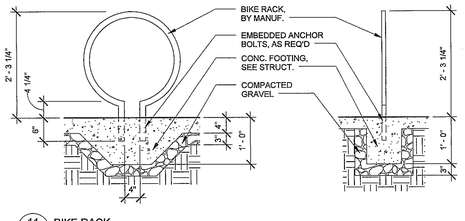

8 A442 WINDSCREEN SECTION @ BOTTOM RAIL
3" = 1'-0"



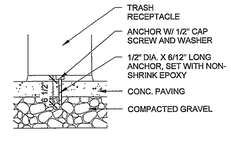

9 A442 ELEVATION - EXTERIOR BENCHES
1" = 1'-0"




10 A442 SECTION - EXTERIOR BENCHES
1" = 1'-0"




11 A442 BIKE RACK
3/4" = 1'-0"




12 A442 TRASH RECEPTACLE
3/4" = 1'-0"

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HARVEY B. GANTT ARCHITECTS 52852 NORTH CAROLINA CHARLOTTE, NC
HARVEY B. GANTT REGISTERED ARCHITECT 3246 NORTH CAROLINA CHARLOTTE, NC
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**FAST Multi-Modal Center**
City of Fayetteville
Fayetteville, NC

Project Number 621A

Title
**Bus Bay Plans and Details**

Sheet
# A442

Plate of

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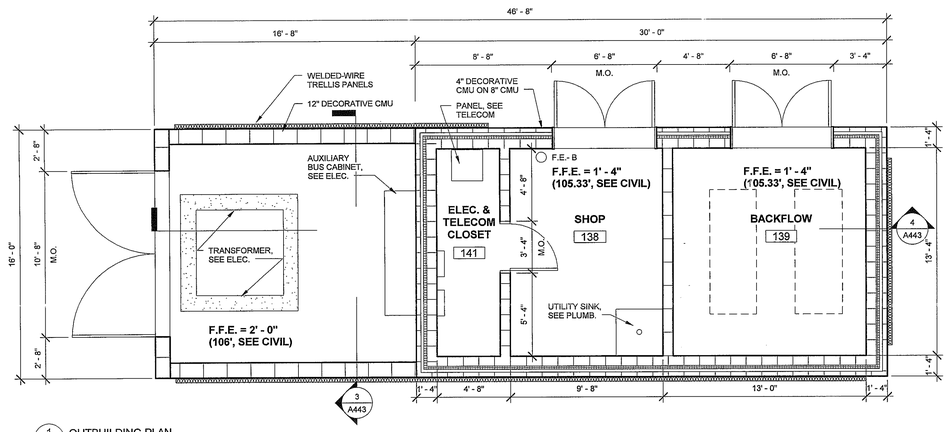
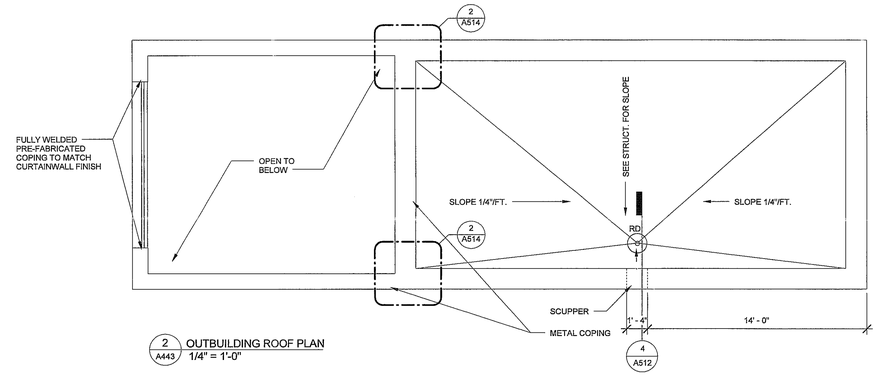
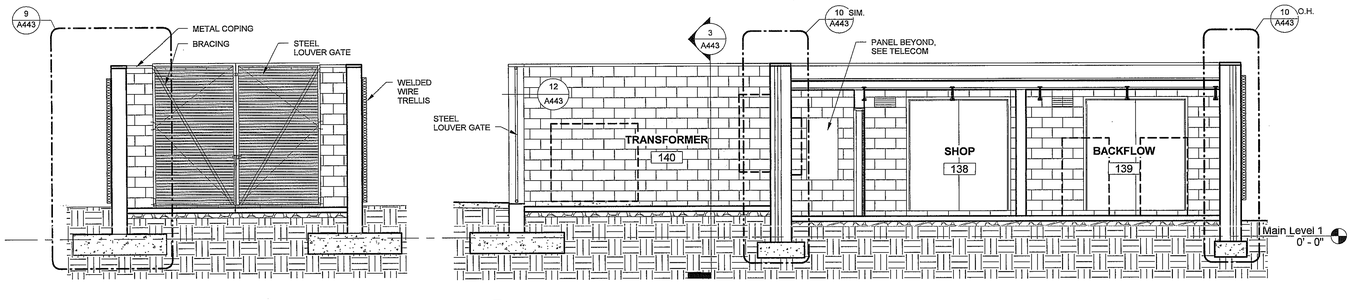



1 A443 OUTBUILDING PLAN
1/4" = 1'-0"

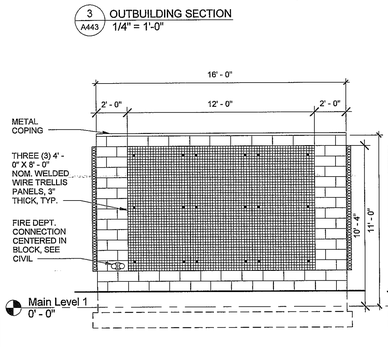



2 A443 OUTBUILDING ROOF PLAN
1/4" = 1'-0"




3 A443 OUTBUILDING SECTION
1/4" = 1'-0"

4 A443 OUTBUILDING SECTION
1/4" = 1'-0"




5 A443 OUTBUILDING ELEVATION - EAST
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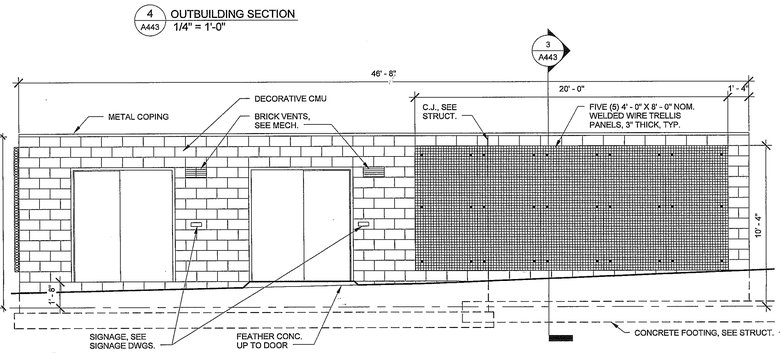


6 A443 OUTBUILDING ELEVATION - NORTH
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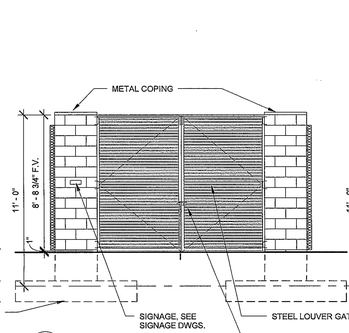


8 A443 OUTBUILDING ELEVATION - WEST
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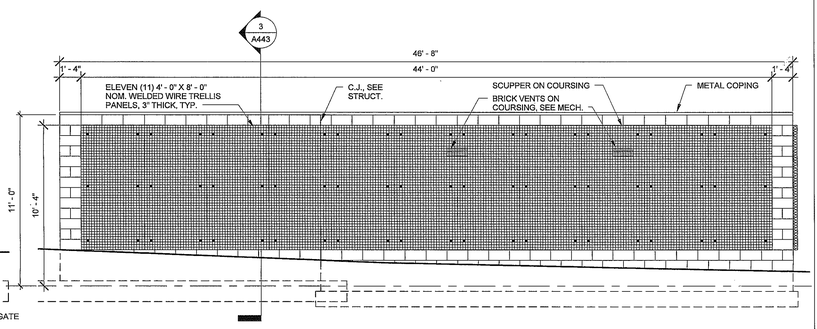


7 A443 OUTBUILDING ELEVATION - SOUTH
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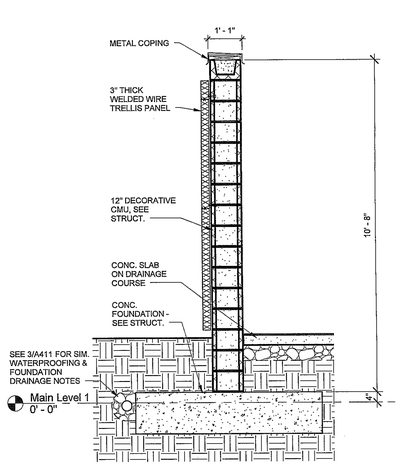
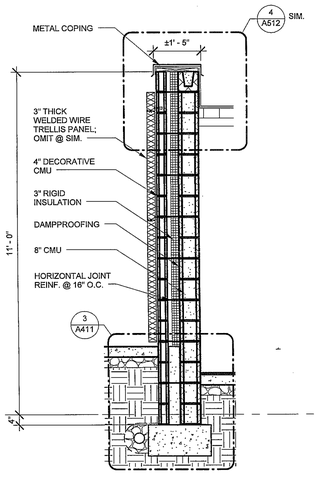
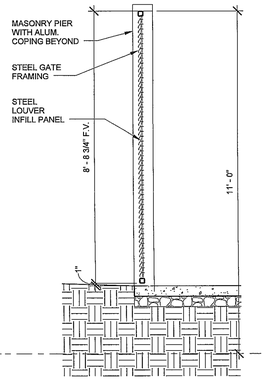



9 A443 WALL SECTION
1/2" = 1'-0"




10 A443 WALL SECTION
1/2" = 1'-0"




11 A443 SECTION AT GATE
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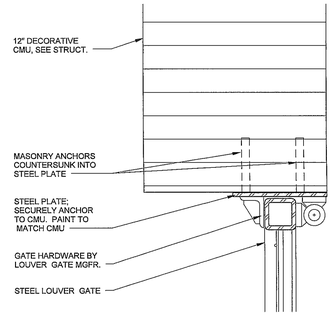


12 A443 JAMB DETAIL AT STEEL GATE
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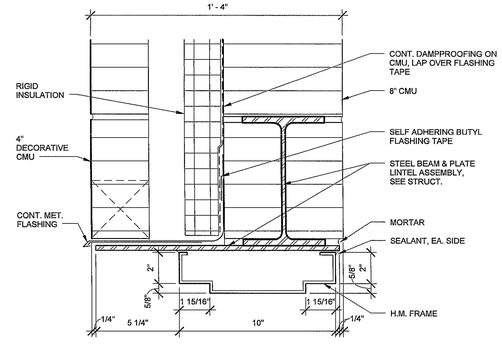


13 A443 HEAD DETAIL
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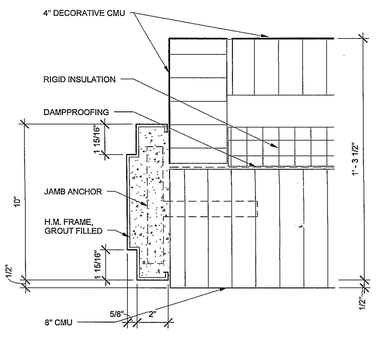


14 A443 JAMB DETAIL
3" = 1'-0"

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**FAST Multi-Modal Center**
City of Fayetteville
Fayetteville, NC

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|---|---|
| Project Number | 621A |

Title
**Out Building Plans, Elevations, and Details**

Sheet
# A443

Plate of

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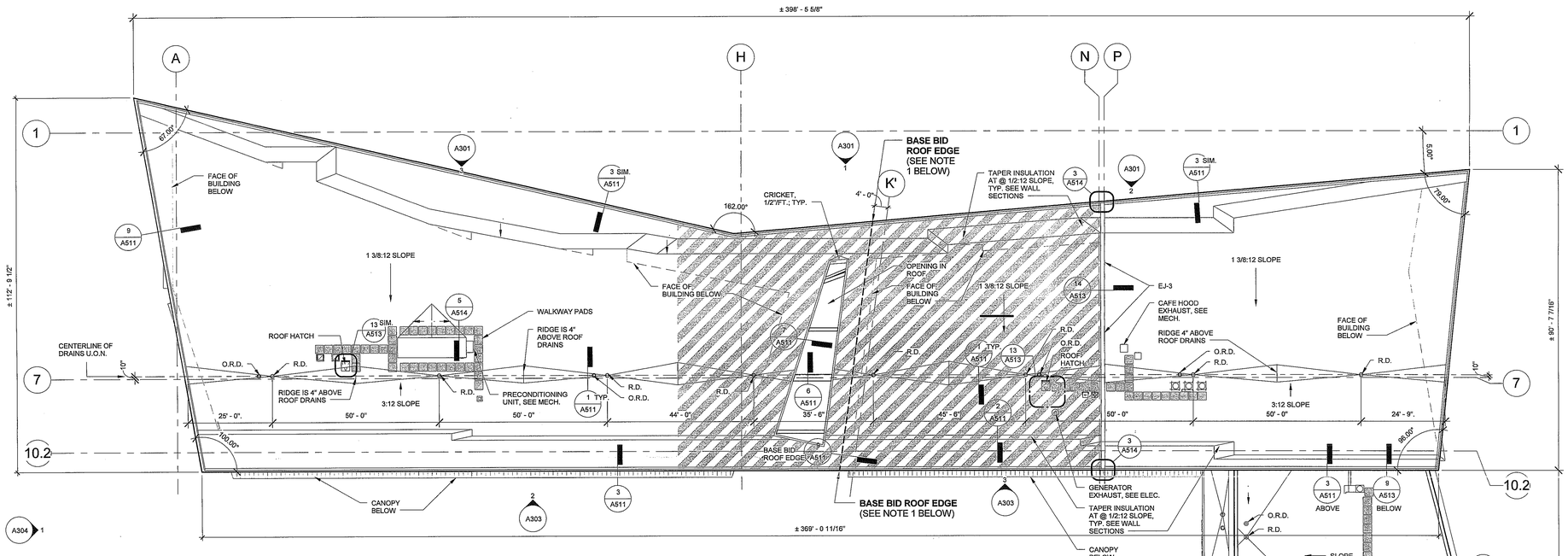


N

1 A501 ROOF PLAN
1/16" = 1'-0"

NOTES:
1. BASE BID - COMPLETE ROOF EDGE PER 9/A511; ALTERNATE 'B' - DEMO ROOF EDGE, INCLUDING MCM PANELS, COPING, ROOF MEMBRANES, METAL PANEL SOFFIT PIECES, ENOUGH TO COMPLETE FULL SCOPE OF ALTERNATE 'B' WORK AS SHOWN.
2. REFER TO SHEETS A511-A514 FOR ROOF DETAILS


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HARVEY B. GANTT 2446 REGISTERED ARCHITECT NORTH CAROLINA CHARLOTTE, NC

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# FAST Multi-Modal Center

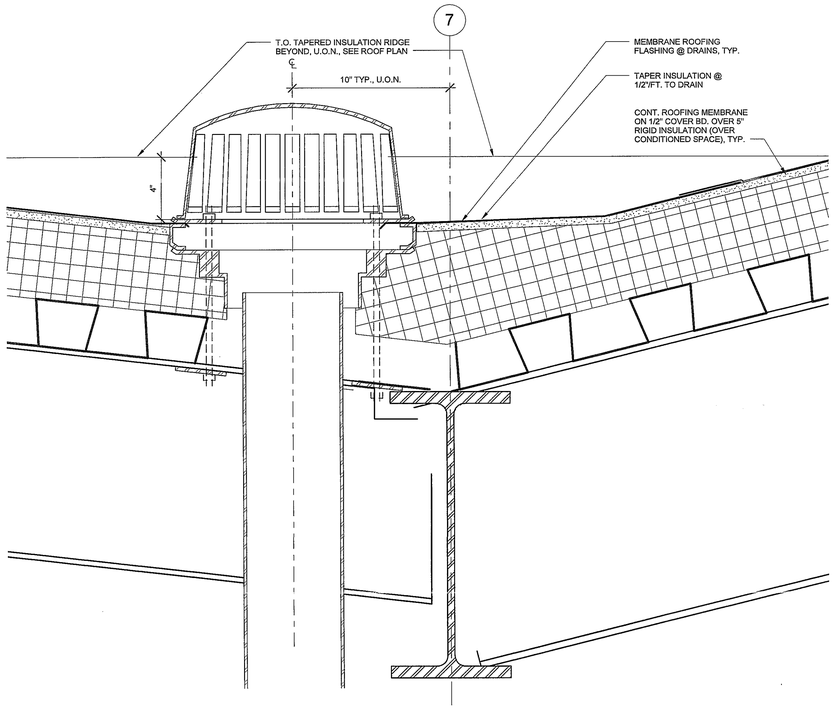
City of Fayetteville
Fayetteville, NC

Project Number 621A

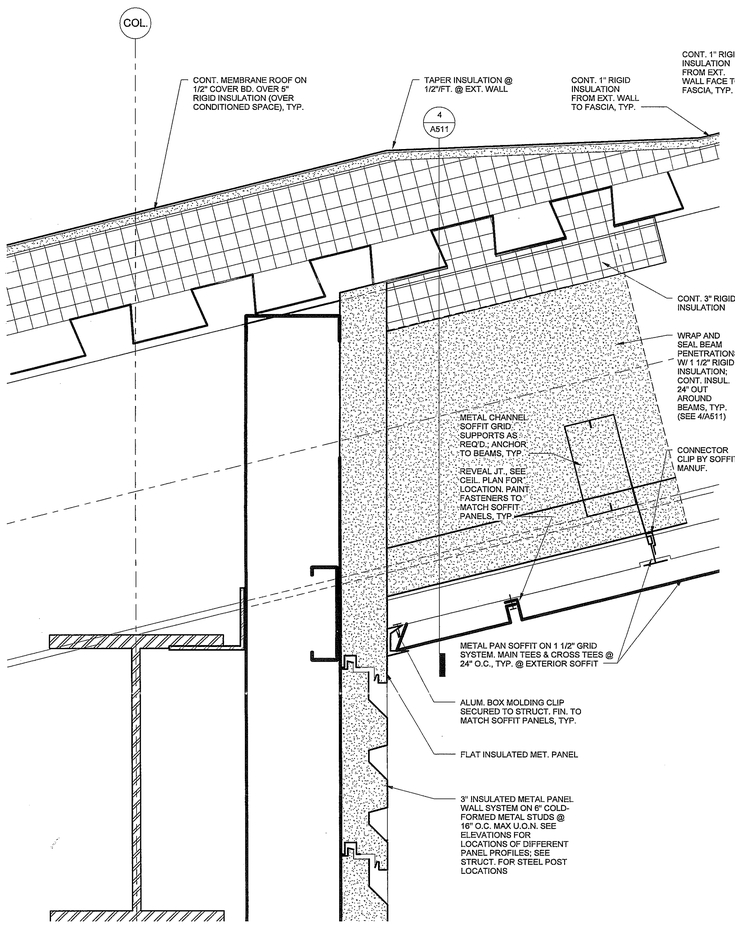
Title
## Roof Plan

Sheet
# A501

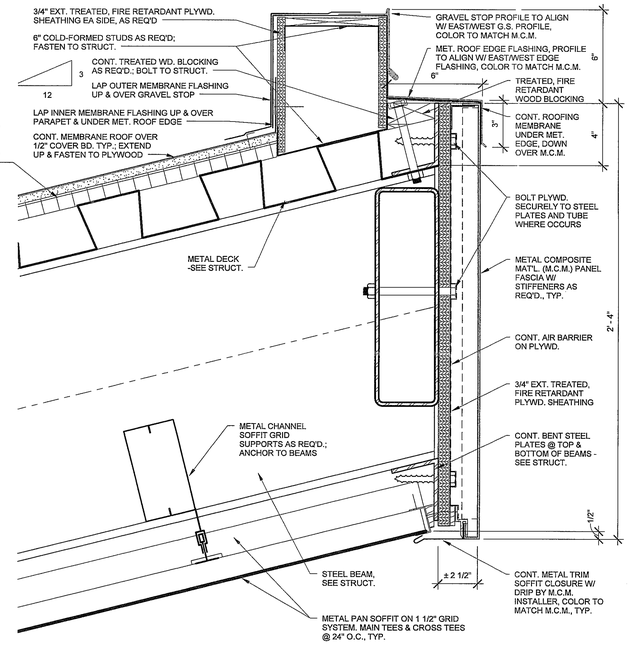
Plate of



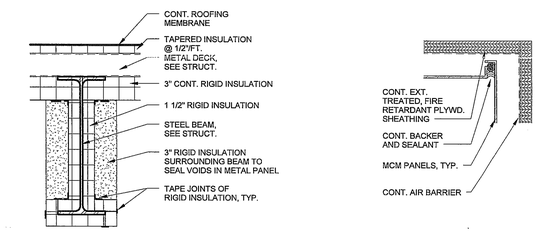

1 A511 TYPICAL ROOF DRAIN AT VALLEY
3" = 1'-0"




2 A511 ROOF DETAIL AT EXTERIOR WALL
3" = 1'-0"



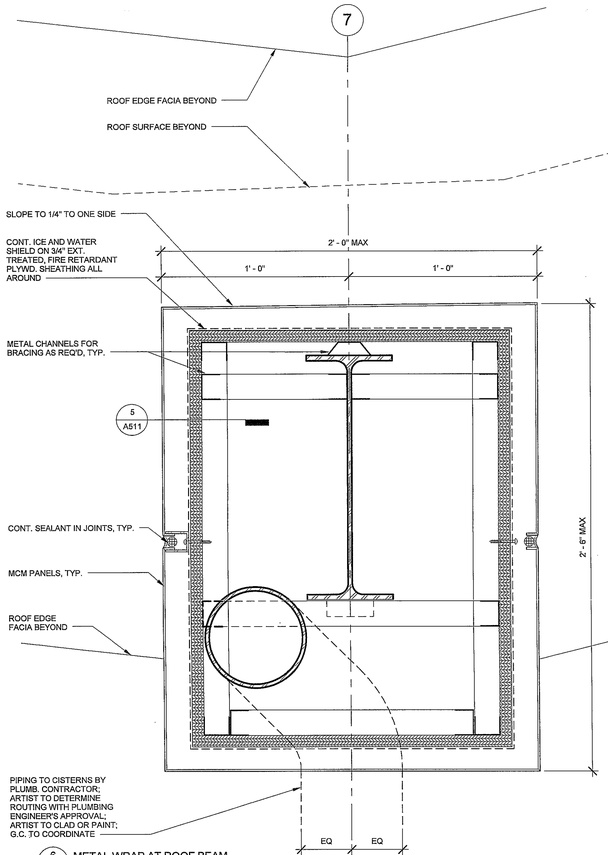

3 A511 ROOF DETAIL AT FASCIA
3" = 1'-0"




4 A511 DETAIL @ ROOF BEAM
1 1/2" = 1'-0"




5 A511 MCM PANEL INTERSECTION
3" = 1'-0"




6 A511 METAL WRAP AT ROOF BEAM
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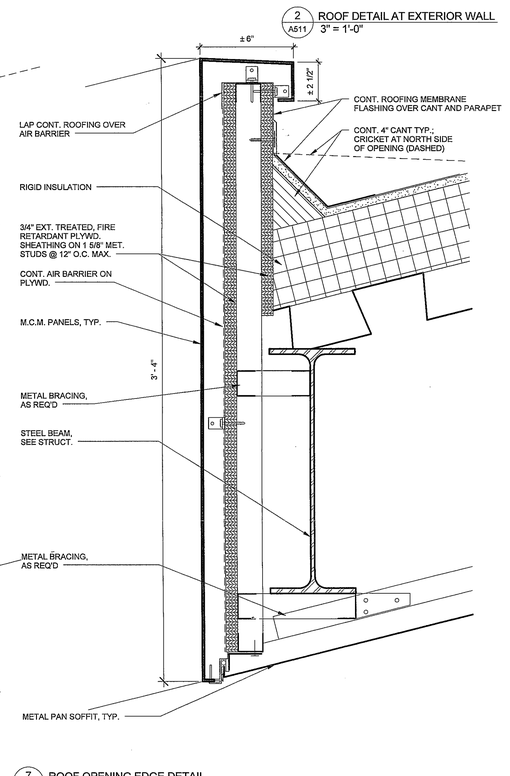


7 A511 ROOF OPENING EDGE DETAIL
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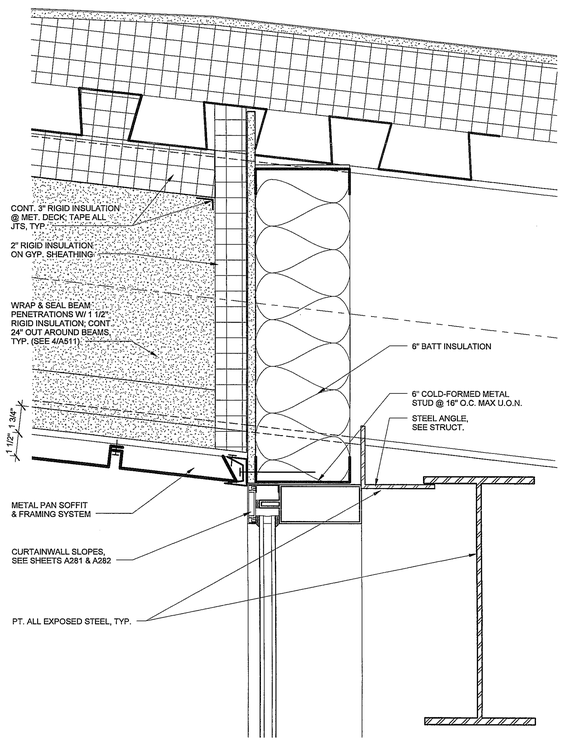
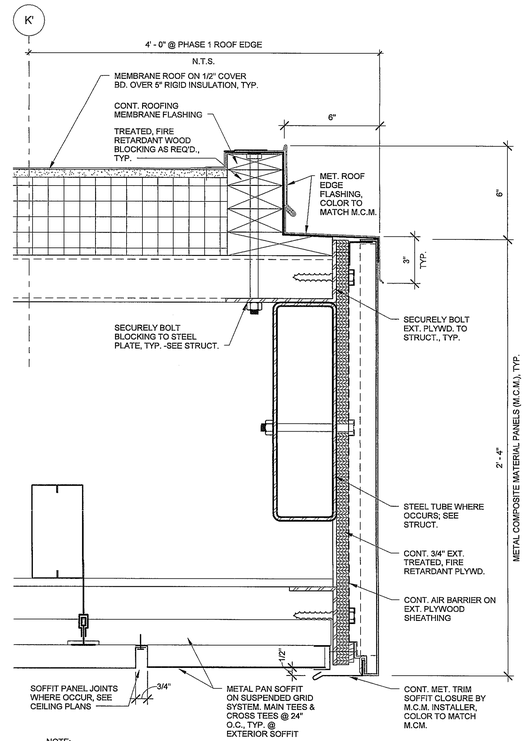



8 A511 ROOF DETAIL AT CURTAIN WALL
3" = 1'-0"




NOTE:
SEE SHEET A501 FOR DEMO NOTES @ ALTERNATE 'B' & BASE BID ROOF CONNECTION

9 A511 ROOF DETAIL AT EAST & WEST ROOF ENDS
3" = 1'-0"

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# FAST Multi-Modal Center

City of Fayetteville
Fayetteville, NC

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|---|---|
| Project Number | 621A |

Title
## Roof Details

Sheet
# A511

Plate of

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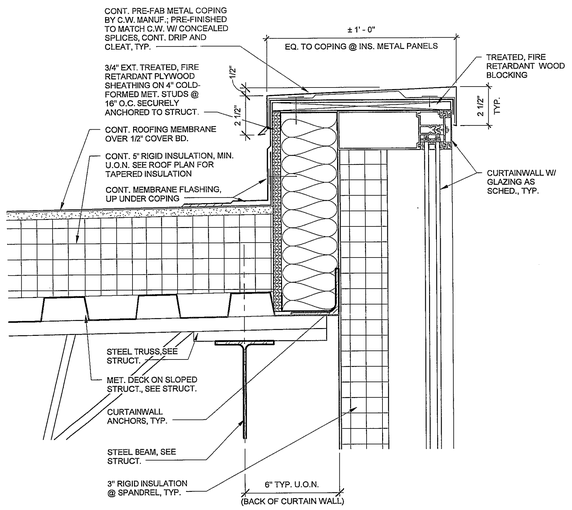


1 A512 ROOF DETAIL - PARAPET AT CURTAIN WALL
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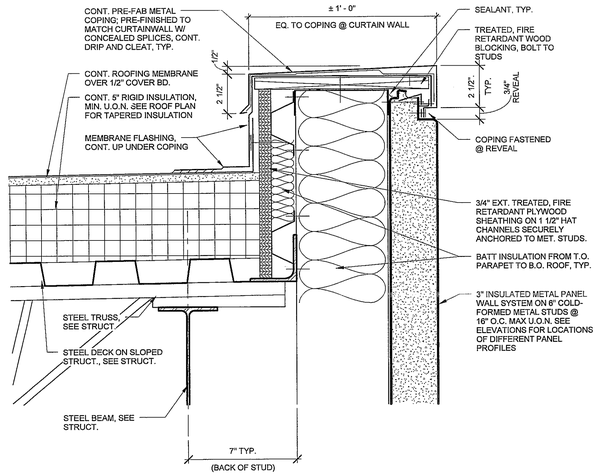


2 A512 ROOF DETAIL - PARAPET AT INSULATED METAL PANEL
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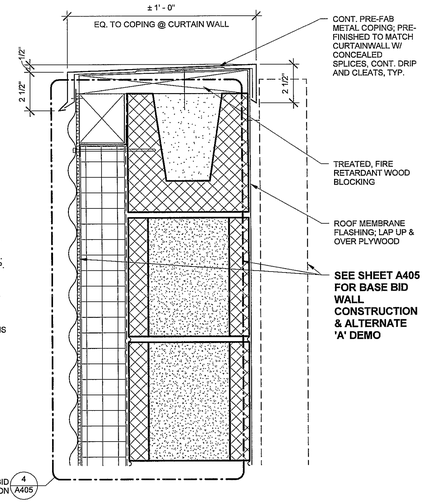


3 A512 ROOF DETAIL - ALTERNATE A PARAPET @ BASE BID COOLING TOWER WALL
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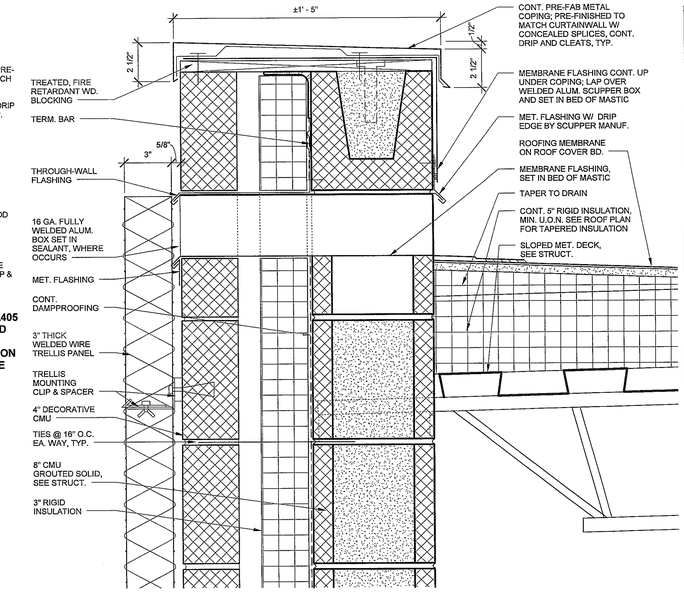


4 A512 PARAPET @ CMU WALL
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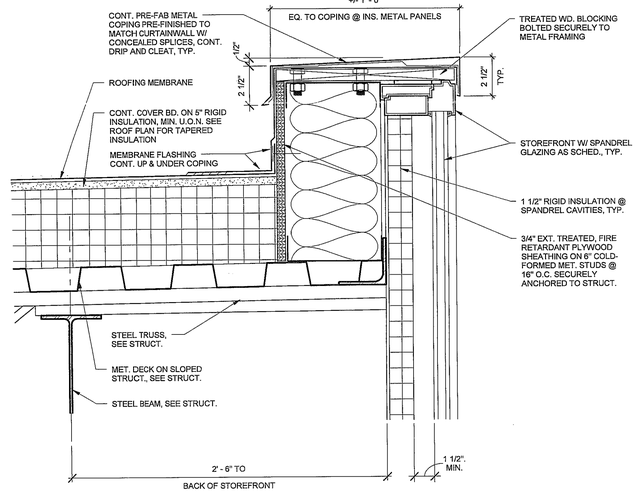
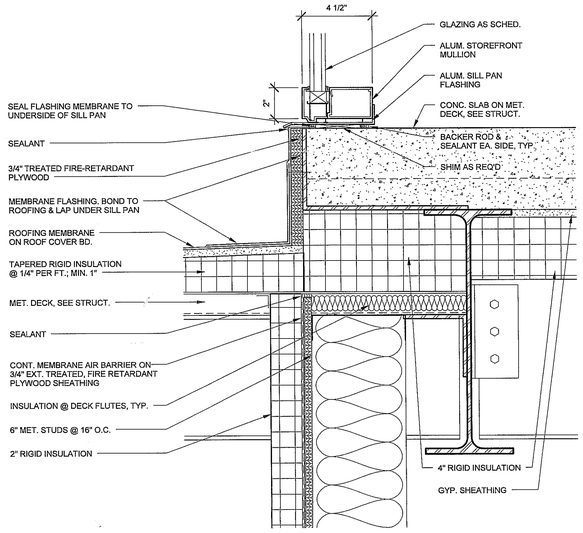
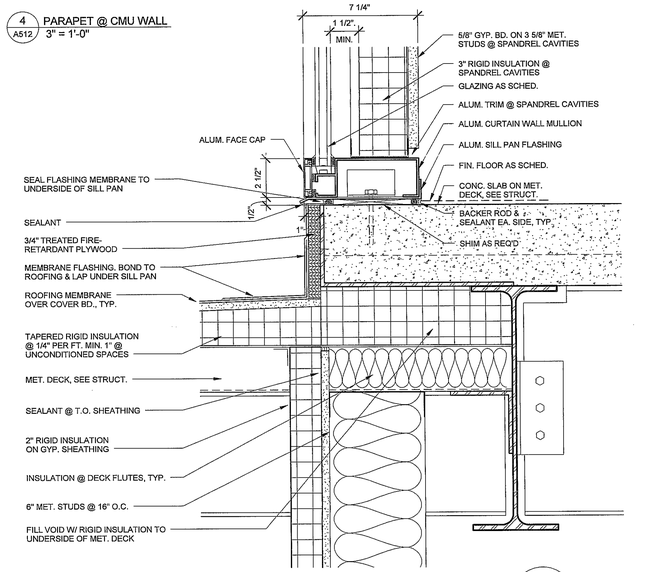



5 A512 ROOF DETAIL - PARAPET AT STOREFRONT
3" = 1'-0"




6 A512 ROOF DETAIL - CANOPY @ STOREFRONT
3" = 1'-0"




7 A512 ROOF DETAIL - CANOPY @ CURTAIN WALL - TYPICAL
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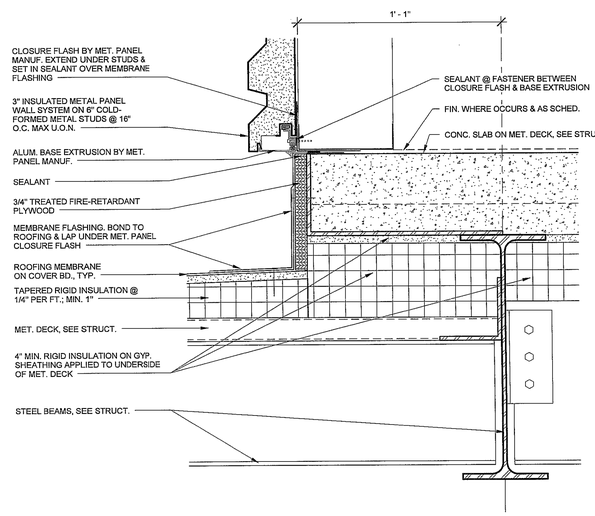


8 A512 ROOF DETAIL - CANOPY @ INSULATED METAL PANELS
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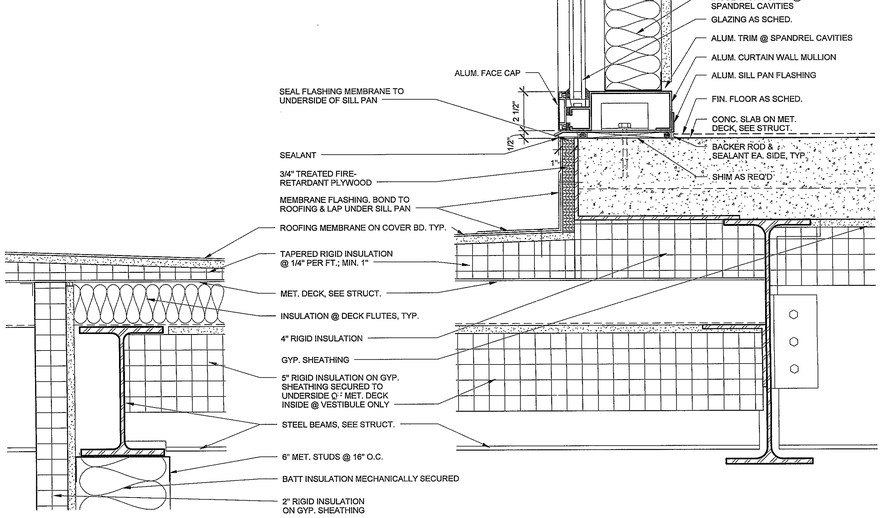
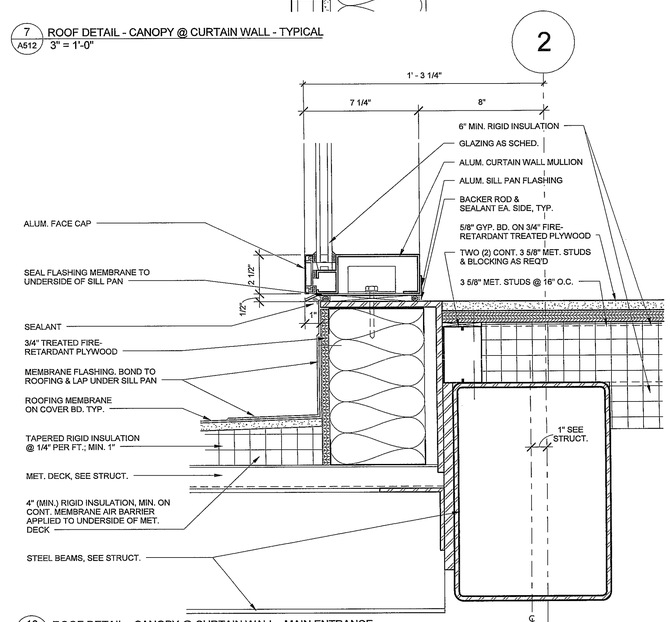



9 A512 ROOF DETAIL - CANOPY @ CURTAIN WALL - VESTIBULE
3" = 1'-0"




10 A512 ROOF DETAIL - CANOPY @ CURTAIN WALL - MAIN ENTRANCE
3" = 1'-0"

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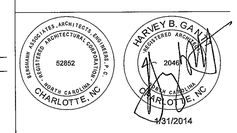


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**FAST Multi-Modal Center**
City of Fayetteville
Fayetteville, NC

Project Number 621A

Title
**Roof Details**

Sheet
**A512**

Plate of

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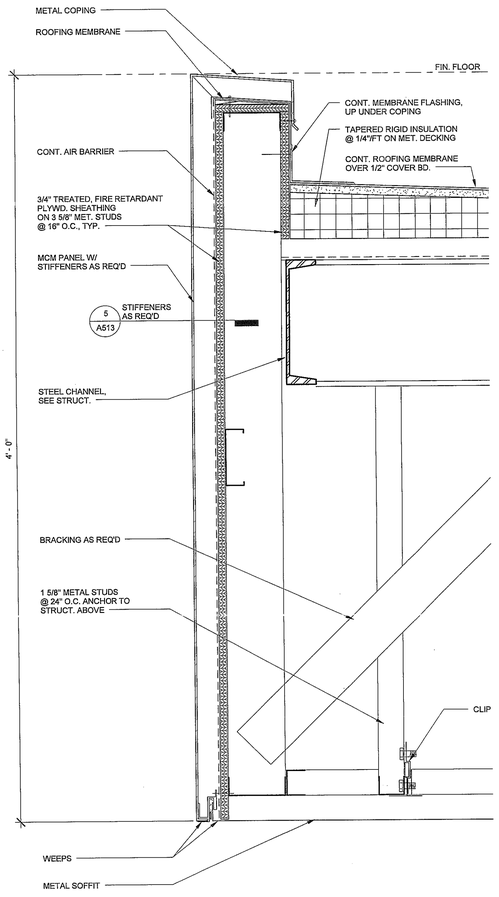
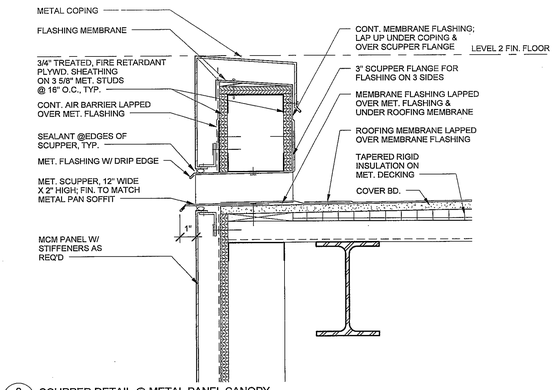



1 A513 ROOF DETAIL - METAL PANEL @ CANOPY & SOFFIT
3" = 1'-0"




2 A513 SCUPPER DETAIL @ METAL PANEL CANOPY
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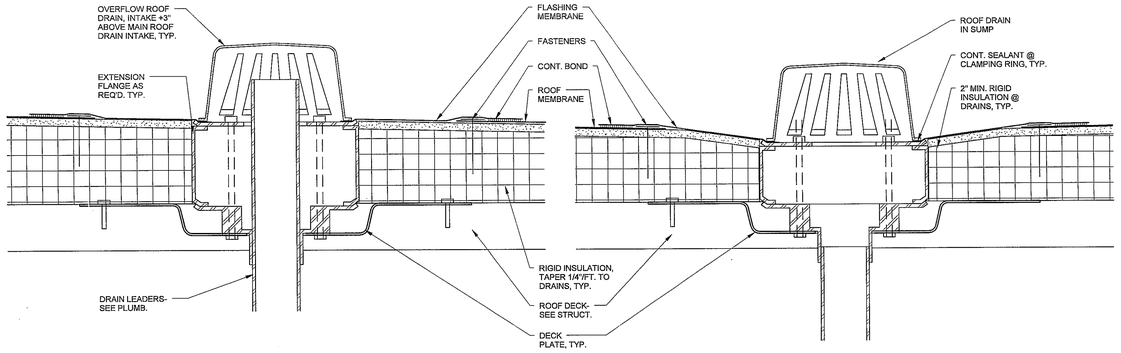


3 A513 TYPICAL ROOF DRAIN AND OVERFLOW ROOF DRAIN DETAIL
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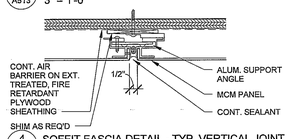


4 A513 SOFFIT FASCIA DETAIL - TYP. VERTICAL JOINT
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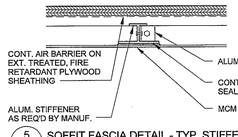
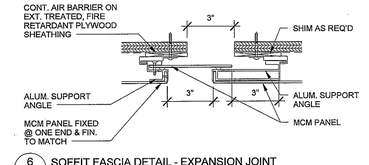



5 A513 SOFFIT FASCIA DETAIL - TYP. STIFFENER
3" = 1'-0"




6 A513 SOFFIT FASCIA DETAIL - EXPANSION JOINT
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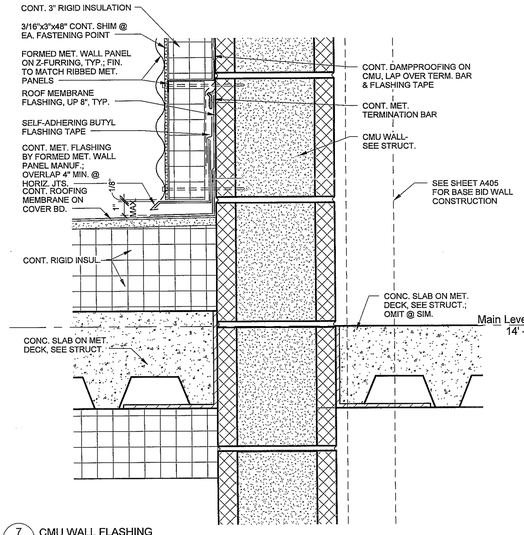
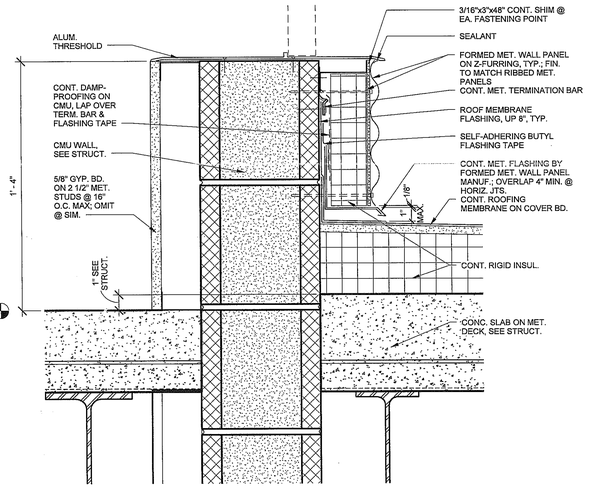
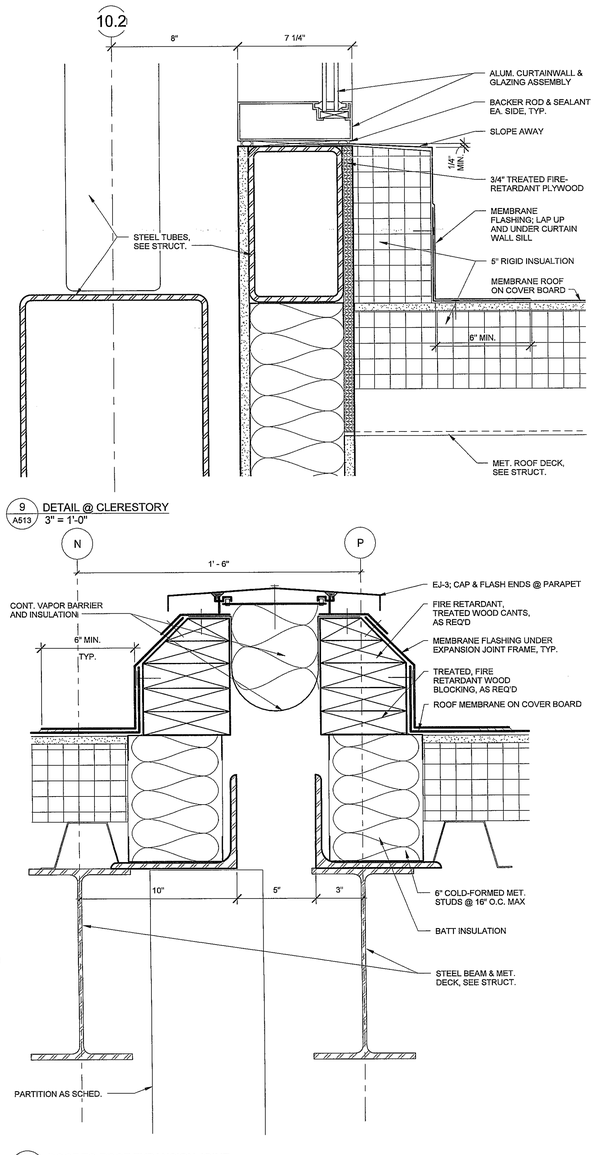


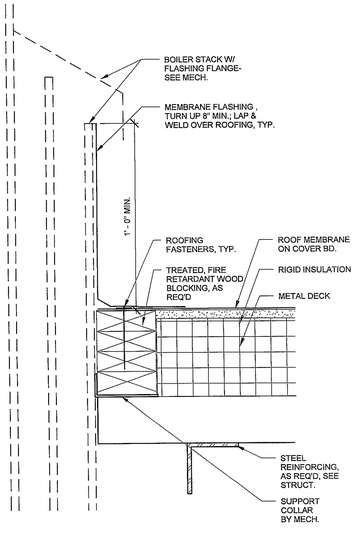

7 A513 CMU WALL FLASHING
3" = 1'-0"



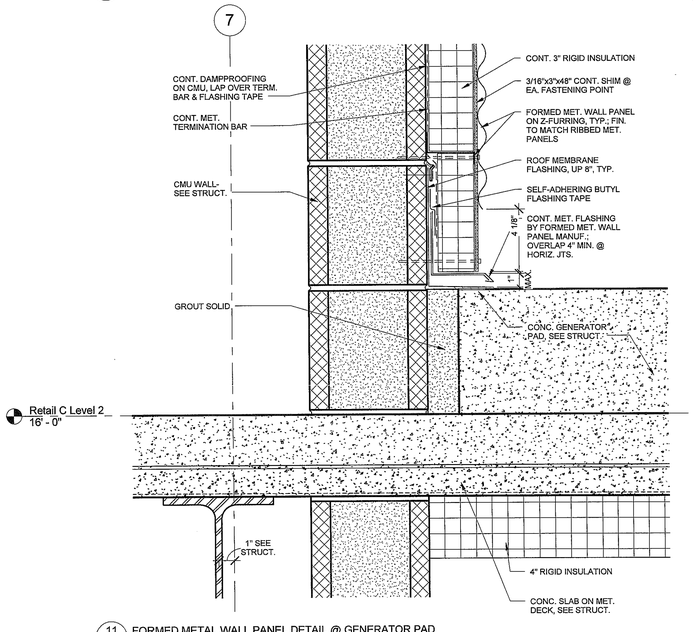

8 A513 CMU WALL FLASHING @ DOOR
3" = 1'-0"



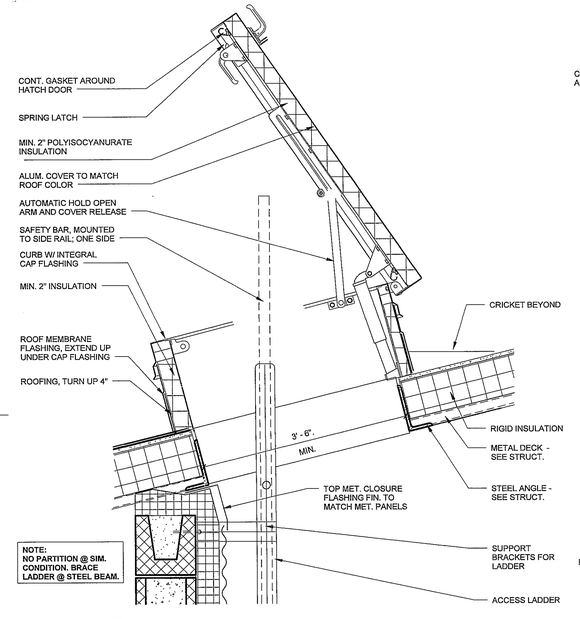

9 A513 DETAIL @ CLERESTORY
3" = 1'-0"




10 A513 BOILER STACK ROOF PENETRATION
3" = 1'-0"




11 A513 FORMED METAL WALL PANEL DETAIL @ GENERATOR PAD
3" = 1'-0"




13 A513 ROOF HATCH AT ACCESS LADDER
1 1/2" = 1'-0"




14 A513 ROOF TO ROOF EXPANSION JOINT
3" = 1'-0"

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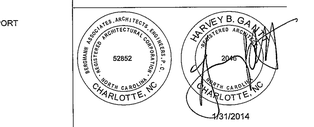


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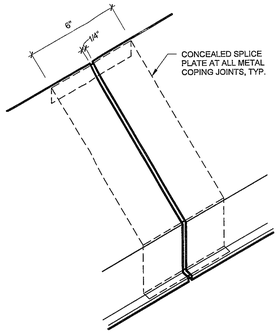
City of Fayetteville
Fayetteville, NC

Project Number 621A

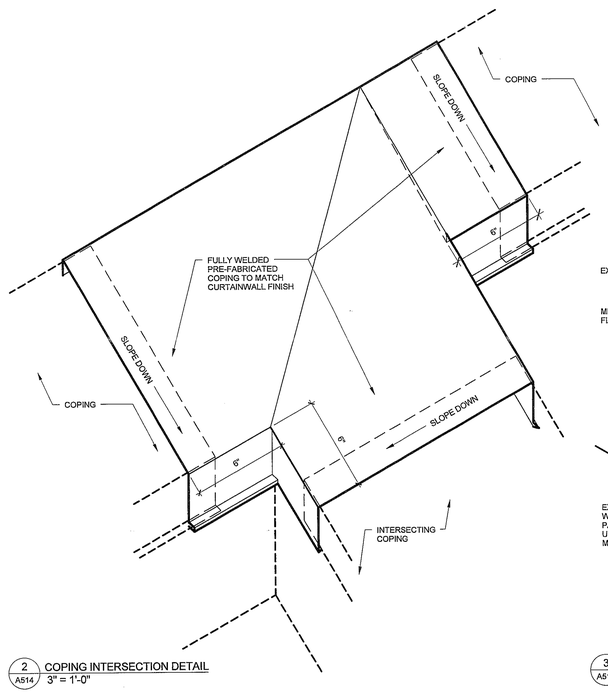
Title
**Roof Details**

Sheet
# A513

Plate of




1 A514 TYPICAL COPING SPLICE PLATE DETAIL
3" = 1'-0"




2 A514 COPING INTERSECTION DETAIL
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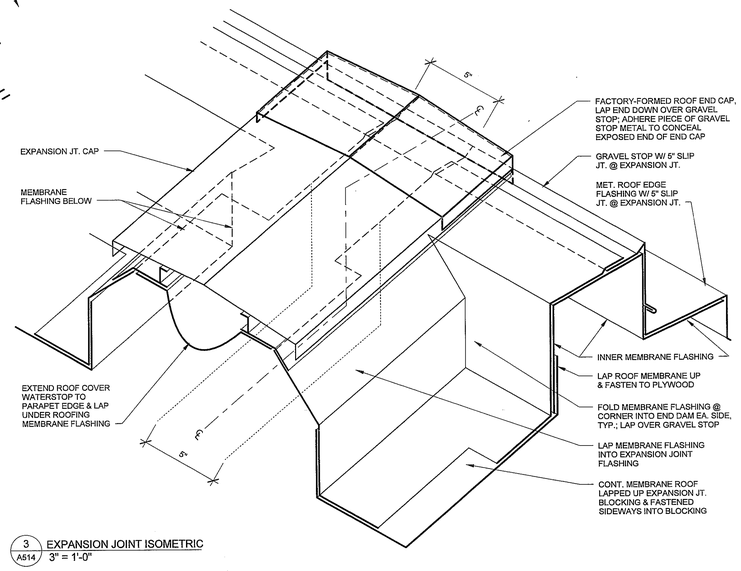
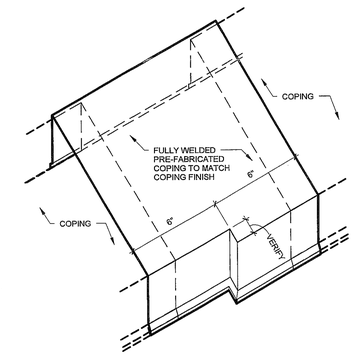



3 A514 EXPANSION JOINT ISOMETRIC
3" = 1'-0"




4 A514 TYPICAL COPING TRANSITION DETAIL
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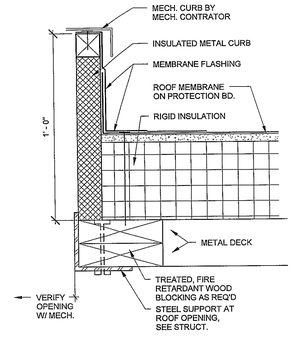
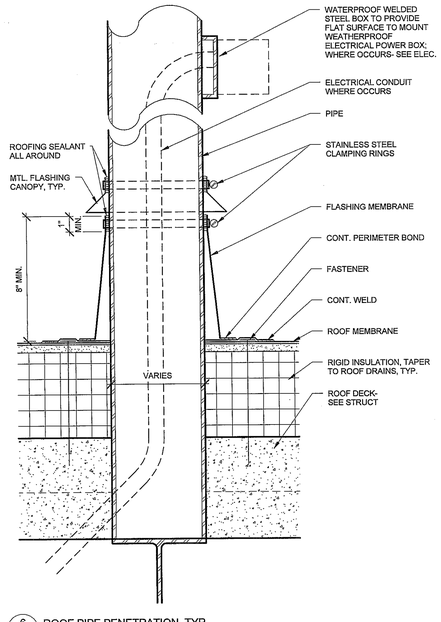
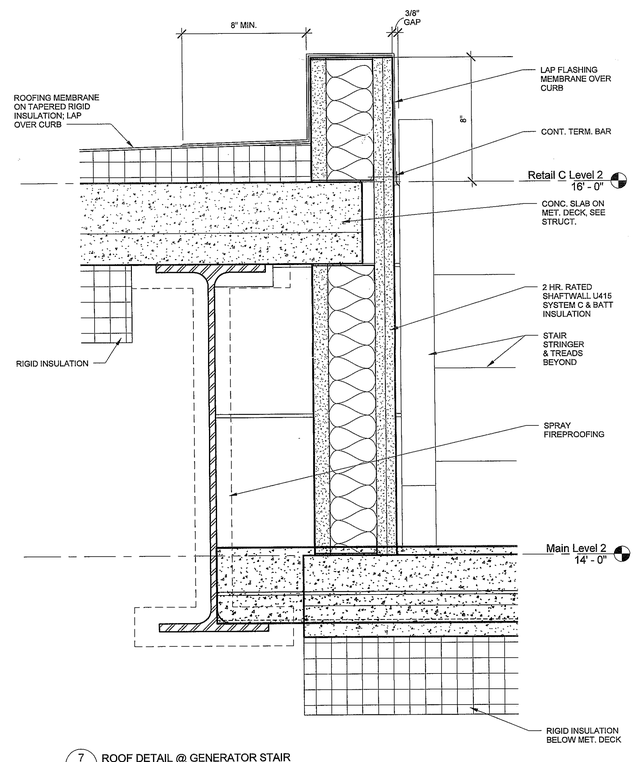



5 ROOF EQUIPMENT CURB
3" = 1'-0"




6 ROOF PIPE PENETRATION, TYP.
3" = 1'-0"




7 A514 ROOF DETAIL @ GENERATOR STAIR
3" = 1'-0"

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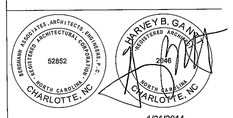


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**FAST Multi-Modal Center**
City of Fayetteville
Fayetteville, NC

Project Number 621A

Title
**Roof Details**

Sheet
A514

Plate of

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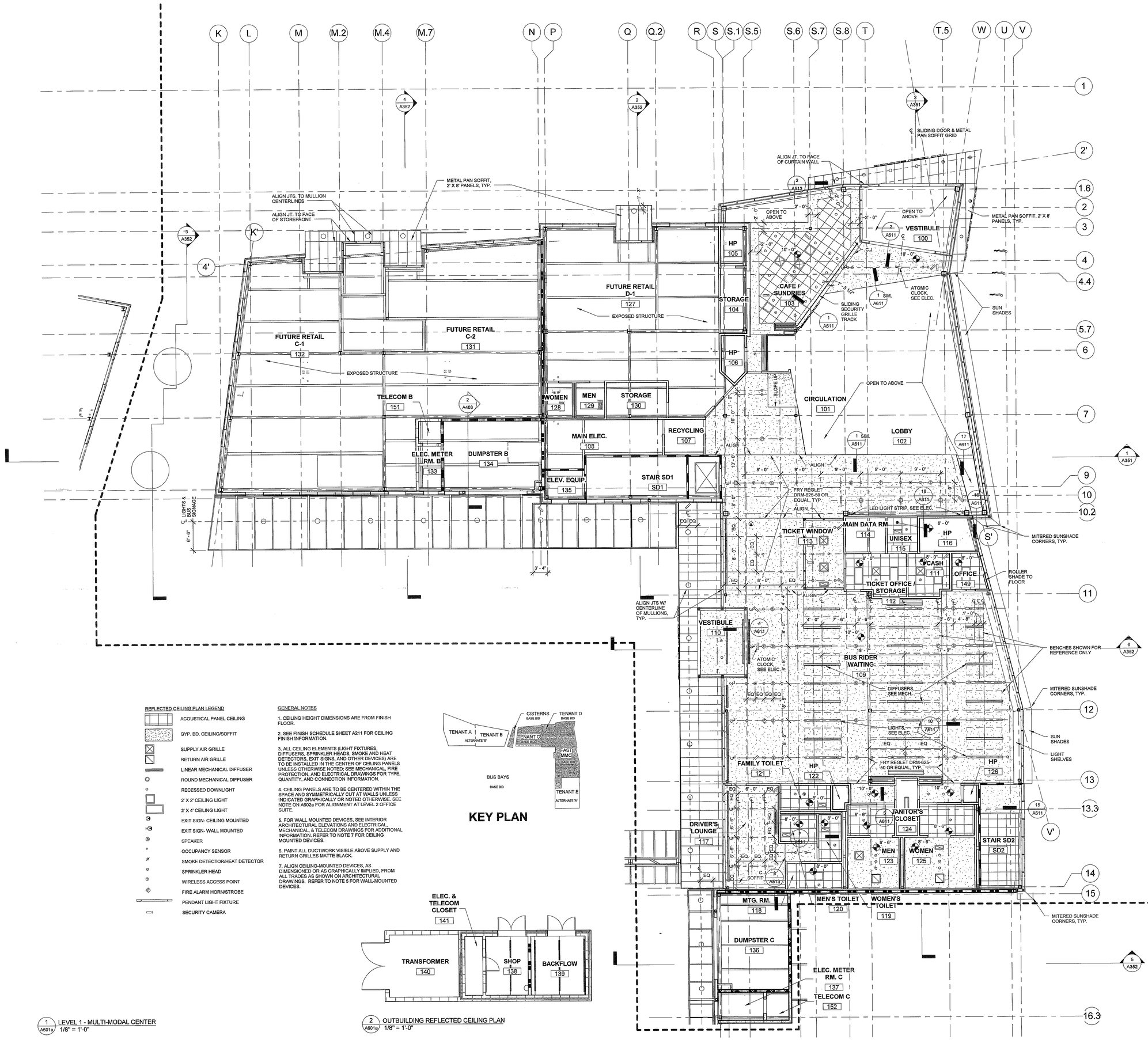


REFLECTED CEILING PLAN LEGEND

- ACOUSTICAL PANEL CEILING
- GYP. BD. CEILING/SOFFIT
- SUPPLY AIR GRILLE
- RETURN AIR GRILLE
- LINEAR MECHANICAL DIFFUSER
- ROUND MECHANICAL DIFFUSER
- RECESSED DOWNLIGHT
- 2' X 2' CEILING LIGHT
- 2' X 4' CEILING LIGHT
- EXIT SIGN- CEILING MOUNTED
- EXIT SIGN- WALL MOUNTED
- SPEAKER
- OCCUPANCY SENSOR
- SMOKE DETECTOR/HEAT DETECTOR
- SPRINKLER HEAD
- WIRELESS ACCESS POINT
- FIRE ALARM HORN/STROBE
- PENDANT LIGHT FIXTURE
- SECURITY CAMERA

GENERAL NOTES

1. CEILING HEIGHT DIMENSIONS ARE FROM FINISH FLOOR.
2. SEE FINISH SCHEDULE SHEET A211 FOR CEILING FINISH INFORMATION.
3. ALL CEILING ELEMENTS (LIGHT FIXTURES, DIFFUSERS, SPRINKLER HEADS, SMOKE AND HEAT DETECTORS, EXIT SIGNS, AND OTHER DEVICES) ARE TO BE INSTALLED IN THE CENTER OF CEILING PANELS UNLESS OTHERWISE NOTED; SEE MECHANICAL, FIRE PROTECTION, AND ELECTRICAL DRAWINGS FOR TYPE, QUANTITY, AND CONNECTION INFORMATION.
4. CEILING PANELS ARE TO BE CENTERED WITHIN THE SPACE AND SYMMETRICALLY CUT AT WALLS UNLESS INDICATED GRAPHICALLY OR NOTED OTHERWISE. SEE NOTE ON A602a FOR ALIGNMENT AT LEVEL 2 OFFICE SUITE.
5. FOR WALL MOUNTED DEVICES, SEE INTERIOR ARCHITECTURAL ELEVATIONS AND ELECTRICAL, MECHANICAL, & TELECOM DRAWINGS FOR ADDITIONAL INFORMATION. REFER TO NOTE 7 FOR CEILING MOUNTED DEVICES.
6. PAINT ALL DUCTWORK VISIBLE ABOVE SUPPLY AND RETURN GRILLES MATTE BLACK.
7. ALIGN CEILING-MOUNTED DEVICES, AS DIMENSIONED OR AS GRAPHICALLY IMPLIED, FROM ALL TRADES AS SHOWN ON ARCHITECTURAL DRAWINGS. REFER TO NOTE 5 FOR WALL-MOUNTED DEVICES.




KEY PLAN

1 A601a LEVEL 1 - MULTI-MODAL CENTER
1/8" = 1'-0"

2 A601a OUTBUILDING REFLECTED CEILING PLAN
1/8" = 1'-0"


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HARVEY B. GANTT 3046 REGISTERED ARCHITECT NORTH CAROLINA CHARLOTTE, NC

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**FAST Multi-Modal Center**
City of Fayetteville
Fayetteville, NC

Project Number 621A

Title
**Level 1 Reflected Ceiling Plan - Multi-Modal Center**

Sheet
**A601a**

Plate of


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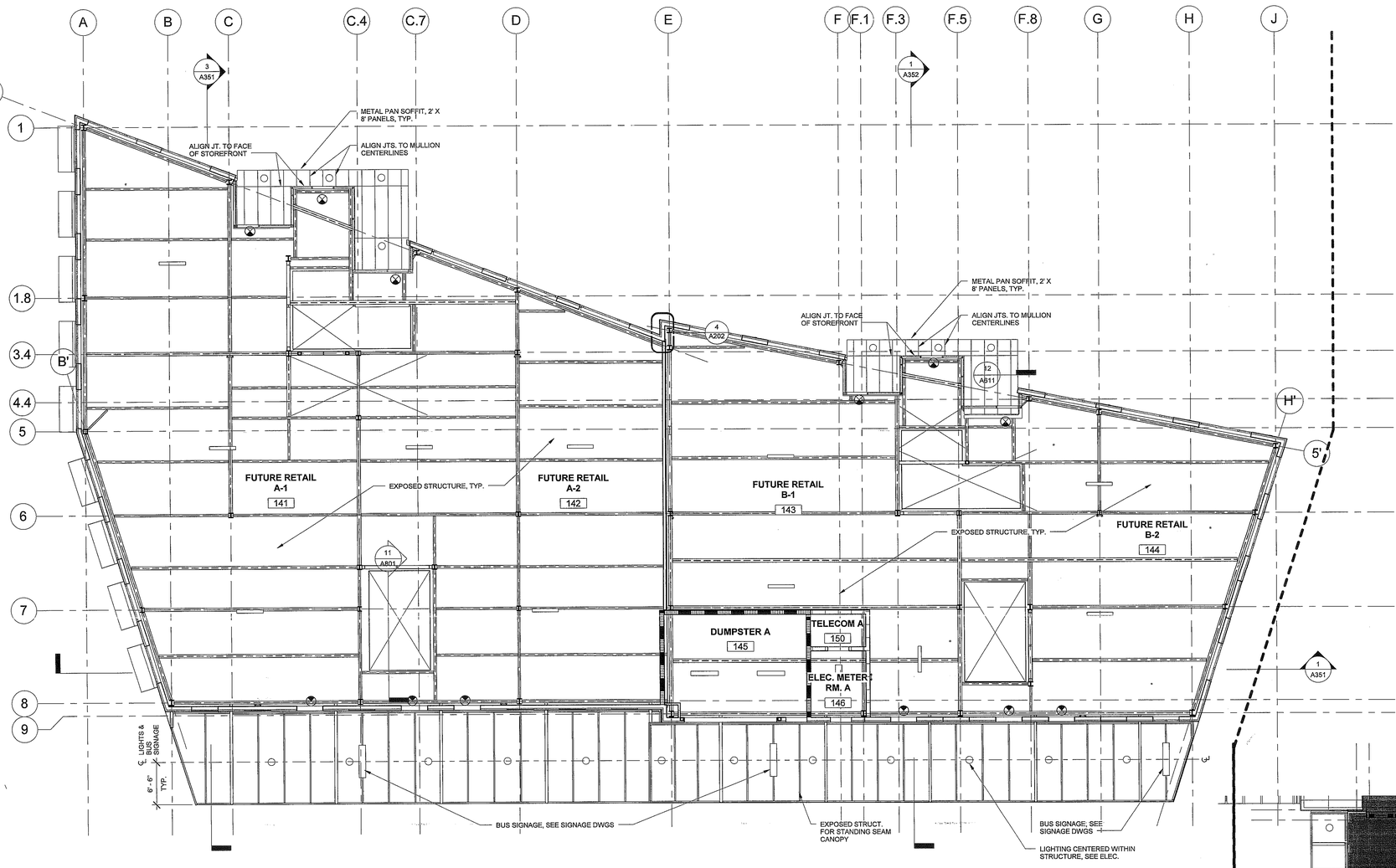



1 A601b LEVEL 1 - TENANT SPACES A & B
1/8" = 1'-0"

REFLECTED CEILING PLAN LEGEND

- ACOUSTICAL PANEL CEILING
- GYP. BD. CEILING/SOFFIT
- SUPPLY AIR GRILLE
- RETURN AIR GRILLE
- LINEAR MECHANICAL DIFFUSER
- ROUND MECHANICAL DIFFUSER
- RECESSED DOWNLIGHT
- 2' X 2' CEILING LIGHT
- 2' X 4' CEILING LIGHT
- EXIT SIGN- CEILING MOUNTED
- EXIT SIGN- WALL MOUNTED
- SPEAKER
- OCCUPANCY SENSOR
- SMOKE DETECTOR/HEAT DETECTOR
- SPRINKLER HEAD
- WIRELESS ACCESS POINT
- FIRE ALARM HORN/STROBE
- PENDANT LIGHT FIXTURE
- SECURITY CAMERA

GENERAL NOTES

1. CEILING HEIGHT DIMENSIONS ARE FROM FINISH FLOOR.

2. SEE FINISH SCHEDULE SHEET A211 FOR CEILING FINISH INFORMATION.

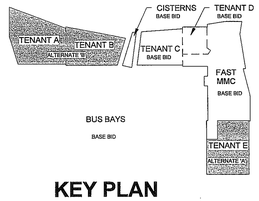
3. ALL CEILING ELEMENTS (LIGHT FIXTURES, DIFFUSERS, SPRINKLER HEADS, SMOKE AND HEAT DETECTORS, EXIT SIGNS, AND OTHER DEVICES) ARE TO BE INSTALLED IN THE CENTER OF CEILING PANELS UNLESS OTHERWISE NOTED; SEE MECHANICAL, FIRE PROTECTION, AND ELECTRICAL DRAWINGS FOR TYPE, QUANTITY, AND CONNECTION INFORMATION.

4. CEILING PANELS ARE TO BE CENTERED WITHIN THE SPACE AND SYMMETRICALLY CUT AT WALLS UNLESS INDICATED GRAPHICALLY OR NOTED OTHERWISE. SEE NOTE ON A602a FOR ALIGNMENT AT LEVEL 2 OFFICE SUITE.

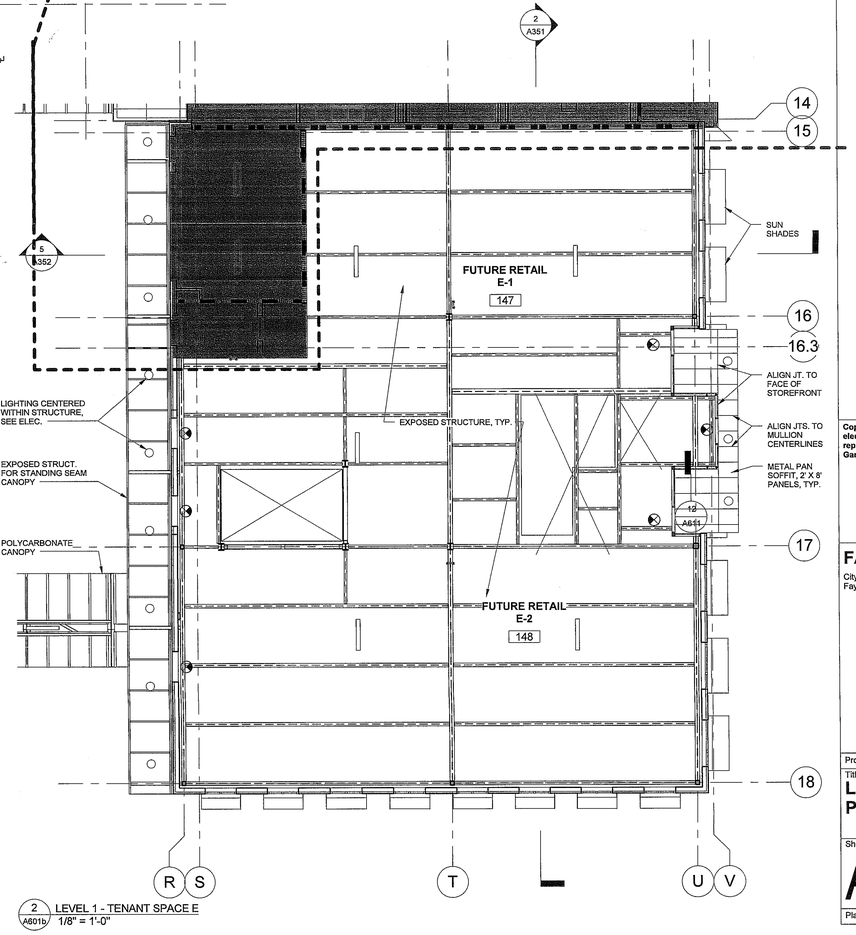
5. FOR WALL MOUNTED DEVICES, SEE INTERIOR ARCHITECTURAL ELEVATIONS AND ELECTRICAL, MECHANICAL, & TELECOM DRAWINGS FOR ADDITIONAL INFORMATION. REFER TO NOTE 7 FOR CEILING MOUNTED DEVICES.

6. PAINT ALL DUCTWORK VISIBLE ABOVE SUPPLY AND RETURN GRILLES MATTE BLACK.

7. ALIGN CEILING-MOUNTED DEVICES, AS DIMENSIONED OR AS GRAPHICALLY IMPLIED, FROM ALL TRADES AS SHOWN ON ARCHITECTURAL DRAWINGS. REFER TO NOTE 5 FOR WALL-MOUNTED DEVICES.




KEY PLAN




2 A601b LEVEL 1 - TENANT SPACE E
1/8" = 1'-0"

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City of Fayetteville
Fayetteville, NC

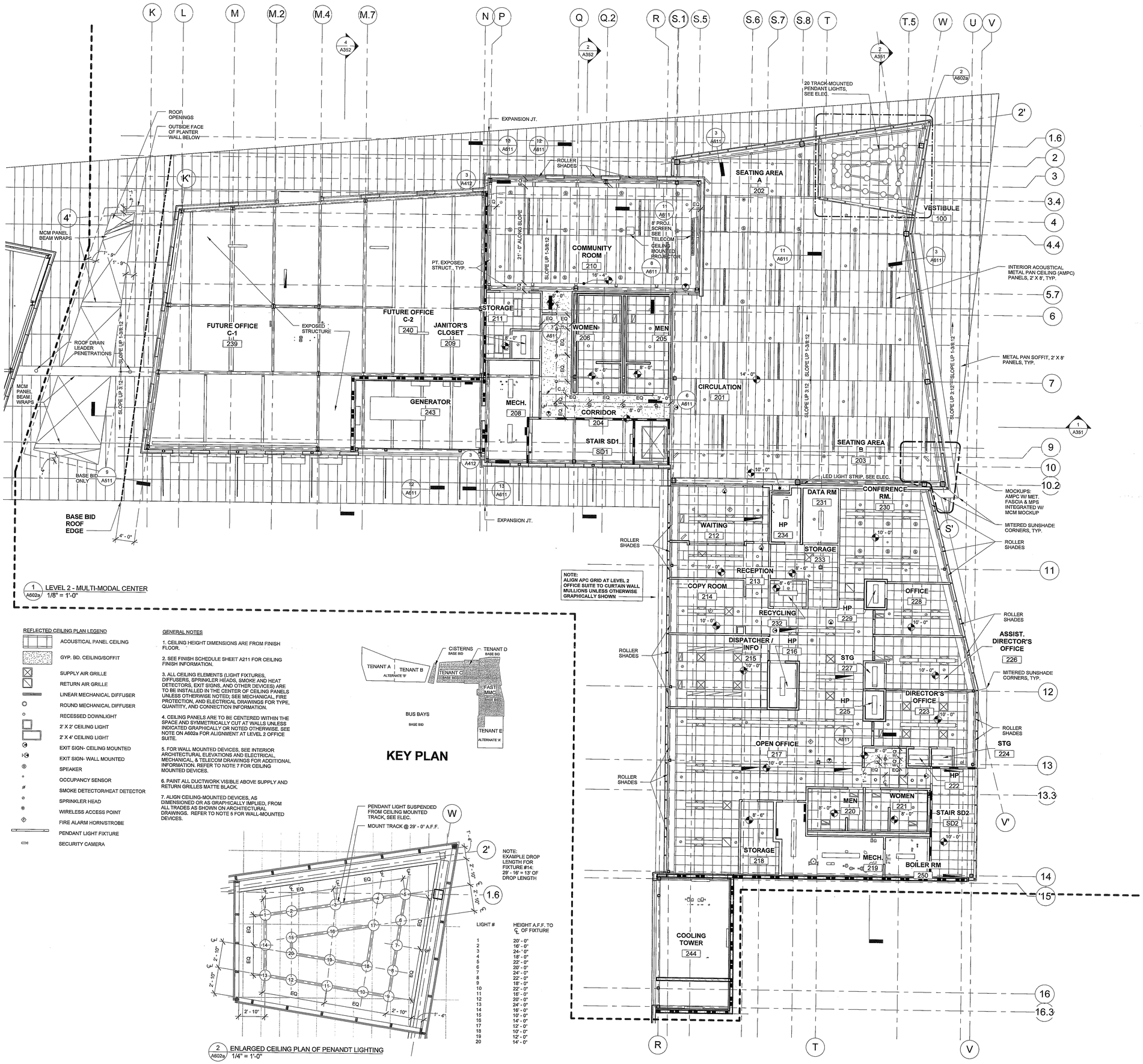
Project Number 621A

Title
**Level 1 Reflected Ceiling Plan - Tenant Spaces**

Sheet
# A601b

Plate of

E:\Revit Projects\FAST CENTRAL 041913_wlocal.rvt




1 A602a LEVEL 2 - MULTI-MODAL CENTER
1/8" = 1'-0"

REFLECTED CEILING PLAN LEGEND

- ACOUSTICAL PANEL CEILING
- GYP. BD. CEILING/SOFFIT
- SUPPLY AIR GRILLE
- RETURN AIR GRILLE
- LINEAR MECHANICAL DIFFUSER
- ROUND MECHANICAL DIFFUSER
- RECESSED DOWNLIGHT
- 2' X 2' CEILING LIGHT
- 2' X 4' CEILING LIGHT
- EXIT SIGN- CEILING MOUNTED
- EXIT SIGN- WALL MOUNTED
- SPEAKER
- OCCUPANCY SENSOR
- SMOKE DETECTOR/HEAT DETECTOR
- SPRINKLER HEAD
- WIRELESS ACCESS POINT
- FIRE ALARM HORN/STROBE
- PENDANT LIGHT FIXTURE
- SECURITY CAMERA

GENERAL NOTES

1. CEILING HEIGHT DIMENSIONS ARE FROM FINISH FLOOR.
2. SEE FINISH SCHEDULE SHEET A211 FOR CEILING FINISH INFORMATION.
3. ALL CEILING ELEMENTS (LIGHT FIXTURES, DIFFUSERS, SPRINKLER HEADS, SMOKE AND HEAT DETECTORS, EXIT SIGNS, AND OTHER DEVICES) ARE TO BE INSTALLED IN THE CENTER OF CEILING PANELS UNLESS OTHERWISE NOTED; SEE MECHANICAL, FIRE PROTECTION, AND ELECTRICAL DRAWINGS FOR TYPE, QUANTITY, AND CONNECTION INFORMATION.
4. CEILING PANELS ARE TO BE CENTERED WITHIN THE SPACE AND SYMMETRICALLY CUT AT WALLS UNLESS INDICATED GRAPHICALLY OR NOTED OTHERWISE. SEE NOTE ON A602a FOR ALIGNMENT AT LEVEL 2 OFFICE SUITE.
5. FOR WALL MOUNTED DEVICES, SEE INTERIOR ARCHITECTURAL ELEVATIONS AND ELECTRICAL, MECHANICAL, & TELECOM DRAWINGS FOR ADDITIONAL INFORMATION. REFER TO NOTE 7 FOR CEILING MOUNTED DEVICES.
6. PAINT ALL DUCTWORK VISIBLE ABOVE SUPPLY AND RETURN GRILLES MATTE BLACK.
7. ALIGN CEILING-MOUNTED DEVICES, AS DIMENSIONED OR AS GRAPHICALLY IMPLIED, FROM ALL TRADES AS SHOWN ON ARCHITECTURAL DRAWINGS. REFER TO NOTE 5 FOR WALL-MOUNTED DEVICES.




KEY PLAN




2 A602a ENLARGED CEILING PLAN OF PENANDT LIGHTING
1/4" = 1'-0"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HARVEY B. GANTT REGISTERED ARCHITECT 2046 NORTH CAROLINA CHARLOTTE, NC

1/31/2014

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| Drawn | MGB/HGD |
| Checked | LW |
| Date | January 31, 2014 |
| Revisions | |


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**FAST Multi-Modal Center**
City of Fayetteville
Fayetteville, NC

Project Number 621A

Title
**Level 2 Reflected Ceiling Plan - Multi-Modal Center**

Sheet
# A602a

Plate of


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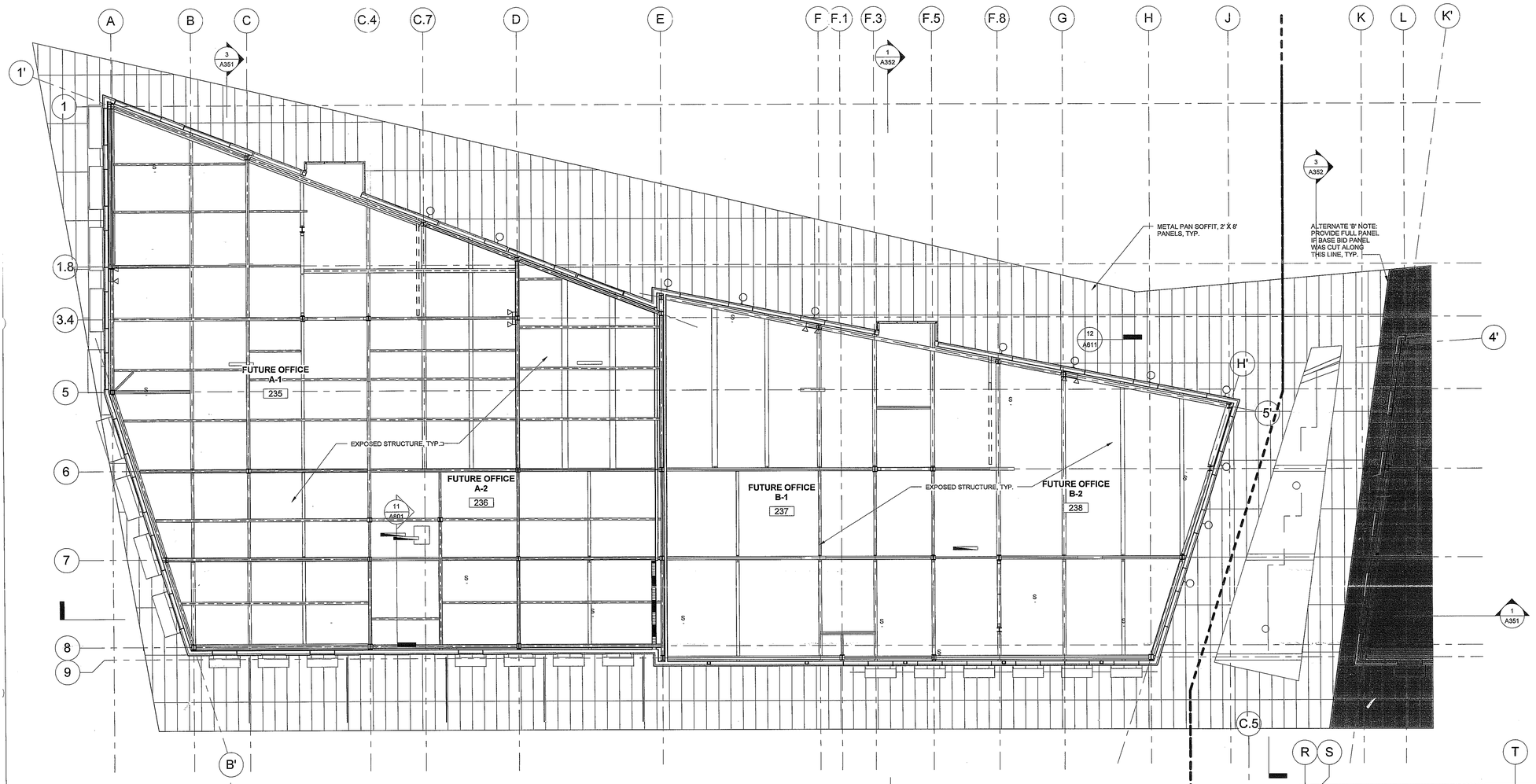


1 A602b LEVEL 2 - TENANT SPACES A & B
1/8" = 1'-0"

REFLECTED CEILING PLAN LEGEND

- ACOUSTICAL PANEL CEILING
- GYP. BD. CEILING/SOFFIT
- SUPPLY AIR GRILLE
- RETURN AIR GRILLE
- LINEAR MECHANICAL DIFFUSER
- ROUND MECHANICAL DIFFUSER
- RECESSED DOWNLIGHT
- 2' X 2' CEILING LIGHT
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- EXIT SIGN- CEILING MOUNTED
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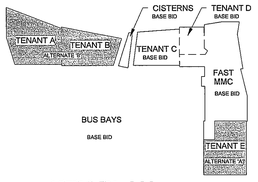
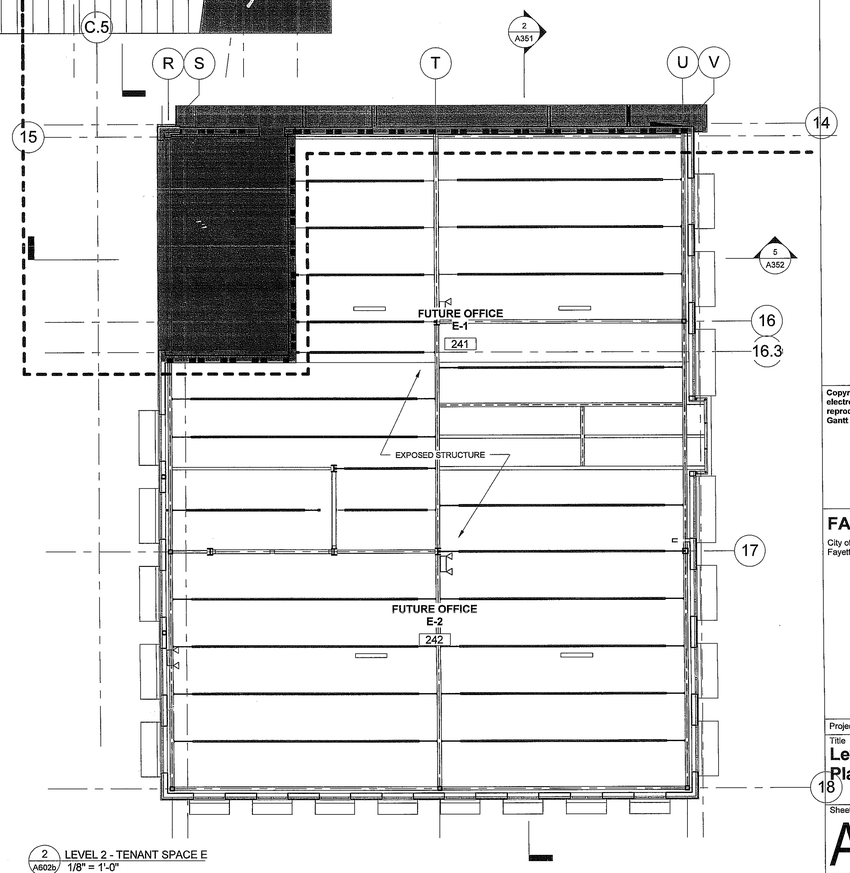



KEY PLAN




2 A602b LEVEL 2 - TENANT SPACE E
1/8" = 1'-0"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HARVEY B. GANTT REGISTERED ARCHITECT NORTH CAROLINA CHARLOTTE, NC

1/31/2014

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| Drawn | MGB |
| Checked | LW |
| Date | January 31, 2014 |
| Revisions | |


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**FAST Multi-Modal Center**
City of Fayetteville
Fayetteville, NC

Project Number 621A

Title
**Level 2 Reflected Ceiling Plan - Tenant Spaces**

Sheet
# A602b

Plate of

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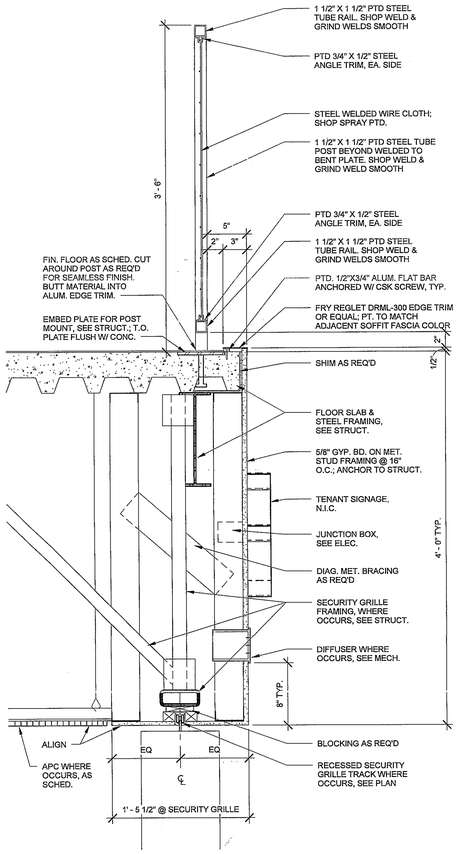
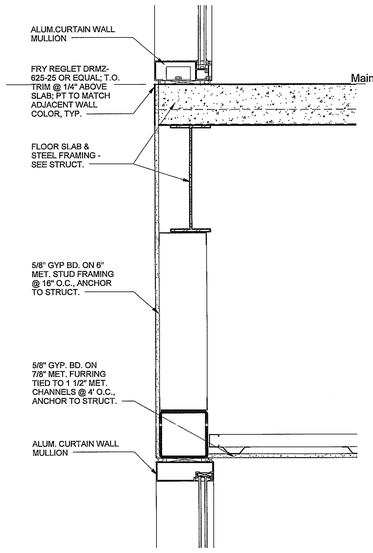
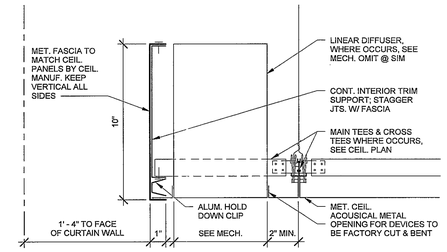


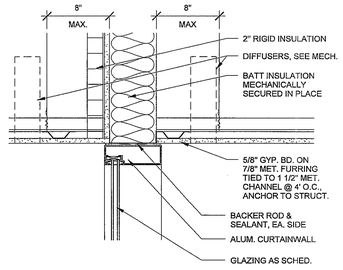

1 A611 SOFFIT SECTION
1 1/2" = 1'-0"



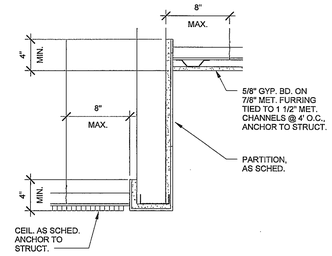

2 A611 SOFFIT AT VESTIBULE INTERIOR
1 1/2" = 1'-0"



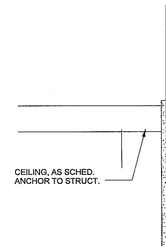

3 A611 INTERIOR CEILING PANEL - END DETAIL
3" = 1'-0"

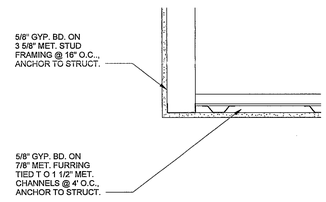



4 A611 CEILING DETAIL
1 1/2" = 1'-0"

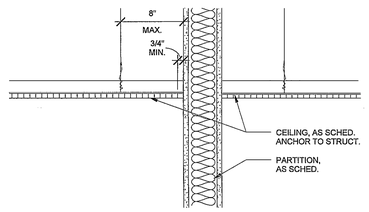



5 A611 CEILING DETAIL
1 1/2" = 1'-0"

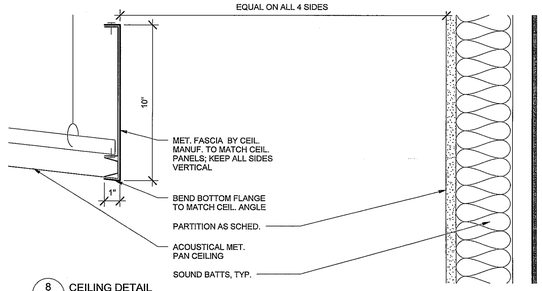


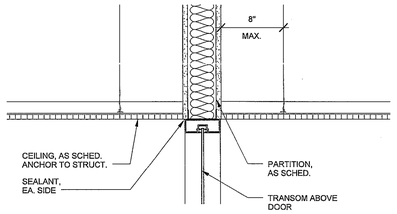

6 A611 CEILING DETAIL @ SEATING AREA
1 1/2" = 1'-0"



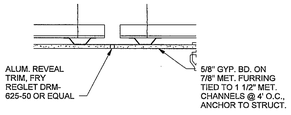

7 A611 CEILING DETAIL TYP.
1 1/2" = 1'-0"



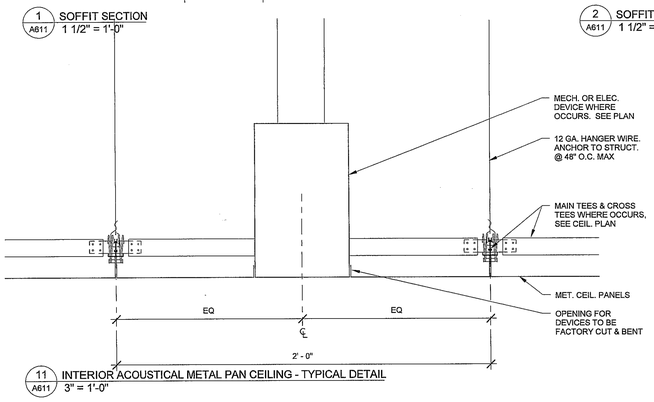

8 A611 CEILING DETAIL
3" = 1'-0"



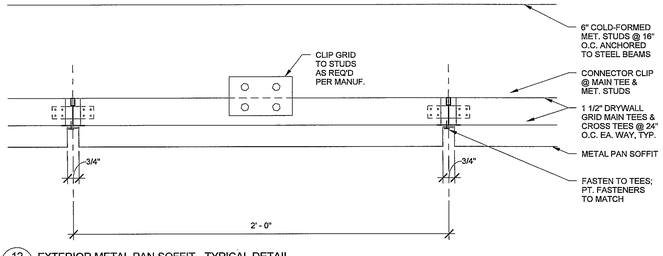

9 A611 CEILING DETAIL @ TRANSOM
1 1/2" = 1'-0"



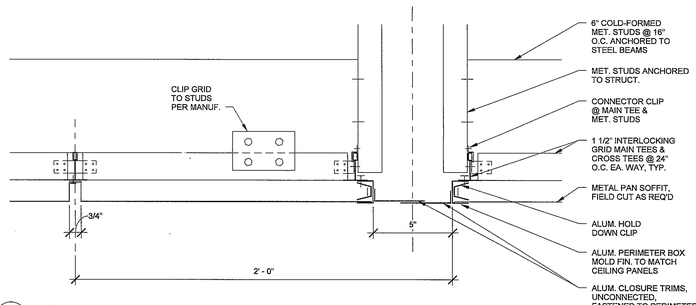

10 A611 CEILING DETAIL
1 1/2" = 1'-0"



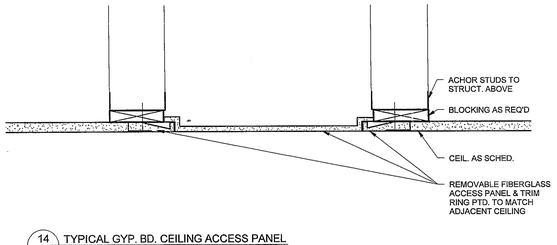

11 A611 INTERIOR ACOUSTICAL METAL PAN CEILING - TYPICAL DETAIL
3" = 1'-0"



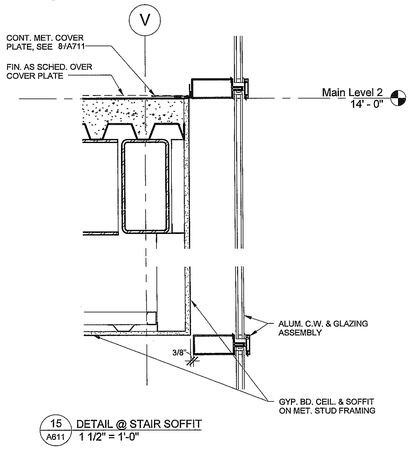

12 A611 EXTERIOR METAL PAN SOFFIT - TYPICAL DETAIL
3" = 1'-0"



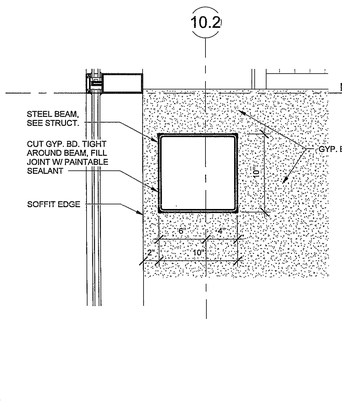

13 A611 EXTERIOR METAL PAN SOFFIT - EXPANSION JOINT
3" = 1'-0"



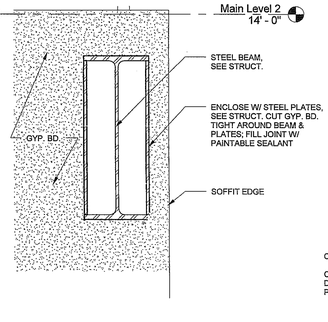

14 A611 TYPICAL GYP. BD. CEILING ACCESS PANEL
3" = 1'-0"



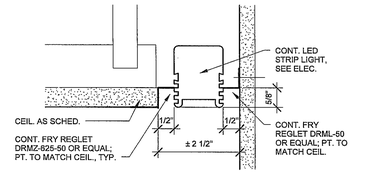

15 A611 DETAIL @ STAIR SOFFIT
1 1/2" = 1'-0"




16 A611 DETAIL @ SOFFIT PENETRATION
1 1/2" = 1'-0"




17 A611 DETAIL @ SOFFIT PENETRATION
1 1/2" = 1'-0"




18 A611 LED LIGHT DETAIL
6" = 1'-0"

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NORTH CAROLINA REGISTERED ARCHITECTURAL CORPORATION C-2852 CHARLOTTE, NC

HARVEY B. GANTT REGISTERED ARCHITECT 6396 NORTH CAROLINA CHARLOTTE, NC

1/31/2014

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| Date | January 31, 2014 |
| Revisions | |

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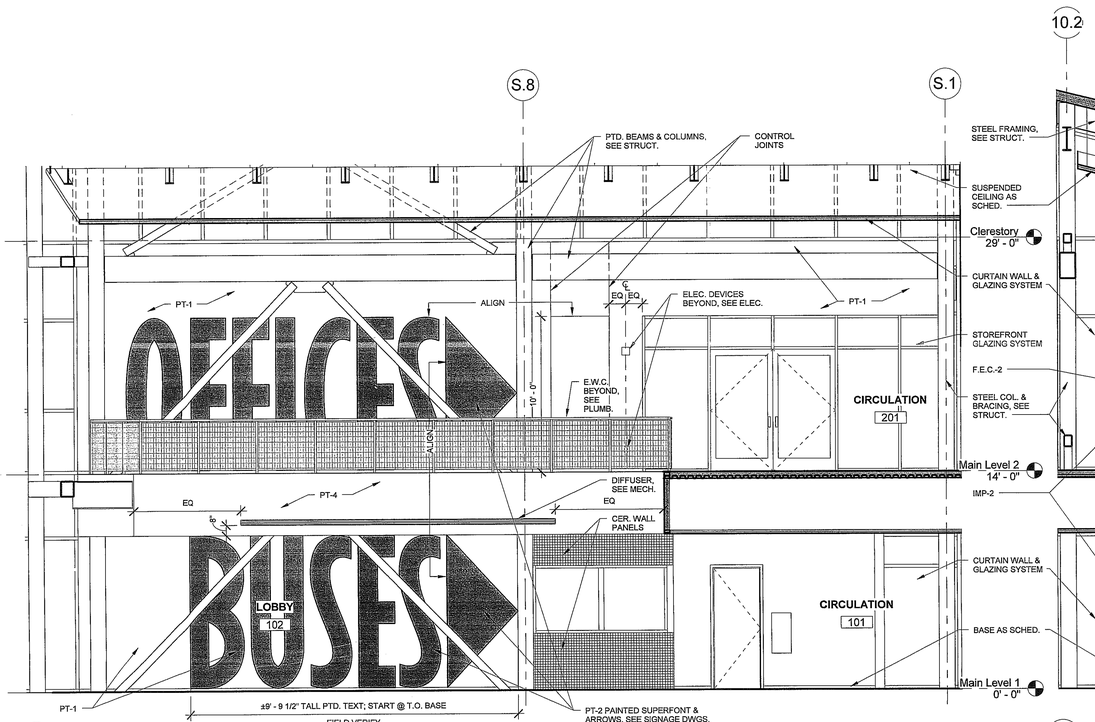
**FAST Multi-Modal Center**
City of Fayetteville
Fayetteville, NC

Project Number 621A

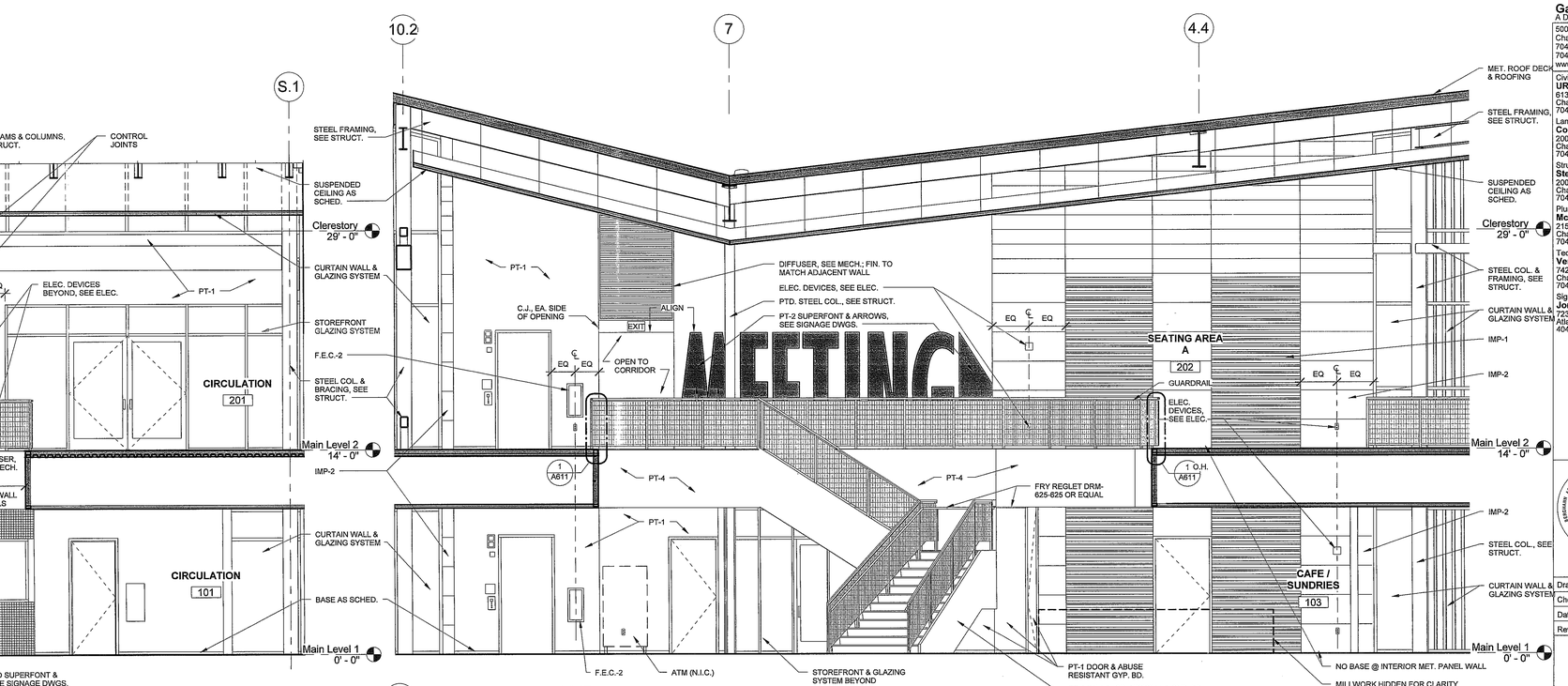
Title
**Ceiling Details**

Sheet
A611

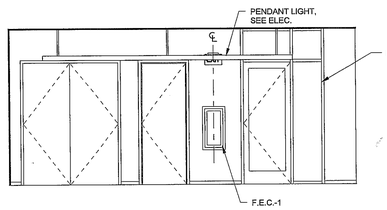
Plate of



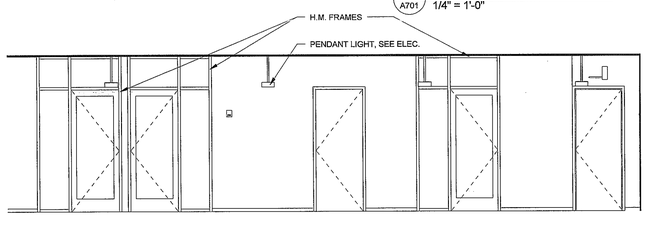

1 A701 LOBBY ELEVATION LOOKING SOUTH
1/4" = 1'-0"



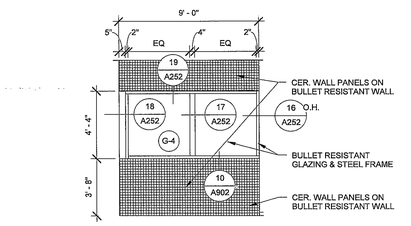

2 A701 LOBBY ELEVATION LOOKING WEST
1/4" = 1'-0"



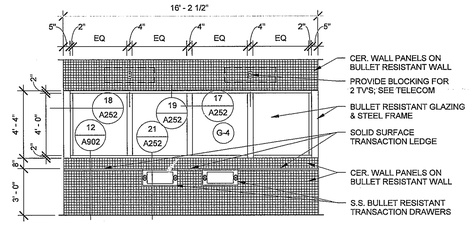

3 A701 INTERIOR ELEVATION - OPEN OFFICE LOOKING NORTH
1/4" = 1'-0"



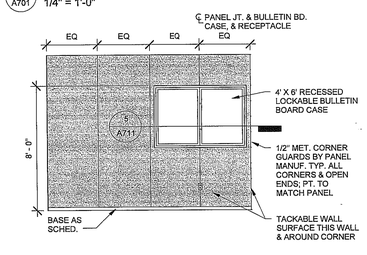

4 A701 INTERIOR ELEVATION - OPEN OFFICE LOOKING EAST
1/4" = 1'-0"



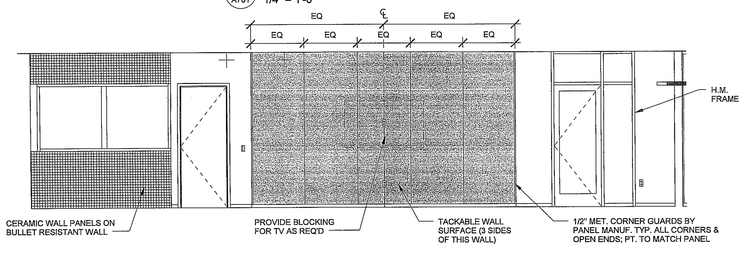

5 A701 INTERIOR ELEVATION - TICKET WINDOW
1/4" = 1'-0"



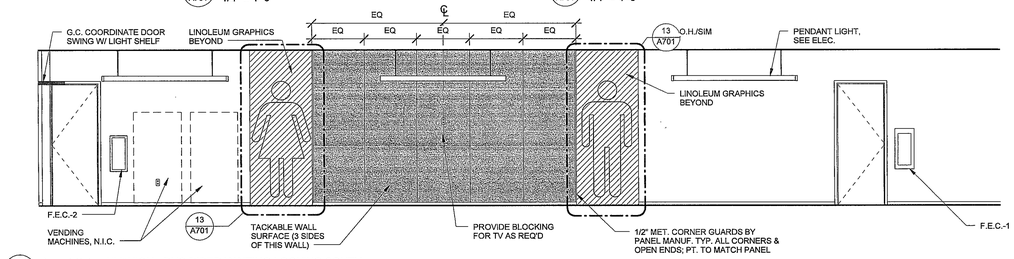

6 A701 INTERIOR ELEVATION - TICKET WINDOW - LOOKING EAST
1/4" = 1'-0"



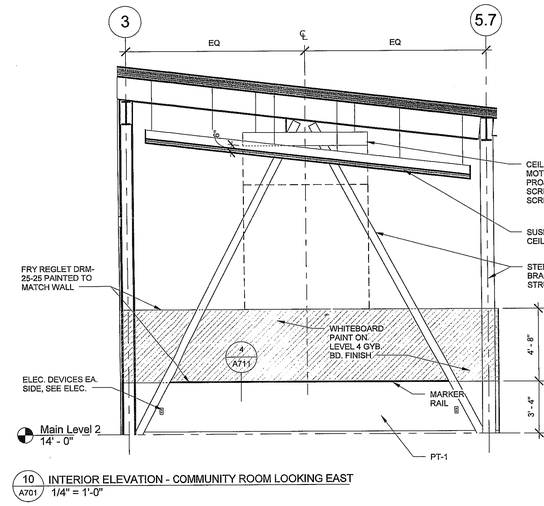

7 A701 INTERIOR ELEVATION - DRIVER'S LOUNGE
1/4" = 1'-0"



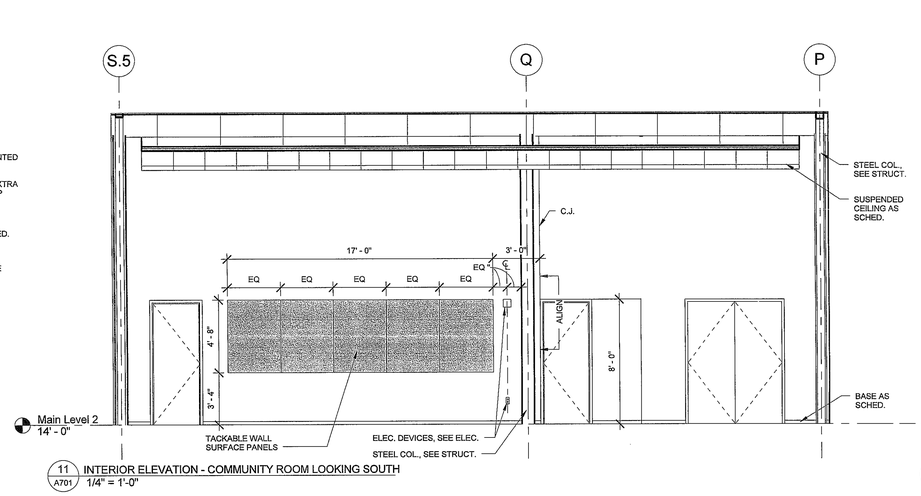

8 A701 INTERIOR ELEVATION - BUS RIDER WAITING LOOKING NORTH
1/4" = 1'-0"



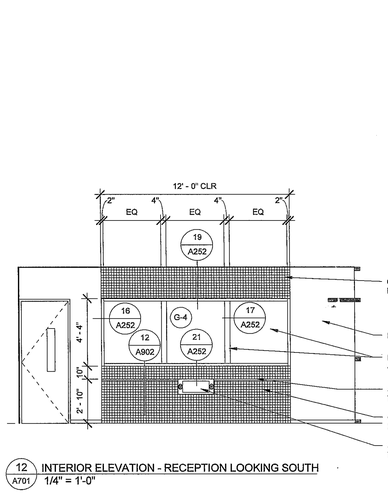

9 A701 INTERIOR ELEVATION - BUS RIDER WAITING LOOKING SOUTH
1/4" = 1'-0"



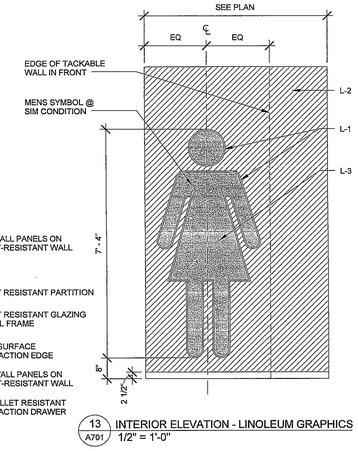

10 A701 INTERIOR ELEVATION - COMMUNITY ROOM LOOKING EAST
1/4" = 1'-0"




11 A701 INTERIOR ELEVATION - COMMUNITY ROOM LOOKING SOUTH
1/4" = 1'-0"




12 A701 INTERIOR ELEVATION - RECEPTION LOOKING SOUTH
1/4" = 1'-0"




13 A701 INTERIOR ELEVATION - LINOLEUM GRAPHICS
1/2" = 1'-0"

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| Revisions | |

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**FAST Multi-Modal Center**
City of Fayetteville
Fayetteville, NC

Project Number 621A

Title
**Interior Elevations**

Sheet
**A701**

Plate of

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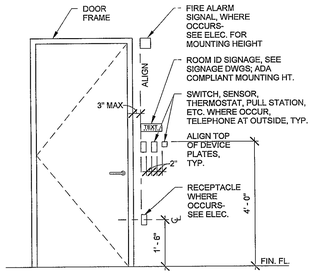
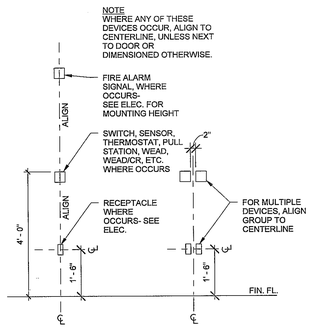
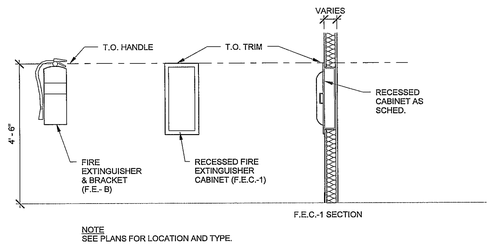



1 A711 TYPICAL DEVICE LOCADTIONS @ DOORS
1/2" = 1'-0"

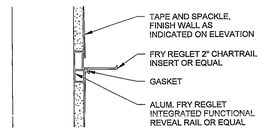



2 A711 TYPICAL DEVICE LOCATIONS ALONG WALLS
1/2" = 1'-0"

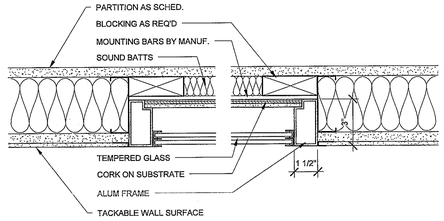



NOTE
SEE PLANS FOR LOCATION AND TYPE.

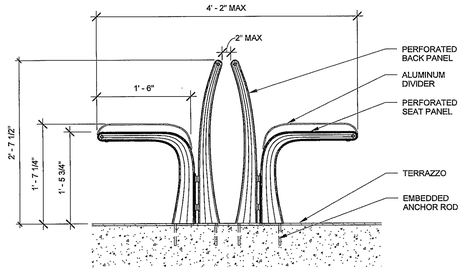
3 A711 FIRE EXTINGUISHER & HOSE VALVE CABINET ELEVATIONS
1/2" = 1'-0"




4 A711 MARKER RAIL DETAIL
3" = 1'-0"

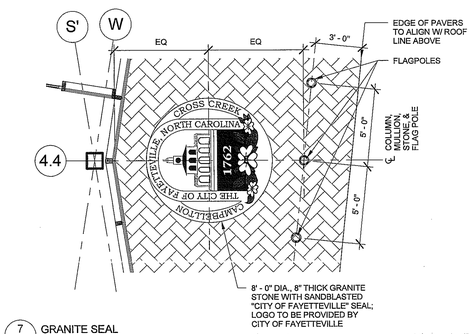



5 A711 BULLETIN BOARD CASE SECTION
3" = 1'-0"

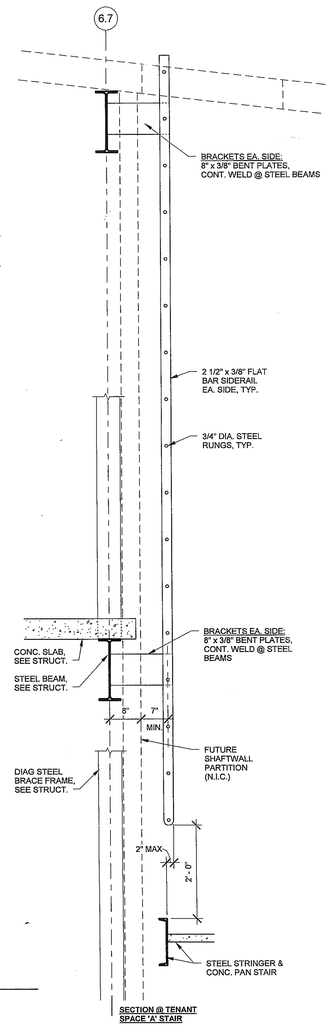


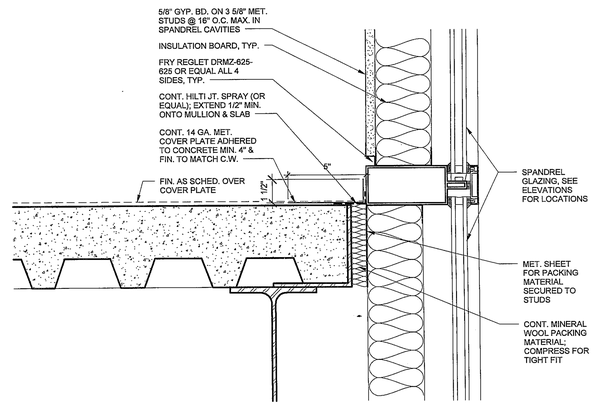

NOTES:
1. 3 TYPES OF INTERIOR BENCHES (SEE PLAN FOR LOCATIONS):
A. 4' - 0" NOM. BACKED BENCH W/ 1 DIVIDER & NO ARMS
B. 6' - 0" NOM. BACKED BENCH W/ 2 DIVIDERS & NO ARMS
C. 8' - 0" NOM. BACKED BENCH W/ 3 DIVIDERS & NO ARMS
2. SEE SHEET A442 FOR EXTERIOR BENCHES
3. SEE SHEET A211 FOR FINISH NOTES

6 A711 SECTION - INTERIOR BENCHES
1" = 1'-0"

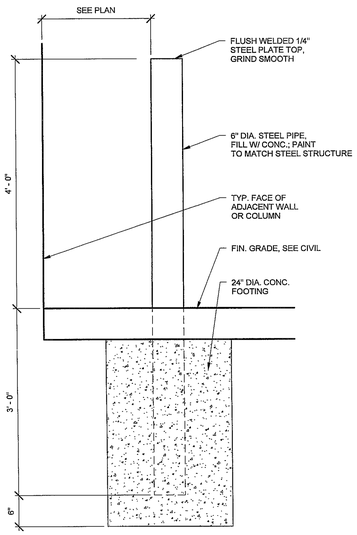



7 A711 GRANITE SEAL
1/4" = 1'-0"

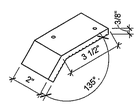



8 A711 SLAB EDGE DETAIL AT CURTAIN WALL
3" = 1'-0"




9 A711 BOLLARD DETAIL - 6" SOLID BOLLARD
1" = 1'-0"

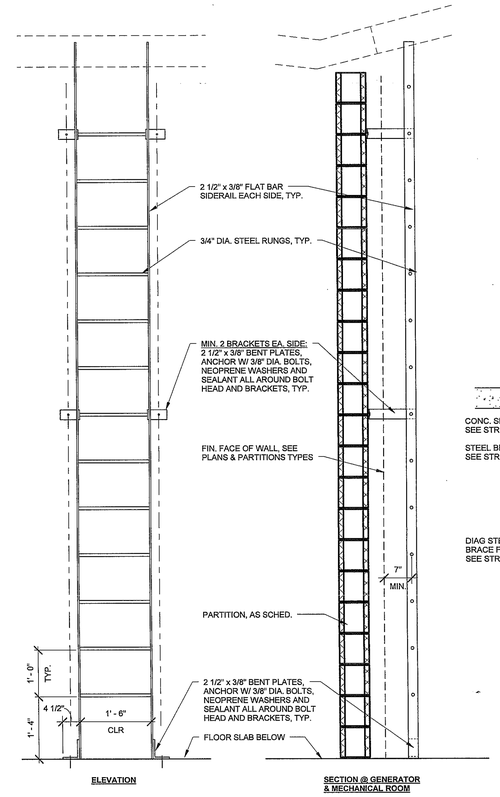



HARD TUMBLE TO REMOVE ALL MACHINED AND/OR CUT EDGES. TYPE II CLEAR ANODIZED.

ANCHORING: TWO OFFSET THRU HOLES W/ TAMPER-PROOF ANCHORS. USE ANCHORS IN CONJUNCTION W/ TWO-PART IMPACT RESISTANT EPOXY.

