

2018 APPENDIX B BUILDING CODE SUMMARY

Name of Project: **Campbell University Engineering Annex II**
 Address: **Bules Creek, North Carolina** Zip Code: **27506**
 Proposed Use: **Engineering Shops/Classrooms**
 Owner or Authorized Agent: **Brett Strickland** Phone # **919-222-7272** E-Mail: **bretts@ci-nc.com**
 Owned By: City / County Private State
 Code Enforcement Jurisdiction: City County **Hornett County** State

LEAD DESIGN PROFESSIONAL: Joe T. Smith, Jr.

DESIGNER	FIRM	NAME	LICENSE #	TELEPHONE #	E-MAIL
Building	Smith Engineering & Design	Joe T. Smith, Jr.	24916	(919)-736-2141	smithengineeringnc@hotmail.com
Civil	Draper Aden Associates	C. Tyrus Clayton, Jr.	028909	(919)-827-0864	@do.com
Electrical	Smith Engineering & Design	Joe T. Smith, Jr.	24916	(919)-736-2141	smithengineeringnc@hotmail.com
Fire Alarm					
Plumbing	Smith Engineering & Design	Joe T. Smith, Jr.	24916	(919)-736-2141	smithengineeringnc@hotmail.com
Mechanical	Comfort Mechanical Contractors	Brent A. Sigmon	028407	(919)-383-2507	bsigmon@comfortmc.com
Sprinkler-Standpipe					
Structural	Smith Engineering & Design	Joe T. Smith, Jr.	24916	(919)-736-2141	smithengineeringnc@hotmail.com
Retaining Walls >5' High					
Other					

2018 NC BUILDING CODE: New Construction Shell Core 1st Time Interior Completion
 Addition Phased Construction-Shell Core
2018 NC EXISTING CODE: (check all that apply) Prescriptive Alteration Level I Historic Property
 Repair Alteration Level II Change of Use
 Chapter 14 Alteration Level III
CONSTRUCTED: (date) _____ **CURRENT USE(s)** (Ch. 3) _____
RENOVATED: (date) _____ **PROPOSED USE(s)** (Ch. 3) **B Business**

BUILDING DATA
 Construction Type: (check all that apply) I-A II-A III-A IV V-A V-B
 I-B II-B III-B V-B
 Sprinklers: NO Partial NFPA 13 NFPA 13R NFPA 13D
 Standpipes: NO Class: I II III Wet Dry
 Primary Fire District: NO YES (Primary) Flood Hazard Area: No YES
 Special Inspections Required: NO YES

GROSS BUILDING AREA TABLE

FLOOR	EXISTING (SQ. FT.)	NEW (SQ. FT.)	SUB-TOTAL
3rd Floor			
2nd Floor			
Mezzanine			
1st floor (Upper Level)	0	4,800	4,800
Basement (Lower Level)			
TOTAL:	0	4,800	4,800

ALLOWABLE AREA
 Primary Occupancy: 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 HMP
 Institutional I-1 I-2 I-3 I-4
 I-3 Condition 1 2
 I-2 Condition 1 2
 I-1 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 Misc.

Accessory Occupancy Classifications: _____
Incidental Uses: (Table 509) _____
 This separation is not exempt as a Nonseparated Use (see exceptions).
Special Uses: (Chapter 4 - List Code Sections) _____
Special Provisions: (Chapter 5 - List Code Sections) _____

Mixed Occupancy: NO YES Secondary occupancy type(s): **S-1** Separation: **0** Hour Exception: **508.3**
 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, so 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.

$$\frac{\text{Actual Area of Occupancy A}}{\text{Allowable Area of Occupancy A}} + \frac{\text{Actual Area of Occupancy B}}{\text{Allowable Area of Occupancy B}} \leq 1.0$$

$$\frac{N/A}{N/A} + \frac{N/A}{N/A} = \frac{N/A}{N/A} \leq 1.0$$

STORY NO.	DESCRIPTION AND USE	(A) BLDG AREA PER STORY (ACTUAL)	(B) TABLE 506.2.4 AREA	(C) AREA FOR FRONTAGE INCREASE ^{1,2}	(D) ALLOWABLE AREA PER STORY OR UNLIMITED ^{2,3}
1	S-1 (Most Restrictive)	4,800	9,000	Not Used	9,000

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 = _____ (F)
 b. Total Building Perimeter = _____ (P)
 c. Ratio (F/P) = _____ (F/P)
 d. W = Minimum width of public way = _____ (W)
 e. Percent of footage increase: $1 + \frac{100}{F/P - 0.25} \times \frac{W}{30} = \text{_____} (\%)$
² Unlimited area applicable under conditions of Section 507.
³ Maximum Building Area = total number of stories in the building x D (maximum 3 stories) (506.2).
⁴ The maximum area of parking garages must comply with 406.5.4. The maximum area of air traffic control towers must comply with Table 412.3.1.
⁵ Frontage increase is based on the unspinklered area value in Table 506.2.

ALLOWABLE HEIGHT

	ALLOWABLE	SHOWN ON PLANS	CODE REFERENCE
Building Height in Feet (Table 504.3)	40	23'-6"	
Building Height in Stories (Table 504.4)	1	1	

1. Provide code reference if the "Shown on Plans" quantity is not based on Table 504.3 or 504.4.

FIRE PROTECTION REQUIREMENTS

BUILDING ELEMENT	FIRE SEPARATION DISTANCE (FEET)	RATING REQUIRED (W/ N/A * REDUCTION)	PROVIDED (W/ N/A * REDUCTION)	DETAIL # AND SHEET #	DESIGN # FOR RATED ASSEMBLY	DESIGN # FOR RATED PENETRATION	DESIGN # FOR RATED JOINTS
Structural frame, including columns, girders, trusses		0 HOUR	0 HOUR				
Bearing walls							
Exterior							
North	N/A	0 HOUR	N/A				
East	N/A	0 HOUR	N/A				
West	N/A	0 HOUR	N/A				
South	N/A	0 HOUR	N/A				
Interior		0 HOUR	N/A				
Nonbearing walls and partitions							
Exterior							
North	>30'	0 HOUR	0 HOUR				
East	>30'	0 HOUR	0 HOUR				
West	>15'	0 HOUR	0 HOUR				
South	>15'	0 HOUR	0 HOUR				
Interior walls and partitions		0 HOUR	0 HOUR				
Floor Construction including supporting beams and joists		0 HOUR	0 HOUR				
Roof Construction including supporting beams and joists		N/A	N/A				
Roof Ceiling Assembly		0 HOUR	0 HOUR				
Columns Supporting Roof		N/A	N/A				
Shafts Enclosures - Exit		N/A	N/A				
Shafts Enclosures - Other		N/A	N/A				
Corridor Separation		N/A	N/A				
Occupancy/Fire Barrier Separation		N/A	N/A				
Party/Fire Wall Separation		N/A	N/A				
Smoke Barrier Separation		N/A	N/A				
Smoke Partition		N/A	N/A				
Tenants/Dwelling Units/ Sleeping Unit Separation		N/A	N/A				
Incidental Use Separation		N/A	N/A				

*Indicates section number permitting reduction.

PERCENTAGE OF WALL OPENING CALCULATIONS

FIRE SEPARATION DISTANCE (FEET) FROM PROPERTY LINES	DEGREE OF OPENINGS PROTECTION (TABLE 705.5)	ALLOWABLE AREA (%)	ACTUAL SHOWN ON PLANS (%)
West Side 15' < 20'	Unprotected, Non-sprinklered	25%	18%
South Side 15' < 20'	Unprotected, Non-sprinklered	25%	10%

LIFE SAFETY SYSTEM REQUIREMENTS

Emergency Lighting: No Yes
 Exit Signs: No Yes
 Fire Alarms: No Yes
 Smoke Detection Systems: No Yes
 Carbon Monoxide Detection: No Yes

LIFE SAFETY PLAN REQUIREMENTS
 Life Safety Plan Sheet #: **N/A**
 Fire and/or smoke rated wall locations (Chapter 7)
 Assumed and real property line locations
 Exterior wall opening area with respect to distance to assumed property lines (705.5)
 Occupancy Use for each area as it relates to occupant load calculation (Table 1004.1.2)
 Occupant loads for each area
 Exit access travel distances (1017)
 Common path of travel distances [Tables 1006.2.1 & 1006.3.2(1)]
 Dead end lengths (1020.4)
 Clear exit widths for each exit door
 Maximum calculated occupant load capacity each exit door can accommodate based on egress width (1005.3)
 Actual occupant load for each exit door
 A separate schematic plan indicating where fire rated floor/ceiling and/or roof structure is provided for purposes of occupancy separation
 Location of doors with panic hardware (1010.1.10)
 Location of doors with delayed egress locks and the amount of delay (1010.1.9.7)
 Location of doors with electromagnetic egress locks (1010.1.9.9)
 Location of doors equipped with hold-open devices
 Location of emergency escape windows (1030)
 The square footage of each fire area (202)
 The square footage of each smoke compartment for Occupancy Classification I-2 (407.5)
 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 # PARKING SPACES		# ACCESSIBLE SPACES PROVIDED			TOTAL # ACCESSIBLE SPACES PROVIDED
	REQUIRED	PROVIDED	REGULAR WITH 5' ACCESS AISLE	VAN SPACES WITH 132" ACCESS AISLE	8' ACCESS AISLE	
See Site Plan						
TOTAL						

PLUMBING FIXTURE REQUIREMENTS (TABLE 2902.1)

USE	WATER CLOSETS			URINALS	LAVATORIES			SHOWERS & TUBS	DRINKING FOUNTAINS	
	MALE	FEMALE	UNISEX		MALE	FEMALE	UNISEX		REGULAR	ACCESSIBLE
EXISTING	0	0	0	0	0	0	0	0	0	0
NEW	2	3	0	1	2	2	0	0	1	1
REQUIRED	2	2	0	0	1	1	0	0	1	1

SPECIAL APPROVALS
 Special approval: (Local Jurisdiction, Department of Insurance, OSC, DPI, DBHS, ICC, etc., describe below)

STRUCTURAL DESIGN
DESIGN LOADS:
 Importance: Wind (I_w) **1.0**
 Factors: Snow (I_s) **1.0**
 Seismic (I_e) **1.0**
 Live Loads: Roof **20 PSF**
 Mezzanine **N/A**
 Floor **50/125 PSF**
 Ground Snow Load **15 PSF**
 Wind Loads: Basic Wind Speed **118 MPH (ASCE 7-10)**
 Exposure Category **B**

Metal building portion to be supplied by metal building manufacturer

SEISMIC CATEGORY A B C D
 Provide the following Seismic Design Parameters:
 Occupancy Category (Table 1604.5) I II III IV
 Spectral Response Acceleration S_s by M.B.M. % S_s by M.B.M. %
 Site Classification (ASCE 7): A B C D E F
 Data source: Field Test Presumptive Historical Data
 Basic Structural System: (check one)
 Bearing Wall Dual W/ Special Moment Frame
 Building Frame Dual W/ Intermediate R/C or Special Steel
 Moment Frame Inverted Pendulum
 Analysis Procedure: Simplified Equivalent Lateral Force Dynamic
 Architectural, Mechanical, Components Anchored? Yes No

LATERAL DESIGN CONTROL: Earthquake Wind
SOIL BEARING CAPACITIES:
 Field Test (provide copy of test report) **N/A psf**
 Presumptive Bearing Capacity **2000 psf**
 Pile Size, Type, and Capacity **N/A**
SPECIAL INSPECTIONS REQUIRED: Yes No

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.
Existing building envelope complies with code: (If checked, the remainder of this section is not applicable.)
Exempt Building: Provide code or statutory reference: _____
Climate Zone: 3 4 5
Method of Compliance:
 Energy Code: Performance Prescriptive Trade-Off
 ASHRAE 90.1: Performance Prescriptive Trade-Off
 Other: Performance (specify source) _____

THERMAL ENVELOPE:
Roof/Ceiling Assembly (each assembly)
 Description of Assembly _____
 U-value of Total Assembly **0.040**
 R-value of Insulation **30**
 Skylights in each assembly _____
 U-value of skylight **N/A**
 Total square footage of skylights in each assembly **N/A**
Exterior Walls (each assembly)
 Description of Assembly _____
 U-value of Total Assembly **0.060**
 R-value of Insulation **25**
 Openings (windows or doors with glazing) **Alum. Storefront**
 U-Value of assembly **0.45**
 Solar heat gain coefficient: **<0.25**
 Projection factor: **0.15, 0.52**
 Door R-Values: **1.11**
Walls below grade (each assembly)
 Description of Assembly _____
 U-value of Total Assembly **N/A**
 R-value of Insulation **N/A**
Floors over unconditioned space (each assembly)
 Description of Assembly _____
 U-value of Total Assembly **N/A**
 R-value of Insulation **N/A**
Floors slab on grade
 Description of Assembly _____
 U-value of Total Assembly **SLAB ON GRADE**
 R-value of Insulation **0.07**
 Horizontal/vertical requirement **24" Min. or to Bottom of Footing**
 Slab heated **N/A**

INDEX TO DRAWINGS

COVER / CODE SUMMARY
T-1 COVER SHEET
LIFE SAFETY
LF-1 LIFE SAFETY PLAN
STRUCTURAL
S-1 FOUNDATION PLAN
S-2 FOUNDATION DETAILS
GENERAL
G-1 FLOOR PLAN
G-2 EXTERIOR ELEVATIONS
G-3 EXTERIOR ELEVATIONS / WALL SECTION
PLUMBING
P-1 PLUMBING WASTE PIPING PLAN
P-2 PLUMBING SUPPLY PIPING PLAN
P-2 PLUMBING SCHEDULES AND DETAILS
MECHANICAL
M-1 MECHANICAL PLAN AND SCHEDULES
ELECTRICAL
E-1 ELECTRICAL LIGHTING PLAN
E-2 ELECTRICAL POWER PLAN
E-3 ELECTRICAL PANEL SCHED. AND RISER DIAGRAM
E-4 ELECTRICAL SCHEDULES
E-5 ELECTRICAL DETAILS

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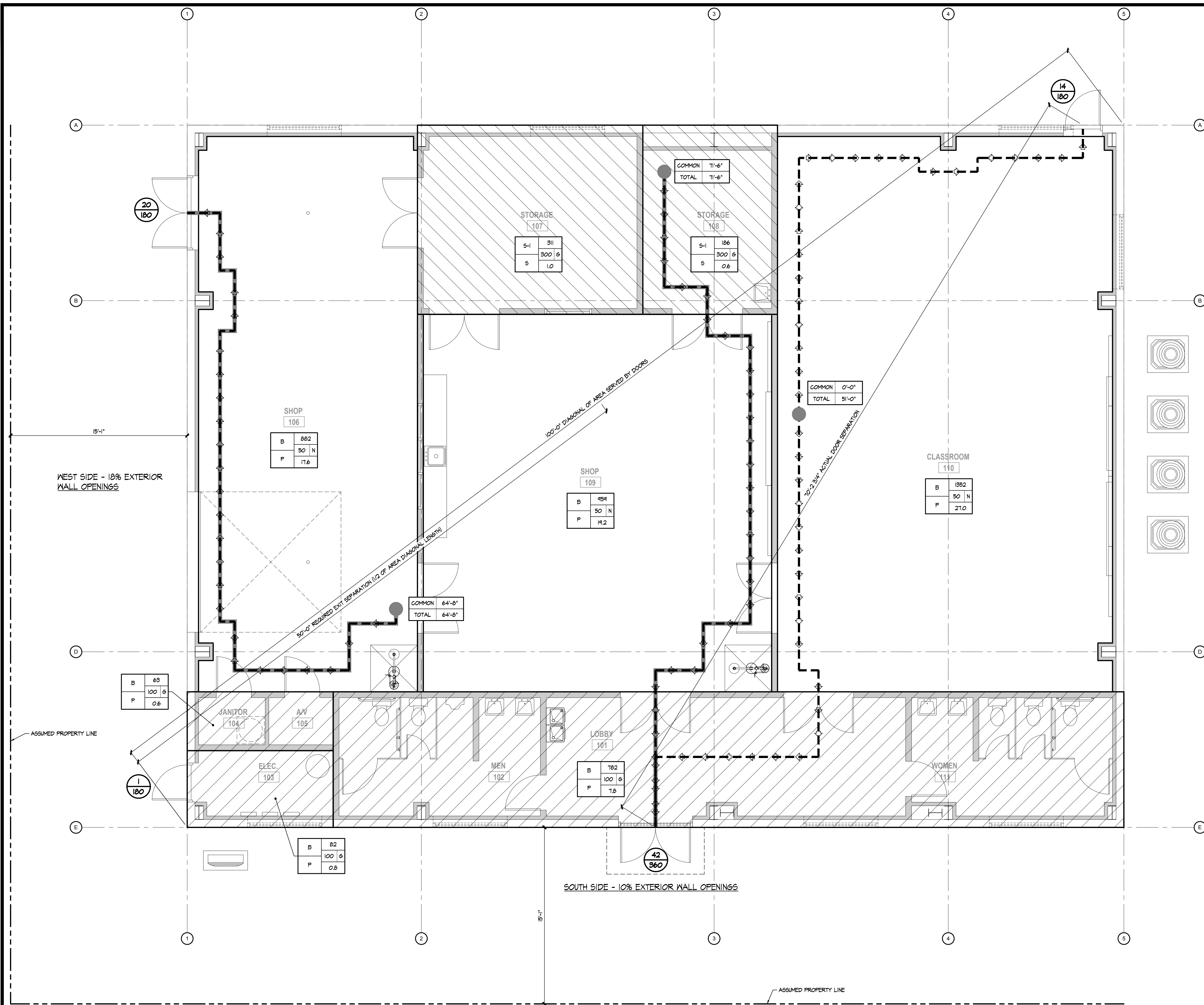
New Facility for:
Campbell University Engineering Annex II
 Bules Creek, NC

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REVISIONS
 DATE DESCRIPTION

REV	DATE	DESCRIPTION

DATE: 16 April 2019
 DRAWN BY: T.B.
 SCALE: NO SCALE
T-1



LIFE SAFETY PLAN

SCALE: 1/4" = 1'-0"

LEGEND	
SYMBOL	DESCRIPTION
	COMMON PATH OF EXIT EGRESS TRAVEL
	ROUTE OF TOTAL EXIT ACCESS TRAVEL DISTANCE
	DOOR PROVIDED WITH PANIC HARDWARE
	DOOR PROVIDED WITH MAGNETIC LOCK AND EXIT SENSOR BAR
	SEMI-RECESSED FIRE EXTINGUISHER CABINET
	REQUIRED OCCUPANT CAPACITY OF DOOR
	ACTUAL OCCUPANT CAPACITY OF DOOR

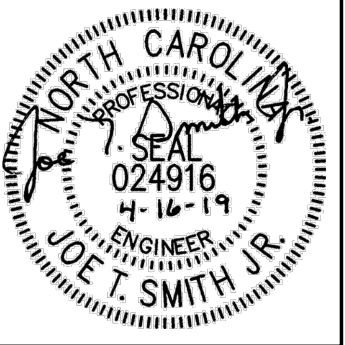
OCCUPANCY CLASSIFICATION OF INDICATED AREA		SF OF INDICATED AREA	
P	PRIMARY OCCUPANCY	N	NET SF PER OCCUPANT
S	SECONDARY OCCUPANCY	G	GROSS SF PER OCCUPANT
A	ACCESSORY OCCUPANCY	F	FLOOR AREA ALLOWANCE PER OCCUPANT OF INDICATED AREA
I	INCIDENTAL OCCUPANCY	C	CALCULATED OCCUPANT LOAD OF INDICATED AREA

COMMON	X'-X"	COMMON PATH OF TRAVEL DISTANCE
TOTAL	X'-X"	TOTAL TRAVEL DISTANCE

OCCUPANT TABULATION	
CLASSIFICATION	OCCUPANTS
B (PRIMARY)	73.0
S-1 (ACCESSORY)	1.6
TOTAL OCCUPANT LOAD:	74.6

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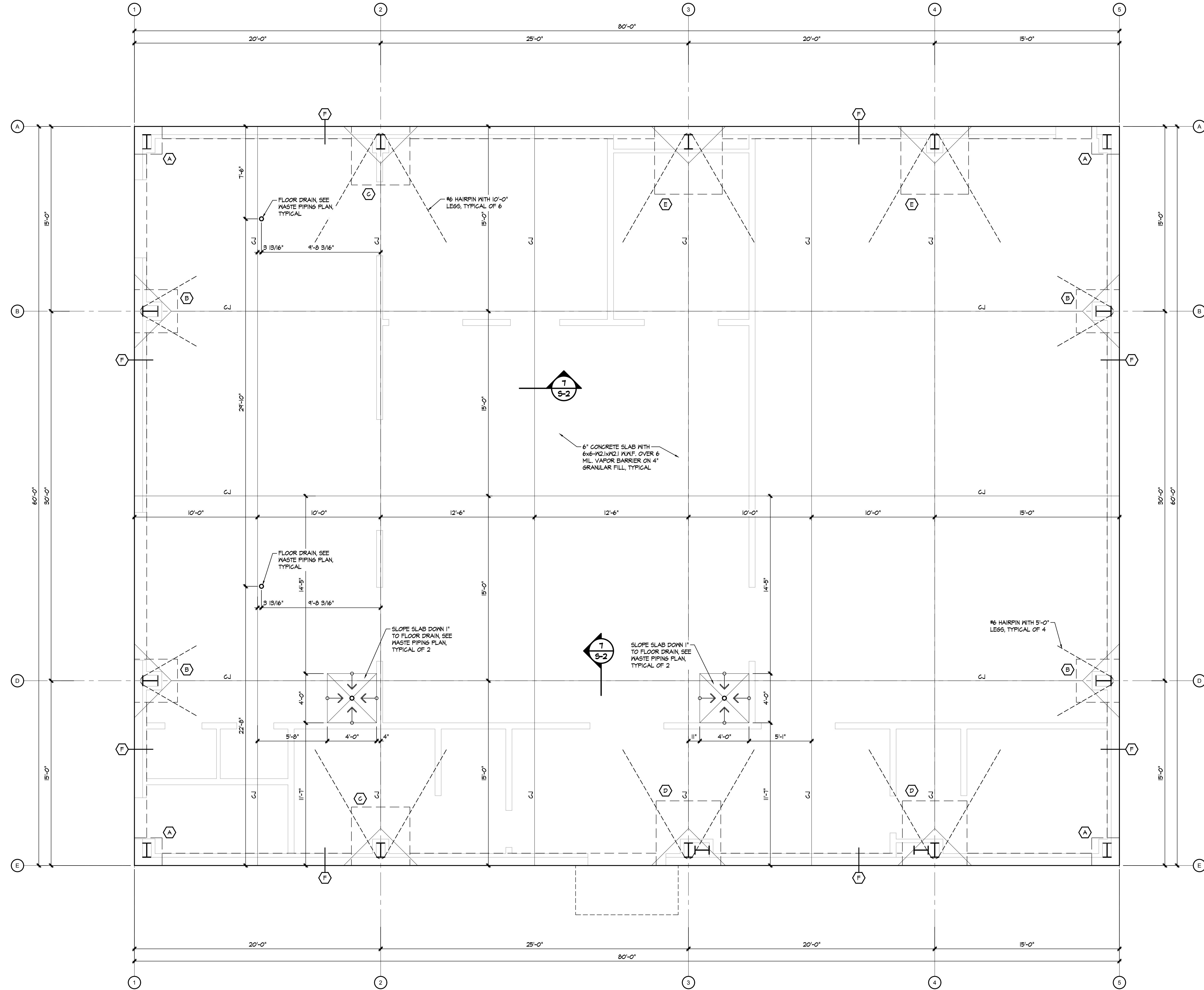


REV	DATE	DESCRIPTION

New Facility for:
Campbell University Engineering Annex II
 Buies Creek, NC

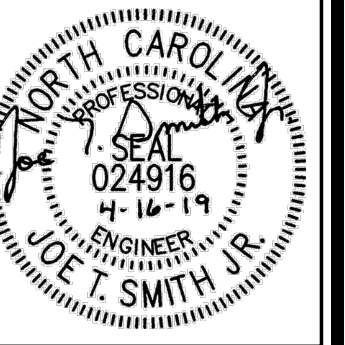
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LF-1



FOUNDATION PLAN

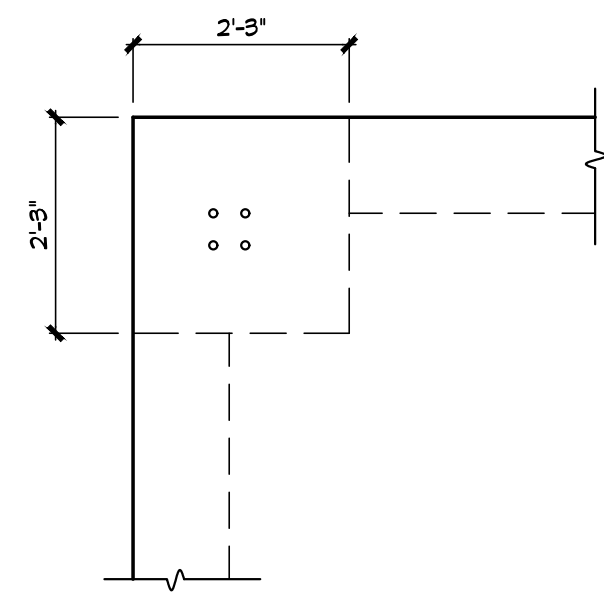
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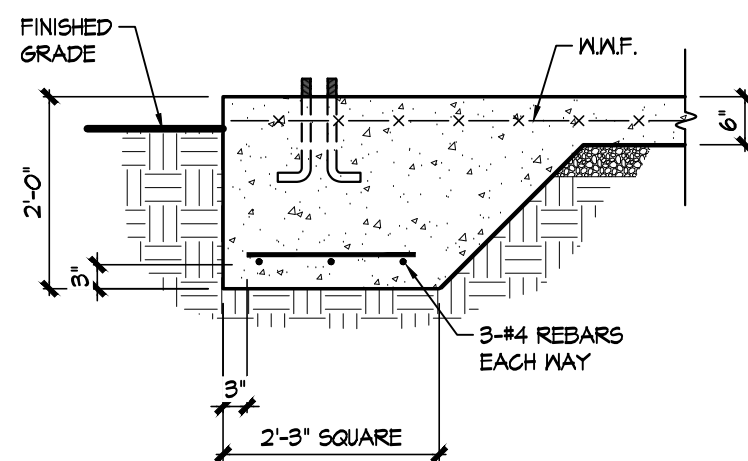
REV	DATE	DESCRIPTION

New Facility for:
**Campbell University
 Engineering Annex II**
 Buies Creek, NC

DATE:	16 April 2019
DRAWN BY:	T.B.
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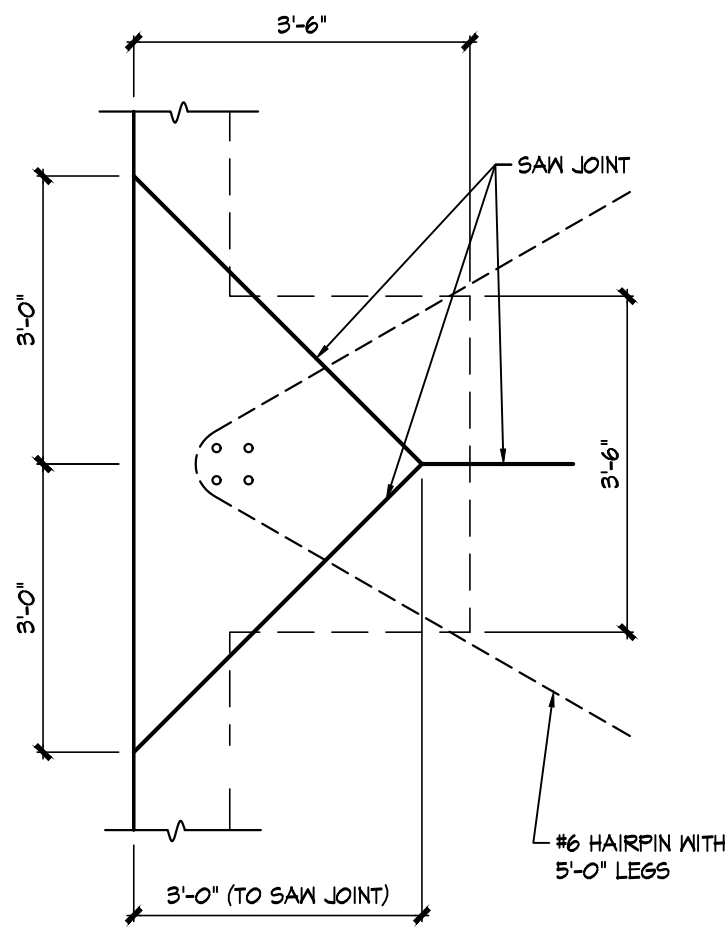


PLAN VIEW

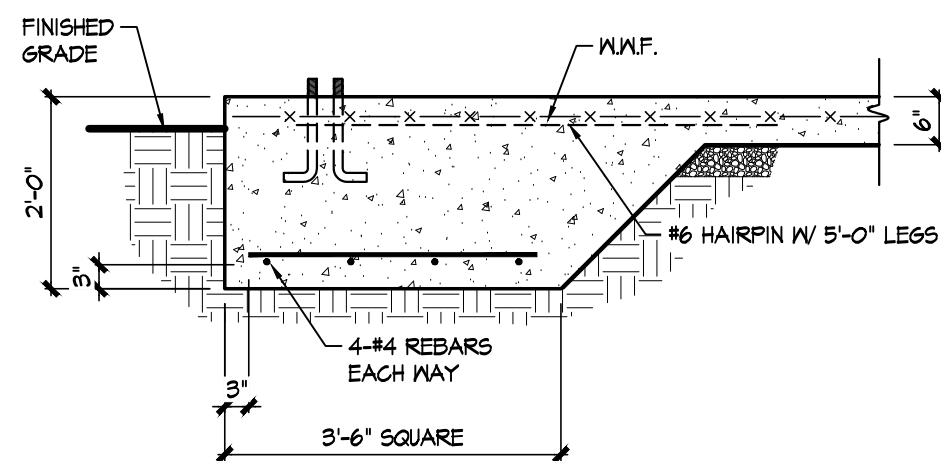


SECTION VIEW

1
S-2 COLUMN FOOTING "A" SCALE: 1/2" = 1'-0"

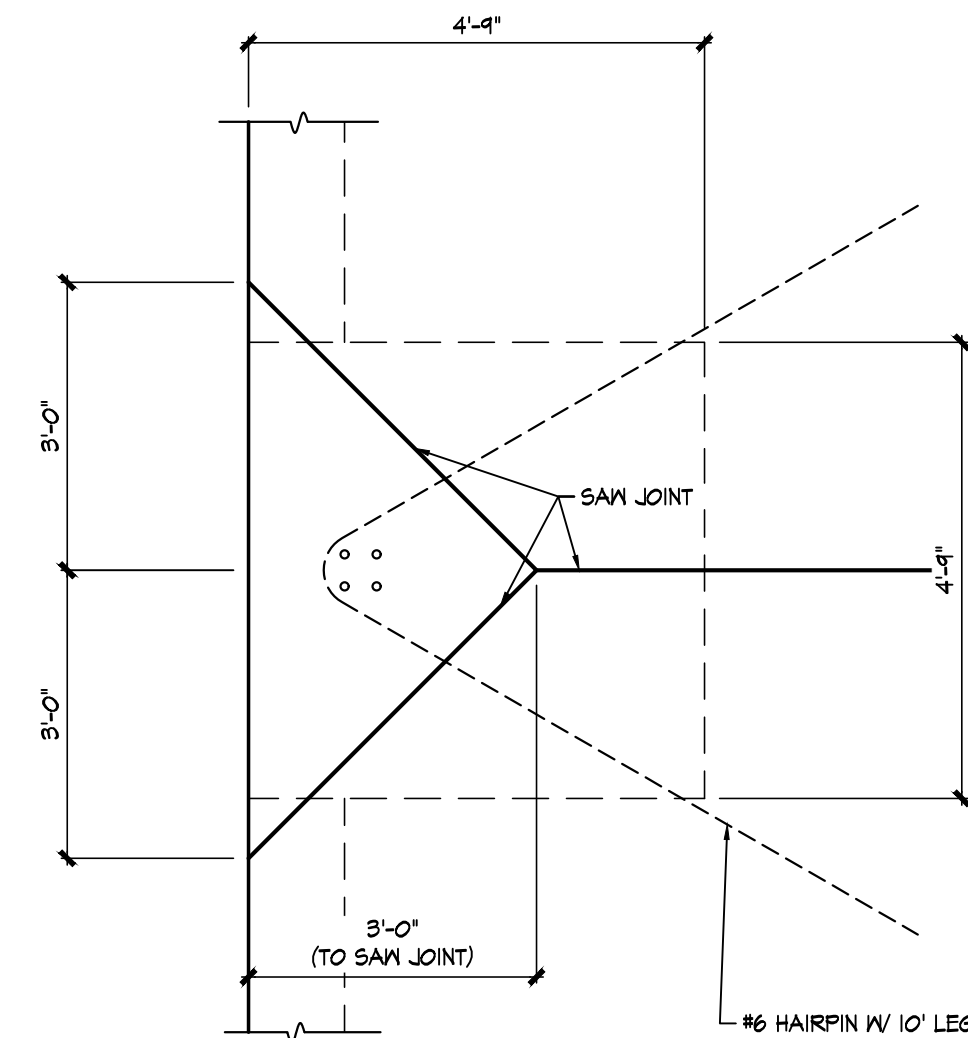


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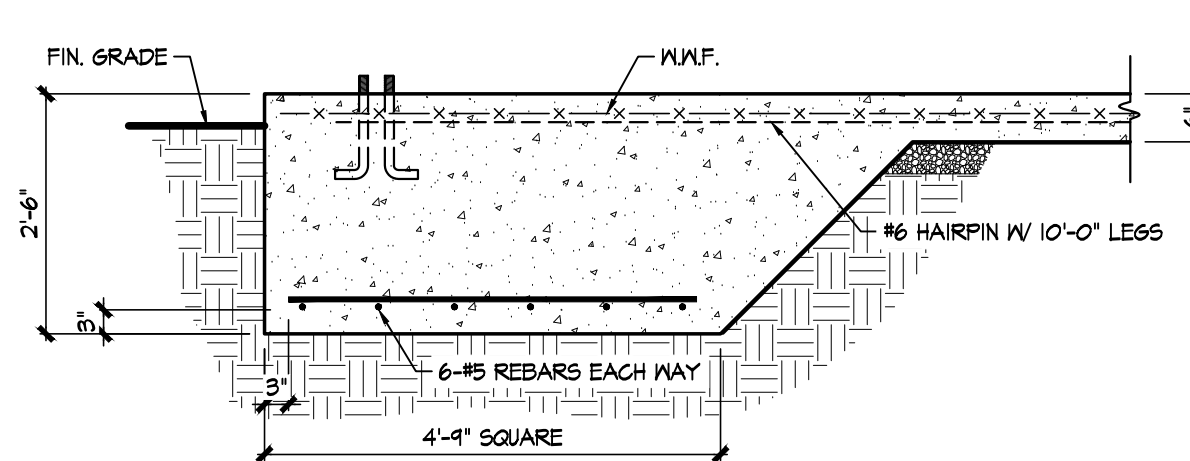