SPACING: 48" O.C. CENTERED IN CMU BLOCK

10 A711 SKATEBOARD DETERRENT
3" = 1'-0"




11 A711 ROOF ACCESS LADDERS
3/4" = 1'-0"

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**FAST Multi-Modal Center**
City of Fayetteville
Fayetteville, NC

Project Number 621A

Title
**Miscellaneous Details**

Sheet
# A711

Plate of

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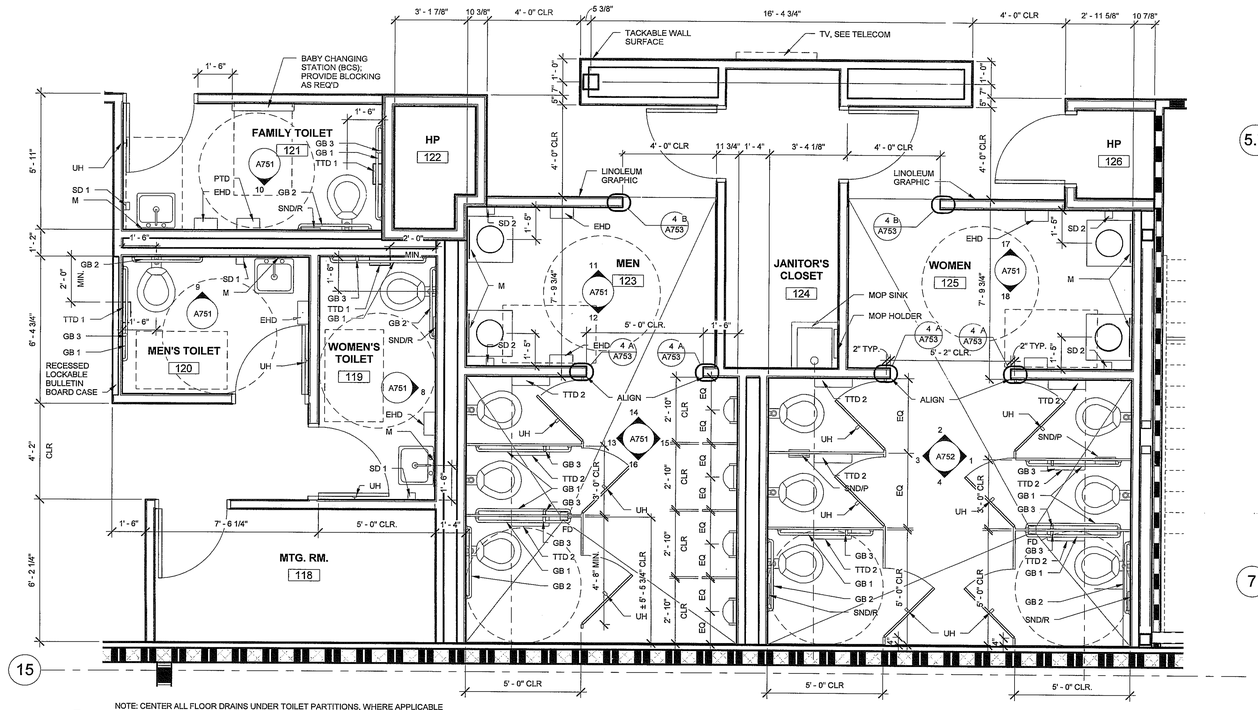
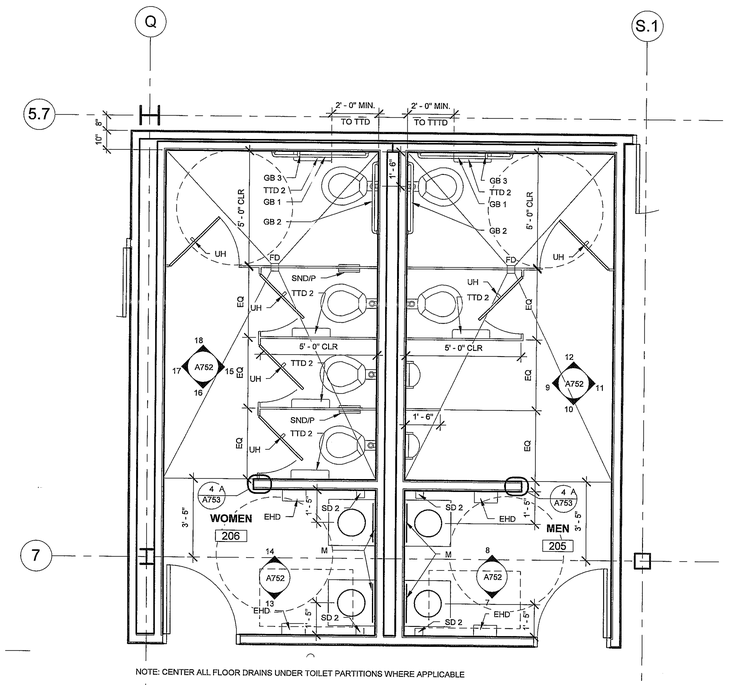



1 / A751 ENLARGED PLAN - TOILET RMS 119, 120, 121, 123 & 125
3/8" = 1'-0"




2 / A751 ENLARGED PLAN - TOILET RMS 205 & 206
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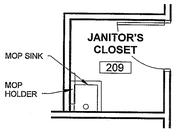
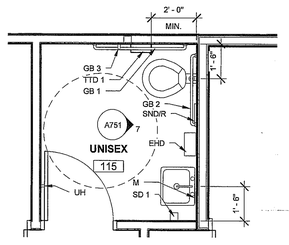



3 / A751 ENLARGED PLAN - JANITOR'S CLOSET
1/4" = 1'-0"




4 / A751 ENLARGED PLAN - TOILET RM 115
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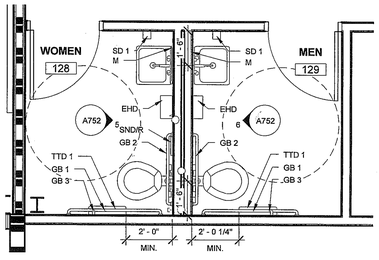


5 / A751 ENLARGED PLAN - TOILET RMS 128 & 129
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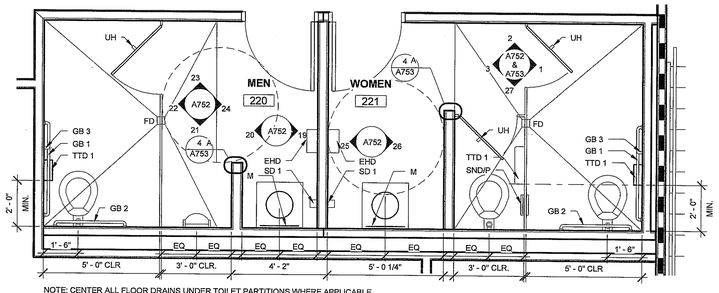


6 / A751 ENLARGED PLAN - TOILET RMS 220 & 221
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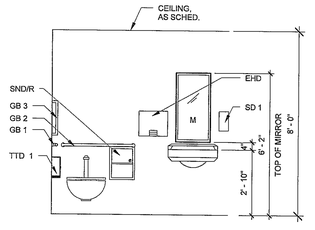


7 / A751 ELEVATION - TOILET RM 115
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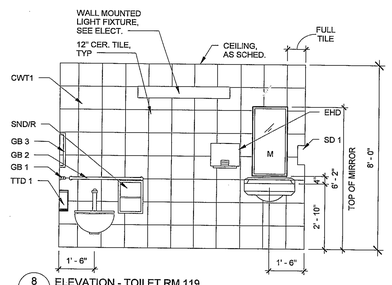


8 / A751 ELEVATION - TOILET RM 119
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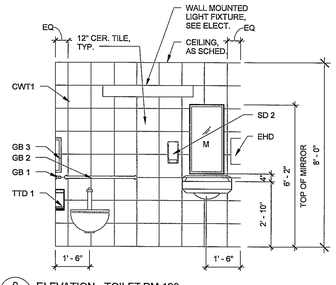


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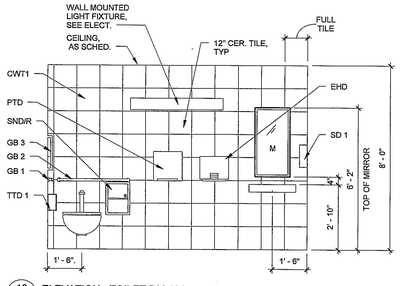
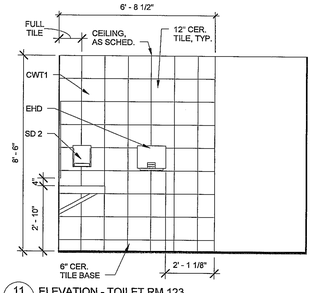
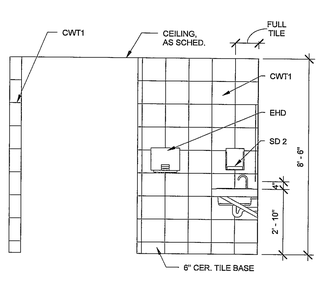
3/8" = 1'-0"




10 / A751 ELEVATION - TOILET RM 121
3/8" = 1'-0"




11 / A751 ELEVATION - TOILET RM 123
3/8" = 1'-0"

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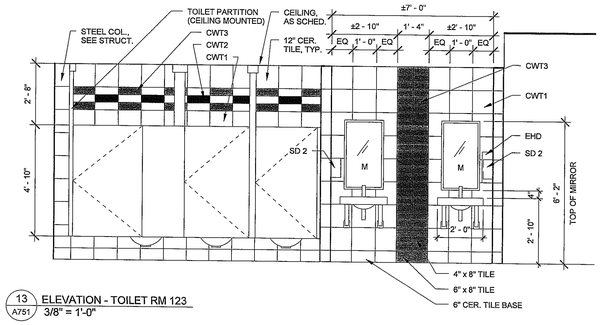


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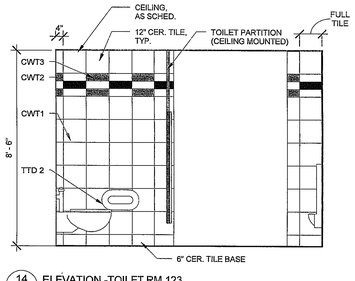


14 / A751 ELEVATION -TOILET RM 123
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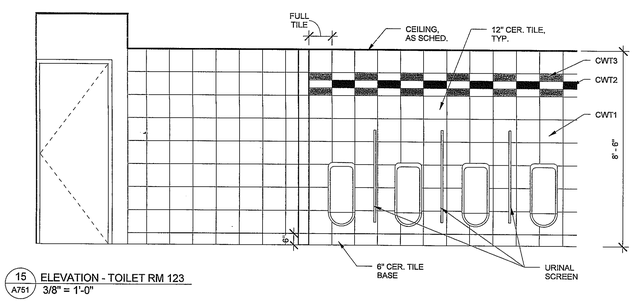


15 / A751 ELEVATION - TOILET RM 123
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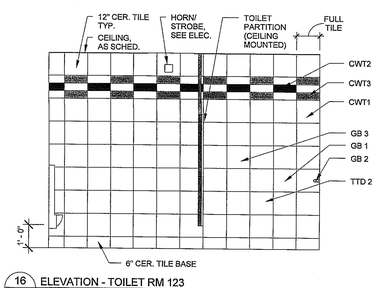


16 / A751 ELEVATION - TOILET RM 123
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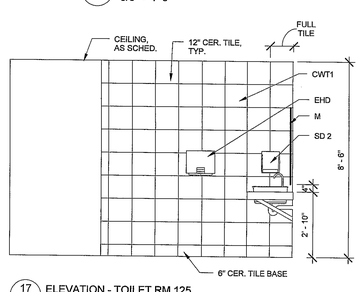


17 / A751 ELEVATION - TOILET RM 125
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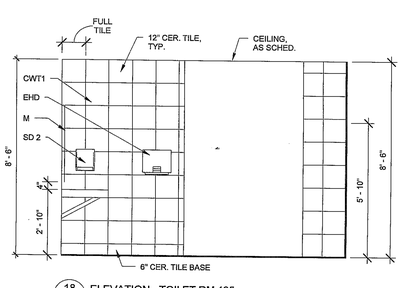


18 / A751 ELEVATION - TOILET RM 125
3/8" = 1'-0"

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| Date | January 31, 2014 |
| Revisions | |

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**FAST Multi-Modal Center**
City of Fayetteville
Fayetteville, NC

Project Number 621A

Title
**Toilet Plans and Elevations**

Sheet
# A751

Plate of

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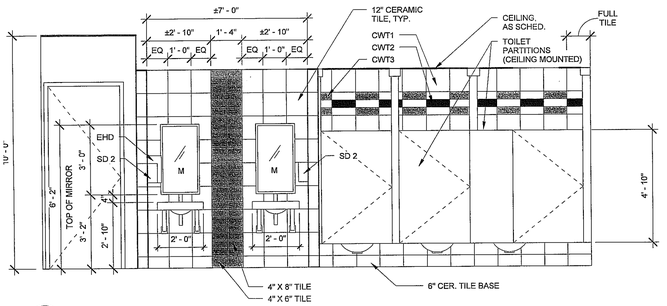


1 / A752 ELEVATION - TOILET RM 125
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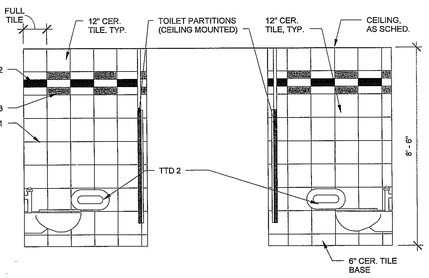


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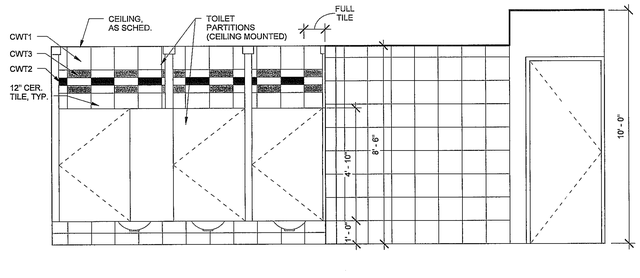


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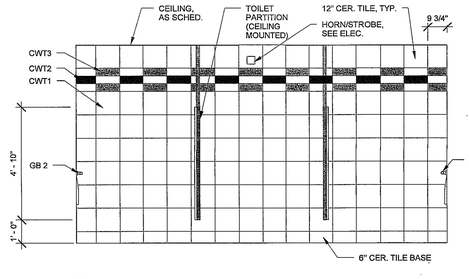
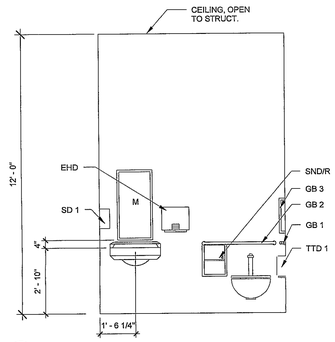
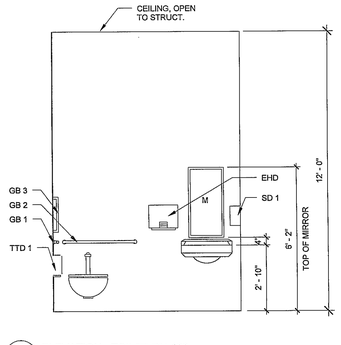


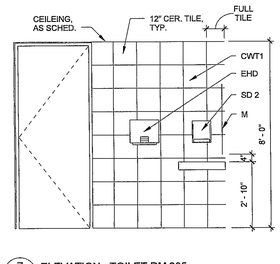

4 / A752 ELEVATION - TOILET RM 125
3/8" = 1'-0"




5 / A752 ELEVATION - TOILET RM 128
3/8" = 1'-0"




6 / A752 ELEVATION - TOILET RM 129
3/8" = 1'-0"




7 / A752 ELEVATION - TOILET RM 205
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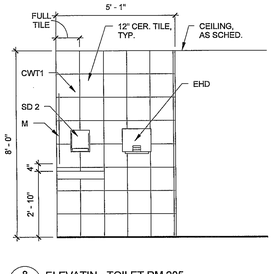
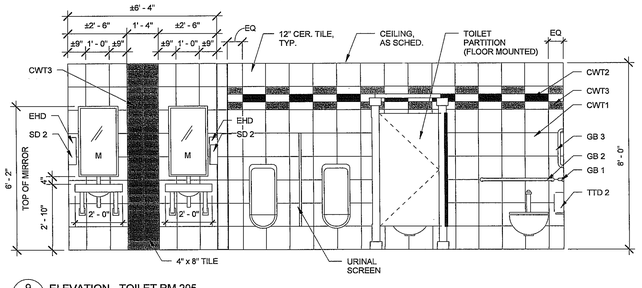



8 / A752 ELEVATIN - TOILET RM 205
3/8" = 1'-0"




9 / A752 ELEVATION - TOILET RM 205
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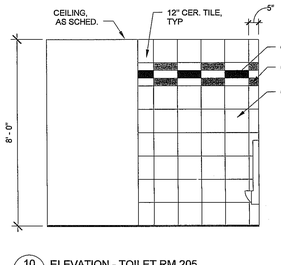
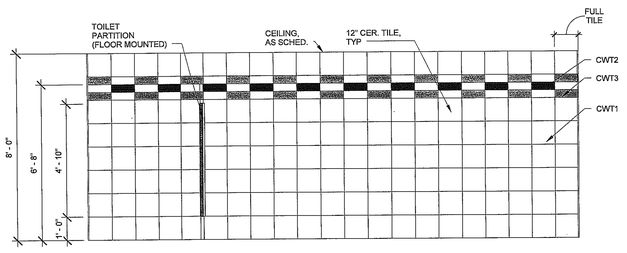



10 / A752 ELEVATION - TOILET RM 205
3/8" = 1'-0"

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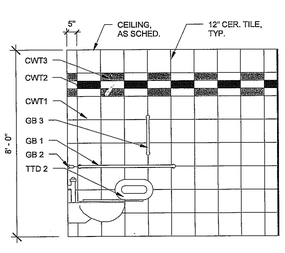


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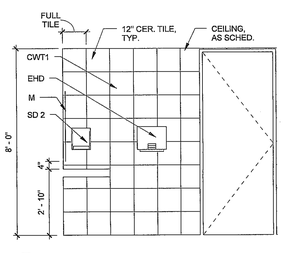


13 / A752 ELEVATION - TOILET RM 206
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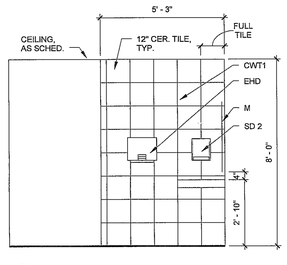


14 / A752 ELEVATION - TOILET RM 206
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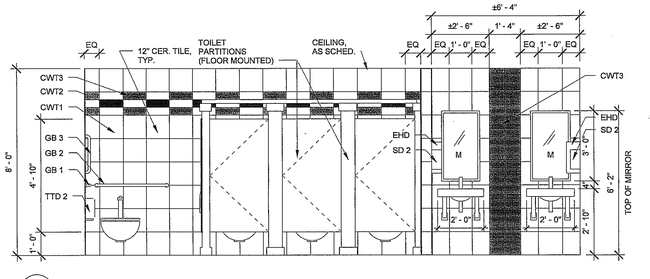


15 / A752 ELEVATION - TOILET RM 206
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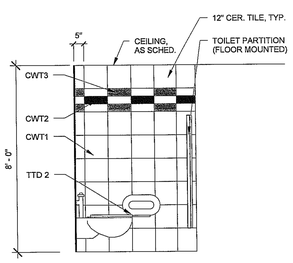


16 / A752 ELEVATION - TOILET RM 206
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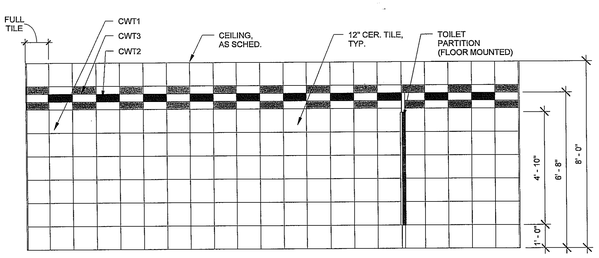


17 / A752 ELEVATION - TOILET RM 206
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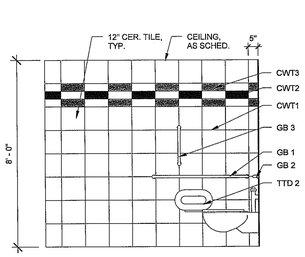


18 / A752 ELEVATION - TOILET RM 206
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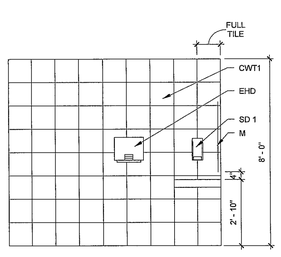
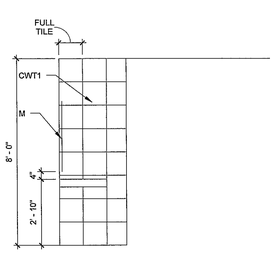
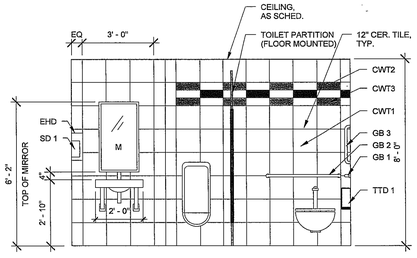


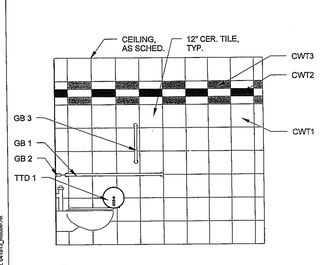

19 / A752 ELEVATION - TOILET RM 220
3/8" = 1'-0"



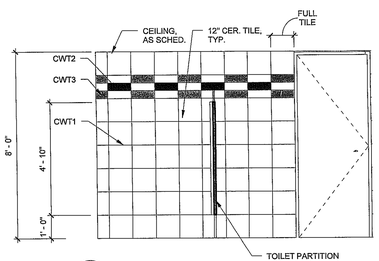

20 / A752 ELEVATION - TOILET RM 220
3/8" = 1'-0"



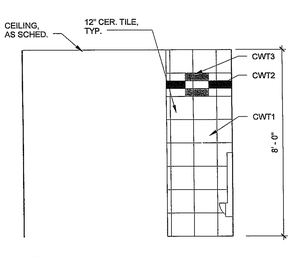

21 / A752 ELEVATION - TOILET RM 220
3/8" = 1'-0"



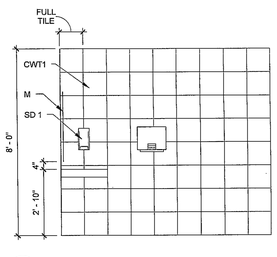

22 / A752 ELEVATION - TOILET RM 220
3/8" = 1'-0"



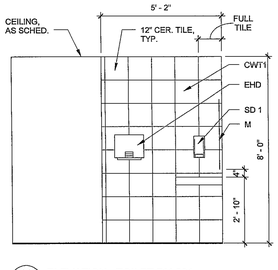

23 / A752 ELEVATION - TOILET RM 220
3/8" = 1'-0"



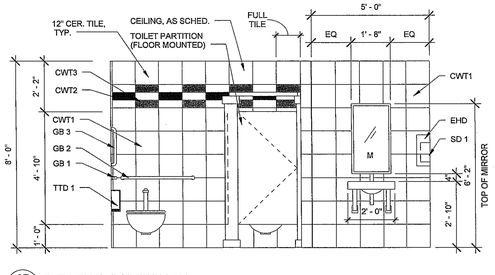

24 / A752 ELEVATION - TOILET RM 220
3/8" = 1'-0"




25 / A752 ELEVATION - TOILET RM 221
3/8" = 1'-0"




26 / A752 ELEVATION - TOILET RM 221
3/8" = 1'-0"




27 / A752 ELEVATION - TOILET RM 221
3/8" = 1'-0"

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Signage Consultant
**Jones Worley**
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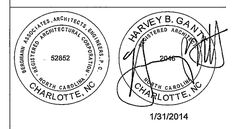
Atlanta, GA 30308-1416
404.876.9272 Tel




1/31/2014

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| Drawn | MVS |
| Checked | LW |
| Date | January 31, 2014 |
| Revisions | |

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**FAST Multi-Modal Center**
City of Fayetteville
Fayetteville, NC

Project Number 621A

Title
**Toilet Elevations**

Sheet
# A752

Plate of

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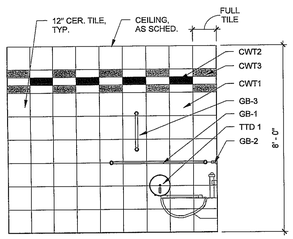
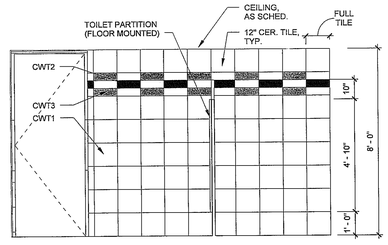
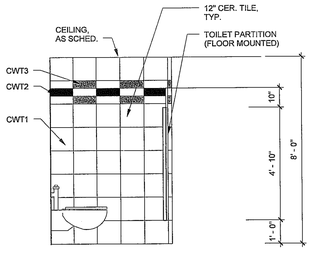



1 A753 ELEVATION - TOILET RM 221
3/8" = 1'-0"




2 A753 ELEVATION - TOILET RM 221
3/8" = 1'-0"




3 A753 ELEVATION - TOILET RM 221
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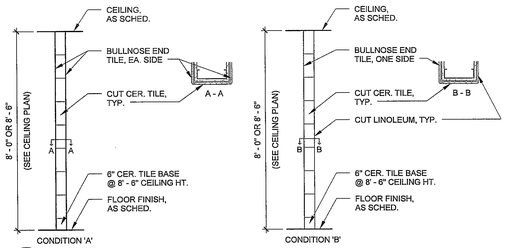
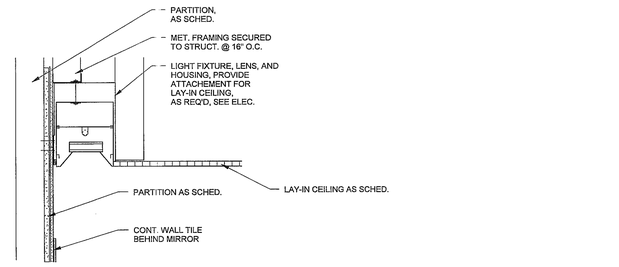
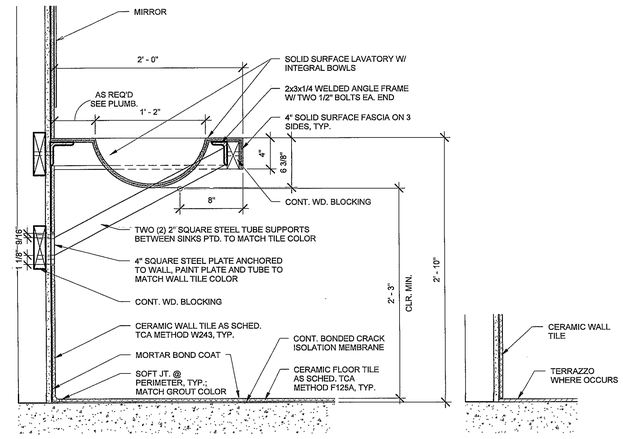


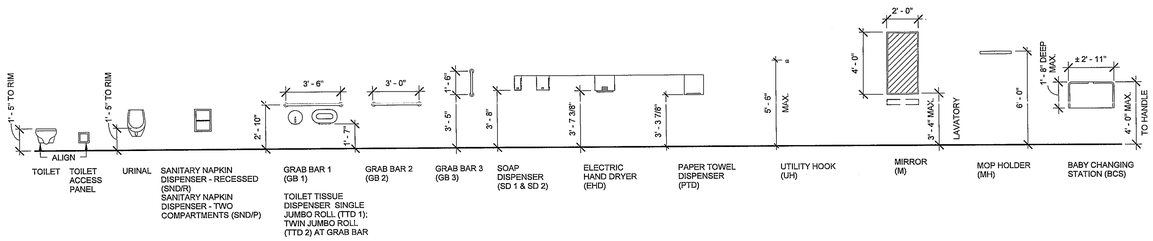

4 A753 ELEVATION - END OF WING WALL, TYP.
3/8" = 1'-0"




NOTE:
PROVIDE INSULATION @ EXPOSED HOT WATER AND DRAIN LINES, TYPICAL ALL LAVATORIES, SEE PLUMBING

5 A753 TOILETS - SECTION @ LAVATORY
1 1/2" = 1'-0"




ACCESSIBLE FIXTURE NOTES:

1. FLUSH CONTROL VALVES IN THE HC ACCESSIBLE TOILET COMPARTMENT SHALL BE MOUNTED ON THE SIDE OF THE TOILET AREA AND NO MORE THAN 44" A.F.F.

2. PROVIDE INSULATION AROUND ALL EXPOSED HOT WATER AND DRAIN LINES UNDER HC ACCESSIBLE LAVATORY.

3. PLACE BLOCKING IN WALLS AS REQUIRED FOR PROPER INSTALLATION OF ACCESSORIES.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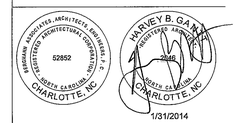


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| Date | January 31, 2014 |
| Revisions | |


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**FAST Multi-Modal Center**
City of Fayetteville
Fayetteville, NC

Project Number 621A

Title
**Toilet Elevations**

Sheet
A753

Plate of

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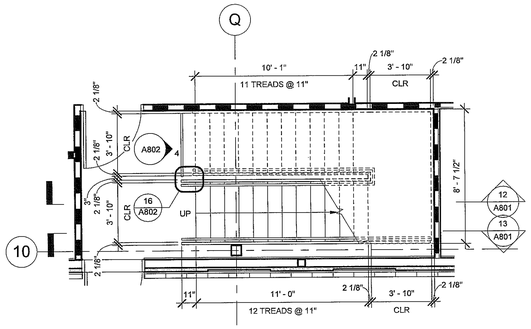
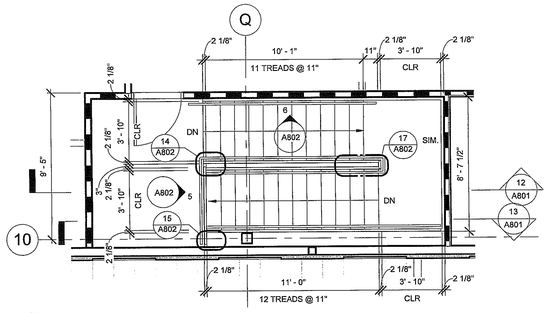
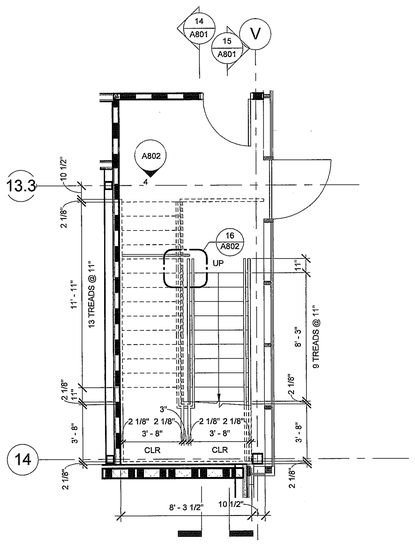


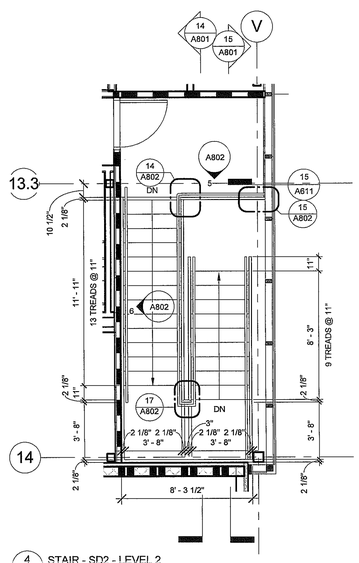

1 A801 STAIR - SD1 - LEVEL 1
1/4" = 1'-0"




2 A801 STAIR - SD1 - LEVEL 2
1/4" = 1'-0"




3 A801 STAIR - SD2 - LEVEL 1
1/4" = 1'-0"




4 A801 STAIR - SD2 - LEVEL 2
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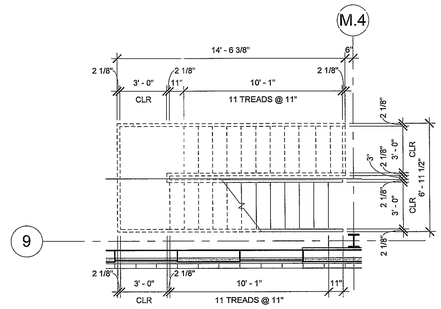
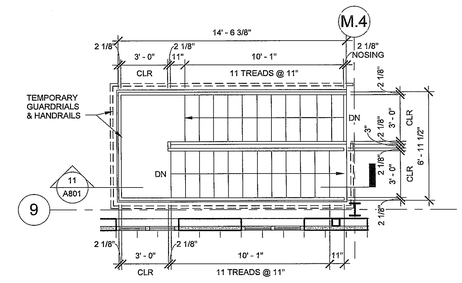



5 A801 STAIR - SC2 - LEVEL 1
1/4" = 1'-0"




6 A801 STAIR - SC2 - LEVEL 2
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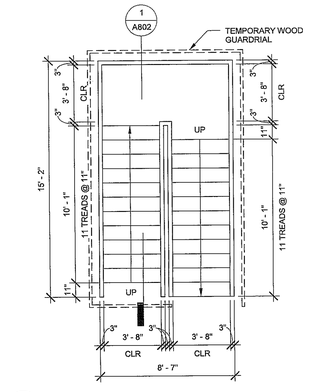
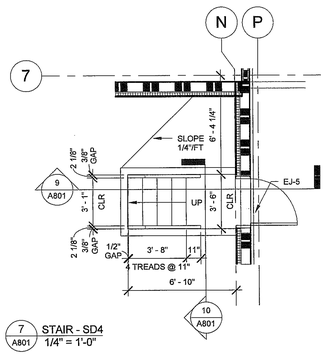



8 A801 STAIR - TENANT SPACES A, B, & E
1/4" = 1'-0"




7 A801 STAIR - SD4
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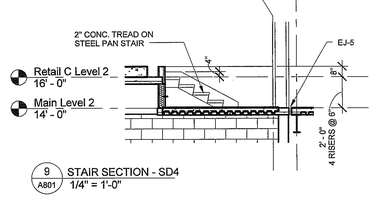


9 A801 STAIR SECTION - SD4
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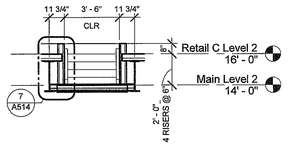
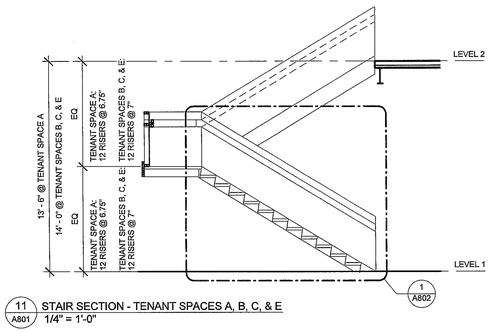
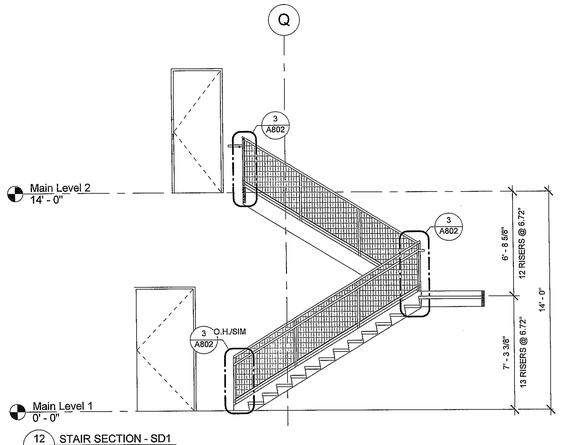


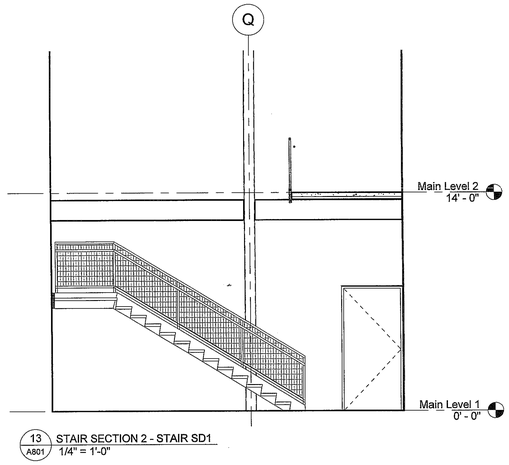

10 A801 STAIR SECTION - SD4
1/4" = 1'-0"



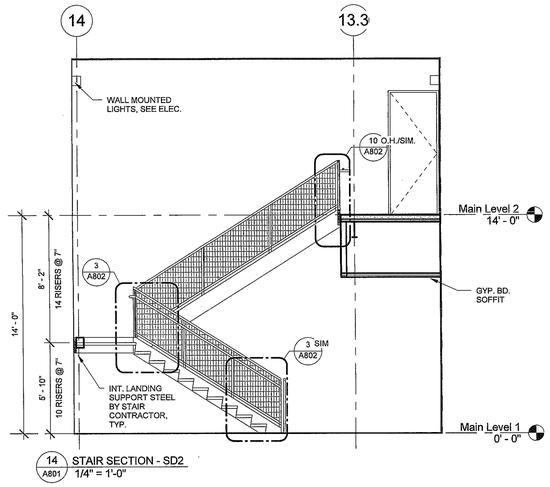

11 A801 STAIR SECTION - TENANT SPACES A, B, C, & E
1/4" = 1'-0"



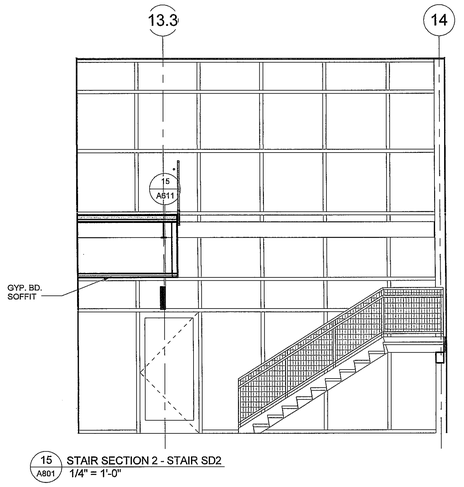

12 A801 STAIR SECTION - SD1
1/4" = 1'-0"




13 A801 STAIR SECTION 2 - STAIR SD1
1/4" = 1'-0"




14 A801 STAIR SECTION - SD2
1/4" = 1'-0"




15 A801 STAIR SECTION 2 - STAIR SD2
1/4" = 1'-0"

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1/31/2014

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| Drawn | MVS/MB |
| Checked | LW |
| Date | January 31, 2014 |
| Revisions | |

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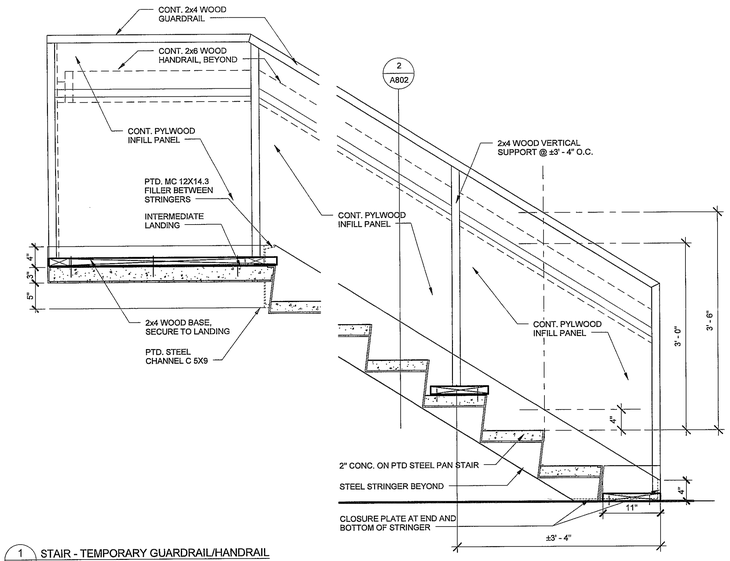
**FAST Multi-Modal Center**
City of Fayetteville
Fayetteville, NC

Project Number 621A

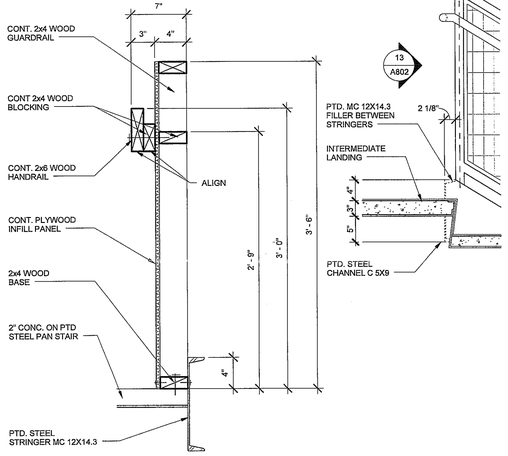
Title
**Enlarged Stair Plans**

Sheet
# A801

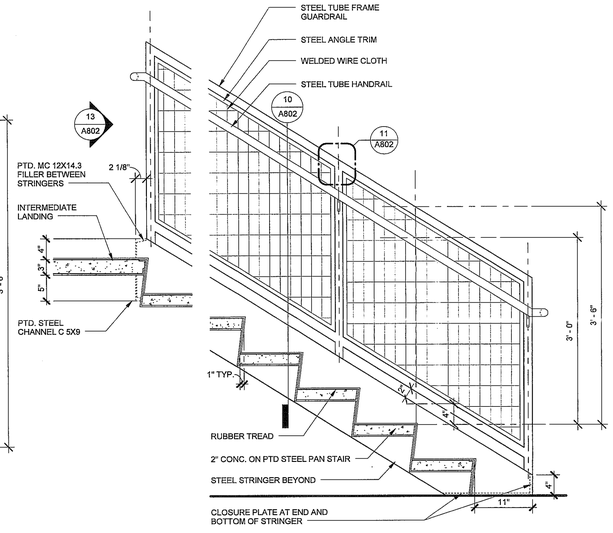
Plate of



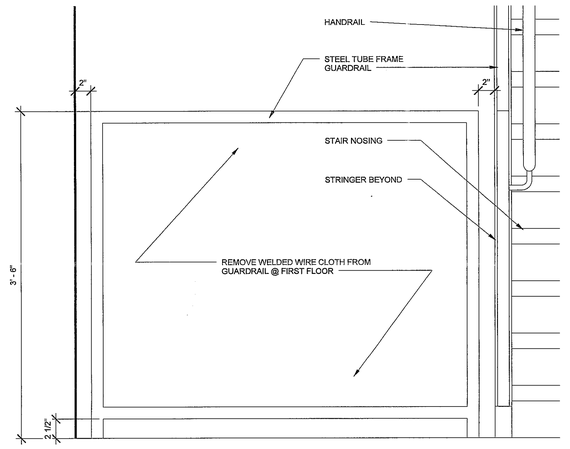

1 A802 STAIR - TEMPORARY GUARDRAIL/HANDRAIL
1" = 1'-0"



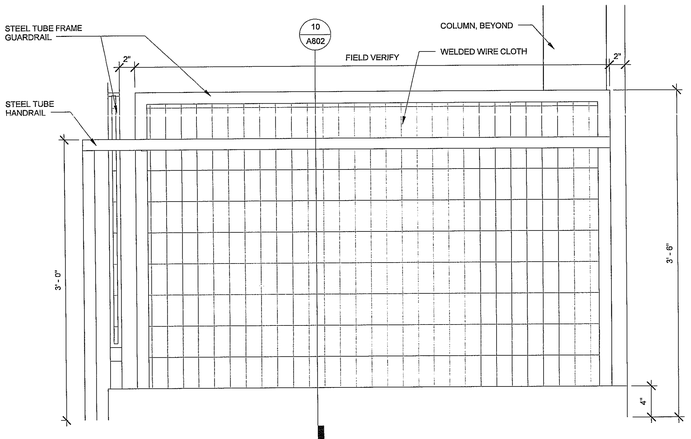

2 A802 STAIR - TEMPORARY GUARDRAIL SECTION
1 1/2" = 1'-0"



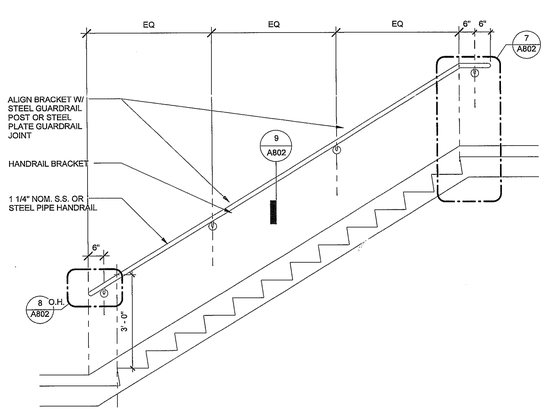

3 A802 STAIR - TYPICAL GUARDRAIL ELEVATION
1" = 1'-0"



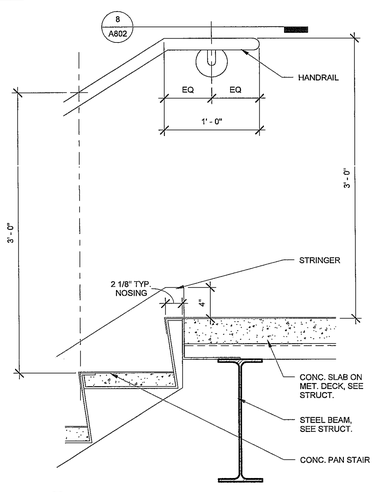

4 A802 TYPICAL GUARDRAIL ELEVATION AT FIRST FLOOR
1 1/2" = 1'-0"



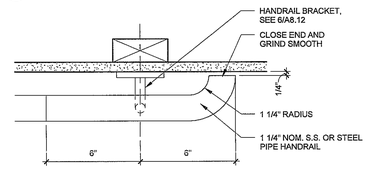

5 A802 TYPICAL GUARDRAIL ELEVATION AT SECOND FLOOR LANDING
1 1/2" = 1'-0"



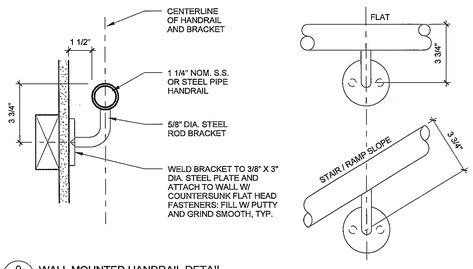

6 A802 WALL MOUNTED RAIL ELEVATION
1/2" = 1'-0"



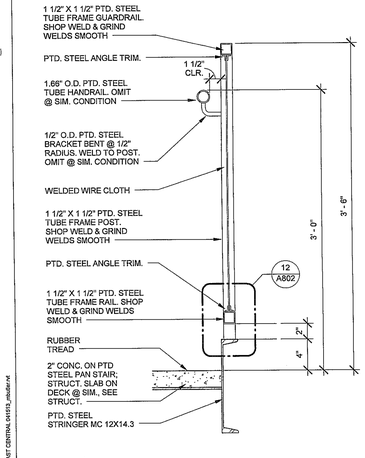

7 A802 STAIR AND HANDRAIL DETAIL
1 1/2" = 1'-0"



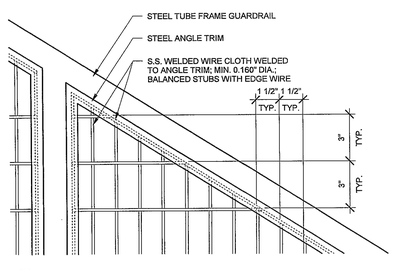

8 A802 WALL MOUNTED HANDRAIL END DETAIL
3" = 1'-0"



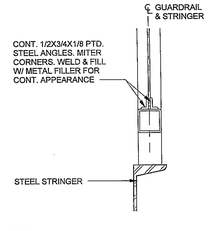

9 A802 WALL MOUNTED HANDRAIL DETAIL
3" = 1'-0"



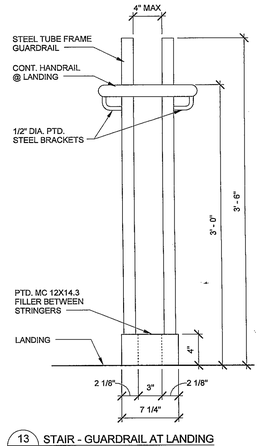

10 A802 STAIR - GUARDRAIL SECTION
1 1/2" = 1'-0"



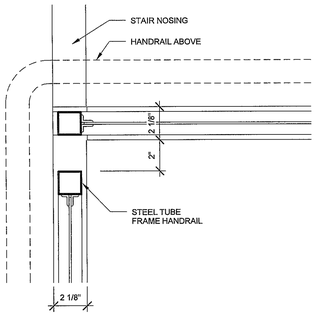

11 A802 STAIR - WELDED WIRE CLOTH PATTERN
3" = 1'-0"



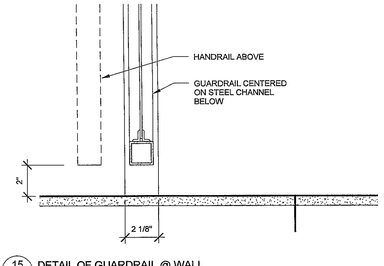

12 A802 STAIR - GUARDRAIL ATTACHMENT DETAIL
3" = 1'-0"



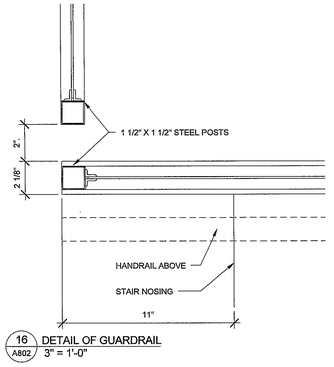

13 A802 STAIR - GUARDRAIL AT LANDING
1 1/2" = 1'-0"



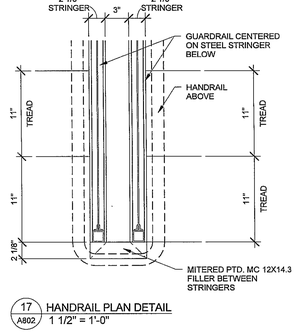

14 A802 DETAIL OF GUARDRAIL
3" = 1'-0"




15 A802 DETAIL OF GUARDRAIL @ WALL
3" = 1'-0"




16 A802 DETAIL OF GUARDRAIL
3" = 1'-0"




17 A802 HANDRAIL PLAN DETAIL
1 1/2" = 1'-0"

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| Date | January 31, 2014 |
| Revisions | |

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**FAST Multi-Modal Center**
City of Fayetteville
Fayetteville, NC

Project Number 621A

Title
**Stair Sections and Details**

Sheet
# A802

Plate of

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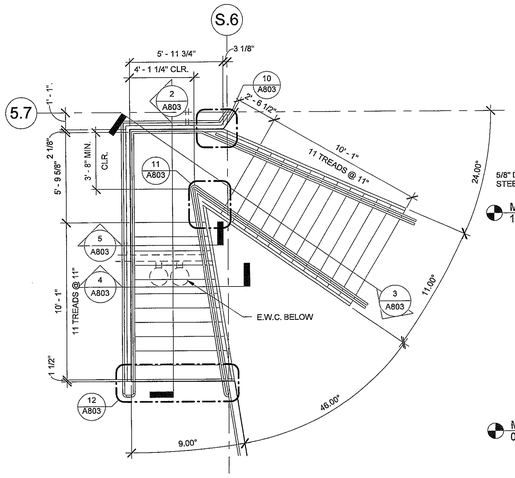
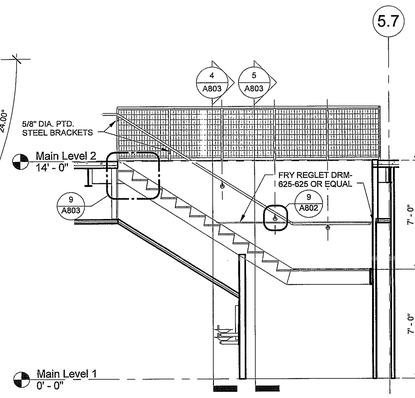



1 A803 STAIR - SD3 - LEVEL 2
1/4" = 1'-0"




2 A803 STAIR SD3 SECTION
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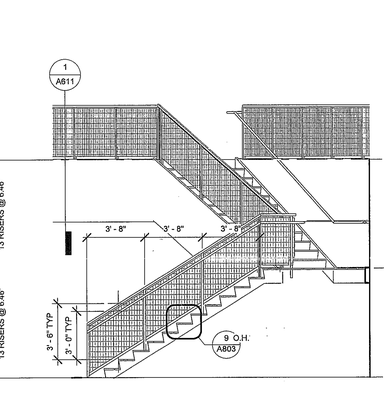
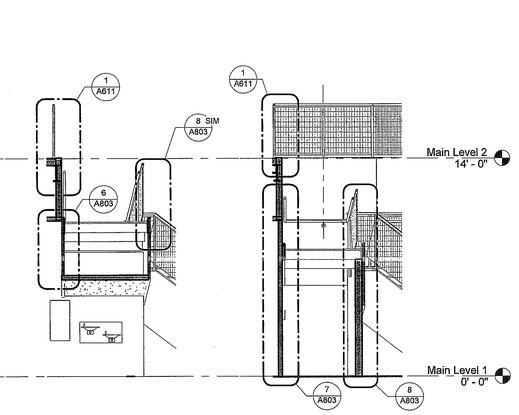


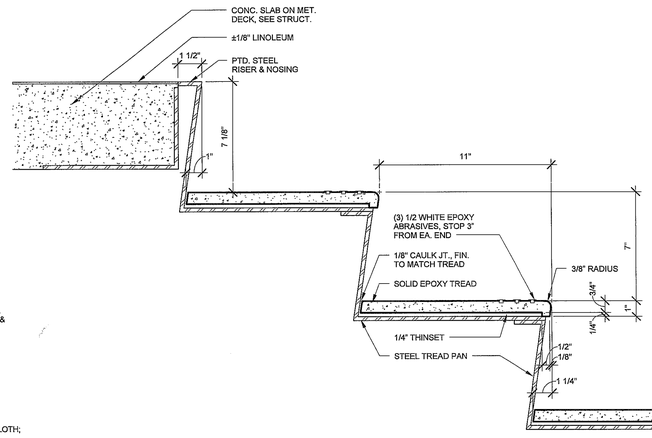

3 A803 STAIR SD3 SECTION
1/4" = 1'-0"



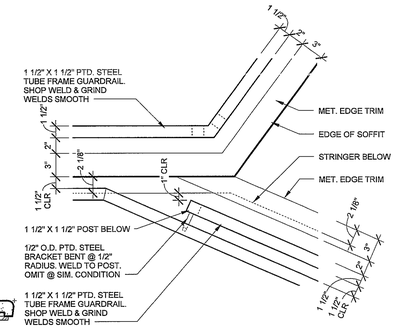

4 A803 STAIR SD3 SECTION
1/4" = 1'-0"



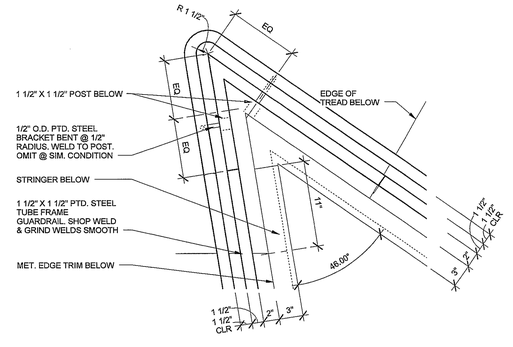

5 A803 STAIR SD3 SECTION
1/4" = 1'-0"



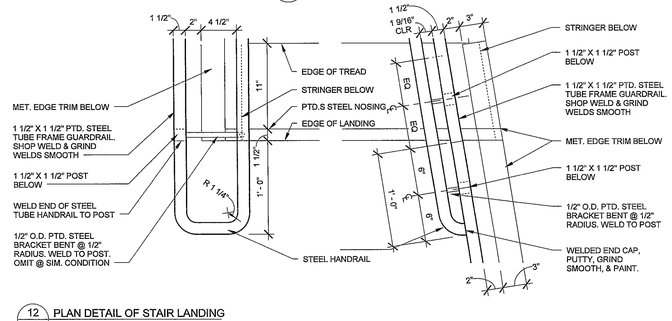

9 A803 STAIR SD3 - TREAD & RISER SECTION
3" = 1'-0"




10 A803 PLAN DETAIL OF STAIR INTERMEDIATE LANDING
1 1/2" = 1'-0"



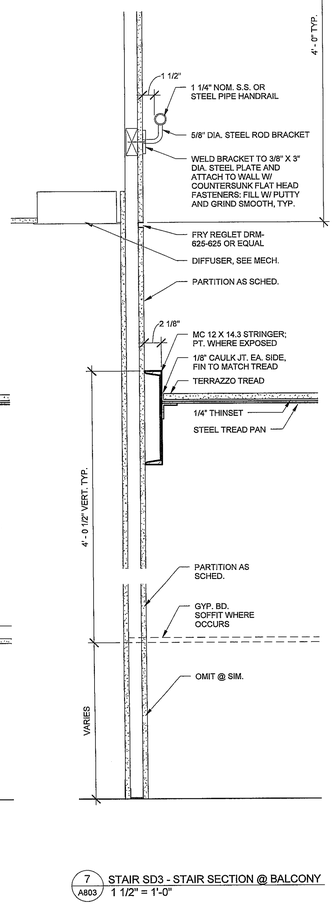

11 A803 PLAN DETAIL OF STAIR INSIDE CORNER
1 1/2" = 1'-0"



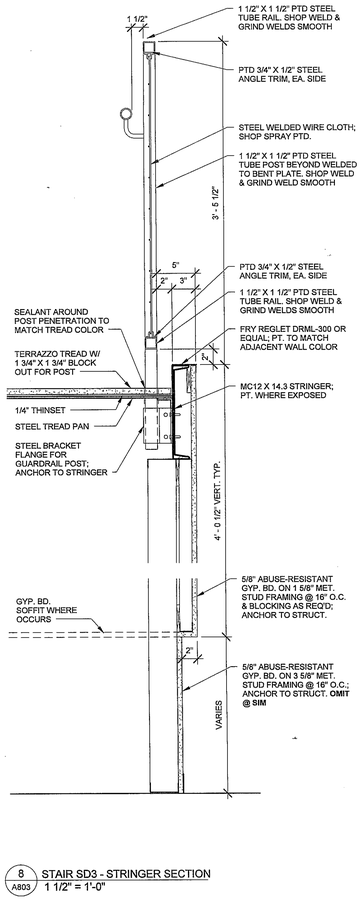

12 A803 PLAN DETAIL OF STAIR LANDING
1 1/2" = 1'-0"




6 A803 STAIR SD3 - STRINGER SECTION @ SOFFIT
1 1/2" = 1'-0"




7 A803 STAIR SD3 - STAIR SECTION @ BALCONY
1 1/2" = 1'-0"




8 A803 STAIR SD3 - STRINGER SECTION
1 1/2" = 1'-0"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HARVEY B. GANTT REGISTERED ARCHITECT 2640 NORTH CAROLINA CHARLOTTE, NC

3/31/2014

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| Date | January 31, 2014 |
| Revisions | |


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# FAST Multi-Modal Center

City of Fayetteville
Fayetteville, NC

Project Number 621A

Title
## Stair SD3 Plan, Sections, and Details

Sheet
# A803

Plate of

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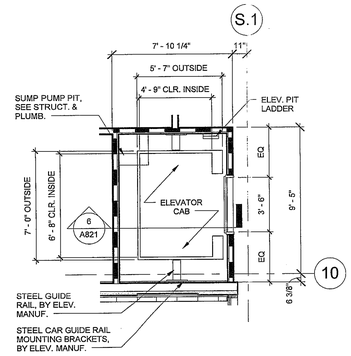


NOTE:
VERIFY ALL ELEVATOR DIM. CLEARANCES WITH APPROVED ELEV. SHOP DRAWINGS.

1 A821 ELEVATOR - LEVEL 1
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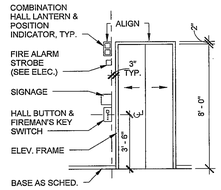
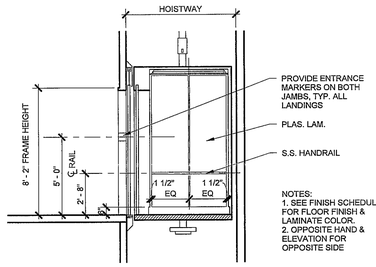
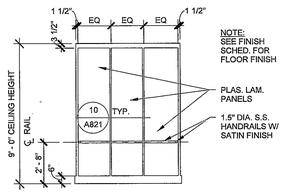


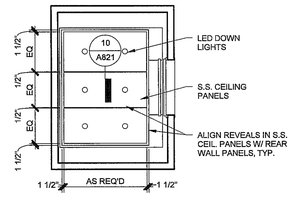

2 A821 TYPICAL HOISTWAY ENTRANCE ELEVATION
1/4" = 1'-0"



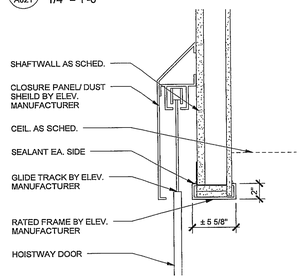

3 A821 ELEVATOR SIDEWALL ELEVATION
1/4" = 1'-0"




4 A821 ELEVATOR BACKWALL ELEVATION
1/4" = 1'-0"




5 A821 ELEVATOR REFLECTED CEILING PLAN
1/4" = 1'-0"




7 A821 ELEVATOR HEAD DETAIL
1 1/2" = 1'-0"



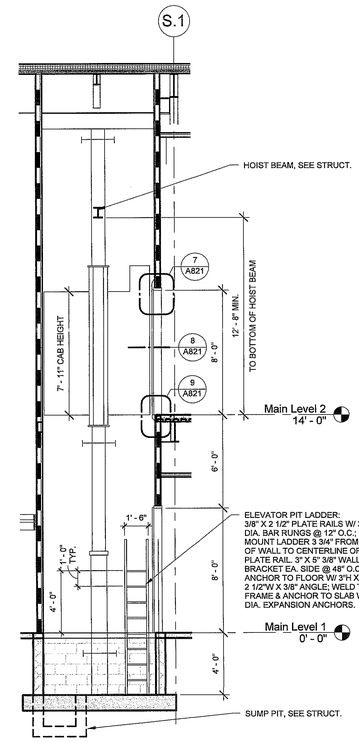

8 A821 ELEVATOR JAMB DETAIL
1 1/2" = 1'-0"




9 A821 ELEVATOR SILL DETAIL
1 1/2" = 1'-0"




10 A821 ELEVATOR REVEAL DETAIL
3" = 1'-0"




6 A821 ELEVATOR SECTION
1/4" = 1'-0"

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Structural Engineer
**Stewart Inc.**
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704.334.7925 Tel

Plumbing, Mechanical and Electrical Engineer
**McCracken & Lopez, PA**
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| Checked | LW |
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| Revisions | |

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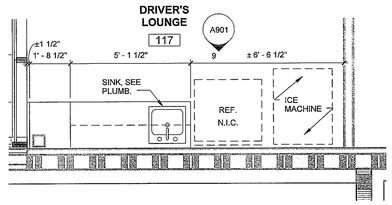
**FAST Multi-Modal Center**
City of Fayetteville
Fayetteville, NC

Project Number 621A

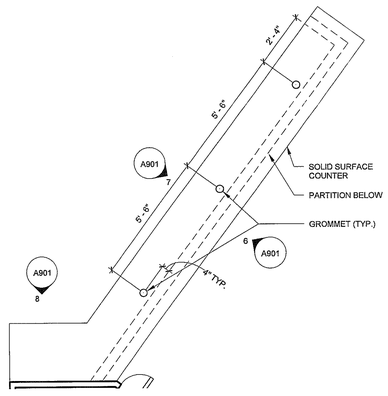
Title
**Enlarged Elevator Plan, Section, and Details**

Sheet
# A821

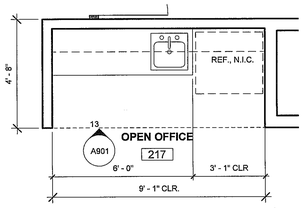
Plate of




2 A901 ENLARGED PLAN - MILLWORK AT DRIVER'S LOUNGE
3/8" = 1'-0"




1 A901 ENLARGED PLAN - MILLWORK AT CAFE
3/8" = 1'-0"




3 A901 ENLARGED PLAN - MILLWORK AT OFFICE BREAK AREA
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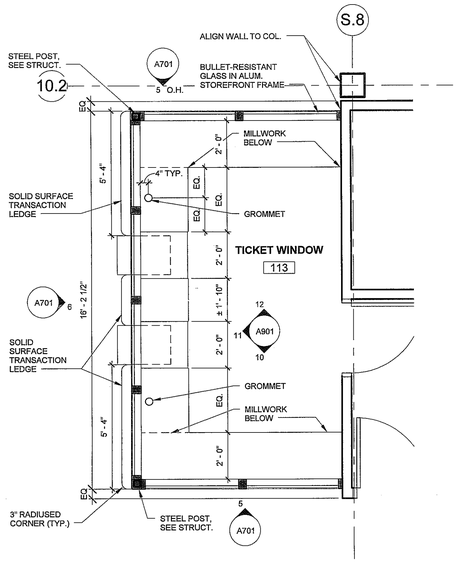


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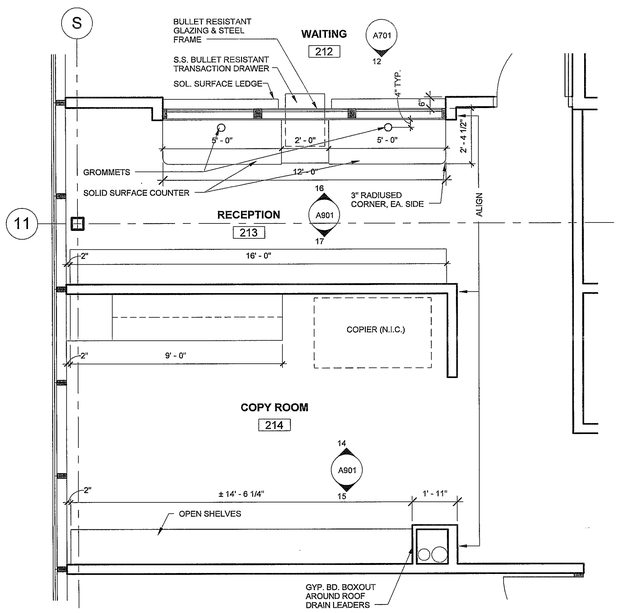
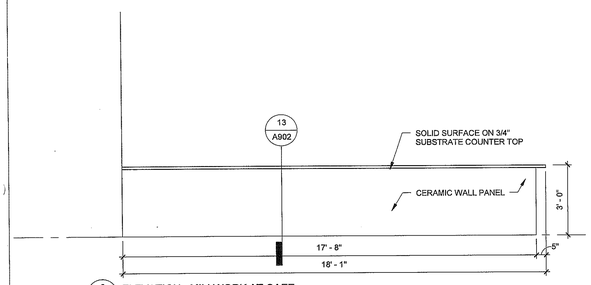
3/8" = 1'-0"




5 A901 ENLARGED PLAN - MILLWORK AT RECEPTION
3/8" = 1'-0"




6 A901 ELEVATION - MILLWORK AT CAFE
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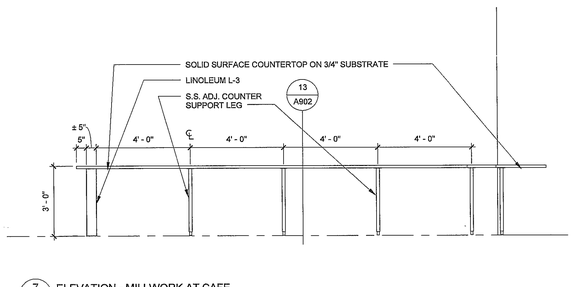


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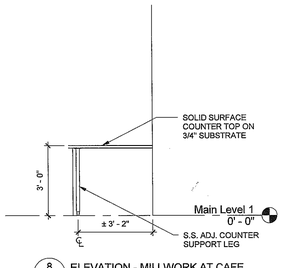


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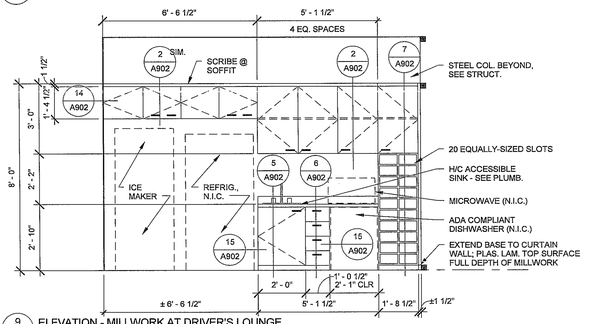


9 A901 ELEVATION - MILLWORK AT DRIVER'S LOUNGE
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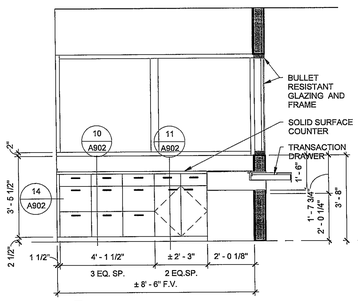


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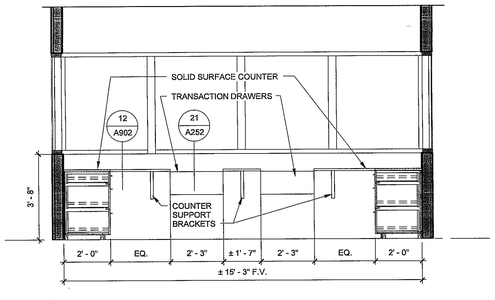


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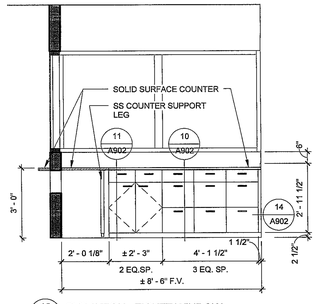


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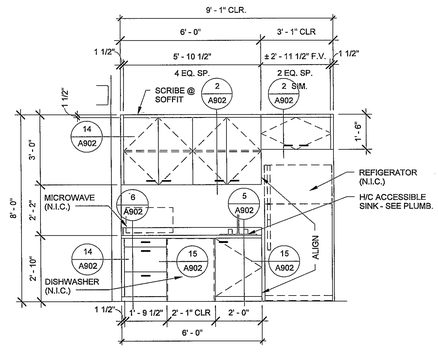


13 A901 ELEVATION - MILLWORK AT OFFICE BREAK AREA
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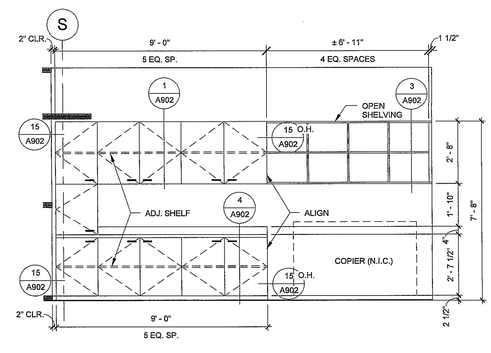


14 A901 ELEVATION - MILLWORK AT COPY ROOM
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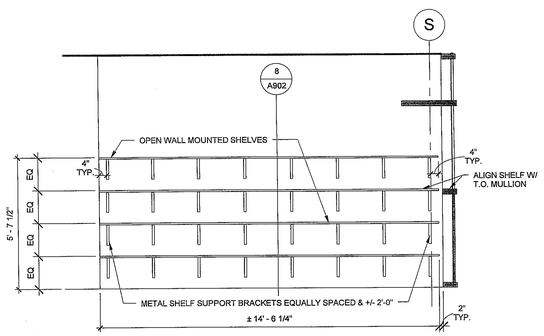


15 A901 ELEVATION - MILLWORK AT COPY ROOM
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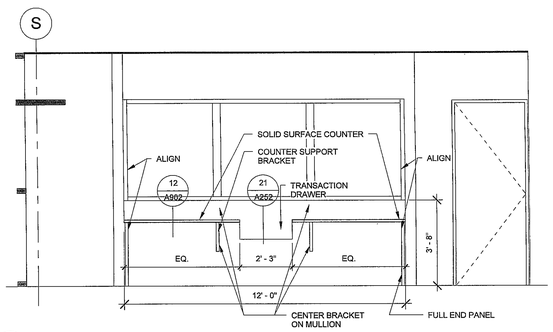


16 A901 ELEVATION - MILLWORK AT RECEPTION
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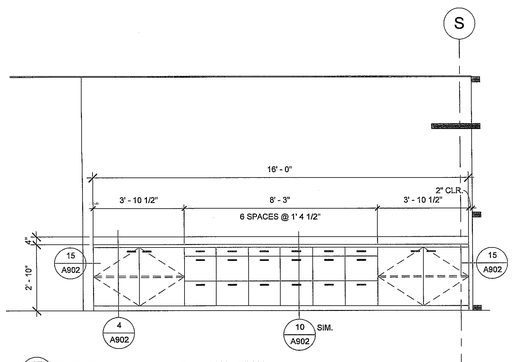


17 A901 ELEVATION - MILLWORK AT RECEPTION
3/8" = 1'-0"

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Atlanta, GA 30308-1416
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HARVEY B. GANTT — REGISTERED ARCHITECT — 2346 — NORTH CAROLINA — CHARLOTTE, NC

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| Date | January 31, 2014 |
| Revisions | |

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**FAST Multi-Modal Center**
City of Fayetteville
Fayetteville, NC

Project Number 621A

Title
**Millwork Plans and Elevations**

Sheet
# A901

Plate of

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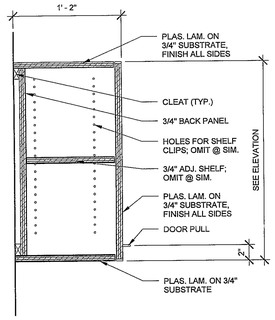
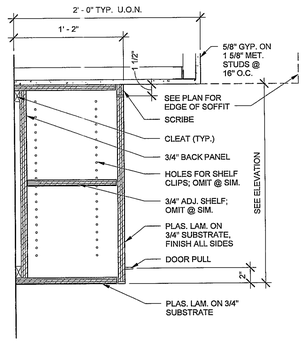



1 A902 MILLWORK - SECTION - UPPER CABINETS
1 1/2" = 1'-0"

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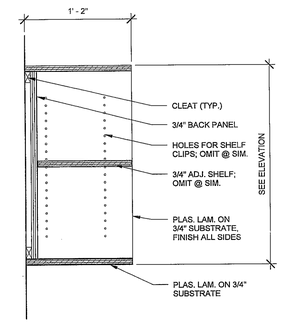


3 A902 MILLWORK - SECTION - UPPER OPEN SHELVING
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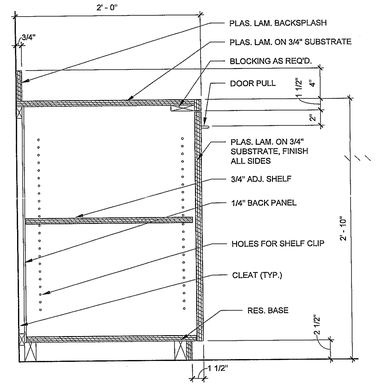


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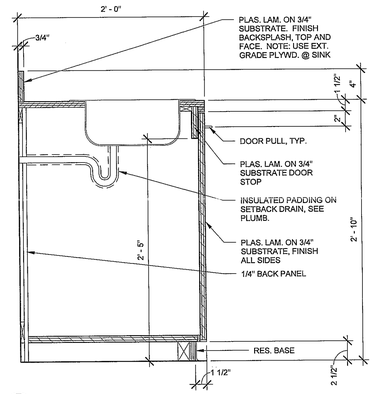


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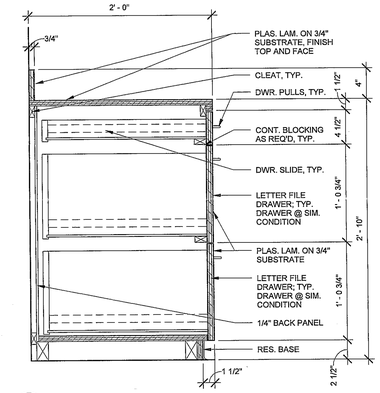


6 A902 MILLWORK SECTION
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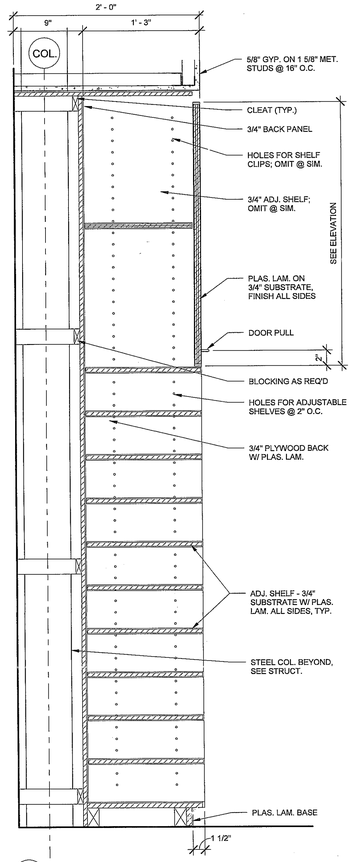


7 A902 MILLWORK - SECTION - MAILBOXES
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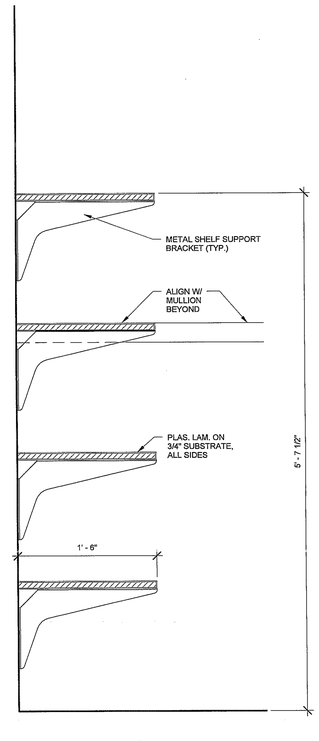


8 A902 MILLWORK - SECTION @ COPY RM. SHELVES
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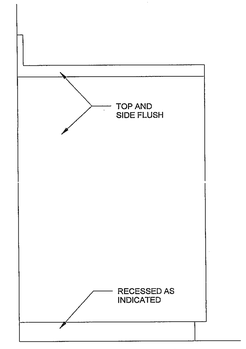


9 A902 MILLWORK - TYP. FINISHED END PANEL
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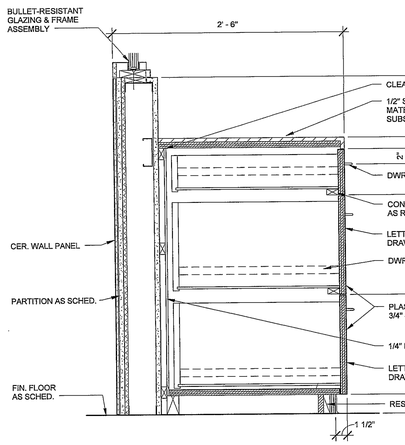


10 A902 MILLWORK - DRAWER SECTION @ TICKET WINDOW
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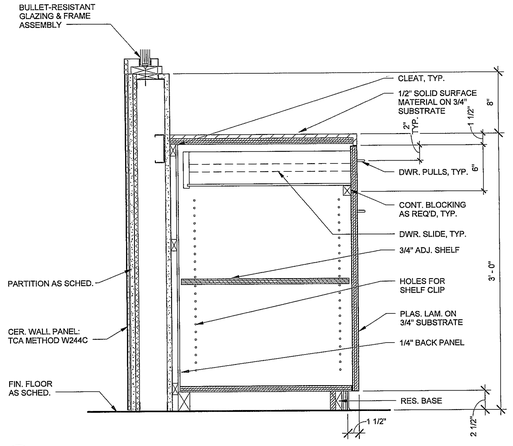


11 A902 MILLWORK - DOOR AND DRAWER SECTION @ TICKET WINDOW
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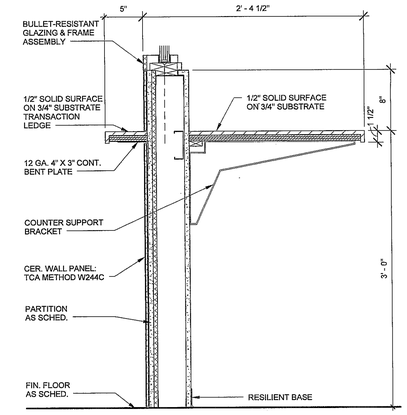
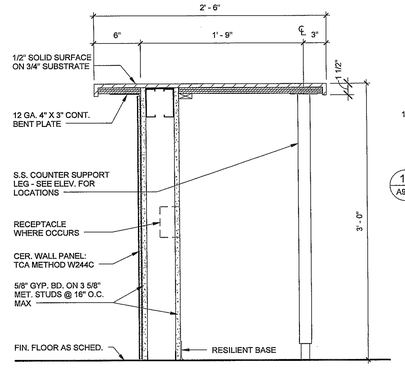



12 A902 BULLET-RESISTANT FRAME SILL @ COUNTERTOP
1 1/2" = 1'-0"




13 A902 CAFE COUTNER SILL @ COUNTERTOP
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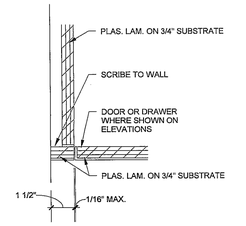


14 A902 MILLWORK - TYP. PLAN DETAIL @ SCRIBE
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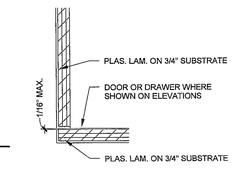


15 A902 MILLWORK - TYP. PLAN DETAIL
3" = 1'-0"

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HARVEY B. GANTT — ASSOCIATES, ARCHITECTS, ENGINEERS & PLANNERS — 2046 — NORTH CAROLINA — CHARLOTTE, NC

1/31/2014

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| Drawn | MGB/NY |
| Checked | LW |
| Date | January 31, 2014 |
| Revisions | |

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**FAST Multi-Modal Center**
City of Fayetteville
Fayetteville, NC

Project Number 621A

Title
**Millwork Details**

Sheet
# A902

Plate of

3/5/2014 4:37:04 PM
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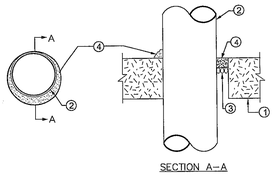
## SYSTEM NO. C-AJ-1044

MARCH 15, 2007

F RATINGS – 2, 3, AND 4 HR (SEE ITEMS 2A AND 4)
T RATING – 0 HR
L RATING AT AMBIENT – 2 CFM/SQ. FT.
L RATING AT 400°F – LESS THAN 1 CFM/SQ. FT.




SECTION A–A

1. Floor or Wall Assembly – Lightweight or normal weight (100–150pcf) concrete. Except as noted in table under Item 4, min. thickness of solid concrete floor or wall assembly is 4–1/2 in. Floor may also be constructed of any min. 6 in. thick UL Classified hollow core Precast Concrete Units*. When floor is constructed of hollow core precast concrete units, packing material (Item 3) and caulk fill material (Item 4) to be installed symmetrically on both sides of floor, flush with floor surface. Wall assembly may also be constructed of any UL classified Concrete Blocks*. Max. Diam. of opening is in solid lightweight or normal weight concrete. Floor is 32 in. Max. diam. of opening in floor constructed of hollow–core precast concrete units is 7 in.

   See Concrete Blocks (CAZT) and Precast Concrete Units (CFTV) categories in the Fire Resistance Directory for names of manufacturer's.

1A. Steel Sleeve – (Optional, not shown) – Max. 15 in. ID (or smaller) Schedule 10 (or heavier) steel sleeve cast or grouted into floor or wall assembly. Sleeve may extend a max. of 2 in. above top of floor or beyond either surface of wall. Max. 16 in. ID (or smaller) min. 0.028 wall thickness (or heavier) galvanized steel sleeve cast or grouted into floor or wall assembly. Sleeve may extend a max. of 1/2 in. beyond either surface of floor or wall.

2. Through Penetrants – One metallic pipe, conduit or tubing to be installed either concentrically or eccentrically within the firestop system. Max. annular space between pipe, conduit or tubing and edge of through opening or sleeve is dependent on the parameters shown in Item 4. Min. annular space between pipe or conduit and edge of through opening is zero in. (point contact). Pipe conduit or tubing to be rigidly supported on both sides of floor or wall assembly. The following types and sizes of metallic pipes, conduits or tubing may be used.

   A. Steel Pipe – Nom. 30 in. diam. (or smaller) Schedule 10 (or heavier) steel pipe.

   B. Iron Pipe – Nom. 30 in. diam. (or smaller) cast or ductile iron pipe.

3. Packing Material – Polyethylene backer rod or nom. 1 in. thickness of tightly–packed mineral wool batt or glass fiber insulation firmly packed into opening as a permanent form. Packing material to be recessed from top surface of floor or from both surfaces of wall as required to accommodate the required thickness of caulk fill material (Item 4).

3A. Forming Material* ½ As an alternate to the packing material in Item 3, nom 4 in. wide strips of min 1/2 in thick compressible mat to be stacked to a thickness greater than the width of the annular space and compression-fitted, edge-first, to fill the annular space to a min 4 in. depth. As an option, the strips of min 1/2 in. thick compressible mat may be folded in half, lengthwise, and stacked to a thickness greater than the width of the annular space and compression-fitted, edge-first, to fill the annular space to a min 2 in. depth. Top of forming material to be recessed from top surface of floor or from both surfaces of wall as necessary to accommodate the required thickness of caulk fill material.
3M COMPANY ½ Fire Barrier Packing Material

4. Fill, Void or Cavity Material* – Caulk – Applied to fill the annular space flush with top surface of floor. In wall assemblies, required caulk thickness to be installed symmetrically on both sides of wall, flush with wall surface. At point contact location between penetrant and sleeve or between penetrant and concrete, a min. 1/4 in. diam. bead of caulk shall be applied at top surface of floor and at both surfaces of wall. The hourly F Ratings and the min. required caulk thicknesses are dependent upon a number of parameters, as shown in the following table:

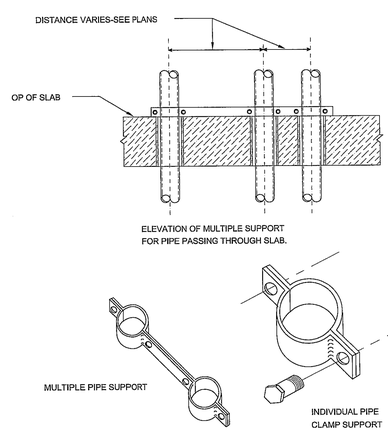
| Min. Floor or Wall Thickness In. | Nom. Pipe Tube or Conduit Diam. In. | Max. Annular Space In. | Min. Caulk Thickness In. | F Rating Hr. |
|---|---|---|---|---|
| 2–1/2 | 1/2–12 | 1–3/8 | 1/2 | 2 |
| 2–1/2 | 1/2–12 | 3–1/4 | 1 | 2 |
| 4–1/2 | 1/2–6 | 1–3/8 | 1/4(a) | 2 |
| 4–1/2 | 1/2–12 | 1–1/4 | 1/2 | 3 |

(a) Min. 2 in. thickness of mineral wool batt insulation required in annular space.

(b) Min. 1 in. thickness of mineral wool batt insulation required in annular space on both sides of floor or wall assembly. Min. 1 in. thickness of caulk to be installed flush with each surface of floor or wall assembly.

3M COMPANY – CP 25WB+ or FB 3000 WT.

*Bearing the UL Classification Mark.



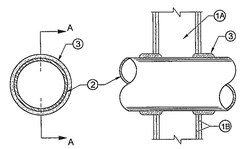

## VERTICAL PIPE SUPPORT DETAIL

NOT TO SCALE

## SYSTEM NO. W-L-1001

JUNE 15, 2005

F RATINGS – 1, 2, 3 AND 4 HR (SEE ITEMS 2 AND 3)
T RATINGS – 0, 1, 2, 3, AND 4 HR (SEE ITEM 3)
L RATING AT AMBIENT – LESS THAN 1 CFM/SQ. FT.
L RATING AT 400°F – LESS THAN 1 CFM/SQ. FT.




SECTION A-A

1. Wall Assembly – The 1, 2, 3 or 4 hr. fire–rated gypsum wallboard/stud wall assembly shall be constructed of the materials and in the manner described in the individual U300 or U400 Series Wall or Partition Designs in the UL Fire Resistance Directory and shall include the following construction features:

   A. Studs – Wall framing may consist of either wood studs (max. 2h fire rated assemblies) or steel channel studs. Wood studs to consist of nom. 2 by 4 in. lumber spaced 16 in. O.C. with nom. 2 by 4 in. lumber end plates and cross braces. Steel studs to be min. 3–5/8 in. wide by 1–3/8 in. deep channels spaced max. 24 in. O.C.

   B. Gypsum Board* – Nom. 1/2 or 5/8 in. thick, 4 ft. wide with square or tapered edges. The gypsum wallboard type, thickness, number of layers, fastener type and sheet orientation shall be as specified in the individual U300 or U400 Series Design in the UL Fire Resistance Directory. Max. diam of opening is 26 in.

2. Through–Penetrant – One metallic pipe, conduit or tubing installed either concentrically or eccentrically within the firestop system. The annular space between pipe, conduit or tubing and periphery of opening shall be min of 0 in. (point contact) to max. 2 in. Pipe, conduit or tubing to be rigidly supported on both sides of wall assembly. The following types and sizes of metallic pipes, conduits or tubing may be used.

   A. Steel Pipe – Nom. 24 in. diam. (or smaller) Schedule 10 (or heavier) steel pipe.

   B. Iron Pipe – Nom. 24 in. diam. (or smaller) service weight (or heavier) cast iron soil pipe, nom. 12 in. diam. (or smaller) or Class 50 (or heavier) ductile iron pressure pipe.

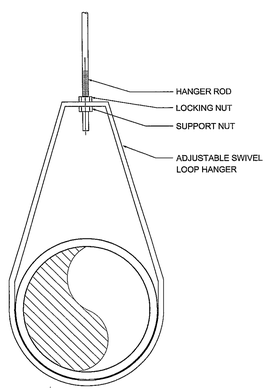
3. Fill, Void or Cavity Material* – Caulk – Min. 5/8. 1–1/4, 1–7/8 and 2–1/2 in. thickness of caulk for 1, 2, 3 and 4 hr. rated assemblies, respectively, applied within annulus, flush with both surfaces of wall. Min. 1/4 in. diam. bead of caulk applied to gypsum board/penetrant interface at point contact location on both sides of wall. The hourly F Rating of the firestop system is dependent upon the hourly fire rating of the wall assembly in which it is installed, as shown in the following table. The hourly T Rating of the firestop system is dependent upon the type or size of the pipe or conduit and the hourly fire rating of the wall assembly in which it is installed, as tabulated below:

| Max Pipe or Conduit Diam. In. | F Rating Hr. | T Rating Hr. |
|---|---|---|
| 1 | 1 or 2 | 0+, 1 or 2 |
| 1 | 3 or 4 | 3 or 4 |
| 4 | 1 or 2 | 0 |
| 6 | 3 or 4 | 0 |
| 12 | 1 or 2 | 0 |

+When copper pipe is used, T Rating is 0 h.

3M COMPANY – CP 25WB+

*Bearing the UL Classification Mark.




| HANGER ROD SPACING | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| PIPE SIZE | 1" | 1 1/4" | 1 1/2" | 2" | 2 1/2" | 3" | 4" | 6" 8" |
| MAX. ALLOWABLE SPACING | 8 FT | | 10 FT | | | 12 FT | | |
| NOTE: FOR TRAPEZE HANGER TAKE SPACING OF SMALLEST PIPE ON TRAPEZE. | | | | | | | | |

## ADJUSTABLE SWIVEL LOOP HANGER DETAIL

NOT TO SCALE

## SPRINKLER HEAD SCHEDULE

| SYMBOL | DESCRIPTION | LOCATION | HAZARD | RELIABLE MODEL NUMBER | K-FACTOR |
|---|---|---|---|---|---|
| ▶ | SIDE WALL HEAD | ALL PUBLIC AREAS AS NOTED ON THE DRAWINGS | ORDINARY GP.1 | MODEL F1FR | 5.62 |
| ⊘ | RECESSED HEAD W/ WHITE FINISH & WHITE ESCUTCHEON | ENTIRE BUILDING UNLESS NOTED OTHERWISE | LIGHT AND ORDINARY GP.1 | EXTENDED COVERAGE MODEL J112 ECLH/ECOH - FP ESCUTCHEON | 11.2 |
| ⊙ | UPRIGHT HEAD W/ BRASS FINISH | EXPOSED STRUCTURAL CEILING AREAS | ORDINARY GP.1 AND GP.2 | MODEL F1FR56 | 5.62 |
| ⊗ | RECESSED HEAD W/ WHITE FINISH & WHITE ESCUTCHEON | ENTIRE BUILDING UNLESS NOTED OTHERWISE | ORDINARY GP.1 | MODELF1FR42 - RECESSED WITH ESCUTCHEON | 5.6 |
| ⊘ "C" | WHITE CONCEALED COVER PLATE | AT HARD CEILING | LIGHT AND ORDINARY GP.1 | G4 XL0 QREC-EC | 11.2 |
| | | | | | |

NOTE:

COORDINATE SPRINKLER HEAD TEMPERATURE RATING WITH NFPA 13 - 2007 EDITION. EQUIPMENT MANUFACTURERS BASED ON RELIABLE, VIKING, GRINNELL OR APPROVED EQUAL.

SPRINKLER HEADS WITH K-FACTORS LESS THAN 5.6 SHALL COMPLY WITH NFPA-13, SECTION 8.3.4.

ALL SPRINKLER HEADS SHALL BE QUICK RESPONSE.

FIRE PROTECTION SHEET LIST


FP000 FIRE PROTECTION NOTES, LEGEND AND SHEET LIST

FP101a LEVEL 1 FIRE PROTECTION PLAN - MULTI-MODAL CENTER
FP101b LEVEL 1 FIRE PROTECTION PLAN - TENANT SPACES

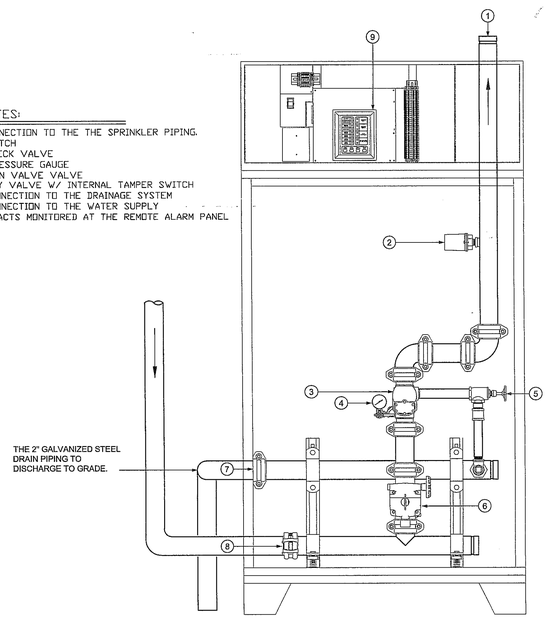
FP102a LEVEL 2 FIRE PROTECTION PLAN - MULTI-MODAL CENTER
FP102b LEVEL 2 FIRE PROTECTION PLAN - TENANT SPACES


## LEGEND

| SYMBOL | DESCRIPTION |
|---|---|
| FP | FIRE PROTECTION |
| | RECESSED SPRINKLER HEAD - SEE SPRINKLER HEAD SCHEDULE |
| TS | BUTTERFLY VALVE WITH TAMPER SWITCH |
| DROP RISE | PIPE DROP OR RISE |
| | CAPPED CONNECTION |
| FS | FLOW SWITCH |
| | |
| | VALVE IN RISER |
| | UPRIGHT SPRINKLER HEAD - SEE SPRINKLER HEAD SCHEDULE |
| FP-1 | STANDPIPE DESIGNATION |

KEYED NOTES:

1 FIELD CONNECTION TO THE THE SPRINKLER PIPING.
2 FLOW SWITCH
3 ALARM CHECK VALVE
4 WATER PRESSURE GAUGE
5 MAIN DRAIN VALVE VALVE
6 BUTTERFLY VALVE W/ INTERNAL TAMPER SWITCH
7 FIELD CONNECTION TO THE DRAINAGE SYSTEM
8 FIELD CONNECTION TO THE WATER SUPPLY
9 DRY CONTACTS MONITORED AT THE REMOTE ALARM PANEL




PRE-MANUFACTURED 4" WET PIPE SYSTEM CABINET. COMPLETELY SELF-CONTAINED, SUPERVISED WET PIPE SYSTEM THAT CAN BE INSTALLED WITHIN A FLOOR SPACE OF 4.7 FT ( NOT INCLUDING DOOR SWING) . INSTALLATION OF THE PRE-MANUFACTURERED CABINET ( NOT INCLUDING EXTERIOR DEVICES, I.E., DETECTORS AND ALARM BELLS) , REQUIRES JUST THREE PIPING CONNECTIONS: A 4" SUPPLY LINE, A 4" SYSTEM LINE, AND A 2" DRAIN LINE. ONE 120 VAC ELECTRICAL SUPPLY CONNECTION IS REQUIRED. THE ENCLOSURE SHALL BE FACTORY INSULATED AND PROVIDED WITH A HEATING ELEMENT.

## WET SPRINKLER ALARM VALVE ASSEMBLY

SCALE:NONE

## FIRE PROTECTION DESIGN CRITERIA:

DESIGN DATA:

HYDRANT TEST NO. ONE
STATIC PRESSURE: 64 PSI
RESIDUAL PRESSURE: 50 PSI
HYDRANT FLOW: 3340 GPM

HYDRANT TEST CONDUCTED ON 02.09.12 AT
512 WEST RUSSELL STREET

WET SYSTEM
TYPE OF SPRINKLER SYSTEM: ENTIRE BUILDING EXCEPT AS NOTED

OCCUPANCY HAZARD CLASSIFICATION: LIGHT HAZARD
DENSITY: 0.10 GPM
AREA OF APPLICATION: 1500 SQ.FT.
COVERAGE PER SPRINKLER: 225 SQ.FT.
HOSE STREAM ALLOWANCE: 100 GPM

WET SYSTEM
TYPE OF SPRINKLER SYSTEM: MECHANICAL ROOM, JANITOR'S CLOSET

OCCUPANCY HAZARD CLASSIFICATION: ORDINARY HAZARD GROUP 1
DENSITY: 0.15 GPM
AREA OF APPLICATION: 1500 SQ.FT.
COVERAGE PER SPRINKLER: 130 SQ.FT.
HOSE STREAM ALLOWANCE: 250 GPM

NOTE:

PLEASE REFER TO NFPA-13 FOR FURTHER CLARIFICATION ON OCCUPANCY HAZARD.

## FIRE PROTECTION GENERAL NOTES:

1. PIPE HANGERS AND CONCRETE INSERTS UTILIZED FOR FIRE PROTECTION THIS PROJECT SHALL BE PROVIDED BY THE FIRE PROTECTION SUB-CONTRACTOR. THIS INCLUDES ALL SUPPLEMENTAL STEEL, ETC.
2. ALL LINTELS REQUIRED IN MASONRY AND STUD WALLS FOR PIPING PENETRATIONS SHALL BE PROVIDED BY THE GENERAL CONTRACTOR.
3. ALL PIPE PENETRATIONS THROUGH WALL AND FLOORS OF MECHANICAL ROOMS SHALL BE SEALED AIR TIGHT. CAULK BOTH SIDES OF SLEEVE WITH NON-HARDENING SEALANT HAVING A HARDNESS RATED AT DUROMETER OF 35 OR LOWER. INTERNALLY PACK SLEEVE WITH SPECIFIED MATERIAL.
4. COORDINATE VERTICAL PIPING WITH ARCHITECTURAL PLANS FOR EXACT LOCATION OF RISER. IF THERE IS A CONFLICT, NOTIFY THE ARCHITECT PRIOR TO INSTALLATION.
5. UNLESS APPROVED BY THE ENGINEER, NO HORIZONTAL PIPING IN THE MECHANICAL ROOM, SHALL BE INSTALLED WITH A BOTTOM OF PIPE ELEVATION BELOW 8'-0"AFF.
6. ALL SPRINKLER HEADS INSTALLED WITHIN LAY-IN CEILINGS SHALL BE CENTERED IN THE TILE EQUAL DISTANCE. UNLESS OTHERWISE NOTED ON THE ARCHITECTURAL DRAWINGS.
7. ALL SPRAY ON FIREPROOFING WHICH SETTLES ON FIRE PROTECTION PIPING SHALL BE REMOVED BY THE GENERAL CONTRACTOR.
8. HYDRAULIC CALCULATIONS AND FABRICATION SHOP DRAWINGS BASED ON ACTUAL CODE REQUIREMENTS SHALL BE A PART OF THIS CONTRACT, FURNISHED BY THE FIRE PROTECTION SUB-CONTRACTOR.
9. PROVIDE SWING JOINTS, ARM OVERS AND PIPE OFF-SETS AS JOB CONDITIONS INDICATE FOR FUTURE ADJUSTMENTS TO UP-FIT CEILING CONDITIONS.
10. PROVIDE 1" MINIMUM DIAMETER PIPING TO A SINGLE SPRINKLER HEAD.
11. SPRINKLER HEADS INSTALLED IN GYP BOARD CEILINGS SHALL BE CENTERED WITH THE LIGHTS AND DIFFUSERS. UNLESS NOTED OTHERWISE ON THE ARCHITECTURAL DRAWINGS.
12. THE FIRE PROTECTION DRAWINGS ARE APPLICABLE TO THE GENERAL CONTRACT.
13. COORDINATE ALL WORK OUTSIDE OF A DESIGNATED AREA OF GENERAL CONSTRUCTION WITH THE OWNER OR THE ARCHITECTS REPRESENTATIVE.
14. COORDINATE SYSTEM SHUT-DOWN REQUIRED FOR NEW WORK WITH THE OWNER OR THE ARCHITECT.
15. THE FIRE PROTECTION CONTRACTOR SHALL BE RESPONSIBLE FOR DAILY CLEANUP AND DEBRIS REMOVAL OF ITEMS GENERATOR BY HIS WORK. ALL TRASH BINS USED SHALL BE INDEPENDENT OF THE OWNERS.
16. ALL PIPING IN PUBLIC AREAS SHALL BE CONCEALED. NOTIFY THE ARCHITECT IN CASE OF CONFLICT PRIOR TO INSTALLATION.
17. FOR SPECIFIC LOCATIONS OF ALL DEVICES, OUTLETS, CONTROLS, FIXTURES, ETC., IN THE WALLS, CEILINGS AND FLOORS OF PUBLIC, AREAS, REFER TO THE ARCHITECTURAL FLOOR PLANS, REFLECTED CEILING PLANS, ELEVATIONS, SECTIONS AND DETAILS FOR DIMENSIONS. IF THERE IS A CONFLICT IN THE LOCATION SHOWN IN THE DRAWINGS, CONSULT THE ARCHITECT FOR THE REVISED LOCATION.
18. THE REQUIRED SHOP DRAWINGS SHALL SPECIFICALLY INDICATE ALL EXPOSED PIPING BY NOTE IN PUBLIC AREAS. THE CONTRACTOR SHALL PROVIDE DETAILS INDICATING THE METHOD OF ROUTING, HANGING AND COORDINATION WITH THE OTHER BUILDING COMPONENTS. THE EXPOSED PIPING SHALL BE ROUTED AS HIGH AS POSSIBLE AND IN AN ORDERLY MANNER.
19. THE FIRE PROTECTION SUB-CONTRACTOR SHALL COORDINATE THE PIPE ROUTING WITHIN THE ELECTRICAL ROOMS TO AVOID GROSSING OVER ELECTRICAL PANELS. THE FIRE PROTECTION SUB-CONTRACTOR SHALL SHOW THE ELECTRICAL PANELS ON THE REQUIRED SHOP DRAWING FLOOR PLANS AS CONFIRMATION OF THIS COORDINATION EFFORT.
20. FLEXIBLE STAINLESS STEEL ARM-OVER CONNECTORS WILL NOT BE ALLOWED.
21. THE SPRINKLER HEAD LAYOUT INDICATED ON THE FLOOR PLANS HAS BEEN COORDINATED WITH THE ARCHITECT. ANY VARIATIONS TO THE SPRINKLER HEAD LAYOUT SHALL BE REVIEWED WITH THE ENGINEER AND ARCHITECT. THE SUCCESSFUL FIRE PROTECTION SUB-CONTRACTOR SHALL PROVIDE THE COMPLETE SYSTEM AS REQUIRED PER CODE AND COORDINATED WITH THE CONSTRUCTION DOCUMENTS. ANY ADDITIONAL SYSTEM COMPONENTS REQUIRED BUT NOT INDICATED ON THESE DRAWINGS SHALL BE PROVIDED AT NO ADDITIONAL COST TO THE OWNER.
22. ALL MATERIALS INSTALLED WITHIN THE AIR PLENUM WILL MEET THE NC MECHANICAL CODE SECTION 602.
23. THE FIRE PROTECTION CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING THE SCOPE OF WORK BETWEEN THE TRADES PRIOR TO PERFORMING ANY WORK. REFER TO THE SPECIFICATIONS AND DETAILS FOR INSTALLATION INSTRUCTIONS.
24. ALL FIRE PROTECTION HANGERS, INSERTS, CLAMPS, STANCHIONS, BRACKETS, AND ALL THREAD RODS SHALL BE GALVANIZED.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M&L Project No. 211.026

NORTH CAROLINA REGISTERED LANDSCAPE ARCHITECT SEAL 023940 ENGINEER ANTHONY W. BRANNON 2.04.14

M&L License No. C-0503

Drawn

Checked

Date January 31, 2014

Revisions


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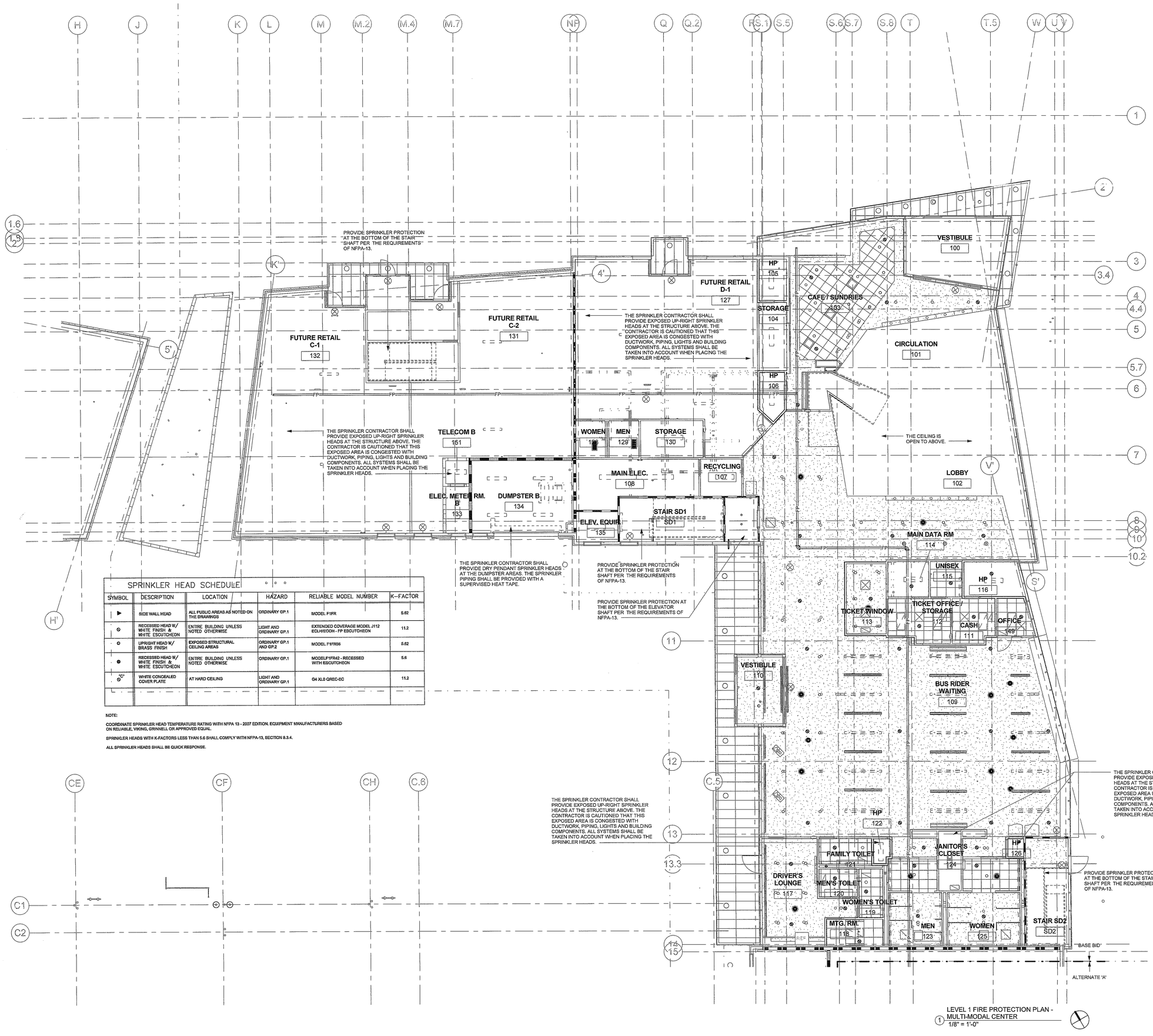
**FAST Multi-Modal Center**
City of Fayetteville
Fayetteville, NC

Project Number 621A

Title
**Fire Protection Notes, Legend and Drawing List**

Sheet
# FP000

Plate of




## SPRINKLER HEAD SCHEDULE

| SYMBOL | DESCRIPTION | LOCATION | HAZARD | RELIABLE MODEL NUMBER | K-FACTOR |
|---|---|---|---|---|---|
| ▶ | SIDE WALL HEAD | ALL PUBLIC AREAS AS NOTED ON THE DRAWINGS | ORDINARY GP.1 | MODEL F1FR | 5.62 |
| ⊘ | RECESSED HEAD W/ WHITE FINISH & WHITE ESCUTCHEON | ENTIRE BUILDING UNLESS NOTED OTHERWISE | LIGHT AND ORDINARY GP.1 | EXTENDED COVERAGE MODEL J112 ECLH/ECOH - FP ESCUTCHEON | 11.2 |
| ○ | UPRIGHT HEAD W/ BRASS FINISH | EXPOSED STRUCTURAL CEILING AREAS | ORDINARY GP.1 AND GP.2 | MODEL F1FR56 | 5.62 |
| ● | RECESSED HEAD W/ WHITE FINISH & WHITE ESCUTCHEON | ENTIRE BUILDING UNLESS NOTED OTHERWISE | ORDINARY GP.1 | MODELF1FR42 - RECESSED WITH ESCUTCHEON | 5.6 |
| ⊙ | WHITE CONCEALED COVER PLATE | AT HARD CEILING | LIGHT AND ORDINARY GP.1 | G4 XL0 QREC-EC | 11.2 |
| | | | | | |

NOTE:

COORDINATE SPRINKLER HEAD TEMPERATURE RATING WITH NFPA 13 - 2007 EDITION. EQUIPMENT MANUFACTURERS BASED ON RELIABLE, VIKING, GRINNELL OR APPROVED EQUAL.

SPRINKLER HEADS WITH K-FACTORS LESS THAN 5.6 SHALL COMPLY WITH NFPA-13, SECTION 8.3.4.

ALL SPRINKLER HEADS SHALL BE QUICK RESPONSE.

1 LEVEL 1 FIRE PROTECTION PLAN - MULTI-MODAL CENTER
1/8" = 1'-0"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02.04.14

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| Date | January 31, 2014 |
| Revisions | |


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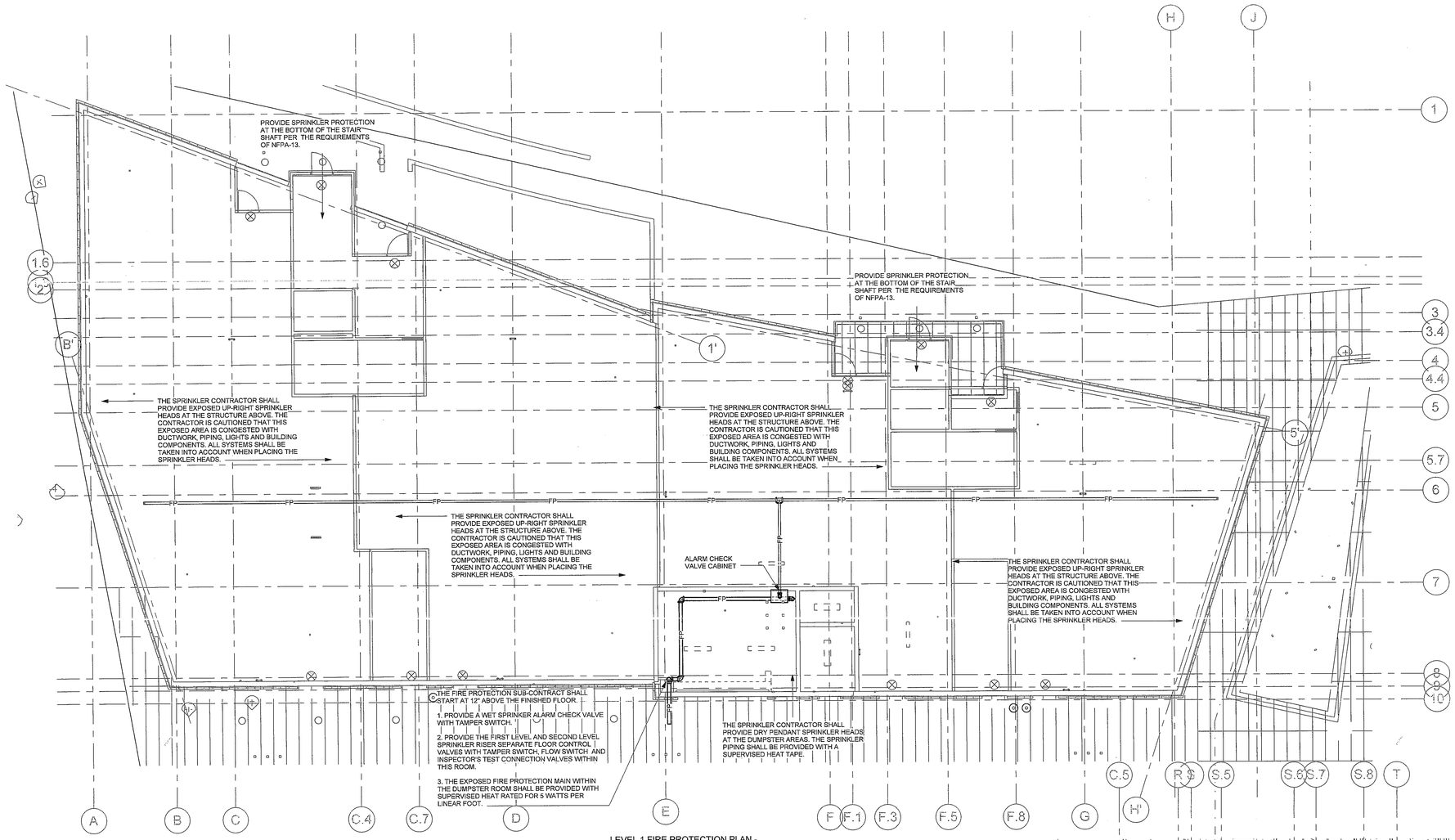
**FAST Multi-Modal Center**
City of Fayetteville
Fayetteville, NC

Project Number 621A

Title
**Level 1 Fire Protection Plan - Multi-Modal Center**

Sheet
# FP101a

Plate of




1 LEVEL 1 FIRE PROTECTION PLAN - TENANT A & B - ALTERNATE 'B'
1/8" = 1'-0"

## SPRINKLER HEAD SCHEDULE

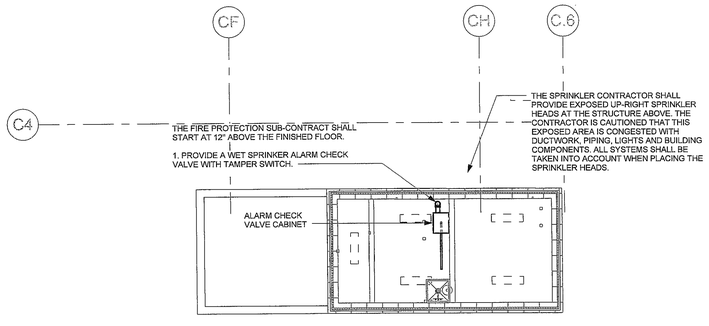
| SYMBOL | DESCRIPTION | LOCATION | HAZARD | RELIABLE MODEL NUMBER | K-FACTOR |
|---|---|---|---|---|---|
| ▶ | SIDE WALL HEAD | ALL PUBLIC AREAS AS NOTED ON THE DRAWINGS | ORDINARY GP.1 | MODEL F1FR | 5.62 |
| ⊘ | RECESSED HEAD W/ WHITE FINISH & WHITE ESCUTCHEON | ENTIRE BUILDING UNLESS NOTED OTHERWISE | LIGHT AND ORDINARY GP.1 | EXTENDED COVERAGE MODEL J112 ECLH/ECOH - FP ESCUTCHEON | 11.2 |
| ○ | UPRIGHT HEAD W/ BRASS FINISH | EXPOSED STRUCTURAL CEILING AREAS | ORDINARY GP.1 AND GP.2 | MODEL F1FRS6 | 5.62 |
| ● | RECESSED HEAD W/ WHITE FINISH & WHITE ESCUTCHEON | ENTIRE BUILDING UNLESS NOTED OTHERWISE | ORDINARY GP.1 | MODELF1FR42 - RECESSED WITH ESCUTCHEON | 5.6 |
| ⊙ | WHITE CONCEALED COVER PLATE | AT HARD CEILING | LIGHT AND ORDINARY GP.1 | G4 XLQ QREC-EC | 11.2 |
| | | | | | |

NOTE:

COORDINATE SPRINKLER HEAD TEMPERATURE RATING WITH NFPA 13 - 2007 EDITION. EQUIPMENT MANUFACTURERS BASED ON RELIABLE, VIKING, GRINNELL OR APPROVED EQUAL.

SPRINKLER HEADS WITH K-FACTORS LESS THAN 5.6 SHALL COMPLY WITH NFPA-13, SECTION 8.3.4.

ALL SPRINKLER HEADS SHALL BE QUICK RESPONSE.




3 LEVEL1 FIRE PROTECTION PLAN - OUTBUILDING
1/8" = 1'-0"




2 LEVEL1 FIRE PROTECTION PLAN - TENANT SPACE E - ALTERNATE 'A'
1/8" = 1'-0"

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# FAST Multi-Modal Center

City of Fayetteville
Fayetteville, NC

Project Number 621A

Title
## Level 1 Fire Protection Plan - Tenant Spaces

Sheet
# FP101b

Plate of

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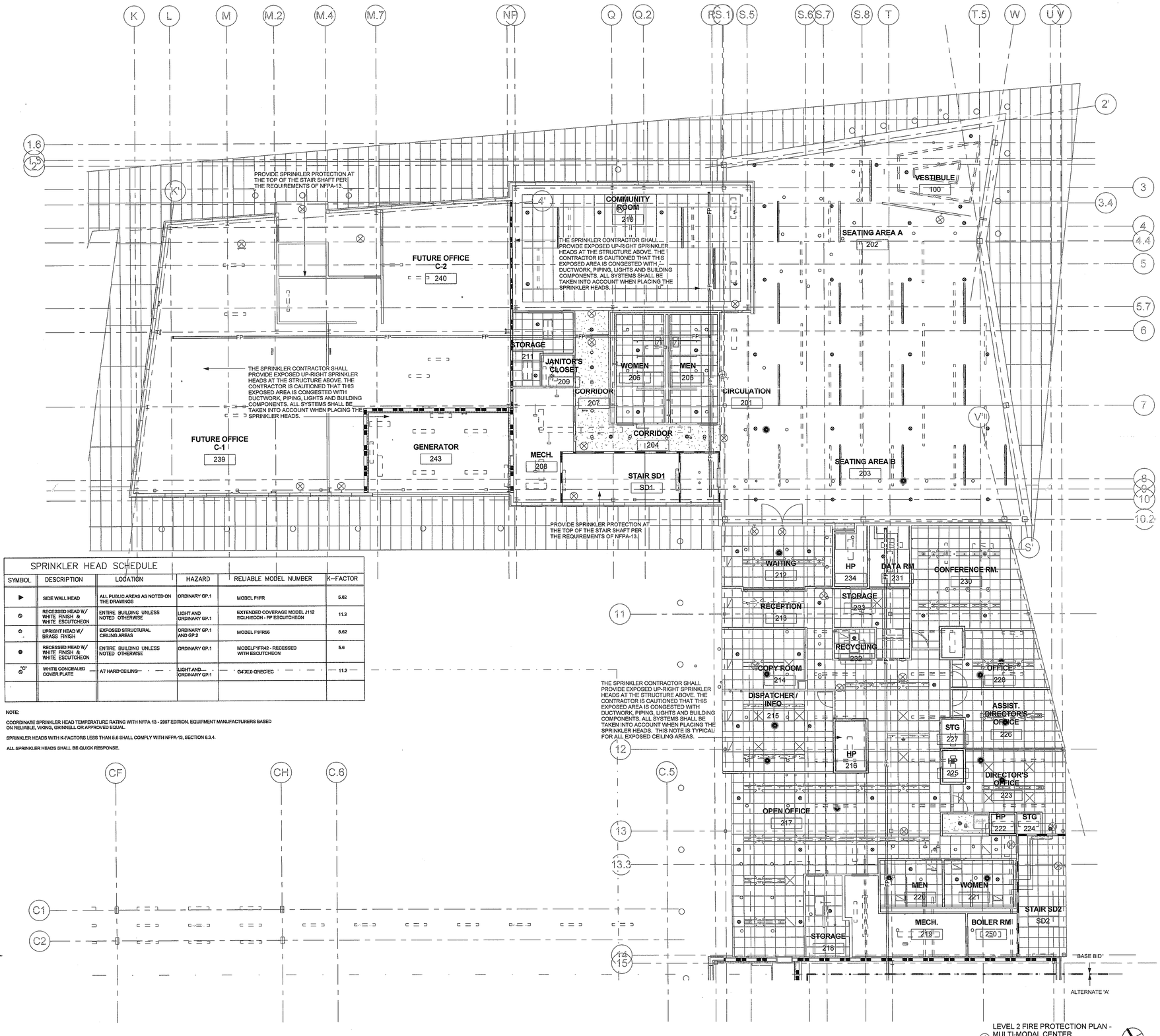


## SPRINKLER HEAD SCHEDULE

| SYMBOL | DESCRIPTION | LOCATION | HAZARD | RELIABLE MODEL NUMBER | K-FACTOR |
|---|---|---|---|---|---|
| ▶ | SIDE WALL HEAD | ALL PUBLIC AREAS AS NOTED ON THE DRAWINGS | ORDINARY GP.1 | MODEL F1FR | 5.62 |
| ⊙ | RECESSED HEAD W/ WHITE FINISH & WHITE ESCUTCHEON | ENTIRE BUILDING UNLESS NOTED OTHERWISE | LIGHT AND ORDINARY GP.1 | EXTENDED COVERAGE MODEL J112 ECLH/ECCH - FP ESCUTCHEON | 11.2 |
| ○ | UPRIGHT HEAD W/ BRASS FINISH | EXPOSED STRUCTURAL CEILING AREAS | ORDINARY GP.1 AND GP.2 | MODEL F1FR56 | 5.62 |
| ⊙ | RECESSED HEAD W/ WHITE FINISH & WHITE ESCUTCHEON | ENTIRE BUILDING UNLESS NOTED OTHERWISE | ORDINARY GP.1 | MODELF1FR42 - RECESSED WITH ESCUTCHEON | 5.6 |
| ⊙"C" | WHITE CONCEALED COVER PLATE | AT HARD CEILING | LIGHT AND ORDINARY GP.1 | G4XLD QREC/EC | 11.2 |
| | | | | | |

NOTE:

COORDINATE SPRINKLER HEAD TEMPERATURE RATING WITH NFPA 13 - 2007 EDITION. EQUIPMENT MANUFACTURERS BASED ON RELIABLE, VIKING, GRINNELL OR APPROVED EQUAL.