SECTION VIEW

2
S-2 COLUMN FOOTING "B" SCALE: 1/2" = 1'-0"

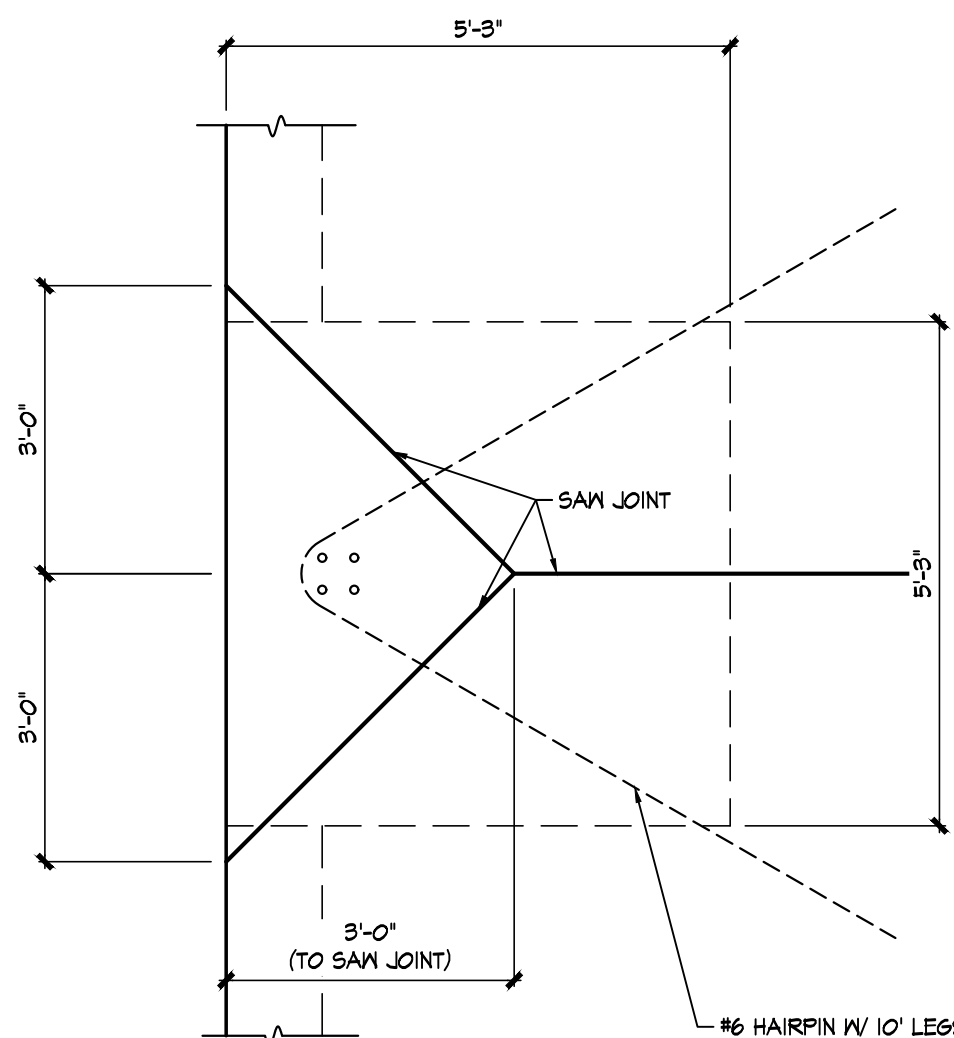


PLAN VIEW

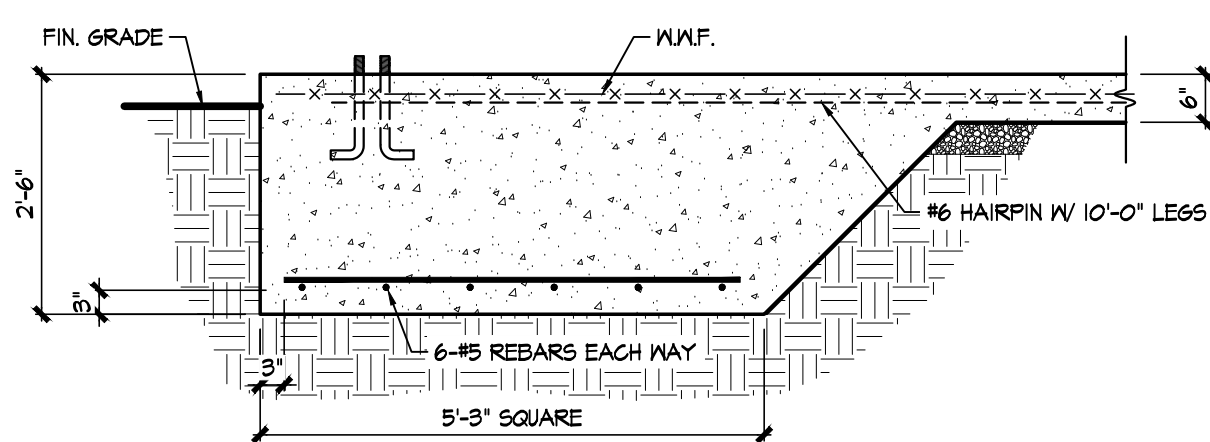


SECTION VIEW

3
S-2 COLUMN FOOTING "C" SCALE: 1/2" = 1'-0"

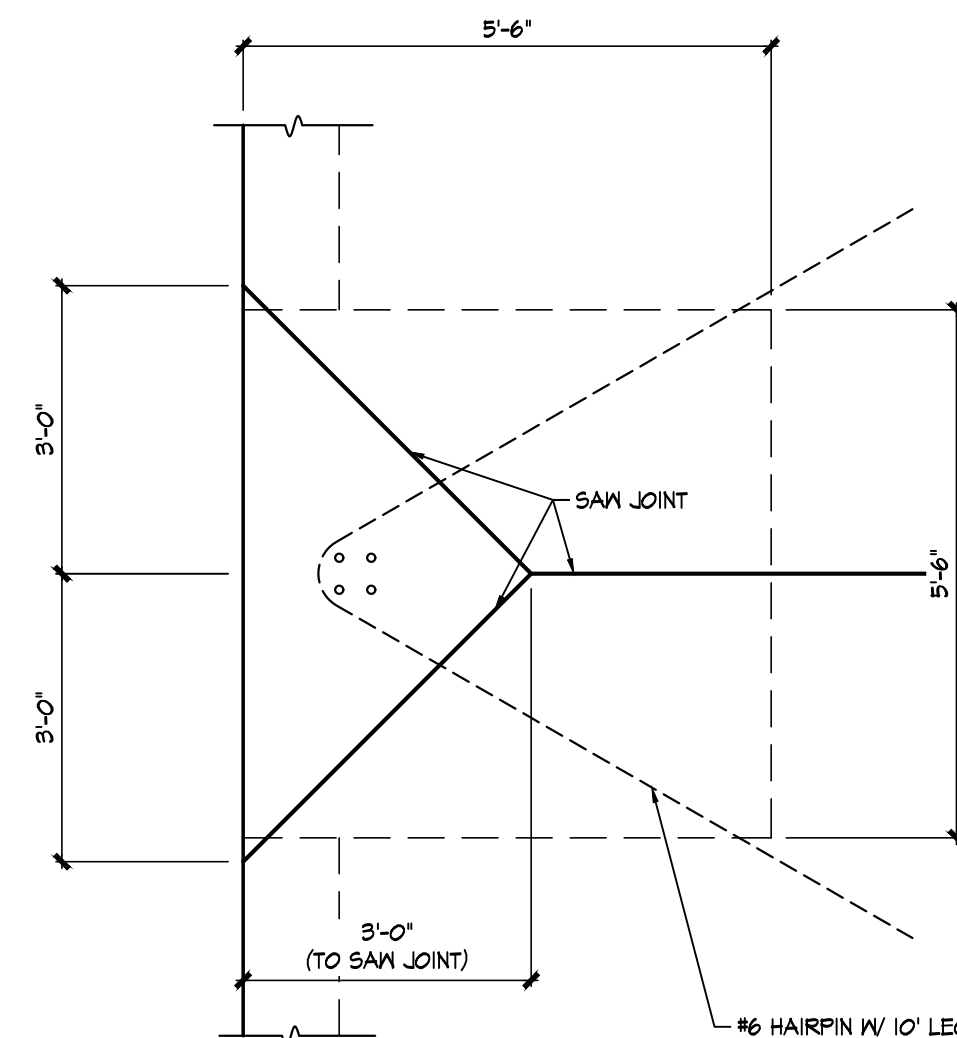


PLAN VIEW

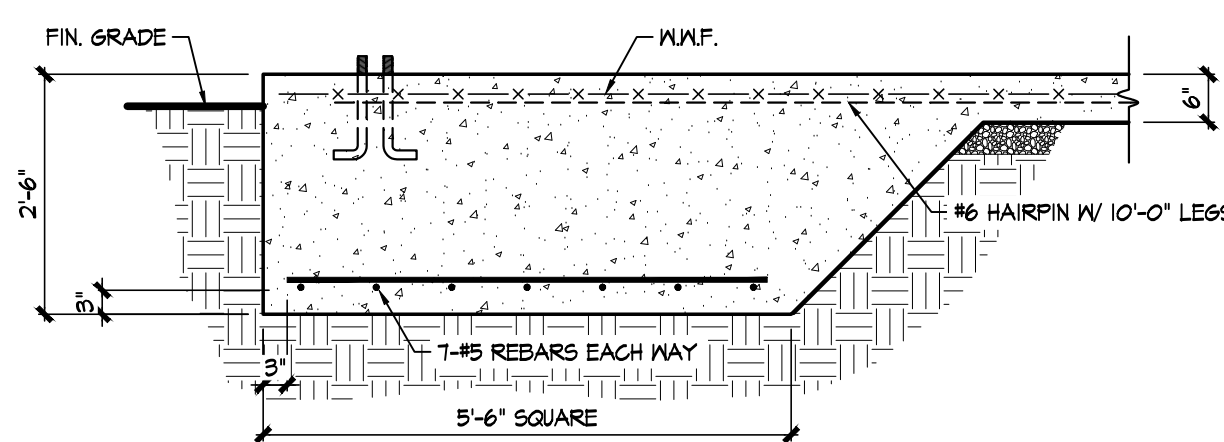


SECTION VIEW

4
S-2 COLUMN FOOTING "D" SCALE: 1/2" = 1'-0"

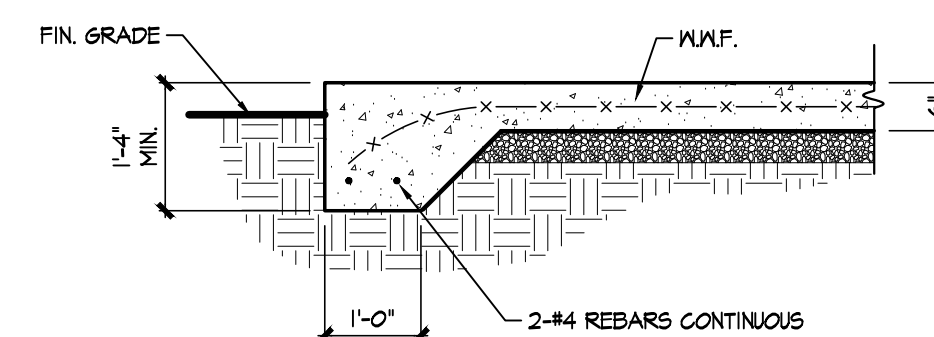


PLAN VIEW



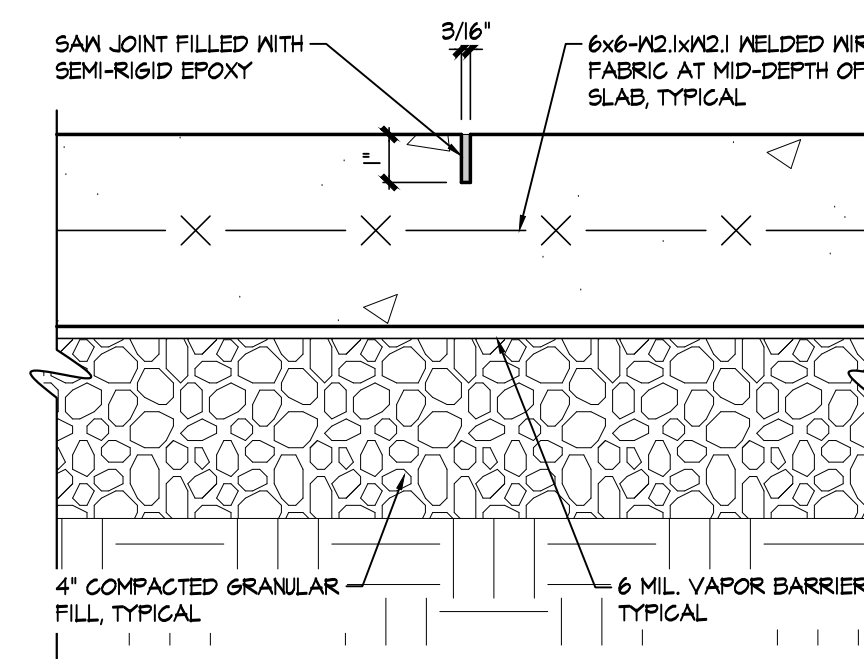
SECTION VIEW

5
S-2 COLUMN FOOTING "E" SCALE: 1/2" = 1'-0"



6
S-2 PERIMETER FOOTING "F" SCALE: 1/2" = 1'-0"

TYPICAL SLAB EDGE FOOTING



NOTE:
SAW JOINT SHALL BE MADE AS SOON AS CONCRETE HAS GAINED SUFFICIENT STRENGTH TO RETAIN AGGREGATE AGAINST THE SAWING ACTION OR AT 8 HOURS MAXIMUM AFTER PLACEMENT.

7
S-2 DETAIL SCALE: 3" = 1'-0"

TYPICAL SLAB CRACK CONTROL JOINT

STRUCTURAL NOTES

GENERAL

- THESE DRAWINGS ARE TO BE COORDINATED WITH THE ARCHITECTURAL, MECHANICAL, PLUMBING, ELECTRICAL, AND CIVIL DRAWINGS.
- THIS STRUCTURE AND ALL CONSTRUCTION SHALL CONFORM TO ALL APPLICABLE SECTIONS OF THE NC BUILDING CODE AND ANY LOCAL LAWS WHERE THE STRUCTURE IS TO BE CONSTRUCTED.

MISCELLANEOUS

- THE CONTRACTOR SHALL PROVIDE ADEQUATE TEMPORARY BRACING, SHORING, AND GUYING OF FRAMING AND WALLS AGAINST WIND, CONSTRUCTION LOADS, AND OTHER TEMPORARY FORCES UNTIL SUCH PROTECTION IS NO LONGER REQUIRED FOR THE SAFE SUPPORT OF THE FRAMING.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR REVIEWING THE DIMENSIONS OF THE STRUCTURAL DRAWINGS AND ADVISING THE ENGINEER OF ANY DIFFERENCES IN DIMENSIONS BETWEEN THE METAL BUILDING PLANS AND SECTIONS PRIOR TO COMMENCING CONSTRUCTION.
- CONSTRUCTION SAFETY: THESE STRUCTURAL DRAWINGS DO NOT CONTAIN NECESSARY COMPONENTS FOR SAFETY DURING CONSTRUCTION.

FOUNDATIONS

- THE STRUCTURAL ENGINEER HAS NOT PERFORMED A SUBSURFACE INVESTIGATION. THE FOUNDATION IS BASED UPON AN ASSUMED SOIL BEARING CAPACITY OF 2000 PSF NET BEARING. VERIFICATION OF THIS ASSUMED VALUE IS THE RESPONSIBILITY OF THE OWNER OR CONTRACTOR. SHOULD ANY ADVERSE SOIL CONDITION BE ENCOUNTERED, THE STRUCTURAL ENGINEER MUST BE CONTACTED BEFORE PROCEEDING.
- ANY FILL SHALL BE PLACED UNDER THE DIRECTION OR RECOMMENDATION OF A LICENSED PROFESSIONAL ENGINEER. THE RESULTING SOIL SHALL BE COMPACTED TO A MINIMUM OF 95 PERCENT MAXIMUM DRY DENSITY.

CONCRETE

- REINFORCED CONCRETE WORK SHALL COMPLY WITH BOTH "SPECIFICATIONS FOR STRUCTURAL BUILDINGS" ACI 301 AND "BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE" ACI 318.
- CONCRETE SHALL BE PLACED IN ACCORDANCE WITH ACI 304R.
- DURING HOT WEATHER THE CONTROL OF CONCRETE PLACEMENT, PROTECTION AND CURING SHALL COMPLY WITH ACI 305R.
- WHEN THE MEAN DAILY TEMPERATURE IS BELOW 40 DEGREES F THE CONTROL OF PLACEMENT, PROTECTION AND CURING SHALL COMPLY WITH ACI 306R.
- CONCRETE SHALL HAVE NORMAL WEIGHT AGGREGATE AND A MINIMUM COMPRESSIVE STRENGTH (F_c) AT 28 DAYS AS LISTED BELOW.

5.1 FOOTINGS	3000 PSI
5.2 SLABS-ON-GRADE	3000 PSI
- ENTRAINED AIR MUST BE USED IN ALL CONCRETE THAT WILL BE EXPOSED TO FREEZING AND THAWING AND DEICING CHEMICALS. AMOUNT OF AIR ENTRAINMENT (PERCENT) SHALL BE IN ACCORDANCE WITH THE FOLLOWING SCHEDULE WITH A RANGE OF -1 TO +2 PERCENTAGE POINTS OF THE TARGET VALUE:

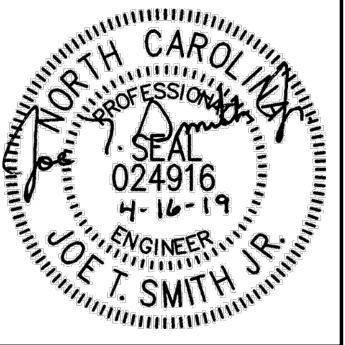
6.1 FOOTINGS	5%
6.2 INTERIOR SLABS	0%, SEE NOTE BELOW
6.3 EXTERIOR SLABS	5%

NOTE: IT IS RECOMMENDED THAT INTERIOR SLABS TO BE GIVEN A SMOOTH, DENSE, HARD-TROWELED FINISH NOT TO CONTAIN ENTRAINMENT AIR SINCE BLISTERING OR DELAMINATION MAY OCCUR. IF SLAB WILL BE EXPOSED TO DEICING OR OTHER AGGRESSIVE CHEMICALS, CONTACT STRUCTURAL ENGINEER FOR PROPER AIR ENTRAINMENT REQUIREMENTS.

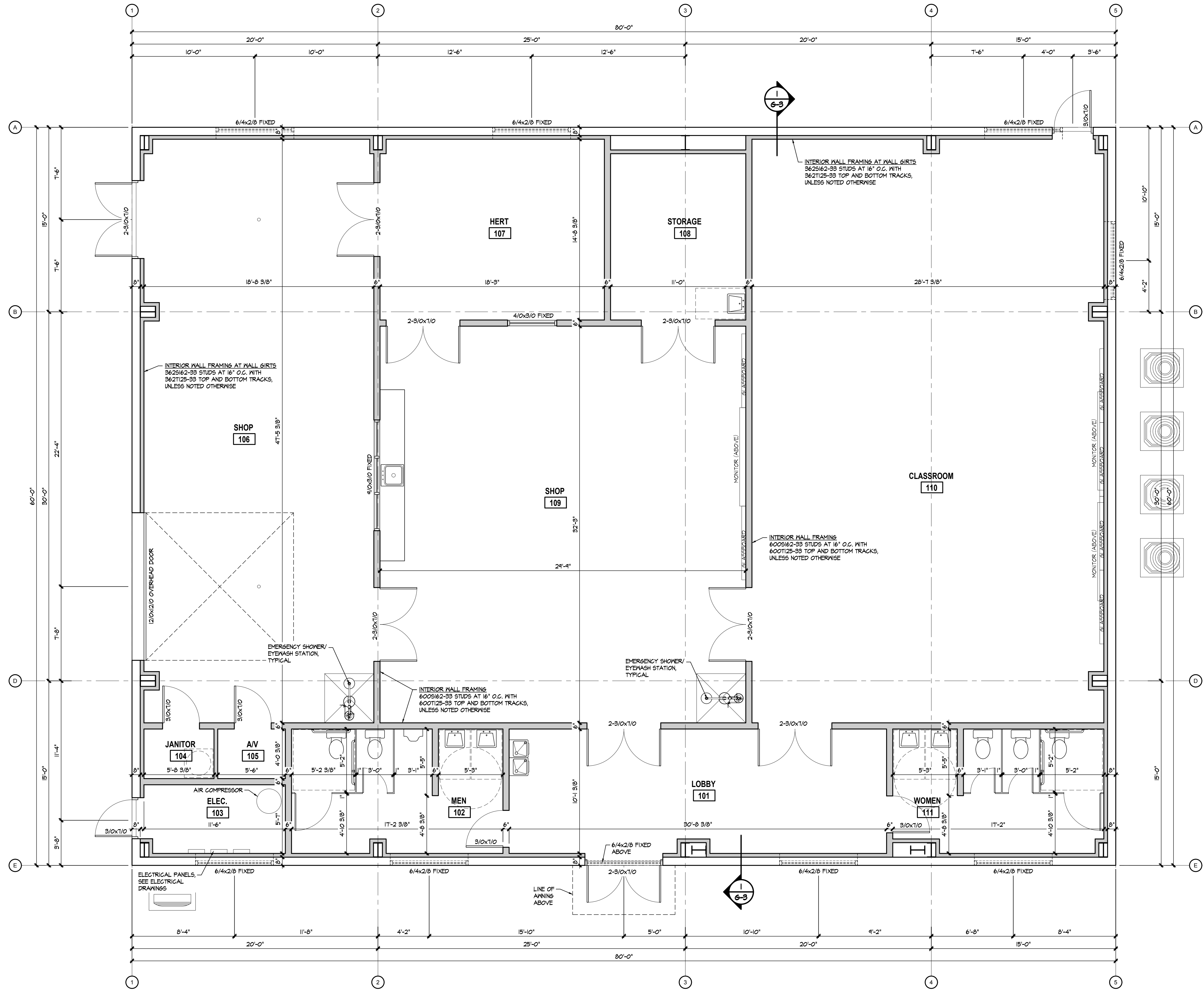
- CONCRETE SLABS ON GRADE SHALL BE CONSTRUCTED IN ACCORDANCE WITH ACI 302.1R-96 "GUIDE FOR CONCRETE SLAB AND SLAB CONSTRUCTION".
- CONTROL JOINTS SHALL BE SPACED IN SLABS ON GRADE AT A MAXIMUM OF 15'-0" O.C. UNLESS OTHERWISE NOTED.

REINFORCING STEEL

- REINFORCING STEEL SHALL COMPLY WITH ASTM A615, GRADE 60. WELDED WIRE FABRIC SHALL COMPLY WITH ASTM A185. WELDABLE REINFORCING BARS SHALL COMPLY WITH ASTM A706, GRADE 60.
- CLEAR CONCRETE COVER ON REINFORCING STEEL: BOTTOM OF FOOTINGS= 3", SIDE AND TOP SURFACE OF FOOTINGS= 2", BOTTOM OF SLAB ON GRADE = 2 1/2", WALL SURFACE = 2", TOP OR BOTTOM SURFACE OF FLOOR SLABS = 3/4".
- PROVIDE CLASS 3 BAR AND MESH SUPPORTS.
- DETAILING, FABRICATION AND PLACEMENT OF REINFORCING STEEL SHALL BE IN ACCORDANCE WITH ACI 315 (LATEST EDITION) MANUAL OF STANDARD PRACTICE FOR DETAILING CONCRETE STRUCTURES.
- HORIZONTAL FOOTING SHALL BE CONTINUOUS AND SHALL HAVE 90° BENDS OR CORNER BARS SHALL BE INSTALLED. THE CORNER BAR SHALL HAVE THE SAME SIZE AND SPACING AS THE HORIZONTAL REINFORCEMENT WITH A CLASS B TENSION SPLICE.
- LAP REINFORCEMENT AS REQUIRED A MINIMUM OF 40 BAR DIAMETERS FOR TENSION OR COMPRESSION UNLESS NOTED OTHERWISE. SPLICES IN MASONRY SHALL BE A MINIMUM OF 48 BAR DIAMETERS.



REV	DATE	DESCRIPTION



WALL LEGEND

METAL BUILDING WALL GIRT FRAMING. SEE FLOOR PLAN FOR LOCATIONS.

FRAMED INTERIOR STUD WALLS. SEE FLOOR PLAN FOR WIDTH AND LOCATIONS.

NOTES:

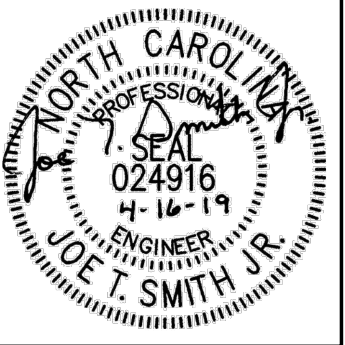
1. ALL EXTERIOR WALL DIMENSIONS THIS PLAN ARE TO FACE OF METAL BUILDING WALL GIRT FRAMING.
2. ALL INTERIOR WALL DIMENSIONS THIS PLAN ARE TO FACE OF STUD.
3. CABINERY DIMENSIONS ARE GIVEN FOR REFERENCE AND SHOULD BE VERIFIED PRIOR TO CONSTRUCTION.
4. METAL BUILDING EXTERIOR WALL SYSTEMS ARE TO HAVE "SIMPLE-SAVER" INSULATION SYSTEM WITH R-25 CAVITY INSULATION.
5. METAL BUILDING EXTERIOR ROOF SYSTEM IS TO HAVE "SIMPLE-SAVER" INSULATION SYSTEM WITH R-30 CAVITY INSULATION.
6. ALL INTERIOR FRAMED WALLS ARE TO BE BRACED TO RIGID METAL FRAME AS REQUIRED.
7. SEE FRAMING PLAN FOR STUD SIZE AND SPACINGS.
8. INSTALL SOUND ATTENUATION INSULATION IN ALL TOILET ROOM STUD FRAMED WALLS.
9. INTERIOR WALL FINISH TO BE 5/8" GYPSUM BOARD OVER 1/2" FLYWOOD, TYPICAL.

FLOOR PLAN

SCALE: 1/4" = 1'-0"

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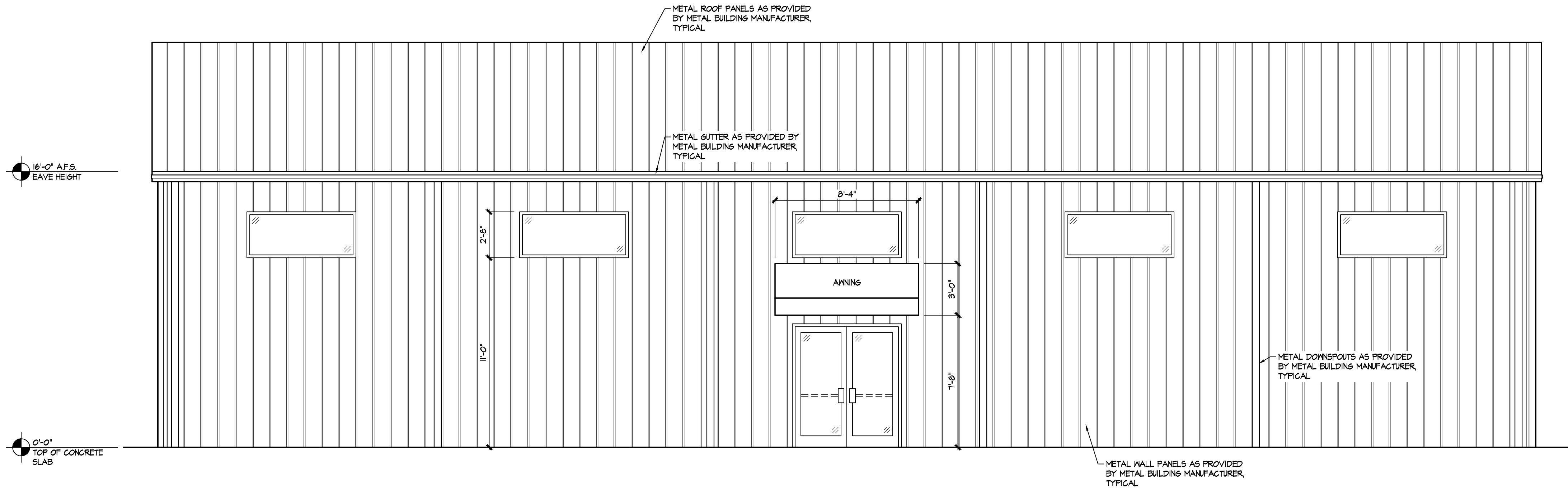


REV.	DATE	REVISIONS	DESCRIPTION

New Facility for:
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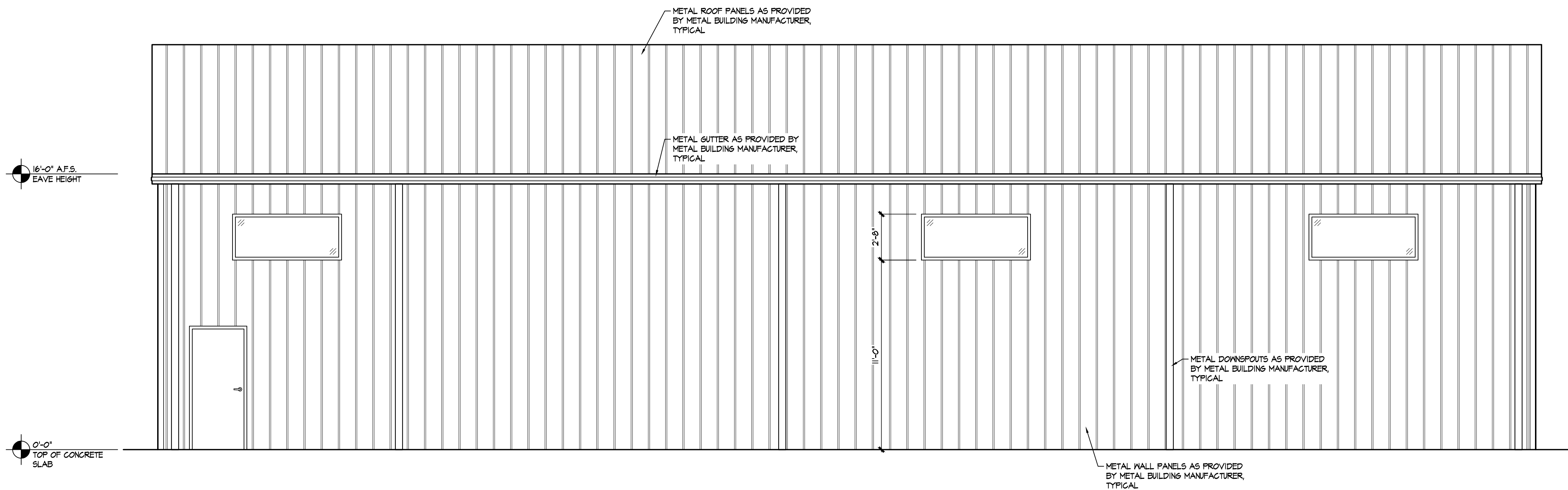
DATE: 16 April 2019
 DRAWN BY: T.B.
 SCALE: 1/4" = 1'-0"





FRONT ELEVATION

SCALE: 1/4" = 1'-0"

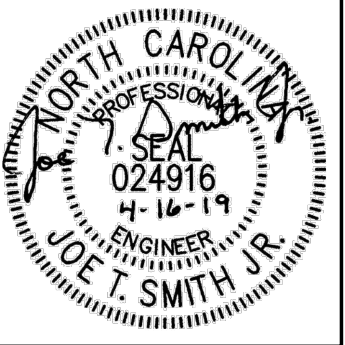


REAR ELEVATION

SCALE: 1/4" = 1'-0"

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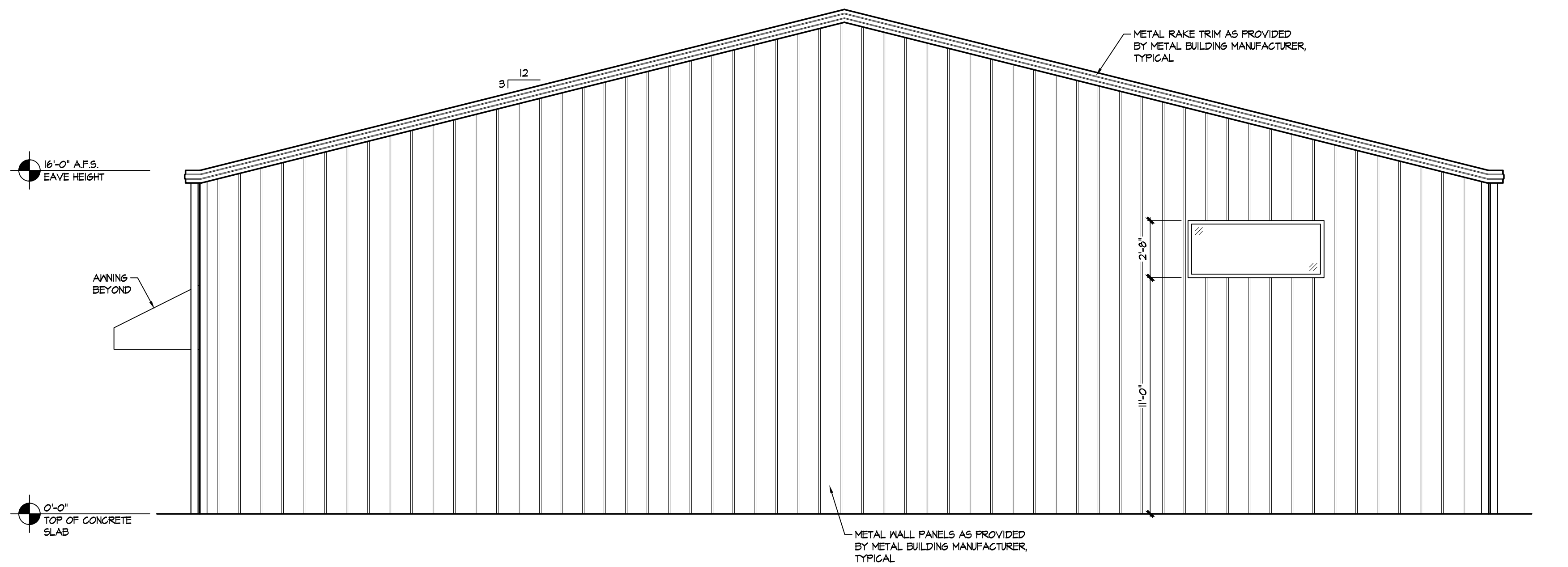
REV	DATE	DESCRIPTION

REV	DATE	DESCRIPTION

New Facility for:
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 Buies Creek, NC

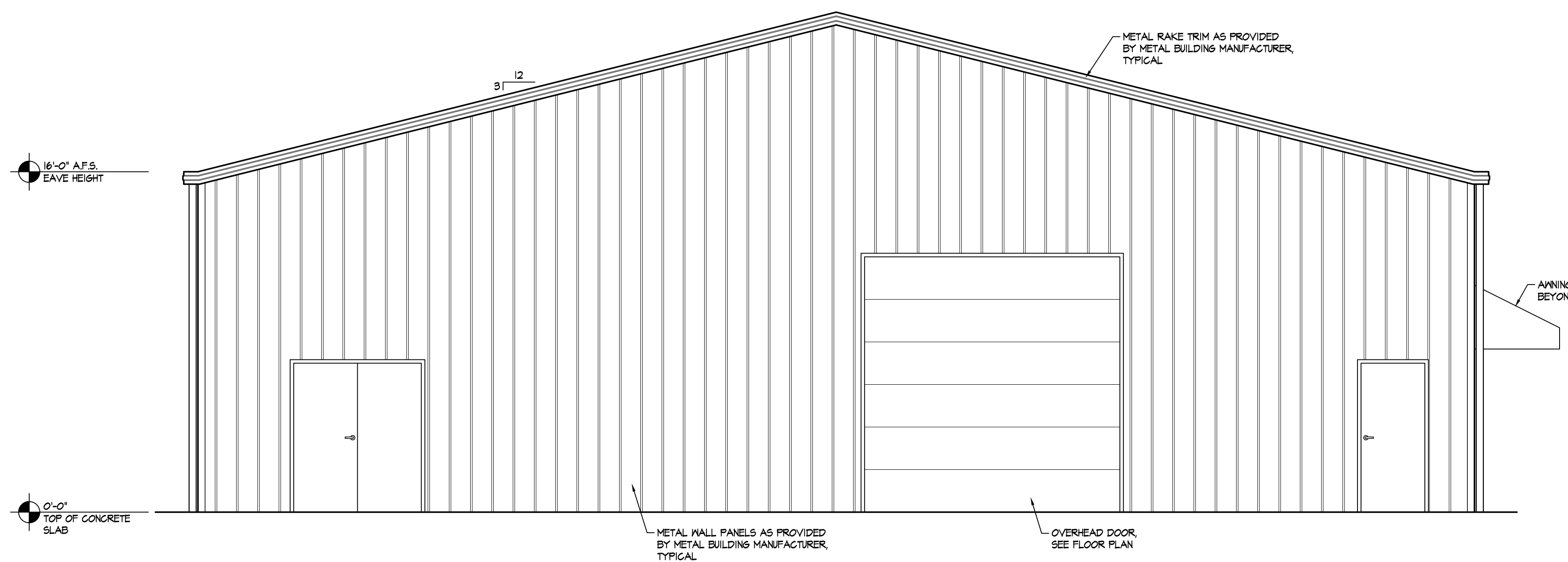
DATE: 16 April 2019
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 SCALE: 1/4" = 1'-0"





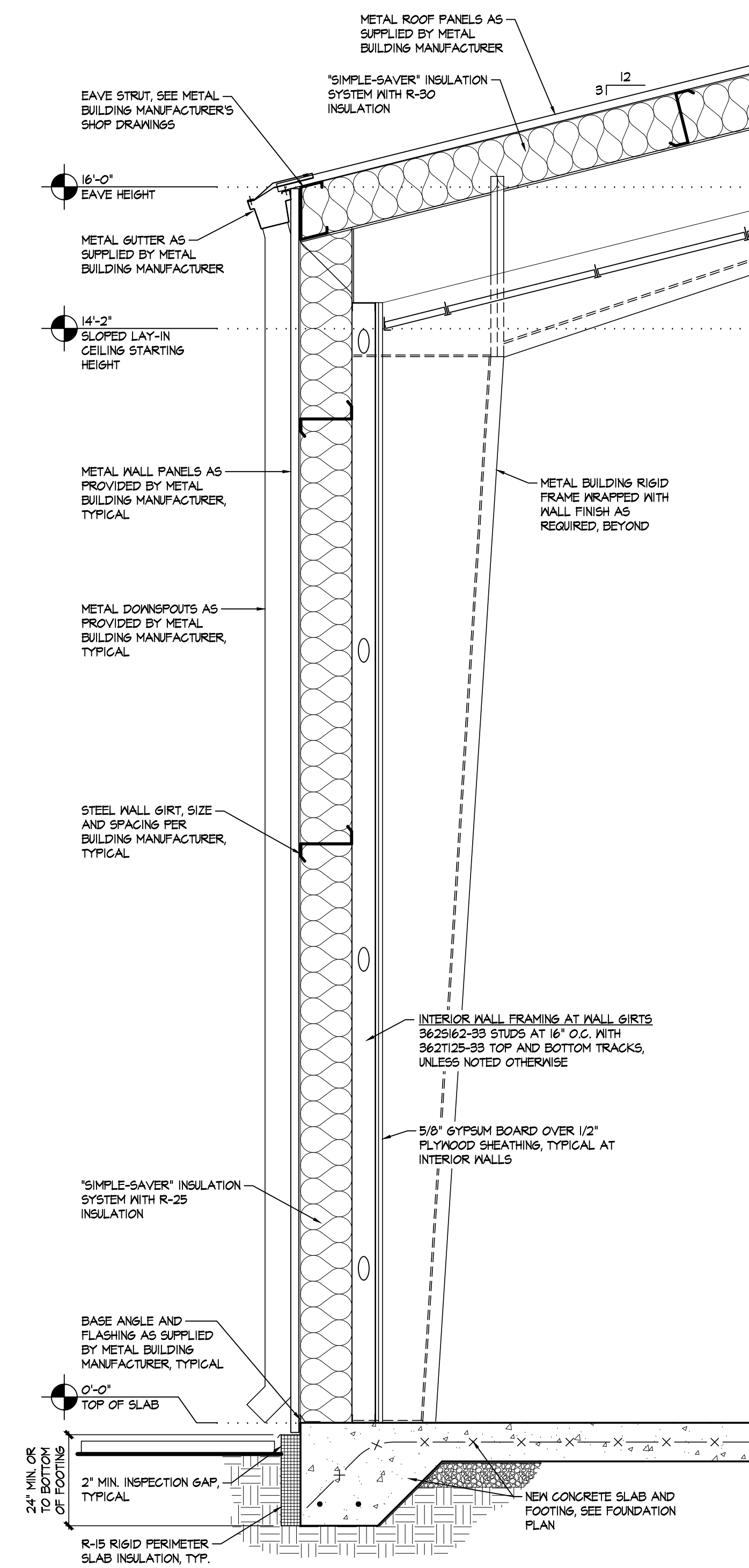
RIGHT ELEVATION

SCALE: 1/4" = 1'-0"