SPRINKLER HEADS WITH K-FACTORS LESS THAN 5.6 SHALL COMPLY WITH NFPA-13, SECTION 8.3.4.

ALL SPRINKLER HEADS SHALL BE QUICK RESPONSE.

1 LEVEL 2 FIRE PROTECTION PLAN - MULTI-MODAL CENTER
1/8" = 1'-0"


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REGISTERED PROFESSIONAL ENGINEER SEAL 023940 ANTHONY W. BRYAN 04.04.14

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M&L License No. C-0503

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|---|---|
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| Checked | AWB |
| Date | January 31, 2014 |
| Revisions | |


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**FAST Multi-Modal Center**
City of Fayetteville
Fayetteville, NC

Project Number 621A

Title
**Level 2 Fire Protection Plan - Multi-Modal Center**

Sheet
# FP102a

Plate of

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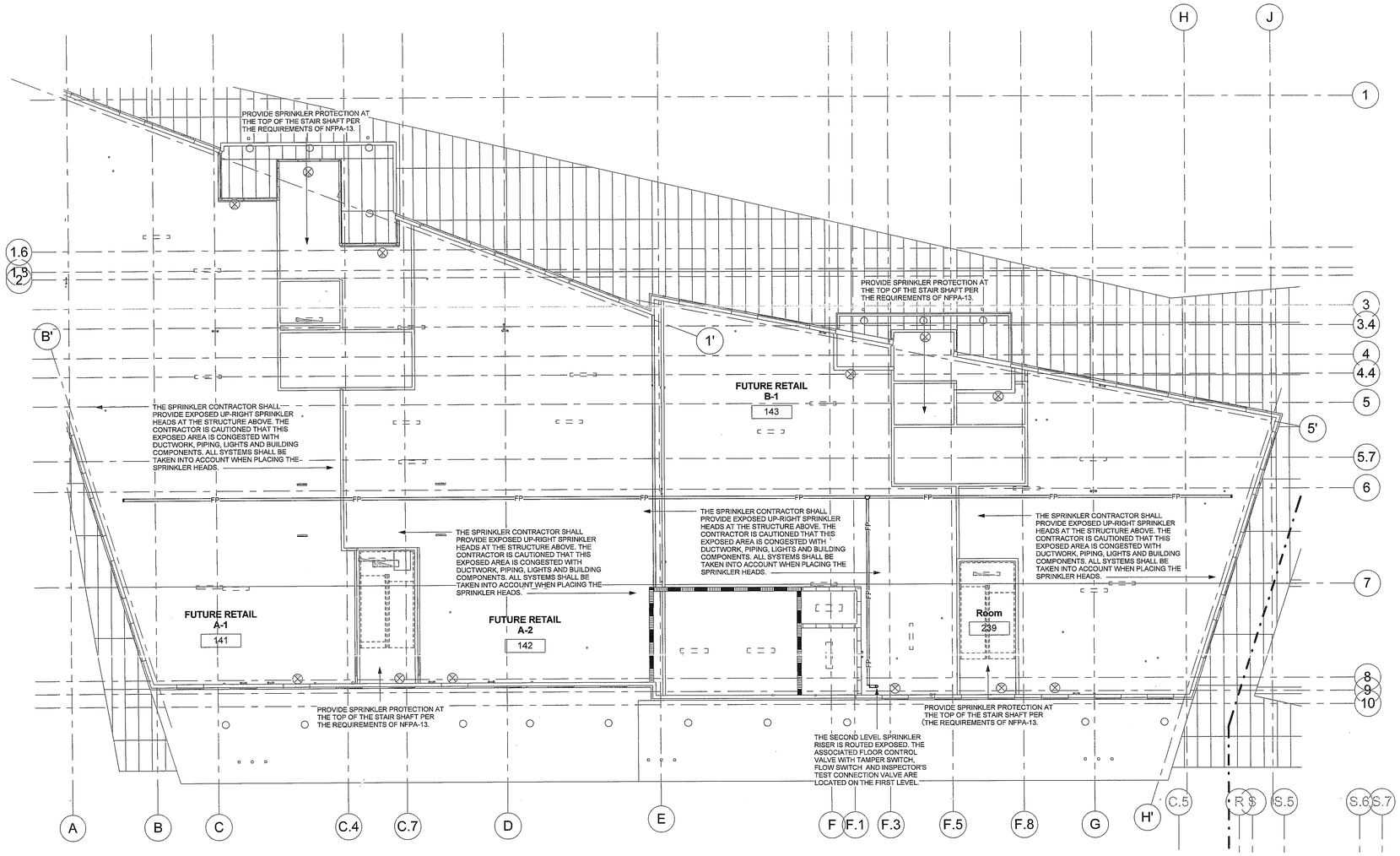



LEVEL 2 FIRE PROTECTION PLAN
-TENANT SPACE A & B - ALTERNATE 'B'
1 1/8" = 1'-0"

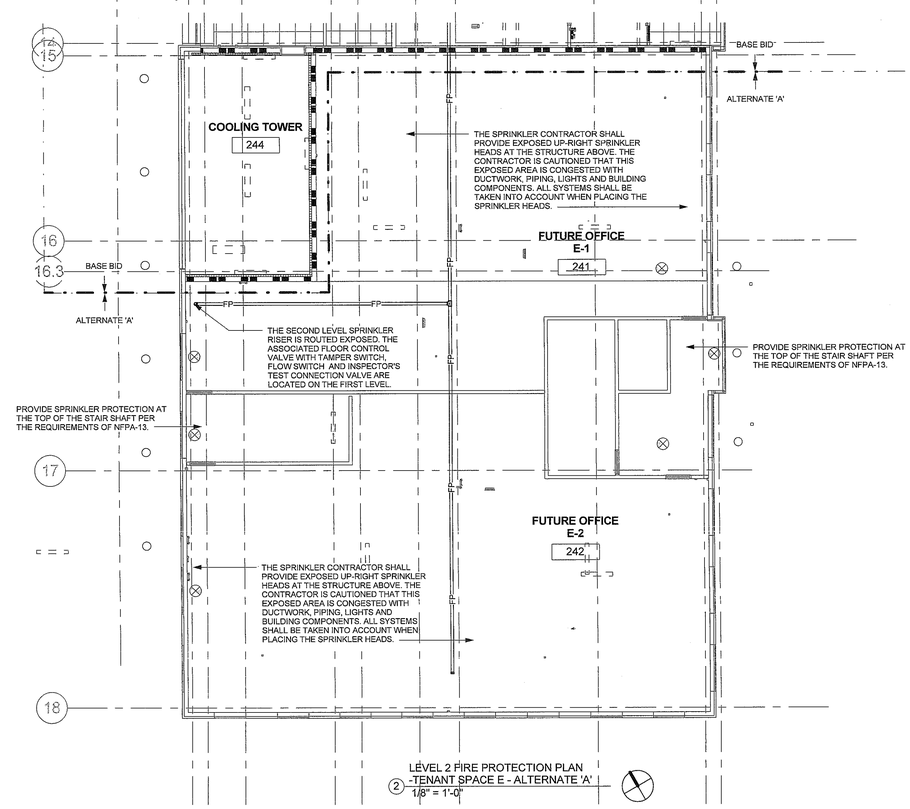
| SPRINKLER HEAD SCHEDULE | | | | | |
|---|---|---|---|---|---|
| SYMBOL | DESCRIPTION | LOCATION | HAZARD | RELIABLE MODEL NUMBER | K-FACTOR |
| ▶ | SIDE WALL HEAD | ALL PUBLIC AREAS AS NOTED ON THE DRAWINGS | ORDINARY GP.1 | MODEL F1FR | 5.62 |
| ⊘ | RECESSED HEAD W/ WHITE FINISH & WHITE ESCUTCHEON | ENTIRE BUILDING UNLESS NOTED OTHERWISE | LIGHT AND ORDINARY GP.1 | EXTENDED COVERAGE MODEL J112 ECLIVECCN - FP ESCUTCHEON | 11.2 |
| ○ | UPRIGHT HEAD W/ BRASS FINISH | EXPOSED STRUCTURAL CEILING AREAS | ORDINARY GP.1 AND GP.2 | MODEL F1FR56 | 5.62 |
| ⊙ | RECESSED HEAD W/ WHITE FINISH & WHITE ESCUTCHEON | ENTIRE BUILDING UNLESS NOTED OTHERWISE | ORDINARY GP.1 | MODELF1FR42 - RECESSED WITH ESCUTCHEON | 5.6 |
| ⊘ "C" | WHITE CONCEALED COVER PLATE | AT HARD CEILING | LIGHT AND ORDINARY GP.1 | G4 XLO QREC-EC | 11.2 |
| | | | | | |

NOTE:

COORDINATE SPRINKLER HEAD TEMPERATURE RATING WITH NFPA 13 - 2007 EDITION. EQUIPMENT MANUFACTURERS BASED ON RELIABLE, VIKING, GRINNELL OR APPROVED EQUAL.

SPRINKLER HEADS WITH K-FACTORS LESS THAN 5.6 SHALL COMPLY WITH NFPA-13, SECTION 8.3.4.

ALL SPRINKLER HEADS SHALL BE QUICK RESPONSE.




LEVEL 2 FIRE PROTECTION PLAN
-TENANT SPACE E - ALTERNATE 'A'
2 1/8" = 1'-0"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| Date | January 31, 2014 |
| Revisions | |


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**FAST Multi-Modal Center**
City of Fayetteville
Fayetteville, NC

Project Number 621A

Title
**Level 2 Fire Protection Plan - Tenant Spaces**

Sheet
# FP102b

Plate of

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## MOTOR CONTROL SCHEDULE

| MOTOR DESIGNATION | UNIT USE | POWER SOURCE | RATING | | | MOTOR LOCATION | MOTOR STARTER | | | | | AUXILIARY CONTROL DEVICES | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | HORSEPOWER (KW) | VOLTAGE | PHASE | | TYPE | LOCATION | FURNISHED BY | INSTALLED BY | WIRED THRU STARTER TO MOTOR | ITEM | LOCATION | FURNISHED BY | INSTALLED BY | WIRED BY |
| HWRP-1 | HW RECIRC. | NORMAL | 1/12 | 120 | 1 | JANITOR 139 | MANUAL | AT DEVICE | PC | PC | EC | – | – | – | – | – |
| | | | | | | | | | | | | | | | | |

ABBREVIATIONS:

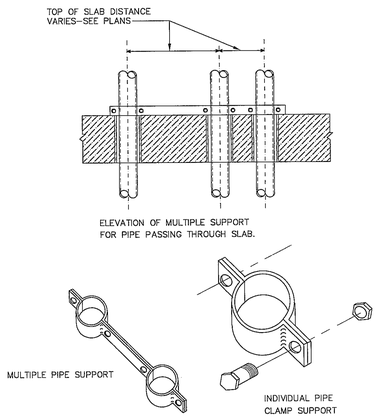
| | | | |
|---|---|---|---|
| P.C. | PLUMBING CONTRACTOR | FVNR | FULL VOLTAGE NON-REVERSING – MAGNETIC |
| E.C. | ELECTRICAL CONTRACTOR | ALT | ALTERNATOR |
| RVNR | REDUCED VOLTAGE NON-REVERSING AUTO-TRANSFORMER, CLOSE TRANSITION – MAGNETIC | AUX | AUXILIARY CONTACTS |
| | | MANUAL | MANUAL ON/OFF |

## MOTOR CONTROL SCHEDULE NOTES

1. THE ABOVE LISTED SCHEDULE OUTLINES THE MAJOR MOTOR LOADS, STARTERS AND THEIR ASSOCIATED AUXILIARY CONTROL DEVICES. IN NO CASE IS THIS SCHEDULE MEANT TO ONLY INDICATE ALL DEVICES, BUT TO ASSIST THE DIVISION 15 CONTRACTORS IN CLARIFYING THEIR SCOPE OF WORK. UNIT HEATERS, ETC. MISCELLANEOUS MOTORS MAY NOT BE REPRESENTED. ALL STARTERS SHALL BE SIZED FOR PROPER OPERATION AND IN CASES WHERE MC WIRES A DEVICE, WIRING AND CONDUIT SHALL BE SIZED PER LATEST EDITION OF N.E.C.
2. FOR EACH STARTER IN THE MOTOR CONTROL CENTER, THE ELECTRICAL CONTRACTOR SHALL PROVIDE TWO NORMALLY OPEN CONTACTS. ALL ADDITIONAL CONTACTS AND RELAYS SHALL BE PROVIDED BY THE MECHANICAL CONTRACTOR.
3. STARTER TYPE (PROVIDED BY MC OR PC)
   A. (FVNR) (INTEGRAL WITH UNIT) FULL VOLTAGE, NON-REVERSIBLE MAGNETIC STARTERS FURNISHED AS PART OF THE UNIT AND CIRCUIT BREAKER OR EQUIVALENT AS ACCEPTED BY A-E. WIRING FROM STARTER TO MOTOR SHALL BE PROVIDED BY EQUIPMENT MANUFACTURER.

GENERAL NOTES:

1. ALL OPENINGS FOR PIPING PENETRATIONS ARE GENERALLY PROVIDED BY THE PLUMBING CONTRACTOR. EXCEPTIONS ARE COVERED BY NOTES AND DETAILS. THE LOCATION AND SIZE OF EACH OPENING SHALL BE FURNISHED TO THE GENERAL CONTRACTOR BY THE PLUMBING CONTRACTOR.
2. PIPE HANGERS AND CONCRETE INSERTS UTILIZED FOR THIS PROJECT SHALL BE PROVIDED BY THE PLUMBING CONTRACTOR. THIS INCLUDES ALL SUPPLEMENTAL STEEL, ETC
3. UNLESS SPECIFICALLY APPROVED BY THE ARCHITECT, NO BURIED PIPING UNDER THE SLAB SHALL BE INSTALLED WITHIN THE FOOTING BEARING
4. SLEEVES FOR PIPING PASSING THROUGH BELOW SLAB FOUNDATION WALLS SHALL BE COORDINATED AND PROVIDED BY THE PLUMBING CONTRACTOR.
5. ALL LINTELS REQUIRED IN MASONRY AND STUD WALLS FOR PIPING PENETRATIONS SHALL BE PROVIDED BY THE GENERAL CONTRACTOR.
6. COORDINATE VERTICAL PIPING WITH ARCHITECTURAL PLANS FOR EXACT LOCATION OF RISER.
7. CUTTING OF OPENINGS IN NEW CONSTRUCTION ASSOCIATED WITH THE PIPING SYSTEMS NOT SPECIFICALLY INDICATED ON ARCHITECTURAL SHEETS TO BE PROVIDED BY THE GENERAL CONTRACTOR, SHALL BE PROVIDED BY THE PLUMBING CONTRACTOR.
8. UNLESS APPROVED BY THE ENGINEER, NO HORIZONTAL PIPING IN THE MECHANICAL ROOM SHALL BE INSTALLED WITH A BOTTOM OF PIPE ELEVATION BELOW 8'-0"AFF.
9. MAKE-UP WATER CONNECTIONS SHALL BE PROVIDED BY PLUMBING CONTRACTOR.
10. ALL BURIED PRESSURE PIPING SHALL BE A MINIMUM OF 36" BELOW FINISHED GRADE TO TOP OF PIPE.
11. ALL PIPING RUNNING UNDERNEATH PAVED AREAS OR PLANNED FUTURE CONSTRUCTION SHALL BE ENCASED IN 6" CONCRETE.
12. INSTALL ALL HANDICAP TOILET FLUSH VALVES ON THE WIDE SIDE OF THE TOILET NO MORE THAN 44" ABOVE THE FLOOR.
13. PROVIDE A P-7 HOSE BIB AT EACH TOILET GROUP AT THE HANDICAP TOILET STALL WITH A FLOOR DRAIN.
14. ALL MATERIALS INSTALLED WITHIN THE AIR PLENUM SHALL MEET THE NC MECHANICAL CODE SECTION 602.
15. PROVIDE AN 18" x 18" x 4" CONCRETE PAD WITH CHAMFERED EDGES SURROUNDING ALL EXTERIOR CLEAN OUTS TO GRADE (C.O.T.G.).




### VERTICAL PIPE SUPPORT DETAIL

NTS

## PLUMBING LEGEND

| SYMBOL | DESCRIPTION |
|---|---|
| CW | COLD WATER |
| HW | HOT WATER – 120° |
| HW | HOT WATER RECIRCULATION |
| V | VENT |
| SAN | SANITARY SEWER |
| GW | GREASE WASTE |
| ORD | OVERFLOW ROOF DRAIN |
| RD | ROOF DRAIN |
| G | NATURAL GAS |
| HW 140 | HOT WATER – 140° |
| HWR 140 | HOT WATER RETURN – 140° |
| —•— | FLOW ARROW |
| —⊢ | WALL HYDRANT/HOSE BIBB |
| | SHUT-OFF VALVE HWR CIRCUIT SETTER OR GAS COCK |
| WCO | WALL CLEANOUT |
| FCO | FLOOR CLEANOUT |
| C.O.T.G. | CLEANOUT TO GRADE |
| VTR | VENT THRU ROOF |
| RDL | ROOF DRAIN LEADER |
| ORDL | OVERFLOW ROOF DRAIN LEADER |
| FD ⊡ | FLOOR DRAIN |
| ⊕ | INVERT ELEVATION |
| 8 / P.XXX | DETAIL SYMBOL INDICATING THE DETAIL NUMBER AND THE DETAIL LOCATION SHEET REFERENCE |

PLUMBING SHEET LIST


| | |
|---|---|
| P000 | PLUMBING LEGEND, SCHEDULE AND DETAILS |
| P001 | PLUMBING DETAILS |
| P002 | PLUMBING DETAILS |
| P101a | LEVEL 1 PLUMBING PLAN – MULTI-MODAL CENTER |
| P101b | LEVEL 1 PLUMBING PLAN – TENANT SPACES |
| P101c | LEVEL 1 PLUMBING PLAN – BUS BAYS |
| P102a | LEVEL 2 PLUMBING PLAN – MULTI-MODAL CENTER |
| P102b | LEVEL 2 PLUMBING PLAN – TENANT SPACES |
| P102c | LEVEL 2 PLUMBING PLAN – BUS BAYS |
| P301 | ROOF PLUMBING PLAN |
| P401 | MULTI-MODAL CENTER LARGE SCALE TOILET PLANS |
| P402 | MULTI-MODAL CENTER SOUTH TOILET GROUP ISOMETRIC |
| P403 | MULTI-MODAL CENTER LARGE SCALE TOILET PLANS |
| P501 | OVERALL ROOF DRAINAGE PIPING ISOMETRIC |


## PLUMBING FIXTURE SCHEDULE

| SYMBOL | DESCRIPTION | ROUGH-IN-SIZE WASTE | VENT | CW | HW | REMARKS |
|---|---|---|---|---|---|---|
| P-1 | WATER CLOSET | 4" | 2" | 1" | — | WALL HUNG, FLUSH VALVE |
| P-1a | WATER CLOSET – HANDICAP | 4" | 2" | 1" | — | WALL HUNG, FLUSH VALVE |
| P-2 | URINAL | 2" | 2" | 3/4" | — | WALL HUNG, FLUSH VALVE |
| P-2a | URINAL – HANDICAP | 2" | 2" | 3/4" | — | WALL HUNG, FLUSH VALVE |
| P-3 | LAVATORY – HANDICAP | 2" | 2" | 1/2" | 1/2" | SOLID SURFACE LAVATORY FURNISHED BY THE GENERAL CONTRACTOR. |
| P-3a | LAVATORY – HANDICAP | 2" | 2" | 1/2" | 1/2" | WALL HUNG |
| P-4 | SINK – HANDICAP | 2" | 2" | 1/2" | 1/2" | COUNTERTOP, SINGLE COMPARTMENT |
| P-4a | SINK – HANDICAP | 2" | 2" | 1/2" | 1/2" | COUNTERTOP, DOUBLE COMPARTMENT |
| P-5 | ELECTRIC WATER COOLER | 2" | 2" | 1/2" | 1/2" | RECESSED, HIGH/LOW, INTEGRAL CHILLER |
| P-6 | SERVICE SINK | 3" | 2" | 1/2" | 1/2" | |
| P-6a | CAN WASH | 3" | 2" | 1/2" | 1/2" | |
| P-7 | HOSE BIBB | — | — | 1/2" | — | |
| P-7a | EXTERIOR BOX HYDRANT | — | — | 3/4" | — | NON-FREEZE |
| P-8 | UTILITY DRAIN BOX | 2" | 2" | — | — | |
| P-9 | ICE MAKER UTILITY BOX | — | — | 1/2" | — | |
| * FD-1 | FLOOR DRAIN – TOILETS | — | — | — | — | |
| * FD-2 | FLOOR DRAIN – SERVICE AREAS | — | — | — | — | |
| * RD-1 | ROOF DRAIN | — | — | — | — | |
| * ORD-1 | OVERFLOW ROOF DRAIN | — | — | — | — | |

NOTE:
* SEE FLOOR PLANS FOR SIZE OF FLOOR DRAINS AND ROOF DRAINS.

## SUMP PUMP SCHEDULE

| SYMBOL | SERVICE | GPM | HEAD | HP | VOLT | PH | RPM | MODEL NUMBER | REMARKS |
|---|---|---|---|---|---|---|---|---|---|
| SP-1 | ELEVATOR VAULT | 50 | 50 | 1 | 208 | 1 | 3500 | GOULDS WE1012H | INTEGRAL FLOAT SWITCH AND OIL- MINDER CONTROLLER W/ ALARM. CONTROL SYSTEM |
| | | | | | | | | | |

## HOT WATER RECIRCULATING PUMP SCHEDULE

| SYMBOL | SERVICE | GPM | HEAD | HP | VOLT | PH | RPM | BELL & GOSSETT MODEL NUMBER | SERVICE | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|
| HWRP-1 | 120° | 10 | 12 | 1/12 | 115 | 1 | 1750 | SERIES PLB-30-.5" | DOMESTIC | CONTROLLED BY AQUASTAT |
| | | | | | | | | | | |

## BACKFLOW PREVENTER SCHEDULE

| SYMBOL | GPM | PRESSURE DROP | SIZE | STRAINER | SERVICE | WATTS MODEL No. | REMARKS |
|---|---|---|---|---|---|---|---|
| RPBP-1 | 40 | 11 PSI | 1½" | YES | – | 909QT-S | COORDINATE LOCATION OF RELIEF VALVE WITH INSTALLATION |
| | | | | | | | |
| | | | | | | | |

## ROOF DRAINAGE SIZING TABLE

| | ROOF DRAINAGE SIZING BASED ON 4.2"/HR | | | |
|---|---|---|---|---|
| | PRIMARY BASELINE | | PRIMARY | SECONDARY |
| | 4" | | 4.2" | 8.4" |
| PIPE SIZE | SQUARE FOOTAGE | | SQUARE FOOTAGE | SQUARE FOOTAGE |
| 3" | 822 | 4 | 783 | 391 |
| 4" | 1800 | 4 | 1,714 | 857 |
| 6" | 5350 | 4 | 5,095 | 2,548 |
| 8" | 11,500 | 4 | 10,952 | 5,476 |
| 10" | 20,700 | 4 | 19,714 | 9,857 |
| 12" | 33,300 | 4 | 31,714 | 15,857 |
| | NOTE: | | | |
| | THE ABOVE SIZING IS BASED ON THE NCPC TABLE 1106.3 AND SECTION 1107.3 FOR PIPING ROUTED AT A 1/8" SLOPE PER FOOT. | | | |

NOTE:
MAX. ROOF PONDING IS 4". REFER TO THE STRUCTURAL DRAWINGS FOR ADDITIONAL INFORMATION.

## INSTANTANEOUS ELECTRIC WATER HEATER SCHEDULE

| SYMBOL | GALLONS STORAGE | GALLONS RECOVERY | KW INPUT | VOLTAGE | CHRONOMITE MODEL NUMBER | SERVICE | REMARKS |
|---|---|---|---|---|---|---|---|
| WH-1 | – | 1.0 GPM | 7 | 208V, 1PH | E-70_L/208 | 97° | RECOVERY BASED ON 31° TEMP. RISE U.N.O. |
| WH-2 | – | 1.0 GPM | 7 | 208V, 1PH | E-70_L/208 | 97° | |
| WH-3 | – | 1.0 GPM | 7 | 208V, 1PH | E-70_L/208 | 97° | |
| WH-4 | – | 1.0 GPM | 7 | 208V, 1PH | E-70_L/208 | 97° | |
| WH-5 | – | 1.0 GPM | 7 | 208V, 1PH | E-70_L/208 | 97° | |
| WH-6 | – | 1.0 GPM | 7 | 208V, 1PH | E-70_L/208 | 97° | |
| WH-7 | – | 1.0 GPM | 7 | 208V, 1PH | E-70_L/208 | 97° | |
| WH-8 | – | 1.0 GPM | 7 | 208V, 1PH | E-70_L/208 | 97° | |
| | | | | | | | |

## ELECTRICAL WATER HEATER SCHEDULE - BASE BID

| SYMBOL | GALLONS STORAGE | GALLONS RECOVERY | KW INPUT | VOLTAGE | A.O.SMITH MODEL NUMBER | SERVICE | REMARKS |
|---|---|---|---|---|---|---|---|
| WH-9 | 30 | 31 | 5 | 480V, 3PH | DSE-30-6KW-208 | 120° | RECOVERY BASED ON 80° TEMP. RISE |
| | | | | | | | |
| | | | | | | | |

## ELECTRICAL WATER HEATER SCHEDULE - UPFIT

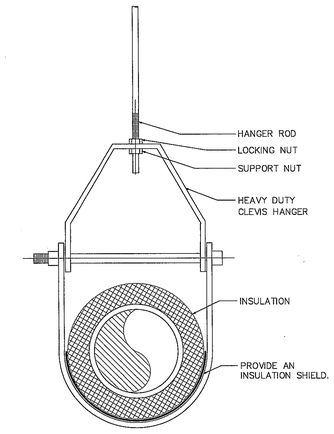
| SYMBOL | GALLONS STORAGE | GALLONS RECOVERY | KW INPUT | VOLTAGE | A.O.SMITH MODEL NUMBER | SERVICE | REMARKS |
|---|---|---|---|---|---|---|---|
| WH-10 | 120 | X | X | 480V, 3PH | DSE-120 | 140° | RECOVERY BASED ON 100° TEMP. RISE |
| WH-11 | 120 | X | X | 480V, 3PH | DSE-120 | 140° | |
| | | | | | | | |

A TOTAL OF TWO WATER HEATERS ARE REQUIRED FOR THE FUTURE UP-FIT. THE FINAL SIZING WILL BE DETERMINED AFTER THE UP-FIT KITCHEN REQUIREMENTS ARE DEFINED.

## GREASE INTERCEPTOR

| SYMBOL | GPM | PIPE SIZE | SERVICE | LOCATION | SCHIER MODEL NUMBER | REMARKS |
|---|---|---|---|---|---|---|
| GI-1 | 100 | 4" | GREASE | EXTERIOR KITCHEN YARD | GB-250-EX-26X-C26-HC | |

A TOTAL OF THREE GREASE INTERCEPTORS ARE REQUIRED FOR THE FUTURE UP-FIT. THE FINAL SIZING WILL BE DETERMINED AFTER THE UP-FIT KITCHEN REQUIREMENTS ARE DEFINED.




### CLEVIS HANGER DETAIL

SCALE: NONE

| MAXIMUM PIPE SUPPORT SPACING | | | | |
|---|---|---|---|---|
| | HORIZONTAL | | | VERTICAL |
| PIPE SIZE | 1" | 1¼" | 1½" AND LARGER | ALL PIPE SIZES |
| COPPER PIPING | 6 FT | | 10 FT | 10 FT |
| PIPE SIZE | ALL PIPE SIZES | | | ALL PIPE SIZES |
| CAST IRON PIPING | 5 FT. (10 FT WHERE 10 FOOT LENGTH OF PIPE ARE USED) | | | 15 FT |
| PIPE SIZE | ALL PIPE SIZES | | | ALL PIPE SIZES |
| STEEL PIPING | 12 FT | | | 15 FT |

NOTE: FOR TRAPEZE HANGER TAKE SPACING OF SMALLEST PIPE ON TRAPEZE.

REFER TO THE GAS PIPING HANGER SCHEDULE FOR GAS PIPING.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M&L Project No. 211.026

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Checked

Date January 31, 2014

Revisions


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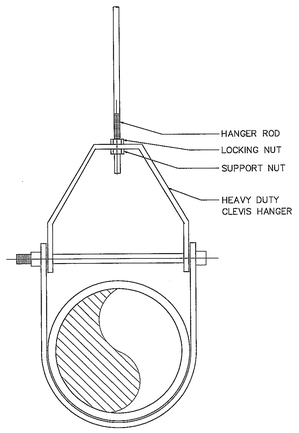
**FAST Multi-Modal Center**
City of Fayetteville
Fayetteville, NC

Project Number 621A

Title
**Plumbing Legend, Schedules and Details**

Sheet
# P000

Plate of

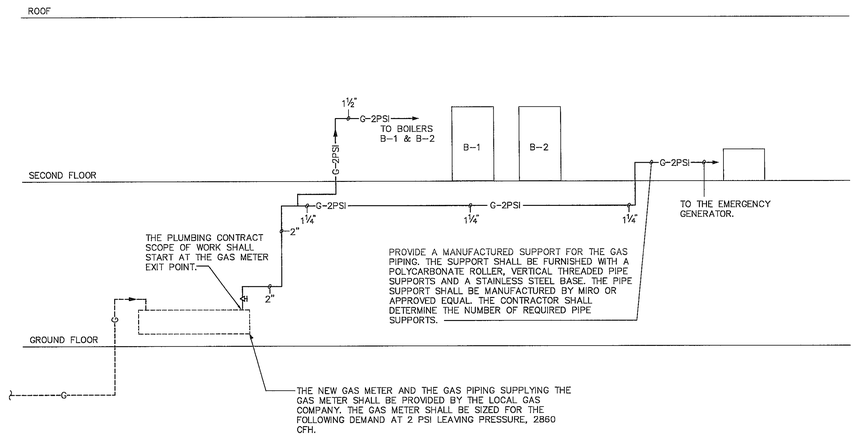



## GAS PIPING - CLEVIS HANGER DETAIL

SCALE: NONE

## GAS PIPING

| MAXIMUM PIPE SUPPORT SPACING | | | | | |
|---|---|---|---|---|---|
| | HORIZONTAL | | | | VERTICAL |
| PIPE SIZE | ½" | ¾" | 1" | 1¼" AND LARGER | ALL PIPE SIZES |
| COPPER PIPING | 4 FT | 6 FT | 8 FT | 10 FT | 1" OR LARGER EVERY FLOOR LEVEL |
| PIPE SIZE | ½" | ¾" | 1" | 1¼" AND LARGER | ALL PIPE SIZES |
| STEEL PIPING | 6 FT | 8 FT | 8 FT | 10 FT | 1" OR LARGER EVERY FLOOR LEVEL |
| NOTE: FOR TRAPEZE HANGER TAKE SPACING OF SMALLEST PIPE ON TRAPEZE. | | | | | |




NOTE:

406.7.3 DISCHARGE OF PURGED GASES.

THE OPEN END OF PIPING SYSTEMS BEING PURGED SHALL NOT DISCHARGE INTO CONFINED SPACES OR AREAS WHERE QUANTITIES OF FLAMMABLE GAS CAN EXCEED 25% OF THE LOWER EXPLOSIVE LIMIT AS MEASURED BY A COMBUSTIBLE GAS DETECTOR. ALL POTENTIAL SOURCES OF IGNITION SHALL BE IDENTIFIED AND ELIMINATED OR CONTROLLED. PRECAUTIONS SHALL BE TAKEN TO MAINTAIN THE CONCENTRATION OF THE FLAMMABLE GAS BELOW 25% OF THE LOWER EXPLOSIVE LIMITS, SUCH AS ADEQUATE VENTILATION, CONTROL OF THE PURGING RATE AND OTHER MEASURES, AS APPROPRIATE.

## NATURAL GAS PIPING RISER SCHEMATIC

SCALE: NONE

NOTE:
PROVIDE A DIRT LEG, UNION AND GAS COCK AT THE GAS EQUIPMENT.

GAS PRESSURE REGULATOR SCHEDULE

| NUMBER | SERVICE | DEMAND | 2 PSI | 11"WC |
|---|---|---|---|---|
| B-1 | BOILER | 800 CFH | 1-1/4" | 1-1/4" |
| B-2 | BOILER | 800 CFH | 1-1/4" | 1-1/4" |
| | EMERGENCY GENERATOR | 1260CFH | 1-1/4 | 1-1/2" |
| | | 2860 CFH TOTAL | | |

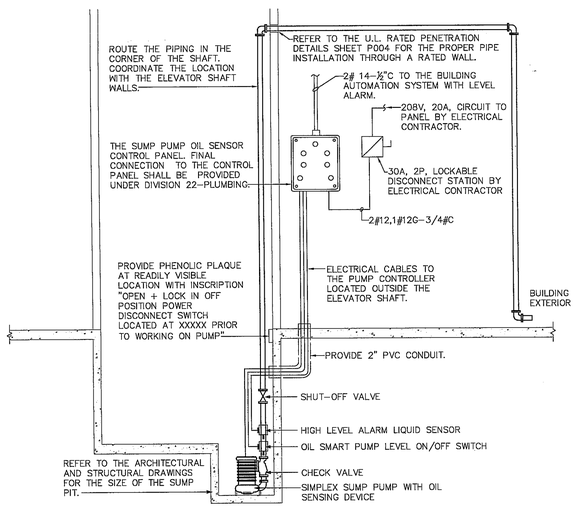
REGULATORS SHALL BE THE VENT-LESS TYPE UNLESS NOTED OTHERWISE:

ALL REGULATORS SHALL BE SIZED FOR 2 PSI ENTERING PRESSURE AND 11"WC LEAVING PRESSURE.

AT EACH EQUIPMENT LOCATION PROVIDE A DIRT-LEG, GAS COCK, UNION AND GAS PRESSURE REGULATOR.

TOTAL LENGTH FOR THE 2 PSI GAS DEMAND IS 325 FEET.
TOTAL LENGTH FOR THE 11" WC GAS DEMAND IS 20 FEET.

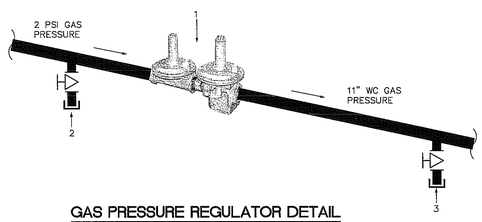
THE LOCATION OF THE PRESSURE REGULATOR IS INDICATED ON THE FLOOR PLANS.




## ELEVATOR SUMP DETAIL

SCALE: NONE

NOTE:
PROVIDE AN OIL SENSING DEVICE ON THE ELEVATOR SUMP PUMP. THE SENSING DEVICE SHALL BE U.L. LISTED AND CONSTRUCTED WATER TIGHT. THE SENSING SHALL MEASURE THE DIELECTIRC CONSTANT OF THE FLUID BEING PUMPED. THE SENSOR SHALL BE CAPABLE OF STARTING THE PUMP AND TURNING THE PUMP OFF. THE CONTROL PANEL AND CONTROLS SHALL BE OIL SMART MODEL OSSIM-30 OR EQUAL BY STANCOR OR LITTLE GIANT.




## GAS PRESSURE REGULATOR DETAIL

SCALE: NONE

GAS PRESSURE REGULATOR NOTES

1. GAS PRESSURE REGULATOR. REFER TO THE GAS PRESSURE REGULATOR TABLE THIS SHEET FOR SIZING. THE REGULATOR DETAILED IS FOR INFORMATION ONLY.
2. A TEE FITTING WITH ONE OPENING VALVED AND CAPPED OR PLUGGED SHALL BE INSTALLED BETWEEN THE MP REGULATOR AND ITS UPSTREAM SHUTOFF VALVE. SUCH TEE FITTING SHALL BE POSITIONED TO ALLOW CONNECTION OF A PRESSURE-MEASURING INSTRUMENT AND TO SERVE AS A SEDIMENT TRAP.
3. A TEE FITTING WITH ONE OPENING VALVED AND CAPPED OR PLUGGED SHALL BE INSTALLED NOT LESS THAN 10 PIPE DIAMETERS DOWNSTREAM OF THE MP REGULATOR OUTLET. SUCH TEE FITTING SHALL BE POSITIONED TO ALLOW CONNECTION OF A PRESSURE-MEASURING INSTRUMENT.

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M&L Project No.
211.026

NORTH CAROLINA PROFESSIONAL SEAL 023940 ENGINEER ANTHONY W. BRANDON
2-04.14

M&L License No. C-0503

Drawn

Checked

Date January 31, 2014

Revisions

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**FAST Multi-Modal Center**
City of Fayetteville
Fayetteville, NC

Project Number 621A

Title
**Plumbing Details**

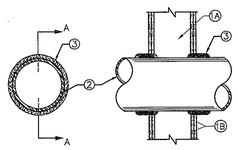
Sheet
# P001

Plate of

## SYSTEM NO. W-L-1001

JUNE 15, 2005

F RATINGS – 1, 2, 3 AND 4 HR (SEE ITEMS 2 AND 3)
T RATINGS – 0, 1, 2, 3, AND 4 HR (SEE ITEM 3)
L RATING AT AMBIENT – LESS THAN 1 CFM/SQ. FT.
L RATING AT 400°F – LESS THAN 1 CFM/SQ. FT.




SECTION A–A

1. Wall Assembly – The 1, 2, 3 or 4 hr. fire–rated gypsum wallboard/stud wall assembly shall be constructed of the materials and in the manner described in the individual U300 or U400 Series Wall or Partition Designs in the UL Fire Resistance Directory and shall include the following construction features:

   A. Studs – Wall framing may consist of either wood studs (max. 2h fire rated assemblies) or steel channel studs. Wood studs to consist of nom. 2 by 4 in. lumber spaced 16 in. O.C. with nom. 2 by 4 in. lumber end plates and cross braces. Steel studs to be min. 3–5/8 in. wide by 1–3/8 in. deep channels spaced max. 24 in. O.C.

   B. Gypsum Board* – Nom. 1/2 or 5/8 in. thick, 4 ft. wide with square or tapered edges. The gypsum wallboard type, thickness, number of layers, fastener type and sheet orientation shall be as specified in the individual U300 or U400 Series Design in the UL Fire Resistance Directory. Max. diam of opening is 26 in.

2. Through–Penetrant – One metallic pipe, conduit or tubing installed either concentrically or eccentrically within the firestop system. The annular space between pipe, conduit or tubing and periphery of opening shall be min of 0 in. (point contact) to max. 2 in. Pipe, conduit or tubing to be rigidly supported on both sides of wall assembly. The following types and sizes of metallic pipes, conduits or tubing may be used.

   A. Steel Pipe – Nom. 24 in. diam. (or smaller) Schedule 10 (or heavier) steel pipe.

   B. Iron Pipe – Nom. 24 in. diam. (or smaller) service weight (or heavier) cast iron soil pipe, nom. 12 in. diam. (or smaller) or Class 50 (or heavier) ductile iron pressure pipe.

   Copper Pipe – Mom. 6 in. diameter Type L (or heavier) copper pipe.

3. Fill, Void or Cavity Material* – Caulk – Min. 5/8. 1–1/4, 1–7/8 and 2–1/2 in. thickness of caulk for 1, 2, 3 and 4 hr. rated assemblies, respectively, applied within annulus, flush with both surfaces of wall. Min. 1/4 in. diam. bead of caulk applied to gypsum board/penetrant interface at point contact location on both sides of wall. The hourly F Rating of the firestop system is dependent upon the hourly fire rating of the wall assembly in which it is installed, as shown in the following table. The hourly T Rating of the firestop system is dependent upon the type or size of the pipe or conduit and the hourly fire rating of the wall assembly in which it is installed, as tabulated below:

| Max Pipe or Conduit Diam. In. | F Rating Hr. | T Rating Hr. |
|---|---|---|
| 1 | 1 or 2 | 0+, 1 or 2 |
| 1 | 3 or 4 | 3 or 4 |
| 4 | 1 or 2 | 0 |
| 6 | 3 or 4 | 0 |
| 12 | 1 or 2 | 0 |

+When copper pipe is used, T Rating is 0 h.

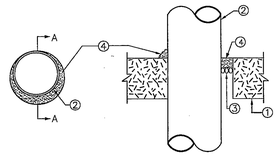
3M COMPANY – CP 25WB+

*Bearing the UL Classification Mark.

## SYSTEM NO. C–AJ–1044

MARCH 15, 2007

F RATINGS – 2, 3, AND 4 HR (SEE ITEMS 2A AND 4)
T RATING – 0 HR
L RATING AT AMBIENT – 2 CFM/SQ. FT.
L RATING AT 400°F – LESS THAN 1 CFM/SQ. FT.




SECTION A–A

1. Floor or Wall Assembly – Lightweight or normal weight (100–150pcf) concrete. Except as noted in table under Item 4, min. thickness of solid concrete floor or wall assembly is 4–1/2 in. Floor may also be constructed of any min. 6 in. thick UL Classified hollow core Precast Concrete Units*. When floor is constructed of hollow core precast concrete units, packing material (Item 3) and caulk fill material (Item 4) to be installed symmetrically on both sides of floor, flush with floor surface. Wall assembly may also be constructed of any UL classified Concrete Blocks*. Max. Diam. of opening is in solid lightweight or normal weight concrete. Floor is 32 in. Max. diam. of opening in floor constructed of hollow–core precast concrete units is 7 in.

   See Concrete Blocks (CAZT) and Precast Concrete Units (CFTV) categories in the Fire Resistance Directory for names of manufacturer's.

1A. Steel Sleeve – (Optional, not shown) – Max. 15 in. ID (or smaller) Schedule 10 (or heavier) steel sleeve cast or grouted into floor or wall assembly. Sleeve may extend a max. of 2 in. above top of floor or beyond either surface of wall. Max. 16 in. ID (or smaller) min. 0.028 wall thickness (or heavier) galvanized steel sleeve cast or grouted into floor or wall assembly. Sleeve may extend a max. of 1/2 in. beyond either surface of floor or wall.

2. Through Penetrants – One metallic pipe, conduit or tubing to be installed either concentrically or eccentrically within the firestop system. Max. annular space between pipe, conduit or tubing and edge of through opening or sleeve is dependent on the parameters shown in Item 4. Min. annular space between pipe or conduit and edge of through opening is zero in. (point contact). Pipe conduit or tubing to be rigidly supported on both sides of floor or wall assembly. The following types and sizes of metallic pipes, conduits or tubing may be used.

   A. Steel Pipe – Nom. 30 in. diam. (or smaller) Schedule 10 (or heavier) steel pipe.

   B. Iron Pipe – Nom. 30 in. diam. (or smaller) cast or ductile iron pipe.

3. Packing Material – Polyethylene backer rod or nom. 1 in. thickness of tightly–packed mineral wool batt or glass fiber insulation firmly packed into opening as a permanent form. Packing material to be recessed from top surface of floor or from both surfaces of wall as required to accommodate the required thickness of caulk fill material (Item 4).

3A. Forming Material* ½ As an alternate to the packing material in Item 3, nom 4 in. wide strips of min 1/2 in thick compressible mat to be stacked to a thickness greater than the width of the annular space and compression–fitted, edge–first, to fill the annular space to a min 4 in. depth. As an option, the strips of min 1/2 in. thick compressible mat may be folded in half, lengthwise, and stacked to a thickness greater than the width of the annular space and compression–fitted, edge–first, to fill the annular space to a min 2 in. depth. Top of forming material to be recessed from top surface of floor or from both surfaces of wall as necessary to accommodate the required thickness of caulk fill material.
   3M COMPANY ½ Fire Barrier Packing Material

4. Fill, Void or Cavity Material* – Caulk – Applied to fill the annular space flush with top surface of floor. In wall assemblies, required caulk thickness to be installed symmetrically on both sides of wall, flush with wall surface. At point contact location between penetrant and sleeve or between penetrant and concrete, a min. 1/4 in. diam. bead of caulk shall be applied at top surface of floor and at both surfaces of wall. The hourly F Ratings and the min. required caulk thicknesses are dependent upon a number of parameters, as shown in the following table:

| Min. Floor or Wall Thickness In. | Nom. Pipe Tube or Conduit Diam. In. | Max. Annular Space In. | Min. Caulk Thickness In. | F Rating Hr. |
|---|---|---|---|---|
| 2–1/2 | 1/2–12 | 1–3/8 | 1/2 | 2 |
| 2–1/2 | 1/2–12 | 3–1/4 | 1 | 2 |
| 4–1/2 | 1/2–6 | 1–3/8 | 1/4(a) | 2 |
| 4–1/2 | 1/2–12 | 1–1/4 | 1/2 | 3 |
| 4–1/2 | 1/2–20 | 2 | 1 | 3 |
| 4–1/2 | 1/2–20 | 2 | 1 | 3 |
| 4–1/2 | 1/2–12 | 3–1/4 | 1 | 3 |
| 4–1/2 | 22–30 | 2 | 2 | 3 |
| 5–1/2 | 1/2–6 | 1–3/8 | 1(b) | 4 |

(a) Min. 2 in. thickness of mineral wool batt insulation required in annular space.

(b) Min. 1 in. thickness of mineral wool batt insulation required in annular space on both sides of floor or wall assembly. Min. 1 in. thickness of caulk to be installed flush with each surface of floor or wall assembly.

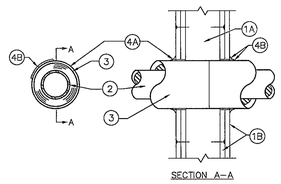
3M COMPANY – CP 25WB+ or FB 3000 WT.

*Bearing the UL Classification Mark.

## SYSTEM NO. W–L–5001

MAY 19, 2005

F RATINGS – 1 AND 2 HR (SEE ITEM 1)
T RATINGS – 3/4, 1 AND 1–1/2 HR (SEE ITEM 3)
L RATING AT AMBIENT – 2 CFM/SQ. FT.
L RATING AT 400°F – LESS THAN 1 CFM/SQ. FT.




SECTION A–A

1. Wall Assembly – The 1 or 2 hr. fire rated gypsum wallboard/stud assembly shall be constructed of the materials and in the manner described in the individual U300 or U400 or V400 series Wall or Partition Design in the UL Fire Resistance Directory and shall include the following construction features:

   A. Studs – Wall framing may consist of either wood studs or steel channel studs. Wood studs to consist of nom. 2 by 4 in. (51 by 102 mm) lumber spaced 16 in. (406 mm) OC with nom. 2 by 4 in. (51 by 102 mm) lumber end plates and cross braces. Steel studs to be min. 3–5/8 in. (92 mm) wide by 1–3/8 in. (35 mm) deep channels spaced max. 24 in. (610 mm) OC.

   B. Gypsum Board* – Nom. 5/8 in. (16 mm) thick, 4 ft (122 cm) wide with square or tapered edges. The gypsum wallboard type, thickness, number of layers, fastener type and sheet orientation shall be as specified in the individual U300 or U400 Series Design in the UL Fire Resistance Directory. Max. Diam. of opening is 14–1/2 (368 mm) in. for wood stud walls and 18 in. (457 mm) for steel stud walls.

   The hourly F rating of the firestop system is 1 hr. when installed in a 1 hr. fire rated wall and 2 hr. when installed in a 2 hr. fire rated wall.

2. Through Penetrants – One metallic pipe or tubing to be centered within the firestop system. Pipe or tubing to be rigidly supported on both sides of wall assembly. The following types and sizes of metallic pipes or tubing may be used:

   A. Steel Pipe – Nom. 12 in. (305 mm) diam. (or smaller) Schedule 10 (or heavier) steel pipe.

   B. Copper Tubing – Nom. 6 in. (152 mm) diam. (or smaller) Type L (or heavier) copper tubing.

   C. Copper Pipe – Nom. 6 in. (152 mm) diam. (or smaller) Regular (or heavier) copper pipe.

3. Pipe Covering* – Nom. 1 or 2 in. (25 or 51 mm) thick hollow cylindrical heavy density glass fiber units jacketed on the outside with an all service jacket. Longitudinal joints sealed with metal fasteners or with butt strip tape supplied with the product. When nom. 1 in. (25 mm) thick pipe covering is used, the annular space between the pipe covering and the circular cutout in the gypsum wallboard layers on each side of the wall shall be min. 1/4 in. to max. 3/8 in. (6 mm to max 10 mm). When nom. 2 in. (51 mm) thick pipe covering is used, the annular space between the pipe covering and the circular cutout in the gypsum wallboard layers on each side of the wall shall be min. 1/2 in. to max. 3/4 in. (13 mm to max. 10 mm).

   See Pipe and Equipment Covering Materials (BRGU) category in Building Materials Directory for names of manufacturers. Any pipe covering material meeting the above specifications and bearing the UL Classification Marking with a Flame Spread Index of 25 or less and a Smoke Developed Index of 50 or less may be used.

   The hourly T Rating of the firestop system is 3/4 hr. when nom. 1 in. (25 mm) thick pipe covering is used. The hourly T Rating of the firestop system is 1 hr. and 1–1/2 hr. when nom. 2 in. (52 mm) thick pipe covering is used with 1 hr. and 2 hr. fire rated walls, respectively.

4. Firestop System – Installed symmetrically on both sides of wall assembly. The details of the firestop system shall be as follows:

   A. Fill, Void or Cavity Materials* – Wrap Strip – nom. 1/4 in. (6 mm) thick intumescent elastomeric material faced on one side with aluminum foil, supplied in 2 in. (51 mm) wide strips. Nom. 2 in. (51 mm) wide strip tightly wrapped around pipe covering (foil side out) with seam butted. Wrap strip layer securely bound with steel wire or aluminum foil tape and slid into annular space approx. 1–1/4 in. (32 mm) such that approx. 3/4 in. (19 mm) of the wrap strip width protrudes from the wall surface. One layer of wrap strip is required when nom. 1 in. (25 mm) thick pipe covering is used. Two layers of wrap strip are required when nom. 2 in. (51 mm) thick pipe covering is used.

      3M COMPANY – FS–195+

   B. Fill, Void or Cavity Materials* – Caulk – min. 1/4 in. (6 mm) diam. continuously bead applied to the wrap strip/wall interface and to the exposed edge of the wrap strip layer approx. 3/4 in. (19 mm) from the wall surface.

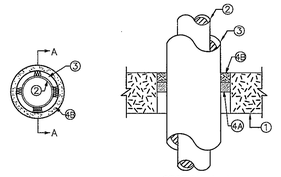
      3M COMPANY – CP 25WB+, IC 15WB or FireDam 150+ caulk or FB–3000 WT sealant

*Bearing the UL Classification Mark

## SYSTEM NO. C–AJ–5001

MARCH 05, 2007

F RATINGS – 1–1/2, 2 AND 3 HR (SEE ITEM 4)
T RATINGS – 0, 1/2, 3/4 AND 1 HR (SEE ITEMS 1A AND 4)
L RATING AT AMBIENT – 2 CFM/SQ. FT.
L RATING AT 400°F – LESS THAN 1 CFM/SQ. FT.




SECTION A–A

1. Floor or Wall Assembly – Min. 2–1/2 in. thick reinforced lightweight or normal weight (100–150) pcf concrete. Wall may also be constructed of any UL Classified Concrete Blocks*. Max. diam. of opening is 18 in.

   See Concrete Blocks (CAZT) category in the Fire Resistance Directory for names of manufacturers.

1A. Steel Sleeve (Optional, not shown) – Nom. 10 in. (or smaller) Schedule 10 (or heavier) steel sleeve cast or grouted into floor or wall assembly. Sleeve may extend a max. of 2 in. above top of floor or beyond either surface of wall. T Rating is 0 Hr. when sleeve is used.

2. Through Penetrant – Nom. 4 in. diam. (or smaller) Type L (or heavier) copper pipe, nom. 12 in. diam. (or smaller) service weight (or heavier) cast iron soil pipe, nom. 12 in. diam. (or smaller) Class 50 (or heavier) ductile iron pressure pipe or nom. 12 in. diam. (or smaller) Schedule 10 (or heavier) steel pipe centered in the opening and rigidly supported on both sides of the floor or wall assembly.

3. Pipe Coverings – Nom. 1/2 to 2 in. thick hollow cylindrical heavy density (min. 3.5 pcf) glass fiber units jacketed on the outside with an all service jacket. Longitudinal joints sealed with metal fasteners or factory–applied self–sealing lap tape. Transverse joints secured with metal fasteners of with butt strip tape supplied with the product.

   See Pipe and Equipment Covering – Materials* (BRGU) category in Building Materials Directory for names of manufacturers. Any pipe covering material meeting the above specifications and bearing the UL Classification Marking with a Flame Spread Index of 25 or less and a Smoke Developed Index of 50 or less may be used.

4. Firestop System – The details of the firestop system shall be as follows:

   A. Packing Material – Min. 1 in. thickness of firmly packed mineral wool batt insulation used as a permanent form. Packing material to be recessed from top surface of floor or sleeve or from both surfaces of wall as required to accommodate the required thickness of caulk fill material (Item B).

   B. Fill, Void or Cavity Material* – Caulk – Applied to fill the annular space flush with the top surface of the floor or sleeve or flush with both surfaces of wall. When nom. pipe covering thickness is 2 in. min thickness of caulk fill material is 2 in., When nom. pipe covering thickness is 1–1/2 in, or less, min. thickness of caulk fill material is 1 in. The hourly F and T Ratings of the firestop system are dependent upon the thickness of the floor or wall, the size of pipe, the thickness of pipe covering material and the size of the annular space (between the pipe covering material and the edge of the circular through opening), as shown in the following table:

| Min. Floor or Wall Thickness In. | Max. Pipe Diam. In. | Nom. Pipe Covering Thickness In. | Annular Space In. | F Rating Hr. | T Rating Hr. |
|---|---|---|---|---|---|
| 2–1/2 | 4 | 1 or 1–1/2 | 1/2 to 2–3/8 | 2 | 1 |
| 4–1/2 | 4 | 2 | 1/4 to 3–5/8 | 2 | 1–1/2 |
| 2–1/2 | 12 | 1 | 1/2 to 1–1/2 | 2 | 1/2 |
| 4–1/2 | 12 | 1 | 1/2 to 2–3/8 | 3 | 1 |
| 2–1/2 | 12 | 1/2 | 1/2 to 2–3/8 | 2 | 0 |

3M COMPANY – CP 25WB+

*Bearing the UL Classification Mark.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M&L Project No.
211.026

NORTH CAROLINA SEAL 28346 ENGINEER ANTHONY W. BRANSON 3.04.14

M&L License No. C–0503

Drawn

Checked

Date January 31, 2014

Revisions


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**FAST Multi-Modal Center**
City of Fayetteville
Fayetteville, NC

Project Number 621A

Title
**Plumbing Details**

Sheet
# P002

Plate of

## KEYED NOTES

| No. | Description |
|---|---|
| 01 | PIPING ROUTED BELOW THE FINISHED SLAB OR BELOW THE FINISHED GRADE. |
| 02 | PIPING ROUTED WITHIN THE CEILING CAVITY OR ROUTED EXPOSED AT THE STRUCTURE ABOVE. |
| 04 | ROOF DRAIN OR OVERFLOW ROOF DRAIN LEADER ROUTED DOWN FROM THE LEVEL ABOVE (LEVEL ONE). ROUTED DOWN TO THE LEVEL BELOW (LEVEL TWO). |
| 08 | A SANITARY RISER ROUTED DOWN FROM THE FLOOR ABOVE (LEVEL ONE). ROUTED DOWN TO THE LEVEL BELOW (LEVEL TWO). THE SIZE OF THE RISER IS LOCATED ADJACENT TO THE KEYED NOTE. |
| 09 | THE SANITARY, STORM OR DOMESTIC WATER MAIN SHALL BE PROVIDED FROM THIS POINT BY THE GENERAL CONTRACTOR. REFER TO CIVIL DRAWING SHEET C107 FOR CONTINUATION OF THE UTILITY PIPING. |
| 10 | PROVIDE A VALVED AND CAPPED 2" COLD WATER WITHIN THE LEVEL ONE CEILING CAVITY FOR FUTURE TENANT UPFIT. |
| 11 | PIPING ROUTED UP TO A PRIMARY ROOF DRAIN OR SECONDARY OVERFLOW ROOF DRAIN. REFER TO THE ROOF PLAN FOR THE LOCATION AND SIZE OF THE ASSOCIATED DRAIN. |
| 12 | PROVIDE A HINGED STAINLESS STEEL OVERFLOW ROOF DRAIN SCUPPER, JR SMITH MODEL SQ-9-2030. THE SIZE OF THE SCUPPER SHALL MATCH THE SIZE OF THE OVERFLOW DRAIN LEADER. |
| 14 | DISCHARGE THE 2" ELEVATOR SUMP PUMP FORCED MAIN TO THE FINISHED GRADE. |
| 19 | PROVIDE HEAT TAPE WITH AN INTEGRAL THERMOSTAT. THE HEAT TAPE SHALL BE RATED FOR 5 WATTS PER LINEAR FOOT. THE HEAT TAPE SHALL BE PROVIDED FOR THE EXPOSED COLD WATER PIPING WITHIN THE DUMPSTER ROOM. |

THE PLUMBING CONTRACTOR SHALL ROUTE THE 6" ROOF DRAINAGE MAIN TO THE RAIN WATER CISTERN PROVIDED UNDER SEPARATE CONTRACT. FINAL CONNECTION TO THE CISTERN INLET SHALL BE PROVIDED BY THE CISTERN SUPPLIER. THE EXPOSED CISTERN ROOF DRAINAGE PIPING SHALL BE STAINLESS STEEL.

6" PRIMARY 7200 SQ.FT.

6" PRIMARY 3100 SQ.FT.

8" PRIMARY 9050 SQ.FT.

4" PRIMARY 2412 SQ.FT.

4" PRIMARY 480 SQ.FT.

8" PRIMARY 7115 SQ.FT.

THE UTILITY BOX WITH DRAIN ONLY IS PROVIDED FOR THE HVAC CONDENSATE DRAINAGE.

SUMP PUMP CONTROL PANEL

THE GAS METER AND PIPING SUPPLYING THE GAS METER ARE PROVIDED BY THE LOCAL GAS SUPPLIER. THE PLUMBING CONTRACTOR SHALL CONNECT TO THE METER AND PROVIDE ALL PIPING AND COMPONENTS TO CONNECT TO THE BUILDING GAS EQUIPMENT. THE GAS METER SHALL BE SIZED FOR 2880 CFH AT 2PSI LEAVING PRESSURE.

LEVEL 1 PLUMBING PLAN - MULTI-MODAL CENTER
1/8" = 1'-0"


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3.04.14

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M&L License No. C-0503

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**FAST Multi-Modal Center**
City of Fayetteville
Fayetteville, NC

Project Number 621A

Title
**Level 1 Plumbing Plan - Multi-Modal Center**

Sheet
# P101a

Plate of

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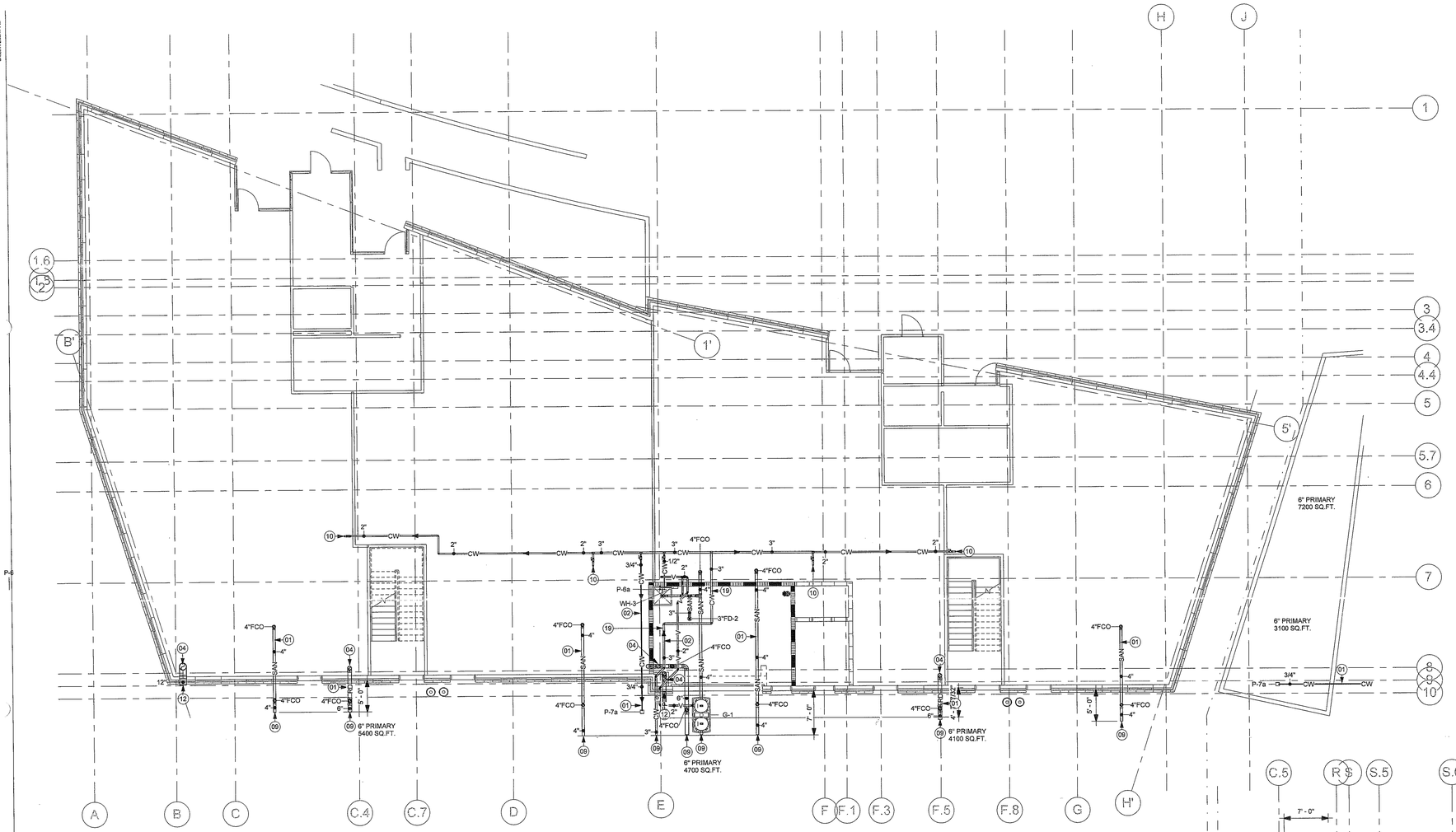
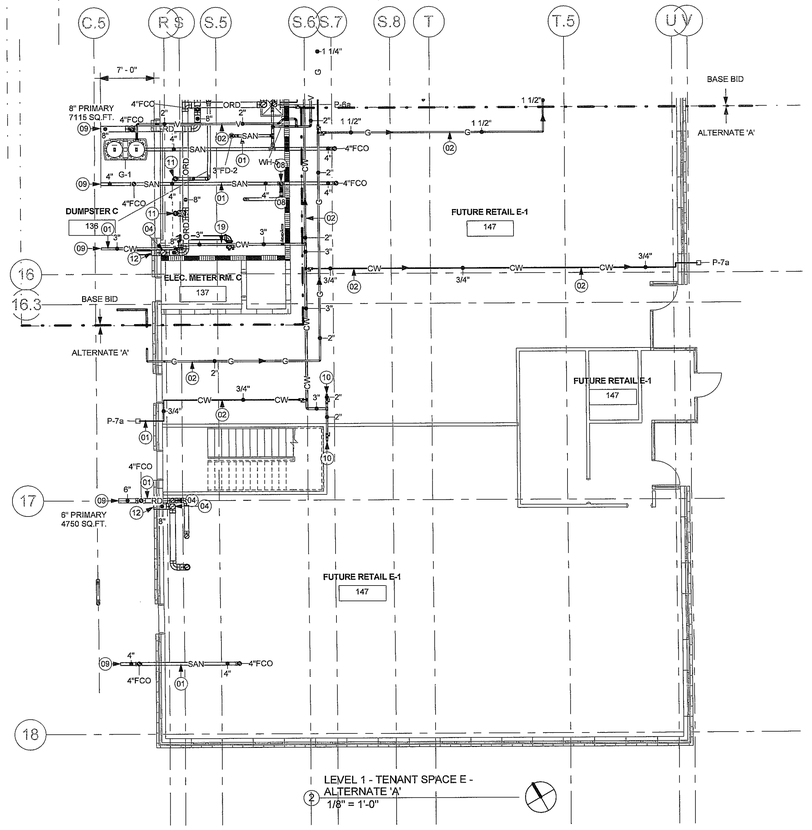
| KEYED NOTES | |
|---|---|
| **No.** | **Description** |
| 01 | PIPING ROUTED BELOW THE FINISHED SLAB OR BELOW THE FINISHED GRADE. |
| 02 | PIPING ROUTED WITHIN THE CEILING CAVITY OR ROUTED EXPOSED AT THE STRUCTURE ABOVE. |
| 04 | ROOF DRAIN OR OVERFLOW ROOF DRAIN LEADER ROUTED DOWN FROM THE LEVEL ABOVE (LEVEL ONE). ROUTED DOWN TO THE LEVEL BELOW (LEVEL TWO). |
| 08 | A SANITARY RISER ROUTED DOWN FROM THE FLOOR ABOVE (LEVEL ONE). ROUTED DOWN TO THE LEVEL BELOW (LEVEL TWO). THE SIZE OF THE RISER IS LOCATED ADJACENT TO THE KEYED NOTE. |
| 09 | THE SANITARY, STORM OR DOMESTIC WATER MAIN SHALL BE PROVIDED FROM THIS POINT BY THE GENERAL CONTRACTOR. REFER TO CIVIL DRAWING SHEET C107 FOR CONTINUATION OF THE UTILITY PIPING. |
| 10 | PROVIDE A VALVED AND CAPPED 2" COLD WATER WITHIN THE LEVEL ONE CEILING CAVITY FOR FUTURE TENANT UPFIT. |
| 11 | PIPING ROUTED UP TO A PRIMARY ROOF DRAIN OR SECONDARY OVERFLOW ROOF DRAIN. REFER TO THE ROOF PLAN FOR THE LOCATION AND SIZE OF THE ASSOCIATED DRAIN. |
| 12 | PROVIDE A HINGED STAINLESS STEEL OVERFLOW ROOF DRAIN SCUPPER, JR SMITH MODEL SQ-9-2039. THE SIZE OF THE SCUPPER SHALL MATCH THE SIZE OF THE OVERFLOW DRAIN LEADER. |
| 19 | PROVIDE HEAT TAPE WITH AN INTEGRAL THERMOSTAT. THE HEAT TAPE SHALL BE RATED FOR 5 WATTS PER LINEAR FOOT. THE HEAT TAPE SHALL BE PROVIDED FOR THE EXPOSED COLD WATER PIPING WITHIN THE DUMPSTER ROOM. |




LEVEL 1 - TENANT SPACES A & B - ALTERNATE 'B'
1/8" = 1'-0"




LEVEL 1 - TENANT SPACE E - ALTERNATE 'A'
1/8" = 1'-0"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M&L License No. C-0503

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**FAST Multi-Modal Center**
City of Fayetteville
Fayetteville, NC

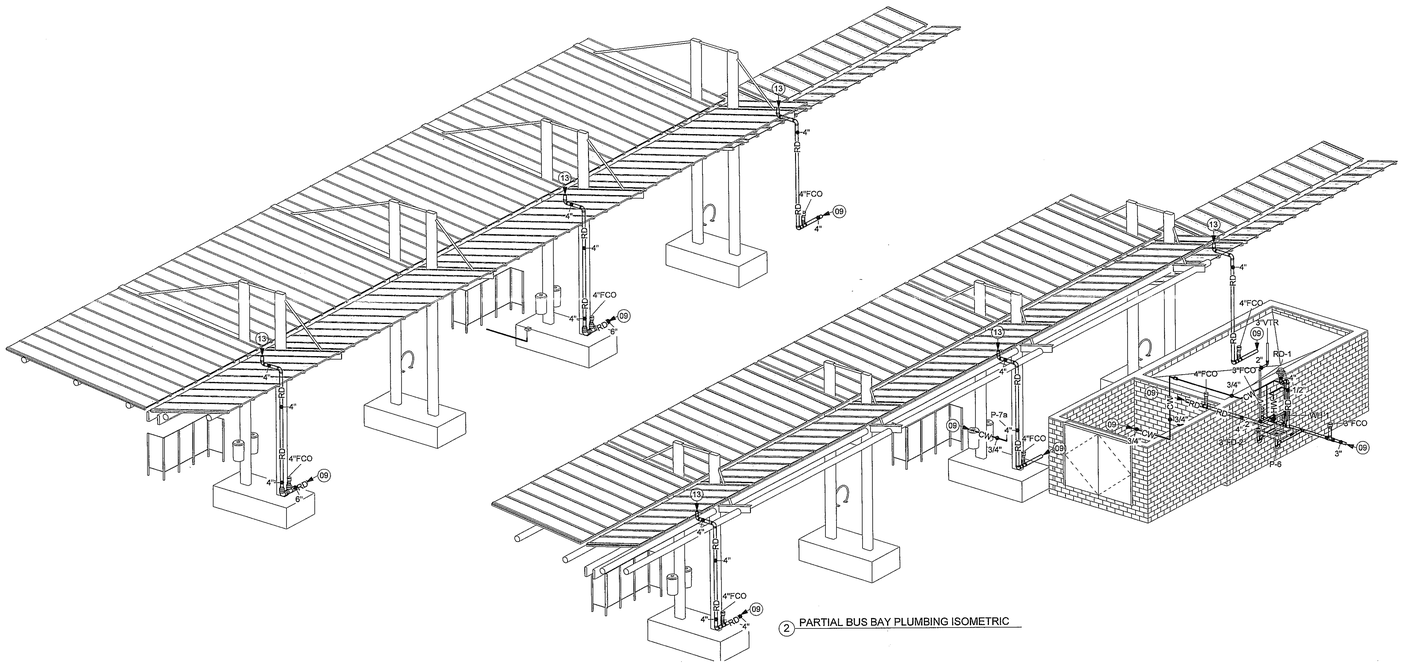
Project Number 621A

Title
**Level 1 Plumbing Plan - Tenant Spaces**

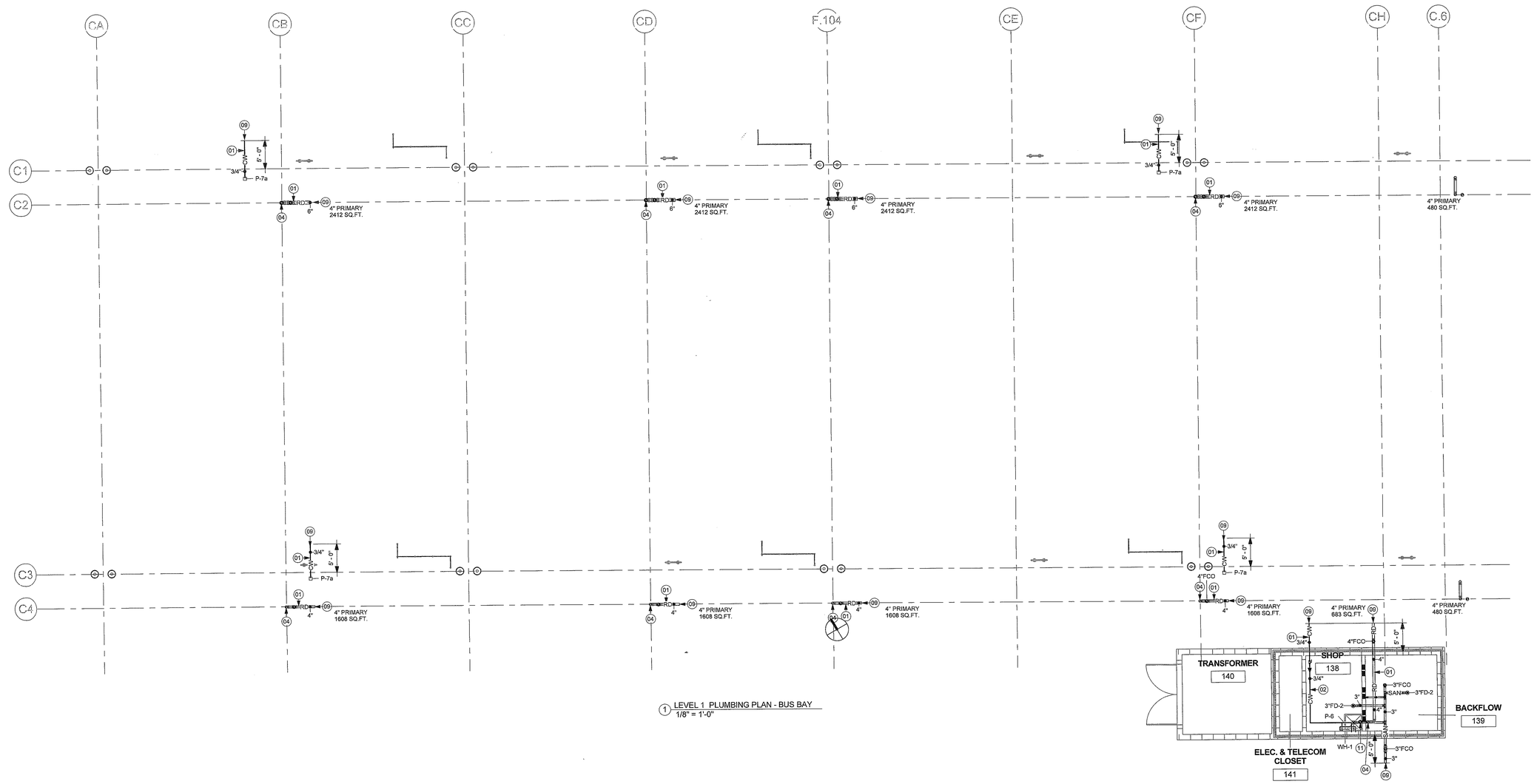
Sheet
# P101b

Plate of

| KEYED NOTES | |
|---|---|
| **No.** | **Description** |
| 01 | PIPING ROUTED BELOW THE FINISHED SLAB OR BELOW THE FINISHED GRADE. |
| 02 | PIPING ROUTED WITHIN THE CEILING CAVITY OR ROUTED EXPOSED AT THE STRUCTURE ABOVE. |
| 04 | ROOF DRAIN OR OVERFLOW ROOF DRAIN LEADER ROUTED DOWN FROM THE LEVEL ABOVE (LEVEL ONE). ROUTED DOWN TO THE LEVEL BELOW (LEVEL TWO). |
| 09 | THE SANITARY, STORM OR DOMESTIC WATER MAIN SHALL BE PROVIDED FROM THIS POINT BY THE GENERAL CONTRACTOR. REFER TO CIVIL DRAWING SHEET C107 FOR CONTINUATION OF THE UTILITY PIPING. |
| 11 | PIPING ROUTED UP TO A PRIMARY ROOF DRAIN OR SECONDARY OVERFLOW ROOF DRAIN. REFER TO THE ROOF PLAN FOR THE LOCATION AND SIZE OF THE ASSOCIATED DRAIN. |
| 13 | PROVIDE A 4" ROOF DRAIN MOUNTED WITHIN THE GUTTER PROVIDED BY THE GENERAL CONTRACTOR. THE CANOPY ASSEMBLY WILL BE SHOP FABRICATED AND FIELD INSTALLED BY THE GENERAL CONTRACTOR. THE ROOF DRAIN INSTALLATION SHALL BE COORDINATED WITH THE GENERAL CONTRACTOR. |




2 PARTIAL BUS BAY PLUMBING ISOMETRIC




1 LEVEL 1 PLUMBING PLAN - BUS BAY
1/8" = 1'-0"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**FAST Multi-Modal Center**
City of Fayetteville
Fayetteville, NC

Project Number 621A

Title
**Level 1 Plumbing Plan - Bus Bays**

Sheet
# P101c

Plate of


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| KEYED NOTES | |
|---|---|
| **No.** | **Description** |
| 01 | PIPING ROUTED BELOW THE FINISHED SLAB OR BELOW THE FINISHED GRADE. |
| 02 | PIPING ROUTED WITHIN THE CEILING CAVITY OR ROUTED EXPOSED AT THE STRUCTURE ABOVE. |
| 04 | ROOF DRAIN OR OVERFLOW ROOF DRAIN LEADER ROUTED DOWN FROM THE LEVEL ABOVE (LEVEL ONE). ROUTED DOWN TO THE LEVEL BELOW (LEVEL TWO). |
| 06 | A VENT RISER ROUTED UP TO THE FLOOR ABOVE (LEVEL ONE), ROUTED UP FROM THE LEVEL BELOW (LEVEL TWO). THE SIZE OF THE RISER IS LOCATED ADJACENT TO THE KEYED NOTE. |
| 07 | A COLD WATER AND/OR HOT WATER RISER ROUTED UP TO THE FLOOR ABOVE (LEVEL ONE), ROUTED UP FROM THE LEVEL BELOW (LEVEL TWO). THE SIZE OF THE RISER IS LOCATED ADJACENT TO THE KEYED NOTE. |
| 08 | A SANITARY RISER ROUTED DOWN FROM THE FLOOR ABOVE (LEVEL ONE). ROUTED DOWN TO THE LEVEL BELOW (LEVEL TWO). THE SIZE OF THE RISER IS LOCATED ADJACENT TO THE KEYED NOTE. |
| 11 | PIPING ROUTED UP TO A PRIMARY ROOF DRAIN OR SECONDARY OVERFLOW ROOF DRAIN. REFER TO THE ROOF PLAN FOR THE LOCATION AND SIZE OF THE ASSOCIATED DRAIN. |
| 13 | PROVIDE A 4" ROOF DRAIN MOUNTED WITHIN THE GUTTER PROVIDED BY THE GENERAL CONTRACTOR. THE CANOPY ASSEMBLY WILL BE SHOP FABRICATED AND FIELD INSTALLED BY THE GENERAL CONTRACTOR. THE ROOF DRAIN INSTALLATION SHALL BE COORDINATED WITH THE GENERAL CONTRACTOR. |
| 17 | PROVIDE A FULL LINE SIZE VENT-LESS TYPE GAS PRESSURE REGULATOR VALVE. THE REGULATOR SHALL BE SIZED FOR 2 PSI ENTERING PRESSURE AND 7"WC LEAVING PRESSURE. |

6" PRIMARY 7200 SQ.FT.

TANK #1

THE PLUMBING CONTRACTOR SHALL ROUTE THE 6" ROOF DRAINAGE MAIN TO THE RAIN WATER CISTERN PROVIDED UNDER SEPARATE CONTRACT. FINAL CONNECTION TO THE CISTERN INLET SHALL BE PROVIDED BY THE CISTERN SUPPLIER. THE EXPOSED CISTERN ROOF DRAINAGE PIPING SHALL BE STAINLESS STEEL.

TANK #2

6" PRIMARY 3100 SQ.FT.

EMERGENCY GENERATOR PROVIDED BY THE ELECTRICAL CONTRACTOR.

WH-7

P-8

P-5

1260 CFH

1 1/4"

3"FCO

3"FD-2

SAN

ORD

RD

ORD-1

RD-1

1 P401

2 P401

PROVIDE A 4" HUB DRAIN LOCATED 8" ABOVE THIS HIGHEST ROOF CRICKET LEVEL FOR THE COOLING TOWER DRAINAGE.

BASE BID

ALTERNATE 'A'

LEVEL 2 PLUMBING PLAN - MULTI-MODAL CENTER
1/8" = 1'-0"


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**FAST Multi-Modal Center**
City of Fayetteville
Fayetteville, NC

Project Number 621A

Title
**Level 2 Plumbing Plan - Multi-Modal Center**

Sheet
# P102a

Plate of

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| KEYED NOTES | |
|---|---|
| **No.** | **Description** |
| 01 | PIPING ROUTED BELOW THE FINISHED SLAB OR BELOW THE FINISHED GRADE. |
| 02 | PIPING ROUTED WITHIN THE CEILING CAVITY OR ROUTED EXPOSED AT THE STRUCTURE ABOVE. |
| 04 | ROOF DRAIN OR OVERFLOW ROOF DRAIN LEADER ROUTED DOWN FROM THE LEVEL ABOVE (LEVEL ONE). ROUTED DOWN TO THE LEVEL BELOW (LEVEL TWO). |
| 06 | A VENT RISER ROUTED UP TO THE FLOOR ABOVE (LEVEL ONE). ROUTED UP FROM THE LEVEL BELOW (LEVEL TWO). THE SIZE OF THE RISER IS LOCATED ADJACENT TO THE KEYED NOTE. |
| 08 | A SANITARY RISER ROUTED DOWN FROM THE FLOOR ABOVE (LEVEL ONE). ROUTED DOWN TO THE LEVEL BELOW (LEVEL TWO). THE SIZE OF THE RISER IS LOCATED ADJACENT TO THE KEYED NOTE. |
| 11 | PIPING ROUTED UP TO A PRIMARY ROOF DRAIN OR SECONDARY OVERFLOW ROOF DRAIN. REFER TO THE ROOF PLAN FOR THE LOCATION AND SIZE OF THE ASSOCIATED DRAIN. |

THE PLUMBING CONTRACTOR SHALL ROUTE THE 6" AND 8" ROOF DRAINAGE MAIN TO THE RAIN WATER CISTERN TANKS #1 AND #2 PROVIDED BY THE GENERAL CONTRACTOR. FINAL CONNECTION TO THE CISTERN TANK INLET SHALL BE PROVIDED BY THE CISTERN SUPPLIER. THE EXPOSED CISTERN ROOF DRAINAGE PIPING SHALL BE STAINLESS STEEL.

6" PRIMARY 7200 SQ.FT.

TANK #1

TANK #2

6" PRIMARY 3100 SQ.FT.

LEVEL 2 PLUMBING PLAN - TENANT SPACES A & B - ALTERNATE 'B'
1/8" = 1'-0"

BASE BID

ALTERNATE 'A'

PROVIDE A 4" HUB DRAIN LOCATED 8" ABOVE THIS HIGHEST ROOF CRICKET LEVEL FOR THE COOLING TOWER DRAINAGE.

LEVEL 2 PLUMBING PLAN - TENANT SPACE E - ALTERNATE 'A'
1/8" = 1'-0"


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**FAST Multi-Modal Center**
City of Fayetteville
Fayetteville, NC

Project Number 621A

Title
**Level 2 Plumbing Plan - Tenant Spaces**

Sheet
# P102b

Plate of

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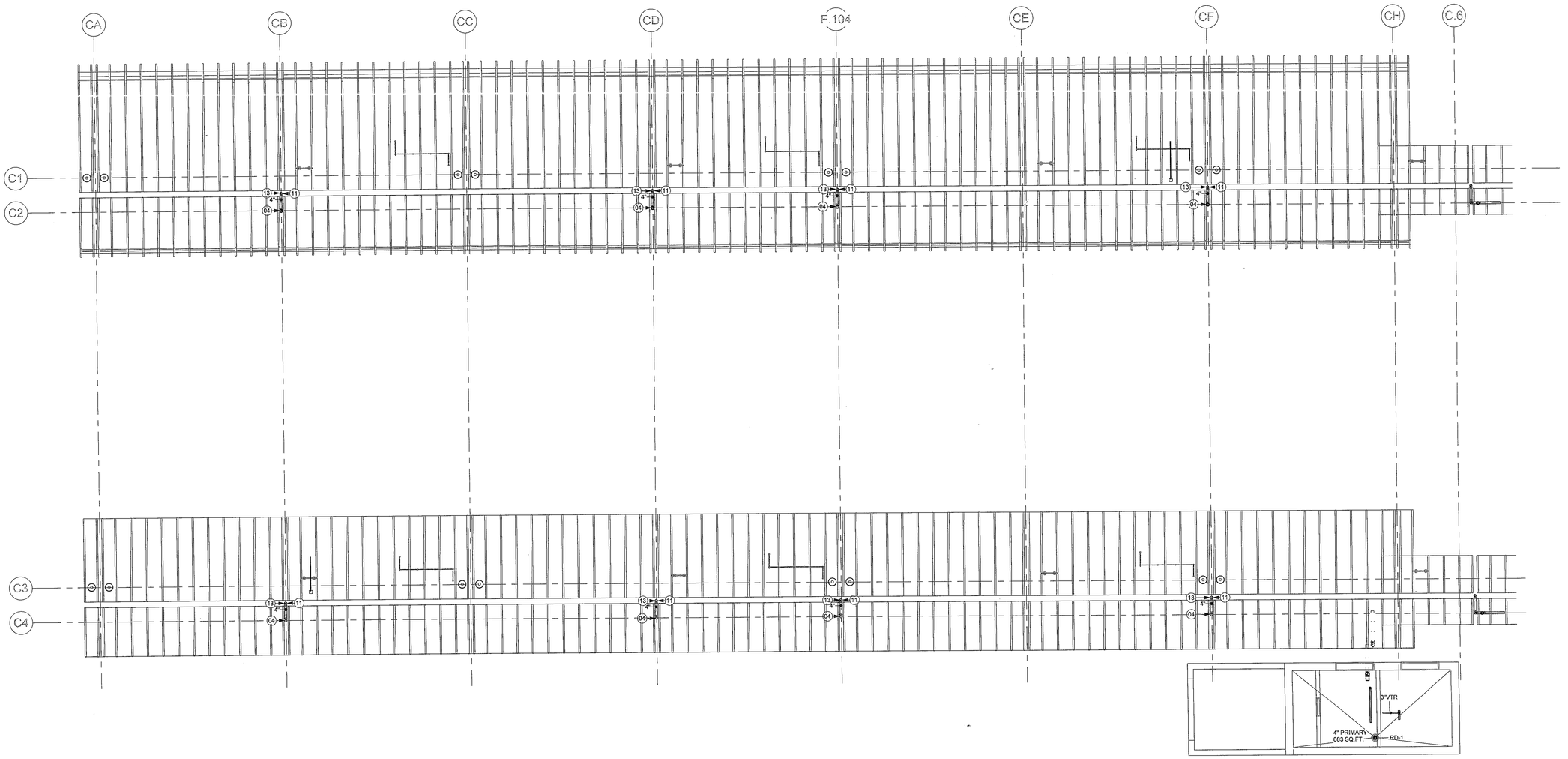
| KEYED NOTES | |
|---|---|
| **No.** | **Description** |
| 04 | ROOF DRAIN OR OVERFLOW ROOF DRAIN LEADER ROUTED DOWN FROM THE LEVEL ABOVE (LEVEL ONE). ROUTED DOWN TO THE LEVEL BELOW (LEVEL TWO). |
| 11 | PIPING ROUTED UP TO A PRIMARY ROOF DRAIN OR SECONDARY OVERFLOW ROOF DRAIN. REFER TO THE ROOF PLAN FOR THE LOCATION AND SIZE OF THE ASSOCIATED DRAIN. |
| 13 | PROVIDE A 4" ROOF DRAIN MOUNTED WITHIN THE GUTTER PROVIDED BY THE GENERAL CONTRACTOR. THE CANOPY ASSEMBLY WILL BE SHOP FABRICATED AND FIELD INSTALLED BY THE GENERAL CONTRACTOR. THE ROOF DRAIN INSTALLATION SHALL BE COORDINATED WITH THE GENERAL CONTRACTOR. |




1 LEVEL 2 PLUMBING PLAN - BUS BAYS
1/8" = 1'-0"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3.04.14

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**FAST Multi-Modal Center**
City of Fayetteville
Fayetteville, NC

Project Number 621A

Title
**Level 2 Plumbing Plan - Bus Bays**

Sheet
# P102c

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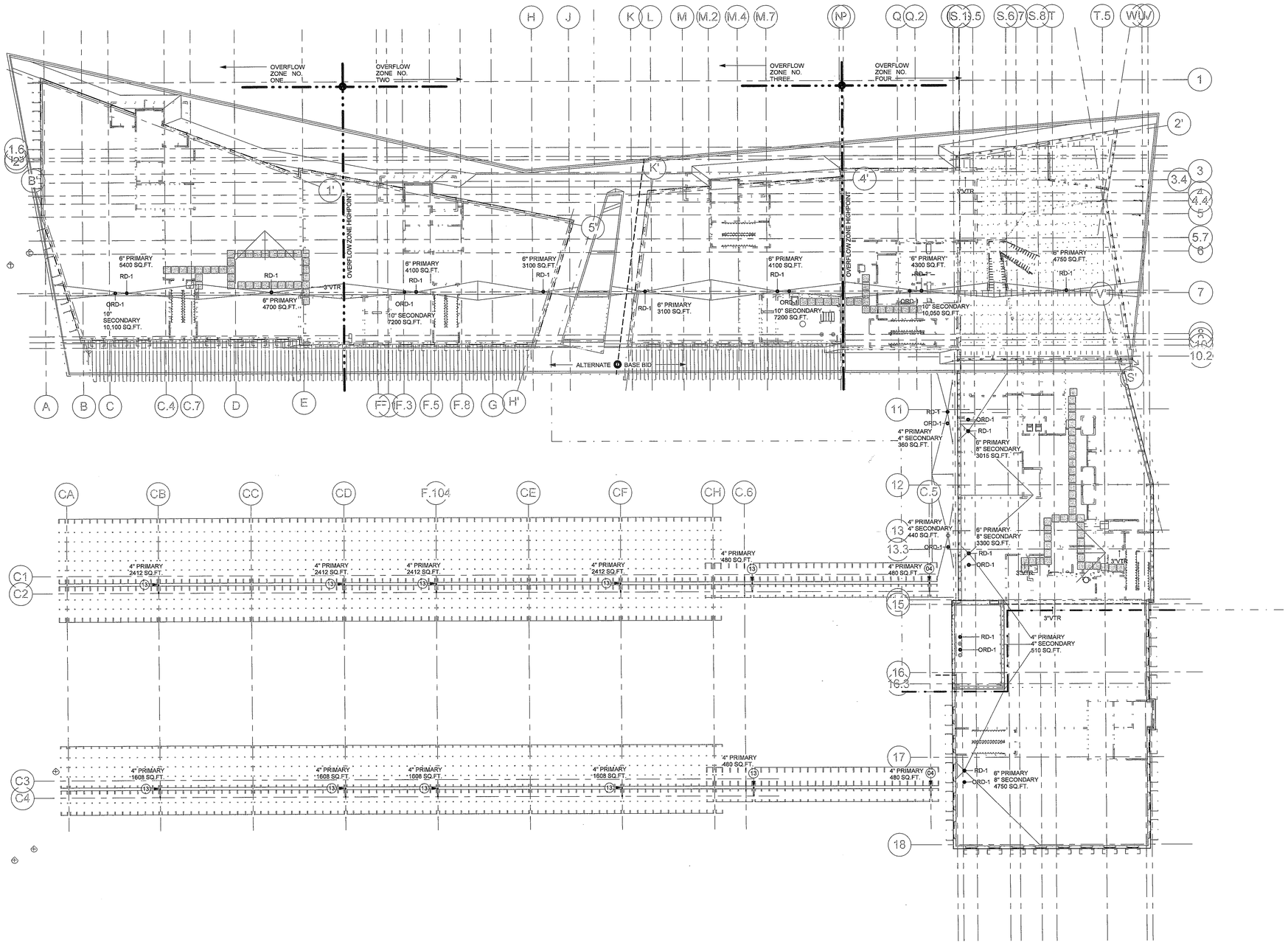


1 ROOF PLUMBING PLAN
1/16" = 1'-0"

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# FAST Multi-Modal Center

City of Fayetteville
Fayetteville, NC

Project Number 621A

Title
## Roof Plumbing Plan

Sheet
# P301

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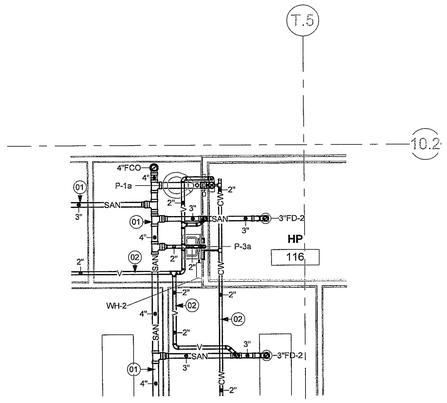
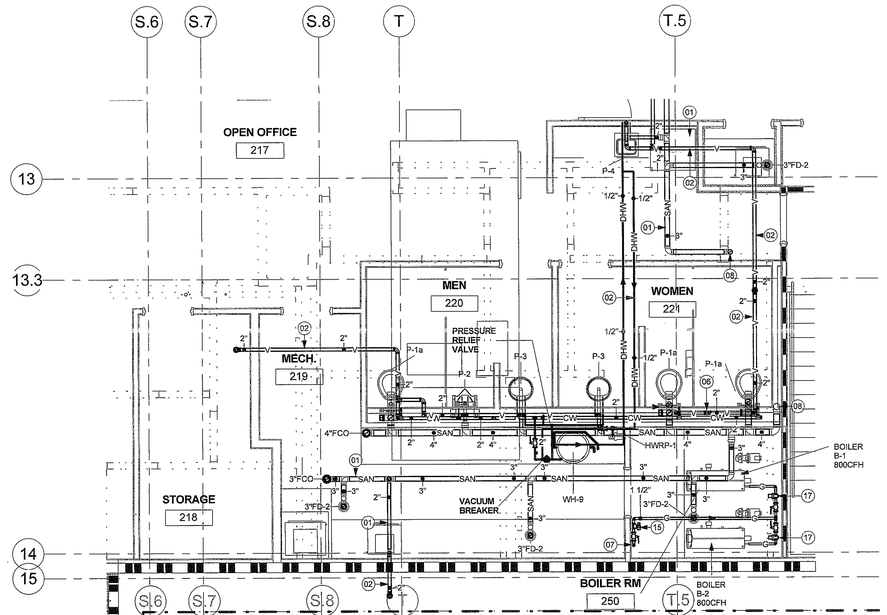
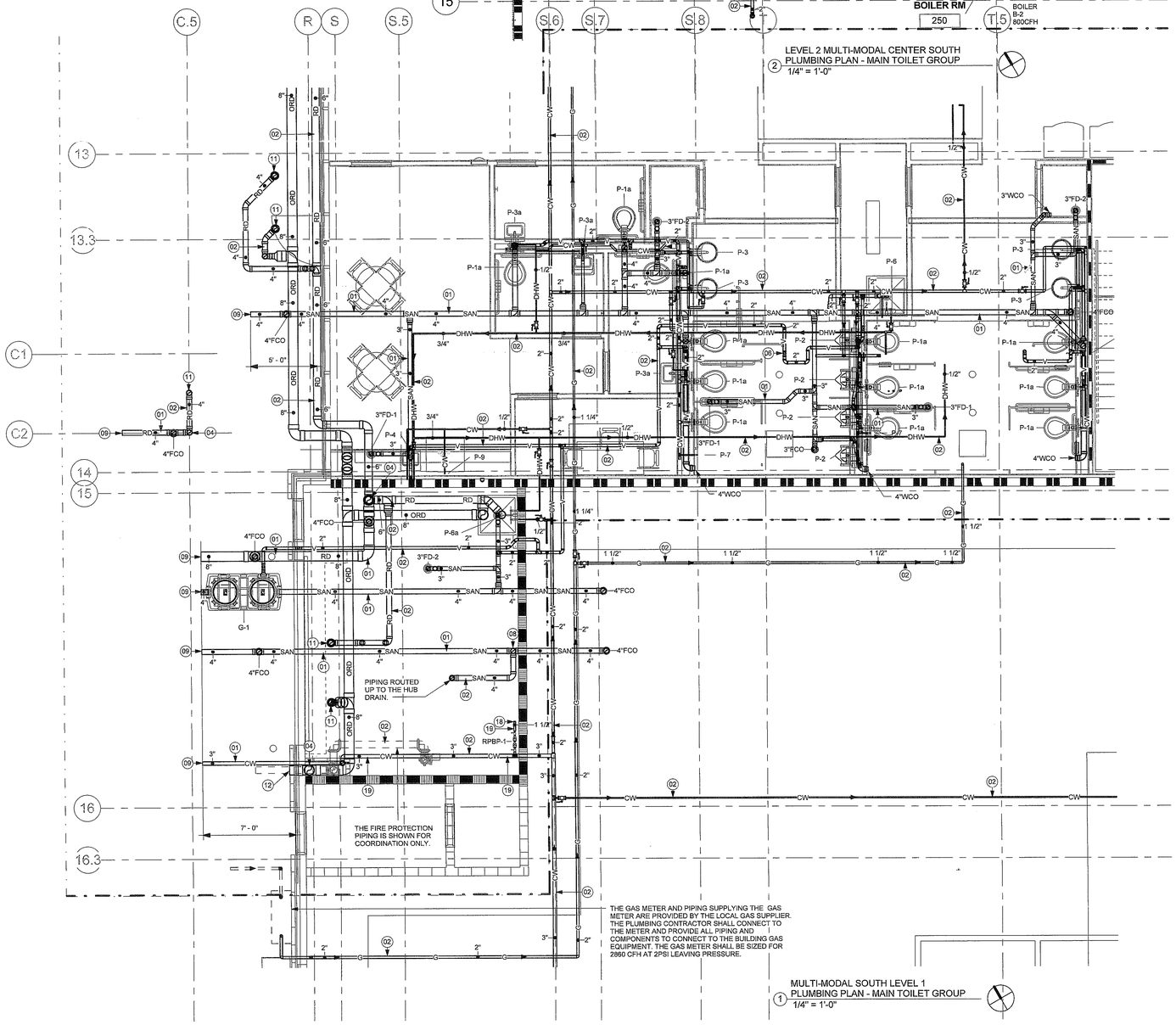



LEVEL 1 MULTI-MODAL CENTER
PLUMBING PLAN - PRIVATE TOILET
GROUP
1/4" = 1'-0"




LEVEL 2 MULTI-MODAL CENTER SOUTH
PLUMBING PLAN - MAIN TOILET GROUP
1/4" = 1'-0"




THE GAS METER AND PIPING SUPPLYING THE GAS METER ARE PROVIDED BY THE LOCAL GAS SUPPLIER. THE PLUMBING CONTRACTOR SHALL CONNECT TO THE METER AND PROVIDE ALL PIPING AND COMPONENTS TO CONNECT TO THE BUILDING GAS EQUIPMENT. THE GAS METER SHALL BE SIZED FOR 2860 CFH AT 2PSI LEAVING PRESSURE.

MULTI-MODAL SOUTH LEVEL 1
PLUMBING PLAN - MAIN TOILET GROUP
1/4" = 1'-0"

## KEYED NOTES

| No. | Description |
|---|---|
| 01 | PIPING ROUTED BELOW THE FINISHED SLAB OR BELOW THE FINISHED GRADE. |
| 02 | PIPING ROUTED WITHIN THE CEILING CAVITY OR ROUTED EXPOSED AT THE STRUCTURE ABOVE. |
| 04 | ROOF DRAIN OR OVERFLOW ROOF DRAIN LEADER ROUTED DOWN FROM THE LEVEL ABOVE (LEVEL ONE). ROUTED DOWN TO THE LEVEL BELOW (LEVEL TWO). |
| 06 | A VENT RISER ROUTED UP TO THE FLOOR ABOVE (LEVEL ONE). ROUTED UP FROM THE LEVEL BELOW (LEVEL TWO). THE SIZE OF THE RISER IS LOCATED ADJACENT TO THE KEYED NOTE. |
| 07 | A COLD WATER AND/OR HOT WATER RISER ROUTED UP TO THE FLOOR ABOVE (LEVEL ONE). ROUTED UP FROM THE LEVEL BELOW (LEVEL TWO). THE SIZE OF THE RISER IS LOCATED ADJACENT TO THE KEYED NOTE. |
| 08 | A SANITARY RISER ROUTED DOWN FROM THE FLOOR ABOVE (LEVEL ONE). ROUTED DOWN TO THE LEVEL BELOW (LEVEL TWO). THE SIZE OF THE RISER IS LOCATED ADJACENT TO THE KEYED NOTE. |
| 09 | THE SANITARY, STORM OR DOMESTIC WATER MAIN SHALL BE PROVIDED FROM THIS POINT BY THE GENERAL CONTRACTOR. REFER TO CIVIL DRAWING SHEET C107 FOR CONTINUATION OF THE UTILITY PIPING. |
| 11 | PIPING ROUTED UP TO A PRIMARY ROOF DRAIN OR SECONDARY OVERFLOW ROOF DRAIN. REFER TO THE ROOF PLAN FOR THE LOCATION AND SIZE OF THE ASSOCIATED DRAIN. |
| 12 | PROVIDE A HINGED STAINLESS STEEL OVERFLOW ROOF DRAIN SCUPPER, JR SMITH MODEL SQ-9-2039. THE SIZE OF THE SCUPPER SHALL MATCH THE SIZE OF THE OVERFLOW DRAIN LEADER. |
| 15 | MECHANICAL EQUIPMENT GAS SYSTEM EMERGENCY SOLENOID VALVE.THE VALVE SHALL BE ASCO MODEL NUMBER 8043 OR EQUAL BY HONEYWELL OR ECLIPSE. |
| 17 | PROVIDE A FULL LINE SIZE VENT-LESS TYPE GAS PRESSURE REGULATOR VALVE. THE REGULATOR SHALL BE SIZED FOR 2 PSI ENTERING PRESSURE AND 7"WC LEAVING PRESSURE. |
| 18 | THE PLUMBING SUB-CONTRACTOR SHALL CAP THE COLD WATER MAKE-UP. FINAL PIPE ROUTING AND CONNECTION TO THE HVAC EQUIPMENT SHALL BE PROVIDED BY THE MECHANCIAL SUB-CONTRACTOR. |
| 19 | PROVIDE HEAT TAPE WITH AN INTEGRAL THERMOSTAT. THE HEAT TAPE SHALL BE RATED FOR 5 WATTS PER LINEAR FOOT. THE HEAT TAPE SHALL BE PROVIDED FOR THE EXPOSED COLD WATER PIPING WITHIN THE DUMPSTER ROOM. |

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**FAST Multi-Modal Center**
City of Fayetteville
Fayetteville, NC

Project Number 621A

Title
**Multi-Modal Center**
**Large Scale Toilet**
**Plumbing Plans**

Sheet
# P401

Plate of

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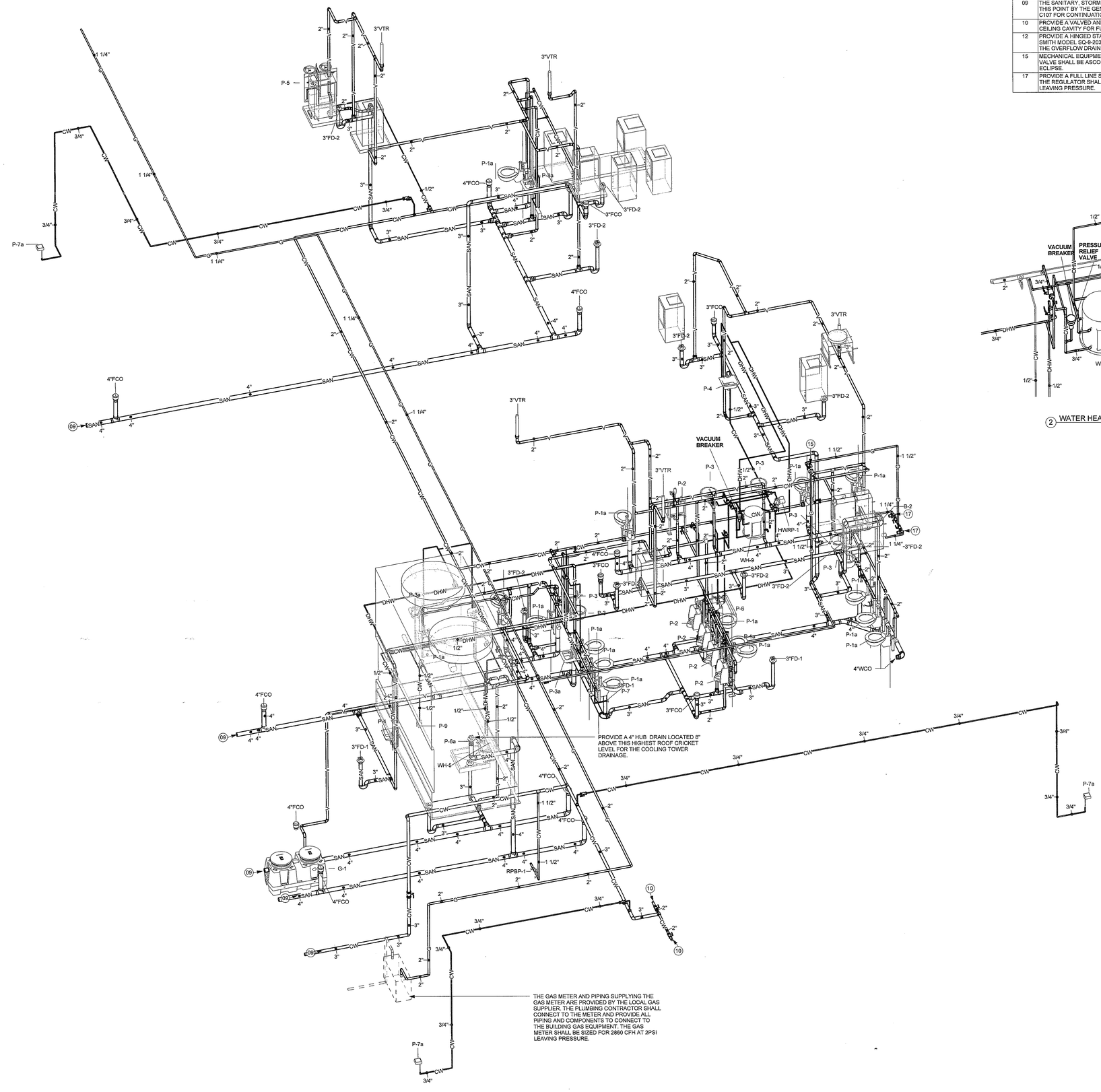
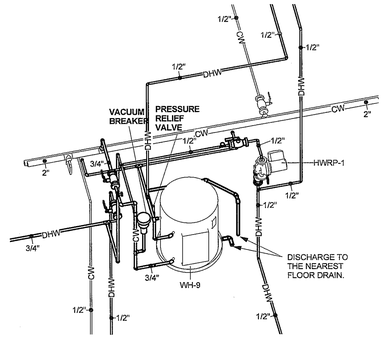
| KEYED NOTES | |
|---|---|
| **No.** | **Description** |
| 09 | THE SANITARY, STORM OR DOMESTIC WATER MAIN SHALL BE PROVIDED FROM THIS POINT BY THE GENERAL CONTRACTOR. REFER TO CIVIL DRAWING SHEET C107 FOR CONTINUATION OF THE UTILITY PIPING. |
| 10 | PROVIDE A VALVED AND CAPPED 2" COLD WATER WITHIN THE LEVEL ONE CEILING CAVITY FOR FUTURE TENANT UPFIT. |
| 12 | PROVIDE A HINGED STAINLESS STEEL OVERFLOW ROOF DRAIN SCUPPER, JR SMITH MODEL SQ-9-2039. THE SIZE OF THE SCUPPER SHALL MATCH THE SIZE OF THE OVERFLOW DRAIN LEADER. |
| 15 | MECHANICAL EQUIPMENT GAS SYSTEM EMERGENCY SOLENOID VALVE.THE VALVE SHALL BE ASCO MODEL NUMBER 8043 OR EQUAL BY HONEYWELL OR ECLIPSE. |
| 17 | PROVIDE A FULL LINE SIZE VENT-LESS TYPE GAS PRESSURE REGULATOR VALVE. THE REGULATOR SHALL BE SIZED FOR 2 PSI ENTERING PRESSURE AND 7"WC LEAVING PRESSURE. |




1 MULTI-MODAL CENTER SOUTH MAIN TOILET GROUP ISOMETRIC




2 WATER HEATER ISOMETRIC

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**FAST Multi-Modal Center**
City of Fayetteville
Fayetteville, NC

Project Number 621A

Title
**Multi-Modal Center**
**South Main Toilet Group**
**Isometric**

Sheet
# P402

Plate of

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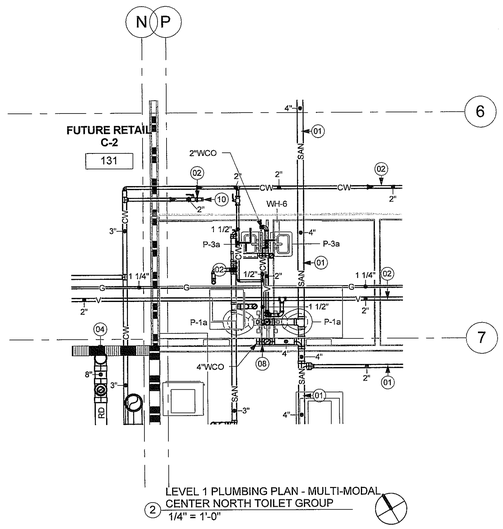
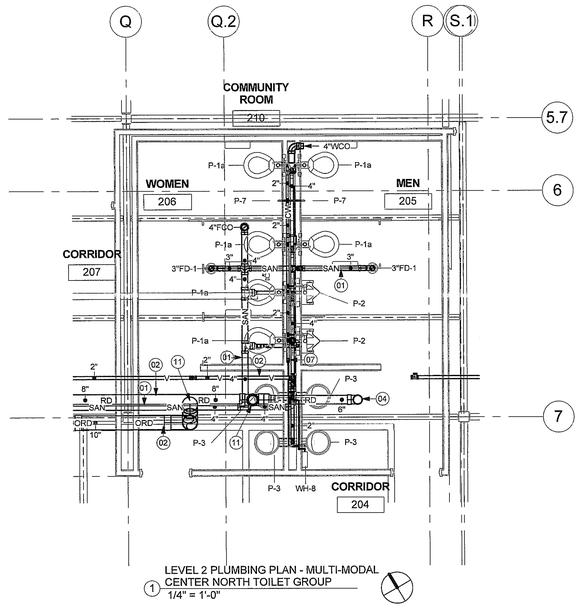
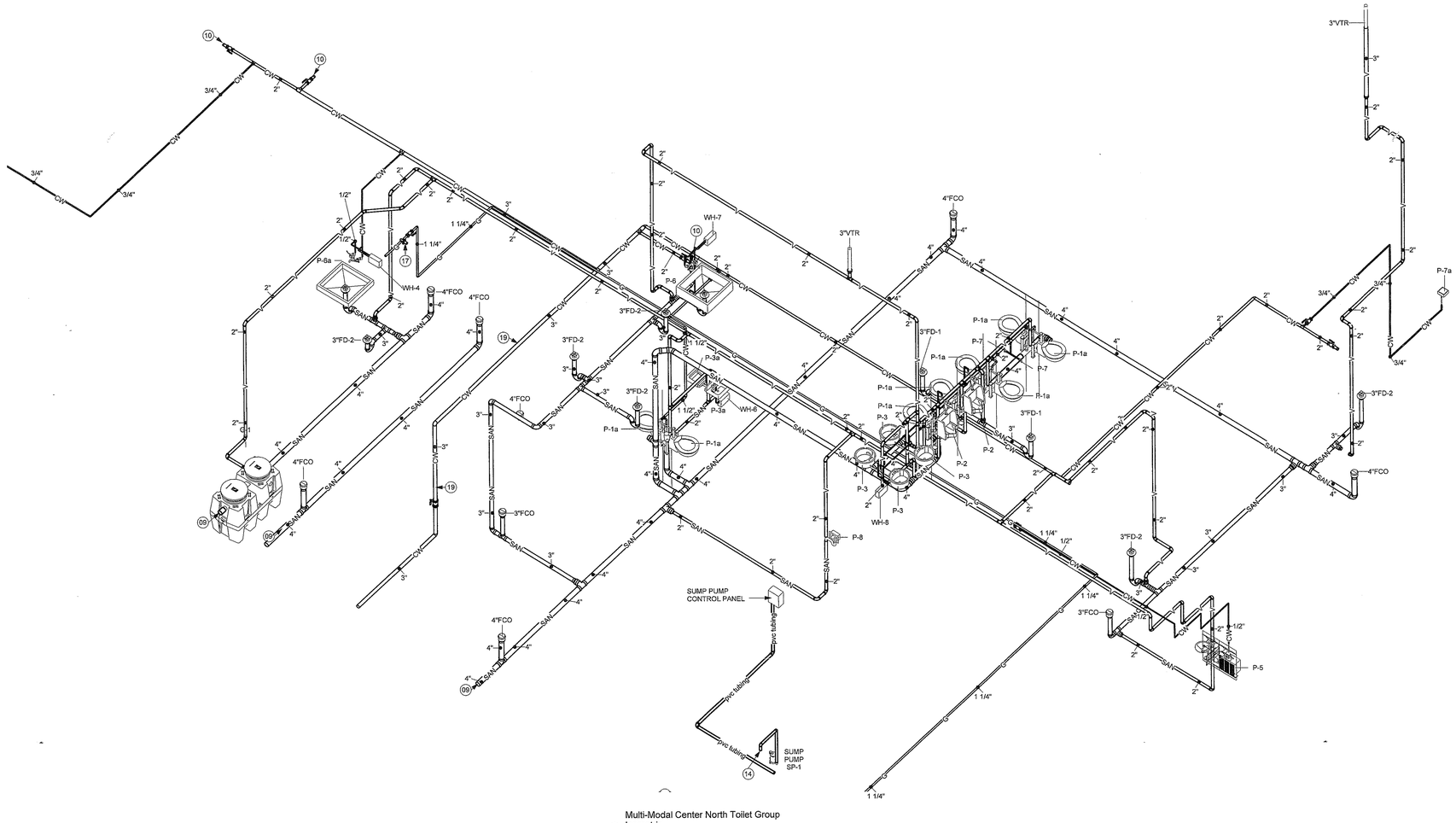



LEVEL 1 PLUMBING PLAN - MULTI-MODAL
CENTER NORTH TOILET GROUP
2 1/4" = 1'-0"




LEVEL 2 PLUMBING PLAN - MULTI-MODAL
CENTER NORTH TOILET GROUP
1 1/4" = 1'-0"




Multi-Modal Center North Toilet Group
3 Isometric

**KEYED NOTES**

| No. | Description |
|---|---|
| 01 | PIPING ROUTED BELOW THE FINISHED SLAB OR BELOW THE FINISHED GRADE. |
| 02 | PIPING ROUTED WITHIN THE CEILING CAVITY OR ROUTED EXPOSED AT THE STRUCTURE ABOVE. |
| 04 | ROOF DRAIN OR OVERFLOW ROOF DRAIN LEADER ROUTED DOWN FROM THE LEVEL ABOVE (LEVEL ONE). ROUTED DOWN TO THE LEVEL BELOW (LEVEL TWO). |
| 07 | A COLD WATER AND/OR HOT WATER RISER ROUTED UP TO THE FLOOR ABOVE (LEVEL ONE). ROUTED UP FROM THE LEVEL BELOW (LEVEL TWO). THE SIZE OF THE RISER IS LOCATED ADJACENT TO THE KEYED NOTE. |
| 08 | A SANITARY RISER ROUTED DOWN FROM THE FLOOR ABOVE (LEVEL ONE). ROUTED DOWN TO THE LEVEL BELOW (LEVEL TWO). THE SIZE OF THE RISER IS LOCATED ADJACENT TO THE KEYED NOTE. |
| 09 | THE SANITARY, STORM OR DOMESTIC WATER MAIN SHALL BE PROVIDED FROM THIS POINT BY THE GENERAL CONTRACTOR. REFER TO CIVIL DRAWING SHEET C107 FOR CONTINUATION OF THE UTILITY PIPING. |
| 10 | PROVIDE A VALVED AND CAPPED 2" COLD WATER WITHIN THE LEVEL ONE CEILING CAVITY FOR FUTURE TENANT UFFIT. |
| 11 | PIPING ROUTED UP TO A PRIMARY ROOF DRAIN OR SECONDARY OVERFLOW ROOF DRAIN. REFER TO THE ROOF PLAN FOR THE LOCATION AND SIZE OF THE ASSOCIATED DRAIN. |
| 12 | PROVIDE A HINGED STAINLESS STEEL OVERFLOW ROOF DRAIN SCUPPER, JR SMITH MODEL SQ-9-2039. THE SIZE OF THE SCUPPER SHALL MATCH THE SIZE OF THE OVERFLOW DRAIN LEADER. |
| 14 | DISCHARGE THE 2" ELEVATOR SUMP PUMP FORCED MAIN TO THE FINISHED GRADE. |
| 17 | PROVIDE A FULL LINE SIZE VENT-LESS TYPE GAS PRESSURE REGULATOR VALVE. THE REGULATOR SHALL BE SIZED FOR 2 PSI ENTERING PRESSURE AND 7"WC LEAVING PRESSURE. |
| 19 | PROVIDE HEAT TAPE WITH AN INTEGRAL THERMOSTAT. THE HEAT TAPE SHALL BE RATED FOR 5 WATTS PER LINEAR FOOT. THE HEAT TAPE SHALL BE PROVIDED FOR THE EXPOSED COLD WATER PIPING WITHIN THE DUMPSTER ROOM. |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**FAST Multi-Modal Center**
City of Fayetteville
Fayetteville, NC

Project Number 621A

Title
**Multi-Modal Center Large Scale Toilet Plumbing Plans**

Sheet
# P403

Plate of


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| KEYED NOTES | |
|---|---|
| **No.** | **Description** |
| 09 | THE SANITARY, STORM OR DOMESTIC WATER MAIN SHALL BE PROVIDED FROM THIS POINT BY THE GENERAL CONTRACTOR. REFER TO CIVIL DRAWING SHEET C107 FOR CONTINUATION OF THE UTILITY PIPING. |
| 12 | PROVIDE A HINGED STAINLESS STEEL OVERFLOW ROOF DRAIN SCUPPER, JR SMITH MODEL SQ-9-2039. THE SIZE OF THE SCUPPER SHALL MATCH THE SIZE OF THE OVERFLOW DRAIN LEADER. |
| 13 | PROVIDE A 4" ROOF DRAIN MOUNTED WITHIN THE GUTTER PROVIDED BY THE GENERAL CONTRACTOR. THE CANOPY ASSEMBLY WILL BE SHOP FABRICATED AND FIELD INSTALLED BY THE GENERAL CONTRACTOR. THE ROOF DRAIN INSTALLATION SHALL BE COORDINATED WITH THE GENERAL CONTRACTOR. |

THE PLUMBING CONTRACTOR SHALL ROUTE THE 6" AND 8" ROOF DRAINAGE MAIN TO THE RAIN WATER CISTERN TANKS #1 AND #2 PROVIDED BY THE GENERAL CONTRACTOR. FINAL CONNECTION TO THE CISTERN TANK INLET SHALL BE PROVIDED BY THE CISTERN SUPPLIER. THE EXPOSED CISTERN ROOF DRAINAGE PIPING SHALL BE STAINLESS STEEL.

1 ROOF DRAINAGE PIPING ISOMETRICS


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**FAST Multi-Modal Center**
City of Fayetteville
Fayetteville, NC

Project Number 621A

Title
**OVERALL ROOF DRAINAGE PIPING ISOMETRIC**

Sheet
# P501

Plate of


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# MOTOR CONTROL SCHEDULE

| MOTOR DESIGNATION | UNIT USE | POWER SOURCE | RATING | | | MOTOR LOCATION | MOTOR STARTER | | | | AUXILIARY CONTROL DEVICES | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | HORSEPOWER (KW) | VOLTAGE | PHASE | | TYPE | LOCATION | FURNISHED BY | INSTALLED BY | ITEM | LOCATION | FURNISHED BY | INSTALLED BY | WIRED BY |
| ERV-1 | SUPPLY FAN | NORMAL | NOTE 5 | 208 | 3 | AT UNIT | VFD | AT UNIT | MC | MC | DDC CONTROLLER | AT UNIT | MC | MC | MC |
| | EXHAUST FAN | NORMAL | | | | AT UNIT | VFD | AT UNIT | MC | MC | SMOKE DETECTOR | EA DUCT | EC | MC | EC |
| | HEAT PUMP | NORMAL | | | | AT UNIT | FVNR | AT UNIT | MC | MC | RELAY | – | MC | MC | MC |
| ERV-2 | SUPPLY FAN | NORMAL | NOTE 5 | 208 | 3 | AT UNIT | VFD | AT UNIT | MC | MC | DDC CONTROLLER | AT UNIT | MC | MC | MC |
| | EXHAUST FAN | NORMAL | | | | AT UNIT | VFD | AT UNIT | MC | MC | SMOKE DETECTOR | EA DUCT | EC | MC | EC |
| | HEAT PUMP | NORMAL | | | | AT UNIT | FVNR | AT UNIT | MC | MC | RELAY | – | MC | MC | MC |
| CP-1 | BOILER B-1 PRIMARY | NORMAL | 1.0 | 208 | 3 | AT UNIT | FVNR | AT UNIT | MC | MC | dp CONTROLLER | IN PIPE | MC | MC | MC |
| CP-2 | BOILER B-2 PRIMARY | NORMAL | 1.0 | 208 | 3 | AT UNIT | FVNR | AT UNIT | MC | MC | dp CONTROLLER | IN PIPE | MC | MC | MC |
| CP-3 | CONDENSER WATER | NORMAL | 15 | 208 | 3 | AT UNIT | VFD | AT UNIT | MC | MC | RELAY | – | MC | MC | MC |
| CP-4 | CONDENSER WATER | NORMAL | 15 | 208 | 3 | AT UNIT | VFD | AT UNIT | MC | MC | RELAY | – | MC | MC | MC |
| CT-1 | TOWER FAN | NORMAL | 2@10 | 208 | 3 | AT UNIT | VFD | AT UNIT | MC | MC | DDC CONTROLLER | AT UNIT | MC | MC | MC |
| | CIRC. PUMP | NORMAL | 5 | 208 | 3 | AT UNIT | CONTACTOR | AT UNIT | MC | MC | CLOSURE DAMPER | AT UNIT | MC | MC | MC |
| | SUMP HEATER | NORMAL | 2@(6) | 208 | 3 | AT UNIT | CONTACTOR | AT UNIT | MC | MC | CLOSURE DAMPER | AT UNIT | MC | MC | MC |
| B-1 | BOILER | NORMAL | 1/2 | 115 | 1 | AT UNIT | FVNR | AT UNIT | MC | MC | FLOW SWITCH | IN PIPE | MC | MC | MC |
| | | | | | | | | | | | RELAY | – | MC | MC | MC |
| B-2 | BOILER | NORMAL | 1/2 | 115 | 1 | AT UNIT | FVNR | AT UNIT | MC | MC | FLOW SWITCH | IN PIPE | MC | MC | MC |
| | | | | | | | | | | | RELAY | – | MC | MC | MC |
| EF-1 | EXHAUST FAN | NORMAL | 1/3 | 115 | 1 | AT UNIT | FVNR | AT UNIT | MC | MC | RELAY | – | MC | MC | MC |
| EF-2 | EXHAUST FAN | NORMAL | 1/3 | 115 | 1 | AT UNIT | FVNR | AT UNIT | MC | MC | RELAY | – | MC | MC | MC |
| EF-3 | EXHAUST FAN | NORMAL | 1/3 | 115 | 1 | AT UNIT | FVNR | AT UNIT | MC | MC | RELAY | – | MC | MC | MC |
| EF-4 | EXHAUST FAN | NORMAL | 1/3 | 115 | 1 | AT UNIT | FVNR | AT UNIT | MC | MC | RELAY | – | MC | MC | MC |
| EF-5 | EXHAUST FAN | NORMAL | 1/3 | 115 | 1 | AT UNIT | FVNR | AT UNIT | MC | MC | RELAY | – | MC | MC | MC |

## MOTOR CONTROL SCHEDULE NOTES

1. THE ABOVE LISTED SCHEDULE OUTLINES THE MAJOR MOTOR LOADS, STARTERS AND THEIR ASSOCIATED AUXILIARY CONTROL DEVICES. IN NO CASE IS THIS SCHEDULE MEANT TO ONLY INDICATE ALL DEVICES, BUT TO ASSIST THE DIVISION 23 CONTRACTORS IN CLARIFYING THEIR SCOPE OF WORK. UNIT HEATERS, ETC. MISCELLANEOUS MOTORS MAY NOT BE REPRESENTED. ALL STARTERS SHALL BE SIZED FOR PROPER OPERATION AND IN CASES WHERE MC WIRES A DEVICE, WIRING AND CONDUIT SHALL BE SIZED PER LATEST EDITION OF N.E.C. IN ACCORDANCE WITH METHODS AND REQUIREMENTS STATED IN DIVISION 26 – ELECTRICAL CONTRACT DOCUMENTS.