LEFT ELEVATION

SCALE: 1/4" = 1'-0"



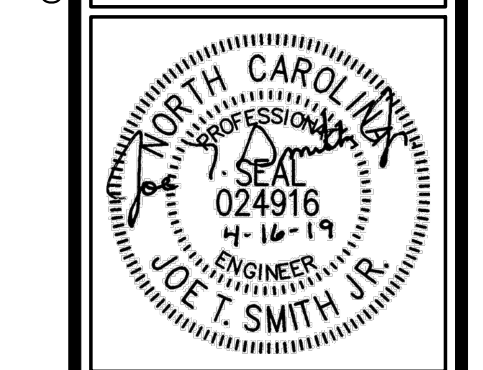
1 SECTION

TYPICAL WALL SECTION

SCALE: 3/4" = 1'-0"

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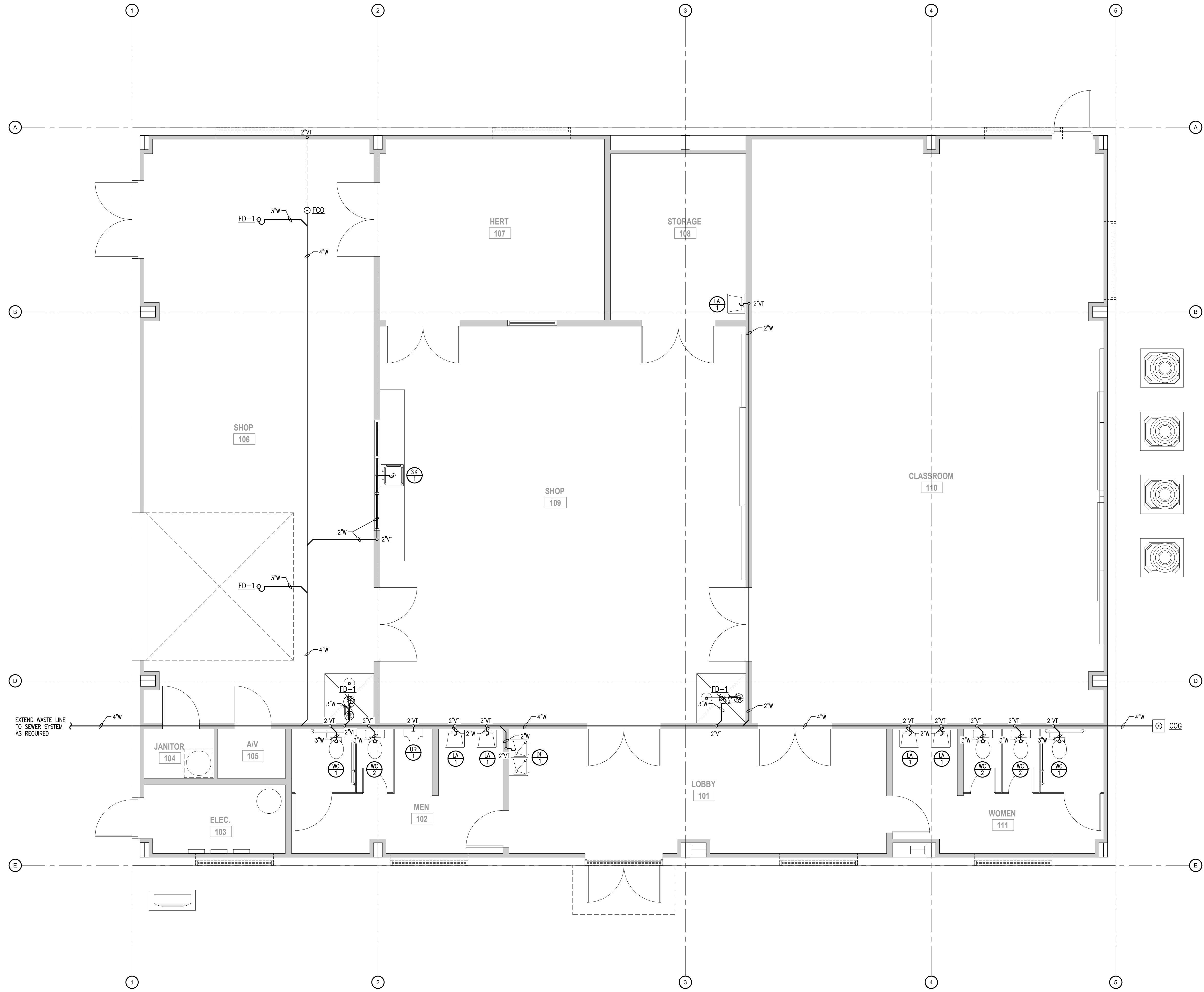


REV	DATE	DESCRIPTION

New Facility for:
Campbell University Engineering Annex II
 Buies Creek, NC

DATE: 16 April 2019
 DRAWN BY: T.B.
 SCALE: 1/8" = 1'-0"

G-3

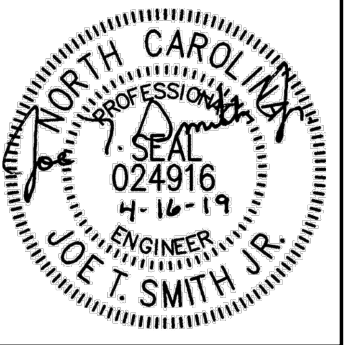


PLUMBING WASTE PIPING PLAN

SCALE: 1/4" = 1'-0"

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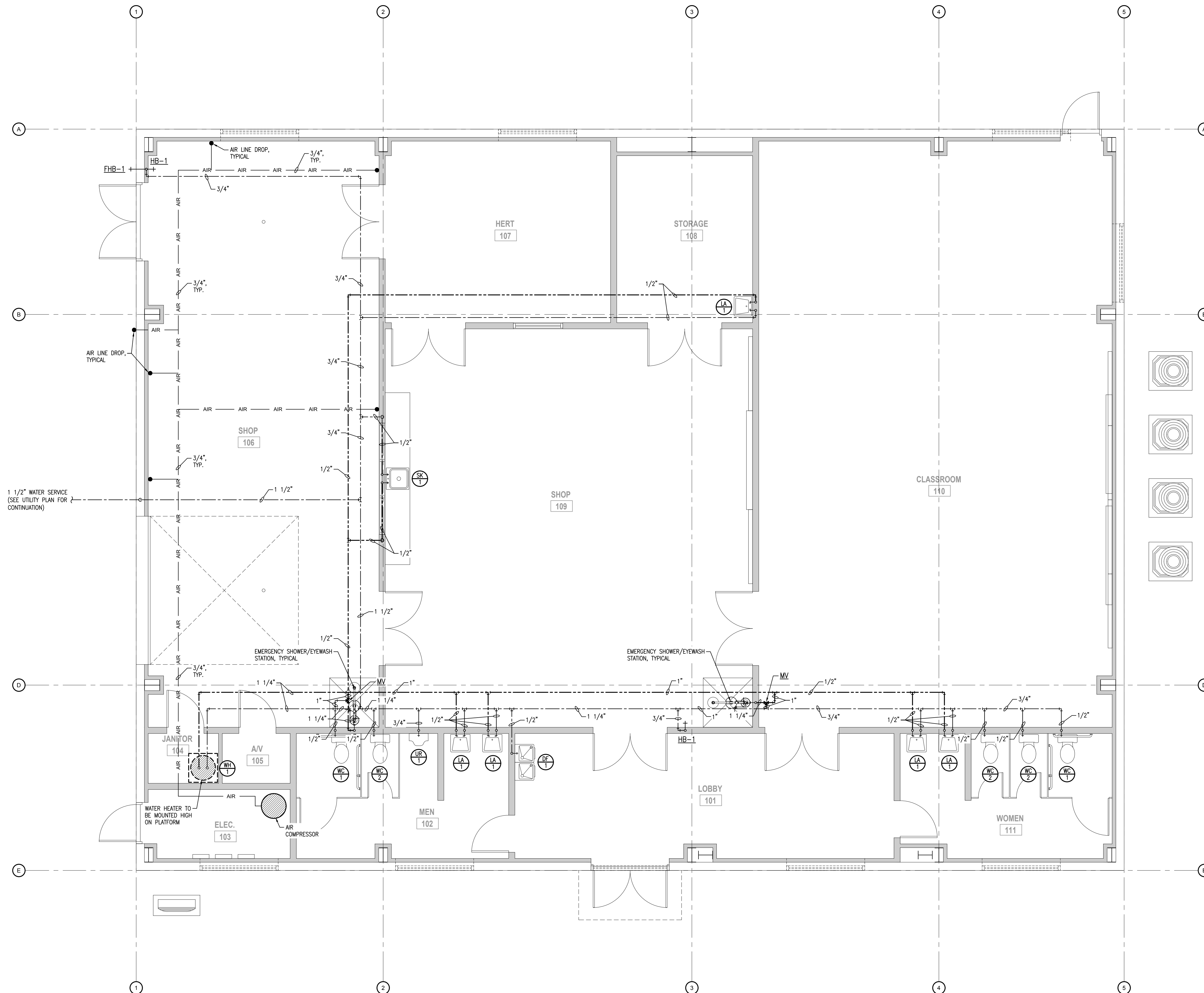


REV	DATE	REVISIONS DESCRIPTION

New Facility for:
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DATE: 16 April 2019
 DRAWN BY: T.B.
 SCALE: 1/4" = 1'-0"

P-1

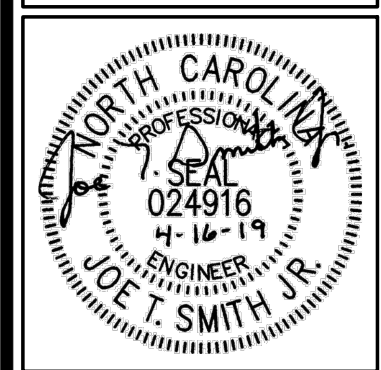


PLUMBING SUPPLY PIPING PLAN

SCALE: 1/4" = 1'-0"

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 SCALE: 1/4" = 1'-0"

P-2

PLUMBING NOTES:

- PLUMBING PLANS ARE INTENDED TO PROVIDE INFORMATION FOR INSTALLATION OF A COMPLETE PLUMBING SYSTEM. PROVIDE ALL ESSENTIAL LABOR, MATERIALS & DEVICES REQUIRED TO PRODUCE A QUALITY END PRODUCT.
- CONTRACTOR SHALL REVIEW & BECOME FAMILIAR WITH THE WORK OF ALL TRADES FOR PURPOSES OF COORDINATION AND ROUTING. CONTRACTOR SHALL PROVIDE REQUIRED PLANNING, COORDINATION AND SEQUENCING OF PLUMBING INSTALLATION WITH BUILDING COMPONENTS AND OTHER TRADES.
- COORDINATE CONNECTION OF PLUMBING SYSTEMS WITH SITE UTILITIES AND SERVICES.
- COORDINATE ROOF VENT LOCATIONS WITH OUTSIDE AIR INTAKES OF HVAC UNITS TO MAINTAIN A MINIMUM CLEARANCE OF 10 FEET.
- ALL WORK SHALL COMPLY WITH LOCAL, STATE & ADA CODES. WORKMANSHIP SHALL MEET OR EXCEED INDUSTRY STANDARDS.
- DRAIN, WASTE & VENT (DWV) PIPING SHALL BE ASTM D 1784, SOLID-WALL, SCHEDULE 40 PVC WITH SOCKET TYPE FITTINGS AND SOLVENT-WELDED JOINTS.
- ABOVE GRADE WATER PIPING SHALL BE ASTM B 88, HARD DRAWN, TYPE L COPPER WITH SOLDERED OR BRAZED WROUGHT-COPPER FITTINGS.
- BELOW GRADE WATER PIPING (INSIDE OF BUILDING) SHALL BE ASTM B 88, SOFT ANNEALED, TYPE K COPPER WITH SOLDERED OR BRAZED WROUGHT-COPPER FITTINGS. MINIMIZE JOINTS BELOW SLAB.
- PROVIDE PIPE & FITTINGS AND LEAD FREE SOLDER & FLUX IN ACCORDANCE WITH NC PLUMBING CODE SECTION 605.3.
- INDIVIDUAL SUPPLY AND DRAIN CONNECTIONS SIZES ARE NOT INDICATED ON PLANS FOR CLARITY. SIZE EACH TO SUIT RESPECTIVE FIXTURE.
- WATER PIPING INSTALLED IN UNCONDITIONED SPACE SHALL BE INSULATED WITH FIBERGLASS INSULATION WITH A MINIMUM R VALUE OF 6.5.
- DOMESTIC HOT WATER & COLD WATER PIPING SHALL BE INSULATED WITH FIBERGLASS AND FOIL & PAPER JACKET AS FOLLOWS:
RUNOUTS 3/4" OR LESS: 1/2" THICK
PIPING 3/4" TO 2" 1" THICK
PIPING 2 1/2" & LARGER: 1 1/2" THICK
- WATER PIPING ON OUTSIDE WALLS AND IN CEILING SHALL BE LOCATED BETWEEN BUILDING INSULATION AND CONDITIONED SPACE.
- PROVIDE SHUTOFF VALVES AT EACH MAIN BRANCH LINE. VALVES SHALL BE INSTALLED IN A READILY ACCESSIBLE LOCATION. PROVIDE CEILING ACCESS DOORS WHERE REQUIRED TO ACCESS SERVICABLE VALVES LOCATED ABOVE GYPSBOARD CEILINGS.
- UNLESS NOTED OTHERWISE ALL VALVES SHALL BE FULL PORT BRONZE OR BRASS BALL VALVES WITH THREADED OR SWEAT CONNECTIONS AS APPLICABLE TO THE CONNECTING PIPING.
- PROTECT COPPER PIPING FROM DIRECT CONTACT WITH MASONRY OR DISSIMILAR METAL.
- HANGERS, SUPPORTS, ANCHORS AND CLIPS SHALL BE COPPER PLATED OR PROVIDED WITH ELECTROLYTIC ISOLATION MATERIAL ON COPPER PIPING. ALL OTHER HANGERS AND SUPPORTS SHALL BE PAINTED OR GALVANIZED.
- PIPING PASSING THROUGH CONCRETE/MASONRY WALLS OR FLOORS SHALL BE PROTECTED AGAINST EXTERNAL CORROSION BY PROTECTIVE SHEATHING OR WRAPPING.
- INSTALL SCHEDULE 40 PIPE SLEEVE TWO SIZES LARGER AT PENETRATIONS THROUGH FOUNDATION WALLS. SEAL SLEEVE TIGHT TO FOUNDATION WALL.
- PROVIDE INSULATION EQUAL TO MCGUIRE PROWRAP ON P-TRAP ASSEMBLIES AND HOT & COLD WATER PIPING FOR LAVATORIES WITH EXPOSED PIPING.
- VERIFY FINAL LOCATIONS FOR ROUGH-INS WITH FIELD MEASUREMENTS AND WITH THE REQUIREMENTS OF THE ACTUAL EQUIPMENT TO BE CONNECTED.
- INSTALL PLUMBING FIXTURES AND EQUIPMENT LEVEL & PLUMB. ROUTE PIPING PARALLEL & PERPENDICULAR TO OTHER BUILDING SYSTEMS AND COMPONENTS.
- INSTALL EQUIPMENT TO FACILITATE SERVICING, MAINTENANCE & REPAIR IN ACCORDANCE WITH MFG'S WRITTEN INSTALLATION INSTRUCTIONS AS WELL AS SPECIFIC INSTRUCTIONS ON PLANS.
- DWV AND WATER DISTRIBUTION PIPING SHALL BE TESTED IN ACCORDANCE WITH NC PLUMBING CODE SECTION 312.

PLUMBING FIXTURE SCHEDULE					
FIX NO	DESCRIPTION	CW	HW	WASTE	REFERENCE MODEL NO.
WC-1	WATER CLOSET FLUSH TANK (SEE NOTE) ADA	1/2"	-	3"	AMERICAN STANDARD 2216.143 CADET II 17"H EL 1.6 SEAT: CHURCH MODEL 290TL (OPEN FRONT W/COVER) COLOR: WHITE
WC-2	WATER CLOSET FLUSH TANK	1/2"	-	3"	AMERICAN STANDARD 2174.139 CADET II EL 1.6 SEAT: CHURCH MODEL 290TL (OPEN FRONT W/COVER) COLOR: WHITE
UR-1	URINAL ADA & NON-ADA	3/4"	-	2"	AMERICAN STANDARD 6501.010 WASHBROOK FLUSH VALVE: SLOAN 186-1 STRAINER: 047068-0070A COLOR: WHITE
LA-1	LAVATORY WALL HUNG ADA & NON-ADA	1/2"	1/2"	1 1/4"	AMERICAN STANDARD 0355.012 LUCERNE FAUCET: DELTA MODEL 501WFHGMHDF STRAINER: MCGUIRE MODEL 155A COLOR: WHITE
SK-1	SINGLE BOWL SINK 22"x25"x6 1/2" DEEP ADA	1/2"	1/2"	1 1/2"	JUST SL-ADA-2225-AGR FAUCET: DELTA MODEL 400 STRAINER: MCGUIRE MODEL 151A
DF-1	DRINKING FOUNTAIN SPLIT LEVEL ADA & NON-ADA	3/8"	-	1 1/4"	ELKAY MODEL EBFATL-8 410W 120V/1Ø 4.8 FLA PROVIDE WITH APRON OPTION

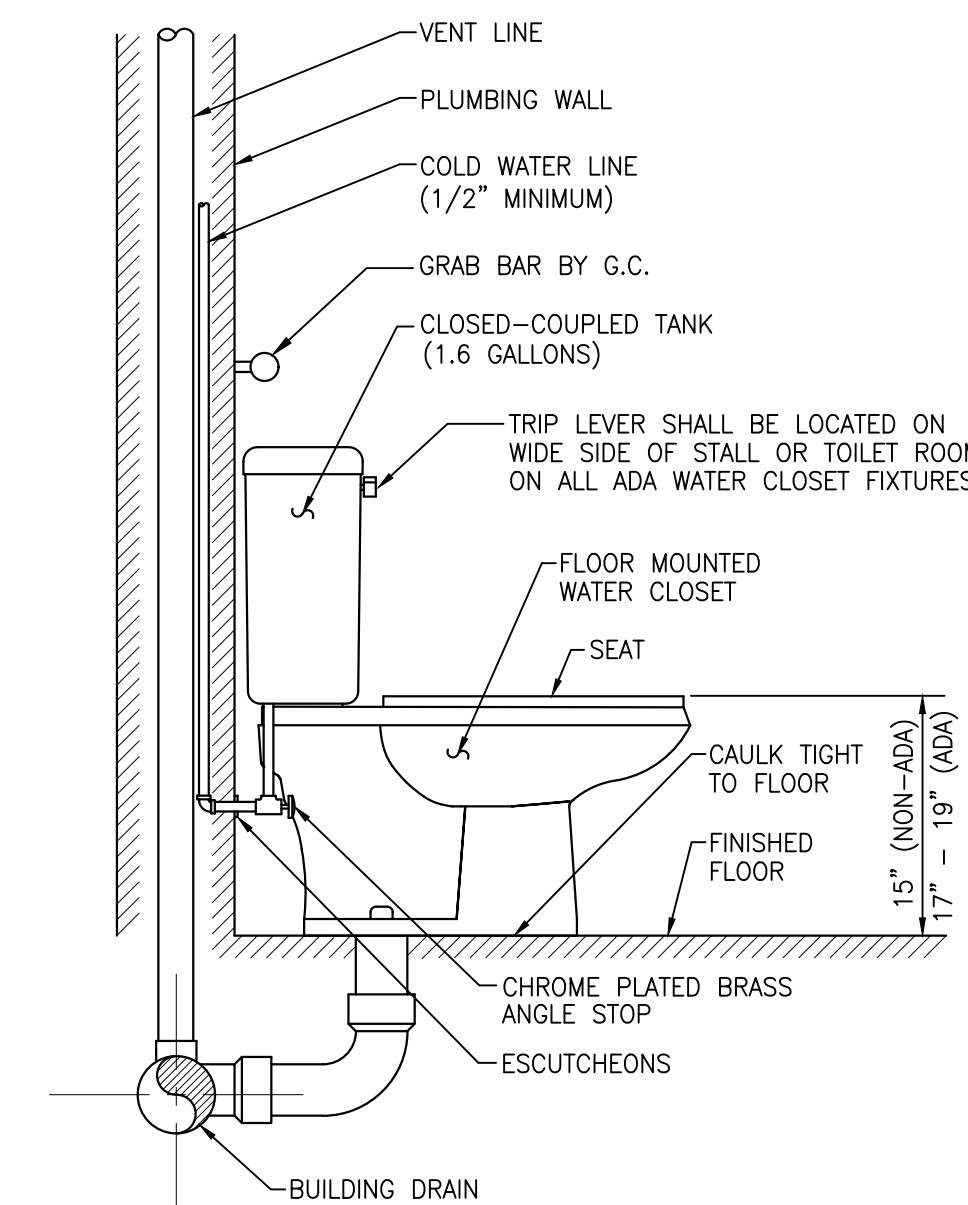
NOTE:
P.C. SHALL COORDINATE ADA WATER CLOSET TRIP LEVER TO BE LOCATED ON WIDE SIDE OF STALL OR TOILET ROOM.

PLUMBING SPECIALTIES SCHEDULE				
MARK	DESCRIPTION	MANF.	REFERENCE MODEL NO.	
COC	CLEANOUT ON GRADE	ZURN	Z-1449	
FCO	FLOOR CLEANOUT	ZURN	ZN-1400	
WCO	WALL CLEANOUT	ZURN	Z-1468	
FHB-1	FROSTPROOF WALL FAUCET	WOODFORD	27 SERIES	
HB-1	WALL HYDRANT WITH TEE KEY	WOODFORD	75 SERIES	
FD-1	FLOOR DRAIN	ZURN	ZN-415-3"-W/TYP "B" STRAINER-6"	

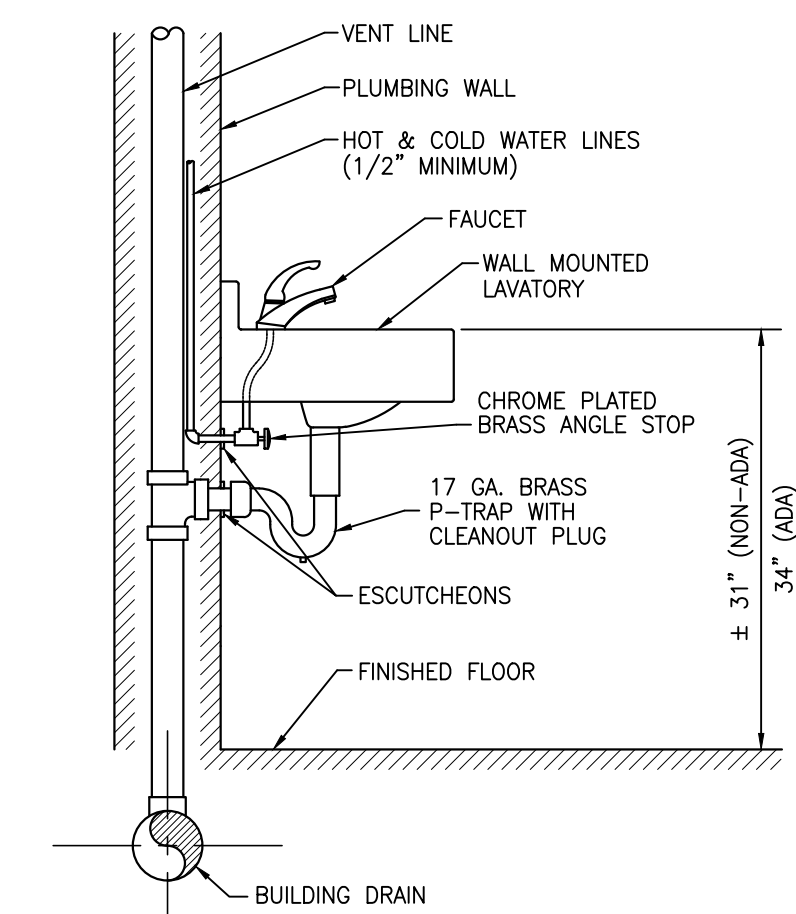
ELECTRIC WATER HEATER SCHEDULE											
MARK	SIZE	GPH	TEMP. RISE	KW	VOLT/PH	FLA	CW CONN.	HW CONN.	MANF.	MODEL	WEIGHT
WH-1	40 GAL	23.0	80 DEG. F	4.5	208/1Ø	22.0	3/4"	3/4"	TBD	TBD	TBD

NOTES:
1. SET OUTLET WATER TEMPERATURE AT 110°F.
2. PROVIDE WITH 3-YEAR TANK WARRANTY AND 1-YEAR PARTS WARRANTY.

PLUMBING LEGEND		
SYMBOL	ABBR	DESCRIPTION
---	CW	COLD WATER LINE
----	HW	HOT WATER LINE
----	HWR	HOT WATER RETURN LINE
----	W	SOIL OR WASTE LINE
----	VT	VENT LINE
⊠	AAV	AIR ADMITTANCE VALVE
⊥	VTR	VENT THRU ROOF
⊕	WCO	WALL CLEANOUT
⊕	FCO	FLOOR CLEANOUT
⊕	COC	CLEANOUT ON GRADE
⊕	FD	ROUND FLOOR DRAIN
⊕	HD	HUB DRAIN
⊕	FS	FLOOR SINK
⊕	HB	HOSE BIBB/HYDRANT
⊕	FHB	FROSTPROOF HOSE BIBB/HYDRANT
⊕	G	GAS PIPING
⊕	C	CONDENSATE PIPING
⊕	-	CHECK VALVE
⊕	-	SHUTOFF VALVE
⊕	-	GAS COCK
⊕	BFP	BACKFLOW PREVENTER
⊕	-	UNION
⊕	SP	SUMP PUMP
⊕	-	CONCENTRIC REDUCER
⊕	-	FLOW DIRECTION ARROW
⊕	-	FIXTURE MARK (SEE SCHEDULE)
⊕	-	NEW/EXISTING CONNECTION
⊕	G.C.	GENERAL CONTRACTOR
⊕	P.C.	PLUMBING CONTRACTOR
⊕	M.C.	MECHANICAL CONTRACTOR
⊕	E.C.	ELECTRICAL CONTRACTOR
⊕	AFF	ABOVE FINISHED FLOOR
⊕	AFG	ABOVE FINISHED GRADE
⊕	BFG	BELOW FINISHED GRADE

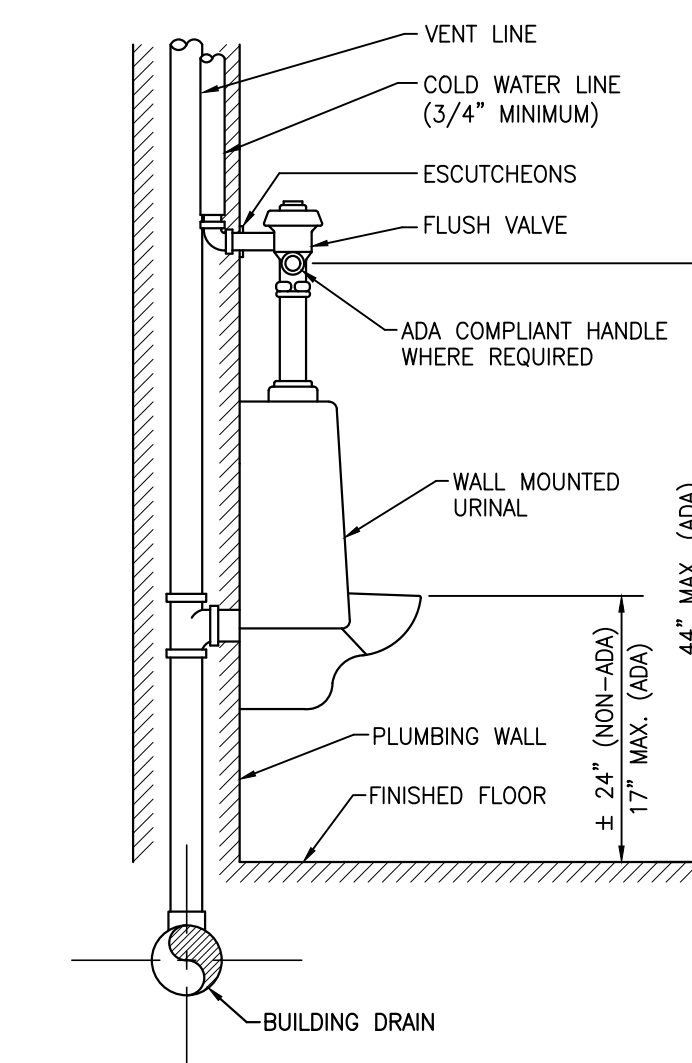


DETAIL NO. 1
FLOOR MOUNTED WATER CLOSET WITH FLUSH TANK
SCALE: NTS

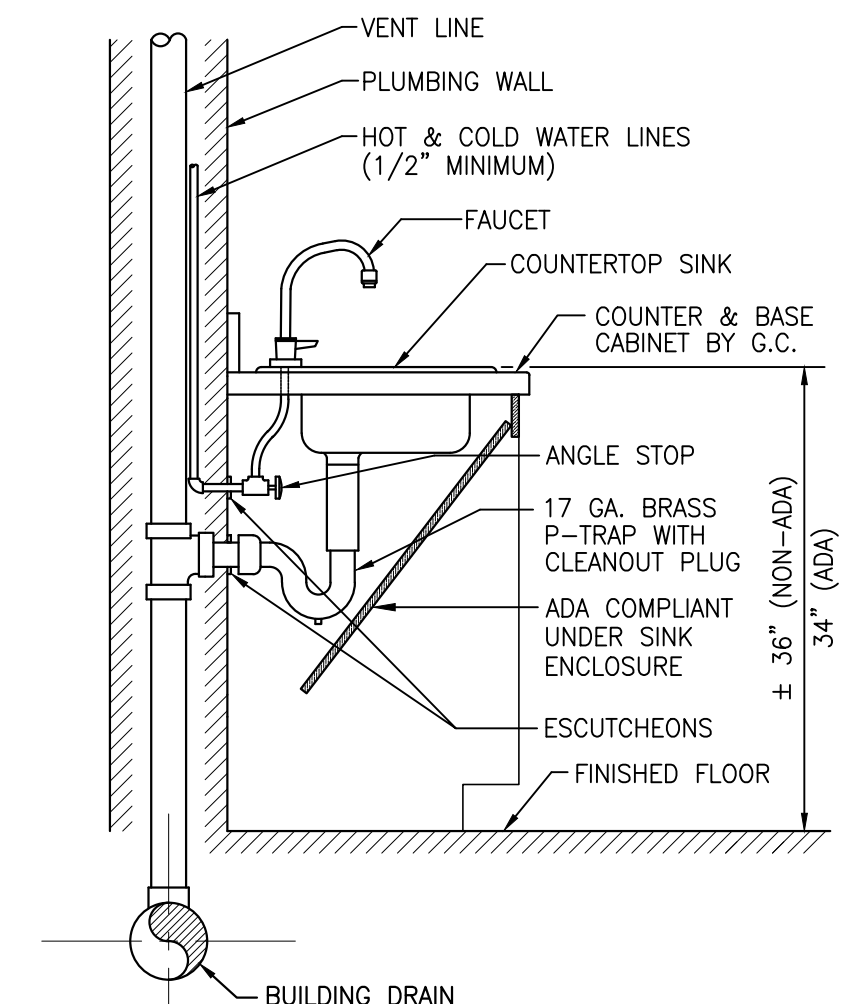


NOTES:
1. PROVIDE ADA LAVATORIES WITH PRE-WRAPPED ANTI-MICROBIAL MOLDED CLOSED CELL VINYL ON EXPOSED HOT & COLD WATER AND DRAIN LINES.
2. WATER SUPPLY INLETS AND RISERS SHALL BE BRASS OR COPPER (CHROME PLATED WHERE EXPOSED TO VIEW).

DETAIL NO. 2
WALL MOUNTED LAVATORY
SCALE: NTS

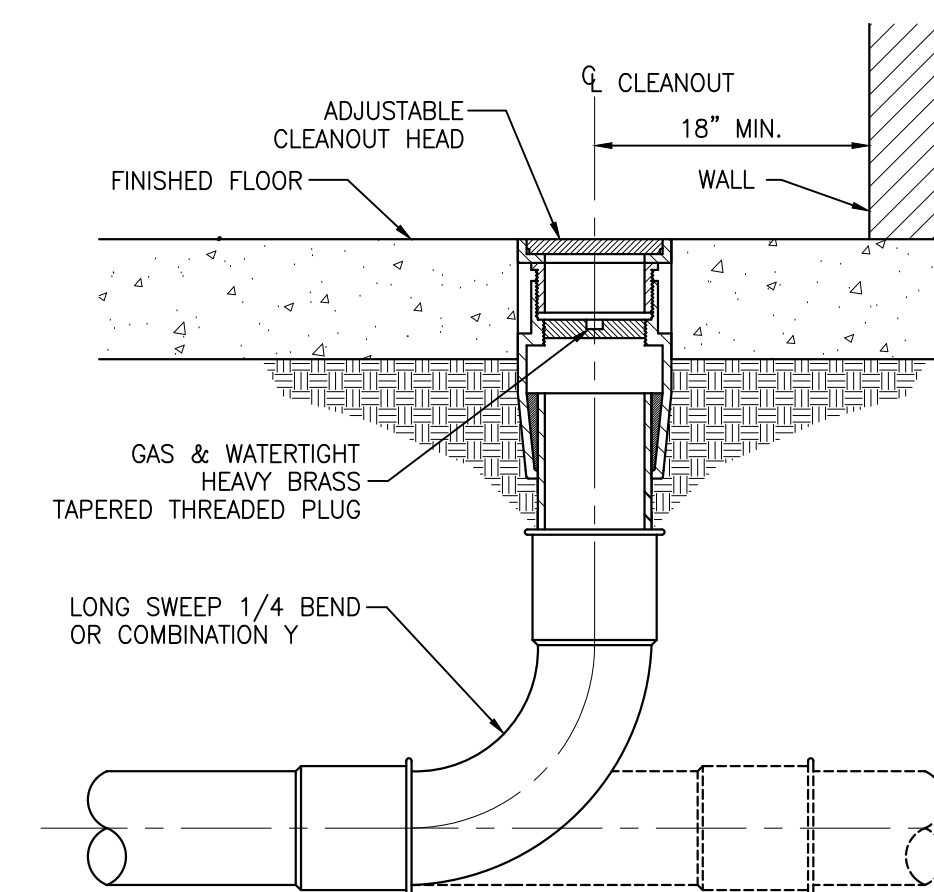


DETAIL NO. 3
WALL MOUNTED URINAL
SCALE: NTS

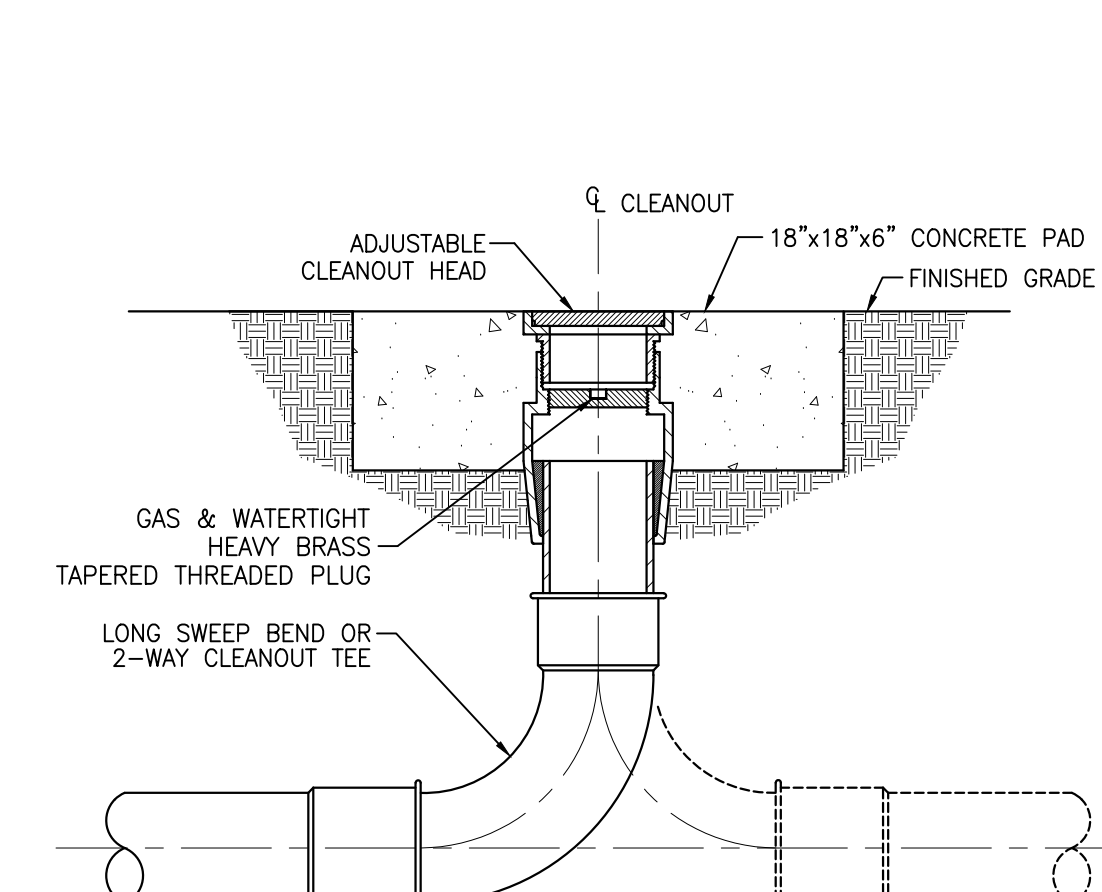


NOTES:
1. G.C. SHALL PROVIDE ADA COMPLIANT UNDERSPACE SINK PROTECTIVE ENCLOSURES FOR ALL ADA SINKS.
2. WATER SUPPLY INLETS AND RISERS SHALL BE BRASS OR COPPER (CHROME PLATED WHERE EXPOSED TO VIEW).