2. IN THE FACP THE ELECTRICAL CONTRACTOR SHALL SUPPLY ONE NORMALLY OPEN AND ONE NORMALLY CLOSED CONTACT FOR EACH AHU SYSTEM. THE ELECTRICAL CONTRACTOR WILL PROVIDE 3@14 WIRES FOR THESE CONTACTS TO THE AHU SYSTEM CONTROL PANEL FOR TERMINATION BY THE MECHANICAL CONTRACTOR. ALL ADDITIONAL CONTACTS, WIRING AND RELAYS SHALL BE PROVIDED BY THE MECHANICAL CONTRACTOR.

3. STARTER TYPE (PROVIDED BY MC)
   A. (FVNR) (INTEGRAL WITH UNIT) FULL VOLTAGE, NON–REVERSIBLE MAGNETIC STARTERS FURNISHED AS PART OF THE UNIT AND FUSIBLE SWITCH OR EQUIVALENT AS ACCEPTED BY A–E. WIRING FROM STARTER TO MOTOR SHALL BE PROVIDED BY EQUIPMENT MANUFACTURER.

   B. (FVNR) (NOT INTEGRAL WITH UNIT) COMBINATION FULL VOLTAGE NON–REVERSIBLE MAGNETIC STARTER WITH DISCONNECT SWITCH. WIRING FOR STARTER TO MOTOR SHALL BE PROVIDED BY HVAC CONTRACTOR.

   C. (VFD) VARIABLE FREQUENCY DRIVE SHALL HAVE INTERNAL INCOMING LINE POWER DISCONNECT SWITCH THAT SHALL CUT POWER TO ENTIRE UNIT WHEN IN OPEN POSITION. WIRING FROM VFD TO MOTOR SHALL BE PROVIDED BY HVAC CONTRACTOR.

4. REFER TO SHEET M–302 FOR RTU MOTOR INFORMATION.

5. REFER TO SHEET M–301 FOR ERV MOTOR INFORMATION.

ABBREVIATIONS:

| | |
|---|---|
| ALT | ALTERNATOR |
| AUX | AUXILIARY CONTACTS |
| EC | ELECTRICAL CONTRACTOR |
| FACP | FIRE ALARM CONTROL PANEL |
| FPC | FIRE PROTECTION CONTRACTOR |
| FVNR | FULL VOLTAGE NON–REVERSING – MAGNETIC STARTER WITH FUSED DISCONNECT SWITCH |
| MC | HVAC CONTRACTOR |
| MCCC | MOTOR CONTROL CENTER |
| PC | PLUMBING CONTRACTOR |
| RVNR | REDUCED VOLTAGE NON–REVERSING MAGNETIC STARTER |
| VFD | VARIABLE FREQUENCY DRIVE WITH DISCONNECT SWITCH |

NOTES:

A. REFER TO SECTION 260126 FOR DESCRIPTION OF DIVISION OF ELECTRICAL WORK BETWEEN DIVISION 23 AND 26. THE MECHANICAL CONTRACTOR SHALL PROVIDE EACH PIECE OF EQUIPMENT REQUIRING POWER CONNECTIONS WITH LUGS SUITABLE FOR THE CABLES BEING PROVIDED.

B. SWITCHES AND STARTERS EXPOSED TO THE WEATHER SHALL BE SUITABLE FOR INSTALLATION OUTDOORS.

C. FUSE EACH STARTER WITH NEMA R–K1 TIME DELAY, DUAL ELEMENT, CURRENT LIMITING FUSES AT 150% OF MOTOR FULL LOAD AMPERE RATING OR NEXT UP STANDARD FUSE SIZE.

D. MOTOR CONTROLLERS (STARTERS) SHALL HAVE ENCLOSURES SUITABLE FOR ENVIRONMENT AT THEIR LOCATION. USE NEMA 3R TYPE ENCLOSURES FOR OUTDOOR INSTALLATIONS AND NEMA 12 ENCLOSURES FOR EQUIPMENT IN AIR PLENUM, EXCEPT THAT ENCLOSURE'S MOTOR CONTROLLERS, VFD, EQUIPMENT CONTROL PANELS AND CONTACTORS LOCATED ADJACENT TO COOLING TOWER SHALL BE EITHER NEMA 3R–STAINLESS STEEL OR NEMA 4X.

E. REFER TO SHEETS M–301 AND M–302 FOR ADDITIONAL REQUIREMENTS.

## MECHANICAL SYMBOLS SCHEDULE

- SUPPLY AIR – TOWARD VIEWER
- SUPPLY AIR – AWAY FROM VIEWER
- RETURN/EXHAUST AIR – TOWARD VIEWER
- RETURN/EXHAUST AIR – AWAY FROM VIEWER
- VANE TURN ELBOW AND PUSH ROD AIR–SPLIT DAMPER
- RISE IN DIRECTION OF AIR FLOW
- DROP IN DIRECTION OF AIR FLOW
- FLEXIBLE CONNECTION
- VANE ELBOW
- 10"x 6" DUCT – WIDTH x HEIGHT
- 8"ø ROUND OR FLAT OVAL DUCT SIZE
- 20x12 DUCTWORK WITH SIZE
- 20x12 (L) INTERNALLY LINED DUCTWORK
- dP DIFFERENTIAL PRESSURE SWITCH
- CEILING DIFFUSER
- EXHAUST OR RETURN REGISTER OR GRILLE
- THERMOMETER WITH THERMOWELL
- PRESSURE GAUGE WITH PET COCK
- GATE VALVE
- CHECK VALVE
- TRIPLE DUTY VALVE
- TWO–WAY CONTROL VALVE
- THREE–WAY CONTROL VALVE
- PRESSURE REDUCING VALVE
- SAFETY VALVE OR PRESSURE RELIEF
- AVM AIR VENT (MANUAL)
- BALANCING COCK OR CIRCUIT SETTER
- BALL VALVE OR PLUG BALANCING VALVE
- PLUG VALVE
- BUTTERFLY VALVE OR BALL VALVE
- –D– DRAIN LINE
- TP TEMPERATURE AND PRESSURE TEST PLUG
- 2–W–B TWO WAY BLOW ON CEILING DIFFUSER
- 3–W–B THREE WAY BLOW ON CEILING DIFFUSER
- –CF– CHEMICAL FEED
- –CS– CONDENSER WATER SUPPLY
- –CR– CONDENSER WATER RETURN
- –DW– DOMESTIC WATER
- SS SPLIT SYSTEM
- EG EXHAUST GRILLE
- ER EXHAUST REGISTER
- CD CEILING DIFFUSER
- SD SMOKE DETECTOR IN DUCT OR UNIT
- LD 12x12 DOOR LOUVER BY M.C. INSTALLED BY G.C.
- SPRINKLER HEAD BY FPC
- RG 24X12 RG–1
- RG 24X24 RG–2
- 1–HOUR FIRE BARRIER
- 2–HOUR FIRE BARRIER
- 3–HOUR FIRE BARRIER
- HP–000–XX HYDRONIC HEAT PUMP; UNIT UNIQUE NUMERIC DESIGNATION; SIZE, REFER TO SCHEDULE
- TAKE–OFF WITH SPLITTER DAMPER
- SPIN–IN FITTING WITH VOLUME DAMPER
- BRANCH–BOTTOM CONNECTION
- FLOW – IN DIRECTION OF ARROW
- ECCENTRIC REDUCER
- CONCENTRIC REDUCER
- FLOW MEASURING DEVICE WITH UNIONS, SEE PLANS FOR GPM OF FLOW.
- MAKE–UP WATER LINE
- UNION
- FLEXIBLE CONNECTION
- DIRECTION OF SLOPE
- STRAINER
- G RISER DOWN (ELBOW)
- RISER UP (ELBOW)
- FD/SD COMBINATION SMOKE / FIRE DAMPER (VERTICAL AIR FLOW)
- FD FIRE DAMPER (HORIZONTAL AIR FLOW)
- VD VOLUME DAMPER
- AD AUTOMATIC DAMPER
- T THERMOSTAT OR TEMPERATURE SENSOR
- H HUMIDISTAT
- S WALL MOUNTED LIGHT/FAN SWITCH, COORDINATE WITH CASEWORK
- CD WALL MOUNTED CARBON DIOXIDE SENSOR, COORDINATE WITH CASEWORK.
- FLEXIBLE DUCT
- SA LOW VELOCITY SUPPLY AIR
- MP MEDIUM PRESSURE
- EA LOW VELOCITY EXHAUST AIR
- KEA KITCHEN EXHAUST AIR DUCT (2" FIRE WRAP)
- DEA DISHWASHER EXHAUST AIR (2" FIRE WRAP)
- OA OUTSIDE AIR
- SA SUPPLY AIR
- RA RETURN AIR
- PCA PRECONDITIONED OUTSIDE AIR
- AFF ABOVE FINISHED FLOOR
- UC 3/4" UNDERCUT DOOR COORDINATE WITH GC
- MC HVAC CONTRACTOR
- GC GENERAL CONTRACTOR
- FPC FIRE PROTECTION SUB–CONTRACTOR
- PC PLUMBING SUB–CONTRACTOR
- EC ELECTRICAL SUB–CONTRACTOR
- FMCS/BAS HVAC & LIGHTING BUILDING AUTOMATION SYSTEM
- OBD OPPOSED BLADE DAMPER
- BDD BACK DRAFT DAMPER
- AD ACCESS DOOR OR AUTOMATIC DAMPER
- IP IMPLOSION PANEL
- NO NORMALLY OPEN
- NC NORMALLY CLOSED
- TA TRANSFER AIR
- BOW BAKED ON – WHITE ENAMEL FINISH
- ⊕ POINT OF CONNECTION – TO WORK PROVIDED BY OTHERS.
- NTS NOT TO SCALE
- MCA MINIMUM CIRCUIT AMPS
- MFS MAXIMUM FUSE SIZE
- ESP EXTERNAL STATIC PRESSURE
- EF EXHAUST FAN
- SR–1 / 400 DESIGNATION OF GRILLE; CFM

NOTE: NOT ALL SYMBOLS NECESSARILY APPLY TO THIS JOB

## MECHANICAL SYSTEMS, SERVICE SYSTEMS AND EQUIPMENT METHOD OF COMPLIANCE

Prescriptive ☑ Energy Cost Budget ☐

Thermal Zone – 4

Exterior Design Conditions
- winter dry bulb – 21.4°F
- summer dry bulb – 93.1°F
- summer WET bulb – 75.6°F

Interior Design Conditions
- winter dry bulb – 70.0°F
- summer dry bulb – 75.0°F
- relative humidity – 50.0% RH

Space Heating Load – 1200 MBH

Space Cooling Load – 240 TONS

Mechanical Spacing Conditioning System:
- Unitary
- – description of unit: Water Source Heat Pump
- – heating efficiency : REFER TO SCHEDULES
- – cooling efficiency: REFER TO SCHEDULES
- – heat output of unit: REFER TO SCHEDULES
- – cooling output of unit: REFER TO SCHEDULES
- Boiler: NEW
- – GAS FIRED HOT WATER
- – 2–800 MBH OUTPUT
- Chiller: N/A
- –

List Equipment Efficiencies REFER TO SCHEDULES ON SHEETS M301 & M302

Equipment Schedules with Motors (Mechanical Systems) SHEET M001
- motor horsepower – SEE SCHEDULE SHEET M.301 & M.302
- number of phases – 3
- minimum efficiency – 90%
- motor type – induction
- # of poles – 4 AND 2

DESIGNER STATEMENT:

To the best of my knowledge and belief, the design of this building complies with the mechanical systems, service systems and equipment requirements of the 2012 NC ENERGY CONSERVATION CODE.

SIGNED:

NAME: – James Currie, P.E.

TITLE: – Consulting Engineer

## GENERAL MECHANICAL NOTES

1. ALL OPENINGS FOR DUCTWORK AND PIPING PENETRATIONS SHALL GENERALLY BE PROVIDED BY THE GENERAL CONTRACTOR. EXCEPTIONS ARE COVERED BY NOTES AND DETAILS. NEVER THE LESS, THE LOCATION AND SIZE OF EACH OPENING SHALL BE FURNISHED TO THE GENERAL CONTRACTOR BY THE CONTRACTOR.
2. PIPE HANGERS AND INSERTS UTILIZED FOR THIS PROJECT SHALL BE PROVIDED BY THE CONTRACTOR. THIS INCLUDES ALL SUPPLEMENTAL STEEL, ETC.
3. UNLESS SPECIFICALLY APPROVED BY THE ARCHITECT, NO BURIED PIPING UNDER THE SLAB SHALL BE INSTALLED WITHIN THE FOOTING BEARING.
4. SLEEVES FOR PIPING PASSING THROUGH BELOW SLAB FOUNDATION WALLS SHALL BE COORDINATED AND PROVIDED BY THE CONTRACTOR.
5. ALL LINTELS REQUIRED IN MASONRY WALLS FOR PIPING AND DUCT PENETRATIONS SHALL BE PROVIDED BY THE CONTRACTOR.
6. PROVIDE VOLUME DAMPERS FOR ALL BRANCH DUCTS OFF OF MAINS.
7. ALL DOOR LOUVERS AND UNDERCUTS SHALL BE PROVIDED BY THE CONTRACTOR.
8. ALL WIRING, CONTROL WIRING, AND CONDUIT SHALL BE CONCEALED IN FINISHED SPACES.
9. DUCT DIMENSIONS INDICATED ARE NET FREE AREA DIMENSIONS OF DUCTWORK
10. THE MAXIMUM LENGTH OF FLEXIBLE DUCTWORK SHALL NOT EXCEED 6'–0".
11. ALL OPENINGS THROUGH NON–RATED WALLS SHALL BE PROVIDED WITH SHEETMETAL SLEEVES, PEELED BACK AND SECURED TO WALL AT 8" CENTERS WITH SCREWS. SPACES BETWEEN DUCT OR DUCT INSULATION SHALL BE 1/2". REFER TO DETAIL.
12. REFER TO ARCHITECTURAL LIFE SAFETY PLANS FOR FIRE RATING OF PARTICULAR WALLS, FLOORS, AND FOR NON–RATED WALLS WHICH EXTEND TO STRUCTURE.
13. COORDINATE VERTICAL PIPING AND DUCTWORK WITH FIELD CONDITIONS FOR EXACT LOCATION OF RISERS.
14. DIFFUSER LOCATIONS SHOWN ON PLANS ARE GENERAL, REFER TO ARCHITECTURAL PLANS FOR EXACT LOCATIONS.
15. FOR EXACT LOCATION OF GRILLES, DIFFUSERS, ETC., REFER TO REFLECTED CEILING PLAN AND FIELD MEASUREMENTS.
16. THE CONTRACTOR SHALL PROVIDE TRANSITIONS AS REQUIRED TO MAKE DUCT CONNECTIONS FROM HEAT PUMP AND DIFFUSER/UNITS TO DUCTWORK.
17. RUN–OUTS TO SUPPLY, RETURN AND EXHAUST DISTRIBUTION DEVICES SHALL BE AS INDICATED IN THE SCHEDULES. WHERE SIZE OF RUN–OUT IS NOT GIVEN, THE RUN–OUT SHALL HAVE AN AREA EQUAL TO THE DISTRIBUTION DEVICE NECK SIZE. NECK SIZE SHALL BE BASED ON 0.08"/100' PRESSURE DROP OR 425FPM, WHICHEVER IS MORE STRINGENT.
18. WHERE DUCT PENETRATES FIRE WALL, PROVIDE FIRE DAMPERS. G.C. TO SEAL WITH FIRE CAULK.
19. CONTRACTOR SHALL BLANK OFF UNUSED PORTIONS OF LOUVERS WITH INSULATED DUAL WALL SHEET METAL PANELS.
20. PROVIDE REMOTE MOUNTED "YOUNG" OR APPROVED EQUIVALENT REGULATORS FOR BALANCING OF ALL VOLUME DAMPERS IN ROOMS WITH DRY WALL CEILINGS.
21. ALL PIPING, CONTROL SYSTEMS AND DUCTWORK EXPOSED IN OCCUPIED SPACES SHALL BE PRIMED BY CONTRACTOR.
22. ALL LOW PRESSURE DUCTWORK ABOVE NON–LAY–IN CEILINGS SHALL BE RIGID SHEET METAL. NO FLEXIBLE DUCTWORK SHALL BE USED.
23. LIGHT FIXTURES ARE NOT USED TO RETURN AIR.
24. AT WATER SUPPLY AND RETURN PIPING HIGH POINTS, PROVIDE MANUAL VENTS. PROVIDE MANUAL GATE VALVES AT BASE OF RISERS.
25. ALL SEISMIC BRACING SHALL COMPLY WITH THE 2012 NC BUILDING CODE. REFER CHAPTERS 16 AND 17 FOR SEISMIC DESIGN AS APPLICABLE.
26. ALL SUPPLY AIR AND PCA DUCTWORK SHALL BE EXTERNALLY INSULATED WITH AN INSULATION WITH AN INSTALLED THICKNESS OF 1.5". EA AND RA DUCTWORK SHALL BE INSULATED.
27. ALL EXPOSED DUCTWORK SHALL HAVE AN ARCHITECTURAL FINISH AND LABELING "IMPERFECTIONS REMOVED" BY THE CONTRACTOR.
28. ALL EXPOSED INSULATED DUCTWORK SHALL HAVE A PAINTABLE MASTIC WRAP FOR FINAL PAINT BY THE CONTRACTOR.
29. ROUTE ALL CONTROL CONDUIT, DUCTS AND PIPING IN EXPOSED AREAS TIGHT TO BEAMS, EXTEND PERPENDICULAR TO DEVICE OR EQUIPMENT FROM BEAM. NO EXTENDED RUNS ACROSS EXPOSED CEILINGS WILL BE PERMITTED.
30. THE INTERIOR CONDENSER WATER PIPE SHALL NOT BE INSULATED.
31. MISCELLANEOUS SUPPORTING STEEL FOR ROOF TOP UNITS SHALL BE PROVIDED BY GENERAL CONTRACTOR PER STRUCTURAL ENGINEERS DESIGN.
32. ALL CONTROL AND POWER WIRING EXPOSED IN OPEN SPACES FOR HVAC SYSTEM SHALL BE CONCEALED IN CONDUIT.
33. DUCT DIMENSIONS ARE NET FREE AREA DIMENSIONS, ALLOW FOR 1" THICK LINER AS NOTED BY "(L)" or LINED NOTATION. INCREASE DUCT DIMENSIONS AS REQUIRED TO MAINTAIN NET FREE AREA..
34. EXTERNALLY INSULATE ALL RECTANGULAR CONCEALED S.A. DUCT WITH 1.5" THICK R–6 FIBER GLASS WRAP INSULATION. INSULATION SHALL MEET NFPA–96 REQUIREMENTS. SEAL ALL JOINTS WITH FSK OR ASJ UL LISTED INSULATION TAPE. INTERNALLY LINED DOES NOT REQUIRE EXT. INSULATION.
35. PROVIDE 1" THICK INTERNAL ACOUSTICAL LINER WHERE SHOWN ON DRAWINGS OR BY (L). LINER SHALL MEET NFPA–96 REQUIREMENTS. PROVIDE WITH SMOOTH FINISH ANTI–MIBROBIAL COATING.
36. COORDINATE WALL OPENINGS AND ROOF OPENINGS WITH GENERAL CONTRACTOR.
37. BEFORE MAKING WALL OR ROOF OPENINGS, CONSULT WITH FIELD ENGINEER/ARCHITECT.
38. MOUNT THERMOSTAT AND OR SENSOR AT 48" ABOVE FINISHED FLOOR.
39. PROVIDE LOCKABLE CLEAR PLASTIC THERMOSTAT GUARD IN COMMON AREAS.
40. PROVIDE FULL SIZE TYPE L COPPER CONDENSATE DRAIN FROM EACH ROOF TOP UNIT WITH TRAP. DISCHARGE OF DRAIN SHALL BE ROUTED TO NEAREST ROOF DRAIN AND SUPPORTED ABOVE ROOF AT 6' O.C. WITH RPS PIPE SUPPORT OR APPROVED EQUAL. NO HEADERING OF PIPING.
41. CONTRACTOR SHALL PROVIDE RPS PORTAL TYPE CURBS IN ROOF FOR PENETRATIONS.
42. ALL PIPING ON PROJECT SHALL BE PER SPECIFICATIONS. NO PVC ALLOWED. UNINSULATED PLENUM RATED CPVC MAY BE USED FOR INTERIOR HEAT PUMP CONDENSATE DRAINAGE IN LIEU OF COPPER. ALL CONDENSATE DRAINS SHALL BE PROVIDED WITH UNION PRIOR TO FINAL UNIT CONNECTION.
43. NO PIPING (UNLESS SERVING EQUIPMENT LOCATED IN ROOM) SHALL BE ROUTED THROUGH IT/DATA ROOMS. IF FOUND, NOTIFY ARCHITECT AND RELOCATE OUTSIDE ROOM.
44. KITCHEN EXHAUST DUCT SHALL BE WELDED STEEL DUCT WITH 2012 NC MECHANICAL CODE REQUIRED ACCESS DOORS INSTALLED AS SHOWN ON PLANS AND PER CODE REQUIREMENTS.
45. NO ROOFTOP EQUIPMENT SHALL BE PLACED CLOSER THAN 6'–0" FROM PARAPET EDGE UNLESS NOTED.
46. BRANCH CS/CR PIPING NOT INDIVIDUALLY CALLED OUT AND/OR TO INDIVIDUAL UNITS SHALL BE A MINIMUM 1"ø UNLESS NOTED OTHERWISE.

| | OUTDOOR | INDOOR |
|---|---|---|
| SUMMER | 93.1 °F db<br>75.6 °F wb<br>(NOTE 1) | 75°F db +/– 2°F<br>50% RH +/– 5%RH |
| WINTER | 21.4°F db<br>(NOTE 1) | 70°F db +/– 2°F<br>(NOTE 2) |

NOTES:
1. CLIMATE DATA FROM "ASHRAE 2009 FUNDAMENTALS HANDBOOK" AS REQUIRED BY NCBC.
2. NO MECHANICAL HUMIDIFICATION IS PROVIDED FOR THIS FACILITY.

## DRAWING LIST


| | |
|---|---|
| M–001 | MECHANICAL NOTES, SYMBOLS AND SCHEDULES |
| M–101a | LEVEL 1 HVAC PLAN – MULTI–MODAL CENTER |
| M–101b | LEVEL 1 HVAC PLAN – TENANT SPACES |
| M–102a | LEVEL 2 HVAC PLAN – MULTI–MODAL CENTER |
| M–102b | LEVEL 2 HVAC PLAN – TENANT SPACES |
| M–103 | ROOF PLAN |
| M–201a | LEVEL 1 PIPING PLAN – MULTI–MODAL CENTER |
| M–201b | LEVEL 1 PIPING PLAN – TENANT SPACES |
| M–202A | LEVEL 2 PIPING PLAN – MULTI–MODAL CENTER |
| M–202B | LEVEL 2 PIPING PLAN – TENANT SPACES |
| M–301 | MECHANICAL SCHEDULES |
| M–302 | MECHANICAL SCHEDULES |
| M–401 | ENLARGED MECHANICAL BOILER ROOM PLAN |
| M–601 | TEMPERATURE CONTROLS DIAGRAMS AND SEQUENCES |
| M–602 | TEMPERATURE CONTROLS DIAGRAMS AND SEQUENCES |
| M–701 | MECHANICAL DETAILS |
| M–702 | MECHANICAL DETAILS |
| M–703 | MECHANICAL DETAILS |
| M–704 | MECHANICAL DETAILS |
| M–705 | MECHANICAL DETAILS |
| M–801 | SCHEMATIC PIPING DIAGRAM |



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M&L Project No.
211.026

NORTH CAROLINA PROFESSIONAL SEAL 034776 ENGINEER JAMES L. CURRIE

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Drawn

Checked

Date January 31, 2014

Revisions


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**FAST Multi-Modal Center**
City of Fayetteville
Fayetteville, NC

Project Number 621A

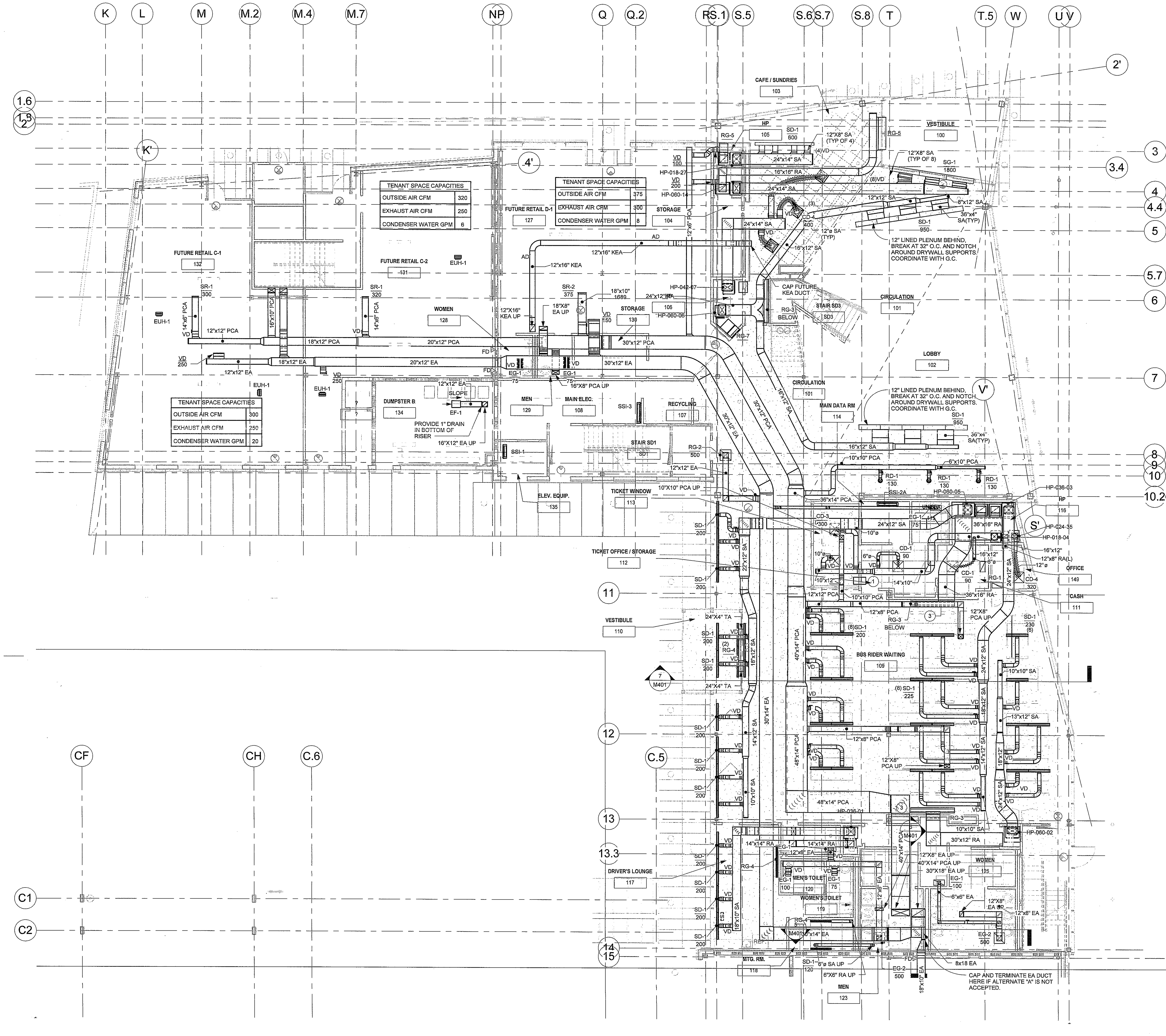
Title
**Mechanical Notes, Symbols and Schedules**

Sheet
M-001

Plate of


Modified Feb 25, 2013 Modified By HPD Scale: 1/8"=1'-0" Plotted: May 06, 2014 - 3:54pm Plotted By: jamesc K:\211-026 FAST MCS\MEP\M001.dwg Layout: M001

| KEYED NOTES | |
|---|---|
| 1 | 16"X12" TA THROUGH WALL ABOVE CEILING. |
| 3 | PROVIDE 20" DEEP PLENUM (LINED) ABOVE RG-3. |

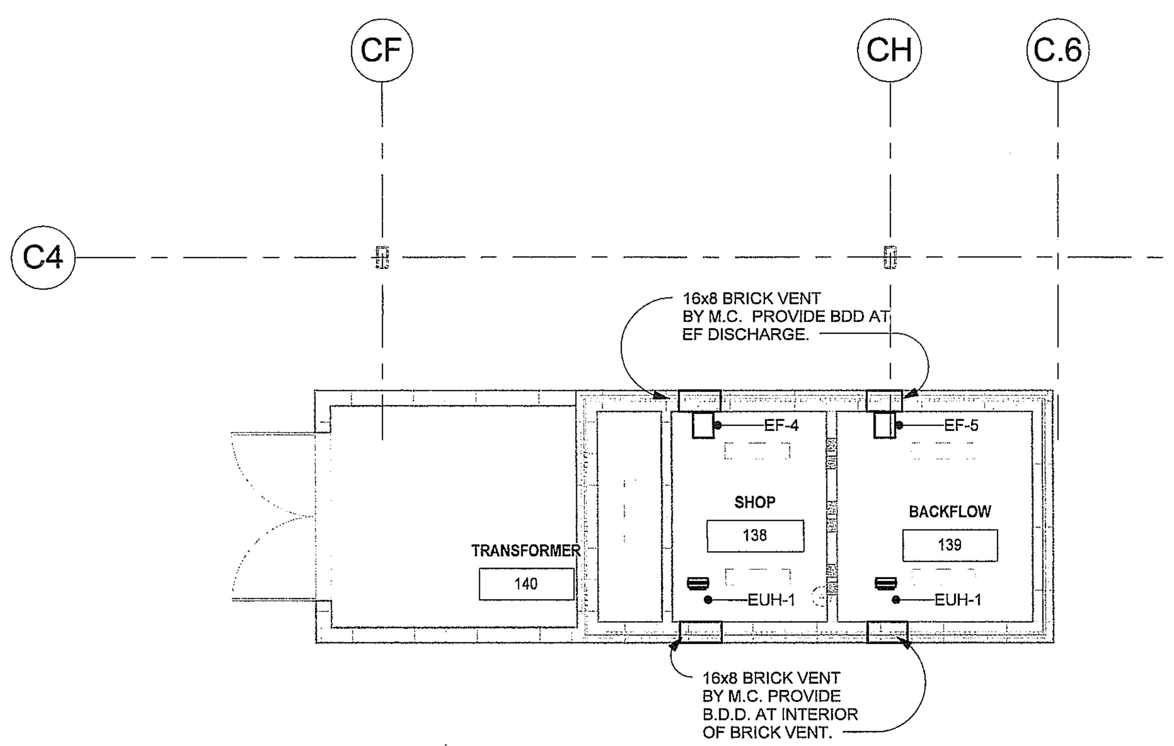



| TENANT SPACE CAPACITIES | |
|---|---|
| OUTSIDE AIR CFM | 320 |
| EXHAUST AIR CFM | 250 |
| CONDENSER WATER GPM | 6 |

| TENANT SPACE CAPACITIES | |
|---|---|
| OUTSIDE AIR CFM | 375 |
| EXHAUST AIR CFM | 300 |
| CONDENSER WATER GPM | 8 |

| TENANT SPACE CAPACITIES | |
|---|---|
| OUTSIDE AIR CFM | 300 |
| EXHAUST AIR CFM | 250 |
| CONDENSER WATER GPM | 20 |

1 LEVEL 1 - MULTI-MODAL CENTER
1/8" = 1'-0"




2 LEVEL 1 - BUS BAYS
1/8" = 1'-0"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| Revisions | |


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**FAST Multi-Modal Center**

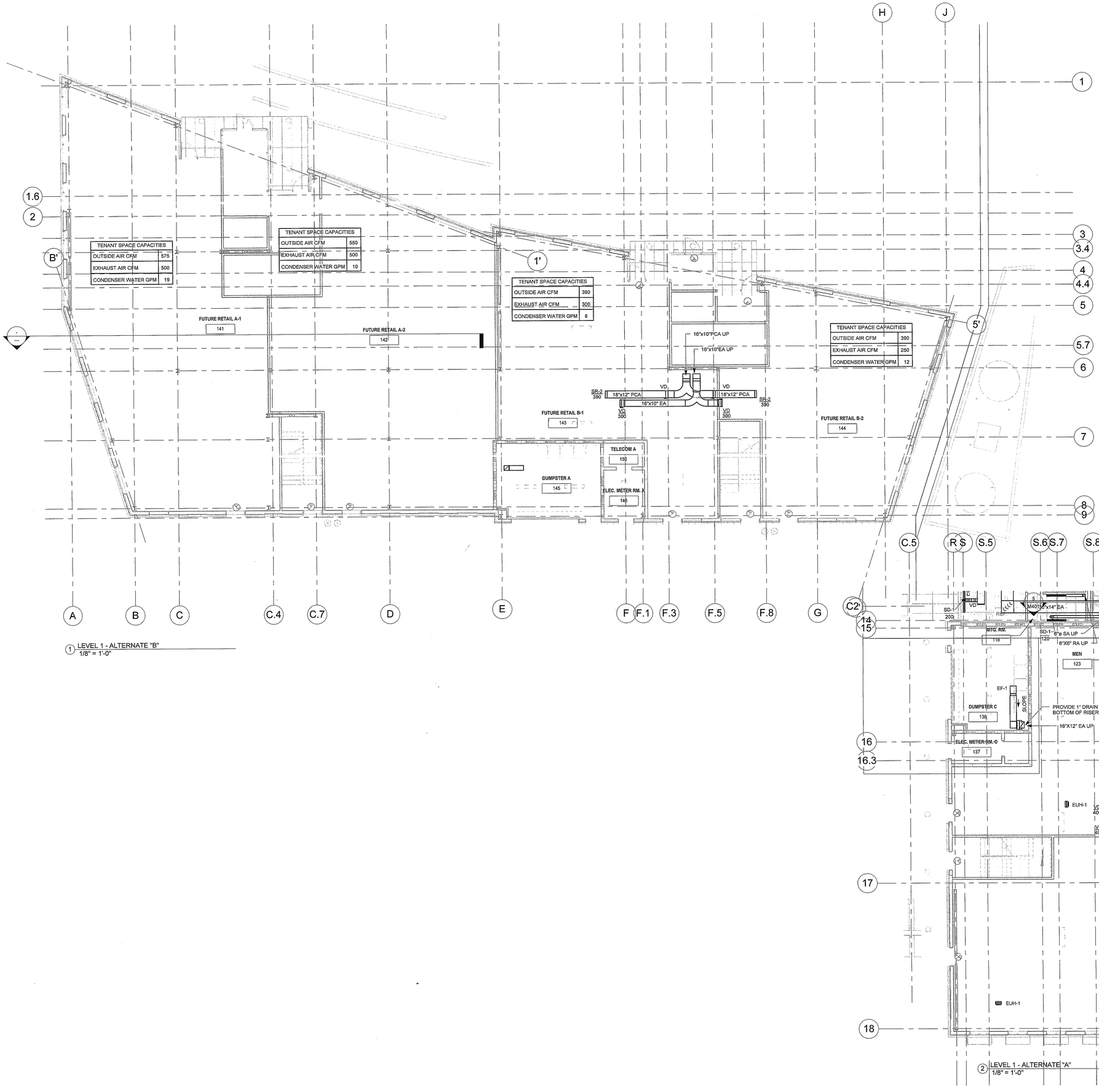
City of Fayetteville
Fayetteville, NC

Project Number 621A

Title
**Level 1 HVAC Plan - Multi-Modal Center**

Sheet
# M101a

Plate of




1 LEVEL 1 - ALTERNATE "B"
1/8" = 1'-0"

2 LEVEL 1 - ALTERNATE "A"
1/8" = 1'-0"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**FAST Multi-Modal Center**
City of Fayetteville
Fayetteville, NC

Project Number 621A

Title
**Level 1 HVAC Plan - Tenant Spaces**

Sheet
# M101b

Plate of


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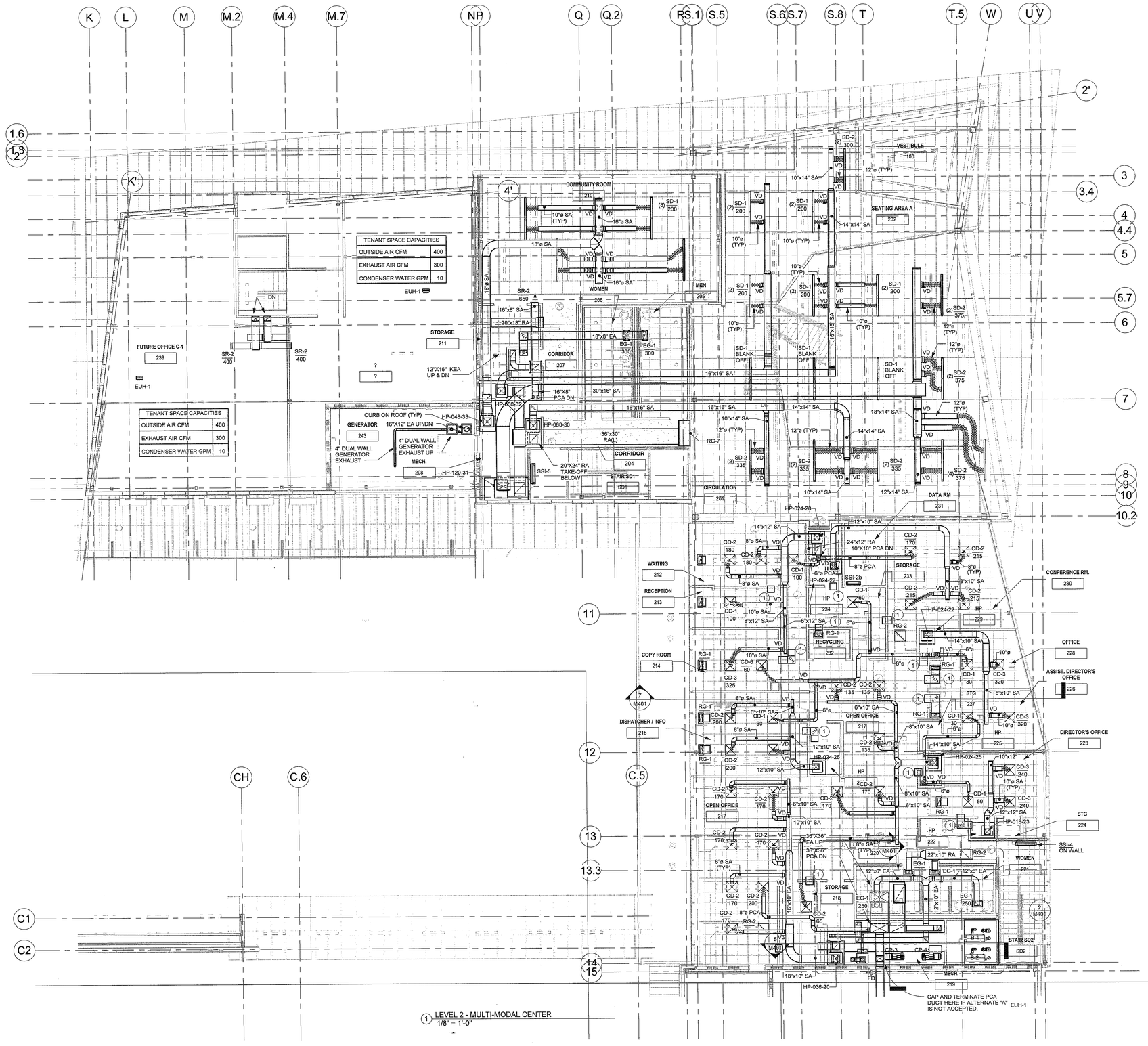
| KEYED NOTES | |
|---|---|
| 1 | 16"X12" TA THROUGH WALL ABOVE CEILING. |
| 3 | PROVIDE 20" DEEP PLENUM (LINED) ABOVE RG-3. |




1 LEVEL 2 - MULTI-MODAL CENTER
1/8" = 1'-0"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**FAST Multi-Modal Center**
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Fayetteville, NC

Project Number 621A

Title
**Level 2 HVAC Plan - Multi-Modal Center**

Sheet
# M102a

Plate of


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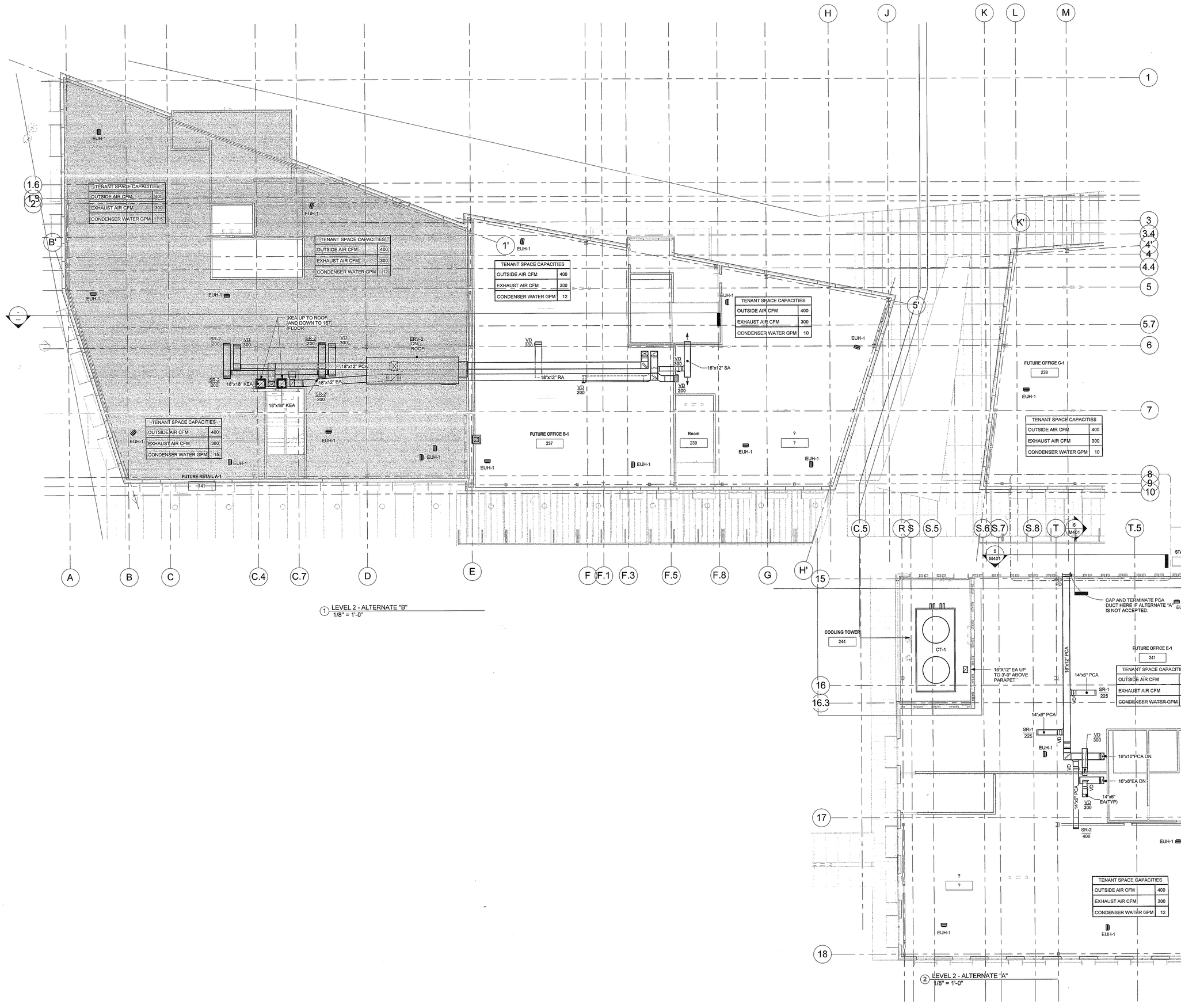


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**FAST Multi-Modal Center**
City of Fayetteville
Fayetteville, NC

Project Number 621A

Title
**Level 2 HVAC Plan - Tenant Spaces**

Sheet
# M102b

Plate of

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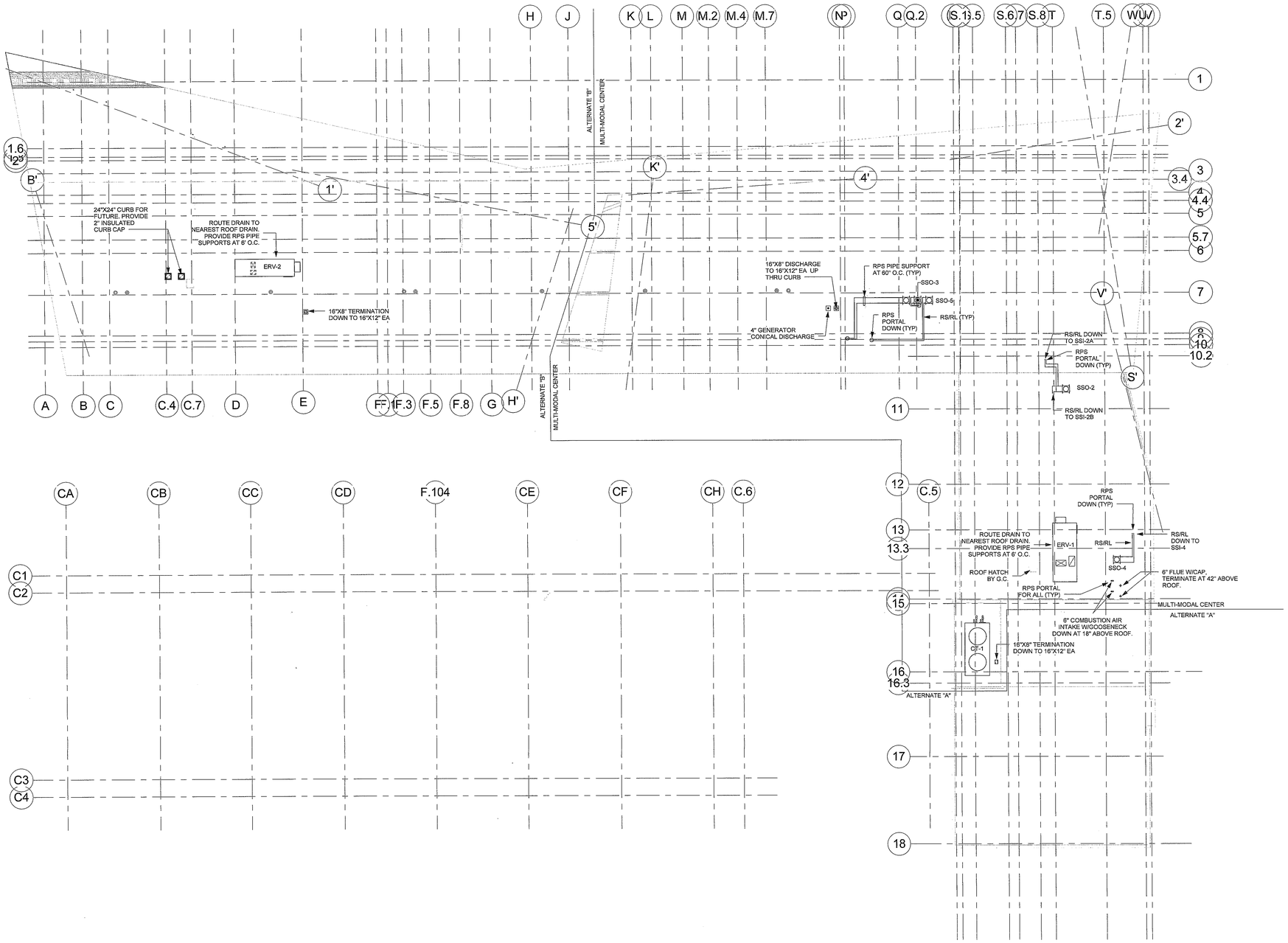


1 Roof Plan
1/16" = 1'-0"

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NORTH CAROLINA PROFESSIONAL SEAL 31417 ENGINEER JAMES L CURRIE
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**FAST Multi-Modal Center**
City of Fayetteville
Fayetteville, NC

Project Number 621A

Title
**Roof Plan**

Sheet
# M103

Plate of

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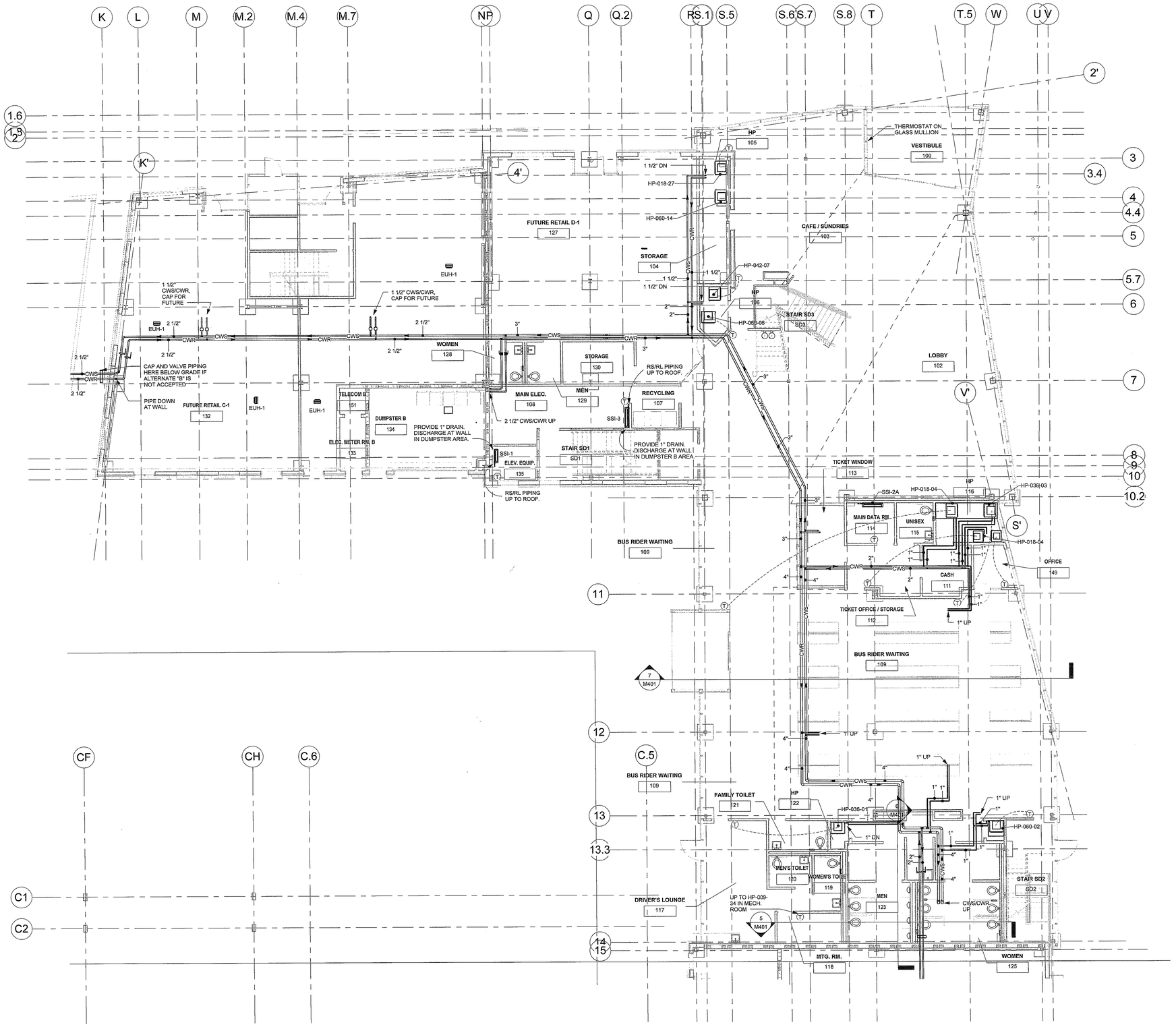


1 LEVEL 1 PIPING - MULTI-MODAL CENTER
1/8" = 1'-0"


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**FAST Multi-Modal Center**
City of Fayetteville
Fayetteville, NC

Project Number 621A

Title
**Level 1 Piping Plan - Multi-Modal Center**

Sheet
# M201a

Plate of


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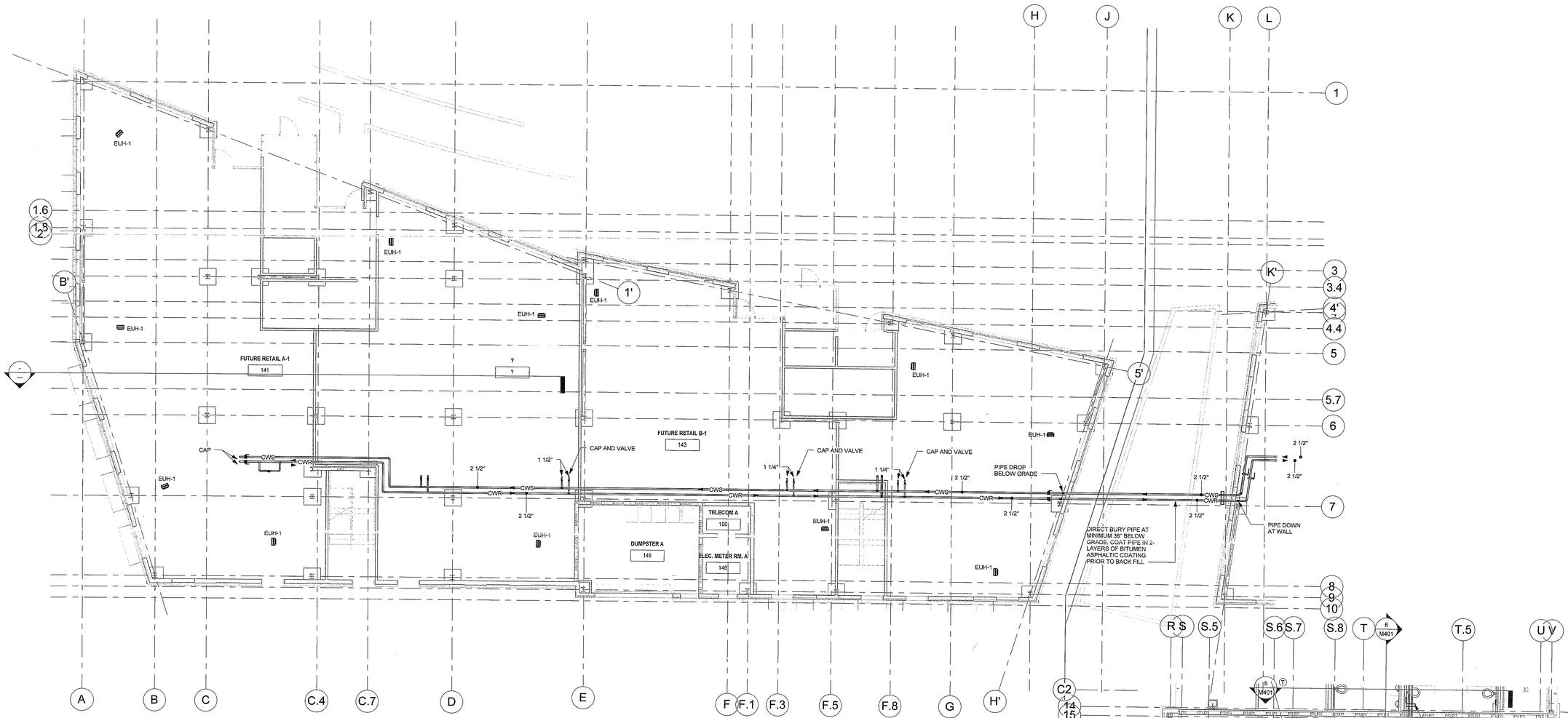
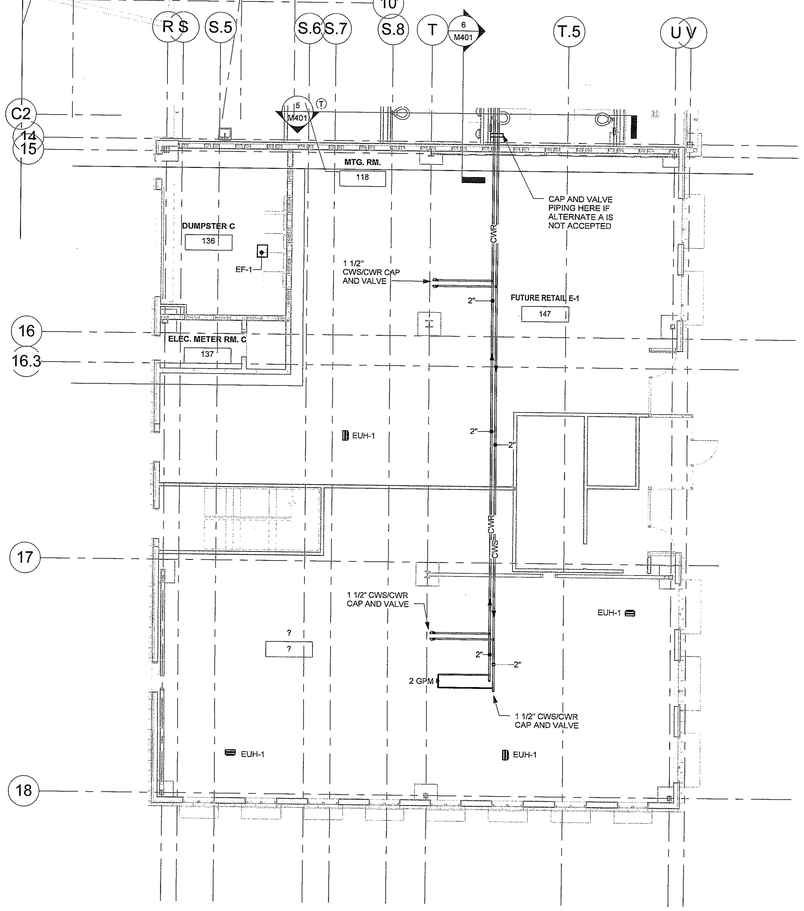



1 LEVEL 1 PIPING - ALTERNATE "B"
1/8" = 1'-0"




2 LEVEL 1 PIPING - ALTERNATE "A"
1/8" = 1'-0"

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**FAST Multi-Modal Center**
City of Fayetteville
Fayetteville, NC

Project Number 621A

Title
**Level 1 Piping Plan - Tenant Spaces**

Sheet
# M201b

Plate of

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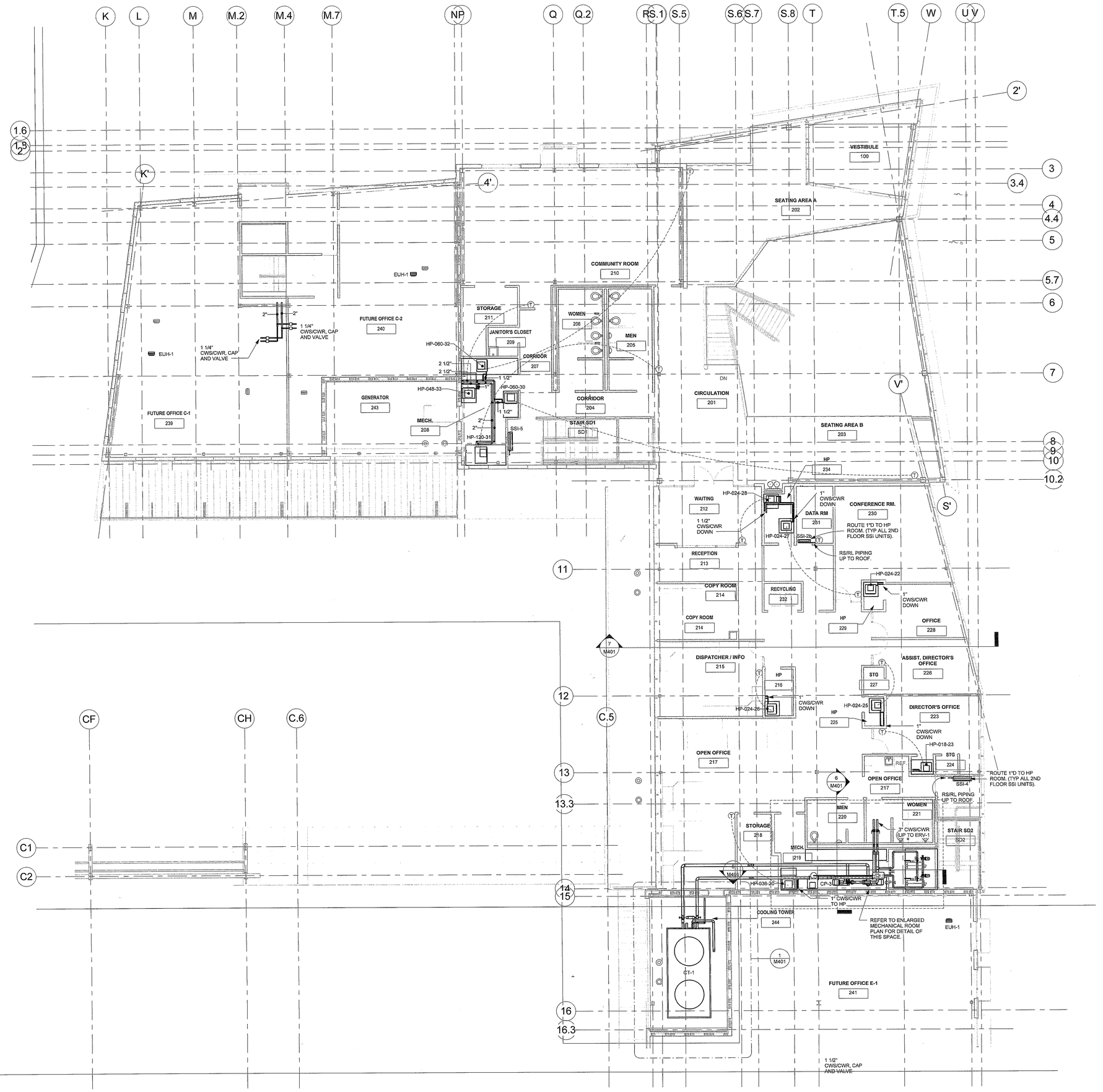


1 LEVEL 2 PIPING - MULTI-MODAL CENTER
1/8" = 1'-0"


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**FAST Multi-Modal Center**
City of Fayetteville
Fayetteville, NC

Project Number 621A

Title
**Level 2 Piping Plan - Multi-Modal Center**

Sheet
# M202a

Plate of


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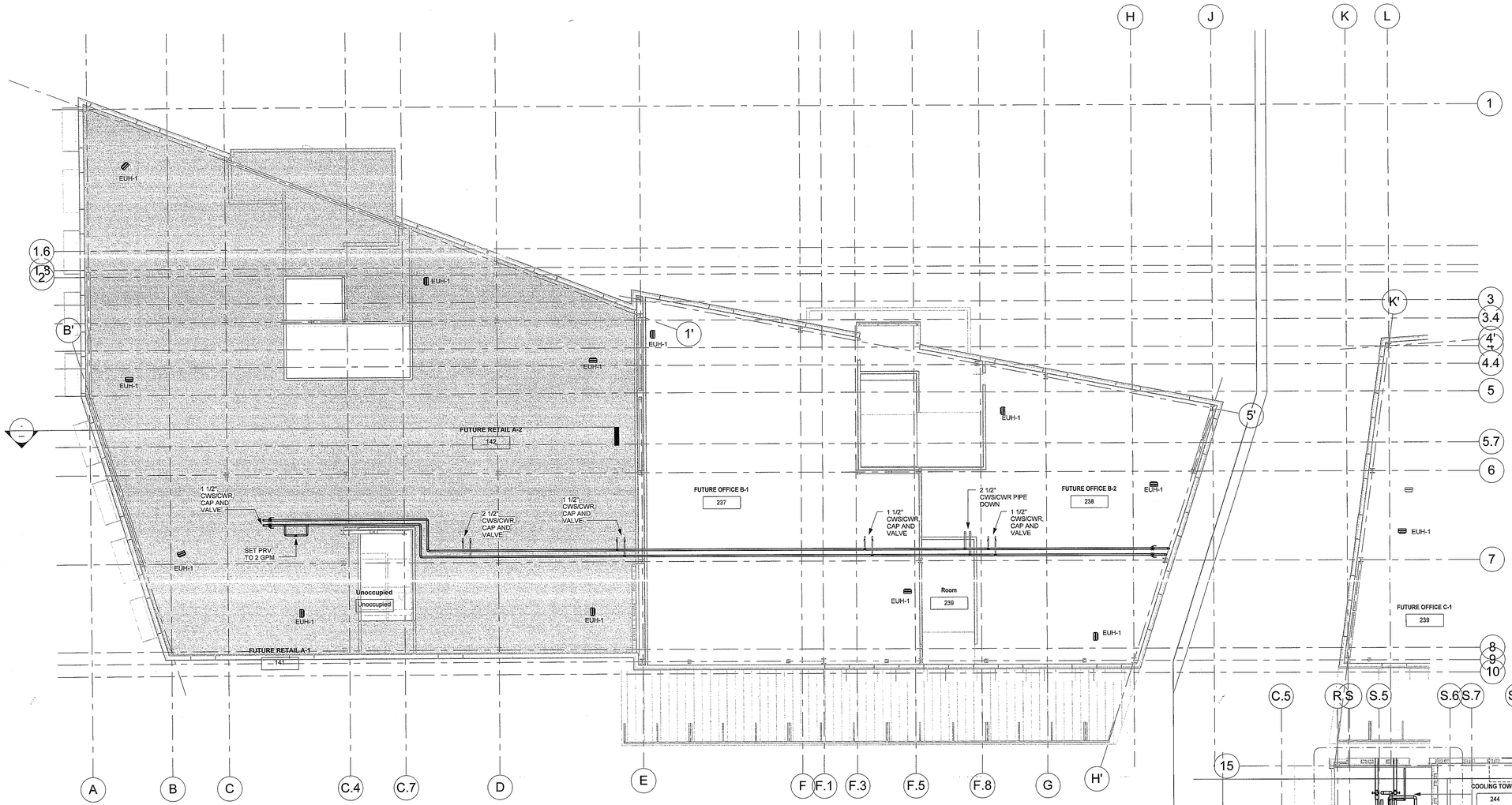
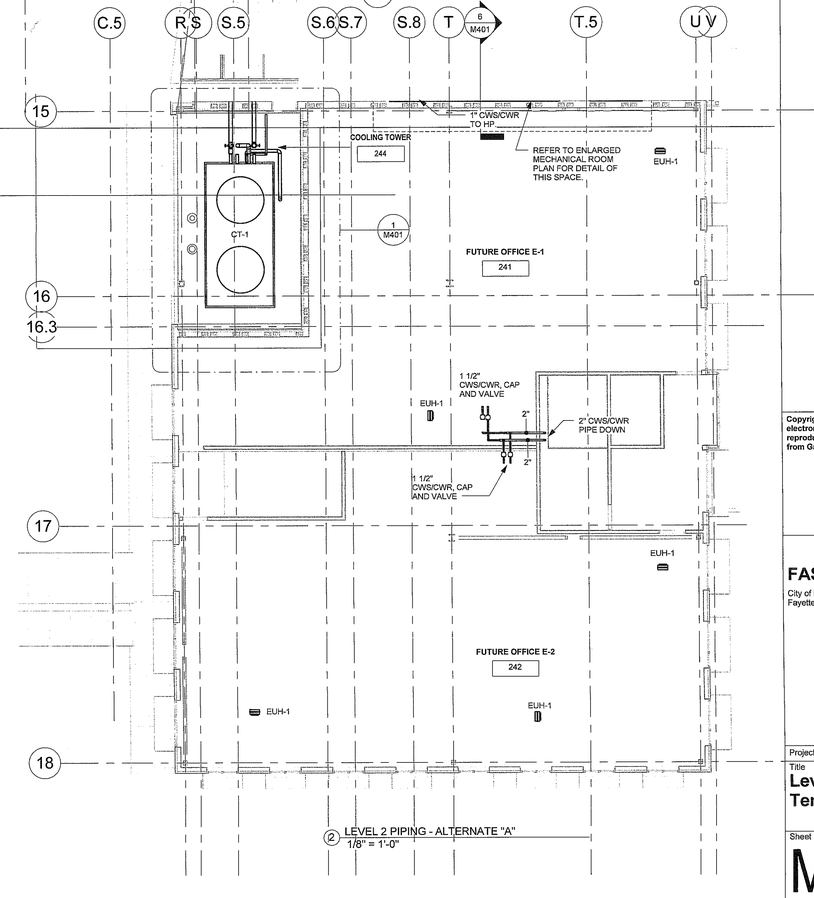



1 LEVEL 2 PIPING - ALTERNATE "B"
1/8" = 1'-0"




2 LEVEL 2 PIPING - ALTERNATE "A"
1/8" = 1'-0"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**FAST Multi-Modal Center**
City of Fayetteville
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Project Number 621A

Title
**Level 2 Piping Plan - Tenant Spaces**

Sheet
# M202b

Plate of

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## AIR DISTRIBUTION DEVICE SCHEDULE

| DESIGNATION | NAILOR MODEL NO. | MAX C.F.M. | MAX NC LEVEL | PANEL SIZE | NECK SIZE | FINISH | CONSTRUCTION | REMARKS |
|---|---|---|---|---|---|---|---|---|
| CD-1 | RNSA | 150 | 25 | 24"X24" | 6"ø | B.O.W. | – | ADJUSTABLE FACE LOUVERED |
| CD-2 | RNSA | 250 | 25 | 24"X24" | 8"ø | B.O.W. | – | ADJUSTABLE FACE LOUVERED |
| CD-3 | RNSA | 250 | 25 | 24"X24" | 10"ø | B.O.W. | – | ADJUSTABLE FACE LOUVERED |
| CD-4 | RNSA | 450 | 25 | 24"X24" | 12"ø | B.O.W. | – | ADJUSTABLE FACE LOUVERED |
| CD-5 | RNSA | 600 | 25 | 24"X24" | 14"ø | B.O.W. | – | ADJUSTABLE FACE LOUVERED |
| CD-6 | RNSA | 400 | 25 | 24"X24" | 12"ø | B.O.W. | 2-WAY | ADJUSTABLE FACE LOUVERED |
| RG-1 | PAR | 800 | 25 | 12"X24" | 10"X22" | B.O.W. | – | REFER TO NOTE 3 |
| RG-2 | PAR | 1600 | 25 | 24"X24" | 22"X22" | B.O.W. | – | REFER TO NOTE 3 |
| RG-3 | 8-1"SLOT RETURN | 380/ft | 25 | 48"X11" | 42"X10" | B.O.W. | STEEL | NAILOR MODEL 5010R TYPE D FRAME IN HARD CEILING TYPE N CEILING IN METAL. |
| RG-4 | 4-1"SLOT RETURN | 150/ft | 25 | 48"X8" | 42"X6" | B.O.W. | STEEL | NAILOR MODEL 5010R TYPE D FRAME IN HARD CEILING TYPE N CEILING IN METAL. |
| RG-5 | 8-1"SLOT RETURN | 380/ft | 25 | 48"X11" | 42"X10" | B.O.W. | ALUMINUM | NAILOR MODEL 5010R TYPE C CONCEALED MOUNT. |
| RG-6 | 5130H-HD | 1800 | 35 | 74"X10" | 72"X8" | B.O.W. | STEEL | TYPE C CONCEALED MOUNT. |
| RG-7 | 5130H-HD | 8000 | 30 | 58"X74" | 56"X72" | B.O.W. | ALUMINUM | PROVIDE 24" LINED PLENUM BEHIND. |
| RG-8 | 5145HD | 1800 | 25 | 36"X24" | 34"X22" | B.O.W. | STEEL | PROVIDE 12"(L) PLENUM BEHIND |
| EG-1 | PAR | 600 | 25 | 24"X12" | 22"X12" | B.O.W. | ALUMINUM | – |
| EG-2 | PAR | 1200 | 25 | 24"X24" | 22"X22" | B.O.W. | ALUMINUM | – |
| EG-3 | 5145H | 600 | 25 | 18"x10" | 16"X8" | B.O.W. | – | – |
| EG-4 | 5145H | 1000 | 25 | 24"X10" | 22"X8" | B.O.W. | – | – |
| SR-1 | 51FH-HD | 300 | 25 | 16"X8" | 14"X6" | B.O.W. | – | PROVIDE AIR EXTRACTOR OR DAMPER AT DUCT TAP. NO OBD. |
| SR-2 | 51DV | 600 | 25 | 24"X10" | 22"X8" | B.O.W. | – | PROVIDE AIR EXTRACTOR OR DAMPER AT DUCT TAP. NO OBD. |
| SR-3 | 51DV | 1250 | 25 | 44"X14" | 42"X12" | B.O.W. | – | PROVIDE DAMPER AT DUCT TAP. NO OBD. |
| SD-1 | 8150-2-2"SLOTS | 250 | 25 | 4'x8" | 10"ø OVAL | B.O.W. | – | PROVIDE DAMPER AT TAP. PROVIDE WITH LINED PLENUM AND TRIM TO MATCH CEIL. |
| SD-2 | FLV10-2-1"SLOTS | 400 | 25 | 4'X8" | 12"ø OVAL | B.O.W. | – | PROVIDE DAMPER AT TAP. PROVIDE WITH LINED PLENUM AND TYPE AA FRAME. |
| SD-3 | 8150-4-1"SLOTS | 600 | 25 | 4'X8" | 12"ø OVAL | B.O.W. | – | PROVIDE DAMPER AT TAP. PROVIDE WITH LINED PLENUM AND TRIM TO MATCH CEIL. |
| SG-1 | 8150-4-1"SLOTS | 600 | 25 | 12'X10" | 12"PLENUM | B.O.W. | – | PROVIDE DAMPER AT TAP. PROVIDE WITH LINED PLENUM & TYPE C CONCEALED TRIM |

NOTES: (ALL ATTACHMENT TO BE CONCEALED MOUNTING, NO FACE SCREWS)
1) PROVIDE GASKET AT MOUNTING FLANGE FOR EACH DEVICE.
2) PROVIDE CEILING DIFFUSERS WITH INSULATION BLANKET ABOVE.
3) PROVIDE LINED TRANSFER AIR BOOT ABOVE CEILING AT RG-1 (22x6) AND RG-2 (22x10). MINIMUM 12" LONG HORIZONTAL RUN OR AS SHOWN ON PLANS.
4) PROVIDE EXTENDED PLENUM FOR HARD CEILING AND "LOBBY" INSTALLATIONS.

## EVAPORATIVE COOLING UNIT SCHEDULE

| DESIG | NOMINAL GPM | WATER SIDE E.W.T. °F | WATER SIDE L.W.T. °F | WATER SIDE P.D. PSI | AIRSIDE FAN HP | AIRSIDE E.A.T. WB°F | UNIT CAPACITY (MBH) | RECIRC. PUMP HP | SUMP HEATER KW | VOLTS PHASE | MAX UNIT DIMENSIONS LENGTH | MAX UNIT DIMENSIONS WIDTH | MAX UNIT DIMENSIONS HEIGHT | OPERATING WEIGHT LBS. | DESIGN BASED ON MANUFACTURER AND MODEL NO. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CT-1 | 360 | 101 | 86 | 26 | (2) 10 | 80° | 2,700 | (1) 5 | (2) 6 EA | 208/3 | 216" | 102" | 202" | 38,790 | EVAPCO MODEL ATWB 9-718-ZC SINGLE CELL WITH TWO FANS. |

NOTES:

1. MANUFACTURER TO PROVIDE UNIT MOUNTED RECIRCULATING PUMP, VIBRATION SWITCH, BASIN HEATER WITH BAS CONTROL, FILL VALVE AND FLOAT, LOW SOUND FAN AND POSITIVE CLOSURE DAMPERS WITH CONTROLS. SIDE OUTLET DRAIN/OVERFLOW.
2. PROVIDE ENTIRE UNIT WITH STAINLESS STEEL CONSTRUCTION. THIS INCLUDES CASING AND BASIN ELEMENTS. COIL SHALL BE STANDARD GALVANIZED.
3. UNIT TO HAVE GEAR DRIVEN VFD FAN CONTROL, ONE PER FAN. LOCATE VFD IN BOILER ROOM BELOW UNIT.
4. MC TO PROVIDE SEISMIC SPRING ISOLATION CURB BELOW UNIT WITH 2.5"SPRING DEFLECTION, SIMILAR TO VIBRO ACOUSTICS COOLING-TOWER SPRING ISOLATION PLATFORM. COORDINATE FINAL UNIT SIZE.
5. FINAL PIPE CONNECTION TO UNIT TO BE COMPLETED USING FLEX. CONNECTIONS.
6. SUPPLY SHUTOFF VALVES, THERMOMETERS AND PRESSURE GAUGES AT SUPPLY AND RETURN PIPING. THESE ARE IN ADDITION TO ALL DDC SENSORS REQUIRED REFER TO PIPING SCHEMATICS AND SPECIFICATIONS FOR ALL REQUIRED ACCESSORIES.
7. SUB-CONTRACTOR AND SUPPLIER SHALL REVIEW CLEARANCES AND VERIFY PERFORMANCE BASED ON INSTALL CONDITIONS. UNIT SIZE SHALL BE ADJUSTED AS REQUIRED TO PROVIDE UNIT CAPACITY SHOWN BASED ON INSTALLATION CONDITIONS.
8. MAX DIMENSIONS ARE WIDTH/LENGTH OF UNIT CASING. UNIT HEIGHT IS WITH POSITIVE CLOSURE DAMPER AND LOW SOUND FAN.
8. MAXIMUM ALLOWABLE SOUND POWER LEVELS AT 50' ON SIDE OPPOSITE MOTORS SHALL BE AS FOLLOWS:

| BAND (HZ) | 63 | 125 | 250 | 500 | 1K | 2K | 4K | 8K | CALC.dBA |
|---|---|---|---|---|---|---|---|---|---|
| S.P.L (dBA) | 70 | 69 | 69 | 61 | 58 | 54 | 52 | 51 | 65 dBA |

## GAS FIRED HYDRONIC BOILER SCHEDULE

| DESIGNATION | TYPE | SELECTED ON | GAS INPUT MBH | GROSS OUTPUT MBH | EWT °F /LWT °F | MAX dP (FT) | GPM | FLUE INLET /OUTLET ø | VOLTS/ PHASE | FLA/MCA/ MOCP | MINIMUM EFFICIENCY |
|---|---|---|---|---|---|---|---|---|---|---|---|
| B-1 | CONDENSING S.S. COILS | LOCHINVAR KNIGHT-KBN801 | 800 | 787 | 55/85 | 18' | 51 | 6"ø/6"ø | 115/1 | 1.0/1.5/15 | 98.4% Efficient @ 55° EWT |
| B-2 | CONDENSING S.S. COILS | LOCHINVAR KNIGHT-KBN801 | 800 | 787 | 55/85 | 18' | 51 | 6"ø/6"ø | 115/1 | 1.0/1.5/15 | 98.4% Efficient @ 55° EWT |
| | | | | | | | | | | | |

NOTES:

1. PROVIDE WITH CONDENSATE NEUTRALIZATION KIT.
2. PROVIDE UNIT WITH BAS COMMUNICATION INTERFACE.
3. UNIT TO BE FLOOR MOUNT WITH CONSTRAINED SEISMIC SPRING ISOLATORS (0.75" DEFLECTION) AT FOUR CORNERS.
4. INLET GAS PRESSURE TO BE 11" W.C. PROVIDE SAFETY GAS VALVE (2") AND (2) WALL MUSHROOM TYPE SWITCHES WIRED TO MANUALLY SHUT OFF GAS FLOW TO BOILER. SHUTOFF SWITCHED TO BE INSTALLED AND WIRED DIRECTLY TO BOILER GAS VALVES BY BAS SUB. LOCATE SWITCHES AT DOORS.
5. INLET AIR AND OUTLET FLUE TO BE CPVC, PLENUM RATED.

## HEAT PUMP SCHEDULE

| UNIT SIZE | RATED CFM | MIN. ESP IN.WC | COOLING (NET) TOTAL MBH | COOLING (NET) SENS. MBH | GPM | PIPE RUNOUT SIZE | MAX. PRESS. DROP (FT.) | ELECTRICAL DATA VOLTS/PH | UNIT FLA | MIN. CKT. AMP. | MAX. MOPA | MIN. EER | REFRIG. TYPE | SELECTED ON JC MODEL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 009 | 230 | 0.5" | 8.3 | 5.8 | 1.5 | 1/2" | 10.0 | 208/1 | RGSV | 5.7 | 10 | 10.4 | R-410a | RGSV |
| | | | | | | | | | | | | | | |
| 012 | 400 | 0.5" | 12.7 | 9.0 | 2.0 | 3/4" | 10.0 | 208/1 | RGSV | 6.7 | 10 | 13.4 | R-410a | RGSV |
| | | | | | | | | | | | | | | |
| 018 | 570 | 0.5" | 16.7 | 10.7 | 4.0 | 3/4" | 10.0 | 208/1 | RKSV | 14.5 | 20 | 15.6 | R-410a | RKSV |
| 024 | 760 | 0.5" | 24.0 | 17.4 | 4.0 | 3/4" | 10.0 | 208/1 | RKSV | 17.6 | 30 | 15.0 | R-410a | RKSV |
| 024h | 760 | 0.5" | 24.0 | 17.4 | 4.0 | 3/4" | 10.0 | 208/1 | RKSH | 17.6 | 30 | 15.0 | R-410a | RKSH |
| 030 | 950 | 0.5" | 28.3 | 21.2 | 5.0 | 1" | 10.0 | 208/1 | RKSV | 20.0 | 30 | 16.8 | R-410a | RKSV |
| 036 | 1140 | 0.5" | 33.8 | 24.5 | 6.0 | 1" | 10.0 | 208/1 | RKSV | 21.6 | 35 | 18.2 | R-410a | RKSV |
| 036h | 1140 | 0.5" | 33.8 | 24.5 | 6.0 | 1" | 10.0 | 208/1 | RKSH | 21.6 | 35 | 18.2 | R-410a | RKSH |
| 048 | 1520 | 0.5" | 48.4 | 35.2 | 10.0 | 1" | 10.0 | 208/1 | RKSH | 31.9 | 50 | 16.3 | R-410a | RKSH |
| 060 | 1900 | 0.5" | 62.7 | 44.6 | 10.0 | 1 1/4" | 10.0 | 208/3 | RKSV | 40.0 | 60 | 15.2 | R-410a | RKSV |
| 090 | 2700 | 1.2" | 88.5 | 64.2 | 15.0 | 1 1/4" | 10.0 | 208/3 | RLLH | 39.7 | 50 | 14.4 | R-410a | RLLH |
| | | | | | | | | | | | | | | |

NOTES:

1. CAPACITIES ARE BASED ON ENTERING AIR – 80°DB/67°WB, ENTERING WATER – 86°F, 2.0 GPM/NOM TON. AIR FLOWS PER PLANS MAY VARY FROM SCHEDULED RATED AIR FLOWS ABOVE.
2. HORIZONTAL UNIT OPTIONS: PROVIDE CUSTOM 12" DEEP LINED RETURN AIR PLENUM, DUCTED FILTER FRAME, CUPRO-NICKEL HEAT EXCHANGER, DELUXE SOUND ATTENUATION AND INTERNAL FLOAT SWITCH.
3. VERTICAL UNIT OPTIONS: PROVIDE WITH DUCTED FILTER FRAME AND INTERNAL FLOAT CONTROL SWITCH. ALL SECOND FLOOR UNITS TO BE PROVIDED WITH OVERFLOW PAN BELOW AND OVERFLOW SWITCH.
4. PROVIDE PREMIUM EFFICIENCY HEAT PUMP WITH ECM MOTOR FOR ALL 1.5, 2, 2.5, 3, 3.5, AND 4 TON HEAT PUMP UNITS.
5. PROVIDE SECONDARY DRAIN PAN BELOW ALL UNITS WITH FLOAT SWITCH. ROUTE CONDENSATE OF SECOND FLOOR UNITS TO NEAREST 1ST FLOOR FLOOR DRAIN.
6. UNITS AS MANUFACTURED BY MCQUAY, FHP AND CLIMATE MASTER ARE ACCEPTABLE ALTERNATES. UNITS MUST FIT IN PROVIDED SPACE AND BE FULLY ACCESSIBLE FROM FRONT ONLY.
7. HEAT PUMP MANUFACTURER TO PROVIDE 3' HOSE KIT OF APPROPRIATE DIAMETER WITH 2-POSITION DDC ISOLATION VALVE, SHUTOFF VALVES AND STRAINER FOR EACH UNIT.
8. ALL UNITS SHALL BE INSTALLED ON 4" HOUSEKEEPING PAD WITH 4"x4"x1/2" NEOPRENE PADS BELOW UNIT. SET UNIT AND PADS INSIDE OVERFLOW PAN, SEAL WATER TIGHT AND AND ANCHOR PER SEISMIC REQUIREMENTS.
9. MOPA = MAXIMUM OVERCURRENT PROTECTION IN AMPERES.

## PUMP SCHEDULE

| DESIGNATION | BELL & GOSSETT MODEL NO. | TYPE | GPM | HEAD FT. | MOTOR DATA H.P. | MOTOR DATA VOLTS | MOTOR DATA PHASE | RPM | MIN. PUMP EFF. (%) | REMARKS | SERVICE |
|---|---|---|---|---|---|---|---|---|---|---|---|
| CP-1 | SERIES 60 – 1-1/2A | 3 | 50 | 25' | 1 | 208 | 3 | 1750 | 70 | 1 | BOILER B-1 CIRC. |
| CP-2 | SERIES 60 – 1-1/2A | 3 | 50 | 25' | 1 | 208 | 3 | 1750 | 70 | 1 | BOILER B-2 CIRC. |
| CP-3 | 1510 – 3E | 2 | 380 | 110' | 15 | 208 | 3 | 1750 | 75 | 2 | CONDENSER WATER |
| CP-4 | 1510 – 3E | 2 | 380 | 110' | 15 | 208 | 3 | 1750 | 75 | 2 | CONDENSER WATER |
| | | | | | | | | | | | |

TYPE:
1. VERTICAL SPLIT CASE DOUBLE SUCTION.
2. END SUCTION.
3. IN-LINE CENTRIFUGAL.

REMARKS:
1. CONSTANT SPEED PUMP. BOILER PRIMARY PUMP.
2. VARIABLE SPEED PUMP. 100% LEAD/LAG.

## FAN SCHEDULE

| DESIGNATION | GREENHECK MODEL | CFM | E.S.P. | TYPE | DRIVE | HP | VOLTS/PHASE | NOTES: | ROOF OPENING | WEIGHT LBS. | MAX. INLET dBA LEVEL | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| EF-1 | SQ-130 | 1100 | 0.5" | INLINE CENTRIF. | DIRECT | 1/6 | 115/1 | 1,2,3,4 | – | 60 | 55 | ALUMINUM CONSTRUCTION |
| EF-2 | SQ-130 | 1100 | 0.5" | INLINE CENTRIF. | DIRECT | 1/6 | 115/1 | 1,2,3,4 | – | 60 | 55 | ALUMINUM CONSTRUCTION |
| EF-3 | SQ-130 | 1100 | 0.5" | INLINE CENTRIF. | DIRECT | 1/6 | 115/1 | 1,2,3,4 | – | 60 | 55 | ALUMINUM CONSTRUCTION |
| EF-4 | SQ-130 | 1100 | 0.5" | INLINE CENTRIF. | DIRECT | 1/6 | 115/1 | 1,2,3,4 | – | 60 | 55 | ALUMINUM CONSTRUCTION |
| EF-5 | SQ-130 | 1100 | 0.5" | INLINE CENTRIF. | DIRECT | 1/6 | 115/1 | 1,2,3,4 | – | 60 | 55 | ALUMINUM CONSTRUCTION |
| | | | | | | | | | | | | |

NOTES:

1. 16" HIGH SEISMIC/WIND CURB. PROVIDE POTENTIOMETER FOR DIRECT DRIVE BALANCING.
2. DISCONNECT SWITCH SUITABLE FOR OUTDOOR INSTALLATION
3. BACKDRAFT DAMPER AND NEOPRENE VIBRATION ISOLATORS
4. FAN SHALL OPERATE BASED ON OCCUPIED/UNOCCUPIED SETTINGS THROUGH BAS.

## ELECTRIC HEATER SCHEDULE

| DESIGNATION | TYPE | MOUNT | KW | VOLTS | PHASE | FLA | THERMOSTAT | CFM | MOTOR | CONTACTOR | GRILLE | BACK CAN | FINISH |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| EWH-1 | FAN | RECESSED WALL | 1.5 | 120 | 1 | 12.6 | WALL ABOVE | 245 | FSC | MAGNETIC | HEAVY-DUTY | YES – MOUNT MIN. 12"AFF | BLACK |
| EUH-1 | FAN | SUSP. CEILING | 1.5 | 120 | 1 | 12.6 | INTEGRAL | 175 | FSC | MAGNETIC | HEAVY-DUTY | YES | BLACK |

NOTES:

(1) WALL HEATER SELECTED ON MARKEL SERIES 3320 HEAVY DUTY WALL HEATER. WALL MOUNT T-STAT INTERLOCKED WITH BAS.

(2) CEILING HEATER SELECTED ON MARKEL 3380 WITH RECESSED MOUNT KIT AND BACK CAN.

## PRECONDITIONING UNIT SCHEDULE

| | | ERV-1 | ERV-2 |
|---|---|---|---|
| EQUIPMENT NO. (TAG): | | ERV-1 | ERV-2 |
| LOCATION: | | ROOF | ROOF |
| SERVICE: | | FAST MMC and RETAIL | RETAIL A |
| ANNEXAIR MODEL NO.: | | ERP-E-07-HW-D-H-WS | ERP-E-04-HW-D-H-WS |
| O.A. CFM/EXH. A. CFM | | 7,000/6,000 | 4,000 / 3,000 |
| MAXIMUM UNIT WEIGHT (LBS) WITH CURB | | 10,500 | 7,000 |
| PRE-FILTER | CFM | 7,000 | 4,000 |
| | TYPE | 2" PLEATED | 2" PLEATED |
| | EFFICIENCY | MERV 8 | MERV 8 |
| | PRESSURE DROP (IN WG) | 0.25 | 0.25 |
| | DIRTY AIR FILTER ALLOWANCE (IN WG) | 0.45 | 0.45 |
| FINAL FILTER | CFM | 7,000 | 4,000 |
| | TYPE | 12" BAG | 12" BAG |
| | MERV (EFFICIENCY) | MERV 13 | MERV 13 |
| | PRESSURE DROP (IN WG) | 0.85 | 0.85 |
| | DIRTY AIR FILTER ALLOWANCE (IN WG) | 1.49 | 1.49 |
| TOTAL ENERGY WHEEL | | OUTDOOR AIR / EXHAUST AIR | OUTDOOR AIR / EXHAUST AIR |
| | WINTER EAT(°F)/LAT(°F) – DB//DB | 15.0//54.4 / 70//25.5 | 15.0//51.2 / 70//25.4 |
| | SUMMER EAT(°F)/LAT(°F) – DB/WB//DB/WB | 88/79//78.9/70.1 / 75.0/63.0//85.2/74.5 | 88/79//79.6/71.1 / 75.0/62.5//84.6/74.6 |
| | GRAINS OF MOISTURE (GR/LB Dry Air) | 136.5/96.8 / 67/111.8 | 135.5/101.2 / 67.0/110.5 |
| | AIR QUANTITY – CFM | 7,464 / 6464 | 4,300 / 3,300 |
| | VENTILATION TO EXHAUST – PURGE CFM | 464 / –464 | 300 / –300 |
| | MAX. AIR PRES. DROP (IN WG) | 0.64 | 0.77 |
| | MINIMUM TOTAL EFFECTIVENESS (%) | 81.0% OVERALL | 85.0% OVERALL |
| | WHEEL SPEED | VARIABLE | VARIABLE |
| PRECONDITIONED OUTSIDE AIR (OCA) SUPPLY FAN | EXTERNAL STATIC PRESSURE (IN WG) | 1.50 | 1.50 |
| | TOTAL STATIC PRESSURE (IN WG) | 4.40 | 4.40 |
| | CFM | 7,000 | 3,000 |
| | MAXIMUM BHP | 6.75 TOTAL | 3.83 TOTAL |
| | MAXIMUM OUTLET VELOCITY (FT/MIN) | 415 | 415 |
| | FAN RPM | 1,836 | 2,200 |
| | TYPE | DIRECT DRIVE PLUG | DIRECT DRIVE PLUG |
| | VOLUME CONTROL | VARIABLE SPEED | VARIABLE SPEED |
| | MOTOR HP | 7.5 HP | 5.0 HP |
| | MOTOR RPM | 1,750 | 1,750 |
| | TYPE | AF | AF |
| | ELECTRICAL (VOLTS/PHASE/HERTZ) | 208/3/60 | 208/3/60 |
| | FLA | – | – |
| HEAT PUMP AND COILS – GENERAL INFORMATION | COIL AIR QUANTITY (CFM) | 7,000 | 4,000 |
| | COMPRESSOR TYPE / REFRIGERANT / #CIRCUITS | SCROLL / R410A / 2 Circuit | SCROLL / R410A / 1 Circuit |
| | MAXIMUM FACE VELOCITY (FT/MIN) | 500 | 500 |
| | MAX AIR PRESS DROP (IN WG) | 1.05 | 1.05 |
| | MIN ROWS/MIN FPI / TYPE | 8/123/INTERTWINED | 8/123/INTERTWINED |
| | CONDENSER WATER FLOW RATE (GPM) | 77.9 | 46.2 |
| | MAX. CONDENSER PRESSURE DROP (FT. H20) | 12.0 | 12.0 |
| HEAT PUMP AND COILS – COOLING CYCLE | EAT-DB (°F)/EAT-WB(°F) | 78.9/70.1 | 79.6/71.1 |
| | LAT-DB (°F)/LAT-WB(°F) | 50/50 | 50/50 |
| | TOTAL MBH (NET) | 435.0 | 106.3 |
| | SENSIBLE MBH (NET) | 222.3 | 222.3 |
| | ENTERING WATER TEMPERATURE (F) | 86.0 | 86.0 |
| | LEAVING WATER TEMPERATURE (F) | 101.0 | 101.0 |
| | AMBIENT TEMP (F) / Dx COIL TEMP (F) | 95.0 / 38.0 | 95.0 / 38.0 |
| HEAT PUMP AND COILS – HEATING CYCLE | EAT-DB (°F) | 54.4 | 51.2 |
| | LAT-DB (°F) | 68 | 68 |
| | HEAT PUMP CAPACITY MBH | 103 | 73 |
| | TOTAL HEATING MBH | – | – |
| | ENTERING WATER TEMPERATURE (F) | 68.0 | 68.0 |
| | LEAVING WATER TEMPERATURE (F) | 53 | 53 |
| | SUCTION TEMP (F) / CONDENSING TEMP (F) | 36.0 / 93.5 | 36.0 / 93.5 |
| HEAT PUMP AND COILS – HOT GAS REHEAT | | SUPPLY SIDE | SUPPLY SIDE |
| | WINTER EAT(°F)/LAT(°F) – DB//DB | 50//69 | 50//69 |
| | SUMMER EAT(°F)/LAT(°F) – DB/WB//DB/WB | 50//68 | 50//68 |
| | AIR QUANTITY – CFM | 6,817 | 6,817 |
| | MAX. AIR PRES. DROP (IN WG) | 0.98 | 0.98 |
| | REHEAT CAPACITY (MBH) | 136.1 | 56.2 |
| EXHAUST AIR RETURN FAN | EXTERNAL STATIC PRESSURE (IN WG) | 0.75" | 0.75" |
| | TOTAL STATIC PRESSURE (IN WG) | 2.50" | 2.50" |
| | CFM | 6,464 | 3,300 |
| | MAXIMUM BHP | 4.36 | 2.01 |
| | FAN RPM | 1,890 | 2,153 |
| | TYPE | PLUG – AF | PLUG – AF |
| | VOLUME CONTROL | VFD | VFD |
| | MOTOR HP | 1 @ 5.0 | 1 @ 3.0 |
| | MOTOR RPM | 1,750 | 1,750 |
| | TYPE | ODP PREMIUM EFFICIENCY | ODP PREMIUM EFFICIENCY |
| | ELECTRICAL (VOLTS/PHASE/HERTZ) | 208/3/60 | 208/3/60 |
| | FLA | – | – |
| | UNIT FLA/MCA/MOP | 176.2/196/250 | 102.6/122/200 |
| | MINIMUM HEAT PUMP EER / UNIT EER | 11.4 / 13.0 | 11.4 / 13.0 |

NOTES:

1. PROVIDE INTEGRAL HEAT PUMP PRE-PIPED/PRE-WIRED AND WITHIN PCU CABINET.
2. UNITS SHALL BE PROVIDED WITH ALL INTERNAL POWER WIRING AND SHALL BE PROVIDED WITH A SINGLE POINT ELECTRICAL CONNECTION. ALL CONTROLS PROVIDED BY BAS SUB-CONTRACTOR.
3. UNITS TO BE PROVIDED WITH WIND RATED CURB. ALL INTERNAL FANS SHALL BE PROVIDED WITH 2" SPRING ISOLATORS AND COMPRESSORS WITH NEOPRENE TYPE.
4. UNIT MANUFACTURER SHALL BE VENMAR, MUNTERS, ANNEXAIR OR JCI.
5. FINAL AIRFLOW FOR UNITS TO BE DETERMINED BY T.A.B. SUB-CONTRACTOR.
6. PROVIDE TWO HUMIDITY SENSORS AND TWO CO2 SENSORS PER UNIT MINIMUM, REFER TO PLANS FOR LOCATIONS. LOCATE ABOVE THERMOSTATS.


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M&L Project No. 211.026

NORTH CAROLINA PROFESSIONAL SEAL 31478 ENGINEER JAMES L. CURRIE

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Checked

Date January 31, 2014

Revisions


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**FAST Multi-Modal Center**
City of Fayetteville
Fayetteville, NC

Project Number 621A

Title
**Mechanical Schedules**

Sheet
**M301**

Plate of

## SOUND ATTENUATOR SCHEDULE

| DESIGNATION | SERVES | CFM | FACE DIMENSION W(IN) x H(IN) x L(IN) | VELOCITY | MAX SILENCER PD (PD INCLUDING SYSTEM EFFECTS) NOTE 2 | DYNAMIC INSERTION LOSS IN DECIBLES | | | | | | | | VIBRO ACOUSTICS MODEL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | 63 | 125 | 250 | 500 | 1000 | 2000 | 4000 | 8000 | |
| SA-1 | – | 3,200 | 24x18x36 | +1500 | 0.16 (0.19) | 3 | 5 | 9 | 11 | 13 | 11 | 10 | 8 | RD-HV-F1 |
| SA-2 | – | 3,200 | 24x18x36 | +1500 | 0.16 (0.19) | 3 | 5 | 9 | 11 | 13 | 11 | 10 | 8 | RD-HV-F1 |
| | | | | | | | | | | | | | | |

NOTES:

1. SILENCER CASING IS LARGER THAN DUCT DIMENSION. UNLESS NOTED OTHERWISE THE ADDITIONAL WIDTH OR HEIGHT IS ON TWO SIDES.
2. THE FIRST PRESSURE DROP IS IN "W.C. AND IS THE SILENCER DROP ONLY. THE SECOND PRESSURE DROP IN ( ) IS IN "W.C. AND IS THE PRESSURE DROP INCLUDING SYSTEM EFFECTS.
3. PROVIDE, FOR APPROVAL, ACOUSTICAL CALCULATIONS FOR ALL SYSTEMS WITH SILENCERS TO DEMONSTRATE THAT DUCTBORNE FAN SOUND LEVEL INCLUDING AIRBORNE AND BREAKOUT NOISE, IN THE OCCUPIED SPACES MEET NC30 FOR CLASSROOMS.
4. MANUFACTURER SHALL BE IAC, GALE, KEENE OR VIBRO-ACOUSTICS.

## SPLIT SYSTEM AIR CONDITIONING UNIT. SCHEDULE

| DESG. | SERVES | INDOOR HEAT PUMP UNIT | | | | | | | | | OUTDOOR HEAT PUMP UNIT | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | E.A.T. OF db/wb | BTU/HR (Cooling) SENSIBLE | BTU/HR (Cooling) TOTAL | Heating BTU/HR | CFM | COND DRAIN | MOTOR SPEEDS | FLA | SELECTED ON | AMB AIR TEMP OF | VOLTS | PHASE | FLA. | MCA | MAX FUSE AMPS | REFRIGERANT SUCTION (EA) | LIQUID (EA) | SELECTED ON |
| SSI-1/ SSO-1 | ELEV ROOM | 75/62 | 9,000 | 12,500 | – | 215 | 5/8" | 2 | 0.76 | MR. SLIM MSYGE12 WITH WIRED T-STAT | 95'F | 208 | 1 | 6.4 | 12.0 | 15 | 1/2" O.D. | 1/4" | MR. SLIM MUYGE12 WITH RPS ROOF CURB AND PIPE PORTAL. |
| SSI-2a/ SSO-2 | MDR-IT ROOM | 75/62 | 14,800 | 17,500 | 17,500 | 300 | 5/8" | 2 | 0.76 | MR. SLIM MSZA17 WITH WIRED TSTAT | 95'F | 208 | 1 | 16.9 | 19.0 | 20 | 3/8"O.D.x2 | 1/4"x2 | MR. SLIM MXZ4A36 WITH RPS ROOF CURB AND RPS PIPE PORTAL. |
| SSI-2b/ SSO-2 | ELECT. ROOM | 75/62 | 14,800 | 17,500 | 17,500 | 300 | 5/8" | 2 | 0.76 | MR. SLIM MSZA17 WITH WIRED TSTAT | | | | | | | | | |
| SSI-3/ SSO-3 | IT ROOM | 75/62 | 9,000 | 12,500 | – | 215 | 5/8" | 2 | 0.76 | MR. SLIM MSYGE12 WITH WIRED T-STAT | 95'F | 208 | 1 | 6.4 | 12.0 | 15 | 1/2" O.D. | 1/4" | MR. SLIM MUYGE12 WITH RPS ROOF CURB AND PIPE PORTAL. |
| SSI-4/ SSO-4 | EAST STAIR | 80/67 | 36,000 | 42,000 | 42,000 | 900 | 1.0" | 4 | 1.4 | MR. SLIM PCAA42 WITH WIRED T-STAT | 95'F | 208 | 1 | 21 | 26 | 30 | 5/8" OD | 3/8" | MR. SLIM PUZA42 WITH RPS ROOF CURB AND PIPE PORTAL. |
| SSI-5/ SSO-5 | WEST STAIR | 80/67 | 21,000 | 30,700 | 32,600 | 650 | 5/8" | 2 | 0.76 | MR. SLIM MSZD36 WITH WIRED T-STAT | 95'F | 208 | 1 | 17.7 | 21.7 | 25 | 5/8" OD | 3/8" | MR. SLIM MUZD36 WITH RPS ROOF CURB AND PIPE PORTAL. |

(1) SINGLE POINT POWER: INDOOR UNIT(S) IS WIRED THRU THE OUTDOOR UNIT.
(2) VERIFY ALL REFRIGERANT PIPING SIZES WITH MANUFACTURER PRIOR TO ORDER/INSTALL.
(3) INSULATE REFRIGERANT SUCTION AND DRAIN LINES WITH 3/4" ARMAFLEX INSULATION PAINTED ARMAFLEX GRAY.
(4) PIPE CONDENSATE DRAIN TO FLOOR DRAIN, ROOF DRAIN OR APPROVED POINT OF DISPOSAL.


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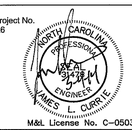


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**FAST Multi-Modal Center**
City of Fayetteville
Fayetteville, NC

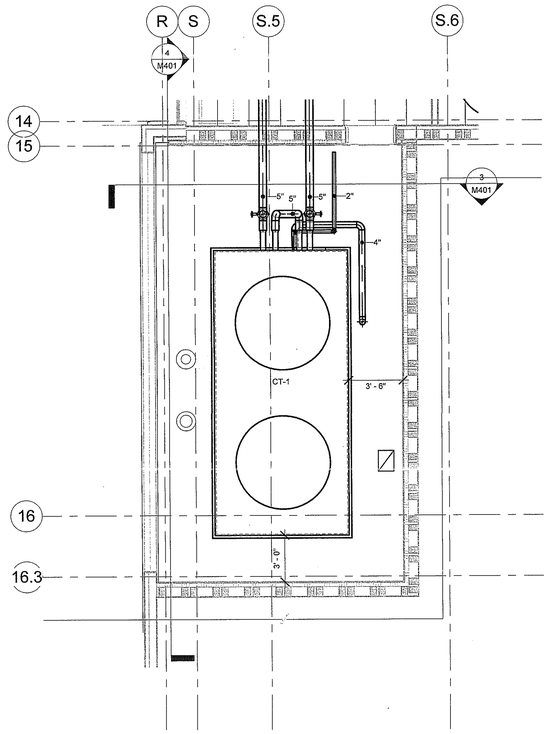
Project Number 621A

Title
**Mechanical Schedules**

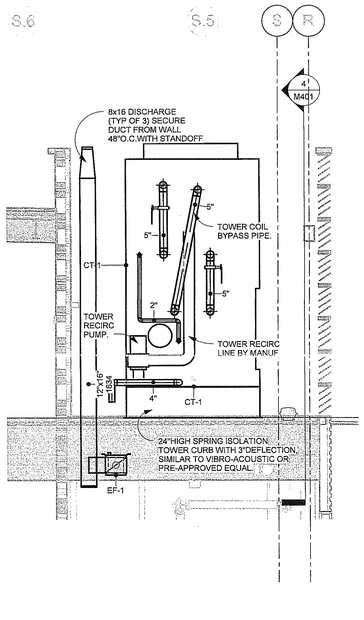
Sheet
M302

Plate of

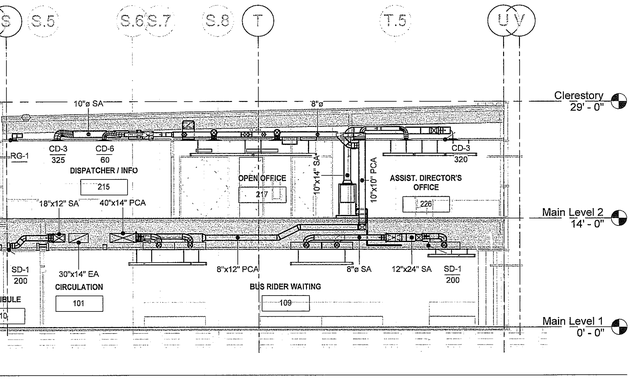

Modified Feb 25, 2013 Modified By: emsi Scale: full Plotted: Mar 04, 2014 - 3:30pm Plotted By: jgomez C:\Users\jgomez\Desktop\FAST revit central\FAST revit central_emsi.rvt



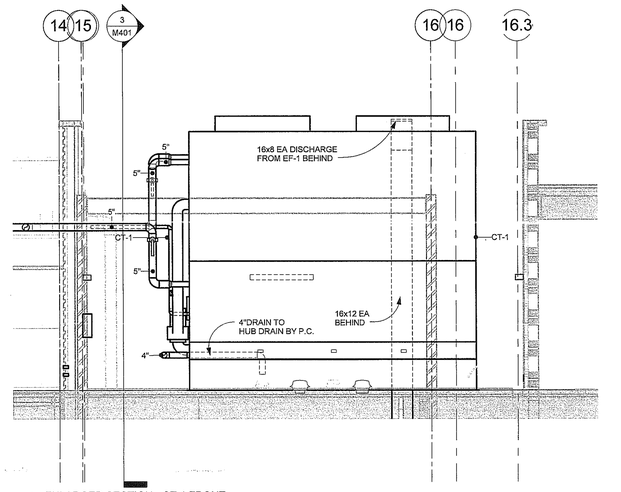

1 ENLARGED BOILER ROOM PLAN
1/4" = 1'-0"



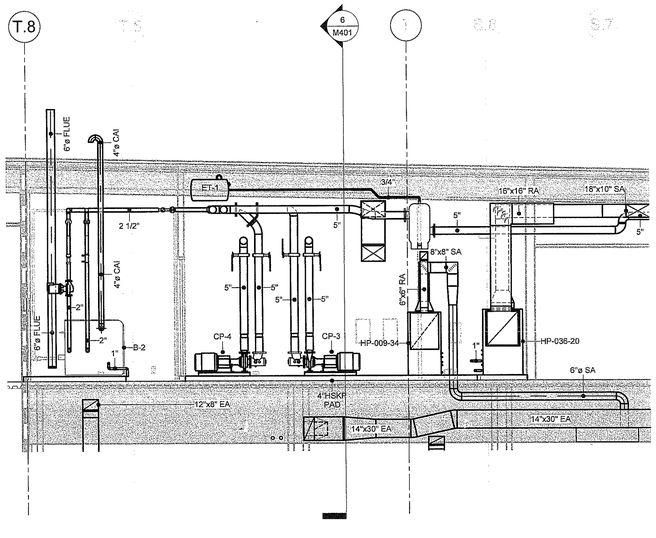

3 ENLARGED SECTION - CT-1 SIDE
1/4" = 1'-0"



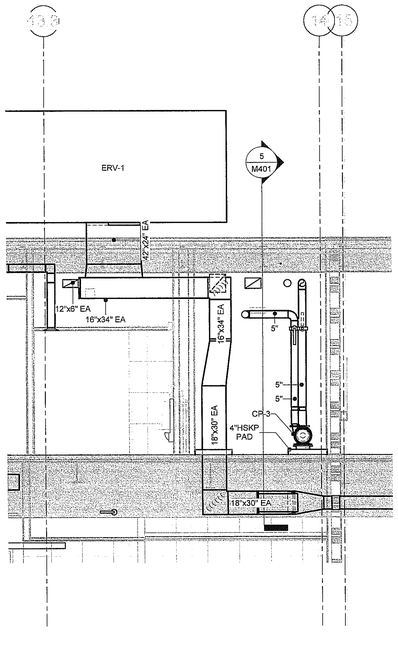

7 Section 6
1/8" = 1'-0"




4 ENLARGED SECTION - CT-1 FRONT
1/4" = 1'-0"




5 Section 2
1/4" = 1'-0"




6 Section 3
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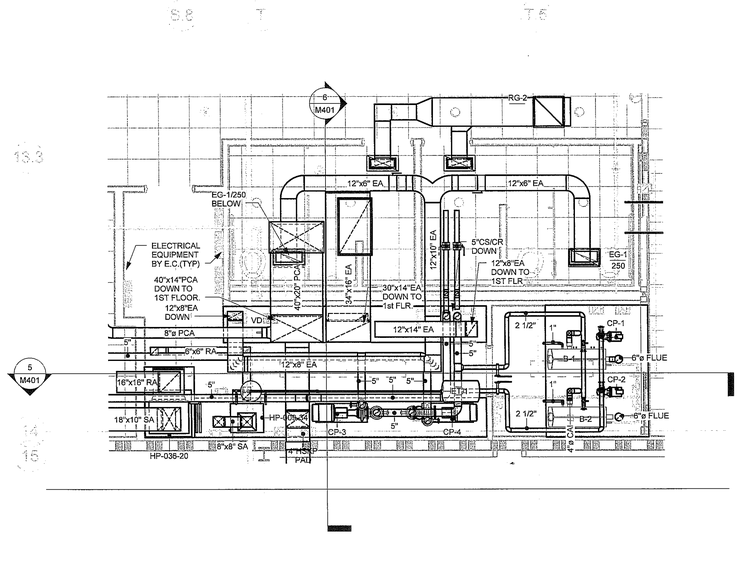


2 ENLARGED MECHANICAL ROOM FLOOR PLAN
1/4" = 1'-0"


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Mc&L# 211.026

| | |
|---|---|
| Drawn | CADD |
| Checked | JLC |
| Date | September 9, 2013 |
| Revisions | |


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**FAST Multi-Modal Center**
City of Fayetteville
Fayetteville, NC

Project Number 621A

Title
**Enlarged Mechanical Boiler Room Plan**

Sheet
# M401

Plate of


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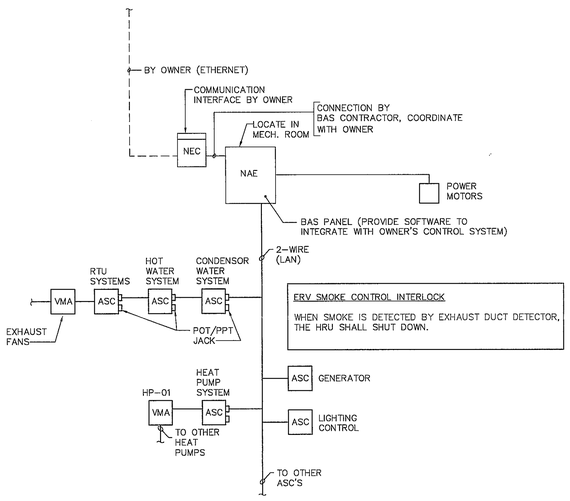
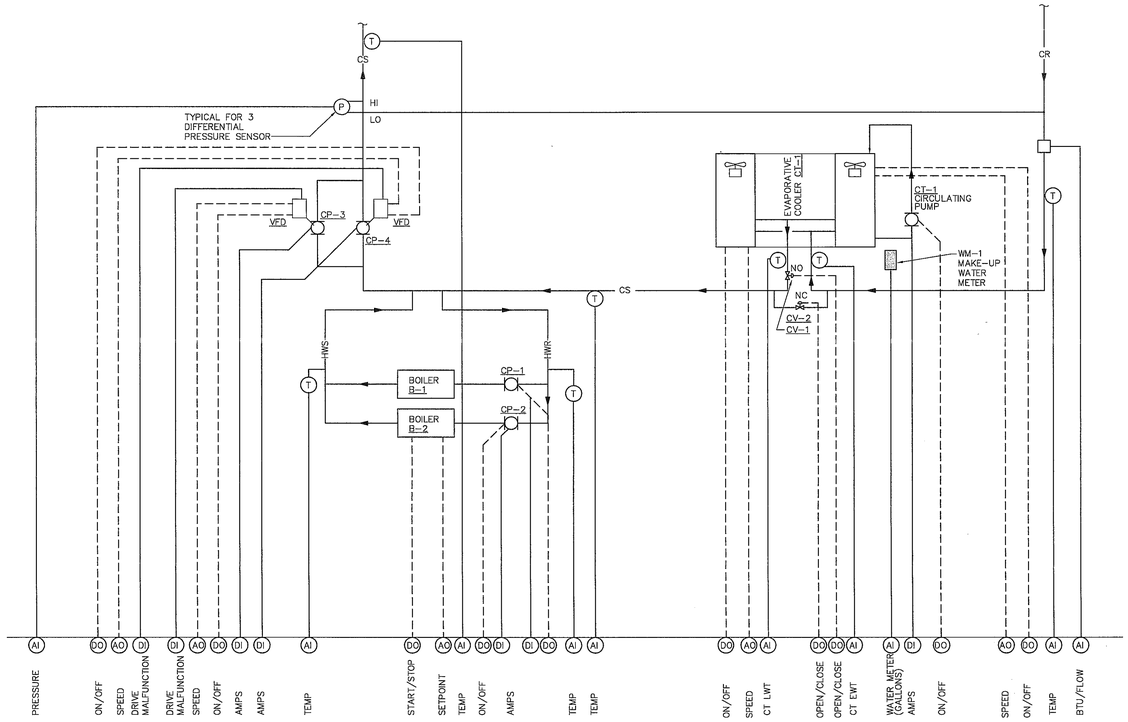



## SYSTEM ARCHITECTURE

NOT TO SCALE

## CONTROL NOTES

1. THE BMS CONTRACTOR SHALL COORDINATE COMPATIBILITY OF THIS BUILDING CONTROLS WITH OWNER'S WORK STATION SYSTEM.
2. MINIMUM GRAPHIC GENERATION SHALL BE AS FOLLOWS:
   a) A BUILDING FLOOR PLAN FOR EACH FLOOR WITH MAJOR EQUIPMENT INDICATED.
   b) A GRAPHIC PAGE OF EACH SYSTEM IN THE ESSENTIAL FORMAT OF THE PROCESS DIAGRAMS.
   c) A PICK POINT CORRESPONDING TO THE MAJOR EQUIPMENT SHALL ALLOW THE OPERATOR TO INDEX TO THE GRAPHICS PAGE OF THAT EQUIPMENT.
   d) EACH AREA TEMPERATURE AND HUMIDITY SHALL BE DISPLAYED ON THE FLOOR PLAN IN THE AREA INDICATED.
   e) ALARMS SHALL BE COLOR CODED.
   f) EACH HEAT PUMP, TERMINAL UNIT AND ROOF TOP UNIT.
   g) GRAPHIC PAGE LAYOUT MUST BE PART OF THE CONTROL SUBMITTAL.
3. WIRE MANUAL RESET FREEZESTAT TO SHUT-DOWN FAN WITH ONE CONTACT AND ALERT THE BAS WITH A SECOND CONTACT.
4. MOUNT STATIC PRESSURE SENSORS 70% DOWN THE LONGEST DUCT RUN.
5. THE HIGH PRESSURE CUT-OUT SERVES AS A HIGH LIMIT DEVICE. HARD-WIRE THIS TO STOP THE SUPPLY FAN WITH ONE SET OF CONTACTS, AND ALERT THE BAS WITH THE OTHER CONTACT.
6. DIFFERENTIAL DUCT STATIC PRESSURE SENSOR. THE LOW PRESSURE TAP SHALL BE IN THE OCCUPIED SPACE AND THE HIGH PRESSURE TAP SHALL IN THE SUPPLY DUCT. THIS VALUE SHALL BE SAMPLED EVERY SECOND. THE AVERAGE OF LAST 30 SAMPLES SHALL BE USED FOR CONTROL.
7. HARD-WIRE SMOKE DETECTOR TO SHUT DOWN THE FAN WITH ONE CONTACT AND ALERT THE BAS WITH THE OTHER.
8. ELECTRIC WIRING
   a. THE BAS CONTRACTOR SHALL FURNISH AND INSTALL ALL ELECTRICAL CONTROL AND INTERLOCK WIRING REQUIRED FOR THE DDC SYSTEM.
   b. THE WIRING FOR THE DDC SYSTEM SHALL BE RUN IN METALLIC CONDUITS. POWER LINE CARRIER DEVICES OR RF SIGNALING DEVICES MAY NOT BE USED. ALL SYSTEM COMPONENTS AND SENSORS SHALL BE HARD WIRED.
9. GENERAL: INDIVIDUAL AIR HANDLING UNITS, FANS, ETC. SHALL OPERATE AS DESCRIBED IN THE CONTROL SEQUENCE. THE POINTS LIST IS SHOWN AS A REFERENCE FOR MINIMUM REQUIREMENTS AND SHALL NOT BE CONSTRUED TO BE AN ALL EXCLUSIVE LIST OF POINTS TO BE MONITORED AND CONTROLLED.
10. AIR FLOW MONITORING STATION
    A 4-20 MA TRANSMITTER SHALL BE LOCATED AT THE AIR FLOW MONITORING STATION. THIS TRANSMITTER'S OUTPUT SHALL BE PROPORTIONAL TO VELOCITY. THIS VELOCITY SHALL BE USED ALONG WITH THE DUCT AREA TO CALCULATE CFM.
11. ALL TERMINAL UNITS SHALL BE DDC, I.E.: PACKAGED HEAT PUMP UNITS. ALL AIR HANDLING UNITS SHALL HAVE DDC CONTROL DEVICES, I.E.: RETURN AIR, OUTSIDE AIR AND RELIEF/EXHAUST AIR DAMPERS WIRED BACK TO A COMMON TERMINAL STRIP USING SPECIFIED SENSORS AND WIRING.
12. THE CONTRACTOR SHALL CONNECT THE FACILITY INTEGRATOR INTO THE PROVIDED TERMINAL STRIPS TO MONITOR AND PROVIDE LOOP CONTROL FOR EACH LOCAL LOOP.
13. BAS CONTRACTOR SHALL LEAVE AVAILABLE 10 ANALOG AND 10 DIGITAL INPUT/OUTPUT SLOTS.
14. PROVIDE FOR CONNECTION TO FUTURE WATER AND POWER METER TIE-IN FOR 18 FUTURE TENANT SUB-METERS.