DETAIL NO. 4
COUNTERTOP MOUNTED SINK
SCALE: NTS

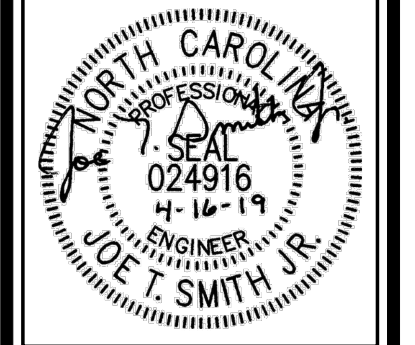


DETAIL NO. 5
FLOOR CLEANOUT WITH SWEEP BEND OR COMBINATION Y
SCALE: NTS



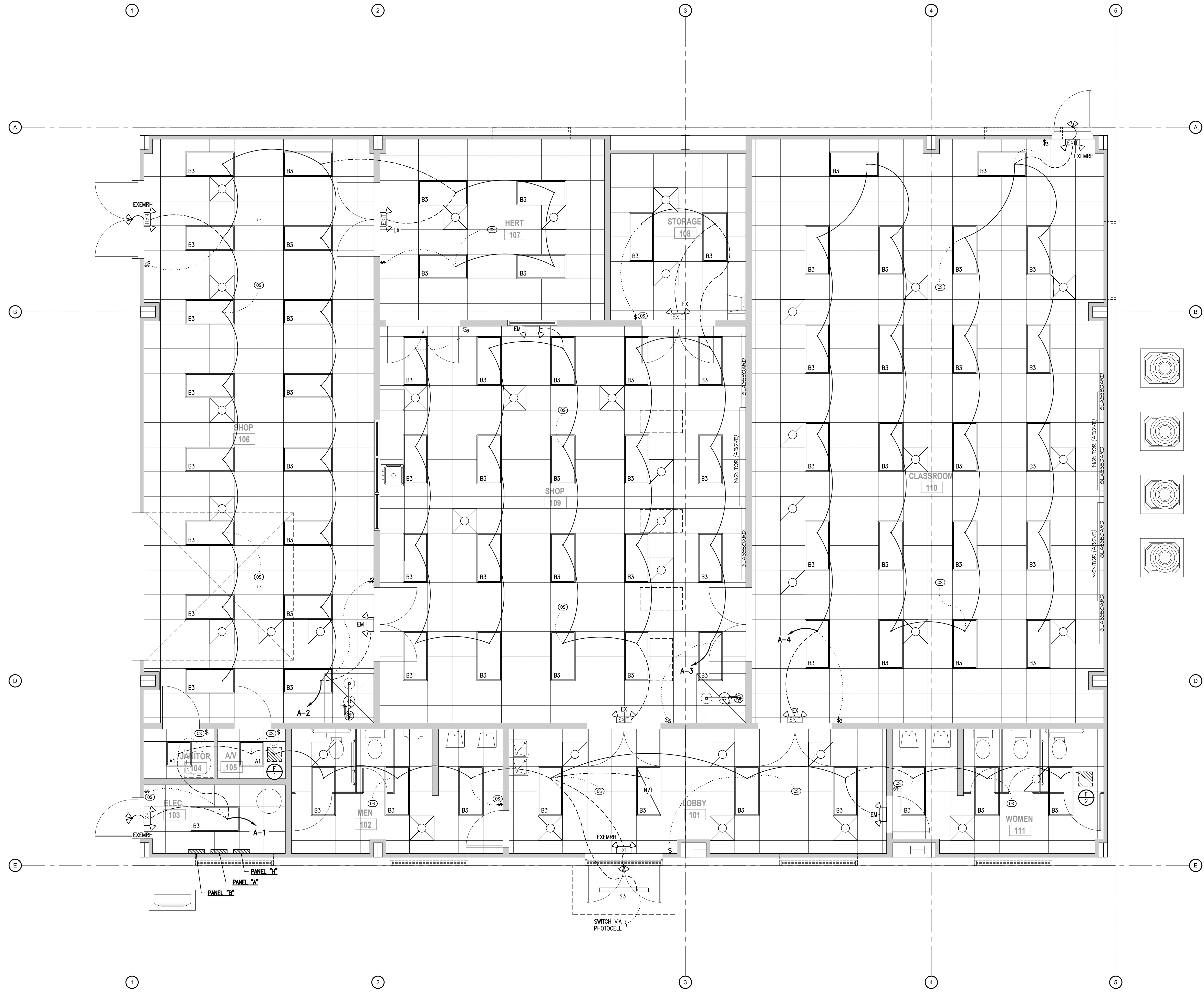
DETAIL NO. 6
CLEANOUT ON GRADE WITH LONG SWEEP BEND OR 2-WAY TEE
SCALE: NTS

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REV	DATE	DESCRIPTION

New Facility for:
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ELECTRICAL LIGHTING PLAN

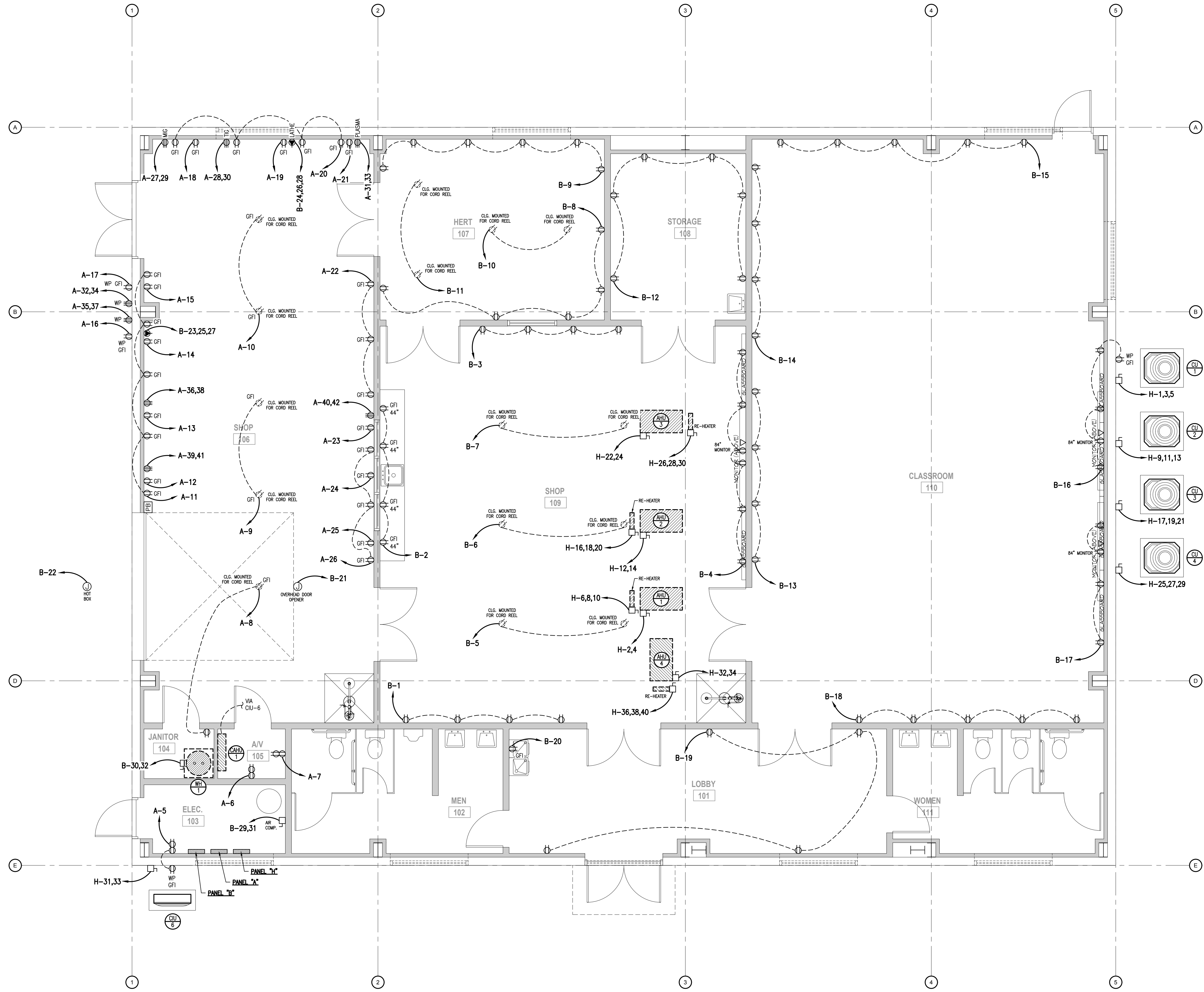
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New Facility for:
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 Buies Creek, NC

DATE: 16 April 2019
 DRAWN BY: T.B.
 SCALE: 1/4" = 1'-0"

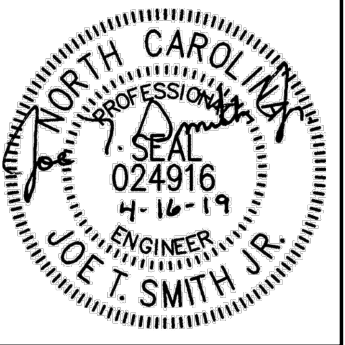


ELECTRICAL POWER PLAN

SCALE: 1/4" = 1'-0"

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New Facility for:
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 Engineering Annex II**
 Buies Creek, NC

DATE: 16 April 2019
 DRAWN BY: T.B.
 SCALE: 1/4" = 1'-0"



PANELBOARD SCHEDULE						
PANEL "H"	SURFACE MOUNTED	SERVICE ENTRANCE RATED		400 AMP	3Ø, 4 WIRE	
MAIN BREAKER	BOTTOM FEED	22kw AIC		120/208 VOLT		
NEMA 1	COPPER BUS					
LOAD SERVED	WIRE SIZE	CKT NO.	PHASE	CKT NO.	WIRE SIZE	LOAD SERVED
CU-1	#12	1	20	2	#12	AHU-1
---	---	3	20	4	#12	
---	---	5	20	6	#12	
---	---	7	20	8	#8	AHU-1 RE-HEATER
CU-2	#12	9	20	10	#12	AHU-2
---	---	11	20	12	#12	
---	---	13	20	14	#12	
---	---	15	30	16	#8	AHU-2 RE-HEATER
CU-3	#10	17	20	18	#8	AHU-2 RE-HEATER
---	---	19	20	20	#12	
---	---	21	20	22	#12	AHU-3
---	---	23	30	24	#12	
CU-4	#10	25	20	26	#8	AHU-3 RE-HEATER
---	---	27	20	28	#8	AHU-3 RE-HEATER
---	---	29	15	30	#12	
CU-6	#12	31	15	32	#12	AHU-4
---	---	33	20	34	#12	
---	---	35	20	36	#8	
---	---	37	20	38	#8	AHU-4 RE-HEATER
---	---	39	20	40	#8	
---	---	41	20	42	#8	

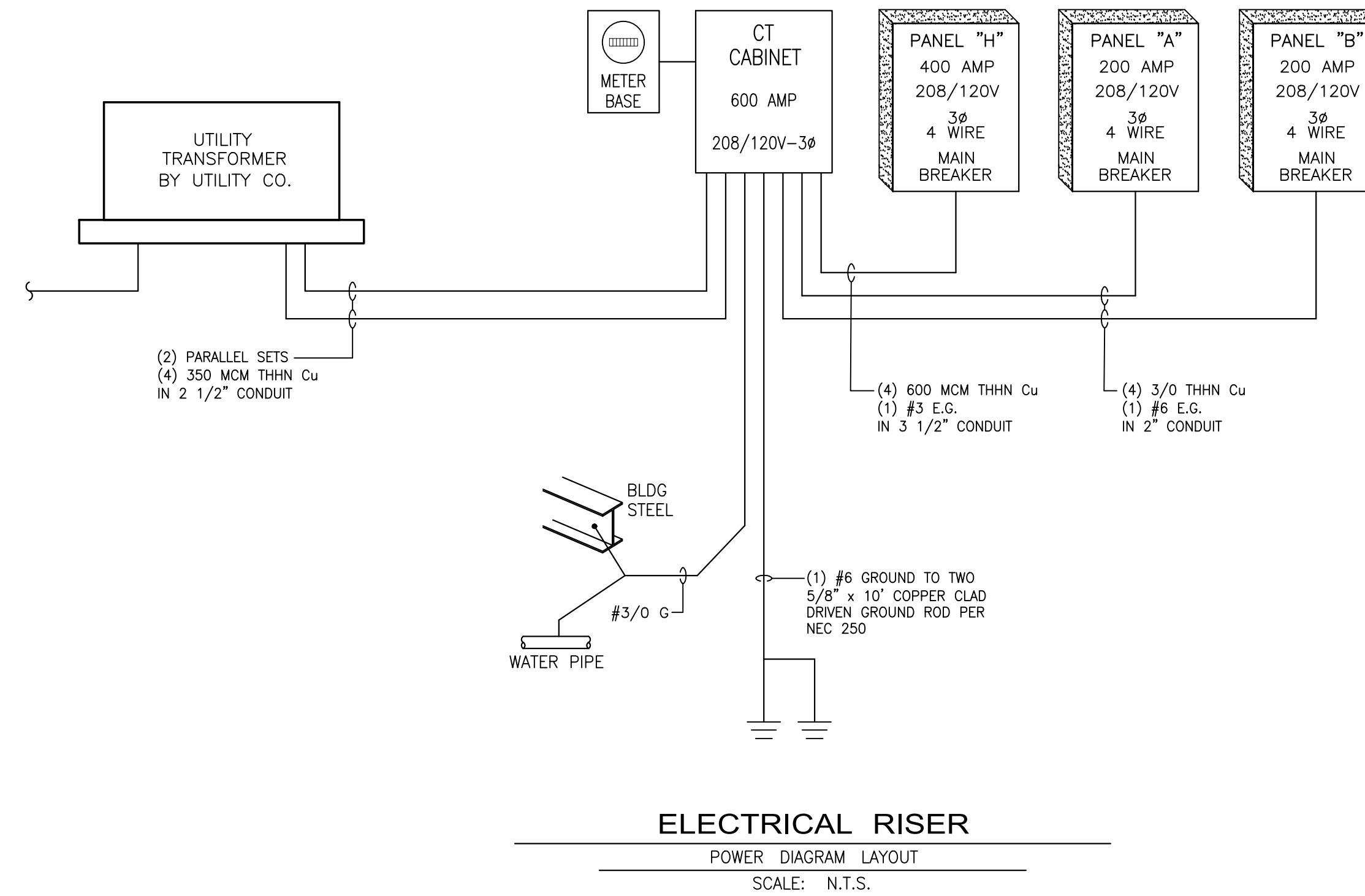
* NOTE: VERIFY BREAKER AND CONDUCTOR SIZES WITH EQUIPMENT MANUFACTURER PRIOR TO INSTALLATION

PANELBOARD SCHEDULE						
PANEL "A"	SURFACE MOUNTED	SERVICE ENTRANCE RATED		200 AMP	3Ø, 4 WIRE	
MAIN BREAKER	BOTTOM FEED	22kw AIC		120/208 VOLT		
NEMA 1	COPPER BUS					
LOAD SERVED	WIRE SIZE	CKT NO.	PHASE	CKT NO.	WIRE SIZE	LOAD SERVED
LIGHTS	#12	1	20	2	#12	LIGHTS
LIGHTS	#12	3	20	4	#12	LIGHTS
RECEPTACLES	#12	5	20	6	#12	RECEPTACLES
RECEPTACLES	#12	7	20	8	#12	RECEPTACLES
RECEPTACLES	#12	9	20	10	#12	RECEPTACLES
RECEPTACLES	#12	11	20	12	#12	RECEPTACLES
RECEPTACLES	#12	13	20	14	#12	RECEPTACLES
RECEPTACLES	#12	15	20	16	#12	RECEPTACLES
RECEPTACLES	#12	17	20	18	#12	RECEPTACLES
RECEPTACLES	#12	19	20	20	#12	RECEPTACLES
RECEPTACLES	#12	21	20	22	#12	RECEPTACLES
RECEPTACLES	#12	23	20	24	#12	RECEPTACLES
RECEPTACLES	#12	25	20	26	#12	RECEPTACLES
MIG WELDER	#8	27	50	28	#8	TIG WELDER *
PLASMA CUTTER	#8	29	50	30	#8	WELDER (GFCI BREAKER) *
208V RECEPTACLE (GFCI BREAKER)	#10	31	30	32	#10	208V RECEPTACLE (GFCI BREAKER) *
208V RECEPTACLE (GFCI BREAKER)	#10	33	30	34	#10	208V RECEPTACLE (GFCI BREAKER) *
208V RECEPTACLE (GFCI BREAKER)	#10	35	30	36	#10	208V RECEPTACLE (GFCI BREAKER) *
208V RECEPTACLE (GFCI BREAKER)	#10	37	30	38	#10	208V RECEPTACLE (GFCI BREAKER) *
208V RECEPTACLE (GFCI BREAKER)	#10	39	30	40	#10	208V RECEPTACLE (GFCI BREAKER) *
208V RECEPTACLE (GFCI BREAKER)	#10	41	30	42	#10	208V RECEPTACLE (GFCI BREAKER) *

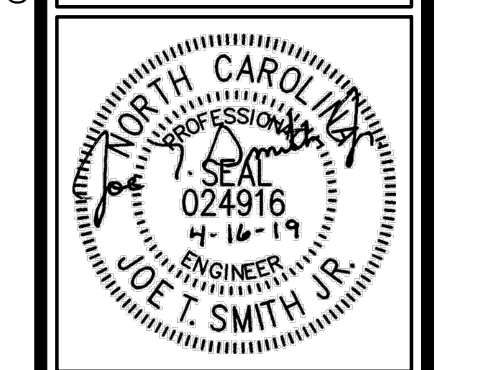
* NOTE: VERIFY BREAKER AND CONDUCTOR SIZES WITH EQUIPMENT MANUFACTURER PRIOR TO INSTALLATION

PANELBOARD SCHEDULE						
PANEL "B"	SURFACE MOUNTED	SERVICE ENTRANCE RATED		200 AMP	3Ø, 4 WIRE	
MAIN BREAKER	BOTTOM FEED	22kw AIC		120/208 VOLT		
NEMA 1	COPPER BUS					
LOAD SERVED	WIRE SIZE	CKT NO.	PHASE	CKT NO.	WIRE SIZE	LOAD SERVED
RECEPTACLES	#12	1	20	2	#12	RECEPTACLES
RECEPTACLES	#12	3	20	4	#12	RECEPTACLES
RECEPTACLES	#12	5	20	6	#12	RECEPTACLES
RECEPTACLES	#12	7	20	8	#12	RECEPTACLES
RECEPTACLES	#12	9	20	10	#12	RECEPTACLES
RECEPTACLES	#12	11	20	12	#12	RECEPTACLES
RECEPTACLES	#12	13	20	14	#12	RECEPTACLES
RECEPTACLES	#12	15	20	16	#12	RECEPTACLES
RECEPTACLES	#12	17	20	18	#12	RECEPTACLES
RECEPTACLES	#12	19	20	20	#12	DRINKING FOUNTAIN
OVERHEAD DOOR OPENER	#12	21	20	22	#12	HOT BOX
MILL (GFCI BREAKER)	#12	23	15	24	#12	
AIR COMPRESSOR	#8	25	60	26	#10	LATHE (GFCI BREAKER) *
---	---	27	20	28	#10	WATER HEATER WH-1 *
---	---	29	20	30	#10	
---	---	31	20	32	#10	
---	---	33	20	34	#10	
---	---	35	20	36	#10	
---	---	37	20	38	#10	
---	---	39	20	40	#10	
---	---	41	20	42	#10	