## PROCESS DIAGRAM - CONDENSER WATER SYSTEM

NOT TO SCALE

### POINT LIST

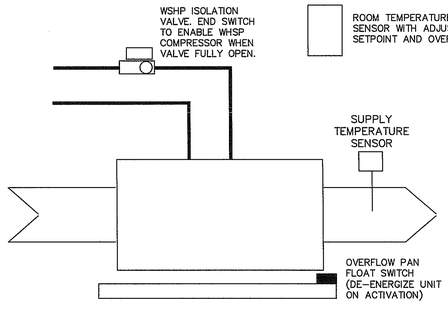
| POINT DESCRIPTION | HARDWARE: OUTPUT DIGITAL: CONTROL RELAY | SOLENOID VALVE | CONTACTOR | OUTPUT ANALOG: PNEUMATIC TRANSDUCER | BOILER RESET | SPEED CONTROL | INPUT DIGITAL: PRESSURE SWITCH | FLOW SWITCH | SWITCH CLOSURE | AUXILIARY CONTACT | INPUT ANALOG: AMPS | TEMPERATURE | RELATIVE HUMIDITY | PSIg, PSIa, PSI4 | FT-CANDLES | FLOW | ALARMS DIGITAL: EQUIPMENT STATUS | MAINTENANCE | ALARMS ANALOG: HIGH LIMIT | LOW LIMIT | RUN TIME | SOFTWARE BAS FUNCTIONS: SCHEDULED START/STOP | OPTIMUM START/STOP | DUTY CYCLING | DEMAND LIMITING | DAY/NIGHT SETBACK | ECONOMIZER CONTROL | VENTILATION/RECIRCULATION | TEMPERATURE CONTROL | ENTHALPY | HOT/COLD DECK RESET | REHEAT COIL RESET | RESET SCHEDULE CONFIGURATION | HOT WATER BOILER OPTIMIZ. | HW OA RESET | CHILLER OPTIMIZATION | CHILLED WATER RESET | CONDENSER WATER RESET | CAPACITY DEMAND LIMIT | VALVE CONTROL | LIGHTING CONTROL | SMOKE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SYSTEM: BOILER | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| CONDENSOR WATER SUPPLY | | | | | | | | | | | | • | | | | | | | • | • | | | | | | | | • | | | | | | • | | | | | | | |
| CONDENSOR WATER RETURN | | | | | | | | | | | | • | | | | | | | • | • | | | | | | | | • | | | | | | • | | | | | | | |
| PUMPS CP-3, CP-4 (2) | • | | | | • | | | | | | • | • | | | | | | | | | | • | • | | | | | | | | | | | | | | | | | | |
| BOILER B-1/B-2 (2) | • | | | | | • | | | | | | | | | | | | | | | | • | • | | | | | | | | | | | • | | | | | | | |
| PUMP CP-1/CP-2 (2) | • | | | | | | | | | | | • | | | | | | | | | | • | • | | | | | | | | | | | | | | | | | | |
| PIPING PRESSURE | | | | | | | | | | | | | | • | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| TOWER WATER SUPPLY (EWT) | | | | | | | | | | | | • | | | | | | | • | • | | | | | | | | • | | | | | | • | | | | | | | |
| TOWER WATER RETURN (LWT) | | | | | | | | | | | | • | | | | | | | • | • | | | | | | | | • | | | | | | • | | | | | | | |
| CT-1/CT-2 FANS (2) | • | | | | • | | | | | | • | | | | | | | | | | | • | | | | | | | | | | | | | | | | | | |
| TOWER PUMP | • | | | | | | | | | | | • | | | | | | | | | | • | | | | | | | | | | | | | | | | | | |

### WATER SOURCE HVAC UNITS

EACH WATER SOURCE HEAT PUMP UNIT WILL BE CONTROLLED BY A TERMINAL EQUIPMENT CONTROLLER (TEC). THE TEC WILL CONTROL THE FAN START/STOP, AND SEQUENCE THE UNITS' STAGES OF COOLING AND HEATING IN ORDER TO MAINTAIN THE ROOM TEMPERATURE SETPOINT. A CONDENSER WATER SOURCE HEAT PUMP ISOLATION VALVE WILL BE SUPPLIED. THE VALVE ACTUATOR WILL BE SUPPLIED WITH AN END SWITCH THAT WILL BE WIRED IN SERIES WITH THE COMPRESSOR CIRCUIT. ON A CALL FOR THE COMPRESSOR TO RUN THE VALVE WILL OPEN AND AFTER THE END SWITCH PROVES FULL OPEN CONDITION THE COMPRESSOR WILL BE ALLOWED TO OPERATE. WHEN THE COMPRESSOR IS OFF THE VALVE WILL RETURN TO THE CLOSED POSITION.
ADDITIONALLY, THE BMCS WILL MONITOR THE SUPPLY AIR TEMPERATURE.
WHEN COMMANDED TO CHANGE OVER TO THE UNOCCUPIED MODE, THE TERMINAL CONTROLLER WILL RAISE THE COOLING SETPOINT AND DECREASE THE HEATING SETPOINT (AS APPROPRIATE) TO OPERATOR-DETERMINED VALUES.
DURING THE UNOCCUPIED MODE, THE TERMINAL CONTROLLER WILL BE RESET TO THE OCCUPIED MODE FOR AN OPERATOR DETERMINED TIME PERIOD. THIS RESET WILL BE ACTIVATED BY A SIGNAL FROM A LOCAL OVERRIDE SWITCH ON THE ROOM TEMPERATURE SENSOR. AT THE END OF THE OPERATOR DETERMINED TIME PERIOD, THE TERMINAL CONTROLLER WILL RETURN TO THE UNOCCUPIED MODE.
IF UNIT IS SUPPLIED WITH AN AUXILIARY DRAIN PAN, A FLOAT SWITCH WILL BE INSTALLED. WHEN THE PAN IS FULL THE UNIT WILL BE SHUT DOWN.

### POINT LIST

| POINT DESCRIPTION | HARDWARE: OUTPUT DIGITAL: START/STOP | ENABLE/DISABLE | OTHER | OUTPUT ANALOG: PULSE WIDTH MOD. | VOLTAGE 1-10VDC | CURRENT 4-20MA | INPUT DIGITAL: CONTACT CLOSURE | CONFIRMATION | OTHER | AUXILIARY CONTACT | INPUT ANALOG: TEMPERATURE | RELATIVE HUMIDITY | SETPOINT | OTHER | ALARMS DIGITAL: EQUIPMENT STATUS | MAINTENANCE | ALARMS ANALOG: HIGH LIMIT | LOW LIMIT | RUN TIME | SOFTWARE BAS FUNCTIONS: SCHEDULED START/STOP | OPTIMUM START/STOP | DAY/NIGHT SETBACK | TEMPERATURE CONTROL | MONITOR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SYSTEM: WSHP | | | | | | | | | | | | | | | | | | | | | | | | |
| SUPPLY FAN | • | | | | | | | | | | • | | | | | • | | | | • | | • | | • |
| COMPRESSOR | | • | | | | | | | | | | | | | | | | | | | | | | • |
| REVERSING VALVE | | • | | | | | | | | | | | | | | | | | | | | | | • |
| WSHP ISOLATION VALVE W/END SWITCH | | • | | | | | | | | | | | | | | | | | | | | | | • |
| ROOM TEMPERATURE | | | | | | | | | | | • | | | | | | | | | | | | | • |
| ROOM SETPOINT | | | | | | | | | | | | | • | | | | | | | | | | | • |
| OVERRIDE BUTTON | | | | | | | • | | | | | | | | | | | | | | | | | • |
| SUPPLY AIR TEMPERATURE | | | | | | | | | | | • | | | | | | | | | | | | | • |




### CONDENSOR WATER SYSTEM SEQUENCE OF OPERATION:

THE DESIGN OF THIS SYSTEM IS TO BASED A CONDENSOR WATER SUPPLY TEMPERATURE OF NOT MORE THAN 86°F AND NO LESS THAN 68°F, BOTH OF WHICH SHALL BE REMOTELY RESETABLE FROM THIS CONTROL SYSTEM THRU THE BAS SYSTEM.

### EVAPORATIVE COOLER CT-1/CT-2 SEQUENCE

A TEMPERATURE SENSOR LOCATED IN THE ENTERING CONDENSOR WATER PIPING SHALL CAUSE THE CIRCULATING PUMPS TO ENERGIZE AND CYCLE ON/OFF TO MAINTAIN A CONDENSER WATER SUPPLY TEMPERATURE OF 76°F (ADJ.) OR BETTER BASED ON OPTIMIZATION, NOT LESS THAN 72°F.

IF THE CONDENSOR WATER TEMPERATURE SHOULD CONTINUE TO RISE AFTER THE PUMPS HAVE ENERGIZED, THE FAN SHALL RAMP UP THROUGH THE VFD TO THE SPEED REQUIRED TO MAINTAIN A CONDENSER WATER SUPPLY TEMPERATURE OF 76°F (ADJ.) OR BETTER BASED ON OPTIMIZATION, NOT LESS THAN 72°F.

THE BASIN HEATERS SERVING THE EVAPORATIVE COOLER SHALL ENERGIZE AS NECESSARY TO MAINTAIN A BASIN TEMPERATURE ABOVE FREEZING.

SHOULD CIRCULATING WATER TEMPERATURE DROP BELOW 75°F, AND THE OUTSIDE AIR TEMPERATURE IS BELOW 40°F, THE COOLING TOWER BYPASS VALVE (CV-1/CV-2) SHALL OPEN TO BYPASS 97% OF THE TOTAL AVAILABLE WATER FLOW. AND THE LOW AMBIENT DAMPER ON THE TOWER SHALL CLOSE.

### BOILER B-1/B-2 SEQUENCE

WHEN ANY TEMPERATURE SENSOR IN THE CONDENSOR WATER SYSTEM PIPING SENSES A TEMPERATURE BELOW 68°F OR WHEN THE OUTSIDE AIR TEMPERATURE IS BELOW 40°F (ADJ) REGARDLESS OF THE HEAT PUMP STATUS, THE LEAD CONDENSER LOOP PUMP (CP-3/CP-4) SHALL BE ENERGIZED AND THE LEAD BOILER PUMP (CP-1 OR CP-2) SHALL ENERGIZE.

ONCE FLOW IS PROVEN THROUGH THE LEAD BOILER, THE LEAD BOILER SHALL ENERGIZE AND MODULATE TO MAINTAIN A CONDENSER WATER SUPPLY TEMP OF NOT LESS THAN 68°F. THE BOILER LOOP SETPOINT SHALL BE REMOTELY RESETABLE TO INCREASE THRU THE BAS SYSTEM.

THE BAS SHALL ALTERNATE BOILERS B-1 AND B-2 LEAD/LAG BASED UPON HOURS OF OPERATION. DURING NORMAL OPERATION THE LAG BOILER SHALL BE ENERGIZED ONLY IF THE LOOP SUPPLY TEMPERATURE DROPS BELOW 68°F.

SHOULD BOTH BOILERS FAIL TO START, THE WATER LOOP SHALL SHUT DOWN, ALL HEAT PUMPS SHALL DEENERGIZE AND AN ALARM SHALL BE SENT.

### CONDENSER PUMP CP-3/CP-4 SEQUENCE

PUMPS SHALL BE ENERGIZED PER THE ABOVE, THE SPEED OF PUMP CP-3 AND CP-4 SHALL BE MODULATED TO INCREASE PUMP SPEED AS THE PIPING PRESSURE FALLS BELOW SETPOINT. (CP-3 AND CP-4 SHALL ALTERNATE LEAD/LAG AS SELECTED BY THE BAS). SHOULD THE LEAD PUMP FAIL TO MAINTAIN PRESSURE FOR 15 MINUTES, THE LAG PUMP SHALL ENERGIZE AND BOTH PUMPS SHALL RUN IN PARALLEL. THE LAG PUMP SHALL DEENERGIZE IF BOTH PUMPS ARE LESS THAN 50% for 15 MINS.

### NOTES:

1. THE AMP SWITCHES FOR PUMPS CP-3 & CP-4 SHALL SENSE FREQUENCY AND AMPS AND SHALL CLOSE CONTACTS ON AN ABNORMAL CONDITION AND PROVIDE.

### BUILDING MORNING WARM-UP COOL-DOWN SEQUENCE:

BUILDING MORNING WARM UP COOL DOWN SHALL BE ACCOMPLISHED BY ENERGIZING THE LOOP AND OFFICE SPACES FIRST, AFTER 30 MINUTES THE REMAINDER OF THE BUILDING SYSTEMS SHALL ENERGIZE AS REQUIRED TO MEET TEMPERATURE SETPOINT. ALL OUTSIDE AIR DAMEPRS SHALL REMAIN CLOSED DURING THE 60 MINUTE WARM-UP CYCLE. THIS CYCLE SHALL BEGIN ONE AND ONE-HALF HOURS PRIOR TO OCCUPANCY.

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| Date | January 31, 2014 |
| Revisions | |

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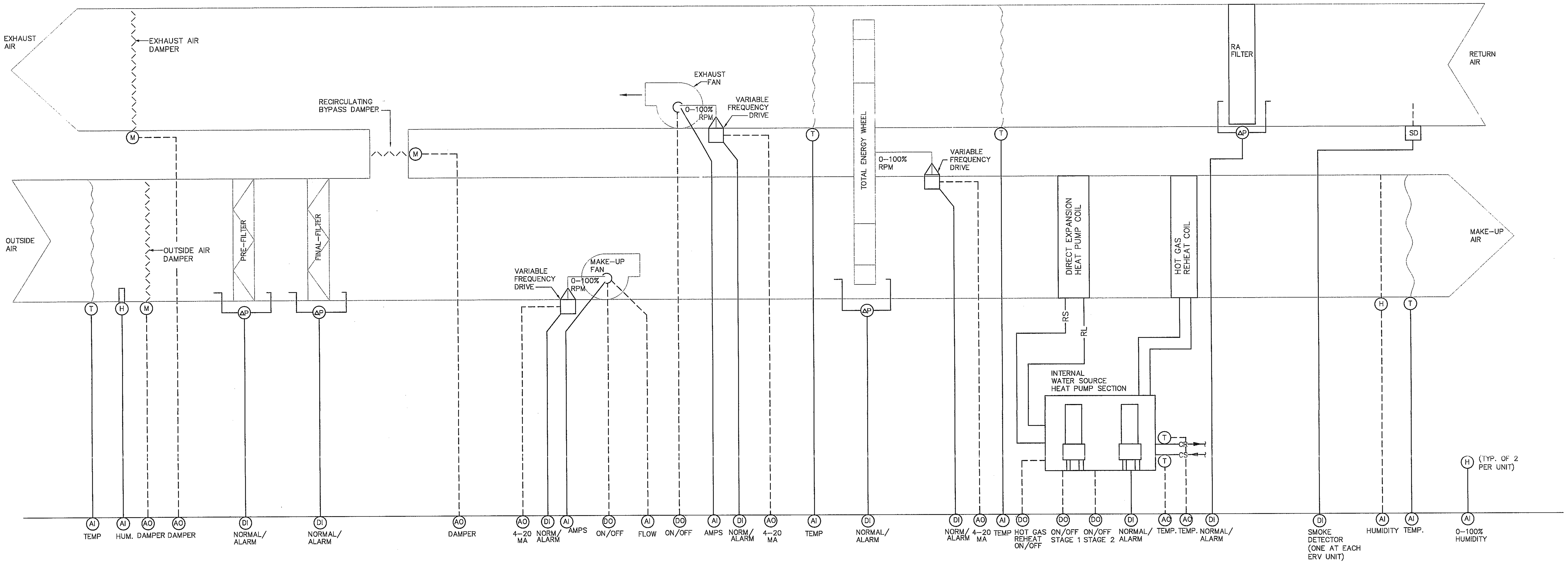
**FAST Multi-Modal Center**
City of Fayetteville
Fayetteville, NC

Project Number 621A

Title
**Temperature Control Diagrams and Sequences**

Sheet
# M601

Plate of




## PROCESS DIAGRAM - PRECONDITIONING OUTDOOR AIR MAKE-UP UNIT

NOT TO SCALE

## SEQUENCE OF OPERATION

FAN SYSTEM

INTERLOCKS OCCUPIED/UNOCCUPIED

THE UNIT SHALL BE INTERLOCKED WITH THE FIRE ALARM SYSTEM SO THAT AN ALARM CONDITION FROM THIS ITEM SHALL SHUT DOWN THE FANS, CLOSE OUTSIDE AND EXHAUST AIR DAMPERS, AND ALARM TO THE BAS. THE EXHAUST AIR SMOKE DETECTOR SHALL BE FURNISHED AND WIRED BY DIVISION 23. THE BAS SUB-CONTRACTOR SHALL USE AUXILIARY CONTACTS FROM THE FIRE ALARM SYSTEM TO SHUT DOWN THE FAN SYSTEM AND INFORM THE BAS OF A SMOKE CONDITION. FIRE ALARM SHALL BE HARD WIRED TO ACCOMPLISH THEIR FUNCTIONS. AUXILIARY CONTACTS SHALL INFORM BAS. THE ALARMS DESCRIBED ABOVE SHALL EACH BE SEPARATE AND INDEPENDENT ALARMS. THE BAS OPERATOR MUST ACKNOWLEDGE THIS ALARM BEFORE IT IS RESET.

THE UNIT SHALL BE INDEXED FOR OCCUPIED/UNOCCUPIED OPERATION BY THE BAS (ADJUSTABLE).

WHEN ENERGIZED OR IN THE OCCUPIED MODE, THE SUPPLY AND EXHAUST FANS SHALL SOFT START AND RAMP UP TO RUN CONTINUOUSLY UNTIL THRU THEIR PROGRAMMED B.A.S. TIME FUNCTION CONTROL, THEY SHALL STOP. DURING THE OCCUPIED MODE THE EXHAUST AND OUTSIDE AIR DAMPERS SHALL OPEN, ON ERV-1 THE RECIRCULATION DAMPER SHALL CLOSE WHILE THE RECIRCULATION DAMPER ON ERV-2 SHALL OPEN. AS DETERMINED BY THE BAS CONTROL LOGIC. THE EXHAUST AIR FAN SPEED SHALL BE SET TO MAINTAIN THE SCHEDULED AIRFLOW. THE OUTSIDE AIR SUPPLY FAN SPEED SHALL BE SET TO MAINTAIN THE BUILDING UNDER A POSITIVE PRESSURIZATION AS BASED ON BUILDING PRESSURE AS SENSED BY dp WALL SENSORS.

DURING UNOCCUPIED PERIODS, THE FANS SHALL BE OFF, BOTH EXHAUST AND OUTSIDE AIR DAMPERS SHALL BE CLOSED, THE RECIRC DAMPER SHALL OPEN. SHOULD ANY OF THE ZONE HUMIDITY SENSORS (SEE PLANS) SENSE A HUMIDITY LEVEL ABOVE 55% WHEN IN THE UNOCCUPIED MODE; THE OUTSIDE AND EXHAUST AIR DAMPERS SHALL REMAIN OPEN AND THE UNIT SHALL ENERGIZE AND RUN UNTIL SUCH TIME AS ALL HUMIDITY SENSORS RETURN BELOW 55% RH.

A CALL FOR HEAT OR COOL SHALL ENERGIZE THE COOLING/HEATING PLANT.

BUILDING PRESSURIZATION:

AN OFFSET BETWEEN OUTSIDE AIR SUPPLY AND EXHAUST SHALL BE MADE SUCH THAT EACH FLOOR REMAINS AT A 0.03" (ADJUSTABLE) POSITIVE STATIC PRESSURE COMPARED TO THE OUTSIDE CONDITION USING THE FOLLOWING EQUATION FOR EACH FLOOR:

GENERAL EXHAUST PER ZONE = TOTAL OUTSIDE AIR PER FLOOR – 10% OUTSIDE SUPPLY AIR – TOILET EXHAUST

(THE GENERAL EXHAUST IS THE AIR RETURNED FROM THE SPACE, NOT FROM THE TOILET GROUPS)

WHEN IN THE OCCUPIED MODE THE ENERGY RECOVERY WHEEL SHALL RUN AND THE WHEEL SPEED SHALL MODULATE AS REQUIRED TO OPTIMIZE THE LEAVING AIR CONDITION OF THE UNIT. SHOULD THE HEAT RECOVERY WHEEL STOP THE ELECTRIC HEATING COIL SHALL STAGE ON AND OFF TO MAINTAIN A LEAVING OUTSIDE SUPPLY AIR CONDITION ABOVE 55°F AND THE UNIT SHALL GO INTO ALARM.

COOLING AND HEATING MODE

WHEN IN THE OCCUPIED MODE THE ENERGY RECOVERY WHEEL SHALL RUN AND THE WHEEL SPEED SHALL MODULATE AND THE HEAT PUMP SHALL STAGE ON, OFF OR REVERSE AS REQUIRED TO OPTIMIZE THE LEAVING AIR CONDITION OF THE UNIT, (52°F DEWPOINT DURING COOLING). SHOULD THE HEAT RECOVERY WHEEL STOP OR THE HEAT PUMP COMPRESSORS FAIL, AND THE UNIT SHALL GO INTO ALARM. SHOULD THE HEAT PUMP ALONE NOT PROVIDE ADEQUATE HEAT TO ACHIEVE THE PROGRAMMED TEMP THE UNIT AIRFLOW SHALL BE REDUCED TO 50% OF SCHEDULED AND AN ALARM SHALL BE SENT.

MORNING WARM UP/COOL DOWN

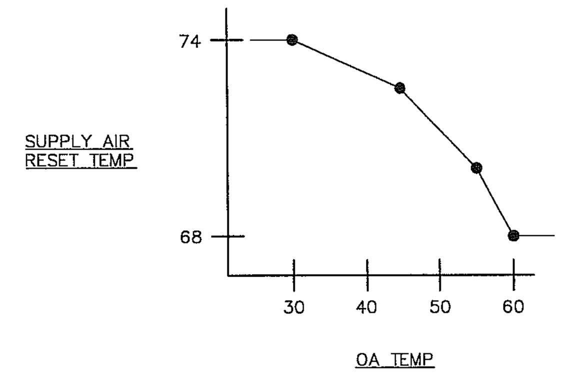
1 – HOUR (OPTIMIZED) PRIOR TO OCCUPANCY, THE UNITS SHALL ACTIVATE. IF THE TEMPERATURE OF THE RETURN AIR IS LESS THAN 65°F, THE UNIT SHALL RESET THE SUPPLY AIR TO 80°F. SHOULD THE TEMPERATURE BE GREATER THAN 80°F OR HUMIDITY GREATER THAN 55%, THE SUPPLY AIR SHALL BE RESET DOWN TO 55°F. ONCE THE RA SETPOINTS HAVE BEEN ACHIEVED, THE UNITS SHALL BEGIN NORMAL OPERATION.

FILTER AND HEAT RECOVERY WHEEL PRESSURE SWITCH

A DIFFERENTIAL PRESSURE SWITCH ACROSS THE FILTERS SHALL ALARM TO THE BAS WHEN THE PRESSURE DROP ACROSS THE FILTERS AND HEAT RECOVERY WHEEL RISES ABOVE THE UNIT MANUFACTURER'S RECOMMENDED SETPOINT.

## POINT LIST

| SYSTEM: | HARDWARE | | | | | | | | | | | | | | | | | | | | | | SOFTWARE | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | OUTPUT | | | | | | | | INPUT | | | | | | | | | | | | | | ALARMS | | | | | | | BAS FUNCTIONS | | | | | | | | | | | | | | | | | | | | | | |
| | DIGITAL | | | | ANALOG | | | | DIGITAL | | | | | ANALOG | | | | | | | | | DIGITAL | | | ANALOG | | | | | | | | | | | | | | | | | | | | | | | | | | |
| POINT DESCRIPTION | CONTROL RELAY | SOLENOID | CONTACTOR | | DAMPER MOD | | SPEED | VALVE MOD | PRESSURE SWITCH | FLOW SWITCH (Δ P) | SWITCH CLOSURE | AUXILIARY CONTACT | KW | POWER | CO2 CONCENTRATION | TEMPERATURE | RELATIVE HUMIDITY | PSIg, PSIa, PSId | FT–CANDLES | FLOW | AMPS | POSITION | EQUIPMENT STATUS | MAINTENANCE | | HIGH LIMIT | LOW LIMIT | RUN TIME | | SCHEDULED START/STOP | OPTIMUM START/STOP | DUTY CYCLING | DEMAND LIMITING | DAY/NIGHT SETBACK | ECONOMIZER | VENTILATION/RECIRCULATION | TEMPERATURE CONTROL | ENTHALPY | HOT/COLD DECK RESET | REHEAT COIL RESET | BOILER OPTIMIZATION | HOT WATER BOILER OPTIMIM. | HW OA RESET | CHILLER OPTIMIZATION | CHILLED WATER RESET | CONDENSER WATER RESET | CHILLER DEMAND LIMIT | PRESSURE CONTROL | LIGHTING CONTROL | SMOKE | HUMIDITY CONTROL | OUTDOOR AIR FLOW |
| MAKE–UP AIR FAN | ● | | | | | | ● | | | | | | | | | | | | | ● | ● | | ● | ● | | | | ● | | ● | ● | | | ● | ● | | | | | | | | | | | | | ● | | ● | | ● |
| EXHAUST FAN | ● | | | | | | ● | | | | | | | | | | | | | ● | ● | | ● | ● | | | | ● | | ● | ● | | | ● | ● | | | | | | | | | | | | | ● | | ● | | |
| WHEEL | ● | | | | | | ● | | ● | | | | | | | ● | | | | | ● | | ● | ● | | | | ● | | ● | ● | | | ● | ● | | | | | | | | | | | | | | | ● | ● | |
| EXHAUST AIR | | | | | | | | | | | | | | | | ● | ● | | | | | | | | | ● | ● | | | | | | | | ● | | ● | | | | | | | | | | | | | | | |
| MAKE–UP AIR | | | | | | | | | | | | | | | | ● | | ● | | | | | | | | ● | ● | | | | | | | | | | ● | | | | | | | | | | | | | | | |
| OUTSIDE AIR | | | | | | | | | | | | | | | | ● | ● | | | | | | | | | ● | ● | | | | | | | | ● | | ● | | | | | | | | | | | | | | | |
| FILTER BANKS | | | | | | | | | ● | | | | | | | | | | | | | | | ● | | ● | | | | | | | | | | | | | | | | | | | | | | | | | | |
| FIRE ALARM | | | | | | | | | | | | ● | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | ● | | |
| HIGH HUMIDITY | | | | | | | | | | | | | | | | | | | | | | | | | | ● | | | | | | | | | | | | | | | | | | | | | | | | | | |
| GAS HEATING SECTION | ● | | | | | | | ● | | | | | | | | ● | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| TOTAL UNIT | | | | | | | | | | | | | | ● | | | | | | | | | | | | | | | | ● | ● | | | | | | | | | | | | | | | | | | | | | |
| OUTSIDE AIR DAMPER | | | | | ● | | | | | | | | | | | | | | | | | ● | | | | | | | | | | | | | ● | | ● | | | | | | | | | | | | | | | |
| EXHAUST AIR DAMPER | | | | | ● | | | | | | | | | | | | | | | | | ● | | | | | | | | | | | | | ● | | ● | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1ST FLOOR CO2 (2 SENSORS) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | ● | | | | |
| 2ND FLOOR CO2 (2 SENSORS) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | ● | | | | |





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Signage Consultant
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M&L Project No.
211.026

NORTH CAROLINA PROFESSIONAL SEAL 31478 ENGINEER JAMES L. CURRIE

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Drawn

Checked

Date January 31, 2014

Revisions


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**FAST Multi-Modal Center**

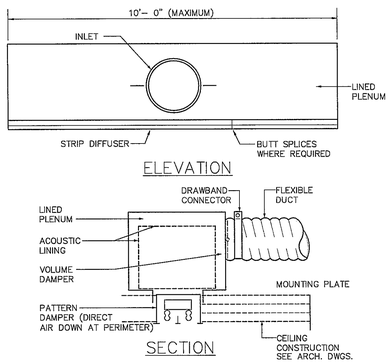
City of Fayetteville
Fayetteville, NC

Project Number 621A

Title
**Temperature Control Diagrams and Sequences**

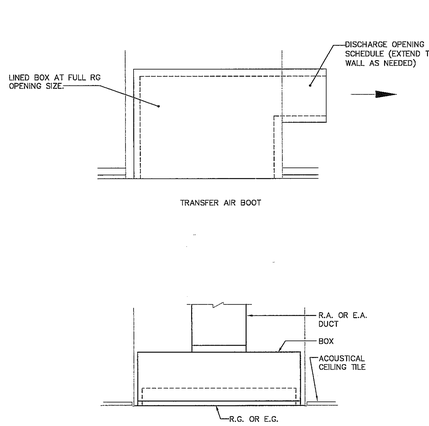
Sheet
**M602**

Plate of



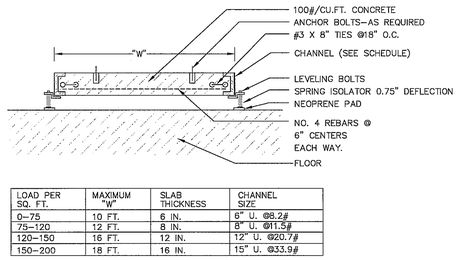

10 M-701 — STRIP–DIFFUSER DETAIL (SUPPLY)

SCALE: NONE




7 M-701 — DUCT MOUNTED RETURN AND EXHAUST GRILLE DETAIL (LAY-IN CEILING)

SCALE: NONE

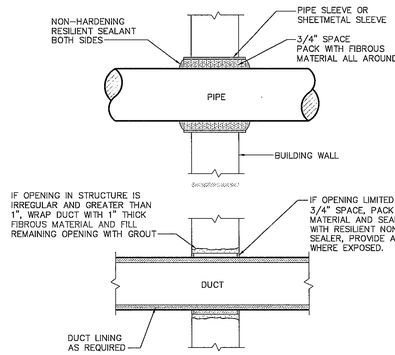



| LOAD PER SQ. FT. | MAXIMUM "W" | SLAB THICKNESS | CHANNEL SIZE |
|---|---|---|---|
| 0–75 | 10 FT. | 6 IN. | 6" U. @8.2# |
| 75–120 | 12 FT. | 8 IN. | 8" U. @11.5# |
| 120–150 | 16 FT. | 12 IN. | 12" U. @20.7# |
| 150–200 | 18 FT. | 16 IN. | 15" U. @33.9# |

NOTES:
1. FACTORY BUILT UNITS BY CONSOLIDATED KINETICS ARE EQUALLY ACCEPTABLE.
2. INTERIOR ISOLATORS SHALL BE PROVIDED IF REQUIRED BY ISOLATOR MANUFACTURER.
3. ANCHOR BOLTS SHALL BE SET IN STEEL SLEEVES PACKED IN LEAD.
4. LOAD PER SQ. FT. EQUALS WEIGHT OF MACHINE DIVIDED BY THE AREA OF BASE.

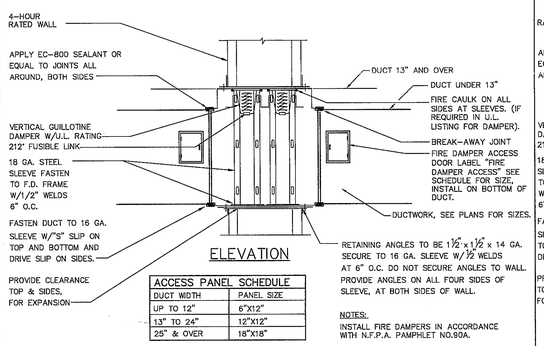
4 M-701 — EQUIPMENT INERTIA BASE DETAIL

SCALE: NONE




1 M-701 — TYPICAL CONCRETE WALL PENETRATION DETAILS

SCALE: NONE

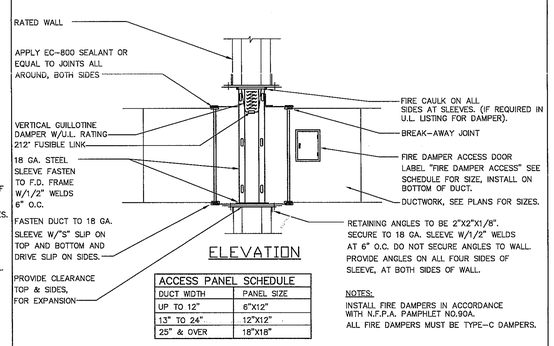



| ACCESS PANEL SCHEDULE | |
|---|---|
| DUCT WIDTH | PANEL SIZE |
| UP TO 12" | 6"X12" |
| 13" TO 24" | 12"X12" |
| 25" & OVER | 18"X18" |

NOTES:
INSTALL FIRE DAMPERS IN ACCORDANCE WITH N.F.P.A. PAMPHLET NO.90A.

11 M-701 — FIRE DAMPER MTG. IN 3-HOUR WALL

SCALE: NONE



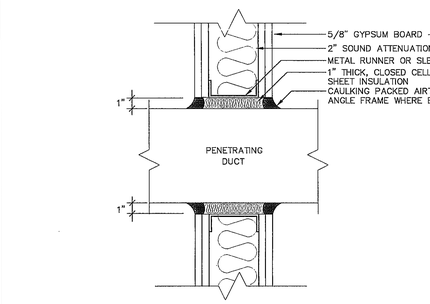

| ACCESS PANEL SCHEDULE | |
|---|---|
| DUCT WIDTH | PANEL SIZE |
| UP TO 12" | 6"X12" |
| 13" TO 24" | 12"X12" |
| 25" & OVER | 18"X18" |

NOTES:
INSTALL FIRE DAMPERS IN ACCORDANCE WITH N.F.P.A. PAMPHLET NO.90A.
ALL FIRE DAMPERS MUST BE TYPE–C DAMPERS.

NOTES:
1. ALL FIRE DAMPERS MUST BE TYPE–C DAMPERS.
2. PROVIDE AT ALL FIRE RATED WALLS. REFER TO ARCHITECTURAL LIFE SAFETY PLANS FOR WALL TYPES.
3. REFER TO DAMPER MANUFACTURER'S INSTALLATION INSTRUCTIONS FOR UL APPROVED INSTALLATION BY WALL TYPE.

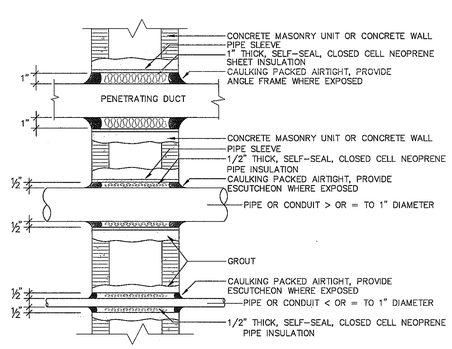
8 M-701 — VERTICAL FIRE DAMPER AT WALL DETAIL

SCALE: NONE



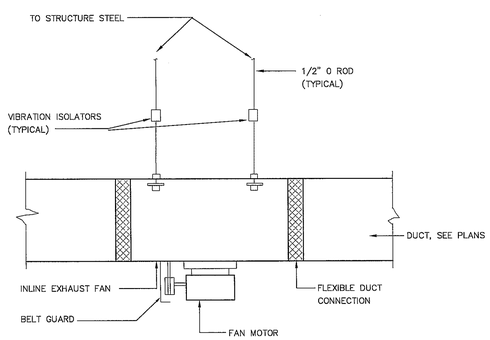

5 M-701 — PIPE AND DUCT PENETRATION AT DRYWALL PARTITION

SCALE: NONE



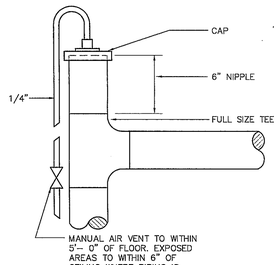

2 M-701 — PIPE AND DUCT PENETRATION AT CMU PARTITION (NON-RATED)

SCALE: NONE



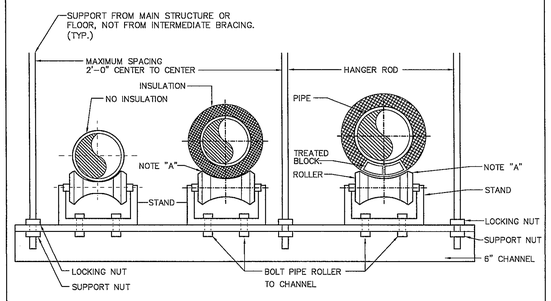

12 M-701 — INLINE FAN MOUNTING DETAIL

SCALE: NONE




9 M-701 — MANUAL AIR VENT DETAIL

SCALE: NONE

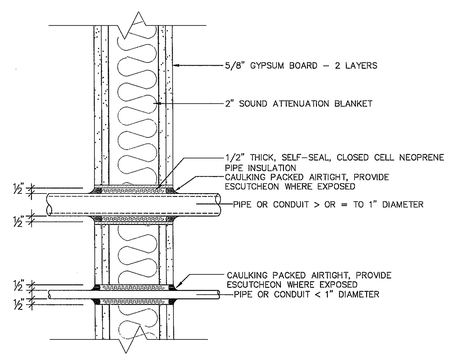



| HANGER ROD SPACING | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| PIPE SIZE | 1" | 1 1/4" | 1 1/2" | 2" | 2 1/2" | 3" | 4" | 5" | 6" | 8" | 10" | 12" |
| MAX. ALLOWABLE SPACING | 8 FT | 8 FT | 10 FT | 10 FT | 12 FT | 12 FT | 12 FT | 12 FT | 12 FT | 12 FT | 12 FT | 12 FT |
| NOTE: FOR TRAPEZE HANGER TAKE SPACING OF SMALLEST PIPE ON TRAPEZE. | | | | | | | | | | | | |

NOTE "A" PROVIDE INSULATION PROTECTION – SEE SPECIFICATIONS.

6 M-701 — TRAPEZE HANGER DETAIL

SCALE: NONE




3 M-701 — PIPE/CONDUIT PENETRATION AT DRYWALL PARTITION

SCALE: NONE

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M&L Project No. 211.026

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Date January 31, 2014

Revisions

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**FAST Multi-Modal Center**

City of Fayetteville
Fayetteville, NC

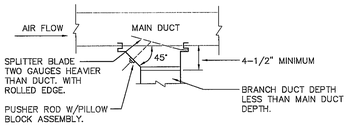
Project Number 621A

Title
**Mechanical Details**

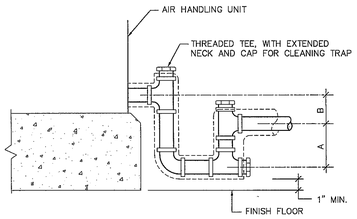
Sheet
M701

Plate of

Modified: Feb 25, 2013 loaded By: RPO Scale: 1/8"=1'-0" Plotted: Jan 04, 2014 – 3:58pm Plotted By: jsmrec, K:\211-026 FAST MCC\MCC\VA700.dwg Layout1




| 10 | SUPPLY AIR SPLITTER DAMPER DETAIL |
|---|---|
| M-702 | SCALE: NONE |



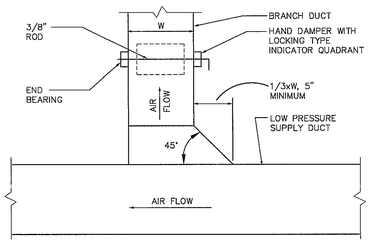

A = GREATER OF 4" OR 1/2" PLUS (BLOWTHRU) AHU TOTAL PRESSURE IN INCHES-WC

B = GREATER OF 2" OR 1/2" PLUS (DRAWTHRU) AHU TO TOTAL PRESSURE IN INCHES-WC

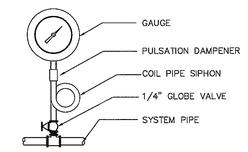
NOTES:

1. 1" MIN. PIPE SIZE OR DRAIN SIZE TAP IN AHU INSULATE FOR CONDENSATE CONTROL AS REQUIRED.

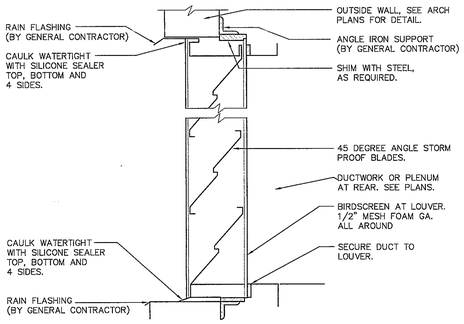
| 7 | CONDENSATE DRAIN TRAP |
|---|---|
| M-702 | SCALE: NONE |



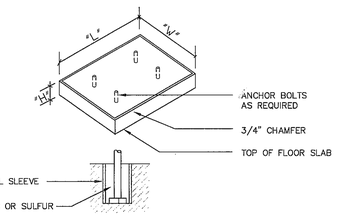

| 4 | RECTANGULAR SUPPLY DUCT TAP TO SINGLE AIR OUTLET |
|---|---|
| M-702 | SCALE: NONE |



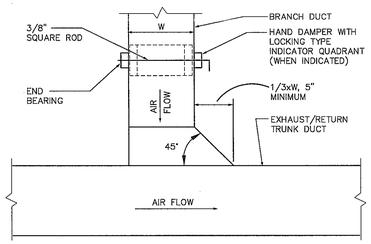

| 1 | PRESSURE GAUGE |
|---|---|
| M-702 | SCALE: NONE |




| 11 | LOUVER DETAIL |
|---|---|
| M-702 | SCALE: NONE |




| 8 | HEAT PUMP EQUIPMENT BASE DETAIL |
|---|---|
| M-702 | SCALE: NONE |

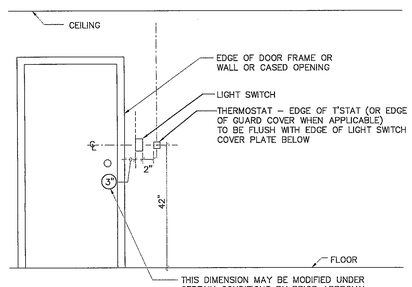



| 5 | RECTANGULAR EXHAUST/RETURN TAP INTO MAIN DUCT |
|---|---|
| M-702 | SCALE: NONE |

| DIMENSION OF LONGEST SIDE, INCHES | SHEET METAL GAUGE (ALL FOUR SIDES) | MINIMUM REINFORCING ANGLE SIZE AND MAXIMUM LONGITUDINAL SPACING BETWEEN TRANSVERSE JOINTS &/OR INTERMEDIATE REINFORCING | TRANSVERSE REINFORCING (1) AT JOINTS | | | | |
|---|---|---|---|---|---|---|---|
| | | | MIN. H. IN. | DRIVE SLIP / PLAIN S SLIP | HEMMED S SLIP | ALTER'NT BAR SLIP | REIN-FORCED BAR SLIP |
| | | | | RECOM-MENDED GAUGE | RECOM-MENDED GAUGE | RECOM-MENDED GAUGE | RECOM-MENDED GAUGE |
| UP THRU 12 | 26 | NONE REQUIRED | 1 | 24 | 24 | 24 | 24 |
| 13-18 | 24 | NONE REQUIRED | 1 | 24 | 24 | 24 | 24 |
| 19-30 | 24 | 1"X1"X1/8" @ 60 IN. | 1 | – | 24 | 24 | 24 |
| 31-42 | 22 | 1"X1"X1/8" @ 60 IN. | 1 | – | – | 22 | 22 |

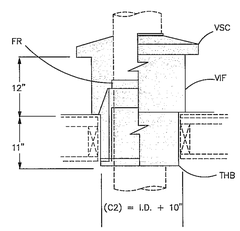
(1)TRANSVERSE REINFORCING SIZE IS DETERMINED BY DIMENSION OF SIDE TO WHICH ANGLE IS APPLIED.

| 2 | DUCT CONSTRUCTION DETAIL |
|---|---|
| M-702 | SCALE: NONE |




NOTE:
ALL THERMOSTATS, SWITCHES AND OTHER DEVICES SHALL BE INSTALLED IN A NEAT AND ORDERLY FASHION, WITH EACH ITEM BEING PLUMB AND SQUARE.

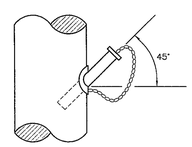
| 12 | TYPICAL LOCATION OF SWITCHES/ ALARMS/ THERMOSTATS/ OUTLETS |
|---|---|
| M-702 | SCALE: NONE |




MATERIALS

| | | TYPE | 316 |
|---|---|---|---|

| 9 | VENTILATED ROOF THIMBLE ASSEMBLY DETAIL |
|---|---|
| M-702 | SCALE: NONE |




NOTES:

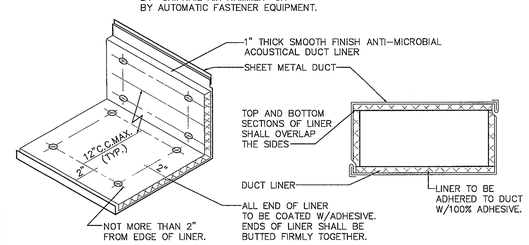
1. LOCATE A TEST WELL AT EACH POINT OF TEMPERATURE SENSING AND TEMPERATURE CONTROL.
2. THERMOMETER WELLS MUST BE MOUNTED AT 45 DEGREES FROM THE HORIZONTAL OR VERTICALLY WHERE POSSIBLE. OIL FILL.

| 6 | THERMOMETER WELL |
|---|---|
| M-702 | SCALE: NONE |

METAL FASTENERS:

OMARK INSUL-PINS, DURO DYNE FASTENERS OR GRIP NAILS.

GRIP NAILS SHALL BE INSTALLED BY "GRIPNAIL AIR HAMMER" OR BY AUTOMATIC FASTENER EQUIPMENT.




| 3 | DUCT LINER DETAIL |
|---|---|
| M-702 | SCALE: NONE |

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M&L Project No.
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Checked

Date January 31, 2014

Revisions

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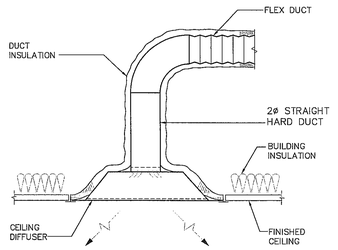
**FAST Multi-Modal Center**
City of Fayetteville
Fayetteville, NC

Project Number 621A

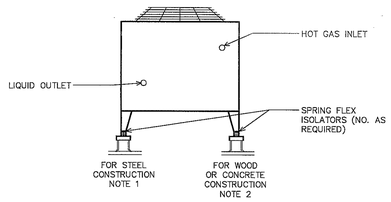
Title
**Mechanical Details**

Sheet
M702

Plate of

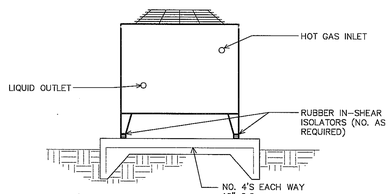


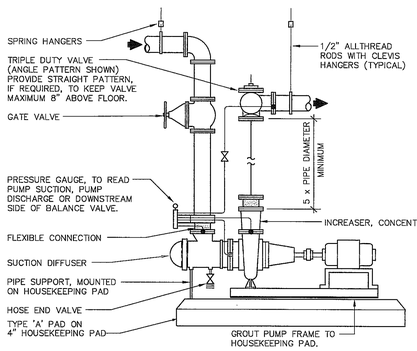

9 M-703 — TYPICAL CONNECTION TO SUPPLY AIR DIFFUSER
SCALE: NONE



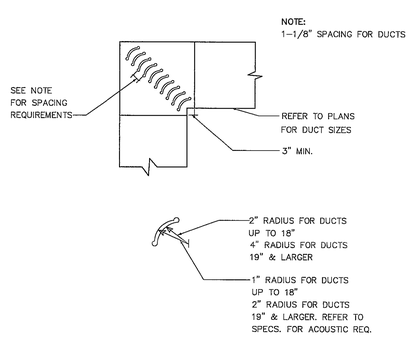

NOTES:
1. EQUIPMENT RAIL SHALL BE RPS CORPORATION ER-2B OR APPROVED EQUIVALENT PROVIDED BY DIVISION 15. CONTRACTOR COMPLETE WITH FIBER CANT. INSULATION.
2. EQUIPMENT RAIL SHALL BE RPS CORPORATION ER-3B OR APPROVED EQUIVALENT PROVIDED BY DIVISION 15. CONTRACTOR COMPLETE WITH INSULATION.

MOUNTING ON ROOF

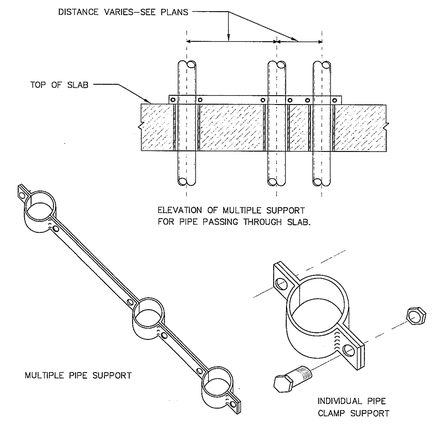



4 M-703 — BASE MOUNTED END SUCTION CENTRIFUGAL PUMP DETAIL
SCALE: NONE




1 M-703 — SQUARE ELBOW DETAIL
SCALE: NONE

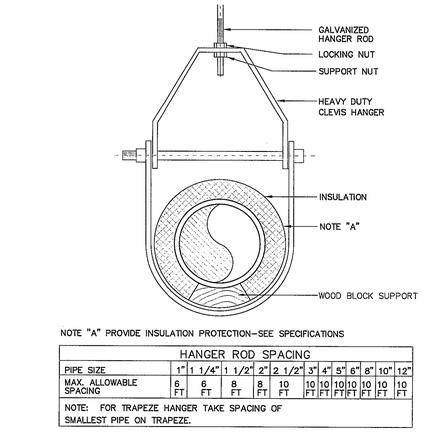



NOTES
1. NUMBER AND SIZE OF COMPRESSION TANKS AS SHOWN ON DRAWINGS.

10 M-703 — AIR SEPARATOR AND EXPANSION TANK PIPING DETAIL
SCALE: NONE



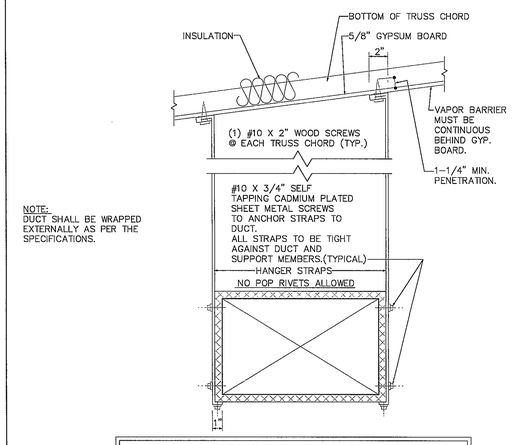

5 M-703 — VERTICAL PIPE SUPPORT DETAIL
SCALE: NONE




NOTE "A" PROVIDE INSULATION PROTECTION-SEE SPECIFICATIONS

| HANGER ROD SPACING | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| PIPE SIZE | 1" | 1 1/4" | 1 1/2" | 2" | 2 1/2" | 3" | 4" | 5" | 6" | 8" | 10" | 12" |
| MAX. ALLOWABLE SPACING | 6 FT | 6 FT | 8 FT | 8 FT | 10 FT | 10 FT | 10 FT | 10 FT | 10 FT | 10 FT | 10 FT | 10 FT |
| NOTE: FOR TRAPEZE HANGER TAKE SPACING OF SMALLEST PIPE ON TRAPEZE. | | | | | | | | | | | | |

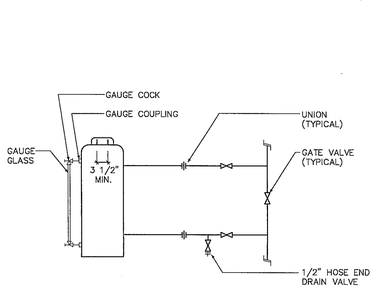
2 M-703 — CLEVIS HANGER DETAIL
SCALE: NONE




NOTE:
DUCT SHALL BE WRAPPED EXTERNALLY AS PER THE SPECIFICATIONS.

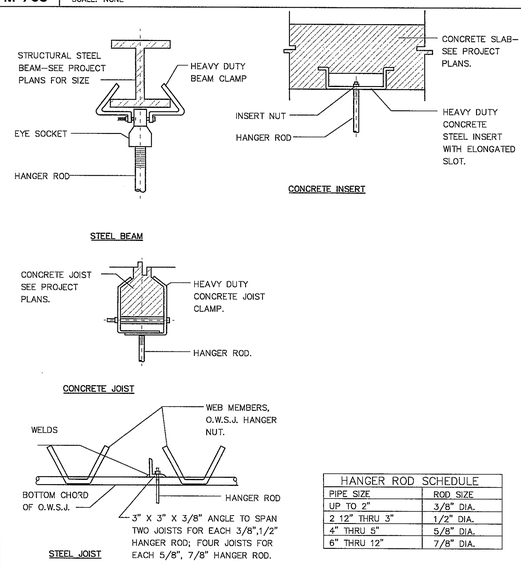
| HANGER SIZES FOR RECTANGULAR DUCT | | | |
|---|---|---|---|
| MAX. SIDE | HANGER | HORIZONTAL SUPPORT ANGLE | MAXIMUM SPACING |
| UP TO 34" | 1"X18" GAUGE STRAP | NONE REQUIRED | 8'-0" |

11 M-703 — DUCT STRAP HANGER DETAIL
SCALE: NONE



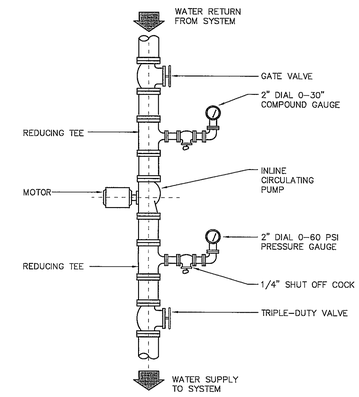

NOTES:
1. ON CONDENSOR WATER SYSTEMS, THE COMPOUND FEEDER SHALL BE LOCATED BETWEEN THE PUMP SUCTION AND DISCHARGE LINES.
2. ON GRAVITY CONDENSATE RETURN SYSTEMS, THE COMPOUND FEEDER (IF REQUIRED) SHALL BE INSTALLED UPSTREAM OF THE CONDENSATE RECEIVER.
3. NO CHEMICAL SHALL BE USED WHICH GENERATES EXCESS HEAT OR PRESSURE.

8 M-703 — COMPOUND FEEDER DETAIL
SCALE: NONE




| HANGER ROD SCHEDULE | |
|---|---|
| PIPE SIZE | ROD SIZE |
| UP TO 2" | 3/8" DIA. |
| 2 1/2" THRU 3" | 1/2" DIA. |
| 4" THRU 5" | 5/8" DIA. |
| 6" THRU 12" | 7/8" DIA. |

6 M-703 — PIPE HANGER ATTACHMENT-VARIOUS STRUCTURES
SCALE: NONE




3 M-703 — INLINE CENTRIFUGAL PUMP, PIPING DETAIL
SCALE: NONE

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M&L Project No.
211.026

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Checked

Date January 31, 2014

Revisions

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**FAST Multi-Modal Center**
City of Fayetteville
Fayetteville, NC

Project Number 621A

Title
**Mechanical Details**

Sheet
# M703

Plate of

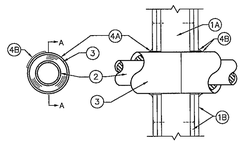
Plotted: Feb 04, 2014 - 3:18pm, Plotted By: jamesc, K:\211-026 FAST MECHMDL\M703.dwg, Layout1
Modified: Feb 03, 2013 Modified By: RHO Scale: FULL

## SYSTEM NO. W-L-5001

JULY 10, 2003

(FORMERLY SYSTEM NO. 147)

F RATINGS – 1 AND 2 HR (SEE ITEM 1)
T RATINGS – 3/4, 1 AND 1-1/2 HR (SEE ITEM 3)
L RATING AT AMBIENT – 2 CFM/SQ. FT.
L RATING AT 400°F – LESS THAN 1 CFM/SQ. FT.




SECTION A–A

1. Wall Assembly – The 1 or 2 hr. fire rated gypsum wallboard/stud assembly shall be constructed of the materials and in the manner described in the individual U300 or U400 series Wall or Partition Design in the UL Fire Resistance Directory and shall include the following construction features:

   A. Studs – Wall framing may consist of either wood studs or steel channel studs. Wood studs to consist of nom. 2 by 4 in. (51 by 102 mm) lumber spaced 16 in. (406 mm) OC with nom. 2 by 4 in. (51 by 102 mm) lumber end plates and cross braces. Steel studs to be min. 3-5/8 in. (92 mm) wide by 1-3/8 in. (35 mm) deep channels spaced max. 24 in. (610 mm) OC.

   B. Gypsum Board* – Nom. 5/8 in. (16 mm) thick, 4 ft (122 cm) wide with square or tapered edges. The gypsum wallboard type, thickness, number of layers, fastener type and sheet orientation shall be as specified in the individual U300 or U400 Series Design in the UL Fire Resistance Directory. Max. Diam. of opening is 14-1/2 (368 mm) in. for wood stud walls and 18 in. (457 mm) for steel stud walls.

      The hourly F rating of the firestop system is 1 hr. when installed in a 1 hr. fire rated wall and 2 hr. when installed in a 2 hr. fire rated wall.

2. Through Penetrants – One metallic pipe or tubing to be centered within the firestop system. Pipe or tubing to be rigidly supported on both sides of wall assembly. The following types and sizes of metallic pipes or tubing may be used:

   A. Steel Pipe – Nom. 12 in. (305 mm) diam. (or smaller) Schedule 10 (or heavier) steel pipe.

   B. Copper Tubing – Nom. 6 in. (152 mm) diam. (or smaller) Type L (or heavier) copper tubing.

   C. Copper Pipe – Nom. 6 in. (152 mm) diam. (or smaller) Regular (or heavier) copper pipe.

3. Pipe Covering* – Nom. 1 or 2 in. (25 or 51 mm) thick hollow cylindrical heavy density glass fiber units jacketed on the outside with an all service jacket. Longitudinal joints sealed with metal fasteners or factory-applied self-sealing lap tape. Transverse joints sealed with metal fasteners or with butt strip tape supplied with the product. When nom. 1 in. (25 mm) thick pipe covering is used, the annular space between the pipe covering and the circular cutout in the gypsum wallboard layers on each side of the wall shall be min. 1/4 in. to max. 3/8 in. (6 mm to max 10 mm). When nom. 2 in. (51 mm) thick pipe covering is used, the annular space between the pipe covering and the circular cutout in the gypsum wallboard layers on each side of the wall shall be min. 1/2 in. to max. 3/4 in. (13 mm to max. 10 mm).

   See Pipe and Equipment Covering Materials (BRGU) category in Building Materials Directory for names of manufacturers. Any pipe covering material meeting the above specifications and bearing the UL Classification Marking with a Flame Spread Index of 25 or less and a Smoke Developed Index of 50 or less may be used.

   The hourly T Rating of the firestop system is 3/4 hr. when nom. 1 in. (25 mm) thick pipe covering is used. The hourly T Rating of the firestop system is 1 hr. and 1-1/2 hr. when nom. 2 in. (52 mm) thick pipe covering is used with 1 hr. and 2 hr. fire rated walls, respectively.

4. Firestop System – Installed symmetrically on both sides of wall assembly. The details of the firestop system shall be as follows:

   A. Fill, Void or Cavity Materials* – Wrap Strip – nom. 1/4 in. (6 mm) thick intumescent elastomeric material faced on one side with aluminum foil, supplied in 2 in. (51 mm) wide strips. Nom. 2 in. (51 mm) wide strip tightly wrapped around pipe covering (foil side out) with seam butted. Wrap strip layer securely bound with steel wire or aluminum foil tape and slid into annular space approx. 1-1/4 in. (32 mm) such that approx. 3/4 in. (19 mm) of the wrap strip width protrudes from the wall surface. One layer of wrap strip is required when nom. 1 in. (25 mm) thick pipe covering is used. Two layers of wrap strip are required when nom. 2 in. (51 mm) thick pipe covering is used.

      3M COMPANY – FS-195+

   B. Fill, Void or Cavity Materials* – Caulk – min. 1/4 in. (6 mm) diam. continuously bead applied to the wrap strip/wall interface and to the exposed edge of the wrap strip layer approx. 3/4 in. (19 mm) from the wall surface.

      3M COMPANY – CP 25WB+, IC 15WB or FireDam 150+

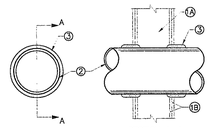
*Bearing the UL Classification Mark

## SYSTEM NO. W-L-1001

MARCH 28, 2003

(FORMERLY SYSTEM NO. 147)

F RATINGS – 1, 2, 3 AND 4 HR (SEE ITEMS 2 AND 3)
T RATINGS – 0, 1, 2, 3, AND 4 HR (SEE ITEM 3)
L RATING AT AMBIENT – LESS THAN 1 CFM/SQ. FT.
L RATING AT 400°F – LESS THAN 1 CFM/SQ. FT.




SECTION A–A

1. Wall Assembly – The 1, 2, 3 or 4 hr. fire-rated gypsum wallboard/stud wall assembly shall be constructed of the materials and in the manner described in the individual U300 or U400 Series Wall or Partition Designs in the UL Fire Resistance Directory and shall include the following construction features:

   A. Studs – Wall framing may consist of either wood studs (max. 2h fire rated assemblies) or steel channel studs. Wood studs to consist of nom. 2 by 4 in. lumber end plates and cross braces. Steel studs to be min. 3-5/8 in. wide by 1-3/8 in. deep channels spaced max. 24 in. O.C.

   B. Gypsum Board* – Nom. 1/2 or 5/8 in. thick, 4 ft. wide with square or tapered edges. The gypsum wallboard type, thickness, number of layers, fastener type and sheet orientation shall be as specified in the individual U300 or U400 Series Design in the UL Fire Resistance Directory. Max. diam of opening is 26 in.

2. Through-Penetrant – One metallic pipe, conduit or tubing installed either concentrically or eccentrically within the firestop system. The annular space between pipe, conduit or tubing and periphery of opening shall be min of 0 in. (point contact) to max. 2 in. Pipe, conduit or tubing to be rigidly supported on both sides of wall assembly. The following types and sizes of metallic pipes, conduits or tubing may be used.

   A. Steel Pipe – Nom. 24 in. diam. (or smaller) Schedule 10 (or heavier) steel pipe.

   B. Iron Pipe – Nom. 24 in. diam. (or smaller) service weight (or heavier) cast iron soil pipe, nom. 12 in. diam. (or smaller) or Class 50 (or heavier) ductile iron pressure pipe.

   C. Conduit – Nom. 6 in. diam. (or smaller) steel conduit or nom. 4 in. diam. (or smaller) steel electrical metallic tubing.

   D. Copper Tubing – Nom. 6 in. diam. (or smaller) Type L (or heavier) copper tubing.

   E. Copper Pipe – Nom. 6 in. diam. (or smaller) Regular (or heavier) copper pipe.

   F. Through Penetrating Product* – Flexible Metal Piping, The following types of steel flexible metal gas piping may be used:

      1. Nom. 2 in. diam. (or smaller) steel flexible metal gas piping. Plastic covering on piping may or may not be removed on both sides of floor or wall assembly.

         OMEGA FLEX INC.

      2. Nom. 1 in. diam. (or smaller) steel flexible metal gas piping. Plastic covering on piping may or may not be removed on both sides of floor or wall assembly.

         TITEFLEX CORP

         A BUNDY CO.

      3. Nom. 1 in. diam. (or smaller) steel flexible metal gas piping. Plastic covering on piping may or may not be removed on both sides of floor or wall assembly.

         WARD MFG. INC.

3. Fill, Void or Cavity Material* – Caulk – Min. 5/8. 1-1/4, 1-7/8 and 2-1/2 in. thickness of caulk for 1, 2, 3 and 4 hr. rated assemblies, respectively, applied within annulus, flush with both surfaces of wall. Min. 1/4 in. diam. bead of caulk applied to gypsum board/penetrant interface at point contact location on both sides of wall. The hourly F Rating of the firestop system is dependent upon the hourly fire rating of the wall assembly in which it is installed, as shown in the following table. The hourly T Rating of the firestop system is dependent upon the type or size of the pipe or conduit and the hourly fire rating of the wall assembly in which it is installed, as tabulated below:

| Max Pipe or Conduit Diam. In. | F Rating Hr. | T Rating Hr. |
|---|---|---|
| 1 | 1 or 2 | 0+, 1 or 2 |
| 1 | 3 or 4 | 3 or 4 |
| 4 | 1 or 2 | 0 |
| 6 | 3 or 4 | 0 |
| 12 | 1 or 2 | 0 |

+When copper pipe is used, T Rating is 0 h.

3M COMPANY – CP 25WB+

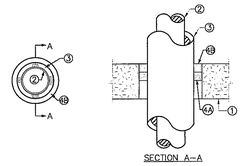
*Bearing the UL Classification Mark.

## SYSTEM NO. C-AJ-5001

JANUARY 11, 1999

(FORMERLY SYSTEM NO. 91)

F RATINGS – 1-1/2, 2 AND 3 HR (SEE ITEM 4)
T RATINGS – 0, 1/2, 3/4 AND 1 HR (SEE ITEMS 1A AND 4)
L RATING AT AMBIENT – 2 CFM/SQ. FT.
L RATING AT 400°F – LESS THAN 1 CFM/SQ. FT.




SECTION A–A

1. Floor or Wall Assembly – Min. 2-1/2 in. thick reinforced lightweight or normal weight (100-150) pcf concrete. Wall may also be constructed of any UL Classified Concrete Blocks*. Max. diam. of opening is 18 in.

   See Concrete Blocks (CAZT) category in the Fire Resistance Directory for names of manufacturers.

1A. Steel Sleeve (Optional, not shown) – Nom. 10 in. (or smaller) Schedule 10 (or heavier) steel sleeve cast or grouted into floor or wall assembly. Sleeve may extend a max. of 2 in. above top of floor or beyond either surface of wall. T Rating is 0 Hr. when sleeve is used.

2. Through Penetrant – Nom. 4 in. diam. (or smaller) Type L (or heavier) copper pipe, nom. 12 in. diam. (or smaller) service weight (or heavier) cast iron soil pipe, nom. 12 in. diam. (or smaller) Class 50 (or heavier) ductile iron pressure pipe or nom. 12 in. diam. (or smaller) Schedule 10 (or heavier) steel pipe centered in the opening and rigidly supported on both sides of the floor or wall assembly.

3. Pipe Covering* – Nom. 1/2 to 2 in. thick hollow cylindrical heavy density (min. 3.5 pcf) glass fiber units jacketed on the outside with an all service jacket. Longitudinal joints sealed with metal fasteners or factory-applied self-sealing lap tape. Transverse joints secured with metal fasteners of with butt strip tape supplied with the product.

   See Pipe and Equipment Covering – Materials* (BRGU) category in Building Materials Directory for names of manufacturers. Any pipe covering material meeting the above specifications and bearing the UL Classification Marking with a Flame Spread Index of 25 or less and a Smoke Developed Index of 50 or less may be used.

4. Firestop System – The details of the firestop system shall be as follows:

   A. Packing Material – Min. 1 in. thickness of firmly packed mineral wool batt insulation used as a permanent form. Packing material to be recessed from top surface of floor or sleeve or from both surfaces of wall as required to accommodate the required thickness of caulk fill material (Item B).

   B. Fill, Void or Cavity Material* – Caulk – Applied to fill the annular space flush with the top surface of the floor or sleeve or flush with both surfaces of wall. When nom. pipe covering thickness is 2 in. min thickness of caulk fill material is 2 in., When nom. pipe covering thickness is 1-1/2 in. or less, min. thickness of caulk fill material is 1 in. The hourly F and T Ratings of the firestop system are dependent upon the thickness of the floor or wall, the size of pipe, the thickness of pipe covering material and the size of the annular space (between the pipe covering material and the edge of the circular through opening), as shown in the following table:

| Min. Floor or Wall Thickness In. | Max. Pipe Diam. In. | Nom. Pipe Covering Thickness In. | Annular Space In. | F Rating Hr. | T Rating Hr. |
|---|---|---|---|---|---|
| 2-1/2 | 4 | 1 or 1-1/2 | 1/2 to 2-3/8 | 2 | 1 |
| 4-1/2 | 4 | 2 | 1/4 to 3-5/8 | 2 | 1-1/2 |
| 2-1/2 | 12 | 1 | 1/2 to 1-1/2 | 2 | 1/2 |
| 4-1/2 | 12 | 1 | 1/2 to 2-3/8 | 3 | 1 |
| 2-1/2 | 12 | 1/2 | 1/2 to 2-3/8 | 2 | 0 |

3M COMPANY – CP 25WB+

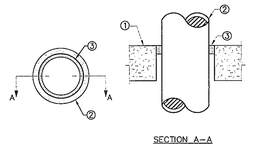
*Bearing the UL Classification Mark.

## SYSTEM NO. C-AJ-1037

NOVEMBER 19, 1997

(FORMERLY SYSTEM NO. 272)

F RATING – 2 HR
T RATING – 1 1/4 HR




SECTION A–A

1. Floor or Wall Assembly – Min. 4-1/2 in. thick reinforced lightweight or normal weight (100-150 pcf) concrete. Wall may also be constructed of any UL Classified Concrete Blocks*. Max. diam of opening is 9 in.

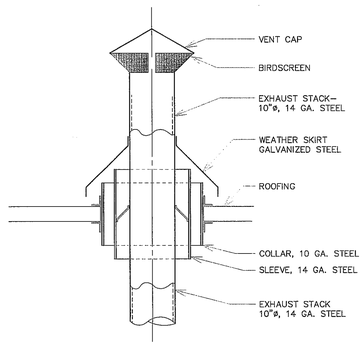
   See Concrete Blocks (CAZT) category in the Fire Resistance Directory for names of manufacturers.

2. Steel Pipe – Nom. 8 in. diam. (or smaller) Schedule 10 (or heavier) steel pipe. One pipe to be centered within the firestop system. A nom. annular space of 3/16 in. is required within the firestop system. Pipe to be rigidly supported on both sides of floor or wall assembly.

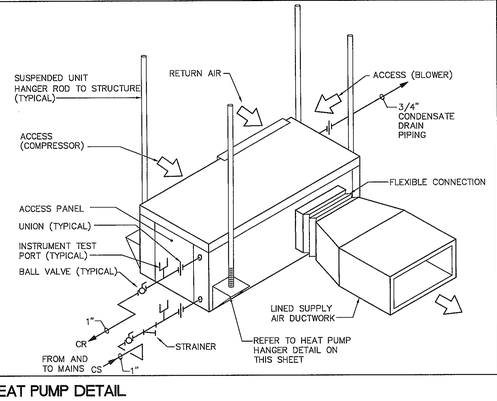
3. Fill, Void or Cavity Material* – Caulk – Caulk fill material to be forced within the annulus to the max extent possible, flush with top surface of floor or with both surfaces of wall.

   RECTORSEAL – Metacaulk 835+.

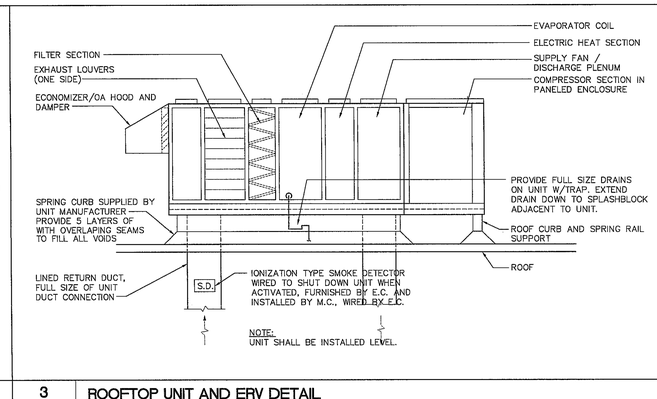
*Bearing the UL Classification Marking



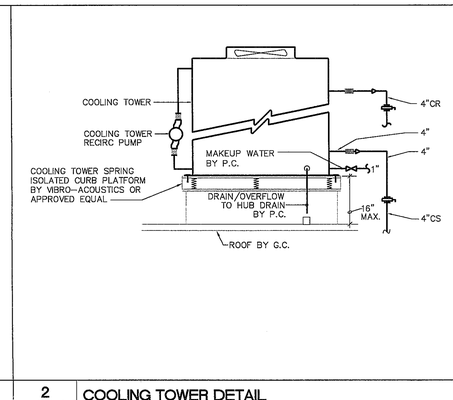

| 5 | PIPE PENETRATION DETAILS |
|---|---|
| M-704 | SCALE: NONE |



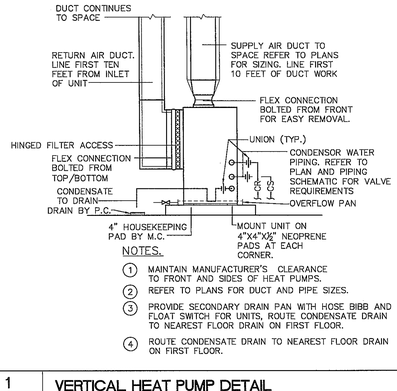

| 4 | HEAT PUMP DETAIL |
|---|---|
| M-704 | SCALE: NONE |




| 3 | ROOFTOP UNIT AND ERV DETAIL |
|---|---|
| M-704 | SCALE: NONE |




| 2 | COOLING TOWER DETAIL |
|---|---|
| M-704 | SCALE: NONE |




NOTES.

1. MAINTAIN MANUFACTURER'S CLEARANCE TO FRONT AND SIDES OF HEAT PUMPS.
2. REFER TO PLANS FOR DUCT AND PIPE SIZES.
3. PROVIDE SECONDARY DRAIN PAN WITH HOSE BIBB AND FLOAT SWITCH FOR UNITS, ROUTE CONDENSATE DRAIN TO NEAREST FLOOR DRAIN ON FIRST FLOOR.
4. ROUTE CONDENSATE DRAIN TO NEAREST FLOOR DRAIN ON FIRST FLOOR.

| 1 | VERTICAL HEAT PUMP DETAIL |
|---|---|
| M-704 | SCALE: NONE |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M&L Project No. 211.026

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Drawn

Checked

Date January 31, 2014

Revisions


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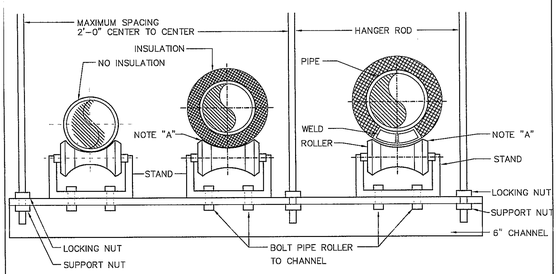
**FAST Multi-Modal Center**
City of Fayetteville
Fayetteville, NC

Project Number 621A

Title
**Mechanical Details**

Sheet
# M704

Plate of

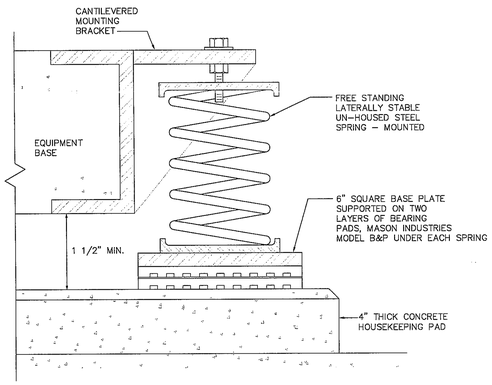



| HANGER ROD SPACING | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| PIPE SIZE | 1" | 1 1/4" | 1 1/2" | 2" | 2 1/2" | 3" | 4" | 5" | 6" | 8" | 10" | 12" |
| MAX. ALLOWABLE SPACING | 8 FT | 8 FT | 10 FT | 10 FT | 12 FT | 12 FT | 12 FT | 12 FT | 12 FT | 12 FT | 12 FT | 12 FT |

NOTE: FOR TRAPEZE HANGER TAKE SPACING OF SMALLEST PIPE ON TRAPEZE.

NOTE "A" PROVIDE INSULATION PROTECTION – SEE SPECIFICATIONS.

**7 M-705** TRAPEZE HANGER DETAIL
SCALE: NONE




**8 M-705** VIBRATION ISOLATION DETAIL
SCALE: NONE

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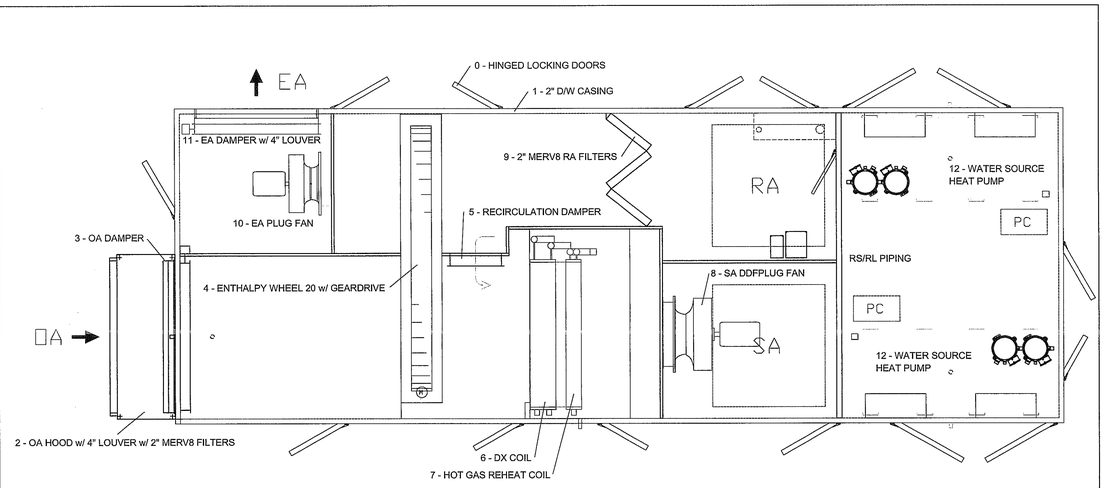
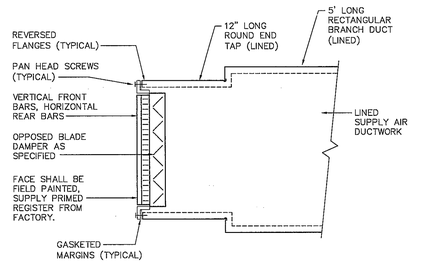



**1 M-705** ERV SCHEMATIC LAYOUT
SCALE: NONE




**2 M-705** SUPPLY AIR SIDEWALL REGISTER DETAIL
SCALE: NONE

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**4 M-705** SMACNA TYPICAL DUCT FABRICATION DETAILS
SCALE: NONE

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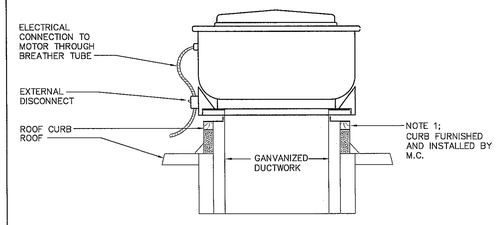
**5 M-705** FLEXIBLE CONNECTIONS AT FAN
SCALE: NONE




NOTES:

1. SECURE FAN TO CURB PER SEISMIC/WIND REQUIREMENTS.
2. MECHANICAL & GENERAL CONTRACTORS SHALL VERIFY AND COORDINATE ROOF OPENINGS WITH SUBMITTED ITEMS PRIOR TO INSTALLATION.
3. FAN TO BE UL APPROVED AND PROVIDED WITH BIRDSCREEN.
4. FOR ROOF CONSTRUCTION, SEE ARCHITECTURAL DRAWINGS.
5. ENTIRE INSTALLATION SHALL MEET NFPA, STATE AND LOCAL CODE REQUIREMENTS.

**3 M-705** UPBLAST ROOFTOP EXHAUSTER
SCALE: NONE

**9 M-705** OFFSETS AND TRANSITIONS
SCALE: NONE

**6 M-705** TYPICAL FLOW METER PIPING AND WIRING DETAIL
SCALE: NONE

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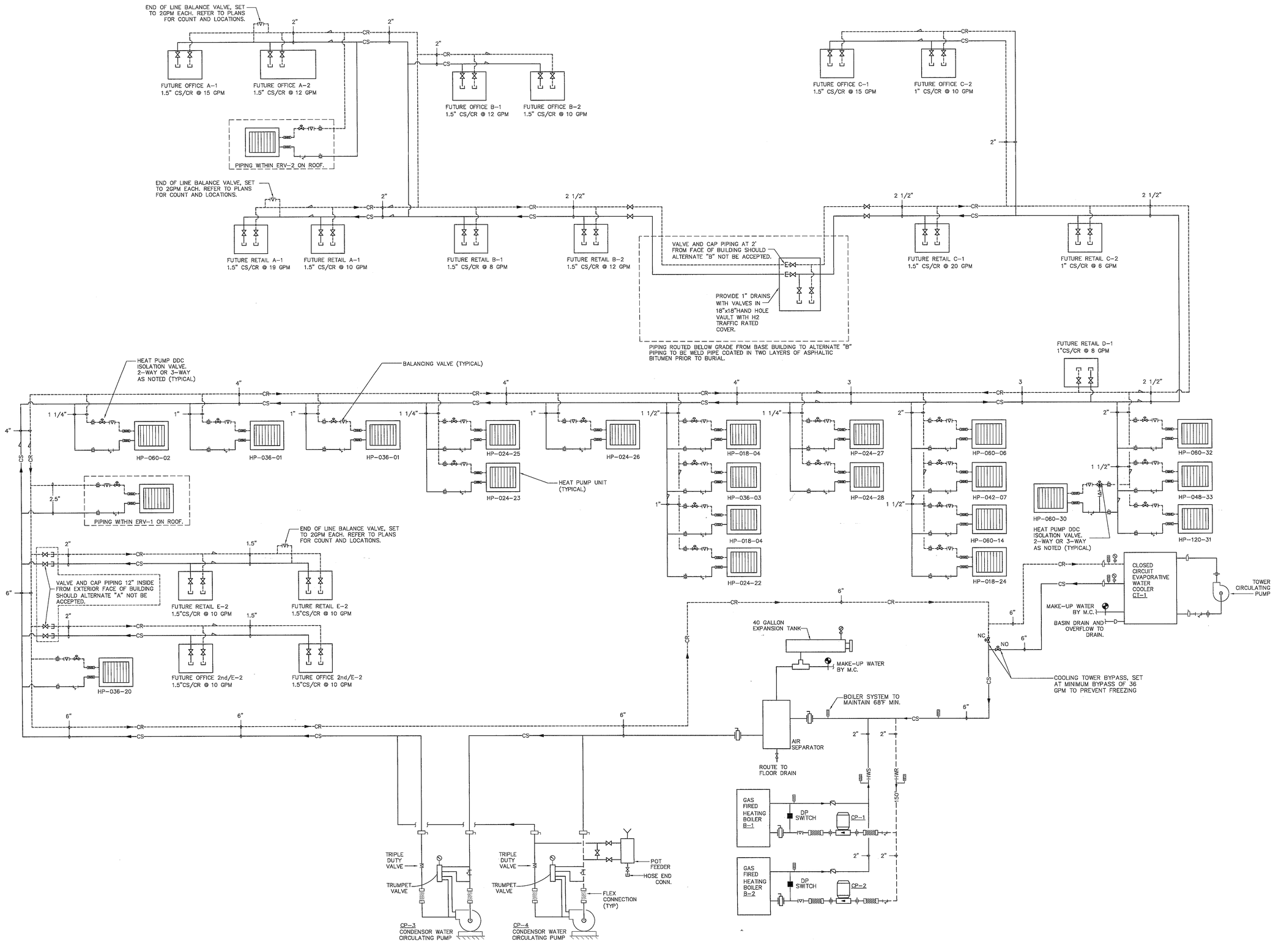
**FAST Multi-Modal Center**
City of Fayetteville
Fayetteville, NC

Project Number 621A

Title
**Mechanical Details**

Sheet
**M705**

Plate of




1 M801 CONDENSER WATER FLOW DIAGRAM

NOT TO SCALE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# FAST Multi-Modal Center

City of Fayetteville
Fayetteville, NC

Project Number 621A

Title
## Schematic Piping Diagram

Sheet
# M801

Plate of

## ELECTRICAL SUMMARY

ELECTRICAL SYSTEM AND EQUIPMENT

METHOD OF COMPLIANCE:
PRESCRIPTIVE ■ PERFORMANCE □ ENERGY COST BUDGET □

LIGHTING SCHEDULE
LAMP TYPE REQUIRED IN FIXTURE
NUMBER OF LAMPS IN FIXTURE
BALLAST TYPE USED IN FIXTURE
NUMBER OF BALLASTS IN FIXTURE
} SEE LIGHTING FIXTURE SCHEDULE
TOTAL WATTAGE PER FIXTURE
TOTAL INTERIOR WATTAGE SPECIFIED VS ALLOWED:
26.7 KVA vs 48.6 KVA
TOTAL EXTERIOR WATTAGE:
18.3 KVA vs 19.2 KVA

EQUIPMENT SCHEDULES WITH MOTORS (NOT USED FOR MECHANICAL SYSTEMS)
MOTOR HORSEPOWER
NUMBER OF PHASES
MINIMUM EFFICIENCY
MOTOR TYPE
# OF POLES
} NOT APPLICABLE

## TYPICAL PANEL DIAGRAM

BRANCH CIRCUIT WIRE COLOR

| 277/480 | 120/208 OR 120/240 | POLE NUMBER | | 120/208 OR 120/240 | 277/480 |
|---|---|---|---|---|---|
| BROWN | BLACK | 1 | 2 | BLACK | BROWN |
| ORANGE | RED | 3 | 4 | RED | ORANGE |
| YELLOW | BLUE | 5 | 6 | BLUE | YELLOW |
| BROWN | BLACK | 7 | 8 | BLACK | BROWN |
| ORANGE | RED | 9 | 10 | RED | ORANGE |
| YELLOW | BLUE | 11 | 12 | BLUE | YELLOW |
| | | ETC. | ETC. | | |

NEUTRAL

120/240 OR 120/208 VOLTS – WHITE

277/480 VOLTS – WHITE WITH IDENTIFIABLE COLOR STRIPE (NOT GREEN). IF NOT AVAILABLE AT TIME OF INSTALLATION, CLEAR USE OF GRAY WITH ELECTRICAL INSPECTOR.

GROUND WIRE SHALL BE GREEN FOR ALL VOLTAGES.

## CIRCUITING LEGEND

HOMERUNS TO PANELBOARDS ARE SHOWN AS POLES RATHER THAN CIRCUITS. SIMILARLY, PANEL SCHEDULES LIST POLES RATHER THAN CIRCUITS, BUT INDICATE WHICH POLES ARE COMMON TRIP FORMING TWO AND THREE POLE CIRCUITS. HOMERUN DESIGNATIONS INDICATE PANELBOARD AND POLES TO WHICH PHASE WIRES ARE TO BE CONNECTED. NUMBER OF ARROWS INDICATE NUMBER OF CIRCUITS INVOLVED. CROSS HATCHES, SHOWN ONLY WHEN THE NUMBER OF POLES EXCEEDS THE NUMBER OF CIRCUITS, INDICATE THE NUMBER OF WIRES. FOR EXAMPLE:

| SYMBOL | NO. OF POLES | CIRCUITS | PHASE WIRES | NEUTRAL |
|---|---|---|---|---|
| ——→ LP–1 | 1 | 1 | 1 | 1 |
| ——→ LP–1, 3 | 2 | 1 | 2 | 0 |
| ——→ LP–1, 3 | 2 | 1 | 2 | 1 |
| ——→ LP–1, 3, 5 | 3 | 1 | 3 | 0 |
| ——→ LP–1, 3, 5 | 3 | 1 | 3 | 1 |
| ——→ LP–5, 7 | 2 | 2 | 2 | 2 |
| ——→ LP–5, 7, 9 | 3 | 3 | 3 | 3 |

FEEDERS:

NO. ( ) INDICATES QUANTITY OF CONDUITS AND CONDUCTORS IN PARALLEL. SEE NEC 250.102, 250.122, 300.20 AND 310.4 FOR SPECIAL REQUIREMENTS. EXAMPLE: 3(3 #3/0, 1 #1/0 N, 1 1G, 2 1/2"C) REQUIRES THREE 2 1/2" CONDUITS EACH HAVING THREE NO. 3/0 PHASE CONDUCTORS, ONE NO. 1/0 NEUTRAL CONDUCTOR AND ONE NO. 1 GROUNDING CONDUCTOR.

EQUIPMENT GROUNDING CONDUCTORS:

EQUIPMENT GROUNDING CONDUCTORS ARE GENERALLY NOT SHOWN ON CIRCUITING PLANS BUT SHALL BE PROVIDED IN THE SIZES AS SCHEDULED ON N.E.C. TABLE 250–122 ON ALL CIRCUITS.

## ELECTRICAL SYMBOL SCHEDULE

| SYMBOL | DESCRIPTION |
|---|---|
| | CONDUIT RUN CONCEALED IN WALL OR ABOVE CEILING. RUN CONDUIT EXPOSED IN UNFINISHED AREAS. RUN CONDUIT CONCEALED WITHIN WALLS, INCLUDING MASONRY WALLS, TO MAXIMUM EXTENT FEASIBLE. RUN CONDUIT PARALLEL AND PERPENDICULAR TO WALL OR STRUCTURE. IT IS NOT PERMITTED TO RUN CONDUIT IN OVERHEAD SLABS ON DECK. RUN CONDUIT CONCEALED UNDERGROUND AND UNDER SLAB OR GRADE FOR EXTERIOR CONDUITS. |
| | IF SHOWN, CROSS LINES INDICATE NUMBER OF CURRENT CARRYING CONDUCTORS. EQUIPMENT GROUNDING CONDUCTORS ARE GENERALLY NOT INCLUDED IN THE QUANTITY INDICATED. |
| #, 2 | CONDUIT STUB–OUT BELOW GRADE AND CAP. MARK EXACT LOCATION ON RECORD DRAWINGS. |
| 2 | CONDUIT STUB–OUT ABOVE ACCESSIBLE CEILING AND TERMINATE WITH BUSHING. |
| G | INDICATES BURIED LIGHTING PROTECTION GROUNDING CABLE LOOP PER SECTION 264100 OF SPECIFICATIONS. |
| | HOME RUN TO PANEL – WITH PANEL AND CIRCUIT DESIGNATION. |
| | INDICATES TWO OUTLETS ON SAME CIRCUIT BUT CONTROLLED FROM DIFFERENT SWITCHES. |
| | CONDUIT TURNING UP. |
| | CONDUIT TURNING DOWN. |
| | CONDUIT STUB–IN WITH CONNECTION TO EQUIPMENT |
| J OR PB | JUNCTION OR PULL BOX. SIZE PER N.E.C. |
| J | JUNCTION BOX AND CONNECTION TO EQUIPMENT. |
| J | JUNCTION BOX SIZED PER N.E.C. WITH FLEXIBLE METALLIC CONDUIT CONNECTIONS TO FIXTURES AS SHOWN, 6 FOOT LENGTH MAXIMUM. |
| | FLUORESCENT FIXTURE, CEILING, WALL OR RECESS MOUNTED AS SCHEDULED DRAWN APPROXIMATELY TO SCALE |
| | CEILING OUTLET – INCANDESCENT, COMPACT FLUORESCENT, OR HID FIXTURE AS SCHEDULED. |
| | WALL OUTLET – INCANDESCENT, COMPACT FLUORESCENT, OR HID FIXTURE AS SCHEDULED. |
| EM | FLUORESCENT FIXTURE ON EMERGENCY CIRCUIT, LIFE SAFETY BRANCH. |
| EM | INCANDESCENT, COMPACT FLUORESCENT, OR HID FIXTURE ON EMERGENCY CIRCUIT, LIFE SAFETY BRANCH. |
| | DIRECTIONAL LIGHTING FIXTURE AS SCHEDULED, ARROW INDICATES DIRECTION OF MAIN BEAM. |
| | EXIT LIGHT – CEILING MOUNTED, SINGLE FACE WITH DIRECTIONAL ARROWS AS SHOWN ON DRAWINGS. SHADED QUADRANT INDICATES FACE. |
| | EXIT LIGHT – CEILING MOUNTED, DOUBLE FACE WITH DIRECTIONAL ARROWS AS SHOWN ON DRAWINGS. |
| | EXIT LIGHT – WALL MOUNTED, SURFACE OR RECESSED AS SCHEDULED WITH DIRECTIONAL ARROWS AS SHOWN ON DRAWINGS. |
| | EXIT LIGHT – END WALL MOUNTED, SINGLE FACE WITH DIRECTIONAL ARROWS AS SHOWN ON DRAWINGS. |
| | EXIT LIGHT – END WALL MOUNTED, DOUBLE FACE WITH DIRECTIONAL ARROWS AS SHOWN ON DRAWINGS. |
| | POST–TOP AREA LIGHT FIXTURE. PROVIDE RECESSED CONCRETE BASE. |
| S | SINGLE POLE SWITCH – 20A, 120–277V. MOUNT 48" AFF TO TOP AND 2" FROM STRIKE SIDE OF DOOR FRAME. |
| $S_3$ | THREE WAY SWITCH – 20A, 120–277V MOUNT 48" AFF AND 2" FROM STRIKE SIDE OF DOOR FRAME. |
| $S_4$ | FOUR WAY SWITCH – 20A, 120–277V MOUNT 48" AFF AND 2" FROM STRIKE SIDE OF DOOR FRAME. |
| $S_T$ | TIMED SWITCH WITH CONTACTS NORMALLY OPEN – 0–60 MINUTE CLOSED – CONTACTS INTERVAL. |
| $S_P$ | SWITCH WITH PILOT LIGHT – 20A, MOUNT 48" AFF. |
| $S_a$ | SWITCH – LOWER CASE SUBSCRIPTS DESIGNATE OUTLETS CONTROLLED. |
| $S_{S3}$ OR $S_S$ | WHEN TWO SWITCHES SIDE BY SIDE ARE SHOWN IN A ROOM, CONNECT APPROXIMATELY 1/2 OF THE FIXTURES, IN CHECKERBOARD PATTERN, TO ONE SWITCH AND THE OTHER 1/2 OF THE FIXTURES TO ANOTHER SWITCH TO ACCOMPLISH 50%/100% LIGHTING LEVEL CONTROL. |
| | DIMMER WITH ON –OFF SWITCH – RATING IN WATTS AS REQUIRED BY CIRCUIT LOADING, BUT NOT LESS THAN 1000 WATTS. PROVIDE DIMMER THAT IS COMPATIBLE WITH THE TYPE OF LAMP CONTROLLED. MOUNT 48" AFF TO TOP. |
| | BRANCH CIRCUIT OR DISTRIBUTION PANELBOARD, AS INDICATED |
| | CONTROL PANEL |
| | TELEPHONE OR DATA BACKBOARD |
| | CONVENIENCE RECEPTACLE – MOUNT 18" AFF. NEMA 5–20R, DUPLEX |
| | CONVENIENCE RECEPTACLE – MOUNT HORIZONTALLY 43.5" AFF FROM CENTER OR 3.5" ABOVE BACKSPLASH, OR AS OTHERWISE NOTED, OTHERWISE SAME AS " ". |
| EWC | FLUSH–IN–WALL OUTLET AND POWER CONNECTION FOR ELECTRIC WATER COOLER. PROVIDE GROUND FAULT PROTECTION. |
| | TWO NEMA 5–20R RECEPTACLES. MOUNT 18" AFF. |
| C | SIMILAR TO " " EXCEPT MOUNT IN ARCHITECTURAL CASEWORK. COORDINATE LOCATION AND MOUNTING HEIGHT WITH ARCHITECTURAL CASEWORK. |
| P | SIMILAR TO " " EXCEPT MOUNT FLUSH IN CEILING FOR PROJECTOR. COORDINATE EXACT LOCATION WITH PROJECTOR INSTALLER. COLOR OF RECEPTACLE AND COVER PLATE TO MATCH CEILING COLOR. |
| WM | SURFACE MOUNTED RACEWAY WITH INDIVIDUALLY SWITCHED NEMA 5–20R SINGLE RECEPTACLES, AS INDICATED BY DARKENED SQUARES. BRUSHED ALUMINUM FINISH. REFER TO SECTION 260553. |
| FA | FLOOR BOX WITH POWER, DATA AND AUDIO–VISUAL WIRING CAPABILITIES. WIREMOLD EVOLUTION SERIES, WITH CONDUIT(S) AS INDICATED ON FLOOR PLANS. SEE SPECIFICATION SECTION 260541. |
| | COMBINATION DATA/TELEPHONE OUTLET – MOUNT HORIZONTALLY 43.5" AFF FROM CENTER, OR 3.5" ABOVE BACKSPLASH, AS APPLICABLE. GENERAL NOTES 1, 2 AND 3. |
| | COMBINATION DATA/TELEPHONE OUTLET – 18" AFF. GENERAL NOTES 1, 2 AND 3. |
| EL | ELEVATOR SERVICE TELEPHONE OUTLET. MOUNT AS DIRECTED BY ELEVATOR INSTALLER. – PROVIDE TWO VOICE JACKS – GENERAL NOTES 1, 2 AND 3. |
| B | BLANK TELECOM OUTLET WITH BLANK COVERPLATE FOR FUTURE USE. MOUNT 18" AFF. GENERAL NOTES 1, 2 AND 3. |
| C | SIMILAR TO " " EXCEPT MOUNT IN ARCHITECTURAL CASEWORK. COORDINATE LOCATION AND MOUNTING HEIGHT WITH ARCHITECTURAL CASEWORK. |
| P | SIMILAR TO " " EXCEPT MOUNT FLUSH IN CEILING FOR PROJECTOR. COORDINATE EXACT LOCATION WITH PROJECTOR INSTALLER. COLOR OF JACK AND COVER PLATE TO MATCH CEILING COLOR. |
| OS | INDICATES ROOM TO BE PROVIDED WITH OCCUPANCY SENSOR. GENERAL NOTE 6. |
| CR | INDICATES PROVISIONS FOR CARD/PROX. READER. SEE DETAIL 2 ON SHEET E002. PROVIDE AS PART OF ACCESS CONTROL SYSTEM. |
| H | HANDICAP DOOR OPERATOR PUSHBUTTON. PROVIDE SINGLE–GANG BOX FLUSH IN WALL @ 48" AFF TO TOP. PUSHBUTTON AND WIRING BY DIVISION 8 (DOOR HARDWARE) INSTALLER. |
| SPD | SURGE PROTECTION DEVICE. REFER TO SECTION 264300 (TVSS) |
| PE | PHOTOELECTRIC SWITCH – MOUNT ON ROOF UNLESS OTHERWISE NOTED. 2000 WATTS, 120 OR 277 VOLTS RATING AS APPLICABLE. SEE SHEET E6.01 FOR APPLICATION. |
| M | 115 OR 230 VOLT, 1 PHASE MOTOR. |
| M | 208 OR 230 VOLT, 3 PHASE MOTOR – NUMERAL INDICATES HORSEPOWER. |
| HD | FLUSH–IN–WALL OUTLET AND POWER CONNECTION FOR ELECTRIC HAND DRYER. INSTALL AT 48" AFF TO CENTER OF OUTLET. |
| TV | INDICATES POWER AND SIGNAL WALL OUTLETS FOR TV MONITOR WITH 1"C TO ABOVE ACCESSIBLE CEILING. COORDINATE MOUNTING HEIGHT WITH OWNER PRIOR TO ROUGH–IN. |
| TGB | TELECOMMUNICATIONS GROUND BAR MOUNTED ON BACKBOARD. SEE DETAIL ON SHEET E002. |
| PM | INDICATES FEEDER SHALL BE POWER METERED AND METER SHALL BE INTEGRATED WITH BAS. |
| T | INDICATES 120–12V TRANSFORMER FOR LOW–VOLTAGE LIGHTING. INSTALL ABOVE ACCESSIBEL CEILING. PROVIDE LOW VOLTAGE WIRING FROM TRANSFORMER TO LIGHTING FIXTURE AS RECOMMENDED BY MANUFACTURER. |
| B | REMOTE BATTERY PACK FOR 90 MINUTE EMERGENCY LIHGTING. LOCATE ABOVE ACCESSIBLE CEILING |
| RAI | RESCUE ASSISTANCE INTERCOM. SEE DIAGRAM ON THIS SHEET AND SPEC SECTION 285501. |
| RAMI | RESCUE ASSISTANCE MASTER STATION. SEE DIAGRAM ON THIS SHEET AND SPEC. SECTION 285501. |
| GRA | GENERATOR REMOTE ANNUNCIATOR. |
| P | FLUSH–IN–WALL OUTLET AND POWER CONNECTION TO MODULAR FURNITURE. PROVIDE LIQUID–TIGHT FLEXIBLE METALLIC CONDUIT FROM J–BOX TO FURNITURE. |
| T | FLUSH–IN–WALL OUTLET FOR DATA CABLING CONNECTION TO MODULAR FURNITURE. |
| PT | FIRE–RATED POKE–THROUGH DEVICE WITH POWER, DATA AND AV CAPABILITIES. WIREMOLD 8AT "EVOLUTION" SERIES. |

| SYMBOL | DESCRIPTION |
|---|---|
| | NONFUSIBLE DISCONNECT SWITCH. SIZE IN AMPERES AS SHOWN. OTHERWISE HORSEPOWER RATED TO MATCH OR EXCEED MOTOR. GENERAL NOTE 8. |
| | FUSIBLE DISCONNECT SWITCH, OTHERWISE SAME AS " ". |
| | ENCLOSED CIRCUIT BREAKER. SIZE AS NOTED. |
| | MAGNETIC STARTER FVNR, UNLESS OTHERWISE NOTED. |
| | COMBINATION MAGNETIC STARTER WITH CIRCUIT BREAKER. |
| | COMBINATION MAGNETIC STARTER WITH NONFUSIBLE DISCONNECT. |
| 10 | COMBINATION MAGNETIC STARTER WITH FUSED DISCONNECT. NUMERAL INDICATES AMPACITY OF RK–5 FUSES. |
| $S_m$ | MANUAL MOTOR STARTER. |
| | GROUNDING ELECTRODE SYSTEM AS REQUIRED BY ARTICLE 250 OF NEC AND DIVISION 26 SPECS. THE ELECTRODES THAT MAKE UP THE SYSTEM ARE:<br>– MAIN METALLIC WATER PIPE<br>– STEEL STRUCTURE<br>– STEEL REBAR<br>– MADE GROUNDING ELECTRODE<br>CONNECT TO THESE ELECTRODES UTILIZING CONDUCTORS SIZE AS NOTED IN ACCORDANCE WITH REQUIREMENTS OF NEC AND AS REQUIRED BY DIVISION 26 SPECIFICATION. |
| GR | GROUND ROD – 10'x3/4" |
| FATC | FIE ALARM TERMINAL WIRING CABINET |
| F | FIRE ALARM MANUAL STATION–MOUNT 46" AFF TO TOP CEILING MOUNTED SMOKE DETECTOR |
| F 15cd | FIRE ALARM SYSTEM STROBE DEVICE. NUMERAL INDICATES CALDELA RATING. |
| F 15cd | FIRE ALARM COMBINATION ADA HORN/STROBE. MOUNT FROM 6'–8" AFF (BOTTOM OF APPLIANCE) TO 8'–0" AFF (TOP OF APPLIANCE). NUMERAL INDICATES CANDELA RATING. |
| F 15cd | CEILING MOUNTED FIRE ALARM STROBE. NUMERAL INDICATES CANDELA RATING. |
| F 15cd H | CEILING MOUNTED FIRE ALARM HORN/STROBE. NUMERAL INDICATES CANDELA RATING. |
| TS | SPRINKLER SYSTEM TAMPER SWITCH |
| FS | SPRINKLER SYSTEM FLOW SWITCH |
| S | CEILING MOUNTED SMOKE DETECTOR |
| $S_D$ | DUCT MOUNTED SMOKE DETECTOR |
| H | CEILING MOUNTED FIRE ALARM HEAT DETECTOR |
| RIS$ | FIRE ALARM SYSTEM DUCT SMOKE DETECTOR REMOTE ALARM INDICATOR LAMP/TEST SWITCH. |
| FAA | FIRE ALARM SYSTEM REMOTE ANNUNCIATOR PANEL. FLUSH MOUNT IN WALL. |
| FAC | FIRE ALARM CONTROL PANEL |
| ZAM | FIRE ALARM SYSTEM ZONE ACTIVATION MODULE. |
| A | INDICATES ACCESS CONTROLLED DOOR WITH CARD READER. REFER TO DETAIL 2 ON SHEET E002. |
| B | INDICATES MONITORED DOOR WITH DOOR POSITION SWITCH. REFER TO DETAILS 3 AND 4 ON E002. |
| J AV | SINGLE GAUG OUTLET BOX INSTALLED FLUSH IN CEILING WITH BLANK COVER PLATE. PROVIDE CONDUIT(S) AS INDICATED ON FLOOR PLAN. |
| J PT | FIRE RATED POKE–THROUGH DEVICE. WIREMOLD EVOLUTION SERIES WITH POWER, DATA, AND AUDIO–VISUAL WIRING CAPABILITIES. SEE SPECIFICATION SECTION 260541. |

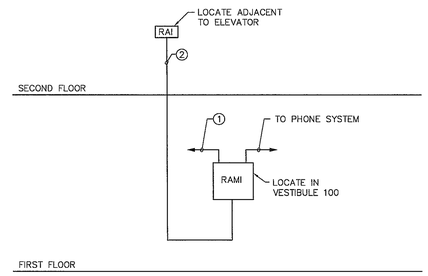
| SYMBOL | DESCRIPTION |
|---|---|
| A | AMPERE |
| AFC | AVAILABLE FAULT CURRENT |
| AFF | ABOVE FINISHED FLOOR – MEASURED FROM FLOOR TO CENTER OF DEVICE, EXCEPT AS OTHERWISE SPECIFICALLY NOTED. |
| ADA | AMERICANS WITH DISABILITIES ACT OF 1990 |
| ATS | AUTOMATIC TRANSFER SWITCH |
| AR | AS REQUIRED |
| AV | AUDIO VISUAL |
| BAS | BUILDING AUTOMATION SYSTEM |
| C | CONDUIT |
| C–FVNR | COMBINATION FVNR AND FUSED SWITCH |
| C–RVNR | COMBINATION RVNR AND FUSED SWITCH OR CIRCUIT BREAKER, AS INDICATED |
| ELC | EXTERIOR LIGHTING CONTROL CONTACTOR (OR CONTACTORS). PROVIDE WITH ONE POLE PER CONTROLLED CIRCUIT PLUS ONE SPARE POLE. |
| ELC–LS | SIMILAR TO 'ELC' EXCEPT FOR USE WITH EMERGENCY LIGHTING. |
| F | FUSE OR FAHRENHEIT, AS APPLICABLE. |
| FCU | FAN COIL UNIT |
| FPN | FUSE PER NAMEPLATE REQUIREMENTS |
| FVNR | FULL VOLTAGE NON–REVERSIBLE MAGNETIC MOTOR STARTER |
| G | GROUND OR GROUNDING |
| GF | INDICATES RECEPTACLE TO HAVE GROUND FAULT PROTECTION. GENERALLY PROTECTION IS PROVIDED BY GFI TYPE BREAKER (REQUIRES SEPARATE NEUTRAL PER 120V CIRCUIT). PROVIDE GF RECEPTACLE IF A GFI BREAKER IS NOT SCHEDULED FOR THE CIRCUIT FEEDING DEVICE. |
| MCB | MAIN CIRCUIT BREAKER |
| MLO | MAIN LUGS ONLY |
| MCM | Kcmil (THOUSAND CIRCULAR MILS) |
| MOP | MAXIMUM OVERCURRENT PROTECTION |
| NEC | NATIONAL ELECTRICAL CODE |
| MTS | MANUAL POWER TRANSFER SWITCH |
| N | NEUTRAL OR NORMAL, AS APPLICABLE. |
| NC | NORMALLY CLOSED |
| NO | NORMALLY OPEN |
| P | POLE |
| PH | PHASE |
| RVNR | REDUCED VOLTAGE AUTOTRANSFORMER CLOSED – TRANSITION MAGNETIC STARTER |
| S.C. RATING | BUS BRACE RATING AND SHORT CIRCUIT INTERRUPTING RATING OF BREAKERS WITHIN EQUIPMENT. |
| SO | SPACE ONLY (WITH PROVISIONS FOR FUTURE OVERCURRENT PROTECTIVE DEVICE) |
| SP | INDICATES RECEPTACLE TO HAVE SURGE PROTECTION |
| VFD OR VSD | VARIABLE SPEED DRIVE CONTROLLER |
| UH | UNIT HEATER |
| WP | INDICATES DEVICE TO HAVE WEATHERPROOF COVER |

## GENERAL NOTES:

1. TYPICAL TELECOM OUTLET SHALL BE PROVIDED WITH 4–INCH SQUARE OR TWO–GANG, AS APPLICABLE, DEEP OUTLET BOX WITH TWO–GANG PLASTER RING, READY FOR THE INSTALLATION OF TWO–GANG PLATE.
2. EACH TELECOM OUTLET SHALL BE PROVIDED WITH 1–INCH CONDUIT TERMINATED AT THE TELECOM (IDF) ROOM ON SAME FLOOR, EXCEPT WHERE LARGER CONDUITS ARE REQUIRED AS NOTED ON PLANS, AND AS NOTED OTHERWISE PER GENERAL NOTE 3 FOR SINGLE VOICE JACK OUTLETS. PROVIDE PULL CORD AND BUSHING ON EACH CONDUIT AT BOTH ENDS. CONTRACTOR SHALL PROVIDE CONDUIT AS STATED HERE FOR EACH OUTLET SHOWN, WHETHER THE CONDUIT IS SHOWN ON THE DRAWINGS OR NOT.
3. FOR ELEVATOR SERVICE, PAY TELEPHONE AND WALL TELEPHONE OUTLETS PROVIDE ONE DOUBLE GANG BACK BOX WITH A SINGLE GANG PLASTER RING, AND PROVIDE CONDUIT AS SPECIFIED IN NOTE 2 ABOVE, EXCEPT USE 3/4–INCH SIZE INSTEAD OF 1–INCH. ELEVATOR SERVICE SHALL HAVE 3/4"C TO THE ELEVATOR CONTROL EQUIPMENT CABINET.
4. IN ROOM OR SPACES INDICATED WITH SYMBOL " (OS) ", PROVIDE QUANTITY OF DETECTORS AS REQUIRED TO PROVIDE COMPLETE COVERAGE. LOCATE DETECTORS AS DIRECTED BY MANUFACTURER.
5. BIDDER SHALL VERIFY THE EXACT SCOPE OF ELECTRICAL WORK WITH CONSTRUCTION MANAGER PRIOR TO SUBMITTING BID.
6. FOR MOTOR DISCONNECT SWITCHES LOCATED AT A MOTOR CONTROLLED BY A VFD, PROVIDE A NAMEPLATE SUITABLE FOR ENVIRONMENT WHERE LOCATED, TO READ "WARNING: OPENING SWITCH WHILE MOTOR IS RUNNING MAY RESULT IN VFD DAMAGE".

## ELECTRICAL SHEET LIST:


| | |
|---|---|
| E001 | Electrical Symbol Schedule and Notes |
| E002 | Power Riser Diagram |
| E003 | Lighting Fixture Schedule |
| E004 | Electrical Details |
| E005 | Fire Alarm Riser diagram and Details |
| E100 | Site Plan – Electrical |
| E101a | Level 1 – Multi Modal Center – Lighting |
| E101b | Level 1 – Tenant Spaces – Lighting, Power and Fire Alarm |
| E101c.1 | Bus Canopy Lighting – West |
| E101c.2 | Bus Canopy Lighting – East |
| E102a | Level 2 – Multi Modal Center – Lighting |
| E102b | Level 2 – Tenant Spaces – Lighting, Power and Fire Alarm |
| E201a | Level 1 – Multi Modal Center – Power and Fire Alarm |
| E201c.1 | Bus Canopy Power – West |
| E201c.2 | Bus Canopy Power – East |
| E202a | Level 2 – Multi Modal Center – Power and Fire Alarm |
| E401 | Electrical Roof Plan |
| E501 | Panelboard Schedules |
| E502 | Panelboard Schedules and Energy Code Certificates |


### 1 TWO–WAY RESCUE ASSISTANCE INTERCOM RISER DIAGRAM

NOT TO SCALE

## KEYED NOTES

1. 2 #12,1 #12 G, 1/2"C FOR 120V AC POWER FROM A DEDICATED BRANCH CIRCUIT IN PANEL 'GP'.
2. ONE 3/4"C FROM AREA STATION TO THE RELAY CARD CABINET, PROVIDE CONDUCTORS AS REQUIRED.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M&L Project No. 211.026

NORTH CAROLINA REGISTERED PROFESSIONAL SEAL 027409 ENGINEER JOHN C. CHAPMAN 5-4-14

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Checked

Date January 31, 2014

Revisions


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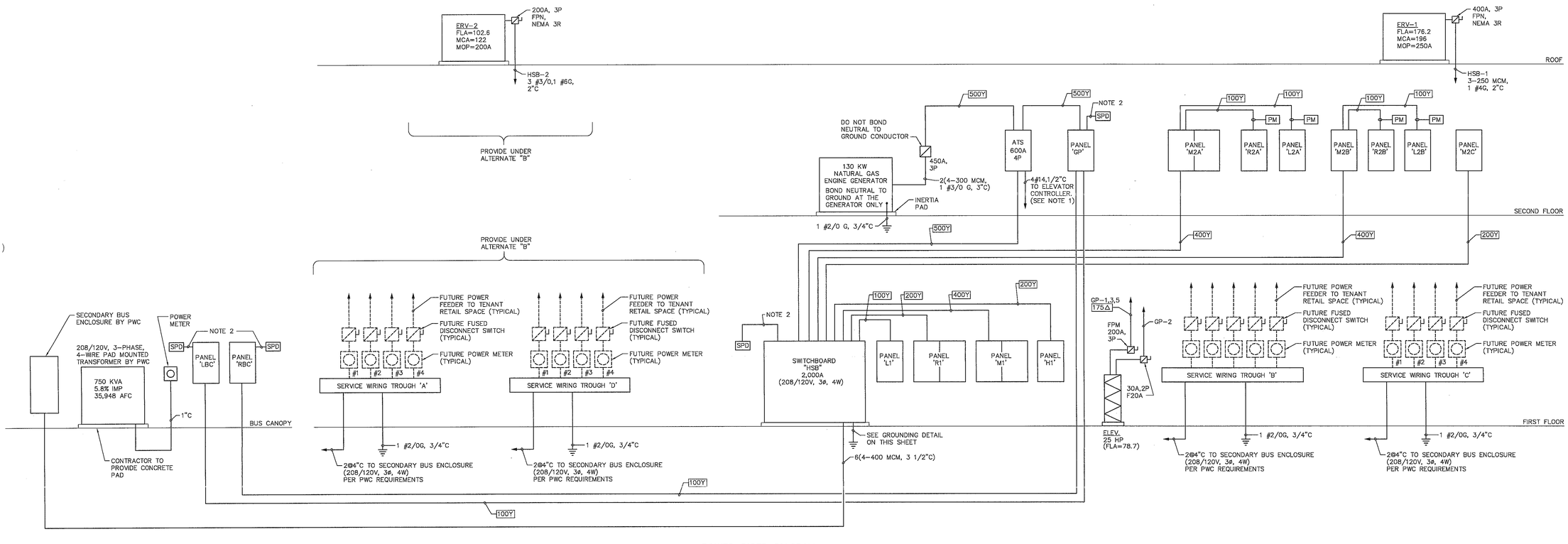
**FAST Multi-Modal Center**
City of Fayetteville
Fayetteville, NC

Project Number 621A

Title
**Electrical Symbol Schedule and Notes**

Sheet
# E001

Plate of




## 1 POWER RISER DIAGRAM

SCALE: NONE

NOTES:
1. PROVIDE WIRING AS INDICATED FROM ATS TO ELEVATOR CONTROLLER FOR NOTIFICATION OF ELEVATOR ON STANDBY POWER.
2. PROVIDE 5 #8, 3/4"C TO "SPD".
3. ALL EQUIPMENT INDICATED IS RATED 208/120V, 3-PHASE.
4. SERVICE WIRING TROUGHS SHALL BE 12"H x 12"D x LENGTH AS INDICATED ON PLANS.
5. LABEL ALL SERVICE EQUIPMENT WITH THE AVAILABLE FAULT CURRENT PER NEC 110.24. PRELIMINARY FAULT CURRENT IS 36,000A, LABEL PER COORDINATION STUDY.

## SWITCHBOARD HSB

SERVICE: 208/120V, 3-PH, 4W
BUSES: 2000 AMPERES
TYPE: CIRCUIT BREAKER
S.C. RATING: 65,000 AMPERES

NOTES:
1. SUITABLE FOR SERVICE ENTRANCE.
2. WITH EQUIPMENT GROUND BUS AND 100% NEUTRAL BUS.

| CONNECTED LOAD | | NEC CALCULATED DEMAND LOAD | |
|---|---|---|---|
| LIGHTING | 43.0 KVA | (125%) | 53.7 KVA |
| HEATING | 75.8 KVA | HEATING AND COOLING: | |
| A/C & HEAT PUMPS | 309.5 KVA | (100% - MINUS N/C LOAD) | 385.3 KVA |
| AIR HANDLING | 2.5 KVA | (100%) | 2.5 KVA |
| RECEPTACLES | 37.2 KVA | (1ST 10 KVA + 50% OF REM.) | 23.6 KVA |
| WATER HEATING | 59.6 KVA | (125%) | 74.5 KVA |
| ELEVATORS | 28.3 KVA | (100%) | 28.3 KVA |
| FOOD PROCESSING | 0.0 KVA | (100%) | 0.0 KVA |
| PROCESS | 0.0 KVA | (100%) | 0.0 KVA |
| MISCELLANEOUS | 47.5 KVA | (100%) | 47.5 KVA |
| | | 25% OF LARGEST MOTOR: | 0.0 KVA |
| TOTAL CONNECTED LOAD | 603.4 KVA | TOTAL NEC DEMAND LOAD: | 615.5 KVA |

DEMAND LOAD CURRENT: 1708.3 AMPS

| UNIT | LOAD SERVED | PROTECTION POLE | PROTECTION FRAME | PROTECTION TRIP | WIRE & CONDUIT | REMARKS | LOAD (KVA) PER PHASE A | B | C |
|---|---|---|---|---|---|---|---|---|---|
| M | MAIN BREAKER | 3 | 2,000 | 2,000 | . | . | 207.6 | 203.7 | 192.0 |
| 1 | ERV-1 | 3 | 250 | 250 | SEE FLOOR PLANS | . | 21.1 | 21.1 | 21.1 |
| 2 | ERV-2 | 3 | 250 | 200 | SEE FLOOR PLANS | . | 12.3 | 12.3 | 12.3 |
| 3 | PANEL 'M2A' | 3 | 400 | 400 | SEE POWER RISER DIAGRAM | . | 31.6 | 32.6 | 28.4 |
| 4 | PANEL 'M2B' | 3 | 400 | 400 | SEE POWER RISER DIAGRAM | . | 32.5 | 33.9 | 34.3 |
| 5 | PANEL 'GP' VIA ATS | 3 | 600 | 500 | SEE POWER RISER DIAGRAM | . | 30.5 | 28.9 | 27.3 |
| 6 | PANEL 'L1' | 3 | 100 | 100 | SEE POWER RISER DIAGRAM | . | 3.1 | 2.0 | 2.7 |
| 7 | PANEL 'R1' | 3 | 150 | 125 | SEE POWER RISER DIAGRAM | . | 11.5 | 11.4 | 10.1 |
| 8 | PANEL 'M1' | 3 | 400 | 400 | SEE POWER RISER DIAGRAM | . | 35.2 | 35.2 | 33.0 |
| 9 | PANEL 'M2C' | 3 | 250 | 200 | SEE POWER RISER DIAGRAM | . | 15.9 | 15.9 | 12.4 |
| 10 | PANEL 'H1' | 3 | 250 | 200 | SEE POWER RISER DIAGRAM | . | 14.0 | 10.5 | 10.5 |
| 11 | SPARE | 3 | 100 | 100 | . | . | 0.0 | 0.0 | 0.0 |
| 12 | SPACE ONLY | 3 | 100 | . | . | . | 0.0 | 0.0 | 0.0 |
| 13 | SPACE ONLY | 3 | 100 | . | . | . | 0.0 | 0.0 | 0.0 |
| 14 | SPACE ONLY | 3 | 100 | . | . | . | 0.0 | 0.0 | 0.0 |
| 15 | SPACE ONLY | 3 | 100 | . | . | . | 0.0 | 0.0 | 0.0 |
| 16 | SPACE ONLY | 3 | 100 | . | . | . | 0.0 | 0.0 | 0.0 |

## BRANCH CIRCUIT AND FEEDER SCHEDULE

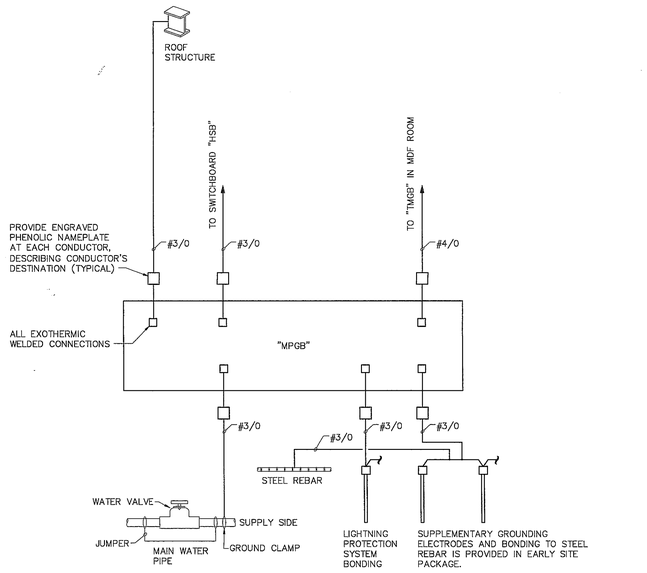
3-PHASE + NEUTRAL + GROUND

| SYMBOL | MINIMUM SIZE CONDUCTORS & CONDUIT |
|---|---|
| 100 Y | 4 #3, 1 #8 G, 1 1/4"C |
| 125 Y | 4 #1, 1 #6 G, 1 1/2"C |
| 200 Y | 4 #3/0, 1 #6 G, 2"C |
| 225 Y | 4 #4/0, 1 #4 G, 2 1/2"C |
| 400 Y | 4-500 MCM, 1 #2 G, 3 1/2"C |
| 500 Y | 2(4-250 MCM, 1 #2 G, 2 1/2"C) |

3-PHASE CIRCUITS (NO NEUTRAL) + GROUNDING

| SYMBOL | MINIMUM SIZE CONDUCTORS & CONDUIT |
|---|---|
| 175△ | 3 #2/0,1 #6 G, 1 1/2"C |

NOTE:
ALL CONDUCTORS ARE COPPER, THWN/THHN.




## 1 BUILDING MAIN POWER GROUNDING ELECTRODE BAR "MPGB" WIRING DETAIL

SCALE: NONE

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211.026

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Checked
Date January 31, 2014
Revisions

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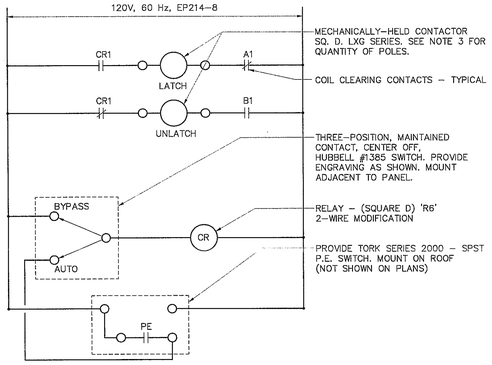
**FAST Multi-Modal Center**
City of Fayetteville
Fayetteville, NC

Project Number 621A

Title
**Power Riser Diagram**

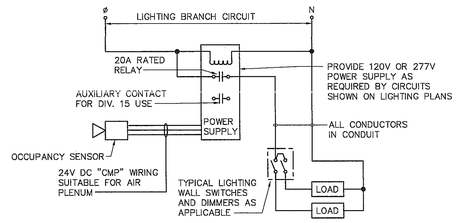
Sheet
# E002

Plate of




## TYPICAL CONTROL WIRING DIAGRAM - FOR OUTDOOR LIGHTING CONTACTORS 'ELC'

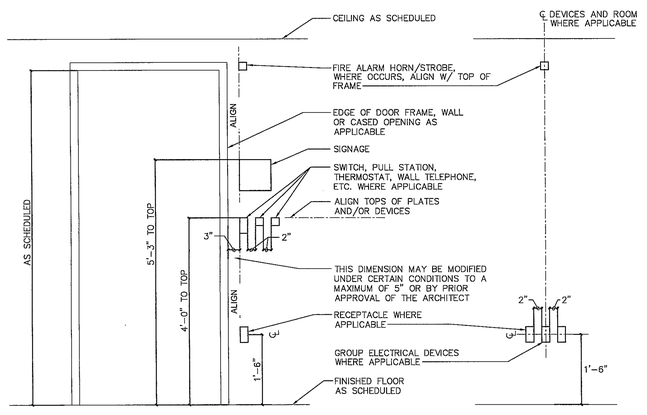
1 NOT TO SCALE




## TYPICAL ROOM AUTOMATIC OCCUPANCY SENSOR LIGHTING CONTROL WIRING DIAGRAM

2 NOT TO SCALE

NOTES:
1. USE DUAL TECHNOLOGY (INFARED/ULTRASONIC) SENSORS FOR LARGE ROOMS.
2. LOCATE OCCUPANCY SENSORS AS RECOMMENDED BY MANUFACTURER.
3. USE MULTIPLE SENSORS AND ADDITIONAL AUXILIARY RELAYS AND POWER SUPPLIES, AS REQUIRED BY ROOM SIZE AND CONFIGURATION.
4. PROVIDE ADDITIONAL SLAVE POWER PACKS TO CONTROL ADDITIONAL LIGHTING CIRCUITS IN SAME ROOM WHERE APPLICABLE.




## TYPICAL DEVICE LOCATIONS

3 NOT TO SCALE

NOTES:
1. SEE ELECTRICAL DRAWINGS FOR SPECIAL CONDITIONS (IE. RECEPTACLES ABOVE COUNTERS, ETC.)
2. ALL THERMOSTATS, SWITCHES, STROBES, HORNS AND OTHER DEVICES SHALL BE INSTALLED IN A NEAT AND ORDERLY FASHION, WITH EACH ITEM BEING PLUMB AND SQUARE.
3. FOR STROBES, HORNS, ETC. NOT ADJACENT TO DOORS, ALIGN VERTICALLY AS DIRECTED BY ARCHITECT.
4. DIMENSIONS SHOWN ARE TO FACE PLATES UNLESS NOTED OTHERWISE.

## LIGHTING FIXTURE SCHEDULE

| FIXTURE TYPE | MANUFACTURER & CATALOG INFORMATION | LAMPS QTY. | LAMPS TYPE | LAMPS WATTS | BALLAST QTY. | BALLAST TYPE | BALLAST WATTS | TOTAL WATTS | DESCRIPTION |
|---|---|---|---|---|---|---|---|---|---|
| A | WAC LIGHTING "SOLORAIL" WITH "GENESIS" PENDANTS | AR | LED | 9 PER HEAD | NA | NA | NA | PER PLANS | TRACK MOUNTED DECORATIVE MULTI-PENDANT FIXTURE. PROVIDE WITH ALL POWER FEEDS, CANOPIES, ADAPTERS, CABLE FEEDS AND 300 WATT TRANSFORMER FOR A COMPLETE INSTALLATION. PROVIDE NUMBER OF PENDANTS AND LENGTH OF SUSPENSION CABLES AS INDICATED ON ARCHITECTURAL PLANS, SHEET A602. |
| D1 | GOTHAM AFV-32TRT-4-AR-MVOLT<br>OMEGA<br>WILLIAMS | 1 | TRT | 32 | 1 | ELECTRONIC | 36 | 36 | RECESSED COMPACT FLUORESCENT DOWNLIGHT WITH CLEAR SEMI-SPECULAR ALZAK REFLECTOR AND NOMINAL 4-INCH APERTURE. |
| D1X | GOTHAM AFV-32TRT-4-AR-MVOLT-EL<br>OMEGA<br>WILLIAMS | 1 | TRT | 32 | 1 | ELECTRONIC | 36 | 36 | SIMILAR TO TYPE 'D1' EXCEPT WITH 90 MINUTE EMERGENCY BATTERY PACK AND INTEGRAL TEST SWITCH. |
| D2 | GOTHAM AFV-26TRT-4-A12-MVOLT<br>OMEGA<br>WILLIAMS | 1 | TRT | 26 | 1 | ELECTRONIC | 33 | 33 | RECESSED COMPACT FLUORESCENT DOWNLIGHT WITH CLEAR SEMI-SPECULAR ALZAK REFLECTOR AND NOMINAL 4-INCH APERTURE, WITH ACRYLIC PRISMATIC LENS. |
| D2X | GOTHAM AFV-26TRT-4-A12-MVOLT-EL<br>OMEGA<br>WILLIAMS | 1 | TRT | 26 | 1 | ELECTRONIC | 33 | 33 | SIMILAR TO TYPE 'D2' EXCEPT WITH 90 MINUTE EMERGENCY BATTERY PACK AND INTEGRAL TEST SWITCH. |
| D3 | GOTHAM AFV-26TRT-4-AR-MVOLT<br>OMEGA<br>WILLIAMS | 1 | TRT | 26 | 1 | ELECTRONIC | 33 | 33 | SIMILAR TO TYPE 'D2' EXCEPT WITHOUT LENS. |
| D3X | GOTHAM AFV-26TRT-4-AR-MVOLT-EL<br>OMEGA<br>WILLIAMS | 1 | TRT | 26 | 1 | ELECTRONIC | 33 | 33 | SIMILAR TO TYPE 'D3' EXCEPT WITH 90 MINUTE EMERGENCY BATTERY PACK AND INTEGRAL TEST SWITCH. |
| D5 | GOTHAM AFV-42TRT-6-AR-MVOLT<br>OMEGA<br>WILLIAMS | 1 | TRT | 42 | 1 | ELECTRONIC | 48 | 48 | SIMILAR TO TYPE 'D1' EXCEPT NOMINAL 6-INCH APERTURE AND 42 WATT LAMP. |
| D5X | GOTHAM AFV-42TRT-6-AR-MVOLT-EL<br>OMEGA<br>WILLIAMS | 1 | TRT | 42 | 1 | ELECTRONIC | 48 | 48 | SIMILAR TO TYPE 'D5' EXCEPT WITH 90 MINUTE EMERGENCY BATTERY PACK AND INTEGRAL TEST SWITCH. |
| EM1 | LITHONIA ELM2<br>EMERGI-LITE<br>CHLORIDE | 2 | INC | 5.4 | NA | NA | NA | 1.5 | TEMPORARY EMERGENCY BATTERY LIGHTING UNIT WITH TWO ADJUSTABLE LAMPHEADS. |
| EM2 | CONCEALITE F5 75 90 FMS | 2 | MR16 | 75 | NA | NA | NA | 23 | RECESSED EMERGENCY BATTERY LIGHTING UNIT WITH FRAMELESS MOUNTING SYSTEM. INSTALL IN HORIZONTAL GWB SOFFIT IN MAIN VESTIBULE. |
| EX1 | LITHONIA LQM-S-W-3-R-120/277<br>EMERGI-LITE<br>CHLORIDE | AR | LED | 1 | NA | NA | NA | 1 | THERMOPLASTIC LED EXIT SIGN WITH RED LETTERS AND 90 MINUTE EMERGENCY BATTERY PACK. |
| EX2 | LITHONIA LE-S-3-R-120/277<br>EMERGI-LITE<br>CHLORIDE | AR | LED | 1 | NA | NA | NA | 1 | CLEAR EDGE-LIT LED EXIT SIGN WITH RED LETTERS AND 90 MINUTE EMERGENCY BATTERY PACK. BRUSHED ALUMINUM TRIM. |
| F1 | LITHONIA C-2-32-MVOLT<br>DAYBRITE<br>WILLIAMS | 2 | T8 | 28 | 1 | ELECTRONIC | 52 | 52 | FLUORESCENT STRIP FIXTURE FOUR FEET IN LENGTH. |
| F1X | LITHONIA C-2-32-MVOLT-EL<br>DAYBRITE<br>WILLIAMS | 2 | T8 | 28 | 1 | ELECTRONIC | 52 | 52 | SIMILAR TO TYPE 'F1' EXCEPT WITH 90 MINUTE EMERGENCY BATTERY PACK. |
| F2 | LITHONIA 2EJ-2-32-MVOLT-GEB10IS<br>DAYBRITE<br>WILLIAMS | 2 | T8 | 28 | 1 | ELECTRONIC | 52 | 52 | FLUORESCENT INDUSTRIAL STRIP FIXTURE WITH STEEL HOUSING AND REFLECTOR. WHITE ENAMEL FINISH. |
| F3 | LITHONIA DMW-2-32-ARDP-MVOLT-GEB10IS-STSL<br>DAYBRITE<br>WILLIAMS | 2 | T8 | 28 | 1 | ELECTRONIC | 52 | 52 | ENCLOSED FLUORESCENT FIXTURE WITH IMPACT-RESISTANT FIBERGLASS HOUSING AND GASKETED, DEEP HIGH-IMPACT ACRYLIC LENS. STAINLESS STEEL LATCHES. |
| F4 | LITHONIA WS-2-32-A12125-MVOLT-GEB10IS-EL<br>DAYBRITE<br>WILLIAMS | 2 | T8 | 28 | 1 | ELECTRONIC | 52 | 52 | WALL MOUNTED FLUORESCENT FIXTURE WITH STEEL HOUSING AND ACRYLIC PRISMATIC LENS. WHITE FINISH. WITH 90 MINUTE EMERGENCY BATTERY PACK. |
| F5 | LITHONIA WP-2-32-MVOLT-GEB10IS<br>DAYBRITE<br>WILLIAMS | 2 | T8 | 28 | 1 | ELECTRONIC | 52 | 52 | WALL MOUNTED FLUORESCENT FIXTURE WITH STEEL HOUSING AND ACRYLIC PRISMATIC UPLIGHT LENS. WHITE FINISH. |
| F7 | LITHONIA XWL 232 MV<br>DAYBRITE<br>WILLIAMS | 2 | T8 | 28 | 1 | ELECTRONIC | 52 | 52 | WET LOCATION INDUSTRIAL FLUORESCENT FIXTURE WITH GASKETED POLYCARBONATE HOUSING. |
| F22 | LITHONIA T2EJ-2-32-MVOLT-GEB10IS<br>DAYBRITE<br>WILLIAMS | 4 | T8 | 28 | 1 | ELECTRONIC | 104 | 104 | SIMILAR TO TYPE 'F2' EXCEPT EIGHT FEET IN LENGTH. |
| G | 12 SYSTEMS GEN 2 SERIES | AR | LED | 14 PER FOOT | NA | NA | NA | PER PLANS | HIGH OUTPUT LED WALL GRAZER WITH EXTRUDED ALUMINUM HOUSING, ACRYLIC DIFFUSER AND BUILT-IN LED DRIVER. PROVIDE IN LENGTHS AS INDICATED ON FLOOR PLANS. |
| K | HUBBELL NV2FG42BSG<br>COOPER LIGHTING<br>GE LIGHTING | 1 | TRT | 42 | 1 | ELECTRONIC | 48 | 48 | ELEVATOR PIT LIGHT WITH GLASS GLOBE AND ALUMINUM GUARD. |
| LED1 | KENALL MR13FFL-PP-MW-20L40K-DV<br>LUMINAIRE<br>GE LIGHTING | 9 | LED | 20 | NA | NA | NA | 20 | SURFACE MOUNTED LED LUMINAIRE WITH NOMINAL 13-INCH ROUND POLYCARBONATE HOUSING. WHITE FINISH. |
| LED1X | KENALL MR13FFL-PP-MW-20L40K-DV-EL<br>LUMINAIRE<br>GE LIGHTING | 9 | LED | 20 | NA | NA | NA | 20 | SIMILAR TO TYPE 'LED1' EXCEPT WITH 90 MINUTE EMERGENCY BATTERY PACK. |
| LED2 | KENALL ES5-48-50L40K-DCC-DC-P5H-PP-KO-TR<br>LUMINAIRE<br>GE LIGHTING | AR | LED | 50 | NA | NA | NA | 50 | SURFACE MOUNTED LINEAR LED WITH VANDAL-RESISTANT STAINLESS STEEL HOUSING AND POLYCARBONATE LENS. |
| LED2X | KENALL ES5-48-50L40K-DCC-DC-P5H-PP-KO-TR-EL<br>LUMINAIRE<br>GE LIGHTING | AR | LED | 50 | NA | NA | NA | 50 | SIMILAR TO TYPE 'LED2' EXCEPT WITH 90 MINUTE EMERGENCY BATTERY PACK. |
| P | PEERLESS EGSAM4-2-54T5HO-SSB-4FT-R4-120-GEB10<br>FOCAL PONT<br>LITECONTROL | 2 | T5HO | 54 | 1 | ELECTRONIC | 120 | 120 | SUSPENDED INDIRECT FLUORESCENT LUMINAIRE WITH DIE-FORMED STEEL HOUSING, DIE-CAST ALUMINUM END CAPS AND SEMI-SPECULAR ALUMINUM REFLECTOR. FINISH TBD. |
| P1 | PEERLESS EGSAM4-2-54T5HO-SSB-8FT-R8-120-GEB10<br>FOCAL PONT<br>LITECONTROL | 4 | T5HO | 54 | 2 | ELECTRONIC | 120 | 240 | SIMILAR TO TYPE 'P' EXCEPT EIGHT FEET IN LENGTH AND WITH FOUR LAMPS. |
| P2 | PEERLESS EGSAM4-2-54T5HO-SSB-8FT-R8-120-GEB10<br>FOCAL PONT<br>LITECONTROL | 2 | T5HO | 39 | 2 | ELECTRONIC | 85 | 170 | SIMILAR TO TYPE 'P' EXCEPT SIX FEET IN LENGTH AND WITH FOUR LAMPS. |
| P3 | PEERLESS EGSAM4-2-54T5HO-SSB-XFT-RX-120-GEB10<br>FOCAL PONT<br>LITECONTROL | 2 PER 4 FT. | T5HO | 54 | 1 PER 4 FT. | ELECTRONIC | 120 | PER PLANS | SIMILAR TO TYPE 'P1' EXCEPT IN LENGTHS AS INDICATED ON FLOOR PLANS. |
| P3X | PEERLESS EGSAM4-2-54T5HO-SSB-XFT-RX-120-GEB10-1SE<br>FOCAL PONT<br>LITECONTROL | 2 PER 4 FT. | T5HO | 54 | 1 PER 4 FT. | ELECTRONIC | 120 | PER PLANS | SIMILAR TO TYPE 'P3' EXCEPT WITH 90 MINUTE EMERGENCY BATTERY PACK AND REMOTE TEST SWITCH. |
| R1 | SELUX M10O<br>LINEAR LIGHTING | 2 | T5HO | 54 | 1 | ELECTRONIC | 120 | 120 | RECESSED FLUORESCENT LINEAR FIXTURE WITH NOMINAL 4" WIDE HOUSING, SATINE LENS AND SUITABLE FOR INSTALLATION IN METAL PANEL CEILING. |
| R1X | SELUX M10O<br>LINEAR LIGHTING | 2 | T5HO | 54 | 1 | ELECTRONIC | 120 | 120 | SIMILAR TO TYPE 'R1' EXCEPT WITH 90 MINUTE EMERGENCY BATTERY PACK AND REMOTE TEST SWITCH. |
| R2 | ZUMTOBEL SLR4<br>LINEAR LIGHTING<br>SELUX | 1 PER 4 FT. | T5 | 28 | 1 | ELECTRONIC | 32 | 32 | RECESSED FLUORESCENT LINEAR FIXTURE WITH NOMINAL 4" WIDE HOUSING, STAGGERED LAMPS AND OPAL LENS. PROVIDE IN LENGTHS AS INDICATED ON FLOOR PLANS. |
| S1 | WINONA LED-STEP01-RND-M-001/HO-ND120V-BSS-WL<br>BEGA<br>LUMUX | 1 | LED | 4 | NA | NA | NA | 4 | RECESSED LED STEP LIGHT WITH BRUSHED STAINLESS STEEL FACEPLATE. WET LOCATION LISTING. WARM WHITE LED. |
| S2 | BEGA 8554LED | AR | LED | 18 | NA | NA | NA | 18 | LED LIGHT BOLLARD WITH DIE-CAST AND EXTRUDED ALUMINUM HOUSING, BOROSILICATE GLASS LENS AND ANODIZED ALUM-INUM REFLECTOR. PROVIDE CONCRETE BASE. |
| S2X | BEGA 8554LED WITH BODINE BSL26C | AR | LED | 18 | NA | NA | NA | 18 | SIMILAR TO TYPE 'S2' EXCEPT WITH REMOTE 90 MINUTE EMERGENCY BATTERY PACK. |
| T | DAYBRITE 2STG232-D-120-1/2-EB10I<br>LITHONIA<br>WILLIAMS | 2 | T8 | 28 | 1 | ELECTRONIC | 52 | 52 | RECESSED FLURESCENT TROFFER WITH MOLDED ACRYLIC DIFFUSER. |
| U1 | ELLIPTIPAR F164-D255-MOD-99-1-VOO | 2 | T5HO | 54 | 1 | ELECTRONIC | 120 | 120 | SURFACE MOUNTED FLUORESCENT UPLIGHT WITH EXTRUDED ALUMINUM HOUSING AND REFLECTOR. MOUNT TO SIDE OF STRUC-TURAL TUBE WITH MODIFIED HUB. CUSTOM FINISH TO BE SELECTED. |
| U2 | ELLIPTIPAR M452-150G-W-99-1-VOO | 1 | CMH | 150 | 1 | ELECTRONIC | 185 | 185 | SURFACE MOUNTED CERAMIC METAL HALIDE UPLIGHT WITH EXTRUDED ALUMINUM HOUSING AND REFLECTOR. CUSTOM FINISH TO BE SELECTED. REFER TO ARCHITECTURAL ELEVATIONS FOR INDIVIDUAL MOUNTING HEIGHTS. |
| U3 | BRONZELITE FLB6070MH-T-G-120 | 1 | MH | 70 | 1 | HPF | 95 | 95 | GROUND MOUNTED HID FLOODLIGHT WITH CAST BRONZE HOUSING AND GLARE SHIELD, TEMPERED GLASS LENS AND INTEGRAL BALLAST. |
| U4 | ELLIPTIPAR F164-T155-MOD-99-1-VOO | 1 | T5HO | 54 | 1 | ELECTRONIC | 60 | 60 | SIMILAR TO TYPE 'U1' EXCEPT WITH ONE LAMP. |
| U5 | HYDREL M9710-A-150-CMT6-120-SP-FLC-1B | 1 | CMH | 150 | 1 | ELECTRONIC | 185 | 185 | IN-GROUND HID FLAGPOLE UPLIGHT WITH ALUMINUM TRIM, SPOT DISTRIBUTION, FLAT CLEAR LENS AND 1" NPT BOTTOM CONDUIT ENTRY. |

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Drawn

Checked

Date January 31, 2014

Revisions

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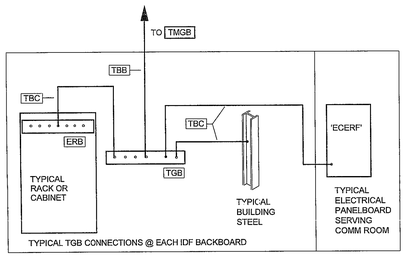
**FAST Multi-Modal Center**
City of Fayetteville
Fayetteville, NC

Project Number 621A

Title
**Lighting Fixture Schedule**

Sheet
# E003

Plate of




TYPICAL GROUND BAR CONNECTIONS

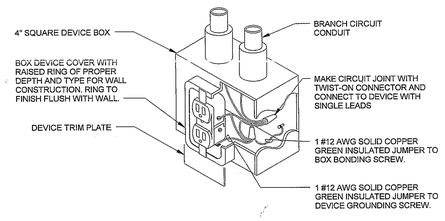
## TELECOMMUNICATIONS GROUNDING LEGEND

ALL CONDUCTORS SHALL BE GREEN INSULATED, OR BARE STRANDED ALL-COPPER CONDUCTORS.

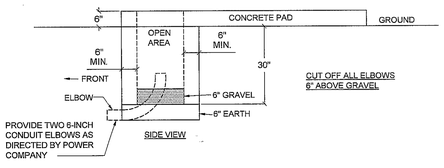
| | |
|---|---|
| TBC | TELECOMMUNICATIONS BONDING CONDUCTOR<br>#6 AWG GREEN INSULATED. BY DIVISION 27 CONTRACTOR.<br>CONNECTION TO ELETRICAL PANELBOARDS BY ELECTRICAL CONTRACTOR. |
| MBC | TELECOMMUNICATIONS MAIN BONDING CONDUCTOR<br>#3/0 AWG BARE STRANDED COPPER. BY ELECTRICAL CONTRACTOR. |
| TBB | TELECOMMUNICATIONS BONDING BACKBONE<br>#3/0 AWG BARE STRANDED COPPER. BY ELECTRICAL CONTRACTOR. |
| TMGB | TELECOMMUNICATIONS MAIN GROUND BAR<br>MOUNTED ON BACKBOARD. SEE DETAIL. BY ELECTRICAL CONTRACTOR. |
| TGB | TELECOMMUNICATIONS GROUND BAR<br>MOUNTED ON BACKBOARD. SEE DETAIL. BY ELECTRICAL CONTRACTOR. |
| ERB | EQUIPMENT RACK BUSBAR MOUNTED IN<br>EACH RACK AND/OR CABINET. SEE DETAIL. BY DIVISION 27 CONTRACTOR |

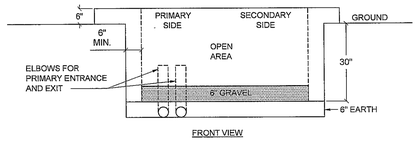
NOTES:
1. RUN ALL GROUND CONDUCTORS IN THIS SYSTEM IN TELECOM PRIMARY AND SECONDARY PATHWAYS TO EXTENT FEASIBLE.

## 1 TELECOMMUNICATIONS GROUNDING SYSTEM LEGEND
SCALE: NONE



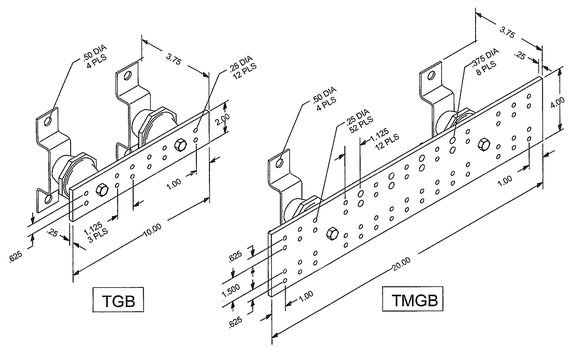

## 3 RECEPTACLE GROUNDING DETAIL
SCALE: NONE



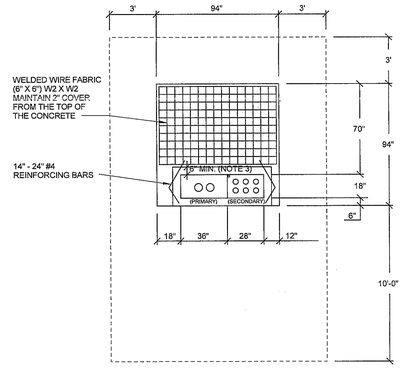

NOTES:
1. SEE PAD REINFORCING DETAILS ON THIS SHEET.
2. CONTACT PWC TO INSPECT PAD FORMS AND DIMENSIONS PRIOR TO CONCRETE BEING POURED.
3. CONCRETE SHALL BE 3000 PSI, WITH MAXIMUM WATER/CEMENT RATIO OF 0.50, MAXIMUM SLUMP OF 4", 3. AND AIR ENTRAINMENT CONTENT BETWEEN 4 AND 8 PERCENT.
4. PAD SHALL BE SUPPORTED ON A BASE OF SAND, GRAVEL OR CRUSHED STONE. THE GRANULAR BASE SHALL BE A MINIMUM OF 4" THICK AND SHALL BE COMPACTED WITH A VIBRATORY COMPACTOR.
5. THE TOP OF THE CONCRETE PAD MUST BE STEEL TROWELED, COMPLETELY SMOOTH AND LEVEL
6. INSTALL METERING CONDUIT FROM THE PIT PAD TO THE METERING LOCATION AS SPECIFIED BY PWC.
7. INSTALL THE CONDUIT FOR THE PRIMARY CONDUCTORS AS CLOSE TO THE CENTER OF THE PRIMARY AREA AS PRACTICAL.
8. INFORM PWC OF THE NUMBER, SIZE AND TYPE OF SECONDARY CONDUCTORS TO BE INSTALLED. PWC WILL INSTALL LUGS ON THE SECONDARY CONDUCTORS AND WILL MAKE THE CONNECTIONS OF THE SECONDARY CONDUCTORS TO THE LOW VOLTAGE SPADE TERMINALS. (PROVIDE ROOM FOR EXCESS SECONDARY CABLES WHEN CONDUCTORS ARE IN PARALLEL. ALL PARALLEL CONDUCTORS SHALL BE GROUPED AND MARKED BY THE ELECTRICAL CONTRACTOR. THERE SHALL BE NO MORE THAN 1.5 FEET DIFFERENCE BETWEEN THE SHORTEST AND LONGEST OF ANY PARALLEL CONDUCTORS ON ANY ONE PHASE.
9. PWC WILL SUPPLY AND INSTALL A 10' GROUND ROD PRIOR TO THE INSTALLATION OF THE PAD- MOUNT TRANSFORMER.
10. THE "PIT PAD" IS PREFERRED BY PWC FOR ALL 3-PHASE PADMOUNT INSTALLATIONS. IN CASES WHERE THERE ARE 3 OR FEWER SECONDARY CONDUCTORS PER PHASE AND THE CONDUCTORS ARE LESS THAN OR EQUAL TO 400MCM, A "FLAT PAD" MAY BE CONSIDERED. THE PWC PROJECT COORDINATOR WILL MAKE THE FINAL DECISION WHETHER IT IS PERMISSABLE TO USE A "FLAT PAD".
11. CONDUIT FOR PWC PRIMARY CABLES SHALL BE SPECIFIED BY DUKE ENERGY AND INSTALLED BY THE ELECTRICAL CONTRACTOR WHEN POURING THE PAD. CONDUIT SHALL BE SCHEDULE 40, 4", 5" OR 6", WITH MINIMUM ELBOW RADIUS OF 36". INSTALL CONDUITS SO THE BELLED END IS "UP" IN THE TRANSFORMER COMPARTMENT. SECONDARY CONDUITS SHALL NOT CROSS OR INTERFERE WITH THE PRIMARY CONDUITS, NOR SHALL THE SECONDARY CONDUITS EXTEND OUTSIDE THE DESIGNATED "SECONDARY" AREA OF THE WINDOW.

## 5 UTILITY TRANSFORMER CONCRETE PIT PAD CONSTRUCTION
SCALE: NONE



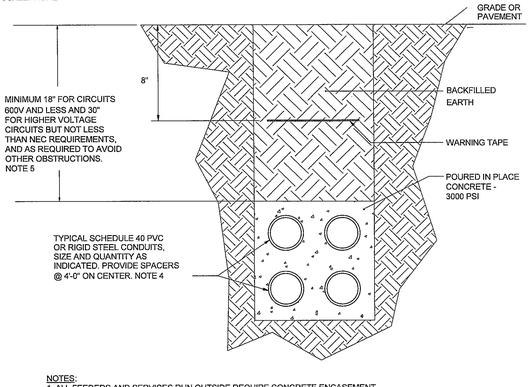

NOTES:
1. TYPICAL BUSBARS, INSULATORS AND BACKBOARD MOUNT BRACKETS SHOWN HERE REFLECT TIA STANDARDS-COMPLIANT DIMENSIONS.
2. MOUNT BACKBOARD-MOUNTED BUSBARS @ 8'-6" AFF UNLESS DIRECTED OTHERWISE BY OWNER.

## 2 TYPICAL TELECOMMUNICATIONS GROUNDING BAR DETAILS
SCALE: NONE



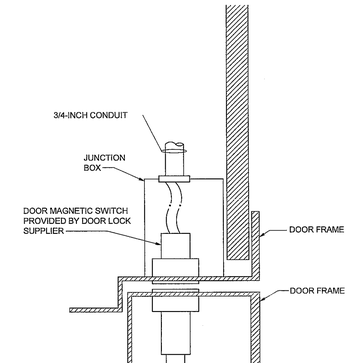

NOTES:
1. PAD TO BE A MINIMUM OF 6" THICK.
2. SHADED AREA AROUND PAD INDICATES MINIMUM CLEARANCE FROM OBSTRUCTIONS. (3' FROM SIDES AND BACK OF CONCRETE AND 10' FROM FRONT OF CONCRETE.)
3. PIT PAD ONLY.
4. COVER BOTTOM OF PIT WITH 6" OF GRAVEL.
5. VERIFY WITH DUKE ENERGY PRIOR TO CONSTRUCTION.
6. PROVIDE CAST CONCRETE BARRIER BETWEEN PRIMARY AND SECONDARY COMPARTMENTS.

## 4 LARGE FLAT PAD AND PIT PAD - DIMENSIONS
SCALE: NONE

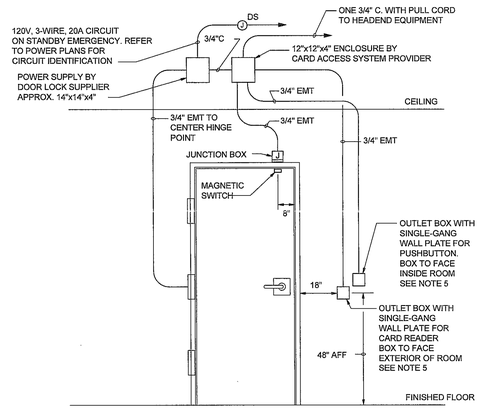



NOTES:
1. ALL FEEDERS AND SERVICES RUN OUTSIDE REQUIRE CONCRETE ENCASEMENT.
2. CONDUIT STUB-UPS SHALL BE RIGID GALVANIZED STEEL CONDUIT.
3. PROVIDE 3" OR MORE, IF SO NOTED, SEPARATION BETWEEN ADJACENT POWER CONDUITS, AND 2" SEPARATION BETWEEN SIGNAL/COMMUNICATIONS CONDUITS.
4. USE RIGID STEEL CONDUIT FOR CROSSING UNDER FOUNDATION OR GRADE BEAMS.
5. DEPTH SHALL BE INCREASED TO CROSS UNDER NEW AND EXISTING UTILITY LINES LIKE STEAM, WATER AND SEWAGE, WHEN THESE LINES ARE NOT DEEP ENOUGH TO ALLOW FOR THE STATED MINIMUM DEPTH.
6. WHEN CROSSING UNDER OR OVER STEAM LINE OR STEAM TUNNEL, PROVIDE 4-INCH FIBERBOARD INSULATION OVERLAPPING THE STEAM LINE BY 24" IN EVERY DIRECTION.

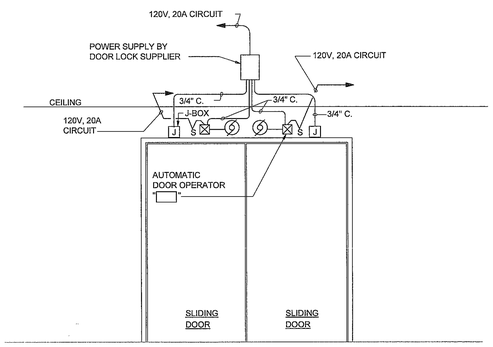
## 6 TYPICAL SECTION THROUGH DUCTBANK RUN
SCALE: NONE



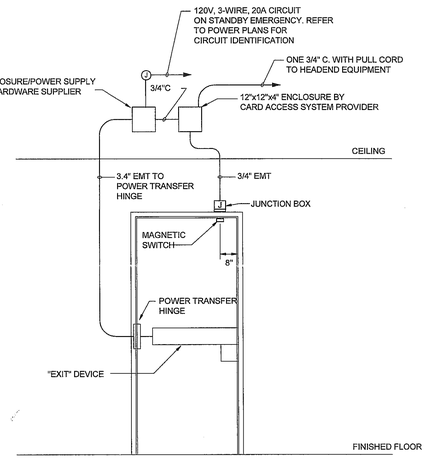

## 7 TYPICAL DOOR SWITCH MOUNTING
SCALE: NONE




## 9 TYPICAL SECURED DOOR WITH CARD READER ACCESS "A" ELEVATION/CONDUIT RISER DIAGRAM
SCALE: NONE



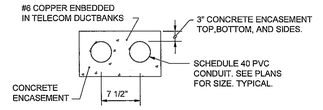

## 8 TYPICAL ELEVATION/RISER DIAGRAM "C" PROVISIONS FOR MOTOR OPERATED SLIDING DOORS
SCALE: NONE



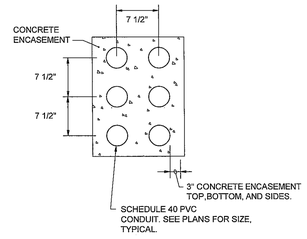

## 10 TYPICAL SECURED DOOR WITH 'PANIC' HARDWARE "B" ELEVATION/CONDUIT RISER DIAGRAM
SCALE: NONE

## SECURITY SYSTEM NOTES

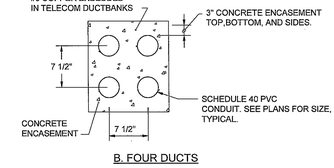
1. ALL CONDUIT AND 120V WIRING, INCLUDING CONNECTIONS AND ROUGH-IN SHALL BE PROVIDED UNDER DIVISION 16 - ELECTRICAL.
2. IN AREAS WITH HARD CEILINGS, GENERAL CONTRACTOR TO PROVIDE ACCESS DOOR IN CEILING TO REACH 12" x 12" x 4" ENCLOSURE.
3. ALL CONDUIT SHALL BE CONCEALED ABOVE THE CEILING OR IN WALLS AND SHALL BE PROVIDED WITH PULL CORDS.
4. PROVIDE TEMPORARY GRAY PLASTIC COVER PLATE ON CARD READER AND PUSHBUTTON BOXES.
5. REFER TO FLOOR PLANS FOR LOCATIONS.
6. SEE POWER PLANS FOR 120 VOLT CIRCUITS FOR MOTOR OPERATORS.




A. TWO DUCTS




C. SIX DUCTS




B. FOUR DUCTS

NOTES:
1. PROVIDE TRACER CABLE IN TELECOM DUCT BANKS ONLY.
2. ALL BENDS IN TELECOM CONDUIT SHALL BE LONG RADIUS (10X).

## 11 SECTION - TELECOM AND POWER DUCTBANKS
SCALE: NONE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| Revisions | |


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**FAST Multi-Modal Center**
City of Fayetteville
Fayetteville, NC

Project Number 621A

Title
**ELECTRICAL DETAILS**

Sheet
# E004

Plate of

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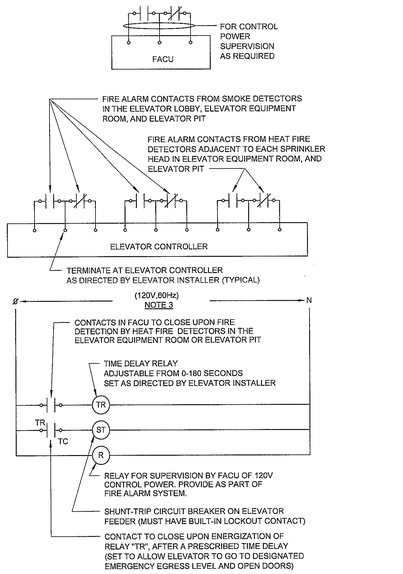
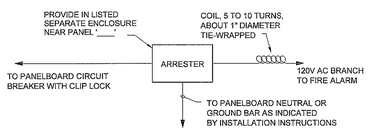



NOTES:
1. REFER TO SECTIONS 260134 AND 283100 FOR ADDITIONAL REQUIREMENTS.
2. WORK MUST COMPLY WITH NFPA 72 AND ELEVATOR CODE REQUIREMENTS.
3. 120V POWER SHALL BE OBTAINED FROM ELEVATOR EQUIPMENT ROOM RECEPTACLE CIRCUIT.

## 1 CONTROL WIRING DIAGRAM FOR ELEVATOR FEEDER SHUTDOWN UPON FIRE DETECTION

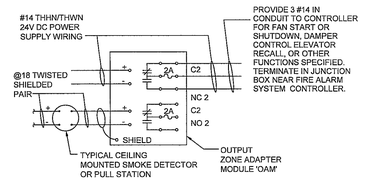
SCALE: NONE




NOTES:
1. ARRESTER SHALL BE UL LISTED, FEED-THROUGH TYPE, EQUIVALENT TO EFI HWM-120, LEVITON OEM-120EFI, NORTHERN TECHNOLOGIES TCS-HW, OR TRANSTECTOR ACP100BWN3.
2. TRIM EXCESS LEAD LENGTHS.

## 2 FIRE ALARM ARRESTER CIRCUITING

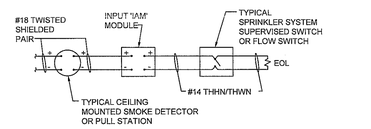
SCALE: NONE




NOTES:
1. 'OAM' MODULE FOR AIR HANDLING UNIT SHUTDOWN SHALL BE LOCATED IN ELECTRICAL ROOM CLOSEST TO FIRE ALARM CONTROLLER.
2. PROVIDE ONE "OAM" FOR EACH FAN SYSTEM EQUIPPED WITH SMOKE DETECTOR PROTECTION; FOR EACH ELEVATOR LOBBY SMOKE DETECTOR ZONE (TWO PER ELEVATOR); FOR EACH ELEVATOR HEAT DETECTOR; FOR EACH SELF CLOSING SMOKE DOOR, FOR EACH ELEV. POWER SHUT DOWN FUNCTION.
3. COORDINATE ALL FAN SHUT DOWN FUNCTIONS WITH HVAC CONTRACTOR.
4. RUN ALL WIRING IN CONDUIT.

## 3 TYPICAL NON-ADDRESSABLE FIRE ALARM DEVICE WIIRING

SCALE: NONE




NOTES:
1. PROVIDE ONE 'IAM' DEVICE FOR UP TO FOUR NON-ADDRESSABLE DEVICES CONNECTED TO FIRE ALARM SYSTEM.
2. RUN ALL WIRING IN CONDUIT.

## 4 TYPICAL NON-ADDRESSABLE FIRE ALARM DEVICE WIIRING

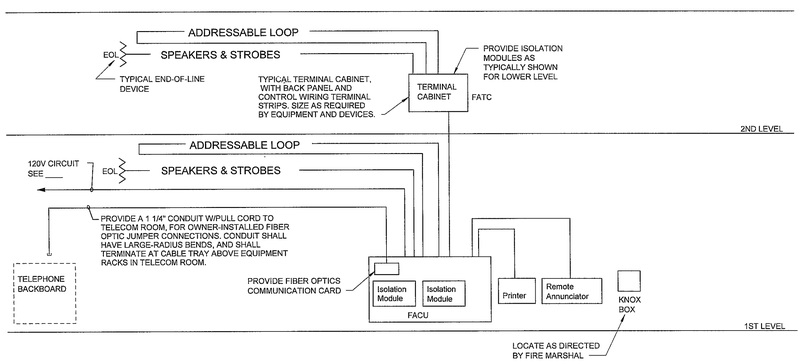
SCALE: NONE

# FIRE ALARM SYSTEM OPERATION MATRIX

| SYSTEM INPUTS | | SYSTEM OUTPUTS: ANNUNCIATION AT FIRE ALARM CONTROL UNIT — ACTUATE COMMON ALARM SIGNAL INDICATOR | ACTUATE AUDIBLE ALARM SIGNAL | ACTUATE COMMON SUPERVISORY SIGNAL INDICATOR | ACTUATE AUDIBLE SUPERVISORY SIGNAL | ACTUATE COMMON TROUBLE SIGNAL INDICATOR | ACTUATE AUDIBLE COMMON TROUBLE SIGNAL | DISPLAY/PRINT ALARMED DEVICE LOCATION AND INDIVIDUAL ADDRESS | DISPLAY/PRINT MESSAGE IDENTIFYING MALFUNCTION | | NOTIFICATION — ACTIVATE AUDIO/VISUAL ALARMS THROUGHOUT ENTIRE BUILDING - NOTE 4 | TRANSMIT FIRE ALARM SIGNAL VIA DIGITAL AUTODIALER TO UL DISPATCH STATION | TRANSMIT SUPERVISORY SIGNAL VIA DIGITAL AUTODIALER TO UL DISPATCH STATION | TRANSMIT TROUBLE SIGNAL VIA DIGITAL AUTODIALER TO UL DISPATCH STATION | TRANSMIT 'WATERFLOW ALARM SIGNAL' VIA DIGITAL AUTODIALER TO UL DISPATCH STATION | | REQUIRED FIRE SAFETY CONTROL — SHUT DOWN ASSOCIATED FAN SYSTEM - NOTE 3 | SHUNT TRIP BREAKER(S) SERVING THE ASSOCIATED ELEVATORS | CLOSE ALL SMOKE DAMPERS RELATED TO FAN SYSTEM BEING SHUT DOWN | RECALL ELEVATORS TO PRIMARY RECALL FLOOR | RECALL ELEVATORS TO SECONDARY RECALL FLOOR | RELEASE MAGNETICALLY-HELD SMOKE DOORS THROUGHOUT BUILDING | | | | | CLOSE FIRE SHUTTERS | | | | SUPPLEMENTARY — IDENTIFY INDIVIDUALLY ALARMED DEVICE AT REMOTE ANNUNCIATOR | IDENTIFY INDIVIDUALLY SYSTEM MALFUNCTION AT REMOTE ANNUNCIATOR | CAUSE ELEVATOR "FIRE HAT" INDICATOR LIGHTS | | REMARKS — EACH INITIATING DEVICE MUST HAVE INDIVIDUAL ADDRESS | EACH VALVE TAMPER SWITCH MUST HAVE INDIVIDUAL ADDRESS - NOTE 1 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | C1 | C2 | C3 | C4 | C5 | C6 | C7 | C8 | C9 | N1 | N2 | N3 | N4 | N5 | N6 | F1 | F2 | F3 | F4 | F5 | F6 | F7 | F8 | F9 | F10 | F11 | F12 | F13 | F14 | F15 | S1 | S2 | S3 | S4 | R1 | R2 | R3 | | | | | |
| PULL STATION ACTUATION | 1 | X | X | | | | | X | | | X | X | | | | | | | | | | | X | | | | | X | | | X | | | | X | | | | 1 |
| SMOKE DETECTOR ACTUATION | 2 | X | X | | | | | X | | | X | X | | | | | | | | | | | X | | | | | X | | | X | | | | X | | | | 2 |
| SPRINKLER WATER FLOW ACTUATION | 3 | X | X | | | | | X | | | X | X | | | X | | | | | | | | X | | | | | X | | | X | | | | X | | | | 3 |
| STANDPIPE WATER FLOW ACTUATION | 4 | X | X | | | | | X | | | X | X | | | X | | | | | | | | X | | | | | X | | | X | | | | X | | | | 4 |
| WATER VALVE TAMPER SWITCH - ACTUATION | 5 | | | X | X | | | X | | | | | X | | | | | | | | | | | | | | | | | | X | | | | | X | | 5 |
| SMOKE DETECTORS AT PRIMARY RECALL FLOOR ELEVATOR LOBBY | 6 | X | X | | | | | X | | | X | X | | | | | | | | | X | | X | | | | | X | | | X | | X | | X | | | | 6 |
| SMOKE DETECTOR AT ELEVATOR LOBBY OTHER THAN PRIMARY RECALL FLOOR | 9 | X | X | | | | | X | | | X | X | | | | | | | | | X | | X | | | | | X | | | X | | | | X | | | | 9 |
| SMOKE DETECTOR IN ELEVATOR EQUIPMENT ROOM | 7 | X | X | | | | | X | | | X | X | | | | | | | | | X | | X | | | | | X | | | X | | | | X | | | | 7 |
| HEAT DETECTOR IN ELEVATOR SHAFT OR EQUIPMENT ROOM | 8 | X | X | | | | | X | | | X | X | | | | | | X | | | X | | X | | | | | X | | | X | | X | | X | | | | 8 |
| SMOKE DETECTOR IN ELEVATOR PIT | 10 | X | X | | | | | X | | | X | X | | | | | | | | | | | X | | | | | X | | | X | | X | | X | | | | 10 |
| | 11 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 11 |
| DUCT SMOKE DETECTORS | 12 | X | X | | | | | X | | | X | X | | | | | X | | X | | | | X | | | | | X | | | X | | | | X | | | | 12 |
| | 13 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 13 |
| | 14 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 14 |
| ELEVATOR FEEDER SHUTDOWN CONTROL FAILURE | 15 | | | X | X | | | | X | | | | X | | | | | | | | | | | | | | | | | | | | X | | | | | | | 15 |
| FIRE ALARM AC FAILURE | 16 | | | | | X | X | | X | | | | | X | | | | | | | | | | | | | | | | | | | X | | | | | | | 16 |
| FIRE ALARM SYSTEM LOW BATTERY | 17 | | | | | X | X | | X | | | | | X | | | | | | | | | | | | | | | | | | | X | | | | | | | 17 |
| OPEN CIRCUIT | 18 | | | | | X | X | | X | | | | | X | | | | | | | | | | | | | | | | | | | X | | | | | | | 18 |
| GROUND FAULT | 19 | | | | | X | X | | X | | | | | X | | | | | | | | | | | | | | | | | | | X | | | | | | | 19 |
| NOTIFICATION APPLIANCE SHORT | 20 | | | | | X | X | | X | | | | | X | | | | | | | | | | | | | | | | | | | X | | | | | | | 20 |
| | 21 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 21 |
| | 22 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 22 |
| | ... | C1 | C2 | C3 | C4 | C5 | C6 | C7 | C8 | C9 | N1 | N2 | N3 | N4 | N5 | N6 | F1 | F2 | F3 | F4 | F5 | F6 | F7 | F8 | F9 | F10 | F11 | F12 | F13 | F14 | F15 | S1 | S2 | S3 | S4 | R1 | R2 | R3 | | | | | |

## FIRE ALARM SYSTEM NOTES

1. PROVIDE ALL WIRING NECESSARY FOR A COMPLETE SYSTEM. VERIFY WIRING REQUIREMENTS WITH SYSTEM MANUFACTURER PRIOR TO SUBMITTING FINAL BID. CONTACT ARCHITECT-ENGINEER IF ANY DISCREPANCIES ARE FOUND, AT LEAST 8 DAYS PRIOR TO BIDDING.
2. REFER TO SPECIFICATIONS SECTION 283100 FOR SYSTEM DESCRIPTION.
3. PROVIDE CONTROL AND COMMUNICATIONS WIRING BETWEEN ELEVATOR CONTROLLER AND FIRE ALARM SYSTEM TO ACCOMPLISH THE FOLLOWING:
   * AUTOMATIC ELEVATOR RECALL IN CASE OF FIRE ALARM.
   * SHUTDOWN OF ELEVATOR POWER BY 135°F HEAT DETECTOR, PRIOR TO WATER RELEASE BY SPRINKLER SYSTEM.
4. PROVIDE ADDITIONAL CONDUIT AND PULL BOXES AS REQUIRED BY DEVICES. WIRING FOR HORNS AND STROBES SHALL BE RUN IN SEPARATE CONDUIT FROM WIRING FOR ALARM INITIATING DEVICES.
5. CONNECT ALL CABLE SHIELDS TOGETHER, INSULATE AND TERMINATE THEM AT MAIN FACP ONLY, AS DIRECTED BY SYSTEM MANUFACTURER.
6. PROVIDE CONTROL MODULES AS REQUIRED TO BE USED IN THE SHUTDOWN CONTROL SCHEME FOR THE AIR HANDLING UNITS. PROGRAM THE MODULE TO ACTIVATE CONTACTS UPON DETECTION OF SMOKE BY ANY ONE DETECTOR ON THE SAME FLOOR, INCLUDING AHU DUCT SMOKE DETECTORS.
7. ALARMS SHALL BE TRANSMITTED AUTOMATICALLY TO A CENTRAL RECEIVING STATION VIA A DIGITAL COMMUNICATOR AND A DEDICATED TELEPHONE LINE.
8. EACH DUCT SMOKE DETECTOR SHALL BE PROVIDED WITH REMOTE ALARM INDICATING LIGHT AND KEY TEST SWITCH.
9. PROVIDE ISOLATION MODULES AS FOLLOWS:
   * AFTER EACH 30 DEVICES/CONTROL POINTS ON ANY ADDRESSABLE CIRCUIT;
   * AT EACH "T" TAP WHICH FEEDS FIVE OR MORE DEVICES/CONTROL POINTS;
   * FOR EACH CIRCUIT THAT EXTENDS OUTSIDE THE BUILDING;
   * AT THE FACU, AT EACH END OF THE LOOP.
10. THE FIRE ALARM RISER DIAGRAM SHOWS ONE LOOP PER AREA BUT ADDRESSABLE LOOPS ARE PERMITTED TO SERVE MORE THAN ONE BUILDING AREA, IF PERMITTED BY QUANTITY OF DEVICES AND REQUIRED SPARE CAPACITY.
11. IF ANY LOOP SERVES MORE THAN ONE FLOOR OR AREA, INSTALL AN ISOLATION MODULE AT THE TERMINAL CABINET ON EACH FLOOR.
12. PROVIDE ADDITIONAL ISOLATION MODULES (OR ISOLATOR BASES) ON EACH ADDRESSABLE LOOP AS REQUIRED.
13. IN THE FACU THE ELECTRICAL CONTRACTOR SHALL SUPPLY ONE NORMALLY OPEN AND ONE NORMALLY CLOSED CONTACT FOR EACH AHU SYSTEM. THE ELECTRICAL CONTRACTOR WILL PROVIDE 3 #14 WIRES FOR THESE CONTACTS TO THE AHU SYSTEM CONTROL PANEL FOR TERMINATION BY THE MECHANICAL CONTRACTOR. ALL ADDITIONAL CONTACTS, WIRING AND RELAYS SHALL BE PROVIDED BY THE MECHANICAL CONTRACTOR.
14. CONNECT ALL ELECTRIC LOCKS ON REQUIRED EGRESS DOORS TO THE FIRE ALARM SYSTEM TO UNLOCK UPON GENERAL FIRE ALARM IN THE BUILDING. COORDINATE WITH SECURITY SYSTEM INSTALLER.
15. PROVIDE SEPARATE CONDUITS FOR OUTGOING AND RETURN (REDUNDANT) CONDUCTORS OF LOOP CIRCUITS. MINIMUM SEPARATION SHALL BE 12" BETWEEN CONDUITS RUN VERTICALLY, AND 48" BETWEEN CONDUITS RUN HORIZONTALLY.
16. UP TO THREE VALVE TAMPER SWITCHES WITHIN SAME ROOM ARE ALLOWED TO BE GROUPED UNDER SINGLE ADDRESS.
17. FIRE ALARM MUST SOUND 20-45 SECONDS AFTER WATER FLOW EQUAL TO ONE SPRINKLER HEAD BEGINS.
18. HVAC UNIT MUST SHUTDOWN WITHIN 20 SECONDS OF DUCT SMOKE DETECTOR ALARM. SMOKE DAMPERS MUST BE CLOSED IMMEDIATELY AFTER.
19. ALL STROBES IN SAME AREA MUST BE SYNCHRONIZED.
20. FOR PROTECTION FROM VOLTAGE TRANSIENTS AND SURGES ON DC CIRCUITS THAT EXTEND OUTSIDE BUILDING: ADJACENT TO FACU, AND ALSO NEAR POINT OF ENTRY TO OUTLYING BUILDING OR ENCLOSURE, PROVIDE "PI"-TYPE FILTER ON EACH LEG. ACCEPTABLE MODELS INCLUDE INNOVATIVE TECHNOLOGY D2S33-2ML, SIMPLEX 2081-9027 AND 2081-9028, TRANSTECTOR TSP8601, AND NORTHERN TECHNOLOGIES DLP-42.




NOTES:
1. REFER TO FLOOR PLANS FOR QUANTITIES AND LOCATIONS OF FIRE ALARM SYSTEM DEVICES AND APPLIANCES.
2. FIRE ALARM SHALL REPORT VIA DIGITAL COMMUNICATOR TO U.L. CENTRAL DISPATCH STATION.
3. CONTRACTOR SHALL SUBMIT FIRE ALARM SYSTEM SHOP DRAWINGS TO FIRE MARSHAL PRIOR TO REQUESTING SYSTEM TEST.
4. FINAL LOCATIONS OF FIRE ALARM DEVICES AND APPLIANCES SHALL MEET ALL APPLICABLE STATE AND LOCAL CODES AND FIRE MARSHAL REQUIREMENTS.
5. FIRE ALARM EVACUATION SIGNAL SHALL BE THREE-PULSE TEMPORAL PATTERN WITH APPROPRIATE SOUNDS.
6. REFER TO SECTION 283100 FOR ADDITIONAL REQUIREMENTS.

## 5 ADDRESSABLE FIRE ALARM SYSTEM RISER DIAGRAM

SCALE: NONE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**FAST Multi-Modal Center**
City of Fayetteville
Fayetteville, NC

Project Number 621A

Title
**FIRE ALARM RISER DIAGRAM and DETAILS**

Sheet
# E005

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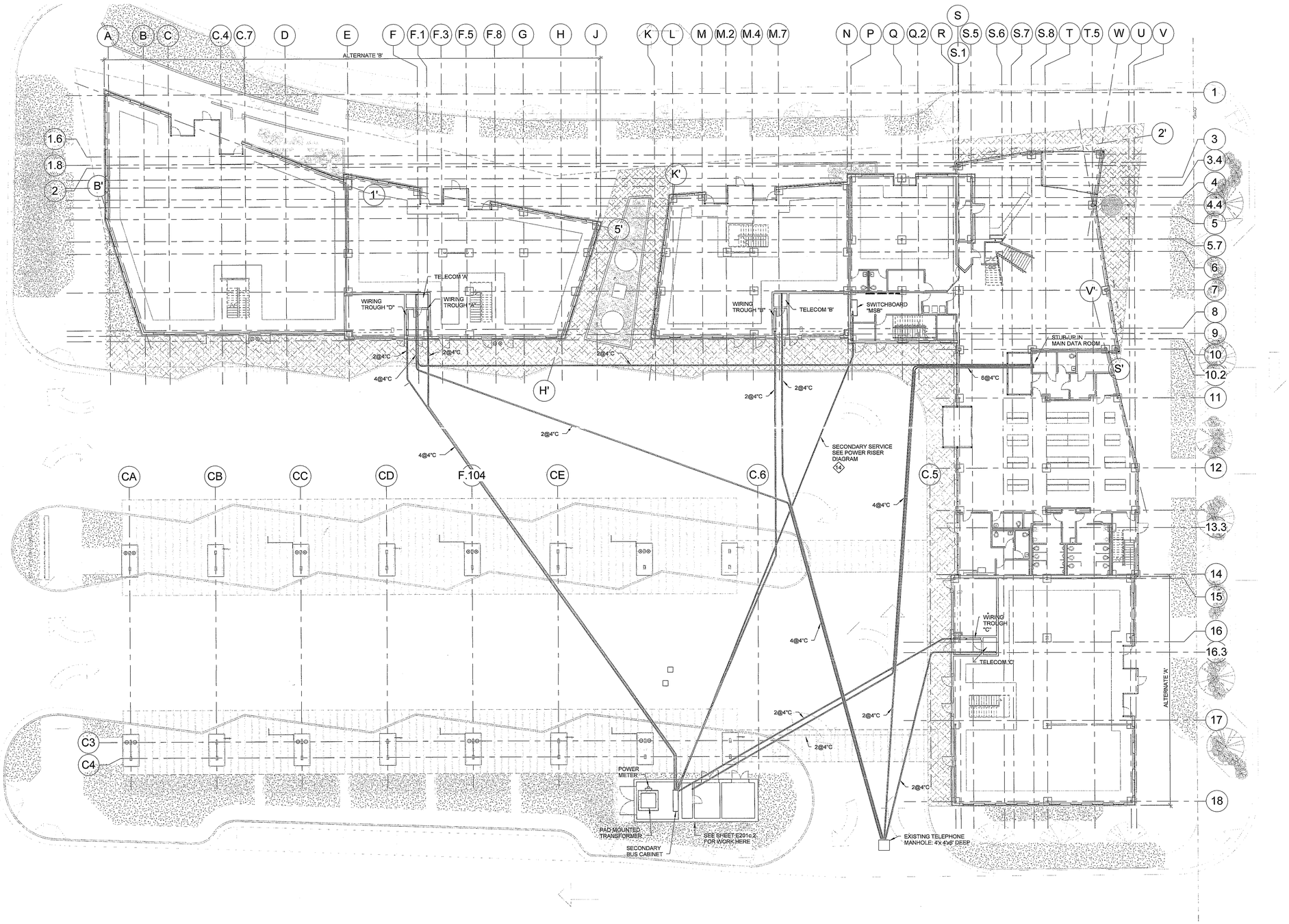


1 Site Plan
1/16" = 1'-0"

GENERAL NOTE
ALL UNDERGROUND CONDUIT IS TO BE PROVIDED UNDER THE BASE BID. IF ALTERNATE IS NOT ACCEPTED, LEAVE CONDUIT CAPPED UNDERGROUND AND IDENTIFIED FOR FUTURE.


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**FAST Multi-Modal Center**
City of Fayetteville
Fayetteville, NC

Project Number 621A

Title
**Site Plan - Electrical**

Sheet
# E100

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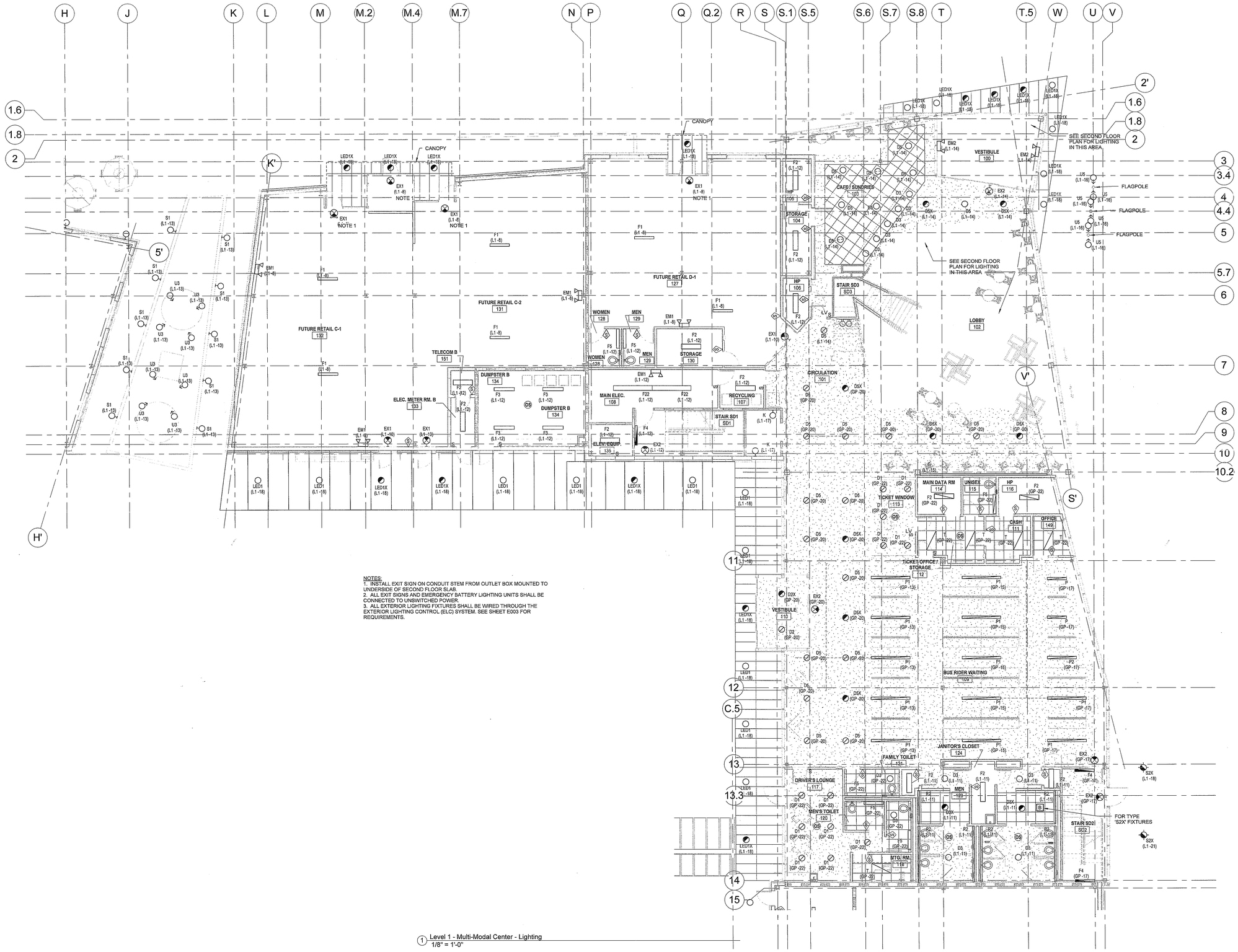


NOTES:
1. INSTALL EXIT SIGN ON CONDUIT STEM FROM OUTLET BOX MOUNTED TO UNDERSIDE OF SECOND FLOOR SLAB.
2. ALL EXIT SIGNS AND EMERGENCY BATTERY LIGHTING UNITS SHALL BE CONNECTED TO UNSWITCHED POWER.
3. ALL EXTERIOR LIGHTING FIXTURES SHALL BE WIRED THROUGH THE EXTERIOR LIGHTING CONTROL (ELC) SYSTEM. SEE SHEET E003 FOR REQUIREMENTS.

1 Level 1 - Multi-Modal Center - Lighting
1/8" = 1'-0"


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# FAST Multi-Modal Center

City of Fayetteville
Fayetteville, NC

Project Number 621A

Title
## Level 1 - Multi-Modal Center - Lighting

Sheet
# E101a

Plate of

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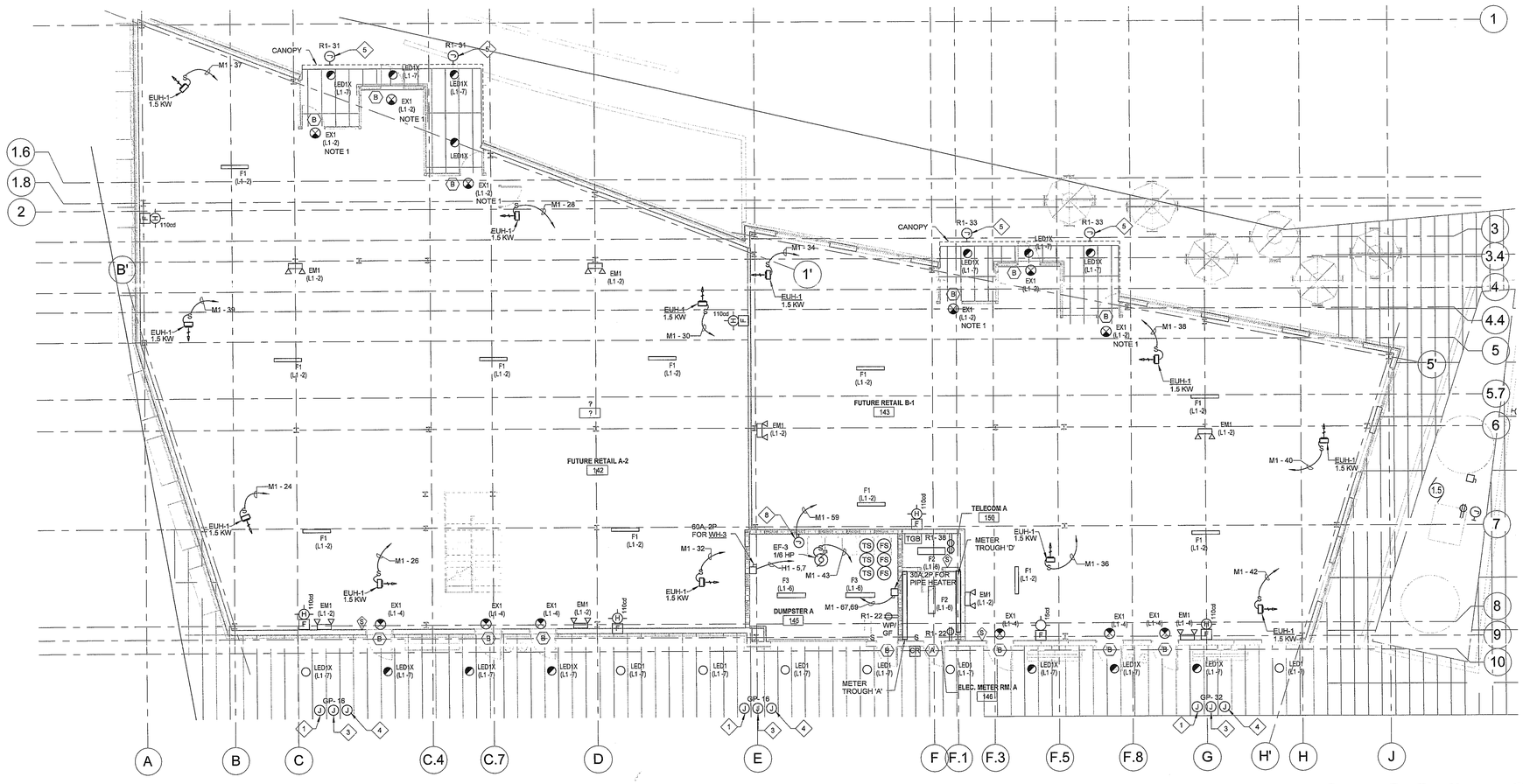
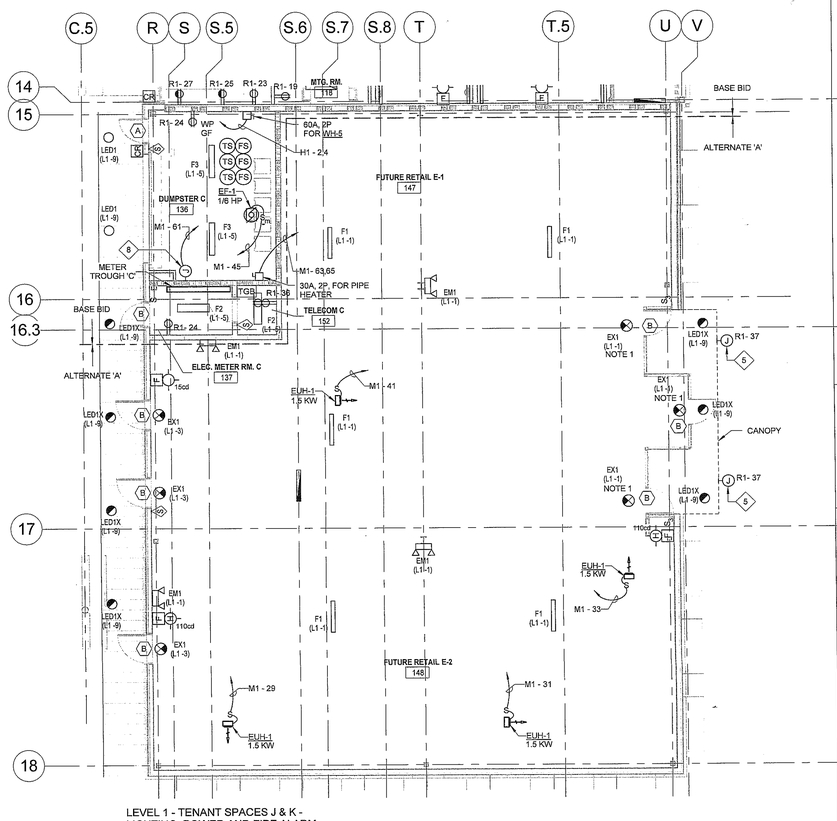
## ◇KEYED NOTES

| | |
|---|---|
| 1 | SINGLE GANG CAST BOX WITH WEATHERPROOF COVER PLATE FOR VIDEO SURVEILLANCE CAMERA. INSTALL ON CANOPY STRUCTURE AT 10'-0" AFF. FINAL LOCATION AND MOUNTING HEIGHT TO BE VERIFIED PRIOR TO ROUGH-IN. PROVIDE 3/4"C TO TERMINAL CABINET IN SHOP 138 FOR DATA CABLING. |
| 3 | SINGLE GANG CAST BOX WITH WEATHERPROOF COVER PLATE FOR BUS BAY SIGNAGE POWER. INSTALL ON CANOPY STRUCTURE PER DETAIL ON SHEET E201c.2. PROVIDE 120V POWER CONNECTION TO SIGN. |
| 4 | SINGLE GANG CAST BOX WITH WEATHERPROOF COVER PLATE FOR BUS BAY SIGNAGE DATA CABLING. INSTALL ON CANOPY STRUCTURE PER DETAIL ON SHEET E201c.2. |
| 5 | SINGLE GANG CAST BOX WITH WEATHERPROOF COVER PLATE FOR BUILDING SIGN POWER. INSTALL ON CANOPY STRUCTURE PER DETAIL ON SHEET E201c.2. PROVIDE 120V POWER CONNECTION TO SIGN. |
| 8 | SURFACE MOUNTED OUTLET BOX WITH 120V POWER FOR HEAT TRACE. |




LEVEL 1 - TENANT SPACES A, B, C & D - LIGHTING, POWER AND FIRE ALARM - ALTERNATE 'B'
1/8" = 1'-0"




LEVEL 1 - TENANT SPACES J & K - LIGHTING, POWER AND FIRE ALARM - ALTERNATE 'A'
1/8" = 1'-0"

NOTES:
1. INSTALL EXIT SIGN ON CONDUIT STEM FROM OUTLET BOX MOUNTED TO UNDERSIDE OF SECOND FLOOR SLAB.
2. ALL EXIT SIGNS AND EMERGENCY BATTERY LIGHTING UNITS SHALL BE CONNECTED TO UNSWITCHED POWER.
3. ALL EXTERIOR LIGHTING FIXTURES SHALL BE WIRED THROUGH THE EXTERIOR LIGHTING CONTROL (ELC) SYSTEM. SEE SHEET E003 FOR REQUIREMENTS.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**FAST Multi-Modal Center**
City of Fayetteville
Fayetteville, NC

Project Number 621A

Title
**Level 1 - Tenant Spaces - Lighting, Power and Fire Alarm**

Sheet
# E101b

Plate of

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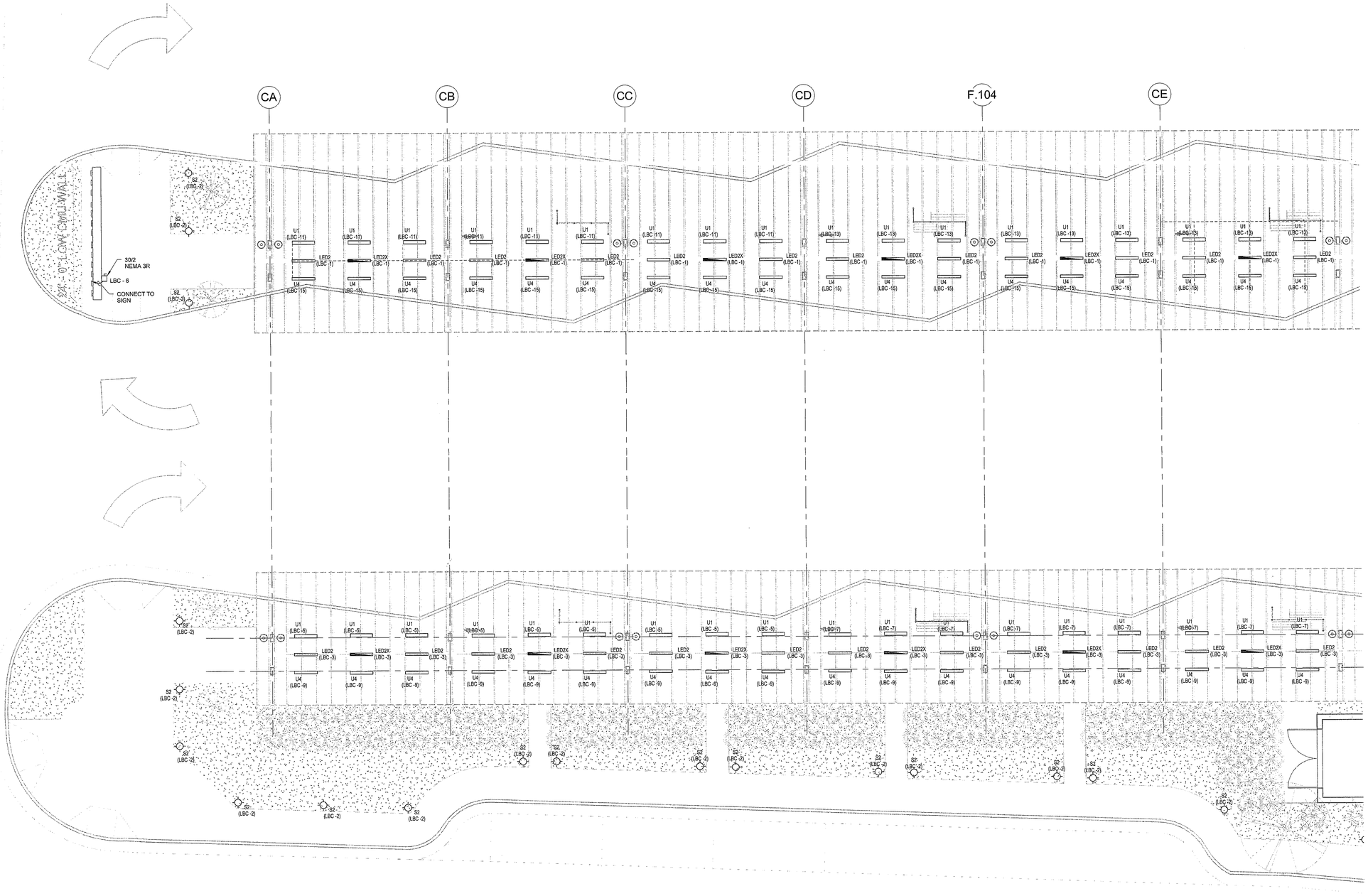


1 Bus Canopy Lighting Plan - West
1/8" = 1'-0"

1/8" = 1'-0" 4' 0 4' 8' 16'

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**FAST Multi-Modal Center**
City of Fayetteville
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Project Number 621A

Title
**Bus Canopy Lighting - West**

Sheet
# E101c.1

Plate of

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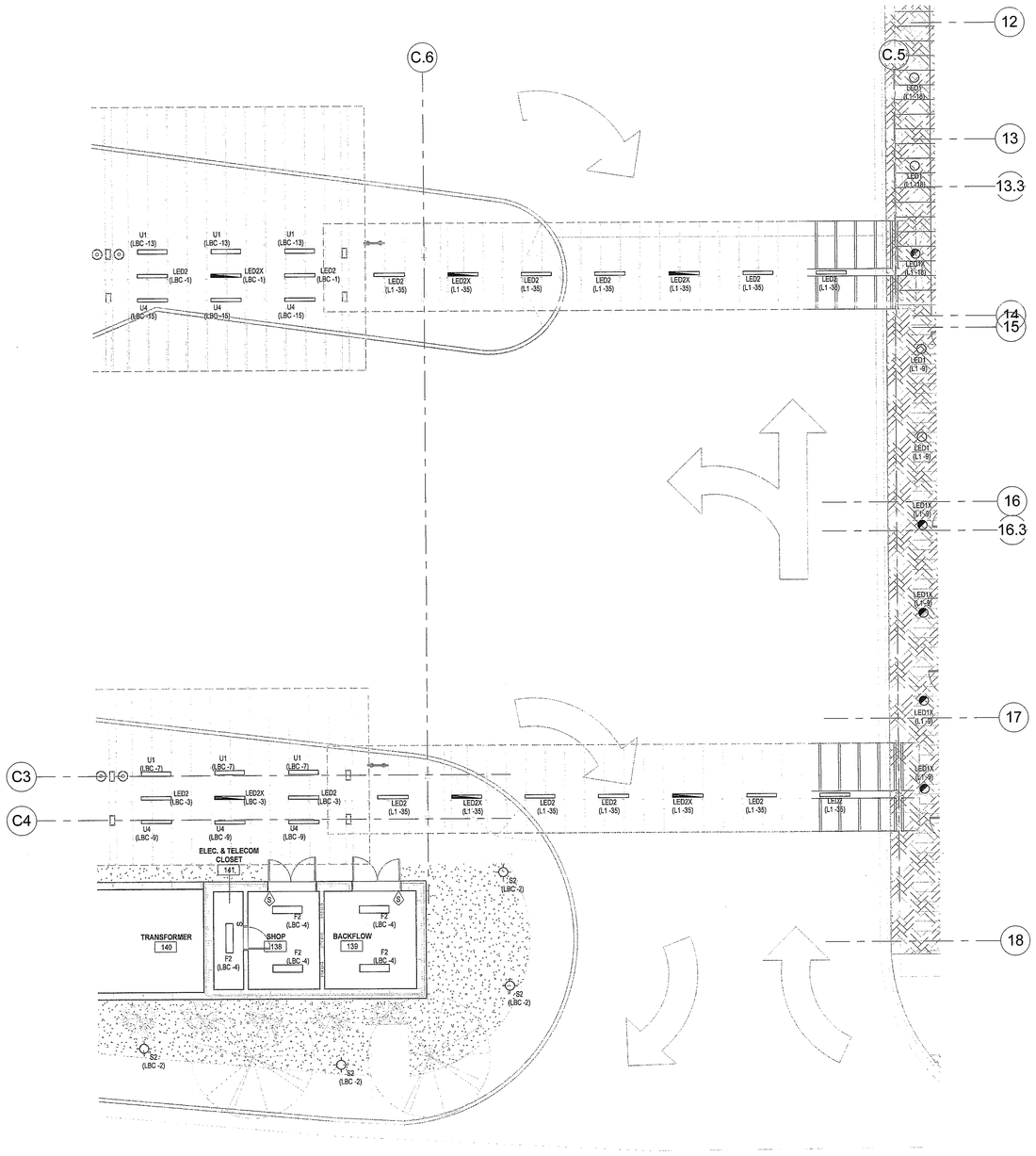


1 Bus Canopy Lighting Plan - East
1/8" = 1'-0"

1/8" = 1'-0" 4' 0 4' 8' 16'

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Project Number 621A

Title
**Bus Canopy Lighting - East**

Sheet
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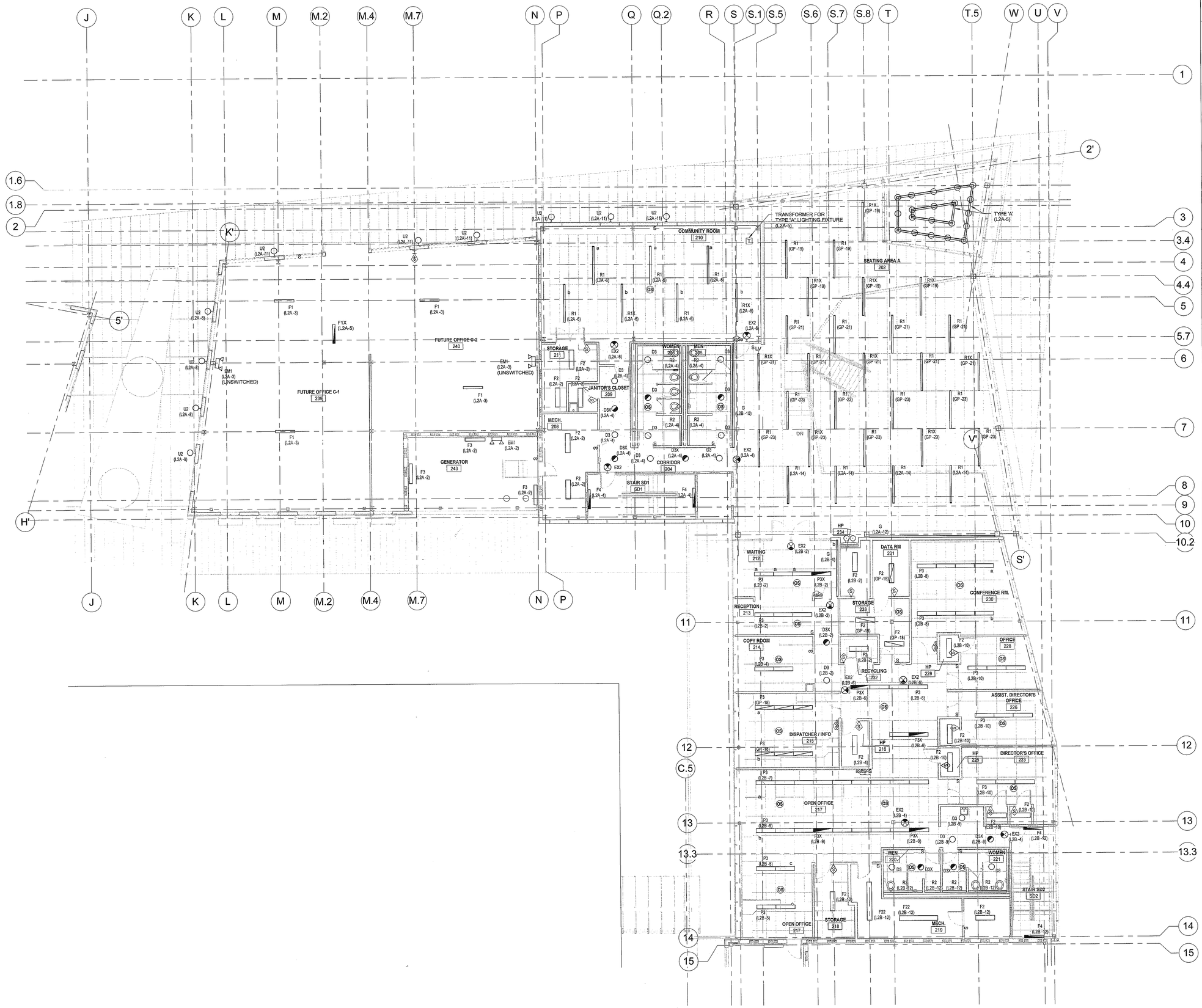


1 Level 2 - Multi-Modal Center - Lighting
1/8" = 1'-0"

3/8" = 1'-0" 4' 0 4' 8' 16'


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Mc&L# 211.026
M&L License No. C-0503

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**FAST Multi-Modal Center**
City of Fayetteville
Fayetteville, NC

Project Number 621A

Title
**Level 2 - Multi-Modal Center - Lighting**

Sheet
# E102a

Plate of


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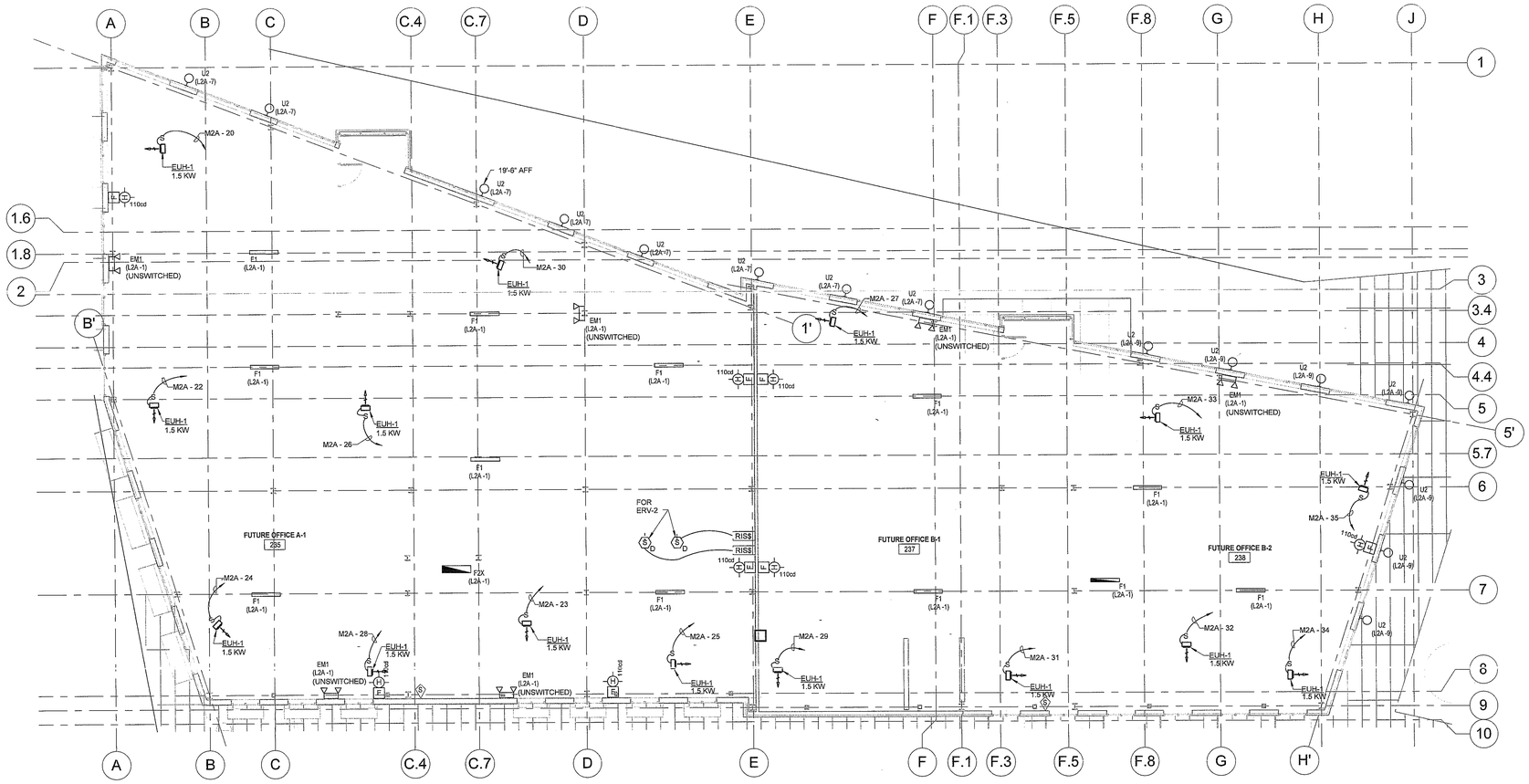
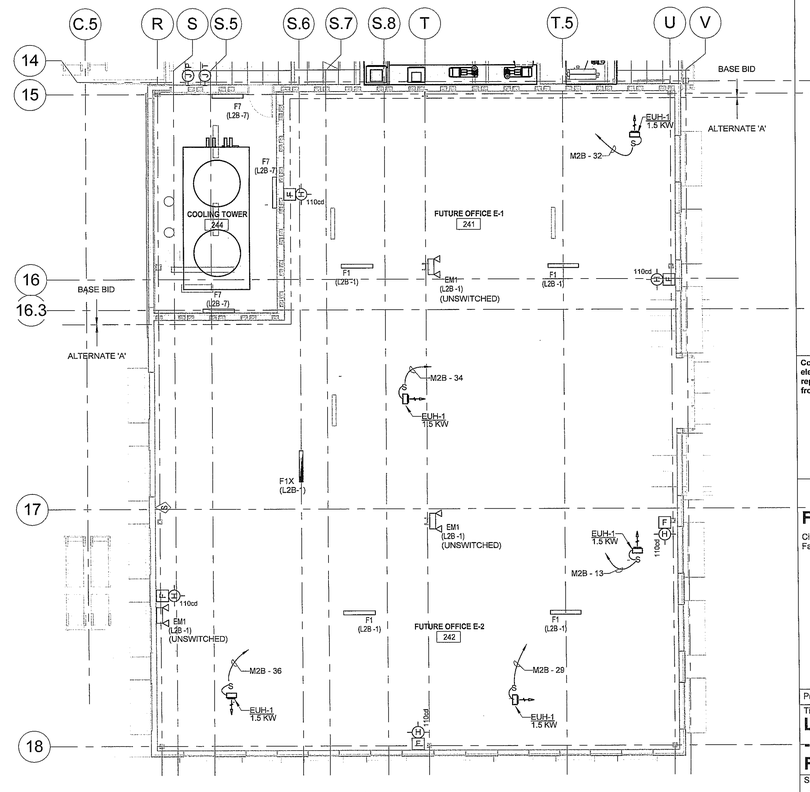



Level 2 - Tenant Spaces A, B, C & D - Lighting, Power and Fire Alarm - Alternate 'B'
1/8" = 1'-0"




Level 2 - Tenant Spaces J & K - Lighting, Power and Fire Alarm - Alternate 'A'
1/8" = 1'-0"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NANCY C. CHRISMAN REGISTERED SEAL 027409 ENGINEER NANCY C. CHRISMAN
12-19-14

Mc&L# 211.026
M&L License No. C-0502

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# FAST Multi-Modal Center

City of Fayetteville
Fayetteville, NC

Project Number 621A

Title
## Level 2 - Tenant Spaces - Lighting, Power and Fire Alarm

Sheet
# E102b

Plate of


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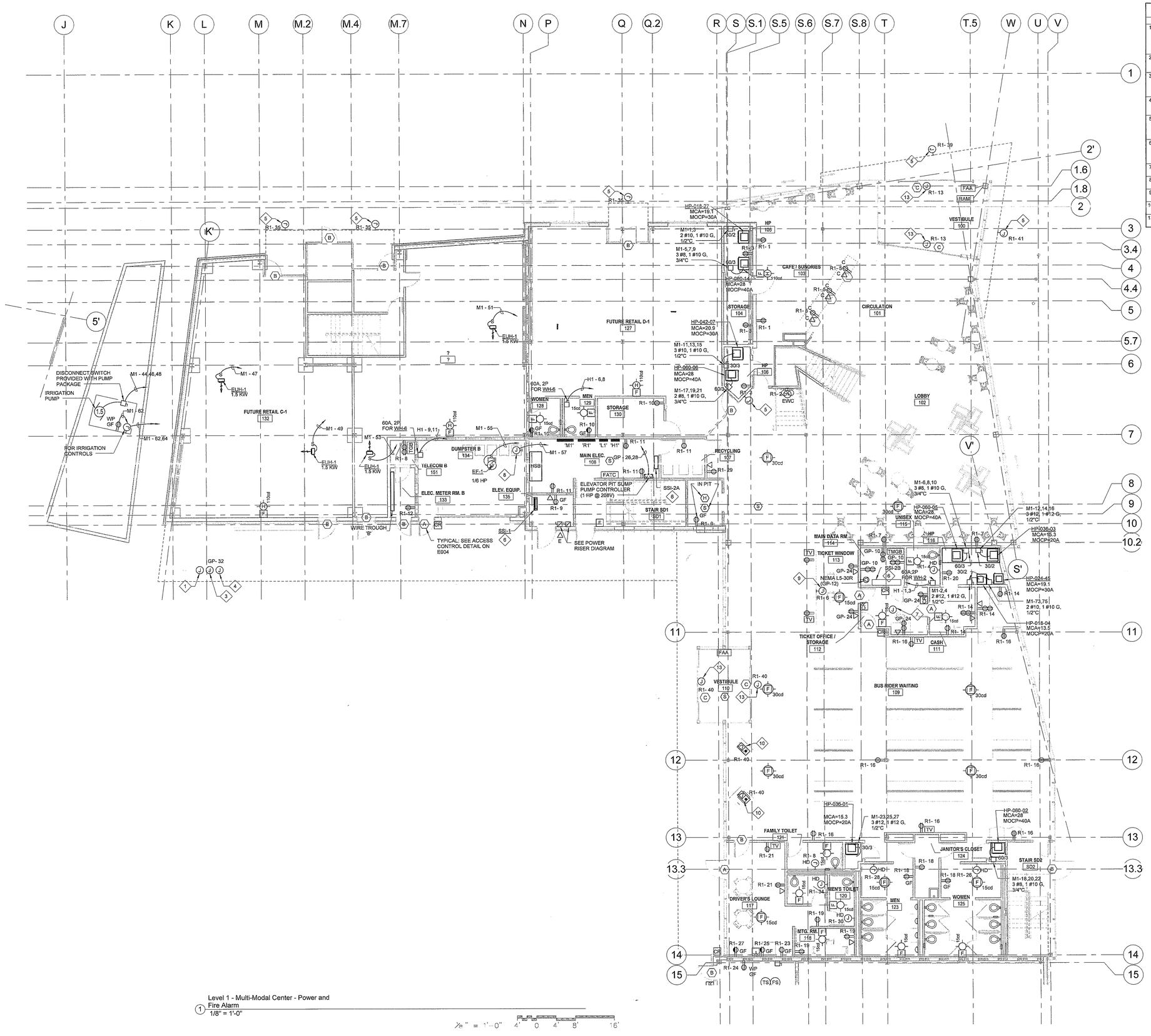


Level 1 - Multi-Modal Center - Power and Fire Alarm
1/8" = 1'-0"

1/8" = 1'-0"  4'  0  4'  8'  16'

## ◇KEYED NOTES

| | |
|---|---|
| 1 | SINGLE GANG CAST BOX WITH WEATHERPROOF COVER PLATE FOR VIDEO SURVEILLANCE CAMERA. INSTALL ON CANOPY STRUCTURE AT 10'-0" AFF. FINAL LOCATION AND MOUNTING HEIGHT TO BE VERIFIED PRIOR TO ROUGH-IN. PROVIDE 3/4"C TO TERMINAL CABINET IN SHOP 138 FOR DATA CABLING. |
| 2 | SINGLE GANG CAST BOX WITH WEATHERPROOF COVER PLATE FOR EMERGENCY CALL BOX. INSTALL ON CANOPY STRUCTURE AT 48" AFF. PROVIDE 3/4"C TO RACK LOCATION IN SHOP 138. |
| 3 | SINGLE GANG CAST BOX WITH WEATHERPROOF COVER PLATE FOR BUS BAY SIGNAGE POWER. INSTALL ON CANOPY STRUCTURE PER DETAIL ON SHEET E201c.2. PROVIDE 120V POWER CONNECTION TO SIGN. |
| 4 | SINGLE GANG CAST BOX WITH WEATHERPROOF COVER PLATE FOR BUS BAY SIGNAGE DATA CABLING. INSTALL ON CANOPY STRUCTURE PER DETAIL ON SHEET E201c.2. |
| 5 | SINGLE GANG CAST BOX WITH WEATHERPROOF COVER PLATE FOR BUILDING SIGN POWER. INSTALL ON CANOPY STRUCTURE PER DETAIL ON SHEET E201c.2. PROVIDE 120V POWER CONNECTION TO SIGN. |
| 6 | SPLIT SYSTEM INDOOR UNIT IS POWERED FROM OUTDOOR UNIT ON ROOF. RUN 2#12,1#12G,1/2"C FROM ASSOCIATED OUTDOOR UNIT. SEE SHEET E401 FOR LOCATION OF OUTDOOR UNITS. |
| 7 | J-BOX ABOVE ACCESSIBLE CEILING WITH 120V POWER FOR ACCESS CONTROL POWER SUPPLY. |
| 8 | SURFACE MOUNTED OUTLET BOX WITH 120V POWER FOR HEAT TRACE. |
| 9 | FLUSH-IN-WALL OUTLET BOX WITH 120V POWER FOR TRANSACTION DRAWERS. |
| 10 | EXTEND 1 1/4"C TO ABOVE ACCESSIBLE CEILING OF LEVEL 1, AND STUB-OUT WITH NYLON BUSHING. |
| 13 | J-BOX ABOVE ACCESSIBLE CEILING WITH 120V POWER CONNECTION TO OPERATOR. |


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**FAST Multi-Modal Center**
City of Fayetteville
Fayetteville, NC

Project Number 621A

Title
**Level 1 - Multi-Modal Center - Power and Fire Alarm**

Sheet
# E201a

Plate of

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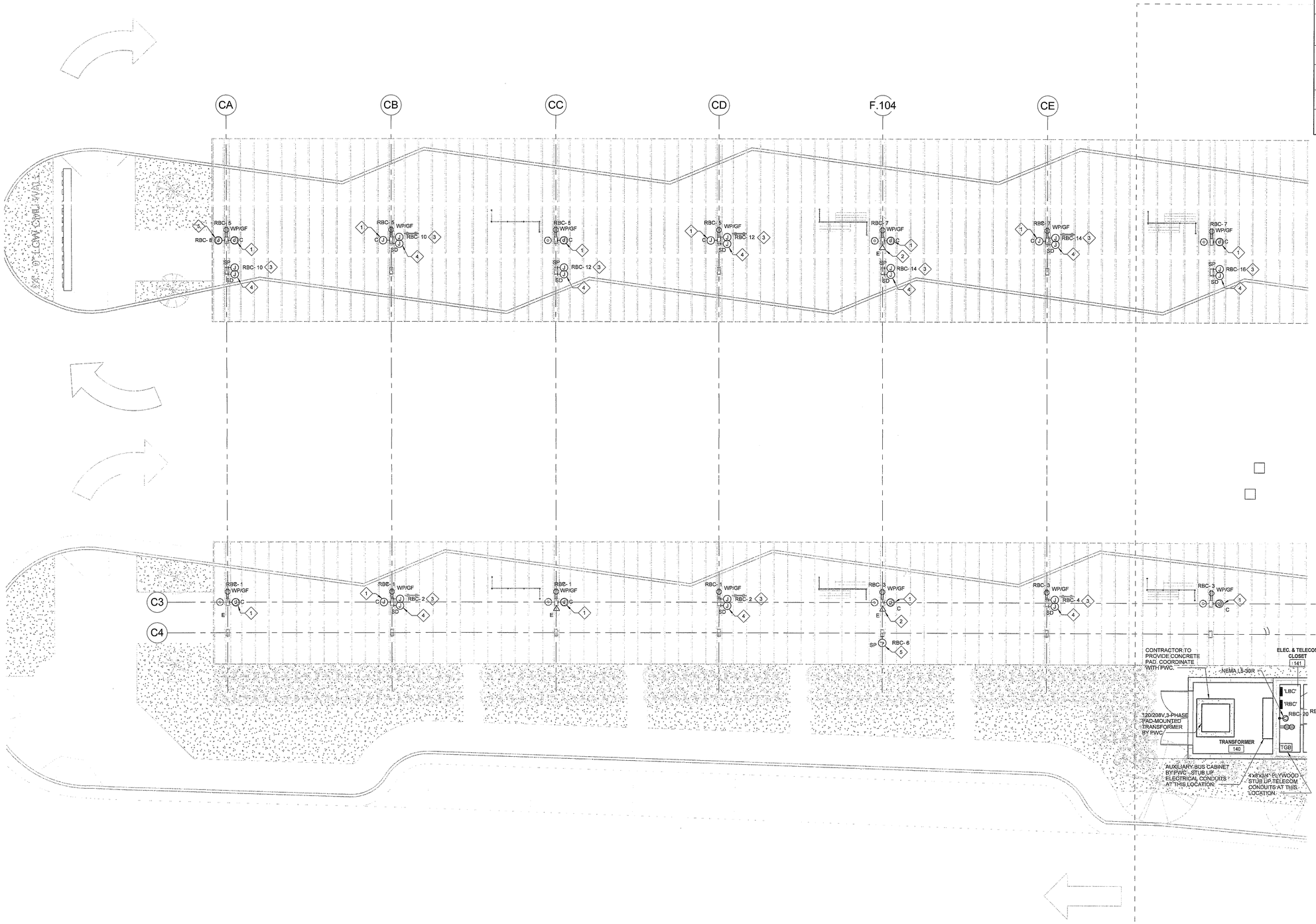


## KEYED NOTES

| | |
|---|---|
| 1 | SINGLE GANG CAST BOX WITH WEATHERPROOF COVER PLATE FOR VIDEO SURVEILLANCE CAMERA. INSTALL ON CANOPY STRUCTURE AT 10'-0" AFF. FINAL LOCATION AND MOUNTING HEIGHT TO BE VERIFIED PRIOR TO ROUGH-IN. PROVIDE 3/4"C TO TERMINAL CABINET IN SHOP 138 FOR DATA CABLING. |
| 2 | SINGLE GANG CAST BOX WITH WEATHERPROOF COVER PLATE FOR EMERGENCY CALL BOX. INSTALL ON CANOPY STRUCTURE AT 48" AFF. PROVIDE 3/4"C TO RACK LOCATION IN SHOP 138. |
| 3 | SINGLE GANG CAST BOX WITH WEATHERPROOF COVER PLATE FOR BUS BAY SIGNAGE POWER. INSTALL ON CANOPY STRUCTURE PER DETAIL ON SHEET E201c.2. PROVIDE 120V POWER CONNECTION TO SIGN. |
| 4 | SINGLE GANG CAST BOX WITH WEATHERPROOF COVER PLATE FOR BUS BAY SIGNAGE DATA CABLING. INSTALL ON CANOPY STRUCTURE PER DETAIL ON SHEET E201c.2. |
| 5 | SINGLE GANG CAST BOX WITH WEATHERPROOF COVER PLATE FOR BUILDING SIGN POWER. INSTALL ON CANOPY STRUCTURE PER DETAIL ON SHEET E201c.2. PROVIDE 120V POWER CONNECTION TO SIGN. |

1 Bus Canopy Power Plan - West
1/8" = 1'-0"

1/8" = 1'-0" 4' 0 4' 8' 16'

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**FAST Multi-Modal Center**
City of Fayetteville
Fayetteville, NC

Project Number 621A

Title
**Bus Canopy Power - West**

Sheet
# E201c.1

Plate of

3/4/2014 10:19:47 AM

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## ◇ KEYED NOTES

| | |
|---|---|
| 1 | SINGLE GANG CAST BOX WITH WEATHERPROOF COVER PLATE FOR VIDEO SURVEILLANCE CAMERA. INSTALL ON CANOPY STRUCTURE AT 10'-0" AFF. FINAL LOCATION AND MOUNTING HEIGHT TO BE VERIFIED PRIOR TO ROUGH-IN. PROVIDE 3/4"C TO TERMINAL CABINET IN SHOP 138 FOR DATA CABLING. |
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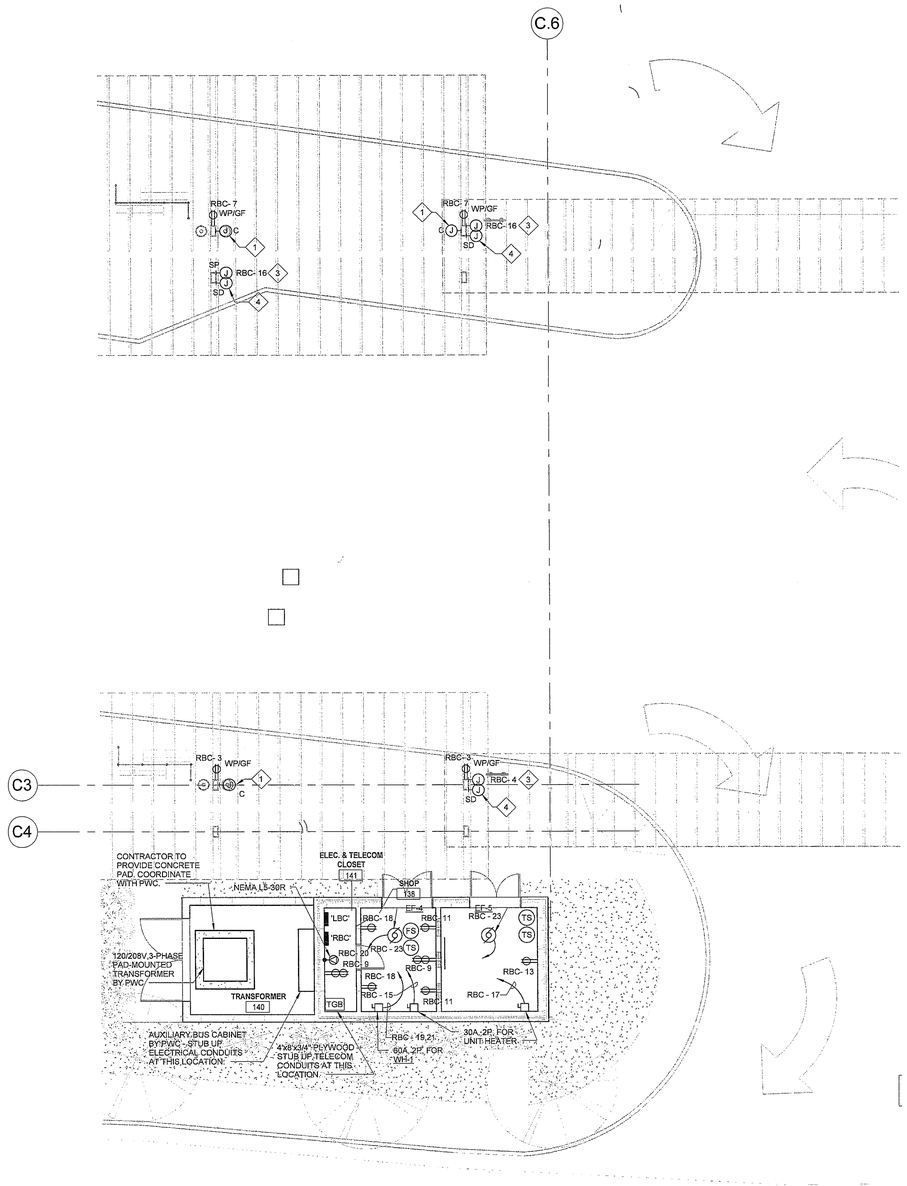
| 4 | SINGLE GANG CAST BOX WITH WEATHERPROOF COVER PLATE FOR BUS BAY SIGNAGE DATA CABLING. INSTALL ON CANOPY STRUCTURE PER DETAIL ON SHEET E201c.2. |




1 Bus Canopy Power Plan - East
1/8" = 1'-0"

3/8" = 1'-0" 4' 0 4' 8' 16'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**FAST Multi-Modal Center**
City of Fayetteville
Fayetteville, NC

Project Number 621A

Title
**Bus Canopy Power - East**

Sheet
# E201c.2

Plate of


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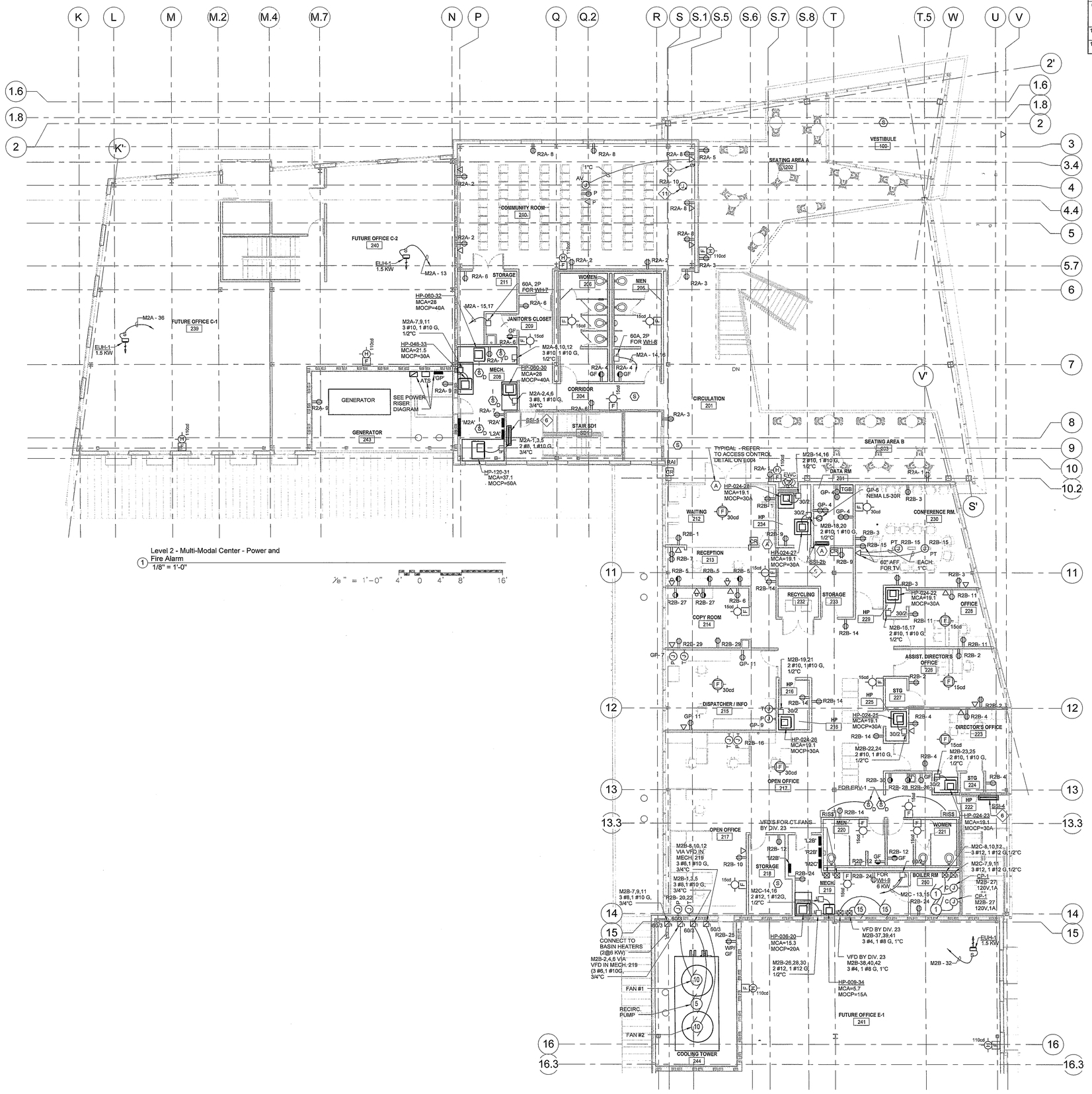


## ◇ KEYED NOTES

| | |
|---|---|
| 6 | SPLIT SYSTEM INDOOR UNIT IS POWERED FROM OUTDOOR UNIT ON ROOF. RUN 2#12,1#12G,1/2"C FROM ASSOCIATED OUTDOOR UNIT. SEE SHEET E401 FOR LOCATION OF OUTDOOR UNITS. |
| 11 | J-BOX ABOVE ACCESSIBLE CEILING TO MOTORIZED PROJECTION SCREEN. |
| 12 | SINGLE GANG OUTLET BOX FLUSH IN WALL AT 48" AFF FOR PROJECTION SCREEN LOW VOLTAGE CONTROL SWITCH. |


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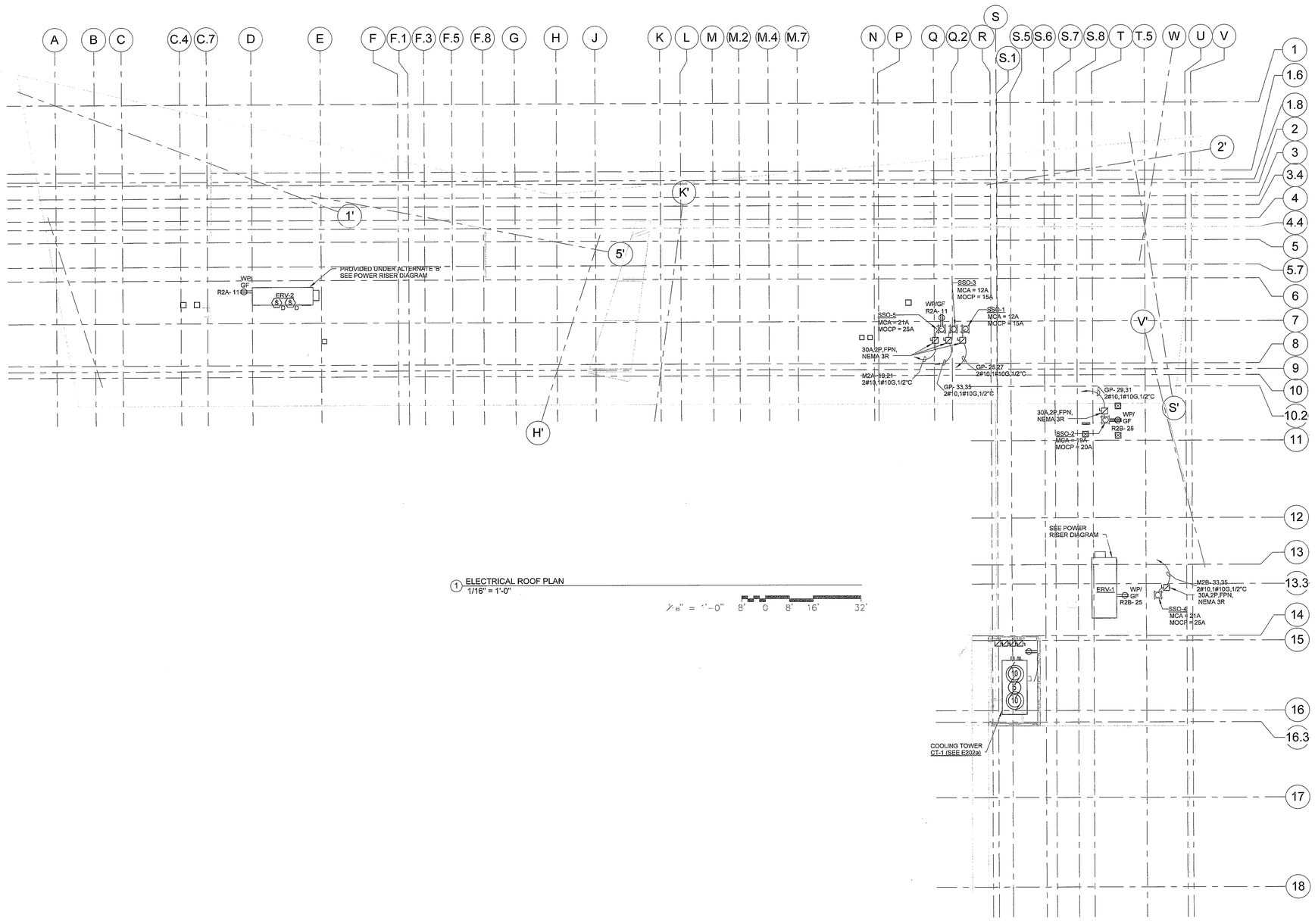
**FAST Multi-Modal Center**
City of Fayetteville
Fayetteville, NC

Project Number 621A

Title
**Level 2 - Multi-Modal Center - Power and Fire Alarm**

Sheet
# E202a

Plate of




1 ELECTRICAL ROOF PLAN
1/16" = 1'-0"

1/16" = 1'-0" 8' 0 8' 16' 32'

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**FAST Multi-Modal Center**
City of Fayetteville
Fayetteville, NC

Project Number 621A

Title
**Electrical Roof Plan**

Sheet
# E401

Plate of

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## PANEL L1

| LOAD (KVA) A | B | C | DESCRIPTION | WIRE SIZE | BRKR RAT'G | CKT. NO. | CKT. NO. | BRKR RAT'G | WIRE SIZE | DESCRIPTION | LOAD (KVA) A | B | C |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0.6 | | | LTG. – TENANT (TEMP) | 12 | 20/1 | 1 | 2 | 20/1 | 12 | LTG. – TENANT (TEMP) | 0.3 | | |
| | 0.1 | | LTG. – TENANT EXITS | 12 | 20/1 | 3 | 4 | 20/1 | 12 | LTG. – TENANT EXITS | | 0.1 | |
| | | 0.2 | LTG. – DUMPSTER | 12 | 20/1 | 5 | 6 | 20/1 | 12 | LTG. – DUMPSTER | | | 0.2 |
| 0.4 | | | LTG. – EXTERIOR | 10 | 20/1 | 7 | 8 | 20/1 | 12 | LTG. – TENANT (TEMP) | 0.3 | | |
| | 0.3 | | LTG. – EXTERIOR | 10 | 20/1 | 9 | 10 | 20/1 | 12 | LTG. – TENANT EXITS | | 0.1 | |
| | | 0.8 | LTG. – TOILETS | 12 | 20/1 | 11 | 12 | 20/1 | 12 | LTG. – EQUIP/STAIRS | | | 0.9 |
| 0.8 | | | LTG. – CISTERNS | 10 | 20/1 | 13 | 14 | 20/1 | 12 | LTG. – FOOD COURT | 0.7 | | |
| | 0.4 | | LTG. – WALL GRAZER | 12 | 20/1 | 15 | 16 | 20/1 | 10 | FLAGPOLE LIGHTS | | 1.1 | |
| | | 0.1 | LTG. – ELEV. PIT | 12 | 20/1 | 17 | 18 | 20/1 | 10 | LTG. – EXTERIOR | | | 0.5 |
| 0.0 | | | SPARE | . | 20/1 | 19 | 20 | 20/1 | . | SPARE | 0.0 | | |
| | 0.0 | | SPARE | . | 20/1 | 21 | 22 | 20/1 | . | SPARE | | 0.0 | |
| | | 0.0 | SPARE | . | 20/1 | 23 | 24 | 20/1 | . | SPARE | | | 0.0 |
| 0.0 | | | SPARE | . | 20/1 | 25 | 26 | 20/1 | . | SPARE | 0.0 | | |
| | 0.0 | | SPARE | . | 20/1 | 27 | 28 | 20/1 | . | SPARE | | 0.0 | |
| | | 0.0 | SPARE | . | 20/1 | 29 | 30 | 20/1 | . | SPARE | | | 0.0 |
| 0.0 | | | SPACE ONLY | . | . | 31 | 32 | . | . | SPACE ONLY | 0.0 | | |
| | 0.0 | | SPACE ONLY | . | . | 33 | 34 | . | . | SPACE ONLY | | 0.0 | |
| | | 0.0 | SPACE ONLY | . | . | 35 | 36 | . | . | SPACE ONLY | | | 0.0 |
| 0.0 | | | SPACE ONLY | . | . | 37 | 38 | . | . | SPACE ONLY | 0.0 | | |
| | 0.0 | | SPACE ONLY | . | . | 39 | 40 | . | . | SPACE ONLY | | 0.0 | |
| | | 0.0 | SPACE ONLY | . | . | 41 | 42 | . | . | SPACE ONLY | | | 0.0 |

TYPE: BRANCH CIRCUIT
MOUNTING: SURFACE
SUPPLY: 208/120V, 3-PH, 4W
MAINS: 100 AMP MAIN LUGS ONLY
SCIR: 35,000 AMPERES
NOTES:
1. WITH EQUIPMENT GROUND BUS.
2. ALL ACTIVE BRANCH CIRCUITS SHALL BE CONTROLLED FROM LIGHTING CONTROL SYSTEM. SEE SPEC SECTION 260943.

GROSS PHASE TOTALS: A= 3.1 KVA, B= 2.0 KVA, C= 2.7 KVA

| CONNECTED LOAD | | NEC CALCULATED DEMAND LOAD | |
|---|---|---|---|
| LIGHTING | 7.7 KVA | (125%) | 9.6 KVA |
| HEATING | 0.0 KVA | HEATING AND COOLING: | |
| A/C & HEAT PUMPS | 0.0 KVA | (100% – MINUS N/C LOAD) | 0.0 KVA |
| AIR HANDLING & FANS | 0.0 KVA | (100%) | 0.0 KVA |
| RECEPTACLES | 0.0 KVA | (1ST 10 KVA + 50% OF REM.) | 0.0 KVA |
| ELECTRIC WATER HEATING | 0.0 KVA | (125%) | 0.0 KVA |
| ELEVATORS | 0.0 KVA | (100%) | 0.0 KVA |
| FOOD PROCESSING | 0.0 KVA | (100%) | 0.0 KVA |
| PROCESS | 0.0 KVA | (100%) | 0.0 KVA |
| MISCELLANEOUS | 0.0 KVA | (100%) | 0.0 KVA |
| | | 25% OF LARGEST MOTOR: | 0.0 KVA |
| TOTAL CONNECTED LOAD | 7.7 KVA | TOTAL NEC DEMAND LOAD: | 9.6 KVA |
| WORST PHASE (W/D.F.): | 31.9 AMPS | DEMAND LOAD CURRENT: | 26.6 AMPS |

## PANEL L2A

| LOAD (KVA) A | B | C | DESCRIPTION | WIRE SIZE | BRKR RAT'G | CKT. NO. | CKT. NO. | BRKR RAT'G | WIRE SIZE | DESCRIPTION | LOAD (KVA) A | B | C |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0.6 | | | LTG. – TENANT | 12 | 20/1 | 1 | 2 | 20/1 | 12 | LTG. – EQUIP./STOR. | 0.3 | | |
| | 0.2 | | LTG. – TENANT | 12 | 20/1 | 3 | 4 | 20/1 | 12 | LTG. – CORR./STAIRS | | 0.7 | |
| | | 0.3 | LTG. – VESTIBULE | 12 | 20/1 | 5 | 6 | 20/1 | 12 | LTG. – COMMUNITY RM. | | | 0.8 |
| 1.5 | | | LTG. – EXTERIOR | 10 | 20/1 | 7 | 8 | 20/1 | 10 | LTG. – EXTERIOR | 0.7 | | |
| | 1.3 | | LTG. – EXTERIOR | 10 | 20/1 | 9 | 10 | 20/1 | 12 | LTG. – WALL GRAZER | | 0.3 | |
| | | 1.1 | LTG. – EXTERIOR | 10 | 20/1 | 11 | 12 | 20/1 | 12 | LTG. – WALL GRAZER | | | 0.4 |
| 0.0 | | | SPARE | . | 20/1 | 13 | 14 | 20/1 | . | SPARE | 0.0 | | |
| | 0.0 | | SPARE | . | 20/1 | 15 | 16 | 20/1 | . | SPARE | | 0.0 | |
| | | 0.0 | SPARE | . | 20/1 | 17 | 18 | 20/1 | . | SPARE | | | 0.0 |
| 0.0 | | | SPARE | . | 20/1 | 19 | 20 | 20/1 | . | SPARE | 0.0 | | |
| | 0.0 | | SPARE | . | 20/1 | 21 | 22 | 20/1 | . | SPARE | | 0.0 | |
| | | 0.0 | SPARE | . | 20/1 | 23 | 24 | 20/1 | . | SPARE | | | 0.0 |
| 0.0 | | | SPACE ONLY | . | . | 25 | 26 | . | . | SPACE ONLY | 0.0 | | |
| | 0.0 | | SPACE ONLY | . | . | 27 | 28 | . | . | SPACE ONLY | | 0.0 | |
| | | 0.0 | SPACE ONLY | . | . | 29 | 30 | . | . | SPACE ONLY | | | 0.0 |
| 0.0 | | | SPACE ONLY | . | . | 31 | 32 | . | . | SPACE ONLY | 0.0 | | |
| | 0.0 | | SPACE ONLY | . | . | 33 | 34 | . | . | SPACE ONLY | | 0.0 | |
| | | 0.0 | SPACE ONLY | . | . | 35 | 36 | . | . | SPACE ONLY | | | 0.0 |
| 0.0 | | | SPACE ONLY | . | . | 37 | 38 | . | . | SPACE ONLY | 0.0 | | |
| | 0.0 | | SPACE ONLY | . | . | 39 | 40 | . | . | SPACE ONLY | | 0.0 | |
| | | 0.0 | SPACE ONLY | . | . | 41 | 42 | . | . | SPACE ONLY | | | 0.0 |

TYPE: BRANCH CIRCUIT
MOUNTING: SURFACE
SUPPLY: 208/120V, 3-PH, 4W
MAINS: 100 AMP MAIN LUGS ONLY
SCIR: 35,000 AMPERES
NOTES:
1. WITH EQUIPMENT GROUND BUS.
2. ALL ACTIVE BRANCH CIRCUITS SHALL BE CONTROLLED FROM LIGHTING CONTROL SYSTEM. SEE SPEC SECTION 260943.

GROSS PHASE TOTALS: A= 3.1 KVA, B= 2.5 KVA, C= 2.6 KVA

| CONNECTED LOAD | | NEC CALCULATED DEMAND LOAD | |
|---|---|---|---|
| LIGHTING | 8.2 KVA | (125%) | 10.3 KVA |
| HEATING | 0.0 KVA | HEATING AND COOLING: | |
| A/C & HEAT PUMPS | 0.0 KVA | (100% – MINUS N/C LOAD) | 0.0 KVA |
| AIR HANDLING & FANS | 0.0 KVA | (100%) | 0.0 KVA |
| RECEPTACLES | 0.0 KVA | (1ST 10 KVA + 50% OF REM.) | 0.0 KVA |
| ELECTRIC WATER HEATING | 0.0 KVA | (125%) | 0.0 KVA |
| ELEVATORS | 0.0 KVA | (100%) | 0.0 KVA |
| FOOD PROCESSING | 0.0 KVA | (100%) | 0.0 KVA |
| PROCESS | 0.0 KVA | (100%) | 0.0 KVA |
| MISCELLANEOUS | 0.0 KVA | (100%) | 0.0 KVA |
| | | 25% OF LARGEST MOTOR: | 0.0 KVA |
| TOTAL CONNECTED LOAD | 8.2 KVA | TOTAL NEC DEMAND LOAD: | 10.3 KVA |
| WORST PHASE (W/D.F.): | 32.3 AMPS | DEMAND LOAD CURRENT: | 28.5 AMPS |

## PANEL L2B

| LOAD (KVA) A | B | C | DESCRIPTION | WIRE SIZE | BRKR RAT'G | CKT. NO. | CKT. NO. | BRKR RAT'G | WIRE SIZE | DESCRIPTION | LOAD (KVA) A | B | C |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0.2 | | | LTG. – TENANT | 12 | 20/1 | 1 | 2 | 20/1 | 12 | LTG. – RECEPTION | 1.0 | | |
| | 0.0 | | SPARE | . | 20/1 | 3 | 4 | 20/1 | 12 | LTG. – WALL GRAZER | | 0.2 | |
| | | 0.2 | LTG. – COOLING TWR. | 12 | 20/1 | 5 | 6 | 20/1 | 12 | LTG. – OPEN OFFICE | | | 0.7 |
| 1.1 | | | LTG. – OPEN OFFICE | 12 | 20/1 | 7 | 8 | 20/1 | 12 | LTG. – CONFERENCE | 1.0 | | |
| | 1.4 | | LTG. – OPEN OFFICE | 12 | 20/1 | 9 | 10 | 20/1 | 12 | LTG. – OFFICES | | 1.3 | |
| | | 0.5 | LTG. – OPEN OFFICE | 12 | 20/1 | 11 | 12 | 20/1 | 12 | LTG. – TOILETS/STAIR | | | 0.6 |
| 0.0 | | | SPARE | . | 20/1 | 13 | 14 | 20/1 | . | SPARE | 0.0 | | |
| | 0.0 | | SPARE | . | 20/1 | 15 | 16 | 20/1 | . | SPARE | | 0.0 | |
| | | 0.0 | SPARE | . | 20/1 | 17 | 18 | 20/1 | . | SPARE | | | 0.0 |
| 0.0 | | | SPARE | . | 20/1 | 19 | 20 | 20/1 | . | SPARE | 0.0 | | |
| | 0.0 | | SPARE | . | 20/1 | 21 | 22 | 20/1 | . | SPARE | | 0.0 | |
| | | 0.0 | SPARE | . | 20/1 | 23 | 24 | 20/1 | . | SPARE | | | 0.0 |
| 0.0 | | | SPACE ONLY | . | . | 25 | 26 | . | . | SPACE ONLY | 0.0 | | |
| | 0.0 | | SPACE ONLY | . | . | 27 | 28 | . | . | SPACE ONLY | | 0.0 | |
| | | 0.0 | SPACE ONLY | . | . | 29 | 30 | . | . | SPACE ONLY | | | 0.0 |
| 0.0 | | | SPACE ONLY | . | . | 31 | 32 | . | . | SPACE ONLY | 0.0 | | |
| | 0.0 | | SPACE ONLY | . | . | 33 | 34 | . | . | SPACE ONLY | | 0.0 | |
| | | 0.0 | SPACE ONLY | . | . | 35 | 36 | . | . | SPACE ONLY | | | 0.0 |
| 0.0 | | | SPACE ONLY | . | . | 37 | 38 | . | . | SPACE ONLY | 0.0 | | |
| | 0.0 | | SPACE ONLY | . | . | 39 | 40 | . | . | SPACE ONLY | | 0.0 | |
| | | 0.0 | SPACE ONLY | . | . | 41 | 42 | . | . | SPACE ONLY | | | 0.0 |

TYPE: BRANCH CIRCUIT
MOUNTING: SURFACE
SUPPLY: 208/120V, 3-PH, 4W
MAINS: 100 AMP MAIN LUGS ONLY
SCIR: 10,000 AMPERES
NOTES:
1. WITH EQUIPMENT GROUND BUS.
2. ALL ACTIVE BRANCH CIRCUITS SHALL BE CONTROLLED FROM LIGHTING CONTROL SYSTEM. SEE SPEC SECTION 260943.

GROSS PHASE TOTALS: A= 3.2 KVA, B= 3.0 KVA, C= 1.9 KVA

| CONNECTED LOAD | | NEC CALCULATED DEMAND LOAD | |
|---|---|---|---|
| LIGHTING | 8.1 KVA | (125%) | 10.1 KVA |
| HEATING | 0.0 KVA | HEATING AND COOLING: | |
| A/C & HEAT PUMPS | 0.0 KVA | (100% – MINUS N/C LOAD) | 0.0 KVA |
| AIR HANDLING & FANS | 0.0 KVA | (100%) | 0.0 KVA |
| RECEPTACLES | 0.0 KVA | (1ST 10 KVA + 50% OF REM.) | 0.0 KVA |
| ELECTRIC WATER HEATING | 0.0 KVA | (125%) | 0.0 KVA |
| ELEVATORS | 0.0 KVA | (100%) | 0.0 KVA |
| FOOD PROCESSING | 0.0 KVA | (100%) | 0.0 KVA |
| PROCESS | 0.0 KVA | (100%) | 0.0 KVA |
| MISCELLANEOUS | 0.0 KVA | (100%) | 0.0 KVA |
| | | 25% OF LARGEST MOTOR: | 0.0 KVA |
| TOTAL CONNECTED LOAD | 8.1 KVA | TOTAL NEC DEMAND LOAD: | 10.1 KVA |
| WORST PHASE (W/D.F.): | 33.7 AMPS | DEMAND LOAD CURRENT: | 28.1 AMPS |

## PANEL LBC

| LOAD (KVA) A | B | C | DESCRIPTION | WIRE SIZE | BRKR RAT'G | CKT. NO. | CKT. NO. | BRKR RAT'G | WIRE SIZE | DESCRIPTION | LOAD (KVA) A | B | C |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0.4 | | | LTG. – BUS CANOPY | 10 | 20/1 | 1 | 2 | 20/1 | 10 | LTG. – SITE | 0.4 | | |
| | 0.4 | | LTG. – BUS CANOPY | 10 | 20/1 | 3 | 4 | 20/1 | 10 | LTG. – SHOP/B.FLOW | | 0.2 | |
| | | 1.1 | LTG. – BUS CANOPY | 10 | 20/1 | 5 | 6 | 20/1 | 10 | LTG. – SIGN | | | 0.2 |
| 1.4 | | | LTG. – BUS CANOPY | 10 | 20/1 | 7 | 8 | 20/1 | . | SPARE | 0.0 | | |
| | 1.3 | | LTG. – BUS CANOPY | 10 | 20/1 | 9 | 10 | 20/1 | . | SPARE | | 0.0 | |
| | | 1.1 | LTG. – BUS CANOPY | 10 | 20/1 | 11 | 12 | 20/1 | . | SPARE | | | 0.0 |
| 1.4 | | | LTG. – BUS CANOPY | 10 | 20/1 | 13 | 14 | 20/1 | . | SPARE | 0.0 | | |
| | 1.3 | | LTG. – BUS CANOPY | 10 | 20/1 | 15 | 16 | 20/1 | . | SPARE | | 0.0 | |
| | | 0.0 | SPARE | . | 20/1 | 17 | 18 | 20/1 | . | SPARE | | | 0.0 |
| 0.0 | | | SPARE | . | 20/1 | 19 | 20 | 20/1 | . | SPARE | 0.0 | | |
| | 0.0 | | SPARE | . | 20/1 | 21 | 22 | 20/1 | . | SPARE | | 0.0 | |
| | | 0.0 | SPARE | . | 20/1 | 23 | 24 | 20/1 | . | SPARE | | | 0.0 |
| 0.0 | | | SPACE ONLY | . | . | 25 | 26 | . | . | SPACE ONLY | 0.0 | | |
| | 0.0 | | SPACE ONLY | . | . | 27 | 28 | . | . | SPACE ONLY | | 0.0 | |
| | | 0.0 | SPACE ONLY | . | . | 29 | 30 | . | . | SPACE ONLY | | | 0.0 |
| 0.0 | | | SPACE ONLY | . | . | 31 | 32 | . | . | SPACE ONLY | 0.0 | | |
| | 0.0 | | SPACE ONLY | . | . | 33 | 34 | . | . | SPACE ONLY | | 0.0 | |
| | | 0.0 | SPACE ONLY | . | . | 35 | 36 | . | . | SPACE ONLY | | | 0.0 |
| 0.0 | | | SPACE ONLY | . | . | 37 | 38 | . | . | SPACE ONLY | 0.0 | | |
| | 0.0 | | SPACE ONLY | . | . | 39 | 40 | . | . | SPACE ONLY | | 0.0 | |
| | | 0.0 | SPACE ONLY | . | . | 41 | 42 | . | . | SPACE ONLY | | | 0.0 |

TYPE: BRANCH CIRCUIT
MOUNTING: SURFACE
SUPPLY: 208/120V, 3-PH, 4W
MAINS: 100 AMP MAIN LUGS ONLY
SCIR: 10,000 AMPERES
NOTES:
1. WITH EQUIPMENT GROUND BUS.
2. ALL ACTIVE BRANCH CIRCUITS SHALL BE CONTROLLED FROM LIGHTING CONTROL SYSTEM. SEE SPEC SECTION 260943.

GROSS PHASE TOTALS: A= 3.7 KVA, B= 3.1 KVA, C= 2.4 KVA

| CONNECTED LOAD | | NEC CALCULATED DEMAND LOAD | |
|---|---|---|---|
| LIGHTING | 9.2 KVA | (125%) | 11.5 KVA |
| HEATING | 0.0 KVA | HEATING AND COOLING: | |
| A/C & HEAT PUMPS | 0.0 KVA | (100% – MINUS N/C LOAD) | 0.0 KVA |
| AIR HANDLING & FANS | 0.0 KVA | (100%) | 0.0 KVA |
| RECEPTACLES | 0.0 KVA | (1ST 10 KVA + 50% OF REM.) | 0.0 KVA |
| ELECTRIC WATER HEATING | 0.0 KVA | (125%) | 0.0 KVA |
| ELEVATORS | 0.0 KVA | (100%) | 0.0 KVA |
| FOOD PROCESSING | 0.0 KVA | (100%) | 0.0 KVA |
| PROCESS | 0.0 KVA | (100%) | 0.0 KVA |
| MISCELLANEOUS | 0.0 KVA | (100%) | 0.0 KVA |
| | | 25% OF LARGEST MOTOR: | 0.0 KVA |
| TOTAL CONNECTED LOAD | 9.2 KVA | TOTAL NEC DEMAND LOAD: | 11.5 KVA |
| WORST PHASE (W/D.F.): | 38.5 AMPS | DEMAND LOAD CURRENT: | 31.9 AMPS |

## PANEL M1 (LEFT SECTION)

| LOAD (KVA) A | B | C | DESCRIPTION | WIRE SIZE | BRKR RAT'G | CKT. NO. | CKT. NO. | BRKR RAT'G | WIRE SIZE | DESCRIPTION | LOAD (KVA) A | B | C |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1.6 | | | HP-024-27 | 10 | 30/2 | 1 | 2 | 20/2 | 12 | HP-018-04 | 1.2 | | |
| | 1.6 | | . | 10 | . | 3 | 4 | . | 12 | . | | 1.2 | |
| | | 2.9 | HP-060-14 | 8 | 40/3 | 5 | 6 | 40/3 | 8 | HP-060-05 | | | 2.9 |
| 2.9 | | | . | 8 | . | 7 | 8 | . | 8 | . | 2.9 | | |
| | 2.9 | | . | 8 | . | 9 | 10 | . | 8 | . | | 2.9 | |
| | | 2.1 | HP-042-07 | 10 | 30/3 | 11 | 12 | 20/3 | 12 | HP-036-03 | | | 1.6 |
| 2.1 | | | . | 10 | . | 13 | 14 | . | 12 | . | 1.6 | | |
| | 2.1 | | . | 10 | . | 15 | 16 | . | 12 | . | | 1.6 | |
| | | 2.9 | HP-060-06 | 8 | 40/3 | 17 | 18 | 40/3 | 8 | HP-060-02 | | | 2.9 |
| 2.9 | | | . | 8 | . | 19 | 20 | . | 8 | . | 2.9 | | |
| | 2.9 | | . | 8 | . | 21 | 22 | . | 8 | . | | 2.9 | |
| | | 1.6 | HP-036-01 | 12 | 20/3 | 23 | 24 | 20/1 | 12 | EUH-1 (1.5KW) | | | 1.5 |
| 1.6 | | | . | 12 | . | 25 | 26 | 20/1 | 12 | EUH-1 (1.5KW) | 1.5 | | |
| | 1.6 | | . | 12 | . | 27 | 28 | 20/1 | 12 | EUH-1 (1.5KW) | | 1.5 | |
| | | 1.5 | EUH-1 (1.5KW) | 12 | 20/1 | 29 | 30 | 20/1 | 12 | EUH-1 (1.5KW) | | | 1.5 |
| 1.5 | | | EUH-1 (1.5KW) | 12 | 20/1 | 31 | 32 | 20/1 | 12 | EUH-1 (1.5KW) | 1.5 | | |
| | 1.5 | | EUH-1 (1.5KW) | 12 | 20/1 | 33 | 34 | 20/1 | 12 | EUH-1 (1.5KW) | | 1.5 | |
| | | 1.6 | HP-012h-10 | 10 | 25/1 | 35 | 36 | 20/1 | 12 | EUH-1 (1.5KW) | | | 1.5 |
| 1.5 | | | EUH-1 (1.5KW) | 12 | 20/1 | 37 | 38 | 20/1 | 12 | EUH-1 (1.5KW) | 1.5 | | |
| | 1.5 | | EUH-1 (1.5KW) | 12 | 20/1 | 39 | 40 | 20/1 | 12 | EUH-1 (1.5KW) | | 1.5 | |
| | | 1.5 | EUH-1 (1.5KW) | 12 | 20/1 | 41 | 42 | 20/1 | 12 | EUH-1 (1.5KW) | | | 1.5 |

TYPE: BRANCH CIRCUIT
MOUNTING: SURFACE
SUPPLY: 208/120V, 3-PH, 4W
MAINS: 400 AMP MAIN LUGS ONLY
SCIR: 35,000 AMPERES
NOTES:
1. WITH EQUIPMENT GROUND BUS.

TWO-SECTION PANELBOARD WITH 42 POLES PER SECTION, DOUBLE MAIN LUGS AND CABLE CONNECTION TO SECOND SECTION.

## PANEL M1 (RIGHT SECTION)

| LOAD (KVA) A | B | C | DESCRIPTION | WIRE SIZE | BRKR RAT'G | CKT. NO. | CKT. NO. | BRKR RAT'G | WIRE SIZE | DESCRIPTION | LOAD (KVA) A | B | C |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0.5 | | | EF-3 (1/6HP) | 12 | 15/1 | 43 | 44 | 15/3 | 12 | IRRIGATION PUMP | 0.8 | | |
| | 0.5 | | EF-2 (1/6HP) | 12 | 15/1 | 45 | 46 | . | 12 | . | | 0.8 | |
| | | 1.5 | EUH-1 (1.5KW) | 12 | 20/1 | 47 | 48 | . | 12 | . | | | 0.8 |
| 1.5 | | | EUH-1 (1.5KW) | 12 | 20/1 | 49 | 50 | 30/3 | . | SPARE | 0.0 | | |
| | 1.5 | | EUH-1 (1.5KW) | 12 | 20/1 | 51 | 52 | . | . | . | | 0.0 | |
| | | 1.5 | EUH-1 (1.5KW) | 12 | 20/1 | 53 | 54 | . | . | . | | | 0.0 |
| 0.5 | | | EF-1 (1/6HP) | 12 | 15/1 | 55 | 56 | 20/3 | . | SPARE | 0.0 | | |
| | 0.2 | | HEAT TRACE | 12 | 20/1 | 57 | 58 | . | . | . | | 0.0 | |
| | | 0.3 | HEAT TRACE | 12 | 20/1 | 59 | 60 | . | . | . | | | 0.0 |
| 0.2 | | | HEAT TRACE | 12 | 20/1 | 61 | 62 | 20/1 | 10 | IRR. HEATER | 1.5 | | |
| | 1.5 | | PIPE HEATER | 10 | 30/2 | 63 | 64 | 20/1 | 10 | IRR. CONTROLLER | | 0.5 | |
| | | 1.5 | . | 10 | . | 65 | 66 | 20/1 | . | SPARE | | | 0.0 |
| 0.0 | | | SPARE | . | 20/1 | 67 | 68 | 20/1 | . | SPARE | 0.0 | | |
| | 0.0 | | SPARE | . | 20/1 | 69 | 70 | 20/1 | . | SPARE | | 0.0 | |
| | | 0.0 | SPARE | . | 20/1 | 71 | 72 | 20/1 | . | SPARE | | | 0.0 |
| 1.6 | | | HP-024-28 | 10 | 30/2 | 73 | 74 | . | . | S.O. | 0.0 | | |
| | 1.6 | | . | 10 | . | 75 | 76 | . | . | S.O. | | 0.0 | |
| | | 0.0 | S.O. | . | . | 77 | 78 | . | . | S.O. | | | 0.0 |
| 0.0 | | | S.O. | . | . | 79 | 80 | . | . | S.O. | 0.0 | | |
| | 0.0 | | S.O. | . | . | 81 | 82 | . | . | S.O. | | 0.0 | |
| | | 0.0 | S.O. | . | . | 83 | 84 | . | . | S.O. | | | 0.0 |

GROSS PHASE TOTALS: A= 33.7 KVA, B= 33.7 KVA, C= 33.0 KVA

| CONNECTED LOAD | | NEC CALCULATED DEMAND LOAD | |
|---|---|---|---|
| LIGHTING | 0.0 KVA | (125%) | 0.0 KVA |
| HEATING | 33.0 KVA | HEATING AND COOLING: | |
| A/C & HEAT PUMPS | 60.7 KVA | (100% – MINUS N/C LOAD) | 93.7 KVA |
| AIR HANDLING & FANS | 1.5 KVA | (100%) | 1.5 KVA |
| RECEPTACLES | 0.0 KVA | (1ST 10 KVA + 50% OF REM.) | 0.0 KVA |
| ELECTRIC WATER HEATING | 0.0 KVA | (125%) | 0.0 KVA |
| ELEVATORS | 0.0 KVA | (100%) | 0.0 KVA |
| FOOD PROCESSING | 0.0 KVA | (100%) | 0.0 KVA |
| PROCESS | 0.0 KVA | (100%) | 0.0 KVA |
| MISCELLANEOUS | 5.1 KVA | (100%) | 5.1 KVA |
| | | 25% OF LARGEST MOTOR: | 0.0 KVA |
| TOTAL CONNECTED LOAD | 100.3 KVA | TOTAL NEC DEMAND LOAD: | 100.3 KVA |
| WORST PHASE (W/D.F.): | 280.2 AMPS | DEMAND LOAD CURRENT: | 278.3 AMPS |

## PANEL M2A (LEFT SECTION)

| LOAD (KVA) A | B | C | DESCRIPTION | WIRE SIZE | BRKR RAT'G | CKT. NO. | CKT. NO. | BRKR RAT'G | WIRE SIZE | DESCRIPTION | LOAD (KVA) A | B | C |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 4.0 | | | HP-120-31 | 8 | 50/3 | 1 | 2 | 40/3 | 8 | HP-060-30 | 2.9 | | |
| | 4.0 | | . | 8 | . | 3 | 4 | . | 8 | . | | 2.9 | |
| | | 4.0 | . | 8 | . | 5 | 6 | . | 8 | . | | | 2.9 |
| 2.2 | | | HP-048-33 | 10 | 30/3 | 7 | 8 | 40/3 | 8 | HP-060-32 | 2.9 | | |
| | 2.2 | | . | 10 | . | 9 | 10 | . | 8 | . | | 2.9 | |
| | | 2.2 | . | 10 | . | 11 | 12 | . | 8 | . | | | 2.9 |
| 1.5 | | | EUH-1 (1.5KW) | 12 | 20/1 | 13 | 14 | 50/2 | 8 | WH-8 (7 KW) | 3.5 | | |
| | 3.5 | | WH-7 (7 KW) | 8 | 50/2 | 15 | 16 | . | 8 | . | | 3.5 | |
| | | 3.5 | . | 8 | . | 17 | 18 | 20/1 | . | SPARE | | | 0.0 |
| 1.8 | | | SSO-5 | 10 | 30/2 | 19 | 20 | 20/1 | 12 | EUH-1 (1.5KW) | 1.5 | | |
| | 1.8 | | . | 10 | . | 21 | 22 | 20/1 | 12 | EUH-1 (1.5KW) | | 1.5 | |
| | | 1.5 | EUH-1 (1.5KW) | 12 | 20/1 | 23 | 24 | 20/1 | 12 | EUH-1 (1.5KW) | | | 1.5 |
| 1.5 | | | EUH-1 (1.5KW) | 12 | 20/1 | 25 | 26 | 20/1 | 12 | EUH-1 (1.5KW) | 1.5 | | |
| | 1.5 | | EUH-1 (1.5KW) | 12 | 20/1 | 27 | 28 | 20/1 | 12 | EUH-1 (1.5KW) | | 1.5 | |
| | | 1.5 | EUH-1 (1.5KW) | 12 | 20/1 | 29 | 30 | 20/1 | 12 | EUH-1 (1.5KW) | | | 1.5 |
| 1.5 | | | EUH-1 (1.5KW) | 12 | 20/1 | 31 | 32 | 20/1 | 12 | EUH-1 (1.5KW) | 1.5 | | |
| | 1.5 | | EUH-1 (1.5KW) | 12 | 20/1 | 33 | 34 | 20/1 | 12 | EUH-1 (1.5KW) | | 1.5 | |
| | | 1.5 | EUH-1 (1.5KW) | 12 | 20/1 | 35 | 36 | 20/1 | 12 | EUH-1 (1.5KW) | | | 1.5 |
| 2.2 | | | PANEL 'R2A' | * | 100/3 | 37 | 38 | 100/3 | * | PANEL 'L2A' | 3.1 | | |
| | 1.8 | | . | * | . | 39 | 40 | . | * | . | | 2.5 | |
| | | 1.3 | . | * | . | 41 | 42 | . | * | . | | | 2.6 |

TYPE: BRANCH CIRCUIT
MOUNTING: SURFACE
SUPPLY: 208/120V, 3-PH, 4W
MAINS: 400 AMP MAIN LUGS ONLY
SCIR: 35,000 AMPERES
NOTES:
1. WITH EQUIPMENT GROUND BUS.
2. * = SEE POWER RISER DIAGRAM FOR WIRE SIZE

TWO-SECTION PANELBOARD WITH 42 POLES PER SECTION, DOUBLE MAIN LUGS AND CABLE CONNECTION TO SECOND SECTION.

## PANEL M2A (RIGHT SECTION)

| LOAD (KVA) A | B | C | DESCRIPTION | WIRE SIZE | BRKR RAT'G | CKT. NO. | CKT. NO. | BRKR RAT'G | WIRE SIZE | DESCRIPTION | LOAD (KVA) A | B | C |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0.0 | | | SPARE | . | 20/1 | 43 | 44 | 20/1 | . | SPARE | 0.0 | | |
| | 0.0 | | SPARE | . | 20/1 | 45 | 46 | 20/1 | . | SPARE | | 0.0 | |
| | | 0.0 | SPARE | . | 20/1 | 47 | 48 | 20/1 | . | SPARE | | | 0.0 |
| 0.0 | | | SPARE | . | 20/1 | 49 | 50 | 20/1 | . | SPARE | 0.0 | | |
| | 0.0 | | SPARE | . | 20/1 | 51 | 52 | 20/1 | . | SPARE | | 0.0 | |
| | | 0.0 | SPARE | . | 20/1 | 53 | 54 | 20/1 | . | SPARE | | | 0.0 |
| 0.0 | | | SPARE | . | 20/1 | 55 | 56 | 20/1 | . | SPARE | 0.0 | | |
| | 0.0 | | SPARE | . | 20/1 | 57 | 58 | 20/1 | . | SPARE | | 0.0 | |
| | | 0.0 | SPARE | . | 20/1 | 59 | 60 | . | . | SPACE ONLY | | | 0.0 |
| 0.0 | | | SPACE ONLY | . | . | 61 | 62 | . | . | SPACE ONLY | 0.0 | | |
| | 0.0 | | SPACE ONLY | . | . | 63 | 64 | . | . | SPACE ONLY | | 0.0 | |
| | | 0.0 | SPACE ONLY | . | . | 65 | 66 | . | . | SPACE ONLY | | | 0.0 |
| 0.0 | | | SPACE ONLY | . | . | 67 | 68 | . | . | SPACE ONLY | 0.0 | | |
| | 0.0 | | SPACE ONLY | . | . | 69 | 70 | . | . | SPACE ONLY | | 0.0 | |
| | | 0.0 | SPACE ONLY | . | . | 71 | 72 | . | . | SPACE ONLY | | | 0.0 |
| 0.0 | | | SPACE ONLY | . | . | 73 | 74 | . | . | SPACE ONLY | 0.0 | | |
| | 0.0 | | SPACE ONLY | . | . | 75 | 76 | . | . | SPACE ONLY | | 0.0 | |
| | | 0.0 | SPACE ONLY | . | . | 77 | 78 | . | . | SPACE ONLY | | | 0.0 |
| 0.0 | | | SPACE ONLY | . | . | 79 | 80 | . | . | SPACE ONLY | 0.0 | | |
| | 0.0 | | SPACE ONLY | . | . | 81 | 82 | . | . | SPACE ONLY | | 0.0 | |
| | | 0.0 | SPACE ONLY | . | . | 83 | 84 | . | . | SPACE ONLY | | | 0.0 |

GROSS PHASE TOTALS: A= 31.6 KVA, B= 32.6 KVA, C= 28.4 KVA

| CONNECTED LOAD | | NEC CALCULATED DEMAND LOAD | |
|---|---|---|---|
| LIGHTING | 8.2 KVA | (125%) | 10.3 KVA |
| HEATING | 25.5 KVA | HEATING AND COOLING: | |
| A/C & HEAT PUMPS | 39.7 KVA | (100% – MINUS N/C LOAD) | 65.2 KVA |
| AIR HANDLING & FANS | 0.0 KVA | (100%) | 0.0 KVA |
| RECEPTACLES | 4.7 KVA | (1ST 10 KVA + 50% OF REM.) | 4.7 KVA |
| ELECTRIC WATER HEATING | 14.0 KVA | (125%) | 17.5 KVA |
| ELEVATORS | 0.0 KVA | (100%) | 0.0 KVA |
| FOOD PROCESSING | 0.0 KVA | (100%) | 0.0 KVA |
| PROCESS | 0.0 KVA | (100%) | 0.0 KVA |
| MISCELLANEOUS | 0.5 KVA | (100%) | 0.5 KVA |
| | | 25% OF LARGEST MOTOR: | 0.0 KVA |
| TOTAL CONNECTED LOAD | 92.6 KVA | TOTAL NEC DEMAND LOAD: | 98.1 KVA |
| WORST PHASE (W/D.F.): | 291.2 AMPS | DEMAND LOAD CURRENT: | 272.4 AMPS |

## PANEL M2B

| LOAD (KVA) A | B | C | DESCRIPTION | WIRE SIZE | BRKR RAT'G | CKT. NO. | CKT. NO. | BRKR RAT'G | WIRE SIZE | DESCRIPTION | LOAD (KVA) A | B | C |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2.0 | | | CT RECIRC. PUMP | 8 | 35/3 | 1 | 2 | 60/3 | 6 | COOLING TOWER | 3.7 | | |
| | 2.0 | | (5 HP) | 8 | . | 3 | 4 | . | 6 | FAN NO. 1 (10 HP) | | 3.7 | |
| | | 2.0 | . | 8 | . | 5 | 6 | . | 6 | . | | | 3.7 |
| 4.0 | | | CT BASIN HEATERS | 8 | 50/3 | 7 | 8 | 60/3 | 6 | COOLING TOWER | 3.7 | | |
| | 4.0 | | (2 @ 6KW) | 8 | . | 9 | 10 | . | 6 | FAN NO. 2 (10 HP) | | 3.7 | |
| | | 4.0 | . | 8 | . | 11 | 12 | . | 6 | . | | | 3.7 |
| 1.5 | | | EUH-1 (1.5KW) | 12 | 20/1 | 13 | 14 | 30/2 | 10 | HP-024-27 | 1.6 | | |
| | 1.6 | | HP-024-22 | 10 | 30/2 | 15 | 16 | . | 10 | . | | 1.6 | |
| | | 1.6 | . | 10 | . | 17 | 18 | 30/2 | 10 | HP-024-28 | | | 1.6 |
| 1.6 | | | HP-024-26 | 10 | 30/2 | 19 | 20 | . | 10 | . | 1.6 | | |
| | 1.6 | | . | 10 | . | 21 | 22 | 30/2 | 10 | HP-024-25 | | 1.6 | |
| | | 1.6 | HP-024-23 | 10 | 30/2 | 23 | 24 | . | 10 | . | | | 1.6 |
| 1.6 | | | . | 10 | . | 25 | 26 | 20/3 | 12 | HP-036-20 | 1.6 | | |
| | 0.2 | | BOILERS | 12 | 20/1 | 27 | 28 | . | 12 | . | | 1.6 | |
| | | 1.5 | EUH-1 (1.5KW) | 12 | 20/1 | 29 | 30 | . | 12 | . | | | 1.6 |
| 0.0 | | | SPARE | . | 20/1 | 31 | 32 | 20/1 | 12 | EUH-1 (1.5KW) | 1.5 | | |
| | 1.8 | | SSO-4 | 10 | 30/2 | 33 | 34 | 20/1 | 12 | EUH-1 (1.5KW) | | 1.5 | |
| | | 1.8 | . | 10 | . | 35 | 36 | 20/1 | 12 | EUH-1 (1.5KW) | | | 1.5 |
| 4.8 | | | PANEL 'R2B' | * | 100/3 | 37 | 38 | 100/3 | * | PANEL 'L2B' | 3.2 | | |
| | 5.9 | | . | * | . | 39 | 40 | . | * | . | | 3.0 | |
| | | 6.1 | . | * | . | 41 | 42 | . | * | . | | | 1.9 |

TYPE: BRANCH CIRCUIT
MOUNTING: SURFACE
SUPPLY: 208/120V, 3-PH, 4W
MAINS: 400 AMP MAIN LUGS ONLY
SCIR: 22,000 AMPERES
NOTES:
1. WITH EQUIPMENT GROUND BUS.
2. * = SEE POWER RISER DIAGRAM FOR WIRE SIZE

GROSS PHASE TOTALS: A= 32.5 KVA, B= 33.9 KVA, C= 34.3 KVA

| CONNECTED LOAD | | NEC CALCULATED DEMAND LOAD | |
|---|---|---|---|
| LIGHTING | 8.1 KVA | (125%) | 10.1 KVA |
| HEATING | 7.7 KVA | HEATING AND COOLING: | |
| A/C & HEAT PUMPS | 68.1 KVA | (100% – MINUS N/C LOAD) | 75.9 KVA |
| AIR HANDLING & FANS | 0.0 KVA | (100%) | 0.0 KVA |
| RECEPTACLES | 11.3 KVA | (1ST 10 KVA + 50% OF REM.) | 10.7 KVA |
| ELECTRIC WATER HEATING | 0.0 KVA | (125%) | 0.0 KVA |
| ELEVATORS | 0.0 KVA | (100%) | 0.0 KVA |
| FOOD PROCESSING | 0.0 KVA | (100%) | 0.0 KVA |
| PROCESS | 0.0 KVA | (100%) | 0.0 KVA |
| MISCELLANEOUS | 5.4 KVA | (100%) | 5.4 KVA |
| | | 25% OF LARGEST MOTOR: | 0.0 KVA |
| TOTAL CONNECTED LOAD | 100.7 KVA | TOTAL NEC DEMAND LOAD: | 102.1 KVA |
| WORST PHASE (W/D.F.): | 288.0 AMPS | DEMAND LOAD CURRENT: | 283.3 AMPS |

## PANEL M2C

| LOAD (KVA) A | B | C | DESCRIPTION | WIRE SIZE | BRKR RAT'G | CKT. NO. | CKT. NO. | BRKR RAT'G | WIRE SIZE | DESCRIPTION | LOAD (KVA) A | B | C |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0.6 | | | CP-1 (1 HP) | 12 | 15/3 | 1 | 2 | 15/3 | 12 | CP-2 (1 HP) | 0.6 | | |
| | 0.6 | | . | 12 | . | 3 | 4 | . | 12 | . | | 0.6 | |
| | | 0.6 | . | 12 | . | 5 | 6 | . | 12 | . | | | 0.6 |
| 5.6 | | | CP-3 (15 HP) | 4 | 90/3 | 7 | 8 | 90/3 | 4 | CP-4 (15 HP) | 5.6 | | |
| | 5.6 | | . | 4 | . | 9 | 10 | . | 4 | . | | 5.6 | |
| | | 5.6 | . | 4 | . | 11 | 12 | . | 4 | . | | | 5.6 |
| 0.0 | | | SPARE | . | 20/1 | 13 | 14 | 15/2 | 12 | HP-009-34 | 0.5 | | |
| | 0.0 | | SPARE | . | 20/1 | 15 | 16 | . | 12 | . | | 0.5 | |
| | | 0.0 | SPARE | . | 20/1 | 17 | 18 | 30/2 | . | SPARE | | | 0.0 |
| 0.0 | | | SPARE | . | 20/1 | 19 | 20 | . | . | . | 0.0 | | |
| | 0.0 | | SPARE | . | 20/1 | 21 | 22 | 30/2 | . | SPARE | | 0.0 | |
| | | 0.0 | SPARE | . | 20/1 | 23 | 24 | . | . | . | | | 0.0 |
| 0.0 | | | SPARE | . | 30/3 | 25 | 26 | 20/3 | . | SPARE | 0.0 | | |
| | 0.0 | | . | . | . | 27 | 28 | . | . | . | | 0.0 | |
| | | 0.0 | . | . | . | 29 | 30 | . | . | . | | | 0.0 |
| 0.0 | | | SPACE ONLY | . | . | 31 | 32 | . | . | SPACE ONLY | 0.0 | | |
| | 0.0 | | SPACE ONLY | . | . | 33 | 34 | . | . | SPACE ONLY | | 0.0 | |
| | | 0.0 | SPACE ONLY | . | . | 35 | 36 | . | . | SPACE ONLY | | | 0.0 |
| 0.0 | | | SPACE ONLY | . | . | 37 | 38 | . | . | SPACE ONLY | 0.0 | | |
| | 0.0 | | SPACE ONLY | . | . | 39 | 40 | . | . | SPACE ONLY | | 0.0 | |
| | | 0.0 | SPACE ONLY | . | . | 41 | 42 | . | . | SPACE ONLY | | | 0.0 |

TYPE: BRANCH CIRCUIT
MOUNTING: SURFACE
SUPPLY: 208/120V, 3-PH, 4W
MAINS: 225 AMP MAIN LUGS ONLY
SCIR: 10,000 AMPERES
NOTES:
1. WITH EQUIPMENT GROUND BUS.

GROSS PHASE TOTALS: A= 12.9 KVA, B= 12.9 KVA, C= 12.4 KVA

| CONNECTED LOAD | | NEC CALCULATED DEMAND LOAD | |
|---|---|---|---|
| LIGHTING | 0.0 KVA | (125%) | 0.0 KVA |
| HEATING | 3.6 KVA | HEATING AND COOLING: | |
| A/C & HEAT PUMPS | 34.6 KVA | (100% – MINUS N/C LOAD) | 38.2 KVA |
| AIR HANDLING & FANS | 0.0 KVA | (100%) | 0.0 KVA |
| RECEPTACLES | 0.0 KVA | (1ST 10 KVA + 50% OF REM.) | 0.0 KVA |
| ELECTRIC WATER HEATING | 0.0 KVA | (125%) | 0.0 KVA |
| ELEVATORS | 0.0 KVA | (100%) | 0.0 KVA |
| FOOD PROCESSING | 0.0 KVA | (100%) | 0.0 KVA |
| PROCESS | 0.0 KVA | (100%) | 0.0 KVA |
| MISCELLANEOUS | 0.0 KVA | (100%) | 0.0 KVA |
| | | 25% OF LARGEST MOTOR: | 0.0 KVA |
| TOTAL CONNECTED LOAD | 38.2 KVA | TOTAL NEC DEMAND LOAD: | 38.2 KVA |
| WORST PHASE (W/D.F.): | 107.4 AMPS | DEMAND LOAD CURRENT: | 106.0 AMPS |

## PANEL R1 (LEFT SECTION)

| LOAD (KVA) A | B | C | DESCRIPTION | WIRE SIZE | BRKR RAT'G | CKT. NO. | CKT. NO. | BRKR RAT'G | WIRE SIZE | DESCRIPTION | LOAD (KVA) A | B | C |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0.5 | | | REC. – CAFÉ/SUNDRIES | 12 | 20/1 | 1 | 2 | GF20/1 | 12 | EWC | 0.7 | | |
| | 0.5 | | REC. – HP/STORAGE | 12 | 20/1 | 3 | 4 | 20/1 | 12 | HAND DRYER | | 1.5 | |
| | | 0.5 | REC. – CAFÉ/SUNDRIES | 12 | 20/1 | 5 | 6 | 20/1 | 12 | TICKET WINDOW | | | 0.2 |
| 0.5 | | | REC. – CIRCULATION | 12 | 20/1 | 7 | 8 | 20/1 | 12 | REC. – TELECOM 'B' | 0.4 | | |
| | 0.4 | | REC. – ELEVATOR | 12 | 20/1 | 9 | 10 | 20/1 | 12 | REC. – TOILET/STOR. | | 0.5 | |
| | | 0.5 | REC. – MAIN ELECT. | 12 | 20/1 | 11 | 12 | 20/1 | 12 | REC. – METER RM. B | | | 0.2 |
| 1.0 | | | MOTORIZED DOOR | 12 | 20/1 | 13 | 14 | 20/1 | 12 | REC. – CASH/OFFICE | 1.1 | | |
| | 0.0 | | SPARE | . | 20/1 | 15 | 16 | 20/1 | 12 | REC. – RIDER WAITING | | 0.9 | |
| | | 1.2 | ICE MACHINE | 12 | GF20/1 | 17 | 18 | 20/1 | 12 | REC. – TOILETS | | | 0.5 |
| 0.5 | | | REC. – MEETING RM. | 12 | 20/1 | 19 | 20 | 20/1 | 12 | REC. – HP | 0.2 | | |
| | 0.4 | | REC. – DRIVER LOUNGE | 12 | 20/1 | 21 | 22 | 20/1 | 10 | REC. – DUMPSTER 'A' | | 0.4 | |
| | | 0.7 | REFRIGERATOR | 12 | GF20/1 | 23 | 24 | 20/1 | 10 | REC. – DUMPSTER 'C' | | | 0.4 |
| 1.2 | | | MICROWAVE | 12 | GF20/1 | 25 | 26 | 20/1 | 12 | HAND DRYER | 1.5 | | |
| | 1.5 | | COFFEE MAKER | 12 | GF20/1 | 27 | 28 | 20/1 | 12 | HAND DRYER | | 1.5 | |
| | | 1.0 | ATM | 12 | 20/1 | 29 | 30 | 20/1 | 12 | HAND DRYER | | | 1.5 |
| 1.0 | | | BULDING SIGNAGE | 10 | 20/1 | 31 | 32 | 20/1 | 12 | HAND DRYER | 1.5 | | |
| | 1.0 | | BULDING SIGNAGE | 10 | 20/1 | 33 | 34 | 20/1 | 12 | HAND DRYER | | 1.5 | |
| | | 1.0 | BULDING SIGNAGE | 10 | 20/1 | 35 | 36 | 20/1 | 12 | REC. – TELECOM 'C' | | | 0.4 |
| 1.0 | | | BULDING SIGNAGE | 10 | 20/1 | 37 | 38 | 20/1 | 12 | REC. – TELECOM 'A' | 0.4 | | |
| | 1.0 | | BULDING SIGNAGE | 10 | 20/1 | 39 | 40 | 20/1 | 12 | REC. – KIOSK | | 0.4 | |
| | | 1.0 | BULDING SIGNAGE | 10 | 20/1 | 41 | 42 | 20/1 | 12 | MOTORIZED DOOR | | | 1.0 |

TYPE: BRANCH CIRCUIT
MOUNTING: SURFACE
SUPPLY: 208/120V, 3-PH, 4W
MAINS: 225 AMP MAIN LUGS ONLY
SCIR: 35,000 AMPERES
NOTES:
1. WITH EQUIPMENT GROUND BUS.
2. "GF" INDICATES CIRCUIT BREAKER WITH BUILT-IN GFCI

TWO-SECTION PANELBOARD WITH 42 POLES PER SECTION, DOUBLE MAIN LUGS AND CABLE CONNECTION TO SECOND SECTION.

## PANEL R1 (RIGHT SECTION)

| LOAD (KVA) A | B | C | DESCRIPTION | WIRE SIZE | BRKR RAT'G | CKT. NO. | CKT. NO. | BRKR RAT'G | WIRE SIZE | DESCRIPTION | LOAD (KVA) A | B | C |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0.0 | | | SPARE | . | 20/1 | 43 | 44 | 20/1 | . | SPARE | 0.0 | | |
| | 0.0 | | SPARE | . | 20/1 | 45 | 46 | 20/1 | . | SPARE | | 0.0 | |
| | | 0.0 | SPARE | . | 20/1 | 47 | 48 | 20/1 | . | SPARE | | | 0.0 |
| 0.0 | | | SPARE | . | 20/1 | 49 | 50 | 20/1 | . | SPARE | 0.0 | | |
| | 0.0 | | SPARE | . | 20/1 | 51 | 52 | 20/1 | . | SPARE | | 0.0 | |
| | | 0.0 | SPARE | . | 20/1 | 53 | 54 | 20/1 | . | SPARE | | | 0.0 |
| 0.0 | | | SPARE | . | 20/1 | 55 | 56 | 20/1 | . | SPARE | 0.0 | | |
| | 0.0 | | SPARE | . | 20/1 | 57 | 58 | 20/1 | . | SPARE | | 0.0 | |
| | | 0.0 | SPARE | . | 20/1 | 59 | 60 | 20/1 | . | SPARE | | | 0.0 |
| 0.0 | | | SPACE ONLY | . | . | 61 | 62 | . | . | SPACE ONLY | 0.0 | | |
| | 0.0 | | SPACE ONLY | . | . | 63 | 64 | . | . | SPACE ONLY | | 0.0 | |
| | | 0.0 | SPACE ONLY | . | . | 65 | 66 | . | . | SPACE ONLY | | | 0.0 |
| 0.0 | | | SPACE ONLY | . | . | 67 | 68 | . | . | SPACE ONLY | 0.0 | | |
| | 0.0 | | SPACE ONLY | . | . | 69 | 70 | . | . | SPACE ONLY | | 0.0 | |
| | | 0.0 | SPACE ONLY | . | . | 71 | 72 | . | . | SPACE ONLY | | | 0.0 |
| 0.0 | | | SPACE ONLY | . | . | 73 | 74 | . | . | SPACE ONLY | 0.0 | | |
| | 0.0 | | SPACE ONLY | . | . | 75 | 76 | . | . | SPACE ONLY | | 0.0 | |
| | | 0.0 | SPACE ONLY | . | . | 77 | 78 | . | . | SPACE ONLY | | | 0.0 |
| 0.0 | | | SPACE ONLY | . | . | 79 | 80 | . | . | SPACE ONLY | 0.0 | | |
| | 0.0 | | SPACE ONLY | . | . | 81 | 82 | . | . | SPACE ONLY | | 0.0 | |
| | | 0.0 | SPACE ONLY | . | . | 83 | 84 | . | . | SPACE ONLY | | | 0.0 |

GROSS PHASE TOTALS: A= 11.5 KVA, B= 11.4 KVA, C= 10.1 KVA

| CONNECTED LOAD | | NEC CALCULATED DEMAND LOAD | |
|---|---|---|---|
| LIGHTING | 0.0 KVA | (125%) | 0.0 KVA |
| HEATING | 0.0 KVA | HEATING AND COOLING: | |
| A/C & HEAT PUMPS | 0.0 KVA | (100% – MINUS N/C LOAD) | 0.0 KVA |
| AIR HANDLING & FANS | 0.0 KVA | (100%) | 0.0 KVA |
| RECEPTACLES | 9.5 KVA | (1ST 10 KVA + 50% OF REM.) | 9.5 KVA |
| ELECTRIC WATER HEATING | 0.0 KVA | (125%) | 0.0 KVA |
| ELEVATORS | 0.0 KVA | (100%) | 0.0 KVA |
| FOOD PROCESSING | 0.0 KVA | (100%) | 0.0 KVA |
| PROCESS | 0.0 KVA | (100%) | 0.0 KVA |
| MISCELLANEOUS | 23.5 KVA | (100%) | 23.5 KVA |
| | | 25% OF LARGEST MOTOR: | 0.0 KVA |
| TOTAL CONNECTED LOAD | 33.0 KVA | TOTAL NEC DEMAND LOAD: | 33.0 KVA |
| WORST PHASE (W/D.F.): | 95.8 AMPS | DEMAND LOAD CURRENT: | 91.7 AMPS |

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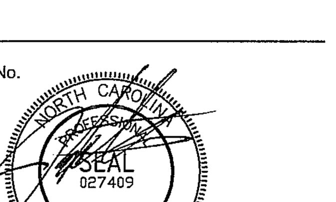
211.026

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Checked
Date January 31, 2014
Revisions

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# FAST Multi-Modal Center

City of Fayetteville
Fayetteville, NC

Project Number 621A

Title
**Panelboard Schedules**

Sheet
# E501

Plate of

## PANEL R2A

| LOAD (KVA) A | B | C | DESCRIPTION | WIRE SIZE | BRKR RAT'G | CKT. NO. | CKT. NO. | BRKR RAT'G | WIRE SIZE | DESCRIPTION | LOAD (KVA) A | B | C |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0.5 | | | REC. – CIRCULATION | 12 | 20/1 | 1 | 2 | 20/1 | 12 | REC. – COMMUNITY | 0.7 | | |
| | 0.5 | | REC. – CIRCULATION | 12 | 20/1 | 3 | 4 | 20/1 | 12 | REC. – TOILETS | | 0.4 | |
| | | 0.5 | REC. – CIRCULATION | 12 | 20/1 | 5 | 6 | 20/1 | 12 | REC. – CORR/STOR. | | | 0.5 |
| 0.4 | | | REC. – MECH. ROOM | 12 | 20/1 | 7 | 8 | 20/1 | 12 | REC. – COMMUNITY | 0.5 | | |
| | 0.4 | | REC. – GEN. ROOM | 12 | 20/1 | 9 | 10 | 20/1 | 12 | PROJ. SCREEN | | 0.5 | |
| | | 0.2 | REC. – ROOF | 12 | 20/1 | 11 | 12 | 20/1 | . | SPARE | | | 0.0 |
| 0.0 | | | SPARE | . | 20/1 | 13 | 14 | 20/1 | . | SPARE | 0.0 | | |
| | 0.0 | | SPARE | . | 20/1 | 15 | 16 | 20/1 | . | SPARE | | 0.0 | |
| | | 0.0 | SPARE | . | 20/1 | 17 | 18 | 20/1 | . | SPARE | | | 0.0 |
| 0.0 | | | SPARE | . | 20/1 | 19 | 20 | 20/1 | . | SPARE | 0.0 | | |
| | 0.0 | | SPARE | . | 20/1 | 21 | 22 | 20/1 | . | SPARE | | 0.0 | |
| | | 0.0 | SPARE | . | 20/1 | 23 | 24 | 20/1 | . | SPARE | | | 0.0 |
| 0.0 | | | SPARE | . | 20/1 | 25 | 26 | 20/1 | . | SPARE | 0.0 | | |
| | 0.0 | | SPARE | . | 20/1 | 27 | 28 | 20/1 | . | SPARE | | 0.0 | |
| | | 0.0 | SPARE | . | 20/1 | 29 | 30 | 20/1 | . | SPARE | | | 0.0 |
| 0.0 | | | SPACE ONLY | . | . | 31 | 32 | . | . | SPACE ONLY | 0.0 | | |
| | 0.0 | | SPACE ONLY | . | . | 33 | 34 | . | . | SPACE ONLY | | 0.0 | |
| | | 0.0 | SPACE ONLY | . | . | 35 | 36 | . | . | SPACE ONLY | | | 0.0 |
| 0.0 | | | SPACE ONLY | . | . | 37 | 38 | . | . | SPACE ONLY | 0.0 | | |
| | 0.0 | | SPACE ONLY | . | . | 39 | 40 | . | . | SPACE ONLY | | 0.0 | |
| | | 0.0 | SPACE ONLY | . | . | 41 | 42 | . | . | SPACE ONLY | | | 0.0 |

TYPE: BRANCH CIRCUIT
MOUNTING: SURFACE
SUPPLY: 208/120V, 3-PH, 4W
MAINS: 100 AMP MAIN LUGS ONLY
SCIR: 35,000 AMPERES
NOTES:
1. WITH EQUIPMENT GROUND BUS.

GROSS PHASE TOTALS: A= 2.2 KVA, B= 1.8 KVA, C= 1.3 KVA

| CONNECTED LOAD | | NEC CALCULATED DEMAND LOAD | |
|---|---|---|---|
| LIGHTING | 0.0 KVA | (125%) | 0.0 KVA |
| HEATING | 0.0 KVA | HEATING AND COOLING: | |
| A/C & HEAT PUMPS | 0.0 KVA | (100% – MINUS N/C LOAD) | 0.0 KVA |
| AIR HANDLING & FANS | 0.0 KVA | (100%) | 0.0 KVA |
| RECEPTACLES | 4.7 KVA | (1ST 10 KVA + 50% OF REM.) | 4.7 KVA |
| ELECTRIC WATER HEATING | 0.0 KVA | (125%) | 0.0 KVA |
| ELEVATORS | 0.0 KVA | (100%) | 0.0 KVA |
| FOOD PROCESSING | 0.0 KVA | (100%) | 0.0 KVA |
| PROCESS | 0.0 KVA | (100%) | 0.0 KVA |
| MISCELLANEOUS | 0.5 KVA | (100%) | 0.5 KVA |
| | | 25% OF LARGEST MOTOR: | 0.0 KVA |
| TOTAL CONNECTED LOAD | 5.2 KVA | TOTAL NEC DEMAND LOAD: | 5.2 KVA |
| WORST PHASE (W/D.F.): | 18.0 AMPS | DEMAND LOAD CURRENT: | 14.4 AMPS |

## PANEL R2B

| LOAD (KVA) A | B | C | DESCRIPTION | WIRE SIZE | BRKR RAT'G | CKT. NO. | CKT. NO. | BRKR RAT'G | WIRE SIZE | DESCRIPTION | LOAD (KVA) A | B | C |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0.4 | | | REC. – WAITING | 12 | 20/1 | 1 | 2 | 20/1 | 12 | REC. – ASST. DIR. | 0.5 | | |
| | 0.7 | | REC. – CONF. ROOM | 12 | 20/1 | 3 | 4 | 20/1 | 12 | REC. – DIRECTOR | | 0.7 | |
| | | 0.5 | REC. – RECEPTION | 12 | 20/1 | 5 | 6 | 20/1 | 12 | COPIER | | | 1.5 |
| 0.4 | | | REC. – RECEPTION | 12 | 20/1 | 7 | 8 | 20/1 | 12 | REC. – OPEN OFFICE | 0.2 | | |
| | 0.7 | | REC. – HP/STORAGE | 12 | 20/1 | 9 | 10 | 20/1 | 12 | REC. – OPEN OFFICE | | 0.2 | |
| | | 0.5 | REC. – OFFICE | 12 | 20/1 | 11 | 12 | 20/1 | 12 | REC. – TOILETS/STOR. | | | 0.5 |
| 0.5 | | | PROJ. SCREEN | 12 | 20/1 | 13 | 14 | 20/1 | 12 | REC. – OPEN OFFICE | 0.9 | | |
| | 0.5 | | REC. – CONF. ROOM | 12 | 20/1 | 15 | 16 | 20/1 | 12 | REC. – OPEN OFFICE | | 0.5 | |
| | | 0.0 | SPARE | . | 20/1 | 17 | 18 | 20/1 | 12 | REC. – OPEN OFFICE | | | 0.5 |
| 0.0 | | | SPARE | . | 20/1 | 19 | 20 | 20/1 | 12 | REC. – OPEN OFFICE | 0.9 | | |
| | 0.0 | | SPARE | . | 20/1 | 21 | 22 | 20/1 | 12 | REC. – OPEN OFFICE | | 0.9 | |
| | | 0.0 | SPARE | . | 20/1 | 23 | 24 | 20/1 | 12 | REC. – MECHANICAL | | | 0.5 |
| 0.4 | | | REC. – ROOF | 12 | 20/1 | 25 | 26 | GF20/1 | 12 | REFRIGERATOR | 0.7 | | |
| | 0.4 | | REC. – COPY ROOM | 12 | 20/1 | 27 | 28 | 20/1 | 12 | MICROWAVE | | 1.2 | |
| | | 0.4 | REC. – COPY ROOM | 12 | 20/1 | 29 | 30 | 20/1 | 12 | COFFEE MAKER | | | 1.5 |
| 0.0 | | | SPARE | . | 20/1 | 31 | 32 | 20/1 | . | SPARE | 0.0 | | |
| | 0.0 | | SPARE | . | 20/1 | 33 | 34 | 20/1 | . | SPARE | | 0.0 | |
| | | 0.0 | SPARE | . | 20/1 | 35 | 36 | 20/1 | . | SPARE | | | 0.0 |
| 0.0 | | | SPARE | . | 20/1 | 37 | 38 | 20/1 | . | SPARE | 0.0 | | |
| | 0.0 | | SPARE | . | 20/1 | 39 | 40 | 20/1 | . | SPARE | | 0.0 | |
| | | 0.0 | SPARE | . | 20/1 | 41 | 42 | 20/1 | . | SPARE | | | 0.0 |

TYPE: BRANCH CIRCUIT
MOUNTING: SURFACE
SUPPLY: 208/120V, 3-PH, 4W
MAINS: 100 AMP MAIN LUGS ONLY
SCIR: 10,000 AMPERES
NOTES:
1. WITH EQUIPMENT GROUND BUS.
2. "GF" INDICATES CIRCUIT BREAKER WITH BUILT-IN GFCI

GROSS PHASE TOTALS: A= 4.8 KVA, B= 5.9 KVA, C= 6.1 KVA

| CONNECTED LOAD | | NEC CALCULATED DEMAND LOAD | |
|---|---|---|---|
| LIGHTING | 0.0 KVA | (125%) | 0.0 KVA |
| HEATING | 0.0 KVA | HEATING AND COOLING: | |
| A/C & HEAT PUMPS | 0.0 KVA | (100% – MINUS N/C LOAD) | 0.0 KVA |
| AIR HANDLING & FANS | 0.0 KVA | (100%) | 0.0 KVA |
| RECEPTACLES | 11.3 KVA | (1ST 10 KVA + 50% OF REM.) | 10.7 KVA |
| ELECTRIC WATER HEATING | 0.0 KVA | (125%) | 0.0 KVA |
| ELEVATORS | 0.0 KVA | (100%) | 0.0 KVA |
| FOOD PROCESSING | 0.0 KVA | (100%) | 0.0 KVA |
| PROCESS | 0.0 KVA | (100%) | 0.0 KVA |
| MISCELLANEOUS | 5.4 KVA | (100%) | 5.4 KVA |
| | | 25% OF LARGEST MOTOR: | 0.0 KVA |
| TOTAL CONNECTED LOAD | 16.7 KVA | TOTAL NEC DEMAND LOAD: | 16.1 KVA |
| WORST PHASE (W/D.F.): | 49.0 AMPS | DEMAND LOAD CURRENT: | 44.6 AMPS |

## PANEL RBC

| LOAD (KVA) A | B | C | DESCRIPTION | WIRE SIZE | BRKR RAT'G | CKT. NO. | CKT. NO. | BRKR RAT'G | WIRE SIZE | DESCRIPTION | LOAD (KVA) A | B | C |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0.7 | | | REC. – BUS CANOPY | 12 | 20/1 | 1 | 2 | 20/1 | 12 | BUS BAY SIGNAGE | 1.0 | | |
| | 0.7 | | REC. – BUS CANOPY | 12 | 20/1 | 3 | 4 | 20/1 | 12 | BUS BAY SIGNAGE | | 1.0 | |
| | | 0.7 | REC. – BUS CANOPY | 12 | 20/1 | 5 | 6 | 20/1 | 12 | BUILDING SIGNAGE | | | 1.0 |
| 0.7 | | | REC. – BUS CANOPY | 12 | 20/1 | 7 | 8 | 20/1 | 12 | BUILDING SIGNAGE | 1.0 | | |
| | 0.4 | | REC. – TELECOM | 12 | 20/1 | 9 | 10 | 20/1 | 12 | BUS BAY SIGNAGE | | 1.0 | |
| | | 0.4 | REC. – SHOP | 12 | 20/1 | 11 | 12 | 20/1 | 12 | BUS BAY SIGNAGE | | | 1.0 |
| 0.2 | | | REC. – BACKFLOW | 12 | 20/1 | 13 | 14 | 20/1 | 12 | BUS BAY SIGNAGE | 1.0 | | |
| | 1.5 | | EUH-1 | 12 | 20/1 | 15 | 16 | 20/1 | 12 | BUS BAY SIGNAGE | | 1.0 | |
| | | 1.5 | EUH-1 | 12 | 20/1 | 17 | 18 | 20/1 | 12 | REC. – SHOP | | | 0.4 |
| 2.3 | | | WATER HEATER | 10 | 30/2 | 19 | 20 | 30/1 | 10 | REC. – TELECOM | 1.0 | | |
| | 2.3 | | . | 10 | . | 21 | 22 | 20/1 | . | SPARE | | 0.0 | |
| | | 1.0 | EF-4 & 5 (1/6 HP) | 12 | 20/1 | 23 | 24 | 20/1 | . | SPARE | | | 0.0 |
| 0.0 | | | SPARE | . | 20/1 | 25 | 26 | 20/1 | . | SPARE | 0.0 | | |
| | 0.0 | | SPARE | . | 20/1 | 27 | 28 | 20/1 | . | SPARE | | 0.0 | |
| | | 0.0 | SPARE | . | 20/1 | 29 | 30 | 20/1 | . | SPARE | | | 0.0 |
| 0.0 | | | S.O. | . | . | 31 | 32 | . | . | S.O. | 0.0 | | |
| | 0.0 | | S.O. | . | . | 33 | 34 | . | . | S.O. | | 0.0 | |
| | | 0.0 | S.O. | . | . | 35 | 36 | . | . | S.O. | | | 0.0 |
| 0.0 | | | S.O. | . | . | 37 | 38 | . | . | S.O. | 0.0 | | |
| | 0.0 | | S.O. | . | . | 39 | 40 | . | . | S.O. | | 0.0 | |
| | | 0.0 | S.O. | . | . | 41 | 42 | . | . | S.O. | | | 0.0 |

TYPE: BRANCH CIRCUIT
MOUNTING: SURFACE
SUPPLY: 208/120V, 3-PH, 4W
MAINS: 100 AMP MAIN LUGS ONLY
SCIR: 10,000 AMPERES
NOTES:
1. WITH EQUIPMENT GROUND BUS.

GROSS PHASE TOTALS: A= 7.9 KVA, B= 7.9 KVA, C= 5.9 KVA

| CONNECTED LOAD | | NEC CALCULATED DEMAND LOAD | |
|---|---|---|---|
| LIGHTING | 0.0 KVA | (125%) | 0.0 KVA |
| HEATING | 3.0 KVA | HEATING AND COOLING: | |
| A/C & HEAT PUMPS | 0.0 KVA | (100% – MINUS N/C LOAD) | 3.0 KVA |
| AIR HANDLING & FANS | 1.0 KVA | (100%) | 1.0 KVA |
| RECEPTACLES | 5.1 KVA | (1ST 10 KVA + 50% OF REM.) | 5.1 KVA |
| ELECTRIC WATER HEATING | 4.6 KVA | (125%) | 5.8 KVA |
| ELEVATORS | 0.0 KVA | (100%) | 0.0 KVA |
| FOOD PROCESSING | 0.0 KVA | (100%) | 0.0 KVA |
| PROCESS | 0.0 KVA | (100%) | 0.0 KVA |
| MISCELLANEOUS | 8.0 KVA | (100%) | 8.0 KVA |
| | | 25% OF LARGEST MOTOR: | 0.0 KVA |
| TOTAL CONNECTED LOAD | 21.7 KVA | TOTAL NEC DEMAND LOAD: | 22.9 KVA |
| WORST PHASE (W/D.F.): | 70.7 AMPS | DEMAND LOAD CURRENT: | 63.5 AMPS |

## PANEL GP

| LOAD (KVA) A | B | C | DESCRIPTION | WIRE SIZE | BRKR RAT'G | CKT. NO. | CKT. NO. | BRKR RAT'G | WIRE SIZE | DESCRIPTION | LOAD (KVA) A | B | C |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 9.4 | | | ELEVATOR (25 HP) | * | 175/3 | 1 | 2 | 20/1 | 12 | ELEVATOR CAB | 1.0 | | |
| | 9.4 | | . | * | (ST) | 3 | 4 | 20/1 | 12 | REC. – DATA 231 | | 1.1 | |
| | | 9.4 | . | * | . | 5 | 6 | 30/1 | 10 | REC. – DATA 231 | | | 1.0 |
| 0.5 | | | REC. – DISPATCH | 12 | 20/1 | 7 | 8 | 20/1 | . | SPARE | 0.0 | | |
| | 0.5 | | REC. – DISPATCH | 12 | 20/1 | 9 | 10 | 20/1 | 12 | REC. – DATA 114 | | 1.1 | |
| | | 0.4 | REC. – DISPATCH | 12 | 20/1 | 11 | 12 | 30/1 | 10 | REC. – DATA 114 | | | 1.0 |
| 1.2 | | | LTG. – BUS WAITING | 12 | 20/1 | 13 | 14 | 20/1 | . | SPARE | 0.0 | | |
| | 1.2 | | LTG. – BUS WAITING | 12 | 20/1 | 15 | 16 | 20/1 | . | SPARE | | 0.0 | |
| | | 0.9 | LTG. – BUS WAITING | 12 | 20/1 | 17 | 18 | 20/1 | 12 | LTG. – DISPATCH | | | 0.9 |
| 1.2 | | | LTG. – FOOD COURT | 12 | 20/1 | 19 | 20 | 20/1 | 12 | LTG. – CIRCULATION | 1.1 | | |
| | 1.1 | | LTG. – SEATING AREA | 12 | 20/1 | 21 | 22 | 20/1 | 12 | LTG. – TICKET OFFICE | | 1.1 | |
| | | 1.1 | LTG. – SEATING AREA | 12 | 20/1 | 23 | 24 | 20/1 | 12 | REC. – TICKET OFFICE | | | 0.9 |
| 0.7 | | | SSO-1 | 10 | 20/2 | 25 | 26 | 20/2 | 12 | SUMP PUMP | 1.0 | | |
| | 0.7 | | . | 10 | . | 27 | 28 | . | 12 | . | | 1.0 | |
| | | 1.8 | SSO-2 | 10 | 20/2 | 29 | 30 | 20/1 | 10 | BUS BAY SIGNAGE | | | 1.0 |
| 1.8 | | | . | 10 | . | 31 | 32 | 20/1 | 10 | BUS BAY SIGNAGE | 1.0 | | |
| | 0.7 | | SSO-3 | 10 | 20/2 | 33 | 34 | 20/1 | . | SPARE | | 0.0 | |
| | | 0.7 | . | 10 | . | 35 | 36 | 20/1 | . | SPARE | | | 0.0 |
| 3.7 | | | PANEL 'LBC' | * | 100/3 | 37 | 38 | 100/3 | * | PANEL 'RBC' | 9.1 | | |
| | 3.1 | | . | * | . | 39 | 40 | . | * | . | | 9.1 | |
| | | 2.4 | . | * | . | 41 | 42 | . | * | . | | | 5.9 |
| 0.0 | | | SPACE ONLY | . | 100/3 | 43 | 44 | 100/3 | . | SPACE ONLY | 0.0 | | |
| | 0.0 | | . | . | . | 45 | 46 | . | . | . | | 0.0 | |
| | | 0.0 | . | . | . | 47 | 48 | . | . | . | | | 0.0 |
| 0.0 | | | SPACE ONLY | . | 20/1 | 49 | 50 | 20/1 | . | SPACE ONLY | 0.0 | | |
| | 0.0 | | SPACE ONLY | . | 20/1 | 51 | 52 | 20/1 | . | SPACE ONLY | | 0.0 | |
| | | 0.0 | SPACE ONLY | . | 20/1 | 53 | 54 | 20/1 | . | SPACE ONLY | | | 0.0 |
| 0.0 | | | SPACE ONLY | . | 20/1 | 55 | 56 | 20/1 | . | SPACE ONLY | 0.0 | | |
| | 0.0 | | SPACE ONLY | . | 20/1 | 57 | 58 | 20/1 | . | SPACE ONLY | | 0.0 | |
| | | 0.0 | SPACE ONLY | . | 20/1 | 59 | 60 | 20/1 | . | SPACE ONLY | | | 0.0 |

TYPE: BRANCH CIRCUIT
MOUNTING: SURFACE
SUPPLY: 208/120V, 3-PH, 4W
MAINS: 600 AMP MAIN LUGS ONLY
SCIR: 42,000 AMPERES
NOTES:
1. WITH EQUIPMENT GROUND BUS.
2. * INDICATES REFER TO POWER RISER DIAGRAM FOR WIRE SIZE.
3. "ST" INDICATES CIRCUIT BREAKER WITH BUILT-IN 120V SHUNT TRIP MACHANISM.
4. ALL ACTIVE LTG. BRANCH CIRCUITS SHALL BE CONTROLLED FROM LIGHTING CONTROL SYSTEM. SEE SPEC SECTION 260943.

GROSS PHASE TOTALS: A= 31.7 KVA, B= 30.1 KVA, C= 27.3 KVA

| CONNECTED LOAD CURRENT: 248 AMPERES | |
|---|---|
| LIGHTING | 19.0 KVA |
| HEATING | 3.0 KVA |
| A/C MOTORS & HEAT PUMPS | 6.2 KVA |
| AIR HANDLING & EXH FANS | 1.0 KVA |
| RECEPTACLES | 11.6 KVA |
| ELECTRIC WATER HEATING | 7.0 KVA |
| ELEVATORS | 28.3 KVA |
| FOOD PROCESSING | 0.0 KVA |
| PROCESS | 0.0 KVA |
| MISCELLANEOUS | 13.0 KVA |
| TOTAL CONNECTED LOAD | 89.2 KVA |

COM*check* Software Version 3.9.2

# Exterior Lighting Compliance Certificate

## 2012 North Carolina Energy Conservation Code

### Section 1: Project Information

Project Type: **New Construction**
Project Title :
Exterior Lighting Zone: **4 (High activity metropolitan commercial district)**

Construction Site: Owner/Agent: Designer/Contractor:

### Section 2: Exterior Lighting Area/Surface Power Calculation

| A Exterior Area/Surface | B Quantity | C Allowed Watts / Unit | D Tradable Wattage | E Allowed Watts (B x C) | F Proposed Watts |
|---|---|---|---|---|---|
| Entry canopy | 4469 ft2 | 0.4 | Yes | 1788 | 1640 |
| Special feature area | 860 ft2 | 0.2 | Yes | 172 | 1910 |
| Walkway < 10 feet wide | 420 ft of walkway length | 1 | Yes | 420 | 162 |
| Walkway >= 10 feet wide | 7236 ft2 | 0.2 | Yes | 1447 | 4733 |
| Other door (not main entry) | 4 ft of door width | 20 | Yes | 80 | 36 |
| Main entry | 7 ft of door width | 30 | Yes | 210 | 180 |
| Free standing/attached sales canopy | 13740 ft2 | 1 | Yes | 13740 | 9660 |
| | | | Total Tradable Watts* = | 17857 | 18321 |
| | | | Total Allowed Watts = | 17857 | |
| | | | Total Allowed Supplemental Watts** = | 1300 | |

* Wattage tradeoffs are only allowed between tradable areas/surfaces.
** A supplemental allowance equal to 1300 watts may be applied toward compliance of both non-tradable and tradable areas/surfaces.

### Section 3: Exterior Lighting Fixture Schedule

| A Fixture ID : Description / Lamp / Wattage Per Lamp / Ballast | B Lamps/ Fixture | C # of Fixtures | D Fixture Watt. | E (C X D) |
|---|---|---|---|---|
| Entry canopy (4469 ft2): Tradable Wattage | | | | |
| LED 1: LED2: Canopy Lighting: Other: | 8 | 10 | 50 | 500 |
| LED 2: LED2X: Canopy Lighting: Other: | 8 | 4 | 50 | 200 |
| LED 3: LED1: Canopy Lighting: Other: | 8 | 17 | 20 | 340 |
| LED 4: LED1X: Canopy Lighting: Other: | 8 | 30 | 20 | 600 |
| Special feature area (860 ft2): Tradable Wattage | | | | |
| LED 5: S1: Cistern Area Step Light: Other: | 1 | 10 | 4 | 40 |
| HID 1: U3: Cistern Uplight: Metal Halide: Standard: | 1 | 8 | 95 | 760 |
| HID 2: U5: Flagpole Uplight: Ceramic Metal Halide: Pulse start: | 1 | 6 | 185 | 1110 |
| Walkway < 10 feet wide (420 ft of walkway length): Tradable Wattage | | | | |
| LED 6: S2: Bollard: Other: | 1 | 9 | 18 | 162 |
| Walkway >= 10 feet wide (7236 ft2): Tradable Wattage | | | | |
| LED 7: S2: Bollard: Other: | 1 | 6 | 18 | 108 |
| HID 3: U2: Uplight: Ceramic Metal Halide: Pulse start: | 1 | 25 | 185 | 4625 |
| Other door (not main entry) (4 ft of door width): Tradable Wattage | | | | |
| LED 8: S2X: Bollard: Other: | 1 | 2 | 18 | 36 |
| Main entry (7 ft of door width): Tradable Wattage | | | | |
| LED 9: LED1X: Entry Canopy Lighting: Other: | 8 | 3 | 20 | 60 |
| LED 10: LED1X: Entry Canopy Lighting: Other: | 8 | 6 | 20 | 120 |
| Free standing/attached sales canopy (13740 ft2): Tradable Wattage | | | | |
| Linear Fluorescent 1: U1: Bus Canopy Lighting: 46" T5 HO 54W: Electronic: | 2 | 42 | 120 | 5040 |
| Linear Fluorescent 2: U4: Bus Canopy Lighting: 46" T5 HO 54W: Electronic: | 1 | 42 | 60 | 2520 |
| LED 11: LED2: Bus Canopy Lighting: Other: | 8 | 28 | 50 | 1400 |
| LED 12: LED2X: Bus Canopy Lighting: Other: | 8 | 14 | 50 | 700 |
| | | | Total Tradable Proposed Watts = | 18321 |



### Section 4: Requirements Checklist

**Lighting Wattage:**

❑ 1. Within each non-tradable area/surface, total proposed watts must be less than or equal to total allowed watts. Across all tradable areas/surfaces, total proposed watts must be less than or equal to total allowed watts.

**Compliance:** Passes using supplemental allowance watts.

**Controls, Switching, and Wiring:**

❑ 2. All exemption claims are associated with fixtures that have a control device independent of the control of the nonexempt lighting.
❑ 3. Lighting not designated for dusk-to-dawn operation is controlled by either a a photosensor (with time switch), or an astronomical time switch.
❑ 4. Lighting designated for dusk-to-dawn operation is controlled by an astronomical time switch or photosensor.
❑ 5. All time switches are capable of retaining programming and the time setting during loss of power for a period of at least 10 hours.
❑ 6. Lighting controls are tested to ensure that control devices, components, equipment, and systems are calibrated, adjusted and operate in accordance with approved plans and specifications. Sequences of operation shall be functionally tested to ensure they operate in accordance with approved plans and specifications.

**Exterior Lighting Efficacy and Application:**

❑ 7. All exterior building grounds luminaires that operate at greater than 100W have minimum efficacy of 60 lumen/watt.

*Exceptions:*

❑ Lighting that has been claimed as exempt and is identified as such in Section 3 table above.
❑ Lighting that is specifically designated as required by a health or life safety statue, ordinance, or regulation.
❑ Emergency lighting that is automatically off during normal building operation.
❑ Lighting that is controlled by motion sensor.

❑ 8. Exterior lighting fixtures are fully shielded fixtures unless a lighting plan is submitted showing that the use of alternative fixtures would provide greater energy efficiency.

*Exceptions:*

❑ Luminaires with an output of 150 Watts or less, or the equivalent light output.
❑ Luminaires intended to illuminate the facade of buildings or to illuminate other objects including but not limited to flagpoles, landscape and water features, statuary and works of art.
❑ Luminaires for historic lighting on the premises of an historic building as defined in the or within a designated historic district.
❑ Outdoor sports facility lighting of the participant sport area.
❑ Emergency exit discharge lighting.
❑ Sign illumination, festoon lighting, low voltage landscape lighting.
❑ Temporary lighting for emergency, repair, construction, special events or similar activities.

### Section 5: Compliance Statement

*Compliance Statement:* The proposed exterior lighting design represented in this document is consistent with the building plans, specifications and other calculations submitted with this permit application. The proposed lighting system has been designed to meet the 2012 North Carolina Energy Conservation Code requirements in COM*check* Version 3.9.2 and to comply with the mandatory requirements in the Requirements Checklist.

Name - Title Signature Date



COM*check* Software Version 3.9.2

# Interior Lighting Compliance Certificate

## 2012 North Carolina Energy Conservation Code

### Section 1: Project Information

Project Type: **New Construction**
Project Title :

Construction Site: Owner/Agent: Designer/Contractor:

### Section 2: Interior Lighting and Power Calculation

| A | B Floor Area | C Allowed Watts / ft2 | D Allowed Watts |
|---|---|---|---|
| Transportation | 63989 | 0.76 | 48632 |
| | | Total Allowed Watts = | 48632 |

### Section 3: Interior Lighting Fixture Schedule

| A Fixture ID : Description / Lamp / Wattage Per Lamp / Ballast | B Lamps/ Fixture | C # of Fixtures | D Fixture Watt. | E (C X D) |
|---|---|---|---|---|
| Transportation (63989 sq.ft.) | | | | |
| Track lighting 1: A: Low Voltage Track: Wattage based on low-voltage transformer capacity | 0 | 0 | 300 | 300 |
| Compact Fluorescent 1: D1: Recessed Downlight: Triple 4-pin 32W: Electronic: | 1 | 12 | 36 | 432 |
| Compact Fluorescent 2: D2: Recessed Downlight: Triple 4-pin 26W: Electronic: | 1 | 1 | 33 | 33 |
| Compact Fluorescent 3: D2X: Recessed Downlight: Triple 4-pin 26W: Electronic: | 1 | 1 | 33 | 33 |
| Compact Fluorescent 4: D3: Recessed Downlight: Triple 4-pin 26W: Electronic: | 1 | 24 | 33 | 792 |
| Compact Fluorescent 5: D3X: Recessed Downlight: Triple 4-pin 26W: Electronic: | 1 | 11 | 33 | 363 |
| Compact Fluorescent 6: D5: Recessed Downlight: Triple 4-pin 42W: Electronic: | 1 | 23 | 48 | 1104 |
| Compact Fluorescent 7: D5X: Recessed Downlight: Triple 4-pin 42W: Electronic: | 1 | 8 | 48 | 384 |
| Linear Fluorescent 1: F1: Fluorescent Strip: 48" T8 28W (Super T8): Electronic: | 2 | 40 | 52 | 2080 |
| Linear Fluorescent 2: F1X: Fluorescent Strip: 48" T8 28W (Super T8): Electronic: | 2 | 4 | 52 | 208 |
| Linear Fluorescent 3: F2: Industrial Strip: 48" T8 28W (Super T8): Electronic: | 2 | 40 | 52 | 2080 |
| Linear Fluorescent 4: F3: Enclosed Strip: 48" T8 28W (Super T8): Electronic: | 2 | 11 | 52 | 572 |
| Linear Fluorescent 5: F4: Lensed Fluorescent: 48" T8 28W (Super T8): Electronic: | 2 | 7 | 52 | 364 |
| Linear Fluorescent 6: F5: Fluorescent Wall Bracket: 48" T8 28W (Super T8): Electronic: | 2 | 6 | 52 | 312 |
| Linear Fluorescent 7: F7: Wet Location Fluorescent: 48" T8 28W (Super T8): Electronic: | 2 | 3 | 52 | 156 |
| Linear Fluorescent 8: F22: Industrial Strip: 48" T8 28W (Super T8): Electronic: | 4 | 4 | 104 | 416 |
| LED 1: G: Wall Grazer: LED Linear 15W: | 1 | 86 | 14 | 1204 |
| Linear Fluorescent 9: P: Suspended Indirect: 46" T5 HO 54W: Electronic: | 2 | 2 | 120 | 240 |
| Linear Fluorescent 10: P1: Suspended Indirect: 46" T5 HO 54W: Electronic: | 4 | 12 | 240 | 2880 |
| Linear Fluorescent 11: P2: Suspended Indirect: 34" T5 HO 39W: Electronic: | 4 | 1 | 170 | 170 |
| Linear Fluorescent 12: P3: Suspended Indirect: 46" T5 HO 54W: Electronic: | 2 | 55 | 120 | 6600 |
| Linear Fluorescent 13: P3X: Suspended Indirect: 46" T5 HO 54W: Electronic: | 2 | 5 | 120 | 600 |
| Linear Fluorescent 14: R1: Recessed Slot: 46" T5 HO 54W: Electronic: | 2 | 24 | 120 | 2880 |
| Linear Fluorescent 15: R1X: Recessed Slot: 46" T5 HO 54W: Electronic: | 2 | 11 | 120 | 1320 |
| Linear Fluorescent 16: R2: Recessed Slot: 46" T5 28W: Electronic: | 1 | 30 | 32 | 960 |
| Linear Fluorescent 17: T: Recessed 2' x 4': 48" T8 28W (Super T8): Electronic: | 2 | 5 | 52 | 260 |
| | | | Total Proposed Watts = | 26743 |



### Section 4: Requirements Checklist

Interior Lighting PASSES: Design 45% better than code.

**Lighting Wattage:**

❑ 1. Total proposed watts must be less than or equal to total allowed watts.

| Allowed Watts | Proposed Watts | Complies |
|---|---|---|
| 48632 | 26743 | YES |

**Controls, Switching, and Wiring:**

❑ 2. Separate lighting controls present for: Display/Accent Lighting, Case Lighting, lighting for nonvisual applications (e.g., such as plant growth and food warming), lighting equipment that is for sale or for demonstrations in lighting education.
❑ 3. Hotel and motel guest rooms and guest suites have a master control device at the main room entry that controls all permanently installed luminaires and switched receptacles.
❑ 4. Supplemental task lighting has a control device integral to the luminaires or be controlled by a wall-mounted control device provided the control device is readily accessible and located so that the occupant can see the controlled lighting..
❑ 5. Independent controls for each space (switch/occupancy sensor).

*Exceptions:*

❑ Areas designated as security or emergency areas that must be continuously illuminated.
❑ Lighting in stairways or corridors that are elements of the means of egress.

❑ 6. Individual dwelling units separately metered.
❑ 7. Medical task lighting or art/history display lighting claimed to be exempt from compliance has a control device independent of the control of the nonexempt lighting.
❑ 8. Each space required to have a manual control also allows for reducing the connected lighting load by at least 50 percent by either controlling all luminaires, dual switching of alternate rows of luminaires, alternate luminaires, or alternate lamps, switching the middle lamp luminaires independently of other lamps, or switching each luminaire or each lamp.

*Exceptions:*

❑ Only one luminaire in space.
❑ An occupant-sensing device controls the area.
❑ The area is a corridor, storeroom, restroom, public lobby or sleeping unit.
❑ Areas that use less than 0.6 Watts/sq.ft.

❑ 9. Automatic lighting shutoff control in buildings larger than 5,000 sq.ft.

*Exceptions:*

❑ Sleeping units, patient care areas; and spaces where automatic shutoff would endanger safety or security.

❑ 10. Photocell/astronomical time switch on exterior lights.

*Exceptions:*

❑ Lighting intended for 24 hour use.

❑ 11. Tandem wired one-lamp and three-lamp ballasted luminaires (No single-lamp ballasts).

*Exceptions:*

❑ Electronic high-frequency ballasts; Luminaires on emergency circuits or with no available pair.

❑ 12. Lighting controls are tested to ensure that control devices, components, equipment, and systems are calibrated, adjusted and operate in accordance with approved plans and specifications. Sequences of operation shall be functionally tested to ensure they operate in accordance with approved plans and specifications.

### Section 5: Compliance Statement

*Compliance Statement:* The proposed lighting design represented in this document is consistent with the building plans, specifications and other calculations submitted with this permit application. The proposed lighting system has been designed to meet the 2012 North Carolina Energy Conservation Code requirements in COM*check* Version 3.9.2 and to comply with the mandatory requirements in the Requirements Checklist.

Name - Title Signature Date



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M&L Project No.
211.026

NORTH CAROLINA PROFESSIONAL SEAL 027409 ENGINEER JOHN C. CHAPMAN

M&L License No. C-0503

Drawn
Checked
Date January 31, 2014
Revisions

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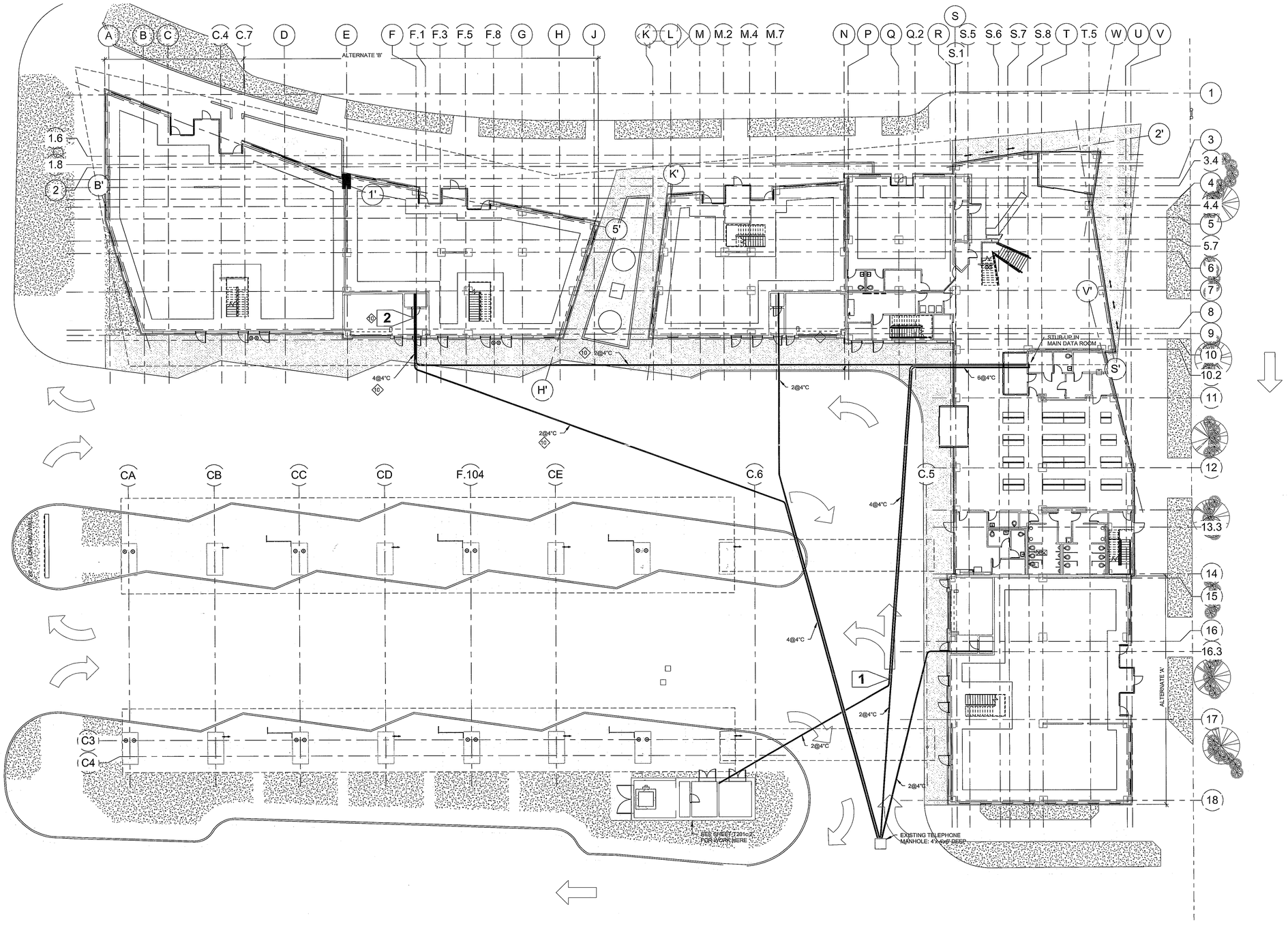
**FAST Multi-Modal Center**
City of Fayetteville
Fayetteville, NC

Project Number 621A

Title
**Panelboard Schedules and Energy Certificates**

Sheet
**E502**

Plate of




1 Telecommunications and Security Site Plan
1/16" = 1'-0"

KEYED NOTES

◇10 ITEM SHALL BE PROVIDED UNDER ALTERNATE.

## FLAG NOTES:

1 PROVIDE 12 STRANDS SINGLEMODE, 12 STRANDS 50UM MULTIMODE AND 25 PAIR CATEGORY 5 CABLE WITH SURGE PROTECTION AT EACH END BETWEEN MAIN DATA ROOM 114 AND BUS STORAGE ROOM FOR CANOPY CONNECTIVITY. GROUND ALL CABLE SHEATHS AND PROTECTION ACCORDING TO NEC AND EIA/TA 607A.

2 PROVIDE 12 STRANDS SINGLEMODE, 12 STRANDS 50UM MULTIMODE AND 25 PAIR CATEGORY 5 CABLE WITH SURGE PROTECTION AT EACH END BETWEEN MAIN DATA ROOM 114 AND ALTERNATE "B" TR ROOM FOR CONNECTIVITY. GROUND ALL CABLE SHEATHS AND PROTECTION ACCORDING TO NEC AND EIA/TA 607A.

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| | |
|---|---|
| Drawn | JP |
| Checked | RAS |
| Date | January 31, 2014 |
| Revisions | |

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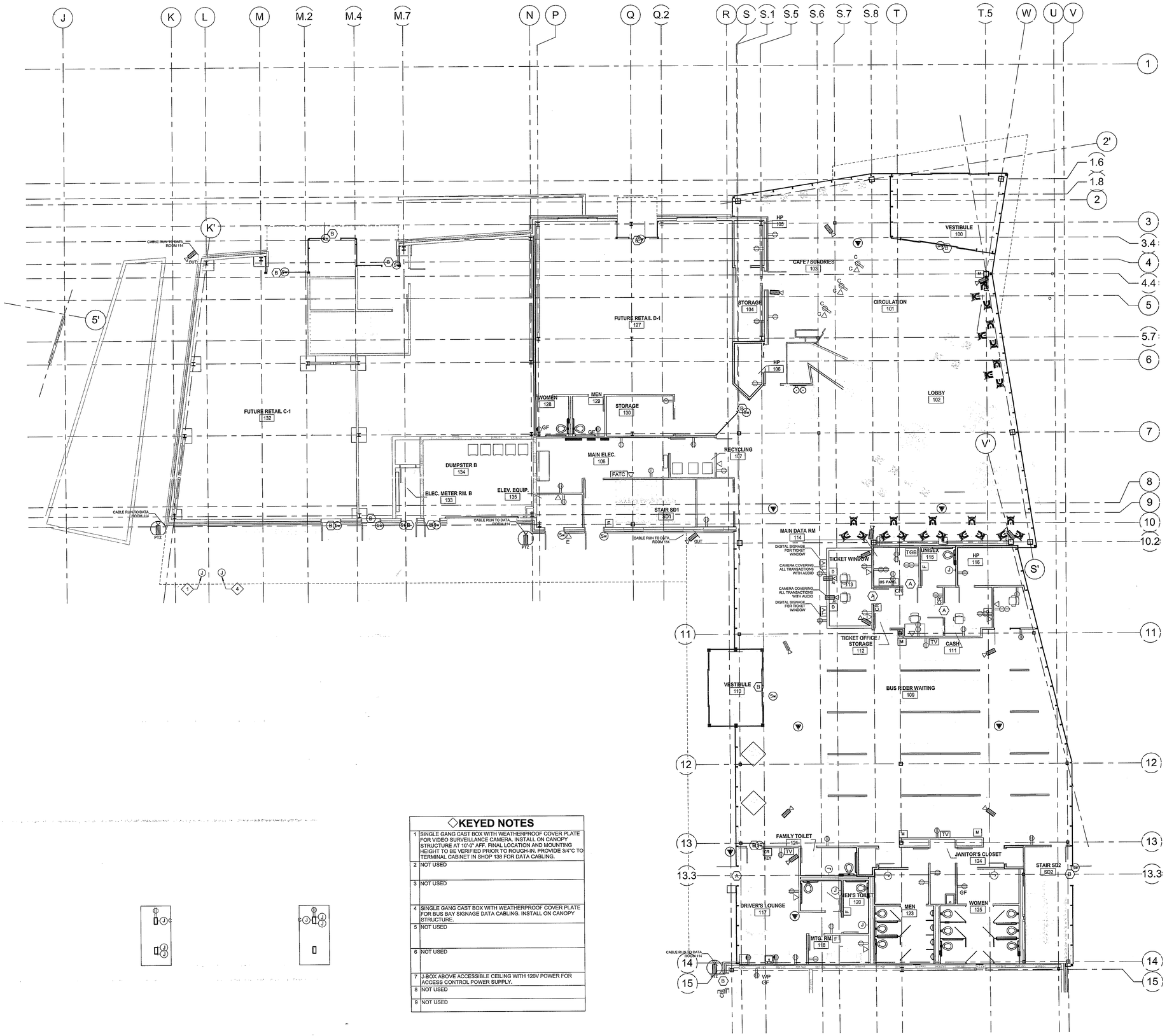
**FAST Multi-Modal Center**
City of Fayetteville
Fayetteville, NC

Project Number 621A

Title
**Site Plan - Telecom & Security**

Sheet
# T100

Plate of




## ◇KEYED NOTES

| | |
|---|---|
| 1 | SINGLE GANG CAST BOX WITH WEATHERPROOF COVER PLATE FOR VIDEO SURVEILLANCE CAMERA. INSTALL ON CANOPY STRUCTURE AT 10'-0" AFF. FINAL LOCATION AND MOUNTING HEIGHT TO BE VERIFIED PRIOR TO ROUGH-IN. PROVIDE 3/4"C TO TERMINAL CABINET IN SHOP 138 FOR DATA CABLING. |
| 2 | NOT USED |
| 3 | NOT USED |
| 4 | SINGLE GANG CAST BOX WITH WEATHERPROOF COVER PLATE FOR BUS BAY SIGNAGE DATA CABLING. INSTALL ON CANOPY STRUCTURE. |
| 5 | NOT USED |
| 6 | NOT USED |
| 7 | J-BOX ABOVE ACCESSIBLE CEILING WITH 120V POWER FOR ACCESS CONTROL POWER SUPPLY. |
| 8 | NOT USED |
| 9 | NOT USED |



1 Level 1 - Multi-Modal Center - Telecom & Security
1/8" = 1'-0"

1/8" = 1'-0" 4' 0 4' 8' 16'

## TELECOMMUNICATIONS LEGEND

| | |
|---|---|
| ▽ | DUAL OUTLET LOCATION. TWO CAT 6 JACKS IN A STAINLESS STEEL FACEPLATE. CABLES PER SPECIFICATIONS. TYPICAL FOR WALLS, SYSTEMS FURNITURE & MILLWORK. |
| F | SINGLE CATV OUTLET WITH CONDUIT, SM BOX & FLUSH MOUNT PLATE, COUPLER AND MATCHING WALL PLATE. ONE RG6/u PLENUM-RATED QUAD SHIELD CABLE AND ONE CAT 6 CABLE. CONTRACTOR SHALL SECURE PLATE AT 84". |
| ▽ | WP1 DATA LOCATION – TWO CAT 6 CABLES FOR WIRELESS ACCESS POINT LOCATIONS IN ACCESSIBLE CEILING. |

Ⓐ ACCESS-CONTROLLED DOOR. DOOR POSITION IS SECURE, HOWEVER,THE FOLLOWING CONDITIONS APPLY:

1.1. FREE EGRESS FROM SECURE SIDE.
1.2. DOOR OPENS UPON PROPER CREDENTIALS PRESENTED.

1. CARD ACCESS READER PAD AT 48" A.F.F. WALL OR MULLION.
2. LOCK SECURED BY EITHER ELECTRIFIED STRIKE OR ELECTRIFIED LOCK.
3. BALANCED POSITION SWITCH FOR EACH DOOR INSTALLED IN FRAME AND CONNECTED TO CONTROLLER.

Ⓑ 1. MONITORED DOOR - BALANCED POSITION SWITCH INSTALLED IN FRAME AND CONNECTED TO CONTROLLER AND INTRUSION SYSTEM

GENERAL NOTES:

1. SYSTEM TO BE INSTALLED BY A CERTIFIED NORTH CAROLINA ALARM & SECURITY INSTALLER.
2. ALL DEVICE LOCATIONS ARE APPROXIMATE AND SHOWN FOR D'AGRAMMATIC PURPOSES ONLY. FINAL POSITION TO BE DETERMINED BY SUCCESSFUL CERTIFIED CONTRACTOR AND TENANT.
3. ALL DOORS, THEIR METHODS OF SECURING, OPENING AND CLOSING WILL BE APPROVED BY THE CONSULTANT AND CLIENT PRIOR TO INSTALL.
4. ALL DOOR HARDWARE AND LOCKSET INSTALLATION SHALL BE COORDINATED WITH THE GENERAL CONTRACTOR AND THE DOOR HARDWARE PROVIDER.
5. ALL ACCESS CONTROL DEVICES SHALL BE INSTALLED PER THE NC BUILDING CODE, THE NFPA LIFE SAFETY CODE AND ANY OTHER SUCH CODE HAVING JURISDICTION AS WELL AS IN ACCORDANCE WITH THE LOCAL AUTHORITY HAVING JURISDICTION (AHJ).THESE CODES AND AUTHORITIES SUPERSEDE THESE DESIGN GUIDELINES AND SHALL BE INSTALLED PER THEIR SPECIFICATIONS. ANY DEVIANCE FROM THE ABOVE MENTIONED SPECIFICATIONS AND AUTHORITIES IS THE RESPONSIBILITY OF THE CONTRACTOR.
6. ESTABLISH MULTIPLE SECURITY ZONES SEPARATE FROM CENTER FOR EACH OF THE RETAIL AND TENANT AREAS FOR FUTURE TENANTS AND SYSTEMS.

ADDITIONAL SYSTEM REQUIREMENTS:

1. IN 2ND FLOOR TELECOM ROOM PROVIDE CENTRAL MANAGEMENT STATION FOR ACCESS CONTROL SYSTEM, VIDEO MANAGEMENT SYSTEM AND BADGE PRINTING.
2. PROVIDE BADGE PRINTER, BACKDROP AND DIGITAL CAMERA.
3. PROVIDE A REMOTE READER TO ADD SMART CARD CREDENTIALS TO ACCESS CONTROL SYSTEM AND TO CREATE BADGES.
4. PROVIDE VIDEO MANAGEMENT STATION WITH VIDEO CONTROL JOYSTICK FOR CAMERA CONTROL AND PTZ FUNCTIONALITY.
5. INTEGRATE INTRUSION DETECTION SYSTEM WITH THE ACCESS CONTROL SYSTEM.
6. INTEGRATE DURESS SYSTEM WITH THE ACCESS CONTROL AND INTRUSION SYSTEM.

**GENERAL NOTES:**

1. ALL OUTLET LOCATIONS ARE IN APPROXIMATE POSITIONS. THE EXACT LOCATIONS SHALL BE DETERMINED BY PROVIDED BOX LOCATIONS AND FIELD CONDITIONS. ALL LOCATIONS ARE TO BE FIELD-VERIFIED.
2. THE STRUCTURED CABLING SYSTEM SHALL USE A SYSTEM OF SUPPORT DEVICES TO CREATE AN INDEPENDENT SUPPORT SUBSYSTEM FASTENED TO BUILDING STRUCTURAL STEEL. WHEN EXITING LADDER RACK, SLEEVES, TRAY OF ANY TYPE OR CONDUIT PATHWAYS, BOTH HORIZONTAL AND VERTICAL, THE CABLE SHALL BE SUPPORTED EVERY 4-5 FEET.
3. ALL THRU WALL OR THRU FLOOR PENETRATIONS AS WELL AS ANY CONDUIT PATHWAYS USED FOR THE STRUCTURED CABLING SYSTEM SHALL BE EITHER RETURNED TO THEIR ORIGINAL INTEGRITY, IF THAT ORIGINAL CONDITION WAS DEFICIENT, IT SHALL BE BROUGHT UP TO STANDARDS, OR SHALL BE MADE WHOLE BY USE OF AN APPROPRIATE FIRE-RATED SYSTEM. ALL TELECOMMUNICATIONS SLEEVES FOR THIS PROJECT SHALL BE FIRE STOPPED. ALL EXTERIOR ENTRANCE CONDUIT'S SHALL BE PLUGGED WITH A WATER PROOF PLUG.
4. ALL OUTLET LOCATIONS SHALL BE IDENTIFIED WITH A TIA/EIA 606-A COMPLIANT LABELING SYSTEM. LABELING CONVENTIONS SHALL BE APPROVED BY THE OWNER. PROVIDE A LAMINATED 30 X 42 AS-BUILT DOCUMENT SHOWING ALL LABELS AT EACH OUTLET. THE DOCUMENT SHALL BE FRAMED AND POSTED IN THE TELECOM ROOM.

**TELECOM ROOM NOTES:**

1. ALL STRUCTURED CABLES SHALL BE NEATLY BUNDLED AND DRESSED INTO CABLE GROUPS WITH NO GREATER THAN 24 CABLES. ALL CABLE GROUPS SHALL BE BUNDLED TOGETHER NEATLY AND SHALL BE LACED INTO EACH SIDE OF THE RACK WITH A BALANCED PROPORTION ON EACH SIDE.
2. ALL 4-PAIR CATEGORY CABLES SHALL BE BUNDLED AND ROUTED OUTSIDE OF THE INTERIOR RACK SPACE USING THE VERTICAL WIRE MANAGEMENT SYSTEM SO AS TO NOT IMPACT THE ELECTRONICS INSTALLATION.
3. THE CONTRACTOR SHALL COORDINATE WITH THE ELECTRICAL CONTRACTOR SO THAT ALL CABLING SHALL UTILIZE THE PATHWAYS AND CONDUITS PROVIDED.THE CONTRACTOR SHALL MEET WITH THE ELETRICAL CONTRACTOR AND COORDINATE ANY CONDUIT OR POWER SYSTEMS THAT MAY BE INSTALLED WITHIN THE RACK SYSTEM.

**ROOM & RACK NOTES:**

1. THE MAIN TELECOM ROOM SHALL BE IDENTIFIED AS MC-114.
2. ALL RACKS AND LADDER RACK SHALL BE SECURELY MOUNTED TO THE FLOOR AND WALLS WITH APPROPRIATE ANCHOR KITS.
3. VOICE & DATA CABLES SHALL BE TERMINATED ON RACK-MOUNTED PATCH PANELS.

| ACCESS CONTROL LEGEND | |
|---|---|
| CR | ACCESS CONTROLLED DOOR WITH THE FOLLOWING REQUIREMENTS:<br>1. CARD ACCESS READER PAD AT 48" A.F.F. WALL OR MULLION-MOUNTED.<br>2. LOCK SECURED BY EITHER ELECTRIFIED STRIKE OR ELECTRIFIED LOCK.<br>3. SECURE-SIDE "REQUEST TO EXIT" EITHER MOUNTED TO DOOR FRAME OR INCLUDED IN ELECTRIFIED LOCK.<br>4. BALANCED POSITION SWITCH INSTALLED IN FRAME AND CONNECTED TO CONTROLLER. |
| PTZ | CEILING-MOUNTED Q-6035 PTZ IP VIDEO SURVEILLANCE CAMERA. DISCREET SMOKED DOME OR EQUAL. CONTRACTOR TO PROVIDE SMOKED TRANSPARENT COVER AS WELL THE APPROPRIATE LENS.CAMERA WILL USE PoE FOR POWER AND WILL REQUIRE 1 - CATEGORY 6 CABLE AND FLUSH MOUNT ELECTRICAL BOX AND CONDUIT STUBBED TO THE ACCESSIBLE CEILING. |
| OUT | OUTDOOR-RATED, WALL-MOUNTED - IP VIDEO SURVEILLANCE CAMERA. AXIS m3344-VE FIXED DOME OR EQUAL. CONTRACTOR TO PROVIDE SMOKED TRANSPARENT COVER AS WELL THE APPROPRIATE LENS.CAMERA WILL USE PoE FOR POWER AND WILL REQUIRE 1 - CATEGORY 6 CABLE AND FLUSH MOUNT ELECTRICAL BOX AND CONDUIT STUBBED TO THE ACCESSIBLE CEILING. |
| | CEILING-MOUNTED LOW PROFILE IP VIDEO SURVEILLANCE CAMERA. AXIS P3304-V FIXED DOME OR EQUAL. CONTRACTOR TO PROVIDE SMOKED TRANSPARENT COVER AS WELL THE APPROPRIATE LENS.CAMERA WILL USE PoE FOR POWER AND WILL REQUIRE 1 - CATEGORY 6 CABLE AND FLUSH MOUNT ELECTRICAL BOX AND CONDUIT STUBBED TO THE ACCESSIBLE CEILING. |
| M OUT | CEILING-MOUNTED OUTDOOR IP VIDEO SURVEILLANCE CAMERA. AXIS P3344-VE FIXED DOME WITH MICROPHONE OR EQUAL. CONTRACTOR TO PROVIDE SMOKED TRANSPARENT COVER AS WELL THE APPROPRIATE LENS.CAMERA WILL USE PoE FOR POWER AND WILL REQUIRE 1 - CATEGORY 6 CABLE AND FLUSH MOUNT ELECTRICAL BOX AND CONDUIT STUBBED TO THE ACCESSIBLE CEILING. |

| INTRUSION DETECTION LEGEND | |
|---|---|
| M | DUAL TECHNOLOGY MW WITH PASSIVE INFA-RED MOTION DETECTOR<br>1. ANTI-TAMPER SWITCH<br>2. WALL-MOUNT PER SPECIFICATIONS |
| DS | BALANCED POSITION SWITCH INSTALLED IN FRAME AND CONNECTED TO ALARM PANEL OR SINGLE DOOR CONTROLLER |
| DS PANEL | INTRUSION DETECTION PANEL:<br>1. MOUNT IN SECURE LOCATION IN TEL/ COM ROOM 114<br>2. PROVIDE INTERFACE TO ACCESS CO. SCL PANEL<br>3. ACCESS CONTROL PANEL TO REPORT AND MONITOR LOCALLY<br>4. PROVIDE INTERFACE FOR REMOTE MONITORING AND EMERGENCY 911 REPORTING |
| CR KEY | ACCESS CONTROL READER AND SECURITY KEYPAD WITH THE FOLLOWING REQUIREMENTS:<br>1. CARD ACCESS READER PAD AT 48" A.F.F. WALL OR MULLION-MOUNTED.<br>2. BOTH CARD ACCESS AND KEY-CODE REQUIRED TO DISABLE ALARM SYSTEM.<br>3. PROVIDE 30 SECOND DELAY AT EXTERIOR ENTRANCE BEFORE ACTIVATING ALARM SOUNDER (REQUIRED) |
| D | 1. DURESS BUTTON - SILENT ALARM- TWO BUTTON SWITCH<br>1.1. UNDER DESK MOUNTED DURESS ALARM TIED INTO INTRUSION PANEL FOR SILENT ALARM |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| | |
|---|---|
| Drawn | JP |
| Checked | RAS |
| Date | January 31, 2014 |
| Revisions | |


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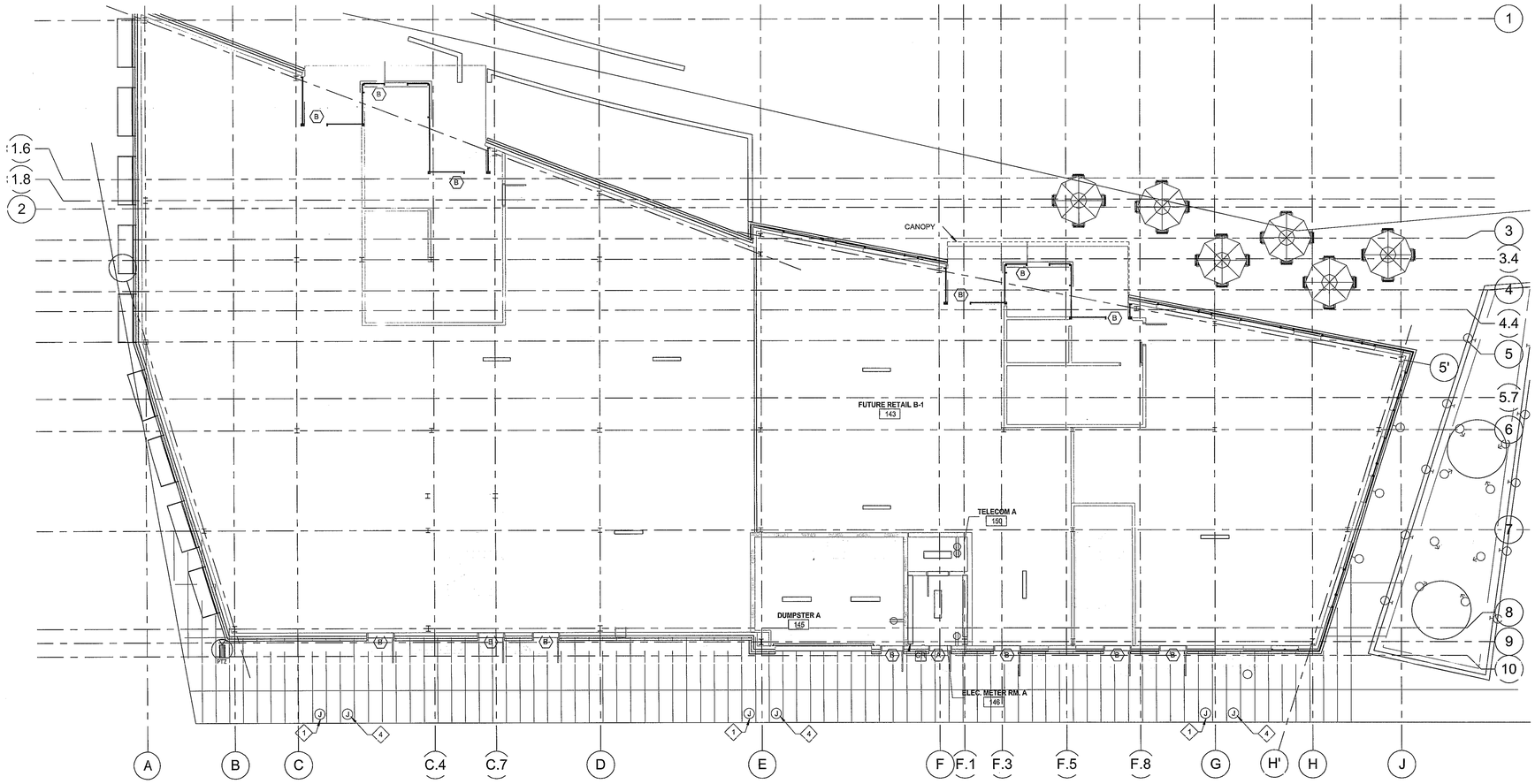
**FAST Multi-Modal Center**
City of Fayetteville
Fayetteville, NC

Project Number 621A

Title
**Level 1 - Multi-Modal Center Telecom/Security Plan**

Sheet
# T101a

Plate of




LEVEL 1 - TENANT SPACES A, B, C & D -
TELECOM AND SECURITY - ALTERNATE 'B'
1/8" = 1'-0"

1/8" = 1'-0" 4' 0 4' 8' 16'

Ⓐ ACCESS-CONTROLLED DOOR. DOOR POSITION IS SECURE, HOWEVER, THE FOLLOWING CONDITIONS APPLY:

1.1. FREE EGRESS FROM SECURE SIDE.
1.2. DOOR OPENS UPON PROPER CREDENTIALS PRESENTED.

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Ⓑ 1. MONITORED DOOR - BALANCED POSITION SWITCH INSTALLED IN FRAME AND CONNECTED TO CONTROLLER AND INTRUSION SYSTEM

GENERAL NOTES:

1. SYSTEM TO BE INSTALLED BY A CERTIFIED NORTH CAROLINA ALARM & SECURITY INSTALLER.
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4. ALL DOOR HARDWARE AND LOCKSET INSTALLATION SHALL BE COORDINATED WITH THE GENERAL CONTRACTOR AND THE DOOR HARDWARE PROVIDER.
5. ALL ACCESS CONTROL DEVICES SHALL BE INSTALLED PER THE NC BUILDING CODE, THE NFPA LIFE SAFETY CODE AND ANY OTHER SUCH CODE HAVING JURISDICTION AS WELL AS IN ACCORDANCE WITH THE LOCAL AUTHORITY HAVING JURISDICTION (AHJ).THESE CODES AND AUTHORITIES SUPERSEDE THESE DESIGN GUIDELINES AND SHALL BE INSTALLED PER THEIR SPECIFICATIONS. ANY DEVIANCE FROM THE ABOVE MENTIONED SPECIFICATIONS AND AUTHORITIES IS THE RESPONSIBILITY OF THE CONTRACTOR.
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1. IN 2ND FLOOR TELECOM ROOM PROVIDE CENTRAL MANAGEMENT STATION FOR ACCESS CONTROL SYSTEM, VIDEO MANAGEMENT SYSTEM AND BADGE PRINTING.
2. PROVIDE BADGE PRINTER, BACKDROP AND DIGITAL CAMERA.
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5. INTEGRATE INTRUSION DETECTION SYSTEM WITH THE ACCESS CONTROL SYSTEM.
6. INTEGRATE DURESS SYSTEM WITH THE ACCESS CONTROL SYSTEM.

| INTRUSION DETECTION LEGEND | |
|---|---|
| M | DUAL TECHNOLOGY MW WITH PASSIVE INFA-RED MOTION DETECTOR<br>1. ANTI-TAMPER SWITCH<br>2. WALL-MOUNT PER SPECIFICATIONS |
| SW | BALANCED POSITION SWITCH INSTALLED IN FRAME AND CONNECTED TO ALARM PANELOR SINGLE DOOR CONTROLLER |
| IDS PANEL | INTRUSION DETECTION PANEL:<br>1. MOUNT IN SECURITY ROOM IN DATA ROOM 114<br>2. PROVIDE DOOR CONTACTS TO ACCESS CONTROL PANEL<br>3. ACCESS CONTROL PANEL TO REPORT AND MONITOR LOCALLY<br>4. PROVIDE INTERFACE FOR REMOTE MONITORING AND EMERGENCY 911 REPORTING |
| CR KEY | ACCESS CONTROL READER AND SECURITY KEYPAD WITH THE FOLLOWING REQUIREMENTS:<br>1. CARD ACCESS READER PAD AT 48" A.F.F. WALL OR MULLION-MOUNTED.<br>2. BOTH CARD ACCESS AND KEY-CODE REQUIRED TO DISABLE ALARM SYSTEM<br>3. PROVIDE 30 SECOND DELAY AT INTERIOR ENTRANCE BEFORE ACTIVATING ALARM SOUNDER (REQUIRED) |

GENERAL NOTES:

1. ALL OUTLET LOCATIONS ARE IN APPROXIMATE POSITIONS. THE EXACT LOCATIONS SHALL BE DETERMINED BY PROVIDED BOX LOCATIONS AND FIELD CONDITIONS. ALL LOCATIONS ARE TO BE FIELD-VERIFIED.
2. THE STRUCTURED CABLING SYSTEM SHALL USE A SYSTEM OF SUPPORT DEVICES TO CREATE AN INDEPENDENT SUPPORT SUBSYSTEM FASTENED TO BUILDING STRUCTURAL STEEL. WHEN EXITING LADDER RACK, SLEEVES, TRAY OF ANY TYPE OR CONDUIT PATHWAYS, BOTH HORIZONTAL AND VERTICAL, THE CABLE SHALL BE SUPPORTED EVERY 4-5 FEET.
3. ALL THRU WALL OR THRU FLOOR PENETRATIONS AS WELL AS ANY CONDUIT PATHWAYS USED FOR THE STRUCTURED CABLING SYSTEM SHALL BE EITHER RETURNED TO THEIR ORIGINAL INTEGRITY, IF THAT ORIGINAL CONDITION WAS DEFICIENT, IT SHALL BE BROUGHT UP TO STANDARDS, OR SHALL BE MADE WHOLE BY USE OF AN APPROPRIATE FIRE-RATED SYSTEM. ALL TELECOMMUNICATIONS SLEEVES FOR THIS PROJECT SHALL BE FIRE STOPPED. ALL EXTERIOR ENTRANCE CONDUITS SHALL BE PLUGGED WITH A WATER PROOF PLUG.
4. ALL OUTLET LOCATIONS SHALL BE IDENTIFIED WITH A TIA/EIA 606-A COMPLIANT LABELING SYSTEM. LABELING CONVENTIONS SHALL BE APPROVED BY THE OWNER. PROVIDE A LAMINATED 30 X 42 AS-BUILT DOCUMENT SHOWING ALL LABELS AT EACH OUTLET. THE DOCUMENT SHALL BE FRAMED AND POSTED IN THE TELECOM ROOM.

TELECOM ROOM NOTES:

1. ALL STRUCTURED CABLES SHALL BE NEATLY BUNDLED AND DRESSED INTO CABLE GROUPS WITH NO GREATER THAN 24 CABLES. ALL CABLE GROUPS SHALL BE BUNDLED TOGETHER NEATLY AND SHALL BE LACED INTO EACH SIDE OF THE RACK WITH A BALANCED PROPORTION ON EACH SIDE.
2. ALL 4-PAIR CATEGORY CABLES SHALL BE BUNDLED AND ROUTED OUTSIDE OF THE INTERIOR RACK SPACE USING THE VERTICAL WIRE MANAGEMENT SYSTEM SO AS TO NOT IMPACT THE ELECTRONICS INSTALLATION.
3. THE CONTRACTOR SHALL COORDINATE WITH THE ELECTRICAL CONTRACTOR SO THAT ALL CABLING SHALL UTILIZE THE PATHWAYS AND CONDUITS PROVIDED.THE CONTRACTOR SHALL MEET WITH THE ELETRICAL CONTRACTOR AND COORDINATE ANY CONDUIT OR POWER SYSTEMS THAT MAY BE INSTALLED WITHIN THE RACK SYSTEM.

ROOM & RACK NOTES:

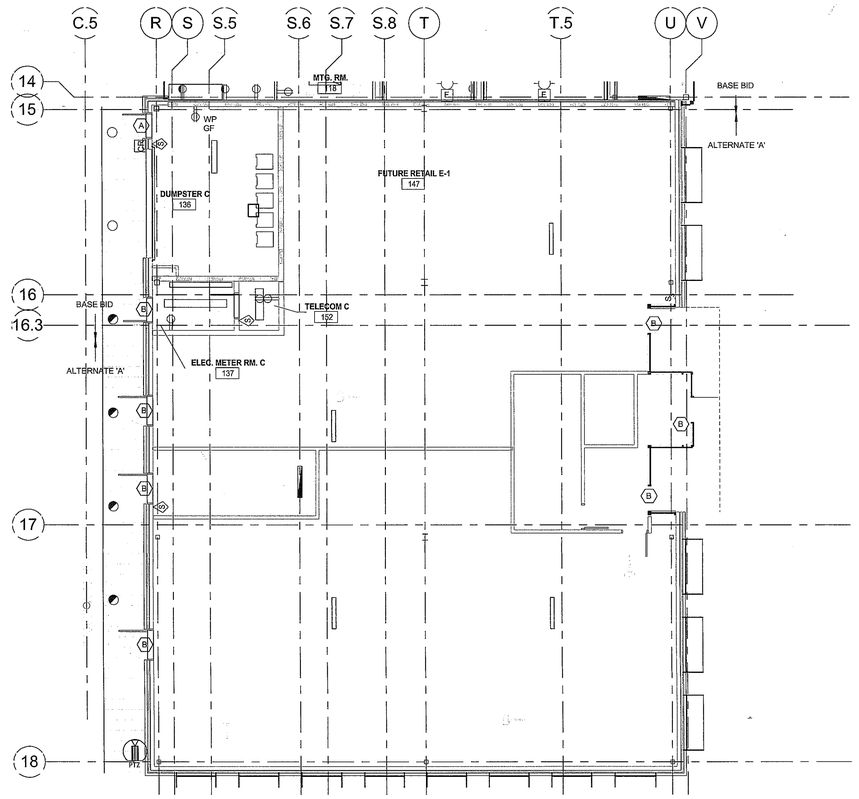
1. THE MAIN TELECOM ROOM SHALL BE IDENTIFIED AS MC-114.
2. ALL RACKS AND LADDER RACK SHALL BE SECURELY MOUNTED TO THE FLOOR AND WALLS WITH APPROPRIATE ANCHOR KITS.
3. VOICE & DATA CABLES SHALL BE TERMINATED ON RACK-MOUNTED PATCH PANELS.

| ACCESS CONTROL LEGEND | |
|---|---|
| CR | ACCESS CONTROLLED DOOR WITH THE FOLLOWING REQUIREMENTS:<br>1. CARD ACCESS READER PAD AT 48" A.F.F. WALL OR MULLION-MOUNTED.<br>2. LOCK SECURED BY EITHER ELECTRIFIED STRIKE OR ELECTRIFIED LOCK.<br>3. BALANCED POSITION SWITCH INSTALLED IN FRAME AND CONNECTED TO CONTROLLER. |
| PTZ | CEILING-MOUNTED Q-6035 PTZ IP VIDEO SURVEILLANCE CAMERA. DISCREET SMOKED DOME OR EQUAL. CONTRACTOR TO PROVIDE SMOKED TRANSPARENT COVER AS WELL THE APPROPRIATE LENS-CAMERA WILL USE PoE FOR POWER AND WILL REQUIRE 1 - CATEGORY 6 CABLE AND FLUSH MOUNT ELECTRICAL BOX AND CONDUIT STUBBED TO THE ACCESSIBLE CEILING. |
| OUT | OUTDOOR-RATED, WALL-MOUNTED - IP VIDEO SURVEILLANCE CAMERA. AXIS 43344-VE FIXED DOME OR EQUAL. CONTRACTOR TO PROVIDE SMOKED TRANSPARENT COVER AS WELL THE APPROPRIATE LENS-CAMERA WILL USE PoE FOR POWER AND WILL REQUIRE 1 - CATEGORY 6 CABLE AND FLUSH MOUNT ELECTRICAL BOX AND CONDUIT STUBBED TO THE ACCESSIBLE CEILING. |
| | CEILING-MOUNTED LOW PROFILE IP VIDEO SURVEILLANCE CAMERA. AXIS P3304-V FIXED DOME OR EQUAL. CONTRACTOR TO PROVIDE SMOKED TRANSPARENT COVER AS WELL THE APPROPRIATE LENS-CAMERA WILL USE PoE FOR POWER AND WILL REQUIRE 1 - CATEGORY 6 CABLE AND FLUSH MOUNT ELECTRICAL BOX AND CONDUIT STUBBED TO THE ACCESSIBLE CEILING. |
| OUT | CEILING-MOUNTED OUTDOOR IP VIDEO SURVEILLANCE CAMERA. AXIS P3344-VE FIXED DOME WITH MICROPHONE OR EQUAL. CONTRACTOR TO PROVIDE SMOKED TRANSPARENT COVER AS WELL THE APPROPRIATE LENS-CAMERA WILL USE PoE FOR POWER AND WILL REQUIRE 1 - CATEGORY 6 CABLE AND FLUSH MOUNT ELECTRICAL BOX AND CONDUIT STUBBED TO THE ACCESSIBLE CEILING. |

| TELECOMMUNICATIONS LEGEND | |
|---|---|
| ▽ | DUAL OUTLET LOCATION. TWO CAT 6 JACKS IN A STAINLESS STEEL FACEPLATE. CABLES PER SPECIFICATIONS. TYPICAL FOR WALLS, SYSTEMS FURNITURE & MILLWORK. |
| ▷• | SINGLE CATV OUTLET WITH CONDUIT, SM BOX & FLUSH MOUNT PLATE. COUPLER AND MATCHING WALL PLATE. ONE RG6/U PLENUM-RATED QUAD SHIELD CABLE AND ONE CAT 6 CABLE. CONTRACTOR SHALL SECURE PLATE AT 84". |
| ▼ | WFI DATA LOCATION – TWO CAT 6 CABLES FOR WIRELESS ACCESS POINT LOCATIONS IN ACCESSIBLE CEILING. |

## ◇KEYED NOTES

| | |
|---|---|
| 1 | SINGLE GANG CAST BOX WITH WEATHERPROOF COVER PLATE FOR VIDEO SURVEILLANCE CAMERA. INSTALL ON CANOPY STRUCTURE AT 10'-0" AFF. FINAL LOCATION AND MOUNTING HEIGHT TO BE VERIFIED PRIOR TO ROUGH-IN. PROVIDE 3/4"C TO TERMINAL CABINET IN SHOP 138 FOR DATA CABLING. |
| 3 | NOT USED |
| 4 | SINGLE GANG CAST BOX WITH WEATHERPROOF COVER PLATE FOR BUS BAY SIGNAGE DATA CABLING. INSTALL ON CANOPY STRUCTURE. |
| 5 | NOT USED |
| 6 | NOT USED |




LEVEL 1 - TENANT SPACES J & K -
TELECOM AND SECURITY - ALTERNATE 'A'
1/8" = 1'-0"

1/8" = 1'-0" 4' 0 4' 8' 16'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| Date | January 31, 2014 |
| Revisions | |


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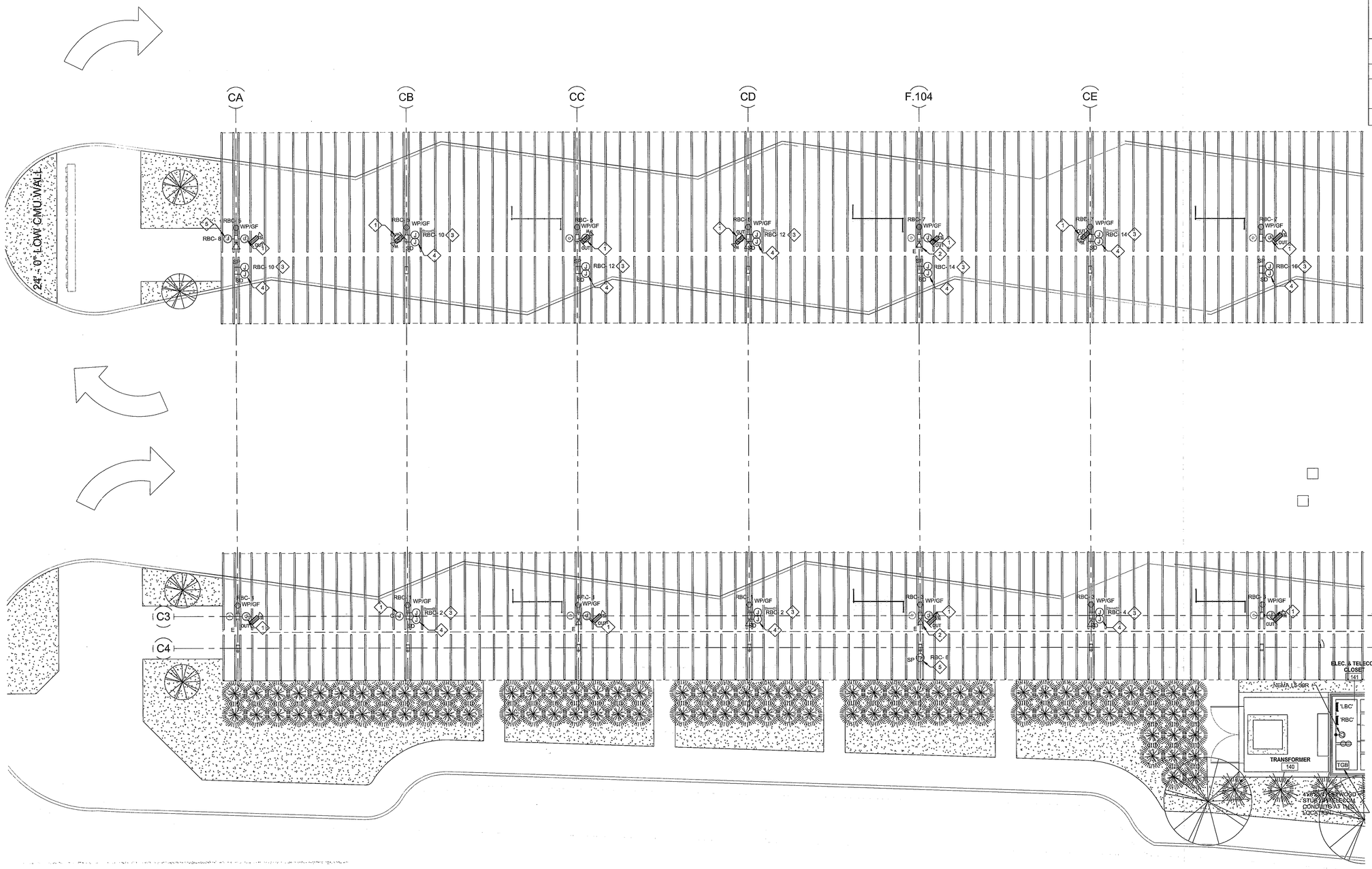
**FAST Multi-Modal Center**
City of Fayetteville
Fayetteville, NC

Project Number 621A

Title
**Level 1 - Tenant Spaces - Telecom/Security Plan**

Sheet
# T101b

Plate of




1 Bus Canopy Telecom & Security Plan - West
1/8" = 1'-0"

1/8" = 1'-0" 4' 0 4' 8' 16'

## ◇KEYED NOTES

| | |
|---|---|
| 1 | SINGLE GANG CAST BOX WITH WEATHERPROOF COVER PLATE FOR VIDEO SURVEILLANCE CAMERA. INSTALL ON CANOPY STRUCTURE AT 10'-0" AFF. FINAL LOCATION AND MOUNTING HEIGHT TO BE VERIFIED PRIOR TO ROUGH-IN. PROVIDE 3/4"C TO TERMINAL CABINET IN SHOP 138 FOR DATA CABLING.1 - CATEGORY 6 CABLE. SEE CAMERA DETAIL FOR DETAILS. |
| 2 | SINGLE GANG CAST BOX WITH WEATHERPROOF COVER PLATE FOR EMERGENCY CALL BOX. INSTALL ON CANOPY STRUCTURE AT 48" AFF. PROVIDE 3/4"C TO RACK LOCATION IN SHOP 138. INSTALL ONE (1) CATEGORY 6 CABLE. |
| 3 | ELECTRICAL - NOT TELECOM RELATED |
| 4 | SINGLE GANG CAST BOX WITH WEATHERPROOF COVER PLATE FOR BUS BAY SIGNAGE DATA CABLING.TWO CATEGORY 6 CABLES. INSTALL ON CANOPY STRUCTURE PER DETAIL ON SHEET T101c.2. |
| 5 | ELECTRICAL - NOT TELECOM RELATED |

**GENERAL NOTES:**

1. ALL OUTLET LOCATIONS ARE IN APPROXIMATE POSITIONS. THE EXACT LOCATIONS SHALL BE DETERMINED BY PROVIDED BOX LOCATIONS AND FIELD CONDITIONS. ALL LOCATIONS ARE TO BE FIELD-VERIFIED.
2. THE STRUCTURED CABLING SYSTEM SHALL USE A SYSTEM OF SUPPORT DEVICES TO CREATE AN INDEPENDENT SUPPORT SUBSYSTEM FASTENED TO BUILDING STRUCTURAL STEEL. WHEN EXITING LADDER RACK, SLEEVES, TRAY OF ANY TYPE OR CONDUIT PATHWAYS, BOTH HORIZONTAL AND VERTICAL, THE CABLE SHALL BE SUPPORTED EVERY 4-5 FEET.
3. ALL THRU WALL OR THRU FLOOR PENETRATIONS AS WELL AS ANY CONDUIT PATHWAYS USED FOR THE STRUCTURED CABLING SYSTEM SHALL BE EITHER RETURNED TO THEIR ORIGINAL INTEGRITY, IF THAT ORIGINAL CONDITION WAS DEFICIENT, IT SHALL BE BROUGHT UP TO STANDARDS, OR SHALL BE MADE WHOLE BY USE OF AN APPROPRIATE FIRE-RATED SYSTEM. ALL TELECOMMUNICATIONS SLEEVES FOR THIS PROJECT SHALL BE FIRE STOPPED. ALL EXTERIOR ENTRANCE CONDUITS SHALL BE PLUGGED WITH A WATER PROOF PLUG.
4. ALL OUTLET LOCATIONS SHALL BE IDENTIFIED WITH A TIA/EIA 606-A COMPLIANT LABELING SYSTEM. LABELING CONVENTIONS SHALL BE APPROVED BY THE OWNER. PROVIDE A LAMINATED 30 X 42 AS-BUILT DOCUMENT SHOWING ALL LABELS AT EACH OUTLET. THE DOCUMENT SHALL BE FRAMED AND POSTED IN THE TELECOM ROOM.

**TELECOM RACK IN STORAGE ROOM NOTES:**

1. ALL STRUCTURED CABLES SHALL BE NEATLY BUNDLED AND DRESSED INTO CABLE GROUPS WITH NO GREATER THAN 24 CABLES. ALL CABLE GROUPS SHALL BE BUNDLED TOGETHER NEATLY AND SHALL BE LACED INTO EACH SIDE OF THE RACK WITH A BALANCED PROPORTION ON EACH SIDE.
2. ALL 4-PAIR CATEGORY CABLES SHALL BE BUNDLED AND ROUTED OUTSIDE OF THE INTERIOR RACK SPACE USING THE VERTICAL WIRE MANAGEMENT SYSTEM SO AS TO NOT IMPACT THE ELECTRONICS INSTALLATION.
3. THE CONTRACTOR SHALL COORDINATE WITH THE ELECTRICAL CONTRACTOR SO THAT ALL CABLING SHALL UTILIZE THE PATHWAYS AND CONDUITS PROVIDED.THE CONTRACTOR SHALL MEET WITH THE ELETRICAL CONTRACTOR AND COORDINATE ANY CONDUIT OR POWER SYSTEMS THAT MAY BE INSTALLED WITHIN THE RACK SYSTEM.

**ROOM & RACK NOTES:**

1. THE TELECOM ROOM FOR THE BUS CANOPY IS THE MAINTENCE BLG. SHOP ROOM SHALL BE IDENTIFIED AS MC-138.
2. ALL RACKS AND LADDER RACK SHALL BE SECURELY MOUNTED TO THE FLOOR AND WALLS WITH APPROPRIATE ANCHOR KITS.
3. VOICE & DATA CABLES SHALL BE TERMINATED ON RACK-MOUNTED PATCH PANELS.
4. ALL CABLES OUTDOORS SHALL BE WATERBLOCKED AND SURGE SUPRESSED BE EIA/TIA 607A.

| TELECOMMUNICATIONS LEGEND | |
|---|---|
| ▽ | DUAL OUTLET LOCATION. TWO CAT 6 JACKS IN A STAINLESS STEEL FACEPLATE. CABLES PER SPECIFICATIONS. TYPICAL FOR WALLS, SYSTEMS FURNITURE & MILLWORK. |
| ▽ CATV | SINGLE CATV OUTLET WITH CONDUIT, SM BOX & FLUSH MOUNT PLATE. COUPLER AND MATCHING WALL PLATE. ONE RG6/U PLENUM-RATED QUAD SHIELD CABLE AND ONE CAT 6 CABLE. CONTRACTOR SHALL SECURE PLATE AT 84". |
| ▽ WAP | WIFI DATA LOCATION – TWO CAT 6 CABLES FOR WIRELESS ACCESS POINT LOCATIONS IN ACCESSIBLE CEILING. |

| ACCESS CONTROL LEGEND | |
|---|---|
| CR | ACCESS CONTROLLED DOOR WITH THE THE FOLLOWING REQUIREMENTS:<br>1. CARD ACCESS READER PAD AT 48" A.F.F., WALL OR MULLION-MOUNTED.<br>2. LOCK SECURED BY EITHER ELECTRIFIED STRIKE OR ELECTRIFIED LOCK.<br>3. SECURE-SIDE "REQUEST TO EXIT" EITHER MOUNTED TO DOOR FRAME OR INCLUDED IN ELECTRIFIED LOCK.<br>4. BALANCED POSITION SWITCH INSTALLED IN FRAME AND CONNECTED TO CONTROLLER. |
| PTZ | CEILING-MOUNTED Q-6035 PTZ IP VIDEO SURVEILLANCE CAMERA. DISCREET SMOKED DOME OR EQUAL. CONTRACTOR TO PROVIDE SMOKED TRANSPARENT COVER AS WELL THE APPROPRIATE LENS.CAMERA WILL USE PoE FOR POWER AND WILL REQUIRE 1 - CATEGORY 6 CABLE AND FLUSH MOUNT ELECTRICAL BOX AND CONDUIT STUBBED TO THE ACCESSIBLE CEILING. |
| OUT | OUTDOOR-RATED, WALL-MOUNTED - IP VIDEO SURVEILLANCE CAMERA. AXIS M3344-VE FIXED DOME OR EQUAL. CONTRACTOR TO PROVIDE SMOKED TRANSPARENT COVER AS WELL THE APPROPRIATE LENS.CAMERA WILL USE PoE FOR POWER AND WILL REQUIRE 1 - CATEGORY 6 CABLE AND FLUSH MOUNT ELECTRICAL BOX AND CONDUIT STUBBED TO THE ACCESSIBLE CEILING. |
| | CEILING-MOUNTED LOW PROFILE IP VIDEO SURVEILLANCE CAMERA. AXIS P3304-V FIXED DOME OR EQUAL. CONTRACTOR TO PROVIDE SMOKED TRANSPARENT COVER AS WELL THE APPROPRIATE LENS.CAMERA WILL USE PoE FOR POWER AND WILL REQUIRE 1 - CATEGORY 6 CABLE AND FLUSH MOUNT ELECTRICAL BOX AND CONDUIT STUBBED TO THE ACCESSIBLE CEILING. |
| MIC OUT | CEILING-MOUNTED OUTDOOR IP VIDEO SURVEILLANCE CAMERA. AXIS P3344-VE FIXED DOME WITH MICROPHONE OR EQUAL. CONTRACTOR TO PROVIDE SMOKED TRANSPARENT COVER AS WELL THE APPROPRIATE LENS.CAMERA WILL USE PoE FOR POWER AND WILL REQUIRE 1 - CATEGORY 6 CABLE AND FLUSH MOUNT ELECTRICAL BOX AND CONDUIT STUBBED TO THE ACCESSIBLE CEILING OR TO BUS SHOP. USE OUTDOOR-RATED CABLING AND SURGE SUPPRESSION. |

GENERAL NOTES:

1. SYSTEM TO BE INSTALLED BY A CERTIFIED NORTH CAROLINA ALARM & SECURITY INSTALLER.
2. ALL DEVICE LOCATIONS ARE APPROXIMATE AND SHOWN FOR DIAGRAMMATIC PURPOSES ONLY. FINAL POSITION TO BE DETERMINED BY SUCCESSFUL CERTIFIED CONTRACTOR AND TENANT.
3. ALL DOORS, THEIR METHODS OF SECURING, OPENING AND CLOSING WILL BE APPROVED BY THE CONSULTANT AND CLIENT PRIOR TO INSTALL.
4. ALL DOOR HARDWARE AND LOCKSET INSTALLATION SHALL BE COORDINATED WITH THE GENERAL CONTRACTOR AND THE DOOR HARDWARE PROVIDER.
5. ALL ACCESS CONTROL DEVICES SHALL BE INSTALLED PER THE NC BUILDING CODE, THE NFPA LIFE SAFETY CODE AND ANY OTHER SUCH CODE HAVING JURISDICTION AS WELL AS IN ACCORDANCE WITH THE LOCAL AUTHORITY HAVING JURISDICTION (AHJ).THESE CODES AND AUTHORITIES SUPERSEDE THESE DESIGN GUIDELINES AND SHALL BE INSTALLED PER THEIR SPECIFICATIONS. ANY DEVIANCE FROM THE ABOVE MENTIONED SPECIFICATIONS AND AUTHORITIES IS THE RESPONSIBILITY OF THE CONTRACTOR.
6. ESTABLISH MULTIPLE SECURITY ZONES SEPARATE FROM CENTER FOR EACH OF THE RETAIL AND TENANT AREAS FOR FUTURE TENANTS AND SYSTEMS.

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| Drawn | JP |
| Checked | RAS |
| Date | January 31, 2014 |
| Revisions | |

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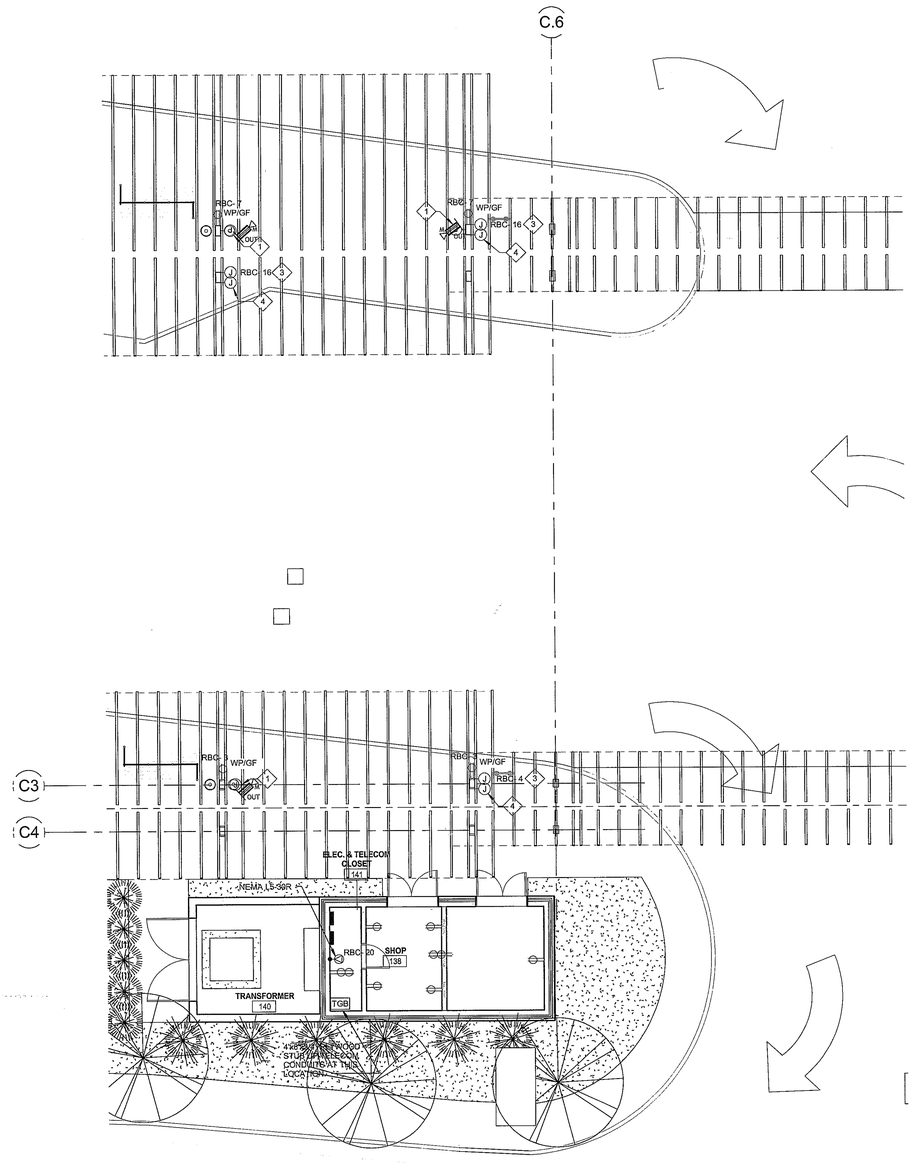
**FAST Multi-Modal Center**
City of Fayetteville
Fayetteville, NC

Project Number 621A

Title
**Bus Canopy Telecom & Security - West**

Sheet
# T101c.1

Plate of




1 Bus Canopy Telecom/Security Plan - East
1/8" = 1'-0"

1/8" = 1'-0" 4' 0 4' 8' 16'

| TELECOMMUNICATIONS LEGEND | |
|---|---|
| ▽ | DUAL OUTLET LOCATION. TWO CAT 6 JACKS IN A STAINLESS STEEL FACEPLATE. CABLES PER SPECIFICATIONS. TYPICAL FOR WALLS, SYSTEMS FURNITURE & MILLWORK. |
| E | SINGLE CATV OUTLET WITH CONDUIT, SM BOX & FLUSH MOUNT PLATE, COUPLER AND MATCHING WALL PLATE. ONE RG6/U PLENUM-RATED QUAD SHIELD CABLE AND ONE CAT 6 CABLE. CONTRACTOR SHALL SECURE PLATE AT 84". |
| W | WIFI DATA LOCATION – TWO CAT 6 CABLES FOR WIRELESS ACCESS POINT LOCATIONS IN ACCESSIBLE CEILING. |

**GENERAL NOTES:**

1. ALL OUTLET LOCATIONS ARE IN APPROXIMATE POSITIONS. THE EXACT LOCATIONS SHALL BE DETERMINED BY PROVIDED BOX LOCATIONS AND FIELD CONDITIONS. ALL LOCATIONS ARE TO BE FIELD-VERIFIED.
2. THE STRUCTURED CABLING SYSTEM SHALL USE A SYSTEM OF SUPPORT DEVICES TO CREATE AN INDEPENDENT SUPPORT SUBSYSTEM FASTENED TO BUILDING STRUCTURAL STEEL. WHEN EXITING LADDER RACK, SLEEVES, TRAY OF ANY TYPE OR CONDUIT PATHWAYS, BOTH HORIZONTAL AND VERTICAL, THE CABLE SHALL BE SUPPORTED EVERY 4-5 FEET.
3. ALL THRU WALL OR THRU FLOOR PENETRATIONS AS WELL AS ANY CONDUIT PATHWAYS USED FOR THE STRUCTURED CABLING SYSTEM SHALL BE EITHER RETURNED TO THEIR ORIGINAL INTEGRITY, IF THAT ORIGINAL CONDITION WAS DEFICIENT, IT SHALL BE BROUGHT UP TO STANDARDS, OR SHALL BE MADE WHOLE BY USE OF AN APPROPRIATE FIRE-RATED SYSTEM. ALL TELECOMMUNICATIONS SLEEVES FOR THIS PROJECT SHALL BE FIRE STOPPED. ALL EXTERIOR ENTRANCE CONDUITS SHALL BE PLUGGED WITH A WATER PROOF PLUG.
4. ALL OUTLET LOCATIONS SHALL BE IDENTIFIED WITH A TIA/EIA 606-A COMPLIANT LABELING SYSTEM. LABELING CONVENTIONS SHALL BE APPROVED BY THE OWNER. PROVIDE A LAMINATED 30 X 42 AS-BUILT DOCUMENT SHOWING ALL LABELS AT EACH OUTLET. THE DOCUMENT SHALL BE FRAMED AND POSTED IN THE TELECOM ROOM.

**TELECOM RACK IN STORAGE ROOM NOTES:**

1. ALL STRUCTURED CABLES SHALL BE NEATLY BUNDLED AND DRESSED INTO CABLE GROUPS WITH NO GREATER THAN 24 CABLES. ALL CABLE GROUPS SHALL BE BUNDLED TOGETHER NEATLY AND SHALL BE LACED INTO EACH SIDE OF THE RACK WITH A BALANCED PROPORTION ON EACH SIDE.
2. ALL 4-PAIR CATEGORY CABLES SHALL BE BUNDLED AND ROUTED OUTSIDE OF THE INTERIOR RACK SPACE USING THE VERTICAL WIRE MANAGEMENT SYSTEM SO AS TO NOT IMPACT THE ELECTRONICS INSTALLATION.
3. THE CONTRACTOR SHALL COORDINATE WITH THE ELECTRICAL CONTRACTOR SO THAT ALL CABLING SHALL UTILIZE THE PATHWAYS AND CONDUITS PROVIDED.THE CONTRACTOR SHALL MEET WITH THE ELETRICAL CONTRACTOR AND COORDINATE ANY CONDUIT OR POWER SYSTEMS THAT MAY BE INSTALLED WITHIN THE RACK SYSTEM.

**ROOM & RACK NOTES:**

1. THE TELECOM ROOM FOR THE BUS CANOPY IS THE MAINTENCE BLG. SHOP ROOM SHALL BE IDENTIFIED AS MC-138.
2. ALL RACKS AND LADDER RACK SHALL BE SECURELY MOUNTED TO THE FLOOR AND WALLS WITH APPROPRIATE ANCHOR KITS.
3. VOICE & DATA CABLES SHALL BE TERMINATED ON RACK-MOUNTED PATCH PANELS.
4. ALL CABLES RUN UNDERGROUND SHALL BE WATERBLOCKED AND SURGE SUPPRESSED PER EIA/TIA 607-A

GENERAL NOTES:

1. SYSTEM TO BE INSTALLED BY A CERTIFIED NORTH CAROLINA ALARM & SECURITY INSTALLER.
2. ALL DEVICE LOCATIONS ARE APPROXIMATE AND SHOWN FOR DIAGRAMMATIC PURPOSES ONLY. FINAL POSITION TO BE DETERMINED BY SUCCESSFUL CERTIFIED CONTRACTOR AND TENANT.
3. ALL DOORS, THEIR METHODS OF SECURING, OPENING AND CLOSING WILL BE APPROVED BY THE CONSULTANT AND CLIENT PRIOR TO INSTALL.
4. ALL DOOR HARDWARE AND LOCKSET INSTALLATION SHALL BE COORDINATED WITH THE GENERAL CONTRACTOR AND THE DOOR HARDWARE PROVIDER.
5. ALL ACCESS CONTROL DEVICES SHALL BE INSTALLED PER THE NC BUILDING CODE, THE NFPA LIFE SAFETY CODE AND ANY OTHER SUCH CODE HAVING JURISDICTION AS WELL AS IN ACCORDANCE WITH THE LOCAL AUTHORITY HAVING JURISDICTION (AHJ).THESE CODES AND AUTHORITIES SUPERSEDE THESE DESIGN GUIDELINES AND SHALL BE INSTALLED PER THEIR SPECIFICATIONS. ANY DEVIANCE FROM THE ABOVE MENTIONED SPECIFICATIONS AND AUTHORITIES IS THE RESPONSIBILITY OF THE CONTRACTOR.
6. ESTABLISH MULTIPLE SECURITY ZONES SEPARATE FROM CENTER FOR EACH OF THE RETAIL AND TENANT AREAS FOR FUTURE TENANTS AND SYSTEMS.

| ACCESS CONTROL LEGEND | |
|---|---|
| CR | ACCESS CONTROLLED DOOR WITH THE FOLLOWING REQUIREMENTS:<br>1. CARD ACCESS READER PAD AT 48" A.F.F. WALL OR MULLION-MOUNTED.<br>2. LOCK SECURED BY EITHER ELECTRIFIED STRIKE OR ELECTRIFIED LOCK.<br>3. SECURE-SOS' 'REQUEST TO EXIT' EITHER MOUNTED TO DOOR FRAME OR INCLUDED IN ELECTRIFIED LOCK.<br>4. BALANCED POSITION SWITCH INSTALLED IN FRAME AND CONNECTED TO CONTROLLER. |
| PTZ | CEILING-MOUNTED Q-A595 PTZ IP VIDEO SURVEILLANCE CAMERA. DISCREET SMOKED DOME OR EQUAL. CONTRACTOR TO PROVIDE SMOKED TRANSPARENT COVER AS WELL THE APPROPRIATE LENS.CAMERA WILL USE PoE FOR POWER AND WILL REQUIRE 1 - CATEGORY 6 CABLE AND FLUSH MOUNT ELECTRICAL BOX AND CONDUIT STUBBED TO THE ACCESSIBLE CEILING. |
| OUT | OUTDOOR-RATED, WALL-MOUNTED - IP VIDEO SURVEILLANCE CAMERA, AXIS #0344-VE FIXED DOME OR EQUAL. CONTRACTOR TO PROVIDE SMOKED TRANSPARENT COVER AS WELL THE APPROPRIATE LENS.CAMERA WILL USE PoE FOR POWER AND WILL REQUIRE 1 - CATEGORY 6 CABLE AND FLUSH MOUNT ELECTRICAL BOX AND CONDUIT STUBBED TO THE ACCESSIBLE CEILING. |
| | CEILING-MOUNTED LOW PROFILE IP VIDEO SURVEILLANCE CAMERA. AXIS P3304-V FIXED DOME OR EQUAL. CONTRACTOR TO PROVIDE SMOKED TRANSPARENT COVER AS WELL THE APPROPRIATE LENS.CAMERA WILL USE PoE FOR POWER AND WILL REQUIRE 1 - CATEGORY 6 CABLE AND FLUSH MOUNT ELECTRICAL BOX AND CONDUIT STUBBED TO THE ACCESSIBLE CEILING. |
| M OUT | CEILING-MOUNTED OUTDOOR IP VIDEO SURVEILLANCE CAMERA. AXIS P3344-VE FIXED DOME WITH MICROPHONE OR EQUAL. CONTRACTOR TO PROVIDE SMOKED TRANSPARENT COVER AS WELL THE APPROPRIATE LENS.CAMERA WILL USE PoE FOR POWER AND WILL REQUIRE 1 - CATEGORY 6 CABLE AND FLUSH MOUNT ELECTRICAL BOX AND CONDUIT STUBBED TO THE ACCESSIBLE CEILING. |

| ◇KEYED NOTES | |
|---|---|
| 1 | SINGLE GANG CAST BOX WITH WEATHERPROOF COVER PLATE FOR VIDEO SURVEILLANCE CAMERA. INSTALL ON CANOPY STRUCTURE AT 10'-0" AFF. FINAL LOCATION AND MOUNTING HEIGHT TO BE VERIFIED PRIOR TO ROUGH-IN. PROVIDE 3/4"C TO TERMINAL CABINET IN SHOP 138 FOR DATA CABLING.1 - CATEGORY 6 CABLE. SEE CAMERA DETAIL FOR DETAILS. |
| 2 | SINGLE GANG CAST BOX WITH WEATHERPROOF COVER PLATE FOR EMERGENCY CALL BOX. INSTALL ON CANOPY STRUCTURE AT 48" AFF. PROVIDE 3/4"C TO RACK LOCATION IN SHOP 138. INSTALL ONE (1) CATEGORY 6 CABLE. |
| 3 | ELECTRICAL - NOT TELECOM RELATED |
| 4 | SINGLE GANG CAST BOX WITH WEATHERPROOF COVER PLATE FOR BUS BAY SIGNAGE DATA CABLING.TWO CATEGORY 6 CABLES. INSTALL ON CANOPY STRUCTURE PER DETAIL ON SHEET T101c.2. |
| 5 | ELECTRICAL - NOT TELECOM RELATED |

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| | |
|---|---|
| Drawn | JP |
| Checked | RAS |
| Date | January 31, 2014 |
| Revisions | |

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**FAST Multi-Modal Center**
City of Fayetteville
Fayetteville, NC

Project Number 621A

Title
**Bus Canopy Telecom/Security - East**

Sheet
# T101c.2

Plate of

(A) ACCESS-CONTROLLED DOOR. DOOR POSITION IS SECURE, HOWEVER,THE FOLLOWING CONDITIONS APPLY:

1.1. FREE EGRESS FROM SECURE SIDE.
1.2. DOOR OPENS UPON PROPER CREDENTIALS PRESENTED.

1. CARD ACCESS READER PAD AT 48" A.F.F. WALL OR MULLION.
2. LOCK SECURED BY EITHER ELECTRIFIED STRIKE OR ELECTRIFIED LOCK.
3. BALANCED POSITION SWITCH FOR EACH DOOR INSTALLED IN FRAME AND CONNECTED TO CONTROLLER.

(B) 1. MONITORED DOOR - BALANCED POSITION SWITCH INSTALLED IN FRAME AND CONNECTED TO CONTROLLER AND INTRUSION SYSTEM

GENERAL NOTES:

1. SYSTEM TO BE INSTALLED BY A CERTIFIED NORTH CAROLINA ALARM & SECURITY INSTALLER.
2. ALL DEVICE LOCATIONS ARE APPROXIMATE AND SHOWN FOR DIAGRAMMATIC PURPOSES ONLY. FINAL POSITION TO BE DETERMINED BY SUCCESSFUL CERTIFIED CONTRACTOR AND TENANT.
3. ALL DOORS, THEIR METHODS OF SECURING, OPENING AND CLOSING WILL BE APPROVED BY THE CONSULTANT AND CLIENT PRIOR TO INSTALL.
4. ALL DOOR HARDWARE AND LOCKSET INSTALLATION SHALL BE COORDINATED WITH THE GENERAL CONTRACTOR AND THE DOOR HARDWARE PROVIDER.
5. ALL ACCESS CONTROL DEVICES SHALL BE INSTALLED PER THE NC BUILDING CODE, THE NFPA LIFE SAFETY CODE AND ANY OTHER SUCH CODE HAVING JURISDICTION AS WELL AS IN ACCORDANCE WITH THE LOCAL AUTHORITY HAVING JURISDICTION (AHJ).THESE CODES AND AUTHORITIES SUPERSEDE THESE DESIGN GUIDELINES AND SHALL BE INSTALLED PER THEIR SPECIFICATIONS. ANY DEVIANCE FROM THE ABOVE MENTIONED SPECIFICATIONS AND AUTHORITIES IS THE RESPONSIBILITY OF THE CONTRACTOR.
6. ESTABLISH MULTIPLE SECURITY ZONES SEPARATE FROM CENTER FOR EACH OF THE RETAIL AND TENANT AREAS FOR FUTURE TENANTS AND SYSTEMS.

ADDITIONAL SYSTEM REQUIREMENTS:

1. IN 2ND FLOOR TELECOM ROOM PROVIDE CENTRAL MANAGEMENT STATION FOR ACCESS CONTROL SYSTEM, VIDEO MANAGEMENT SYSTEM AND BADGE PRINTING.
2. PROVIDE BADGE PRINTER, BACKDROP AND DIGITAL CAMERA.
3. PROVIDE A REMOTE READER TO ADD SMART CARD CREDENTIALS TO ACCESS CONTROL SYSTEM AND TO CREATE BADGES.
4. PROVIDE VIDEO MANAGEMENT STATION WITH VIDEO CONTROL JOYSTICK FOR CAMERA CONTROL AND PTZ FUNCTIONALITY.
5. INTEGRATE INTRUSION DETECTION SYSTEM WITH THE ACCESS CONTROL SYSTEM.
6. INTEGRATE DURESS SYSTEM WITH THE ACCESS CONTROL SYSTEM.

**GENERAL NOTES:**

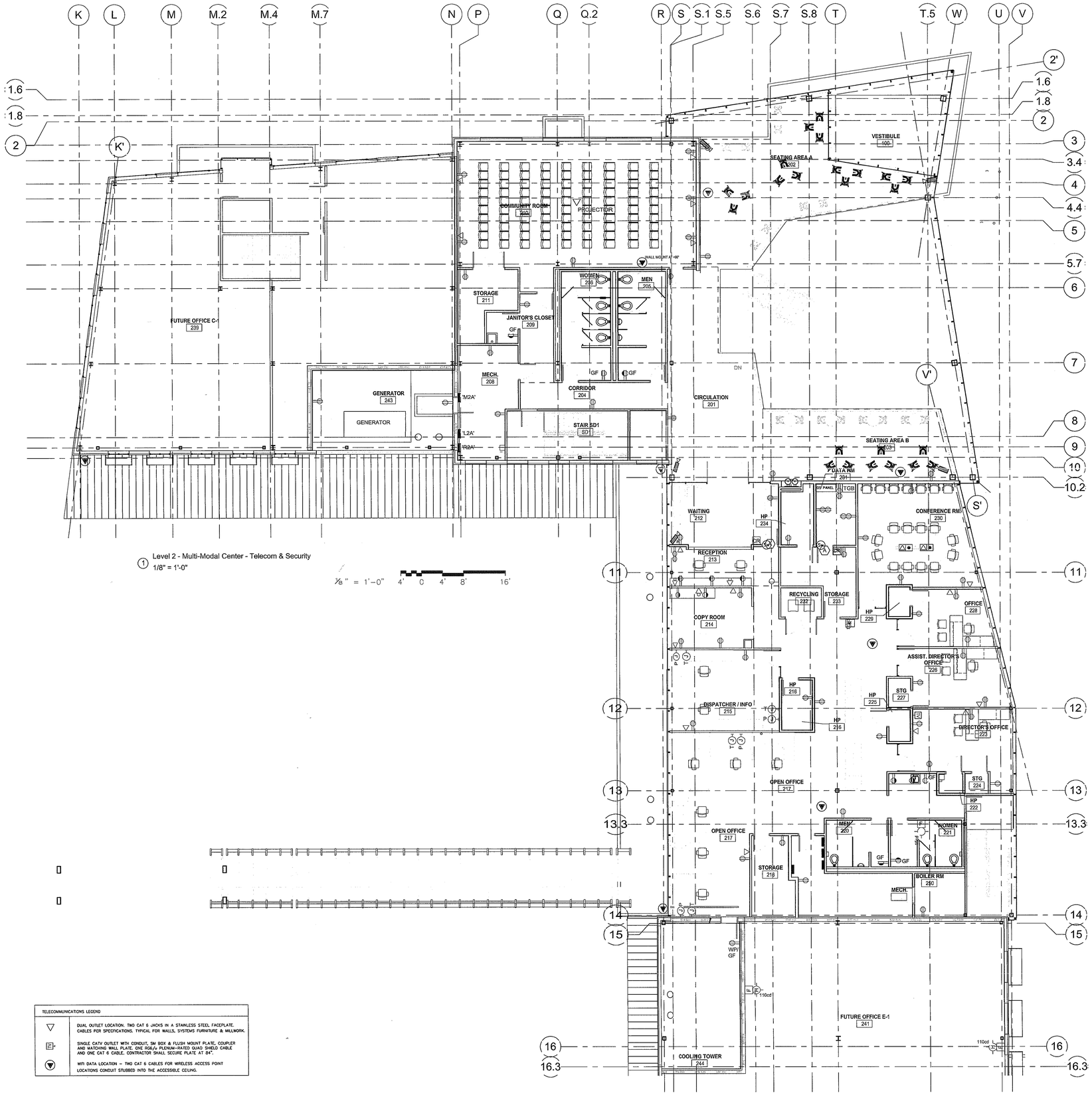
1. ALL OUTLET LOCATIONS ARE IN APPROXIMATE POSITIONS. THE EXACT LOCATIONS SHALL BE DETERMINED BY PROVIDED BOX LOCATIONS AND FIELD CONDITIONS. ALL LOCATIONS ARE TO BE FIELD-VERIFIED.
2. THE STRUCTURED CABLING SYSTEM SHALL USE A SYSTEM OF SUPPORT DEVICES TO CREATE AN INDEPENDENT SUPPORT SUBSYSTEM FASTENED TO BUILDING STRUCTURAL STEEL. WHEN EXITING LADDER RACK, SLEEVES, TRAY OF ANY TYPE OR CONDUIT PATHWAYS, BOTH HORIZONTAL AND VERTICAL, THE CABLE SHALL BE SUPPORTED EVERY 4-5 FEET.
3. ALL THRU WALL OR THRU FLOOR PENETRATIONS AS WELL AS ANY CONDUIT PATHWAYS USED FOR THE STRUCTURED CABLING SYSTEM SHALL BE EITHER RETURNED TO THEIR ORIGINAL INTEGRITY, IF THAT ORIGINAL CONDITION WAS DEFICIENT, IT SHALL BE BROUGHT UP TO STANDARDS, OR SHALL BE MADE WHOLE BY USE OF AN APPROPRIATE FIRE-RATED SYSTEM. ALL TELECOMMUNICATIONS SLEEVES FOR THIS PROJECT SHALL BE FIRE STOPPED. ALL EXTERIOR ENTRANCE CONDUITS SHALL BE PLUGGED WITH A WATER PROOF PLUG.
4. ALL OUTLET LOCATIONS SHALL BE IDENTIFIED WITH A TIA/EIA 606-A COMPLIANT LABELING SYSTEM. LABELING CONVENTIONS SHALL BE APPROVED BY THE OWNER. PROVIDE A LAMINATED 30 X 42 AS-BUILT DOCUMENT SHOWING ALL LABELS AT EACH OUTLET. THE DOCUMENT SHALL BE FRAMED AND POSTED IN THE TELECOM ROOM.

**TELECOM ROOM NOTES:**

1. ALL STRUCTURED CABLES SHALL BE NEATLY BUNDLED AND DRESSED INTO CABLE GROUPS WITH NO GREATER THAN 24 CABLES. ALL CABLE GROUPS SHALL BE BUNDLED TOGETHER NEATLY AND SHALL BE LACED INTO EACH SIDE OF THE RACK WITH A BALANCED PROPORTION ON EACH SIDE.
2. ALL 4-PAIR CATEGORY CABLES SHALL BE BUNDLED AND ROUTED OUTSIDE OF THE INTERIOR RACK SPACE USING THE VERTICAL WIRE MANAGEMENT SYSTEM SO AS TO NOT IMPACT THE ELECTRONICS INSTALLATION.
3. THE CONTRACTOR SHALL COORDINATE WITH THE ELECTRICAL CONTRACTOR SO THAT ALL CABLING SHALL UTILIZE THE PATHWAYS AND CONDUITS PROVIDED.THE CONTRACTOR SHALL MEET WITH THE ELETRICAL CONTRACTOR AND COORDINATE ANY CONDUIT OR POWER SYSTEMS THAT MAY BE INSTALLED WITHIN THE RACK SYSTEM.

**ROOM & RACK NOTES:**

1. THE SECOND FLOOR TELECOM ROOM SHALL BE IDENTIFIED AS MC-231.
2. ALL RACKS AND LADDER RACK SHALL BE SECURELY MOUNTED TO THE FLOOR AND WALLS WITH APPROPRIATE ANCHOR KITS.
3. VOICE & DATA CABLES SHALL BE TERMINATED ON RACK-MOUNTED PATCH PANELS.
4. ALL EXTERIOR-MOUNTED DEVICES, CAMERAS AND WAPS, SHALL USE A WATERBLOCKED OUTDOOR-RATED CABLE AND SHALL BE PROPERLY SURGE-SUPRESSED.




1 Level 2 - Multi-Modal Center - Telecom & Security
1/8" = 1'-0"

⅛" = 1'–0" 4' 0 4' 8' 16'

| ACCESS CONTROL LEGEND | |
|---|---|
| CR | ACCESS CONTROLLED DOOR WITH THE FOLLOWING REQUIREMENTS:<br>1. CARD ACCESS READER PAD AT 48" A.F.F. WALL OR MULLION-MOUNTED.<br>2. LOCK SECURED BY EITHER ELECTRIFIED STRIKE OR ELECTRIFIED LOCK.<br>3. SECURE-SIDE 'REQUEST TO EXIT' EITHER MOUNTED TO DOOR FRAME OR INCLUDED IN ELECTRIFIED LOCK.<br>4. BALANCED POSITION SWITCH INSTALLED IN FRAME AND CONNECTED TO CONTROLLER. |
| PTZ | CEILING-MOUNTED Q-6035 PTZ IP VIDEO SURVEILLANCE CAMERA. DISCREET SMOKED DOME OR EQUAL. CONTRACTOR TO PROVIDE SMOKED TRANSPARENT COVER AS WELL THE APPROPRIATE LENS.CAMERA WILL USE PoE FOR POWER AND WILL REQUIRE 1 - CATEGORY 6 CABLE AND FLUSH MOUNT ELECTRICAL BOX AND CONDUIT STUBBED TO THE ACCESSIBLE CEILING. |
| OUT | OUTDOOR-RATED, WALL-MOUNTED - IP VIDEO SURVEILLANCE CAMERA. AXIS M3344-VE FIXED DOME OR EQUAL. CONTRACTOR TO PROVIDE SMOKED TRANSPARENT COVER AS WELL THE APPROPRIATE LENS.CAMERA WILL USE PoE FOR POWER AND WILL REQUIRE 1 - CATEGORY 6 CABLE AND FLUSH MOUNT ELECTRICAL BOX AND CONDUIT STUBBED TO THE ACCESSIBLE CEILING. |
| | CEILING-MOUNTED LOW PROFILE IP VIDEO SURVEILLANCE CAMERA. AXIS P3304-V FIXED DOME OR EQUAL. CONTRACTOR TO PROVIDE SMOKED TRANSPARENT COVER AS WELL THE APPROPRIATE LENS.CAMERA WILL USE PoE FOR POWER AND WILL REQUIRE 1 - CATEGORY 6 CABLE AND FLUSH MOUNT ELECTRICAL BOX AND CONDUIT STUBBED TO THE ACCESSIBLE CEILING. |
| M OUT | CEILING-MOUNTED OUTDOOR IP VIDEO SURVEILLANCE CAMERA. AXIS P3344-VE FIXED DOME WITH MICROPHONE OR EQUAL. CONTRACTOR TO PROVIDE SMOKED TRANSPARENT COVER AS WELL THE APPROPRIATE LENS.CAMERA WILL USE PoE FOR POWER AND WILL REQUIRE 1 - CATEGORY 6 CABLE AND FLUSH MOUNT ELECTRICAL BOX AND CONDUIT STUBBED TO THE ACCESSIBLE CEILING. |

| INTRUSION DETECTION LEGEND | |
|---|---|
| M | DUAL TECHNOLOGY ANY WITH PASSIVE INFA-RED MOTION DETECTOR<br>1. ANTI-TAMPER SWITCH<br>2. WALL-MOUNT PER SPECIFICATIONS |
| Sw | BALANCED POSITION SWITCH INSTALLED IN FRAME AND CONNECTED TO ALARM PANELOR SINGLE DOOR CONTROLLER |
| DS PANEL | INTRUSION DETECTION PANEL:<br>1. MOUNT IN SECURE LOCATION IN TELECOM ROOM<br>2. PROVIDE INTERFACE TO ACCESS CONTROL PANEL<br>3. ACCESS CONTROL PANEL TO REPORT AND MONITOR LOCALLY<br>4. PROVIDE INTERFACE FOR REMOTE MONITORING AND EMERGENCY 911 REPORTING |
| CR KEY | ACCESS CONTROL READER AND SECURITY KEYPAD WITH THE FOLLOWING REQUIREMENTS:<br>1. CARD ACCESS READER PAD AT 48" A.F.F. WALL OR MULLION-MOUNTED.<br>2. BOTH CARD ACCESS AND KEY-CODE REQUIRED TO DISABLE ALARM SYSTEM<br>3. PROVIDE 30 SECOND DELAY AT EXTERIOR ENTRANCE BEFORE ACTIVATING ALARM SOUNDER (REQUIRED) |

| TELECOMMUNICATIONS LEGEND | |
|---|---|
| ▽ | DUAL OUTLET LOCATION. TWO CAT 6 JACKS IN A STAINLESS STEEL FACEPLATE. CABLES PER SPECIFICATIONS. TYPICAL FOR WALLS, SYSTEMS FURNITURE & MILLWORK. |
| ▽ | SINGLE CATV OUTLET WITH CONDUIT, SM BOX & FLUSH MOUNT PLATE, COUPLER AND MATCHING WALL PLATE. ONE RG6/U PLENUM-RATED QUAD SHIELD CABLE AND ONE CAT 6 CABLE. CONTRACTOR SHALL SECURE PLATE AT 84". |
| ▽ | WIFI DATA LOCATION – TWO CAT 6 CABLES FOR WIRELESS ACCESS POINT LOCATIONS CONDUIT STUBBED INTO THE ACCESSIBLE CEILING. |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|---|---|
| Drawn | JP |
| Checked | RAS |
| Date | January 31, 2014 |
| Revisions | |


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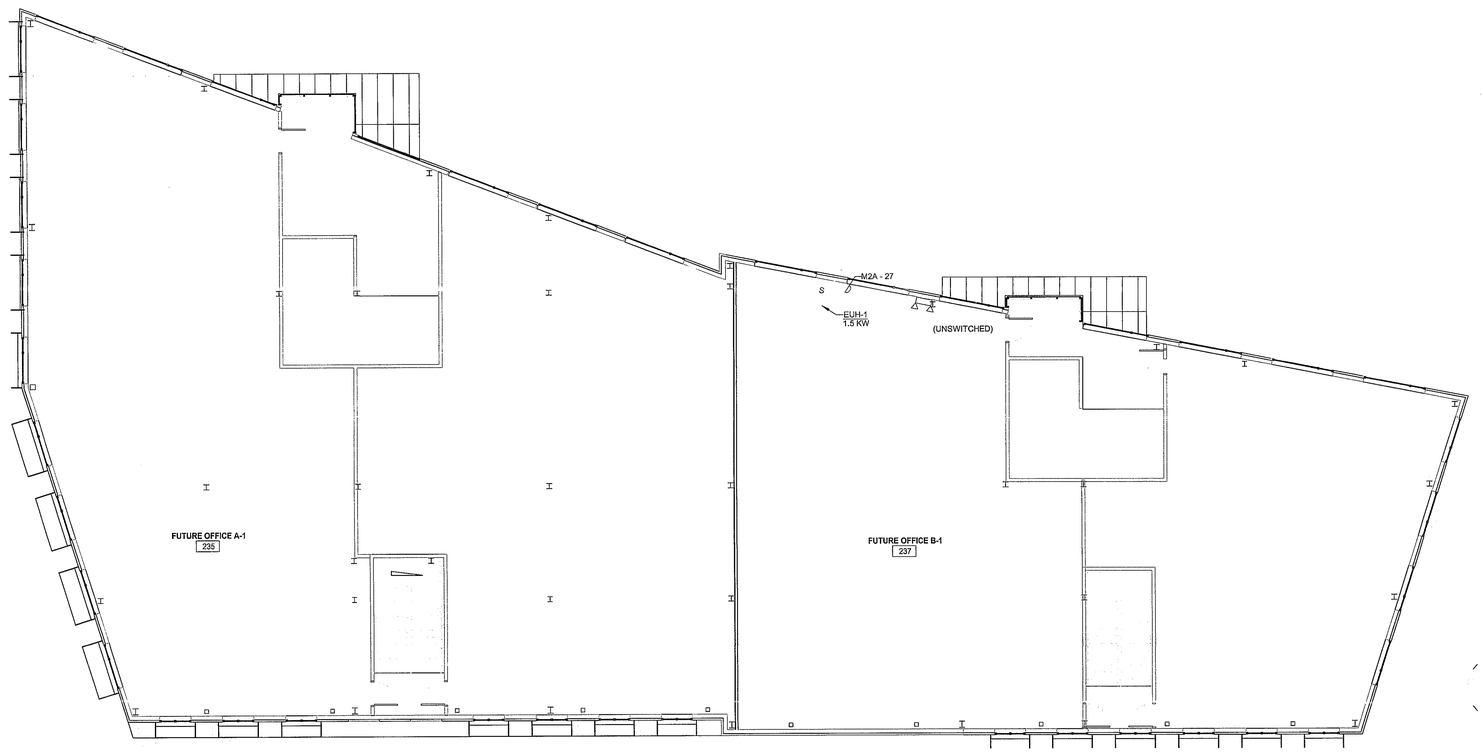
**FAST Multi-Modal Center**
City of Fayetteville
Fayetteville, NC

Project Number 621A

Title
**Level 2 - Multi-Modal Center - Telecom and Security**

Sheet
# T102a

Plate of




1 Level 2 - Tenant Spaces A, B, C & D - Telecom and Security
1/8" = 1'-0"

1/8" = 1'-0" 4' 0 4' 8' 16'

Ⓐ ACCESS-CONTROLLED DOOR. DOOR POSITION IS SECURE, HOWEVER,THE FOLLOWING CONDITIONS APPLY:

1.1. FREE EGRESS FROM SECURE SIDE.
1.2. DOOR OPENS UPON PROPER CREDENTIALS PRESENTED.

1. CARD ACCESS READER PAD AT 48" A.F.F. WALL OR MULLION.
2. LOCK SECURED BY EITHER ELECTRIFIED STRIKE OR ELECTRIFIED LOCK.
3. BALANCED POSITION SWITCH FOR EACH DOOR INSTALLED IN FRAME AND CONNECTED TO CONTROLLER.

Ⓑ 1. MONITORED DOOR - BALANCED POSITION SWITCH INSTALLED IN FRAME AND CONNECTED TO CONTROLLER AND INTRUSION SYSTEM

GENERAL NOTES:

1. SYSTEM TO BE INSTALLED BY A CERTIFIED NORTH CAROLINA ALARM & SECURITY INSTALLER.
2. ALL DEVICE LOCATIONS ARE APPROXIMATE AND SHOWN FOR DIAGRAMMATIC PURPOSES ONLY. FINAL POSITION TO BE DETERMINED BY SUCCESSFUL CERTIFIED CONTRACTOR AND TENANT.
3. ALL DOORS, THEIR METHODS OF SECURING, OPENING AND CLOSING WILL BE APPROVED BY THE CONSULTANT AND CLIENT PRIOR TO INSTALL.
4. ALL DOOR HARDWARE AND LOCKSET INSTALLATION SHALL BE COORDINATED WITH THE GENERAL CONTRACTOR AND THE DOOR HARDWARE PROVIDER.
5. ALL ACCESS CONTROL DEVICES SHALL BE INSTALLED PER THE NC BUILDING CODE, THE NFPA LIFE SAFETY CODE AND ANY OTHER SUCH CODE HAVING JURISDICTION AS WELL AS IN ACCORDANCE WITH THE LOCAL AUTHORITY HAVING JURISDICTION (AHJ). THESE CODES AND AUTHORITIES SUPERSEDE THESE DESIGN GUIDELINES AND SHALL BE INSTALLED PER THEIR SPECIFICATIONS. ANY DEVIANCE FROM THE ABOVE MENTIONED SPECIFICATIONS AND AUTHORITIES IS THE RESPONSIBILITY OF THE CONTRACTOR.
6. ESTABLISH MULTIPLE SECURITY ZONES SEPARATE FROM CENTER FOR EACH OF THE RETAIL AND TENANT AREAS FOR FUTURE TENANTS AND SYSTEMS.

ADDITIONAL SYSTEM REQUIREMENTS:

1. IN 2ND FLOOR TELECOM ROOM PROVIDE CENTRAL MANAGEMENT STATION FOR ACCESS CONTROL SYSTEM, VIDEO MANAGEMENT SYSTEM AND BADGE PRINTING.
2. PROVIDE BADGE PRINTER, BACKDROP AND DIGITAL CAMERA.
3. PROVIDE A REMOTE READER TO ADD SMART CARD CREDENTIALS TO ACCESS CONTROL SYSTEM AND TO CREATE BADGES.
4. PROVIDE VIDEO MANAGEMENT STATION WITH VIDEO CONTROL JOYSTICK FOR CAMERA CONTROL AND PTZ FUNCTIONALITY.
5. INTEGRATE INTRUSION DETECTION SYSTEM WITH THE ACCESS CONTROL SYSTEM.
6. INTEGRATE DURESS SYSTEM WITH THE ACCESS CONTROL SYSTEM.

| INTRUSION DETECTION LEGEND | |
|---|---|
| M | DUAL TECHNOLOGY MW WITH PASSIVE INFA-RED MOTION DETECTOR<br>1. ANTI-TAMPER SWITCH<br>2. WALL-MOUNT PER SPECIFICATIONS |
| SW | BALANCED POSITION SWITCH INSTALLED IN FRAME AND CONNECTED TO ALARM PANELOR SINGLE DOOR CONTROLLER |
| IDS PANEL | INTRUSION DETECTION PANEL:<br>1. MOUNT IN SECURE LOCATION IN LAN ROOM.<br>2. PROVIDE INTERFACE TO ACCESS CONTROL PANEL<br>3. ACCESS CONTROL PANEL TO REPORT AND MONITOR LOCALLY<br>4. PROVIDE INTERFACE FOR REMOTE MONITORING AND EMERGENCY 911 REPORTING |
| CR KEY | ACCESS CONTROL READER AND SECURITY KEYPAD WITH THE FOLLOWING REQUIREMENTS:<br>1. CARD ACCESS READER PAD AT 48" A.F.F. WALL OR MULLION-MOUNTED.<br>2. BOTH CARD ACCESS AND KEY-CODE REQUIRED TO DISABLE ALARM SYSTEM<br>3. PROVIDE 30 SECOND DELAY AT EXTERIOR ENTRANCE BEFORE ACTIVATING ALARM SOUNDER (REQUIRED) |

GENERAL NOTES:

1. ALL OUTLET LOCATIONS ARE IN APPROXIMATE POSITIONS. THE EXACT LOCATIONS SHALL BE DETERMINED BY PROVIDED BOX LOCATIONS AND FIELD CONDITIONS. ALL LOCATIONS ARE TO BE FIELD-VERIFIED.
2. THE STRUCTURED CABLING SYSTEM SHALL USE A SYSTEM OF SUPPORT DEVICES TO CREATE AN INDEPENDENT SUPPORT SUBSYSTEM FASTENED TO BUILDING STRUCTURAL STEEL. WHEN EXITING LADDER RACK, SLEEVES, TRAY OF ANY TYPE OR CONDUIT PATHWAYS, BOTH HORIZONTAL AND VERTICAL, THE CABLE SHALL BE SUPPORTED EVERY 4-5 FEET.
3. ALL THRU WALL OR THRU FLOOR PENETRATIONS AS WELL AS ANY CONDUIT PATHWAYS USED FOR THE STRUCTURED CABLING SYSTEM SHALL BE EITHER RETURNED TO THEIR ORIGINAL INTEGRITY, IF THAT ORIGINAL CONDITION WAS DEFICIENT, IT SHALL BE BROUGHT UP TO STANDARDS, OR SHALL BE MADE WHOLE BY USE OF AN APPROPRIATE FIRE-RATED SYSTEM. ALL TELECOMMUNICATIONS SLEEVES FOR THIS PROJECT SHALL BE FIRE STOPPED. ALL EXTERIOR ENTRANCE CONDUITS SHALL BE PLUGGED WITH A WATER PROOF PLUG.
4. ALL OUTLET LOCATIONS SHALL BE IDENTIFIED WITH A TIA/EIA 606-A COMPLIANT LABELING SYSTEM. LABELING CONVENTIONS SHALL BE APPROVED BY THE OWNER. PROVIDE A LAMINATED 30 X 42 AS-BUILT DOCUMENT SHOWING ALL LABELS AT EACH OUTLET. THE DOCUMENT SHALL BE FRAMED AND POSTED IN THE TELECOM ROOM.

TELECOM ROOM NOTES:

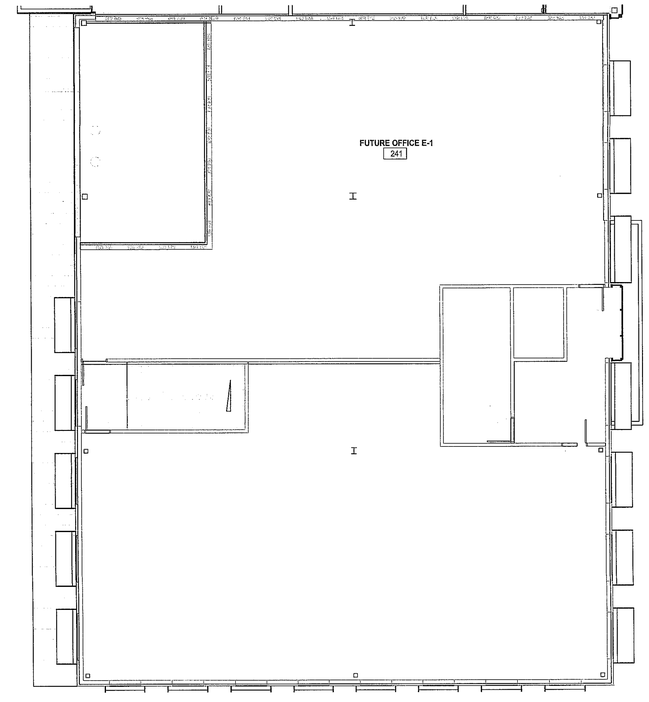
1. ALL STRUCTURED CABLES SHALL BE NEATLY BUNDLED AND DRESSED INTO CABLE GROUPS WITH NO GREATER THAN 24 CABLES. ALL CABLE GROUPS SHALL BE BUNDLED TOGETHER NEATLY AND SHALL BE LACED INTO EACH SIDE OF THE RACK WITH A BALANCED PROPORTION ON EACH SIDE.
2. ALL 4-PAIR CATEGORY CABLES SHALL BE BUNDLED AND ROUTED OUTSIDE OF THE INTERIOR RACK SPACE USING THE VERTICAL WIRE MANAGEMENT SYSTEM SO AS TO NOT IMPACT THE ELECTRONICS INSTALLATION.
3. THE CONTRACTOR SHALL COORDINATE WITH THE ELECTRICAL CONTRACTOR SO THAT ALL CABLING SHALL UTILIZE THE PATHWAYS AND CONDUITS PROVIDED.THE CONTRACTOR SHALL MEET WITH THE ELETRICAL CONTRACTOR AND COORDINATE ANY CONDUIT OR POWER SYSTEMS THAT MAY BE INSTALLED WITHIN THE RACK SYSTEM.

ROOM & RACK NOTES:

1. THE MAIN TELECOM ROOM SHALL BE IDENTIFIED AS MC-114.
2. ALL RACKS AND LADDER RACK SHALL BE SECURELY MOUNTED TO THE FLOOR AND WALLS WITH APPROPRIATE ANCHOR KITS.
3. VOICE & DATA CABLES SHALL BE TERMINATED ON RACK-MOUNTED PATCH PANELS.
4. ALL EXTERIOR CAMERAS AND ACCESS POINTS SHALL USE A WATERBLOCKED CATEGORY 6 CABLE AND SHALL BE SURGE SUPPRESSED ACCORDING TO EIA/TIA 607-A. ALL DEVICES SHALL BE PROPERLY GROUNDED.
5. CONNECT IDS PANEL IN REMOTE TENANT SPACES TO MC-114 ACCORDING O MANUFACTURER'S INSTRUCTIONS.
6. PROVIDE OUTDOOR-RATED CATEGORY 6 CABLE FROM EACH CAMERA LOCATION TO NEAREST COMPETE MC OR TELECOM ROOM, EXAMPLE: MC-114. PROPERLY GROUND AND SURGE SUPPRESS.

| ACCESS CONTROL LEGEND | |
|---|---|
| CR | ACCESS CONTROLLED DOOR WITH THE FOLLOWING REQUIREMENTS:<br>1. CARD ACCESS READER PAD AT 48" A.F.F. WALL OR MULLION-MOUNTED.<br>2. LOCK SECURED BY EITHER ELECTRIFIED STRIKE OR ELECTRIFIED LOCK.<br>3. SECURE-SIDE "REQUEST TO EXIT" EITHER MOUNTED TO DOOR FRAME OR INCLUDED IN ELECTRIFIED LOCK.<br>4. BALANCED POSITION SWITCH INSTALLED IN FRAME AND CONNECTED TO CONTROLLER. |
| PTZ | CEILING-MOUNTED Q-6035 PTZ IP VIDEO SURVEILLANCE CAMERA. DISCREET SMOKED DOME OR EQUAL. CONTRACTOR TO PROVIDE SMOKED TRANSPARENT COVER AS WELL THE APPROPRIATE LENS.CAMERA WILL USE PoE FOR POWER AND WILL REQUIRE 1 - CATEGORY 6 CABLE AND FLUSH MOUNT ELECTRICAL BOX AND CONDUIT STUBBED TO THE ACCESSIBLE CEILING. |
| OUT | OUTDOOR-RATED, WALL-MOUNTED - IP VIDEO SURVEILLANCE CAMERA. AXIS M3044-VE FIXED DOME OR EQUAL. CONTRACTOR TO PROVIDE SMOKED TRANSPARENT COVER AS WELL THE APPROPRIATE LENS.CAMERA WILL USE PoE FOR POWER AND WILL REQUIRE 1 - CATEGORY 6 CABLE AND FLUSH MOUNT ELECTRICAL BOX AND CONDUIT STUBBED TO THE ACCESSIBLE CEILING. |
| | CEILING-MOUNTED LOW PROFILE IP VIDEO SURVEILLANCE CAMERA. AXIS P3304-V FIXED DOME OR EQUAL. CONTRACTOR TO PROVIDE SMOKED TRANSPARENT COVER AS WELL THE APPROPRIATE LENS.CAMERA WILL USE PoE FOR POWER AND WILL REQUIRE 1 - CATEGORY 6 CABLE AND FLUSH MOUNT ELECTRICAL BOX AND CONDUIT STUBBED TO THE ACCESSIBLE CEILING. |
| M OUT | CEILING-MOUNTED OUTDOOR IP VIDEO SURVEILLANCE CAMERA. AXIS P3344-VE FIXED DOME WITH MICROPHONE OR EQUAL. CONTRACTOR TO PROVIDE SMOKED TRANSPARENT COVER AS WELL THE APPROPRIATE LENS.CAMERA WILL USE PoE FOR POWER AND WILL REQUIRE 1 - CATEGORY 6 CABLE AND FLUSH MOUNT ELECTRICAL BOX AND CONDUIT STUBBED TO THE ACCESSIBLE CEILING. |

| TELECOMMUNICATIONS LEGEND | |
|---|---|
| ▽ | DUAL OUTLET LOCATION: TWO CAT 6 JACKS IN A STAINLESS STEEL FACEPLATE. CABLES PER SPECIFICATIONS. TYPICAL FOR WALLS, SYSTEMS FURNITURE & MILLWORK. |
| E | SINGLE CATV OUTLET WITH CONDUIT, 5M BOX & FLUSH MOUNT PLATE. COUPLER AND MATCHING WALL PLATE. ONE RG6/U PLENUM-RATED QUAD SHIELD CABLE AND ONE CAT 6 CABLE. CONTRACTOR SHALL SECURE PLATE AT 84". |
| ▼ | WAP DATA LOCATION – TWO CAT 6 CABLES FOR WIRELESS ACCESS POINT LOCATIONS IN ACCESSIBLE CEILING. |




2 Level 2 - Tenant Spaces J & K - Telecom and Security
1/8" = 1'-0"

1/8" = 1'-0" 4' 0 4' 8' 16'

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| | |
|---|---|
| Drawn | JP |
| Checked | RAS |
| Date | January 31, 2014 |
| Revisions | |

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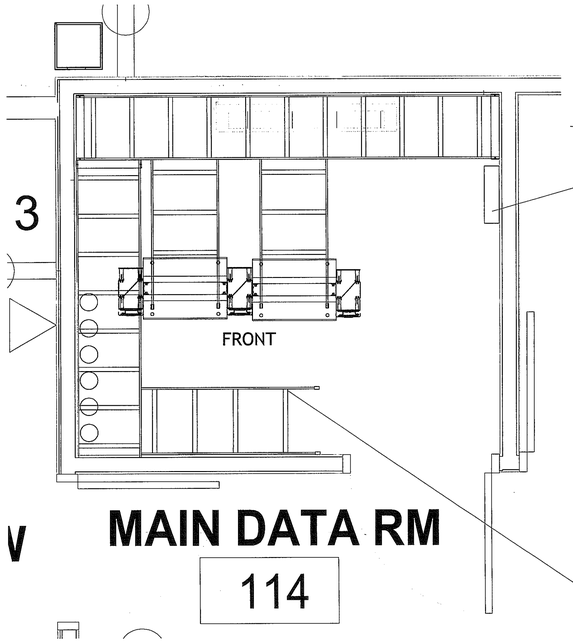
**FAST Multi-Modal Center**
City of Fayetteville
Fayetteville, NC

Project Number 621A

Title
**Level 2 - Tenant Spaces - Telecom and Security**

Sheet
# T102b

Plate of



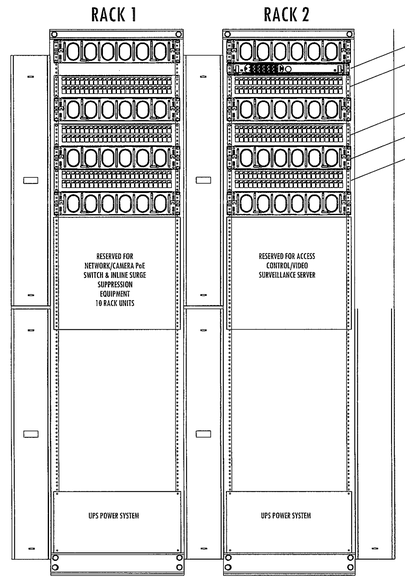

TELECOM CONTRACTOR -PROVIDED 12" MULTI-HOLE GROUND BUS BAR. CONTRACTOR SHALL GROUND WITH #6 AWG COPPER GROUND WITH COMPRESSION FITTING.

12" BLACK LADDER RACK SYSTEM WITH VERTICAL BRACKETING EVERY4-5 FEET. CONTRACTOR SHALL SECURE ALL BRACKETS WITH APPROPRIATE ANCHORING SYSTEM ACCORDING TO THE WALL COMPOSITION (TYPICAL)

NOTES:

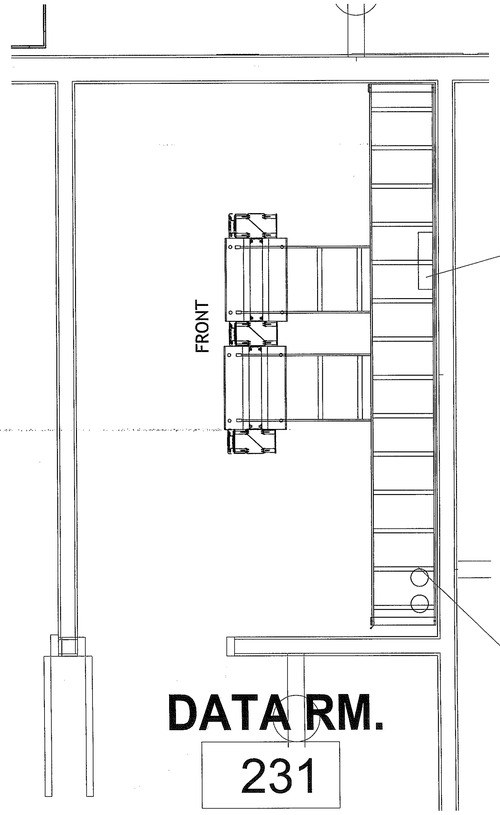
1. THE TELECOM ROOMS SHALL BE IDENTIFIED AS MC114 & TR231 (SMALL TR 138).
2. RACK POSITIONS ARE FOR DIAGRAMMIC PURPOSES ONLY. FIELD CONDITIONS SHALL DICTATE FINAL POSITIONING.
3. ALL RACKS SHALL BE SECURELY MOUNTED TO THE FLOOR WITH ANCHOR KITS.
4. WHEN ROUTING FIBER OPTIC BACKBONE AND RISER SYSTEMS, ALL FIBER CABLES SHALL BE DRESSED USING INNERDUCT AND SHALL MAINTAIN THE BEND RADII AS SPECIFIED BY THE MANUFACTURER.THE INNERDUCT SHALL PROTECT THE FIBER FROM POINT OF ORIGIN TO POINT OF ENTRY INTO THE FIBER ENCLOSURE.
5. ALL STRUCTURED CABLES SHALL BE NEATLY BUNDLED AND DRESSED INTO CABLE GROUPS WITH NO GREATER THAN 24 CABLES. ALL CABLE GROUPS SHALL BE BUNDLED TOGETHER NEATLY AND SHALL BE LACED INTO EACH SIDE OF THE RACK WITH A BALANCED PROPORTION ON EACH SIDE.
6. ALL 4-PAIR CATEGORY CABLES SHALL BE BUNDLED AND ROUTED OUTSIDE OF THE INTERIOR RACK SPACE USING THE VERTICAL WIRE MANAGEMENT SYSTEM SO AS TO NOT IMPACT THE ELECTRONICS INSTALLATION.
7. CONTRACTOR TO PROVIDE A 20"W X 36"H X 18"D WALL MOUNT RACK, WIRE MANAGEMENT, GROUNDING ON BUS CANOPY SHOP ROOM 138 FOR TELECOM ROOM.

A T201 — MC 114- RACK PLACEMENT
SCALE: 3/4" = 1' - 0"




12F SINGLEMODE RISER CABLE FROM TR105
100 PAIR CU RISER CABLE FROM WALL PROTECTOR
VOICE/DATA CABLES - TYPICAL
2U WIRE MANAGER - TYPICAL
VIDEO CAMERA CABLES (33)

B T201 — TR231- RACK ELEVATIONS
SCALE: NOT TO SCALE




TELECOM CONTRACTOR -PROVIDED 12" MULTI-HOLE GROUND BUS BAR. CONTRACTOR SHALL GROUND WITH #6 AWG COPPER GROUND WITH COMPRESSION FITTING.

12" BLACK LADDER RACK SYSTEM WITH VERTICAL BRACKETING EVERY4-5 FEET. CONTRACTOR SHALL SECURE ALL BRACKETS WITH APPROPRIATE ANCHORING SYSTEM ACCORDING TO THE WALL COMPOSITION (TYPICAL)

**TELECOM ROOM NOTES:**

1. THE CONTRACTOR SHALL COORDINATE WITH THE ELECTRICAL CONTRACTOR SO THAT ALL CABLING SHALL UTILIZE THE PATHWAYS AND CONDUITS PROVIDED.THE CONTRACTOR SHALL MEET WITH THE ELETRICAL CONTRACTOR AND COORDINATE ANY CONDUIT OR POWER SYSTEMS THAT MAY BE INSTALLED WITHIN THE RACK SYSTEM.

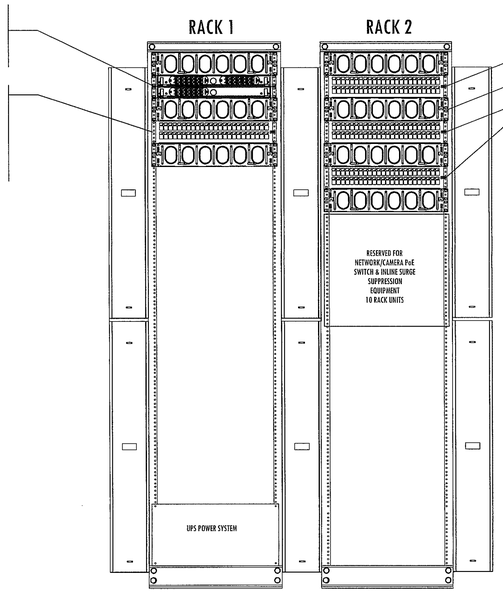
**ROOM & RACK NOTES:**

1. ALL RACKS AND LADDER RACK SHALL BE SECURELY MOUNTED TO THE FLOOR AND WALLS WITH APPROPRIATE ANCHOR KITS.
2. VOICE & DATA CABLES SHALL BE TERMINATED ON RACK-MOUNTED PATCH PANELS.

B T201 — TR 231- RACK PLACEMENT
SCALE: 3/4" = 1' - 0"

RESERVATION FOR SERVICES FIBER (NIC) 12F SINGLEMODE/12F 50UM MM FROM SERVICE/STORAGE ROOM 138. 12F MM RISER CABLE FROM TR231

100 PAIR CU RISER CABLE FROM WALL PROTECTOR - 25P FROM FACILITIES TERMINATED AND GROUNDED ON WALL-MOUNTED 110 PROTECTOR




VOICE/DATA CABLES
2U WIRE MANAGER - TYPICAL
ACCESS CONTROL/VIDEO CAMERA CABLES

D T201 — 1ST LEVEL MDF 114 RACK ELEVATIONS
SCALE: NOT TO SCALE

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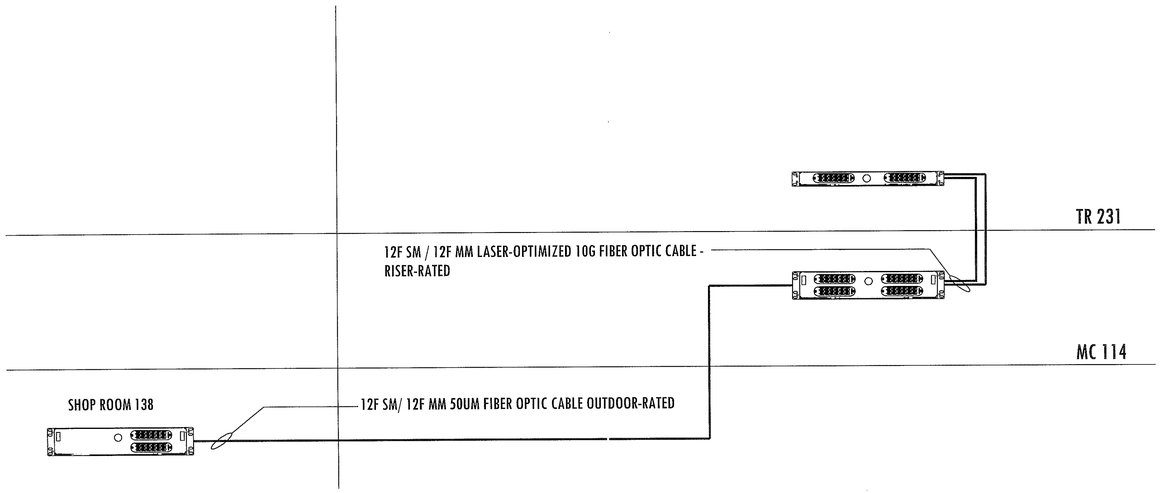
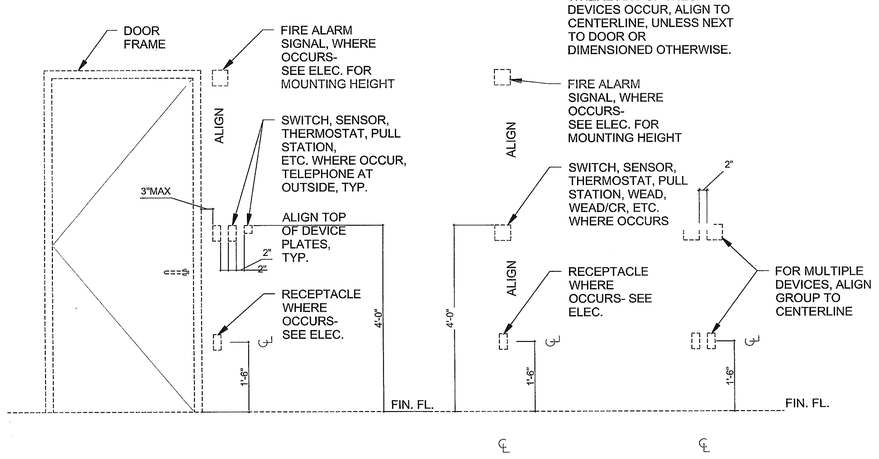
**FAST Multi-Modal Center**
City of Fayetteville
Fayetteville, NC

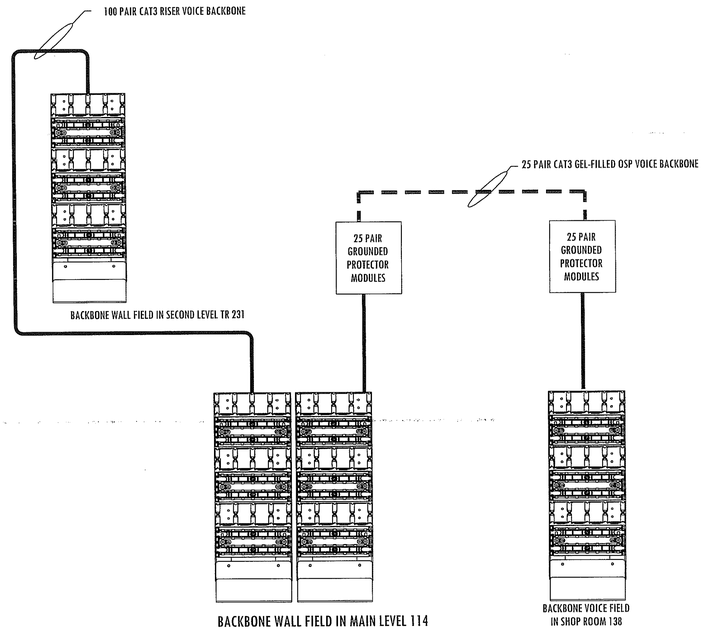
Project Number 621A
Title **Telecom/SecurityRack and Room Elevations**
Sheet **T201**
Plate of



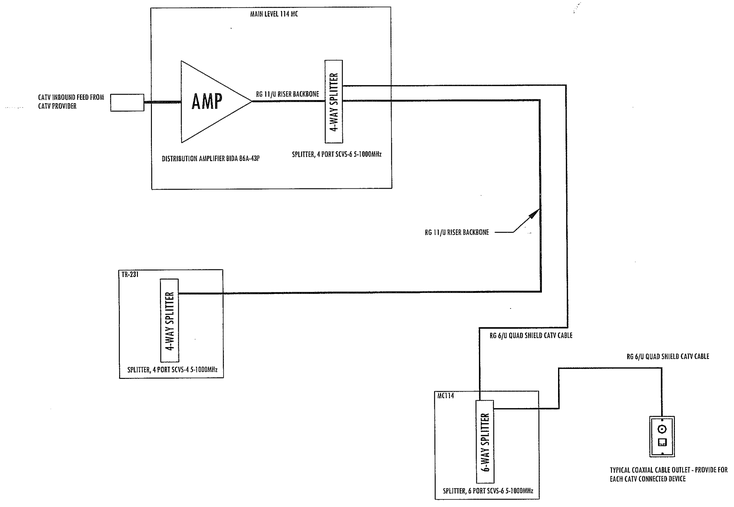

A T202 FIBER BACKBONE AND RISER DIAGRAM
NOT TO SCALE




E T202 TYPICAL DEVICE LOCATIONS
NOT TO SCALE




B T202 COPPER SYSTEMS RISER DIAGRAM
NOT TO SCALE




C T202 CATV SYSTEMS RISER DIAGRAM
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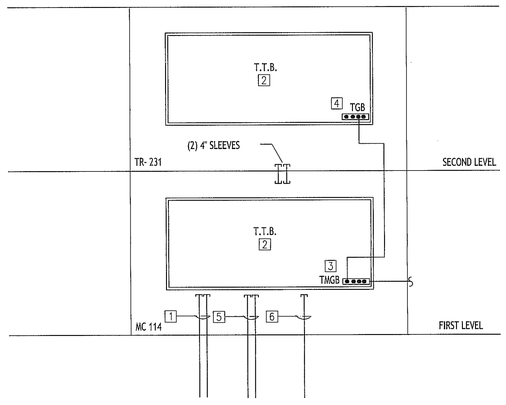


TELECOMMUNICATIONS KEYNOTES:

1. (2) 4" EMPTY CONDUITS WITH PULL STRING FOR NEW VOICE/DATA/CATV BACKBONE TO EXISTING MANHOLE.
2. TELEPHONE BACKBOARD. 4'x8'x3/4" FIRE RATED PLYWOOD PAINTED WITH (2) COATS OF FIRE RATED PAINT MOUNTED VERTICALLY.
3. 'TMGB' TELECOMMUNICATION MAIN GROUND BAR. PROVIDED WITH #1/0 INSULATED GROUND WIRE BACK TO MAIN SERVICE ENTRANCE GROUNDING POINT.
4. 'TGB' TELECOMMUNICATION GROUND BAR. PROVIDED WITH #6 INSULATED GROUND WIRE BACK TO 'TMGB'.
5. (2) 4" EMPTY CONDUIT WITH PULL STRING FOR BACKBONE TO SHOP ROOM 138.
6. (1) 4" EMPTY CONDUIT WITH PULL STRING FOR FUTURE EXPANSION ROOM 146.

D T202 TELECOM SYSTEMS RISER DIAGRAM
NOT TO SCALE

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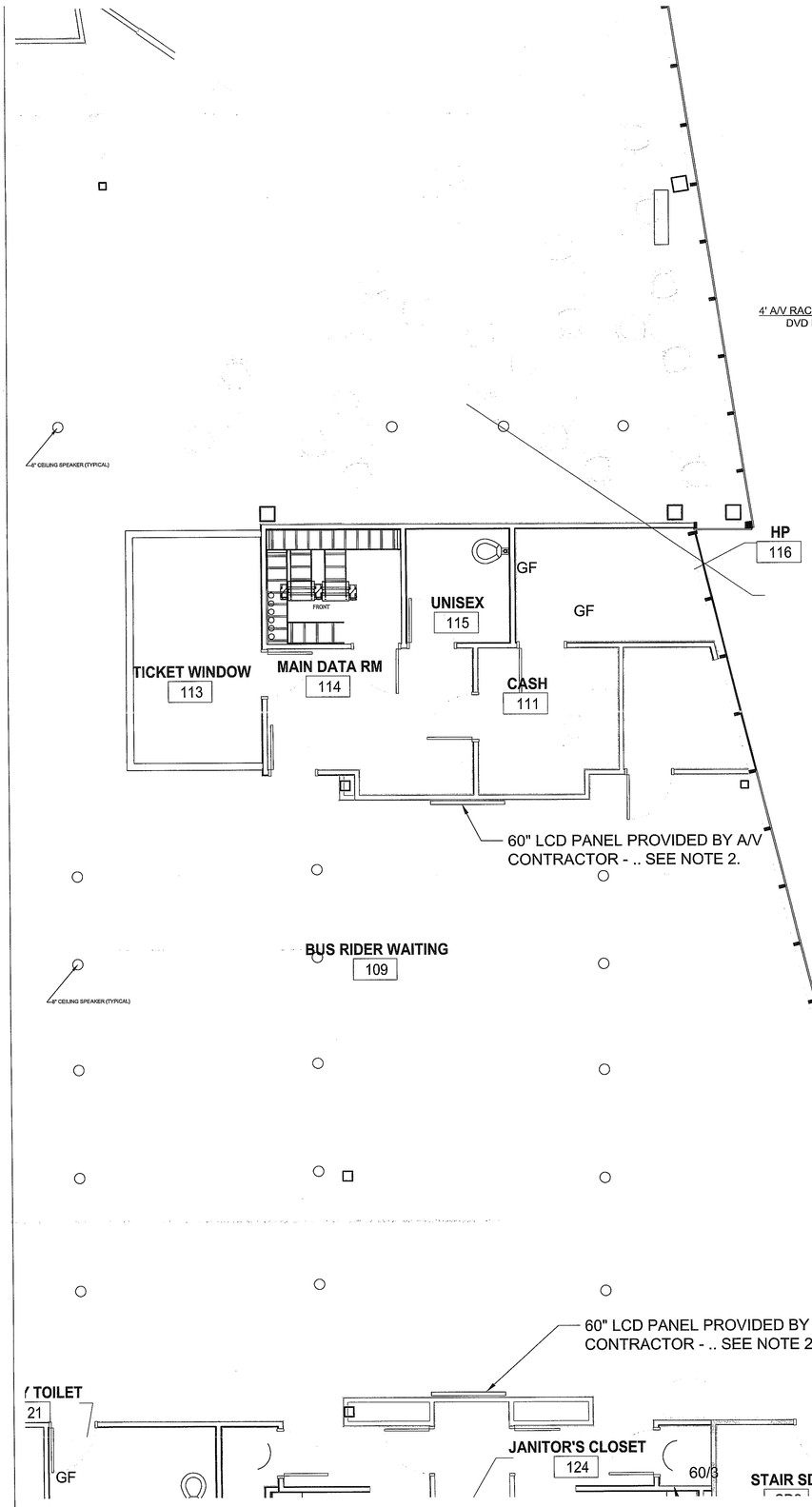
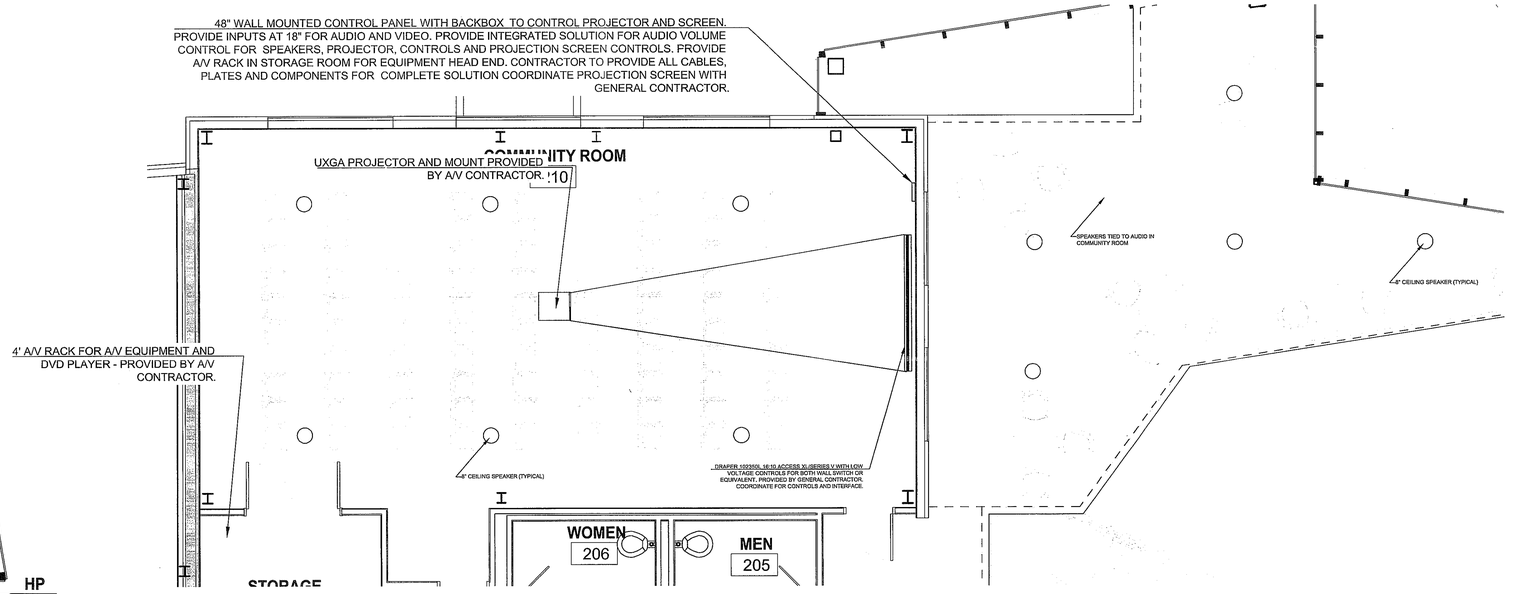
**FAST Multi-Modal Center**
City of Fayetteville
Fayetteville, NC

Project Number 621A
Title **Telecom/Security Backbone & Riser Systems**
Sheet **T202**
Plate of




C T301 1ST LEVEL RIDER WAITING AND GENERAL SEATING AUDIOVISUAL

SCALE: 1/4" = 1' - 0"




A T301 2nd LEVEL COMMUNITY ROOM AND PRE-FUNCTION AUDIOVISUAL

SCALE: 1/4" = 1' - 0"

AUDIOVISUAL KEYED NOTES:

NOTE 1 - PROVIDE DISPLAY, CRESTRON CONTROLS, CABLING, SOFTWARE, HDMI, VGA, CATV CONNECTIVITY, FLOOR BOX PLATES AND TABLE BOX FOR A/V CONTROL SYSTEM FOR CONFERENCE ROOM 230.

NOTE 2 - PROVIDE INDOOR DISPLAYS, AUDIO INTERFACES AND MOUNTS AS SPECIFIED ALONG WITH CONNECTIONS TO OVERHEAD PAGING, CATV AND DIGITAL SIGNAGE SOLUTION. ALL OUTDOOR DISPLAY PANELS (PROVIDED BY OTHERS), OUTDOOR DIGITAL SIGN CONTROLLERS FOR EACH BUS STOP, AV CONTRACTOR-PROVIDED SPEAKERS AT BUS STOPS, AND MOUNTS.

SYSTEM SHALL INTERFACE WITH AN AV CONTRACTOR-PROVIDED SOFTWARE PACKAGE THAT CAN DISPLAY BUS AND ROUTE INFORMATION, VEHICLE ESTIMATED TIMES OF ARRIVAL, SCHEDULES, ADVERTISING AND PASSENGER INFORMATION. SYSTEM SHALL BE CONTROLLED BY A CENTRAL STATION AND SHALL ALLOW FOR INDIVIDUAL SIGN MESSAGING CONTROL. SYSTEM SHALL ALLOW FOR THE INPUTTING OF FIXED AND DYNAMIC SCHEDULES AND CAN BE REMOTELY EDITED.

SEE SOLUTIONS BY MENTOR ENGINEERING WWW.MENTORENG.COM. OR EQUIVALENT.

AUDIO VISUAL CONSTRUCTION NOTES:

1.) ALL WORK SHALL COMPLY WITH APPLICABLE CODES, LAWS, RULES, ORDINANCES & REGULATIONS OF APPROVING & GOVERNING AUTHORITIES. VERIFY EXISTING CONDITIONS INCLUDING DIMENSIONS, MATERIALS, SYSTEMS, ELEVATIONS, ETC.

2.) LAYOUT WORK IN ADVANCE OF CONSTRUCTION. NOTIFY ARCHITECT & AV CONSULTANT OF SIGNIFICANT DIFFERENCES BETWEEN WORK INDICATED IN THE DOCUMENTS & EXISTING CONDITIONS. SIGNIFICANT DIFFERENCES INCLUDE, BUT ARE NOT NECESSARILY LIMITED TO, THOSE THAT MAY PREVENT WORK FROM BEING PERFORMED AS INDICATED.

3.) AV INTEGRATOR IS RESPONSIBLE FOR ALL PERMITS AND REQUIRED INSPECTIONS.

4.) ELECTRICAL CONTRACTOR WILL SUPPLY ALL CONDUIT, CABLE RACEWAY, ELECTRICAL BOXES, CORE DRILLING, LIGHTING SYSTEMS (UNLESS SPECIFIED BY AUDIOVISUAL INTEGRATOR) AND 120VAC TERMINATIONS, AS REQUIRED BY CODE AND PROJECT COMPLETION.

5.) ALL POWER WILL BE SINGLE PHASE COMMON GROUND AND WITH SURGE SUPPRESSION AND POWER CONDITIONING.

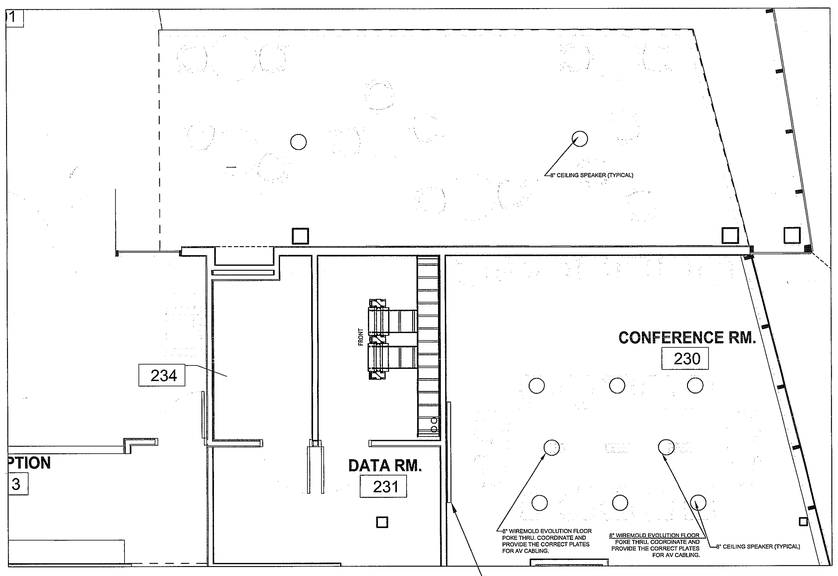
6.) ALL CABLING MUST MEET CURRENT RISER AND PLENUM SPECIFICATIONS DICTATED BY COUNTY, STATE, AND FEDERAL REGULATIONS AND MUST BE PLACED IN CONDUIT IF REQUIRED BY CODE.

7.) ALL CABLE RUNS TO BE POINT TO POINT MOST DIRECT ROUTE, WITH OUT SPLICES, PATCH PANELS AND BARRELS.

8.) ALL CABLE PULLED TO DEVICES EXTERNAL OF RACK LOCATIONS (FLOOR BOXES, PROJECTORS, SPEAKERS, ETC.) WILL HAVE A MINIMUM OF 5' SERVICE LOOP PRIOR TO TERMINATION, UNLESS STATED AS DIFFERENT IN CABLE PULL DRAWINGS, OR ADDITIONAL MATERIALS.

9.) ALL RACKS WILL HAVE A 10' SERVICE LOOP FOR ALL CABLE PRIOR TO TERMINATION, UNLESS STATED AS DIFFERENT IN CABLE PULL DRAWINGS.

10.) SERVICE LOOP AFTER TERMINATION MUST ALLOW FOR FUTURE UPGRADING, SERVICE REMOVAL, AND EQUIPMENT RELOCATION.




B T301 2nd LEVEL D PRE-FUNCTION AND CONFERENCE ROOM AUDIOVISUAL

SCALE: 1/4" = 1' - 0"

AUDIOVISUAL CABLING GENERAL NOTES:

1. ALL LOCATIONS ARE IN APPROXIMATE POSITIONS. THE EXACT LOCATIONS SHALL BE DETERMINED BY THE TILE LAYOUTS AND/OR FIELD LOCATIONS. CONTRACTOR TO FIELD VERIFY.
2. WHEN OVERHEAD AND WHEN CONDUIT IS NOT AVAILABLE, THE CONTRACTOR SHALL USE A SYSTEM OF HOOKS TO CREATE AN INDEPENDENTLY SUPPORTED SYSTEM CONNECTED TO THE BUILDING SUPPORTS OR WALL BLOCK. ALL CABLES SHALL BE SUPPORTED WHERE THEY EXIT ANY CONDUIT AS WELL AS ENTERING INTO ANY RISER SYSTEMS AND THRU-WALL SYSTEMS. THIS SUPPORT SYSTEM SHALL BE INSTALLED PER THE NEC 2011 CODE.
3. ALL THRU WALL OR THRU FLOOR PENETRATIONS AS WELL AS ANY CONDUIT PATHWAYS USED FOR THIS PROJECT SHALL BE EITHER RETURNED TO THEIR ORIGINAL INTEGRITY OR SHALL BE MADE WHOLE BY THE USE OF AN APPROPRIATE FIRE-RATED SYSTEM.
4. CONTRACTOR SHALL PROVIDE AS-BUILT DOCUMENTATION IDENTIFYING ALL DEVICE LOCATIONS WITH A TIA/EIA 606-A COMPLIANT LABELING SYSTEM. LABELING CONVENTIONS SHALL BE COORDINATED WITH AUDIOVISUAL CONSULTANT.

OVERALL PROJECT NOTES:

1. ALL CONDUIT BY OTHERS.
2. ALL DEVICE LOCATIONS ARE APPROXIMATE AND SHOWN FOR DIAGRAMMATIC PURPOSES ONLY. FINAL POSITION TO BE DETERMINED BY FAST MMC AND ITS CONSULTANT.
3. ALL EQUIPMENT SHALL BE PROVIDED AND INSTALLED AND AS SPECIFIED.
4. ALL OVERHEAD SPEAKERS SHALL BE EITHER 6", 8" OR 12" COAXIAL CEILING SPEAKERS AND SHALL BE MOUNTED TO EITHER THE ACOUSTICAL TILE OF FIXED CEILING WITH THE APPROPRIATE HARDWARE AND BACK BOX.
5. CONTRACTOR TO PROVIDE SPEAKERS, CABLES AND AMPLIFIERS TO PROVIDE AUDIO REINFORCEMENT AND PAGING THROUGHOUT THE FIRST LEVEL. ALL PAGING EQUIPMENT WILL BE HOUSED IN MC 114 AND SHALL CONNECT TO FAST MMC PHONE SYSTEM.
6. SPEAKERS AND AMPLIFIER FOR SECOND FLOOR COMMUNITY ROOM SHALL BE HOUSED IN A FAST MMC PROVIDED PORTABLE LECTERN AND SHALL BE CABLED TO A TERMINAL PLATE ON THE WALL.

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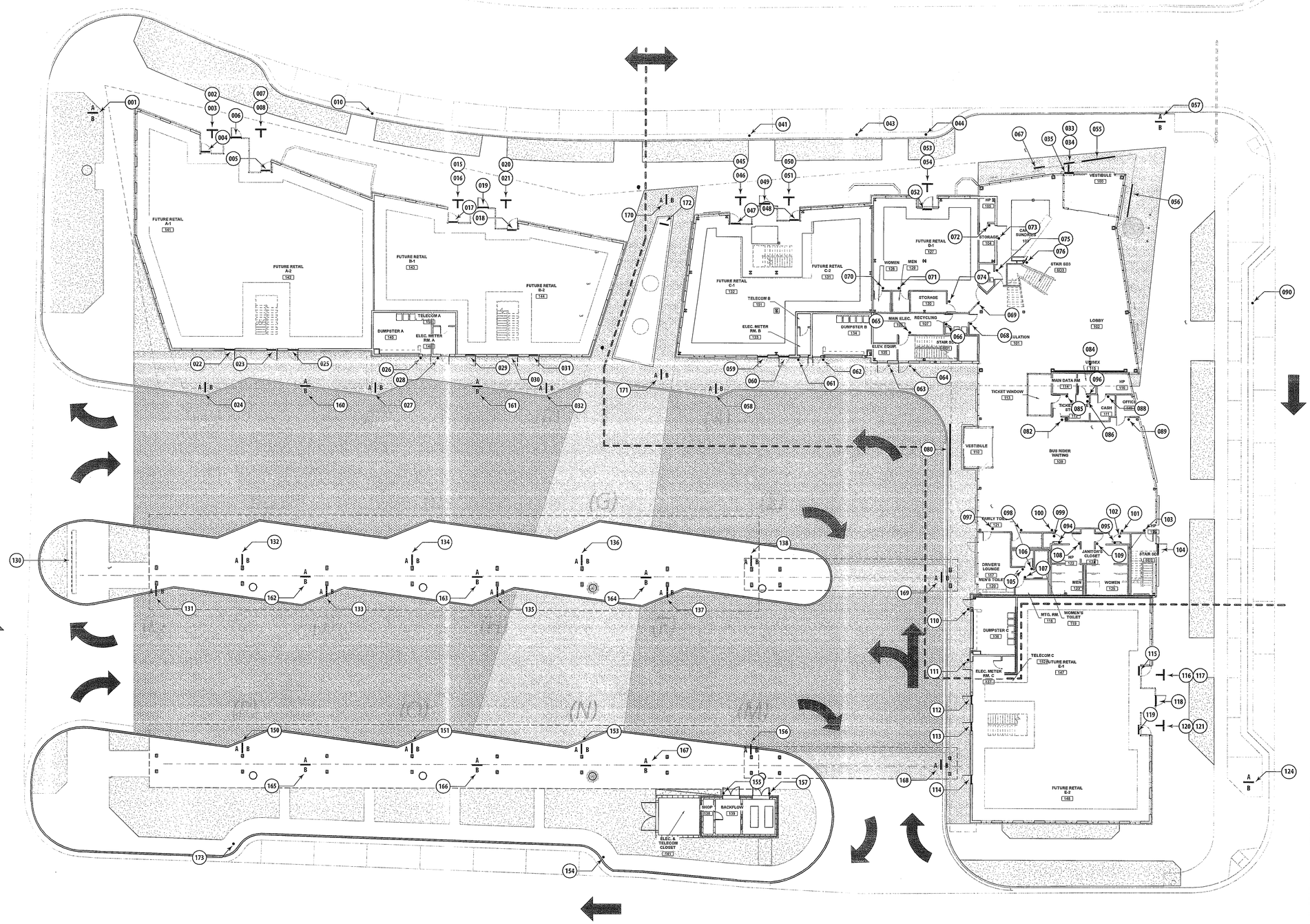
**FAST Multi-Modal Center**
City of Fayetteville
Fayetteville, NC

Project Number 621A

Title
**Audiovisual Systems**

Sheet
# T301

Plate of

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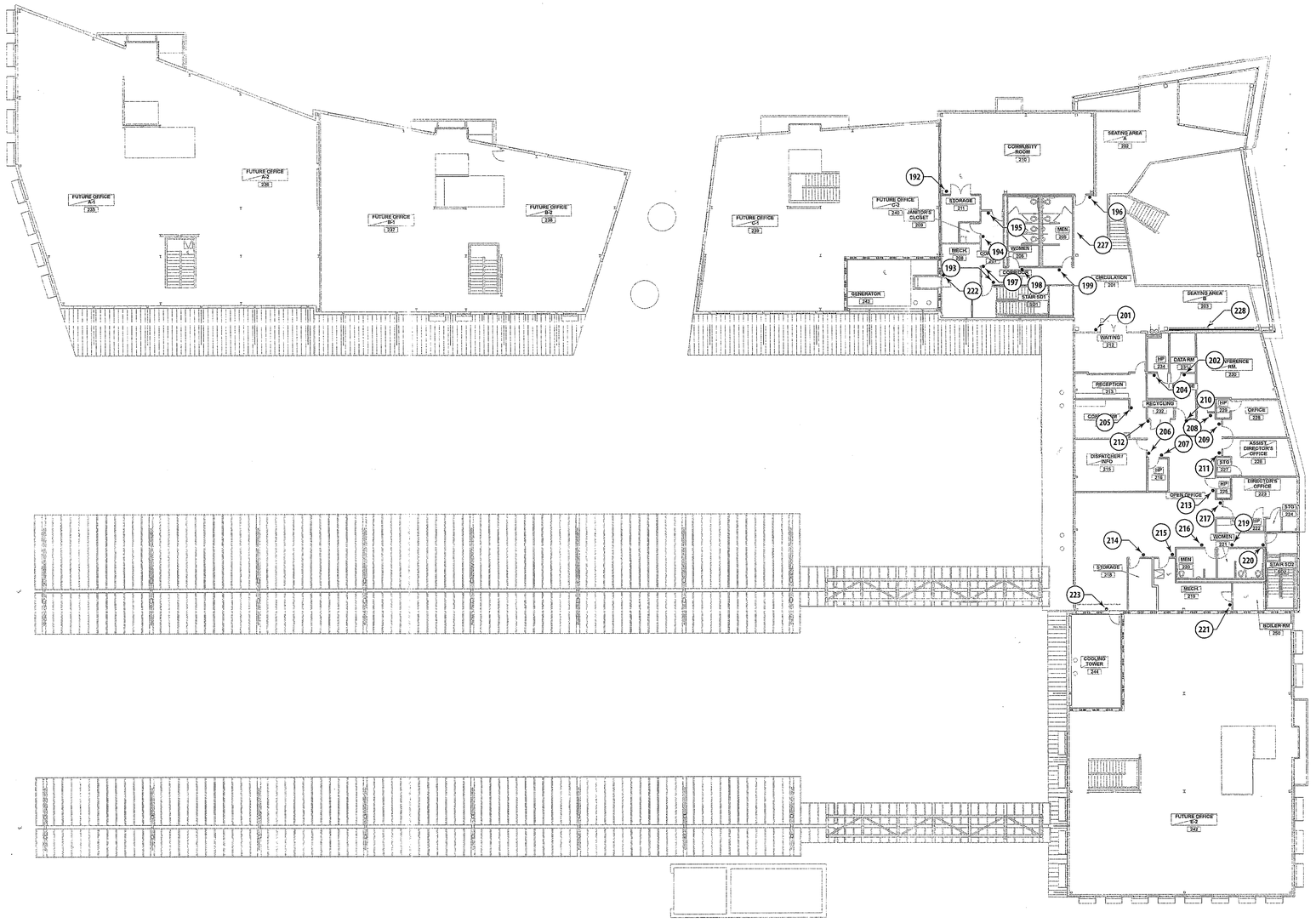
**FAST Multi-Modal Center**
City of Fayetteville
Fayetteville, NC

Project Number 621A

Title
**Site Plan & Level 1**

Sheet
# SG101

Plate of

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# FAST Multi-Modal Center

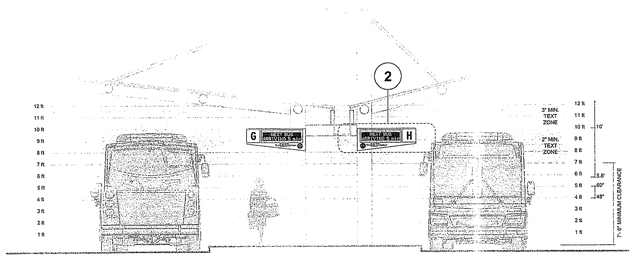
City of Fayetteville
Fayetteville, NC

Project Number 621A

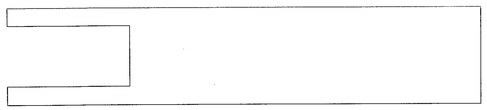
Title
## Level 2

Sheet
# SG102

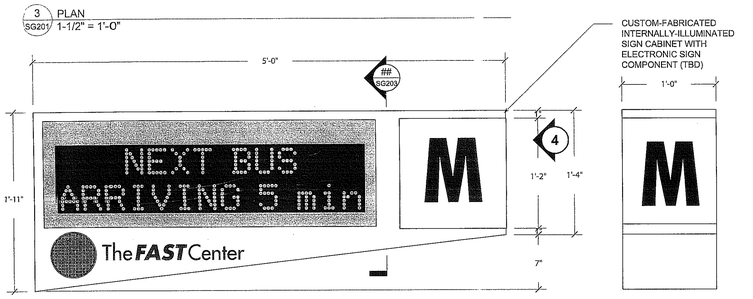
Plate of




1 SG201 SIGN TYPE BB - BUS BAY SIGN
3/16" = 1'-0"

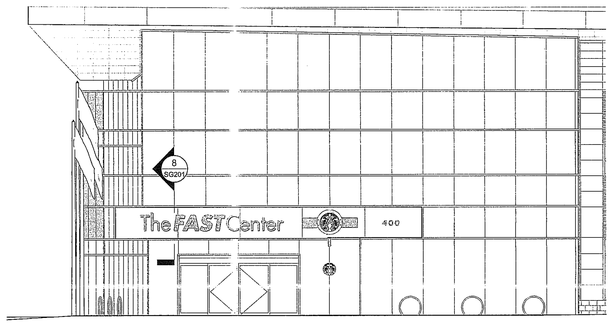


3 SG201 PLAN
1-1/2" = 1'-0"

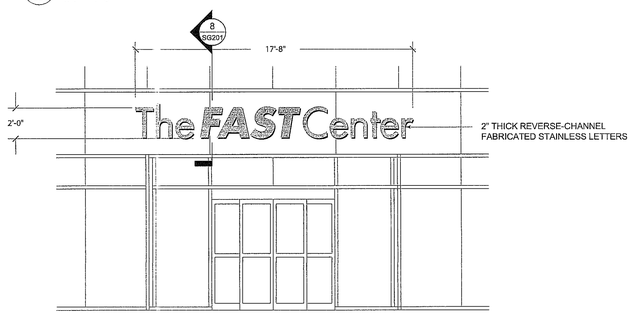



2 SG201 SIGN TYPE BB - BUS BAY SIGN ELEVATION
1-1/2" = 1'-0"

4 SG201 SIDE ELEVATION
1/2" = 1'-0"




5 SG201 SIGN TYPE DL1 - DIMENSIONAL LETTERS (EXTERIOR)
1/4" = 1'-0"

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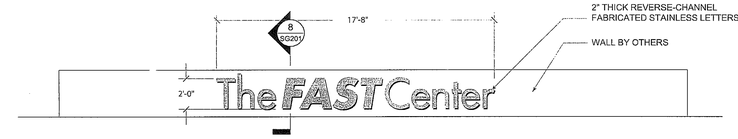
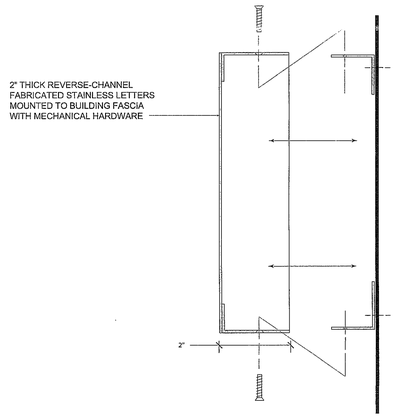
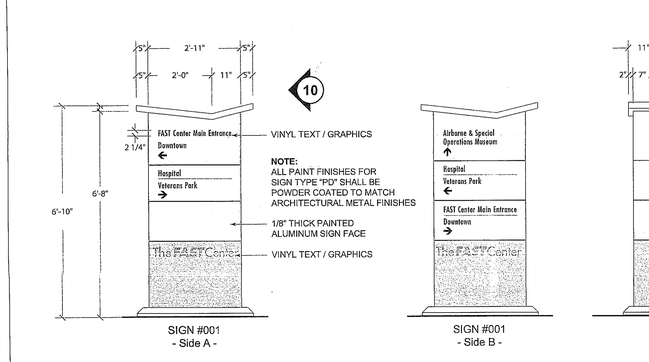
1/4" = 1'-0"



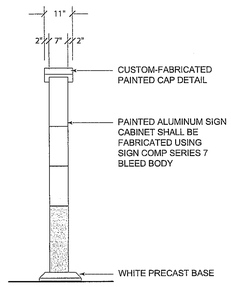

7 SG201 SIGN TYPE DL1 - LOW-WALL MOUNT
1/4" = 1'-0"



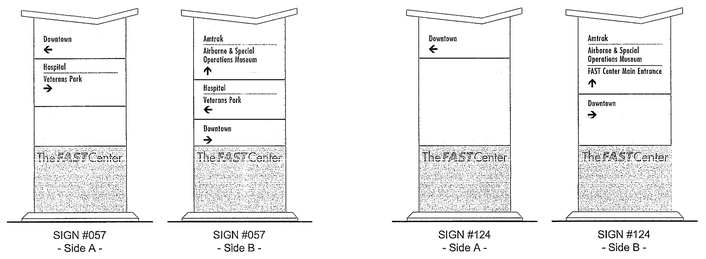

8 SG201 SIGN TYPE DL1 - SECTION DETAIL
1 1/2" = 1'- 0"



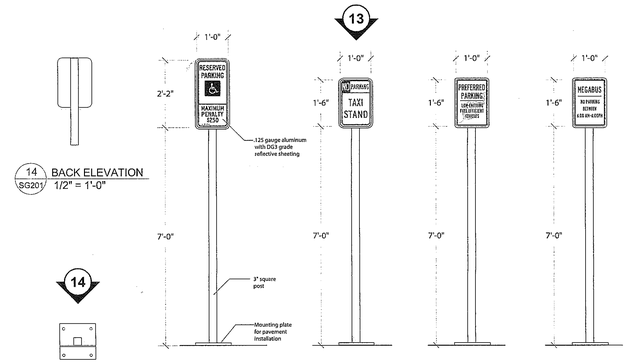

9 SG201 SIGN TYPE PD - PEDESTRIAN DIRECTIONAL SIGN
1/2" = 1'-0"




10 SG201 SIDE ELEVATION
1/2" = 1'-0"



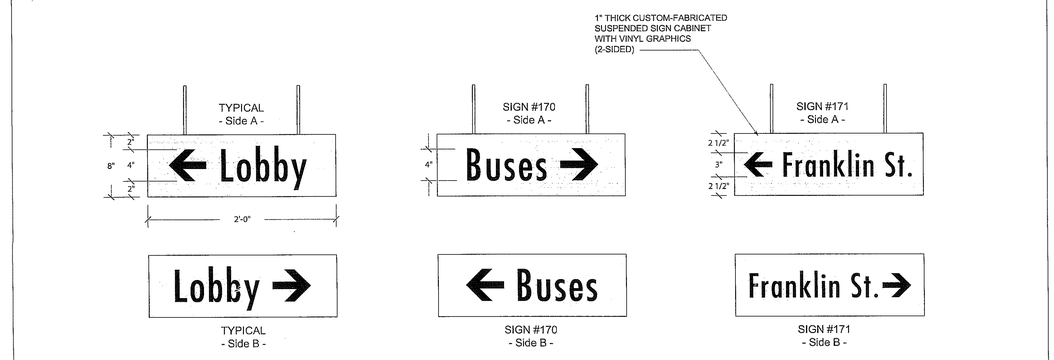

11 SG201 SIGN TYPE PD - SIGN FACE LAYOUTS
1/2" = 1'-0"



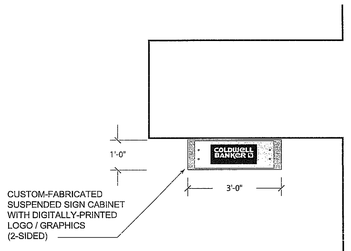

14 SG201 BACK ELEVATION
1/2" = 1'-0"

13 SG201 PLAN
1/2" = 1'-0"

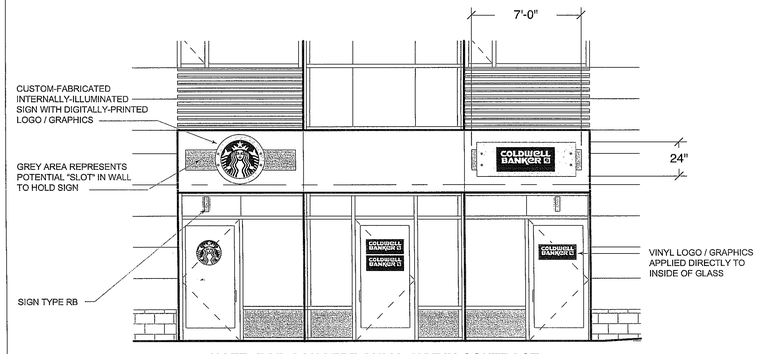
12 SG201 SIGN TYPE PR - PARKING REGULATORY SIGN
1/2" = 1'-0"




15 SG201 SIGN TYPE DB - DIRECTIONAL BLADE SIGN
1-1/2" = 1'-0"




16 SG201 SIGN TYPE RB - RETAIL BLADE SIGN
1/2" = 1'-0"




17 SG201 SIGN TYPES RF - RETAIL FASCIA SIGN, AND VG - VINYL LOGO GRAPHICS
1/4" = 1'-0"

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723 Piedmont Avenue, NE
Atlanta, GA 30308-1416
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| | |
|---|---|
| Drawn | JW |
| Checked | BN |
| Date | January 31, 2014 |
| Revisions | |

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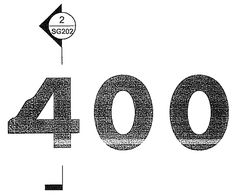
**FAST Multi-Modal Center**
City of Fayetteville
Fayetteville, NC

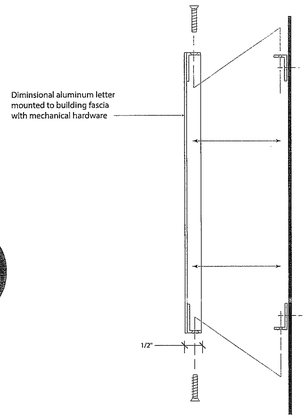
Project Number 621A

Title
**Signage Details**

Sheet
# SG201

Plate of




1 SG202 SIGN TYPE DL2 - ADDRESS NUMBERS
1 1/2" = 1'- 0"

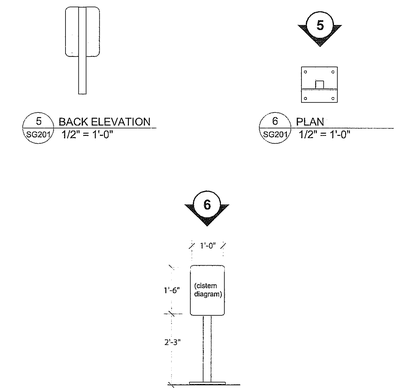
2 SG202 SIGN TYPE DL2 - SECTION DETAIL
1 1/2" = 1'- 0"

4-LINES OF TEXT

3-LINES OF TEXT

2-LINES OF TEXT

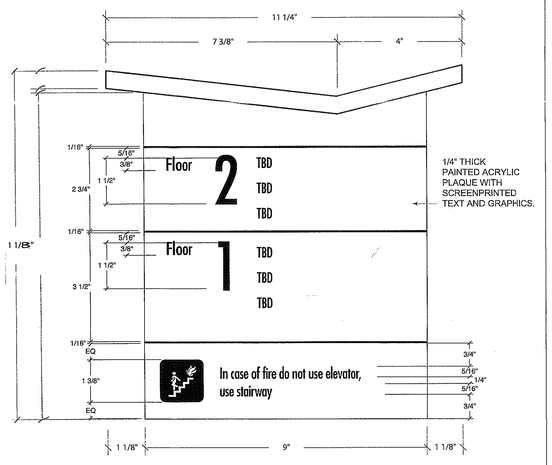
3 SG202 SIGN TYPE ID - ROOM IDENTIFICATION PLAQUE
One Half Scale




5 SG201 BACK ELEVATION
1/2" = 1'-0"

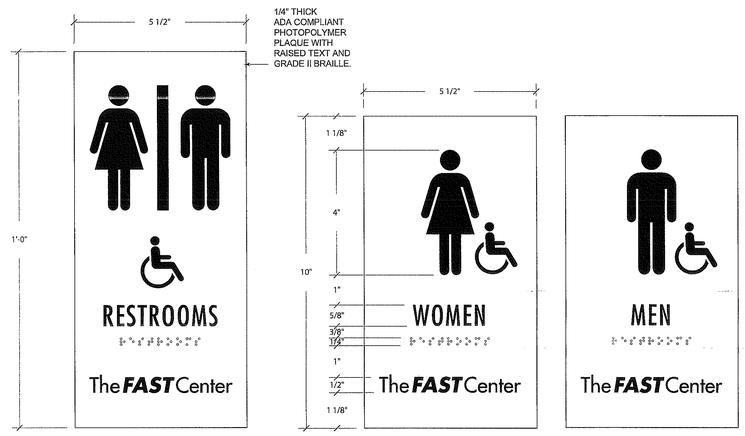
6 SG201 PLAN
1/2" = 1'-0"

4 SG201 SIGN TYPE CS - CISTERN SIGN
1/2" = 1'-0"

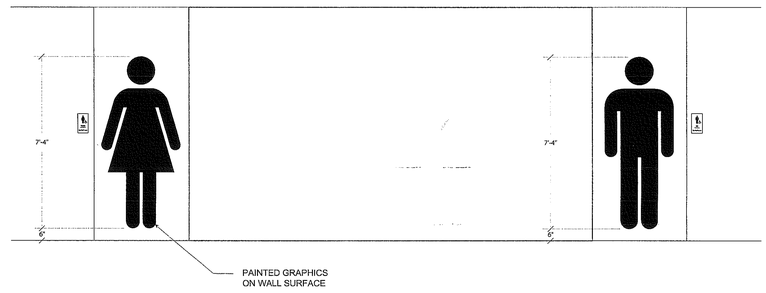



1/4" THICK
PAINTED ACRYLIC
PLAQUE WITH
SCREENPRINTED
TEXT AND GRAPHICS.

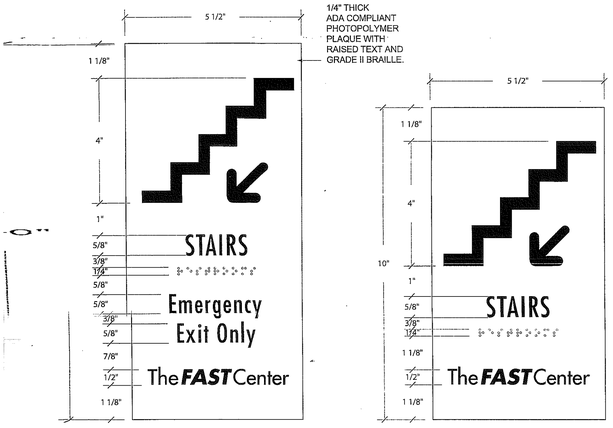
SIGN TYPE BD - BUILDING DIRECTORY SIGN
One Half Scale



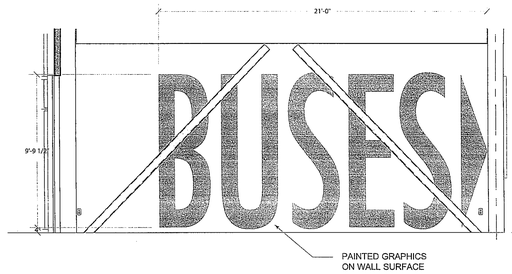

8 SG202 SIGN TYPE RR - RESTROOM IDENTIFICATION PLAQUES
One Half Scale



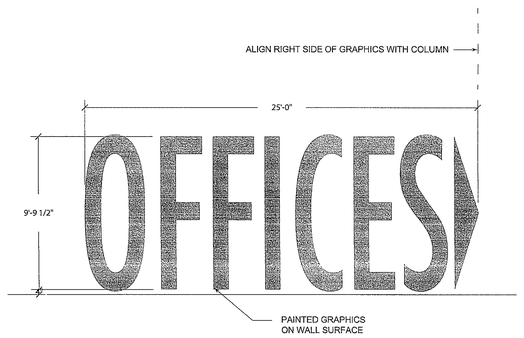

9 SG202 SIGN TYPE RR2 - RESTROOM IDENTIFICATION GRAPHICS
Scale: 3/8" = 1'- 0"



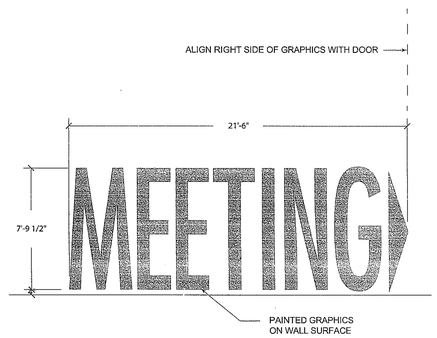

10 SG202 SIGN TYPE ST - STAIRWELL IDENTIFICATION PLAQUE
One Half Scale




11 SG202 SIGN TYPE WG - WALL GRAPHICS
1/4" = 1'- 0"




12 SG202 SIGN TYPE WG - WALL GRAPHICS
1/4" = 1'- 0"




13 SG202 SIGN TYPE WG - WALL GRAPHICS
1/4" = 1'- 0"

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**FAST Multi-Modal Center**
City of Fayetteville
Fayetteville, NC

Project Number 621A

Title
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# SG202

Plate of