* NOTE: VERIFY BREAKER AND CONDUCTOR SIZES WITH EQUIPMENT MANUFACTURER PRIOR TO INSTALLATION



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REV#	DATE	DESCRIPTION
1	5/18/17	REMOVED EXH. FANS & INTAKE LOWERS

New Facility for:
Campbell University
Engineering Annex II
Butes Creek, NC

ELECTRICAL LEGEND		
SYM.	DESCRIPTION	REMARKS
Ⓚ	JUNCTION BOX	DOUBLE GANG UNO
Ⓣ	THERMOSTAT JUNCTION BOX	MOUNT 48" TOD AFF UNO
Ⓛ	NON-FUSED DISCONNECT	-
Ⓛ	FUSED DISCONNECT	-
Ⓛ	COMBINATION STARTER	-
Ⓞ	OCCUPANCY SENSOR	-
Ⓢ	SWITCH	MOUNT 48" TOD AFF
Ⓢ _{DPST}	DOUBLE POLE SINGLE THROW SWITCH	MOUNT 48" TOD AFF
Ⓢ _{SPDT}	SINGLE POLE DOUBLE THROW SWITCH	MOUNT 48" TOD AFF
Ⓢ _D	FLUORESCENT DIMMER SWITCH	MOUNT 48" TOD AFF COORDINATE WITH BALLAST
Ⓢ _{D3}	FLUORESCENT 3-WAY DIMMER SWITCH	MOUNT 48" TOD AFF COORDINATE WITH BALLAST
Ⓢ _D	1000W INCANDESCENT DIMMER SWITCH	MOUNT 48" TOD AFF
Ⓢ _{D3}	1000W INCANDESCENT 3-WAY DIMMER SWITCH	MOUNT 48" TOD AFF
Ⓢ _D	2000W INCANDESCENT DIMMER SWITCH	MOUNT 48" TOD AFF
Ⓢ _{D3}	2000W INCANDESCENT 3-WAY DIMMER SWITCH	MOUNT 48" TOD AFF
Ⓢ _P	PILOT LIGHT SWITCH	MOUNT 48" TOD AFF
Ⓢ _T	15-MINUTE TIMER SWITCH W/HOLD	-
Ⓢ ₃	3 WAY SWITCH	MOUNT 48" TOD AFF
Ⓢ ₄	4 WAY SWITCH	MOUNT 48" TOD AFF
Ⓢ _K	KEYED SWITCH	MOUNT 48" TOD AFF
Ⓢ _{K3}	KEYED 3-WAY SWITCH	MOUNT 48" TOD AFF
Ⓢ _M	MANUAL MOTOR STARTER SWITCH	MOUNT AS REQUIRED
Ⓢ	RECEPTACLE	MOUNT 16" BOD AFF
Ⓢ	UPS RECEPTACLE	MOUNT 16" BOD AFF
Ⓢ _{IG}	ISOLATED GROUND RECEPTACLE	MOUNT 16" BOD AFF
Ⓢ _{GFI}	GROUND FAULT RECEPTACLE	MOUNT 6" ABV. COUNTER
Ⓢ _{WP}	GROUND FAULT, WEATHERPROOF RECEPT.	MOUNT 24" BOD AFG
Ⓢ _{CLG}	CEILING RECEPTACLE	-
Ⓢ _{TR}	TAMPER RESISTANT RECEPTACLE	-
Ⓢ _S	SPECIAL RECEPTACLE	-
Ⓢ _{FLR}	FLOOR RECEPTACLE	-
Ⓢ	DOUBLE DUPLEX RECEPTACLE	-
Ⓢ	HOSPITAL GRADE RECEPTACLE	VERIFY RECEPTACLE HEIGHTS WITH OWNER
Ⓢ	HOSPITAL GRADE GROUND FAULT RECEPTACLE	VERIFY RECEPTACLE HEIGHTS WITH OWNER
Ⓢ	DRY TYPE TRANSFORMER	-
Ⓢ	TRANSIENT VOLTAGE SURGE PROTECTOR	-
Ⓢ	CIRCUIT IDENTIFIER	-
Ⓢ	ASSISTIVE LISTENING SYSTEM	SYSTEM SHALL BE PERMANENTLY INSTALLED
Ⓢ	AREA OF RESCUE ASSISTANCE MASTER STATION	LOCATE AT MAIN ENTRANCE
Ⓢ	AREA OF RESCUE ASSISTANCE DEVICE	MOUNT 48" TOD AFF
Ⓢ	PHONE OUTLET	DOUBLE GANG UNO
Ⓢ	DATA/PHONE OUTLET	DOUBLE GANG UNO
Ⓢ	CABLE TELEVISION OUTLET	SINGLE GANG UNO

NOTES:

- STANDARD MOUNTING HEIGHTS OF DEVICES SHALL BE AS LISTED IN LEGEND. SPECIFIC MOUNTING HEIGHT OF A DEVICE MAY VARY AS NOTED ON PLANS.
- E.C. SHALL COORDINATE COLOR SELECTION OF DEVICES AND COVERPLATES WITH ARCHITECT, OWNER AND/OR G.C.
- PROVIDE EQUIPMENT SHOWN BY HUBBELL, PASS & SEYMOUR, COOPER WIRING DEVICES, OR EQUAL PRODUCT.
- OPERATING DEVICES AND OPERABLE PARTS OF OPERATING DEVICES SUCH AS LIGHT SWITCHES, RECEPTACLES, THERMOSTATS, ALARMS, ETC., SHALL BE LOCATED WITHIN REACH RANGES AS SPECIFIED PER ANSI A117.1-2009.

ABBREVIATIONS:

G.C.	GENERAL CONTRACTOR
P.C.	PLUMBING CONTRACTOR
M.C.	MECHANICAL CONTRACTOR
E.C.	ELECTRICAL CONTRACTOR
AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
UNO	UNLESS NOTED OTHERWISE
Ⓞ	CENTERLINE OF DEVICE
BOD	BOTTOM OF DEVICE
TOD	TOP OF DEVICE

ELECTRICAL NOTES:

- ELECTRICAL PLANS ARE INTENDED TO PROVIDE INFORMATION FOR INSTALLATION OF A COMPLETE ELECTRICAL SYSTEM. PROVIDE ALL ESSENTIAL LABOR, MATERIALS & DEVICES REQUIRED TO PRODUCE A QUALITY END PRODUCT.
- CONTRACTOR SHALL REVIEW & BECOME FAMILIAR WITH THE WORK OF ALL TRADES FOR PURPOSES OF COORDINATION AND ROUTING. CONTRACTOR SHALL PROVIDE REQUIRED PLANNING, COORDINATION AND SEQUENCING OF ELECTRICAL INSTALLATION WITH BUILDING COMPONENTS AND OTHER TRADES.
- ALL WORK SHALL COMPLY WITH THE NATIONAL ELECTRICAL CODE (NEC). WORKMANSHIP SHALL MEET OR EXCEED INDUSTRY STANDARDS.
- PROTECT ALL NEW MATERIALS FROM THE WEATHER IN STORAGE TRAILERS OR PROVIDE SUITABLE COVERING.
- ELECTRICAL CONTRACTOR SHALL PROVIDE ALL DISCONNECTS, STARTERS, DEVICES AND ELECTRICAL COMPONENTS UNLESS SPECIFICALLY NOTED AS PROVIDED BY OTHERS.
- ELECTRICAL CONTRACTOR SHALL PROVIDE ALL LINE AND LOAD SIDE WIRING INCLUDING ALL TERMINATIONS TO EQUIPMENT PROVIDED UNDER OTHER TRADES. POWER WIRING TO CONTROL DEVICES SHALL BE PROVIDED BY E.C. INTERLOCK WIRING SHALL BE PROVIDED BY THE CONTRACTOR INSTALLING THE CONTROL DEVICE.
- ALL WIRING, PANELBOARDS, DEVICES AND OTHER LIKE MATERIALS SHALL BE UL LISTED & LABELED. ALL MATERIALS SHALL MEET THE NEC FOR THE INTENDED USE AND INSTALLED IN ACCORDANCE WITH THE NEC.
- PROVIDE THHN/THWN COPPER WIRE. PROVIDE A MINIMUM WIRE SIZE OF #12. ALL WIRE #8 AND LARGER SHALL BE STRANDED. CONDUCTORS AND CONDUIT ON PLANS AND SCHEDULES REFLECT AMPACITIES PER NEC 310-16 75C RATING. CONTRACTOR SHALL VERIFY ALL TERMINATIONS, LUGS, ETC. ARE RATED FOR USE PER NEC 110-4C. OTHERWISE PROVIDE CONDUCTOR AND CONDUIT SIZED PER LOWEST TEMPERATURE RATING OF ANY TERMINATION WITHIN A CIRCUIT. A SEPERATE INSULATED EQUIPMENT GROUNDING CONDUCTOR SHALL BE PROVIDED FOR ALL CIRCUITS.
- PROVIDE MC CABLE FOR ALL SINGLE PHASE BRANCH CIRCUITS 30 AMPS AND SMALLER. PROVIDE CONDUIT FOR ALL OTHER WIRING. EMT OR RIGID SHALL BE USED WHERE EXPOSED TO PHYSICAL DAMAGE. CONDUIT ABOVE GRADE SHALL BE STEEL. CONDUIT BELOW GRADE MAY BE PVC CHANGING TO STEEL IN THE ELBOW TURNING UP. EMT SHALL NOT BE USED IN DIRECT CONTACT WITH THE EARTH OR WHERE EXPOSED TO SEVERE PHYSICAL DAMAGE. FITTINGS ON STEEL CONDUIT SHALL BE COMPRESSION TYPE.
- PROVIDE ONE-INCH EMPTY CONDUITS EXTENDING ABOVE CEILING FOR ALL TELEPHONE AND DATA OUTLETS SHOWN ON PLANS. PROVIDE PROTECTIVE BUSHINGS ON ENDS OF CONDUIT. ALL CABLING IS PROVIDED BY OTHERS.
- PROVIDE 3/4-INCH EMPTY CONDUITS TERMINATING ABOVE THE CEILING FOR ALL HVAC THERMOSTATS. JUNCTION BOXES SHALL MATCH ORIENTATION OF THERMOSTATS PROVIDED BY M.C.. MOUNT JUNCTION BOXES 48-INCHES A.F.F. UNLESS NOTED OTHERWISE. PROVIDE PROTECTIVE BUSHINGS ON ENDS OF CONDUIT. ALSO PROVIDE DOUBLE GANG BOX AT 84" AFF OVER THERMOSTATS OR WHERE SHOWN ON PLANS FOR REMOTE ALARM/TEST STATIONS OF HVAC DUCT SMOKE DETECTORS (NOT REQUIRED IF CENTRAL FIRE ALARM SYSTEM EXISTS).
- PANELBOARDS FOR SERVICE ENTRANCE SHALL BE SERVICE ENTRANCE RATED. PROVIDE NEMA 3R PANELBOARDS WHERE LOCATED OUTSIDE. PROVIDE NEUTRAL AND GROUNDING BARS IN ALL PANELBOARDS UNLESS NOTED OTHERWISE. GROUND ALL SERVICE ENTRANCE PANELS IN ACCORDANCE WITH THE NEC. PROVIDE BOLT-IN BREAKERS UNLESS NOTED OTHERWISE.
- PROVIDE TYPE WRITTEN PANEL SCHEDULES IN EACH PANEL INDICATING THE LOAD DESCRIPTION FOR EACH BREAKER. LABEL PANELS ON PANEL FACE WITH PHENOLIC LABELS INDICATING PANEL NUMBER OR LETTER DESIGNATION, VOLTAGE AND PHASE.
- PROVIDE FUSED AND NON-FUSED DISCONNECT SWITCHES AS INDICATED ON PLANS. DISCONNECTS LOCATED OUTSIDE SHALL BE NEMA-3R. PROVIDE REJECTION CLIPS IN FUSED DISCONNECTS.
- PROVIDE HORSEPOWER RATED STARTERS AND DISCONNECTS WHEN CONNECTED TO MOTORS. STARTERS SHALL BE PROVIDED WITH OVERLOAD SIZED TO MATCH MOTOR RATINGS.
- PROVIDE LIGHTING AS SCHEDULED IN THE FIXTURE SCHEDULE OR OTHERWISE NOTED ON PLANS. LIGHTING INSTALLED IN SUSPENDED CEILINGS SHALL BE SUPPORTED INDEPENDENTLY OF THE CEILING GRID SYSTEM.
- PROVIDE EMERGENCY AND EXIT LIGHTS AS SHOWN ON PLANS. POWER SHALL BE PROVIDED FROM LIGHTING CIRCUITS ON THE UNSWITCHED LEG OF THE CIRCUIT SUCH THAT POWER TO THE EMERGENCY AND EXIT LIGHTS IS NOT DISCONNECTED WHEN NORMAL LIGHTING IS OFF. EXTERIOR EMERGENCY LIGHTS SHALL BE WIRED SUCH THAT PHOTOCELL AND/OR TIME CLOCK OPERATION DOES NOT DISCONNECT POWER TO BATTERIES.
- RECEPTACLES SHALL BE 20 AMP, 120V UNLESS NOTED OTHERWISE.
- RECEPTACLES ABOVE COUNTERTOPS AND ADJACENT TO SINKS & LAVATORIES SHALL BE GROUND FAULT. KITCHEN RECEPTACLES SHALL BE GROUND FAULT.
- RECEPTACLES INSTALLED OUTSIDE SHALL BE GROUND FAULT WITH "IN USE" WEATHERPROOF COVERS.
- WALL SWITCHES SHALL BE SINGLE POLE, 20 AMP, 120/277V.
- PROVIDE STANDARD SIZE WALL PLATES FOR ALL DEVICES AND BLANK WALL PLATES FOR JUNCTION BOXES. WALL PLATES SHALL BE HIGH IMPACT, SMOOTH NYLON, COLOR TO MATCH DEVICE.
- UL LISTED DUCT SMOKE DETECTORS SHALL BE FURNISHED, INSTALLED & TESTED BY THE M.C.. THE E.C. SHALL PROVIDE 120V POWER TO EACH DUCT SMOKE DETECTOR WHERE REQUIRED. THE M.C. SHALL PROVIDE REMOTE ALARM/TEST STATIONS FOR EACH DUCT SMOKE DETECTOR.
- GUARANTEE ALL EQUIPMENT, MATERIALS AND INSTALLATION FREE OF DEFECTS FOR A PERIOD OF 1-YEAR AFTER DATE OF ACCEPTANCE.

LIGHT FIXTURE SCHEDULE										
MARK	DESCRIPTION	LAMP			BALLAST		FIXTURE	VOLTS	LUMENS	NOTES
		TYPE	NO.	WATTS	TYPE	NO.	INPUT WATTS			
A1	2x2 LAY-IN TROFFER	LED	-	18	-	-	18	120	2000	
B3	2x4 LAY-IN TROFFER	LED	-	47	-	-	47	120	5500	
S3	4' SURF. MOUNTED LED	LED	-	50	-	-	50	120	6500	
EX	EXIT LIGHT	LED	1	1	-	-	1	120	-	
EXEM	EXIT/EMER. LIGHT	(LED) PAR	2	6	-	-	12	120	-	
EXEMRH	EXIT/EMER. LIGHT WITH REMOTE HEADS	(LED) PAR	4	6	-	-	24	120	-	
EM	EMERGENCY LIGHT	(LED) PAR	2	6	-	-	12	120	-	

NOTES:

- PROVIDE EXIT LIGHTS WITH SINGLE OR DOUBLE-FACE AS REQUIRED, CHEVRON DIRECTIONAL INDICATORS, MOUNTING BRACKETS & NICKEL CADMIUM BATTERY BACKUP.
- PROVIDE ALL FIXTURES WITH LAMPS OF MODERATE TONE (3500K) AND GOOD CRI (COLOR RENDERING INDEX).
- FIXTURES SHOWN WITH DIAGONAL LINES SHALL OPERATE ALL TIMES AS NIGHT LIGHTS.
- PROVIDE FIXTURES BY LITHONIA, COLUMBIA, HUBBLE, OR EQUAL PRODUCT.

BUILDING SERVICE LOAD SUMMARY			
LOAD DESCRIPTION	LOAD	DIVERSITY FACTOR	LOAD
INDOOR LIGHTING	14.40 KVA	100%	14.40 KVA
OUTDOOR LIGHTING	0.05 KVA	100%	0.05 KVA
RECEPTACLES	10 KVA	100%	10 KVA
RECEPTACLES	10.88 KVA	50%	5.44 KVA
OVERHEAD DOORS	1.00 KVA	100%	1.00 KVA
AIR HANDLERS	69.36 KVA	100%	69.36 KVA
HVAC EQUIPMENT	24.96 KVA	100%	24.96 KVA
DRINKING FOUNTAIN	0.40 KVA	100%	0.40 KVA
WATER HEATER	4.50 KVA	100%	4.50 KVA
HOT BOX	1.50 KVA	100%	1.50 KVA
AIR COMPRESSOR	6.72 KVA	100%	6.72 KVA
SHOP EQUIPMENT	74.40 KVA	60%	44.64 KVA
CONTINUOUS	6.72 KVA	25%	1.68 KVA
MISCELLANEOUS	0.00 KVA	100%	0.00 KVA
TOTAL	224.89 KVA		184.65 KVA

SERVICE LOAD

$\frac{184.65 \text{ KVA}}{0.208 \times \sqrt{3}} = 513 \text{ AMPS}$

ELECTRICAL SYSTEM AND EQUIPMENT

METHOD OF COMPLIANCE:
 PRESCRIPTIVE PERFORMANCE TRADE-OFF

LIGHTING SCHEDULE

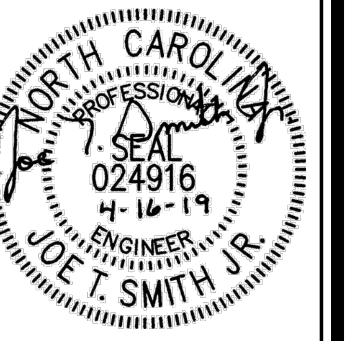
LAMP TYPE REQUIRED IN FIXTURE	SEE LIGHTING SCHEDULE ON PLANS
NUMBER OF LAMPS IN FIXTURE	"
BALLAST TYPE USED IN THE FIXTURE	"
NUMBER OF BALLASTS IN THE FIXTURE	"
TOTAL WATTAGE PER FIXTURE	"

EQUIPMENT SCHEDULES WITH MOTORS (NOT USED FOR MECHANICAL SYSTEMS)

MOTOR HORSEPOWER	N/A - NO MOTORS LARGER THAN 1 HP SPECIFIED ON THESE PLANS
NUMBER OF PHASES	OTHER THAN AS LISTED IN MECHANICAL SCHEDULES
MINIMUM EFFICIENCY	"
MOTOR TYPE	"
# OF POLES	"

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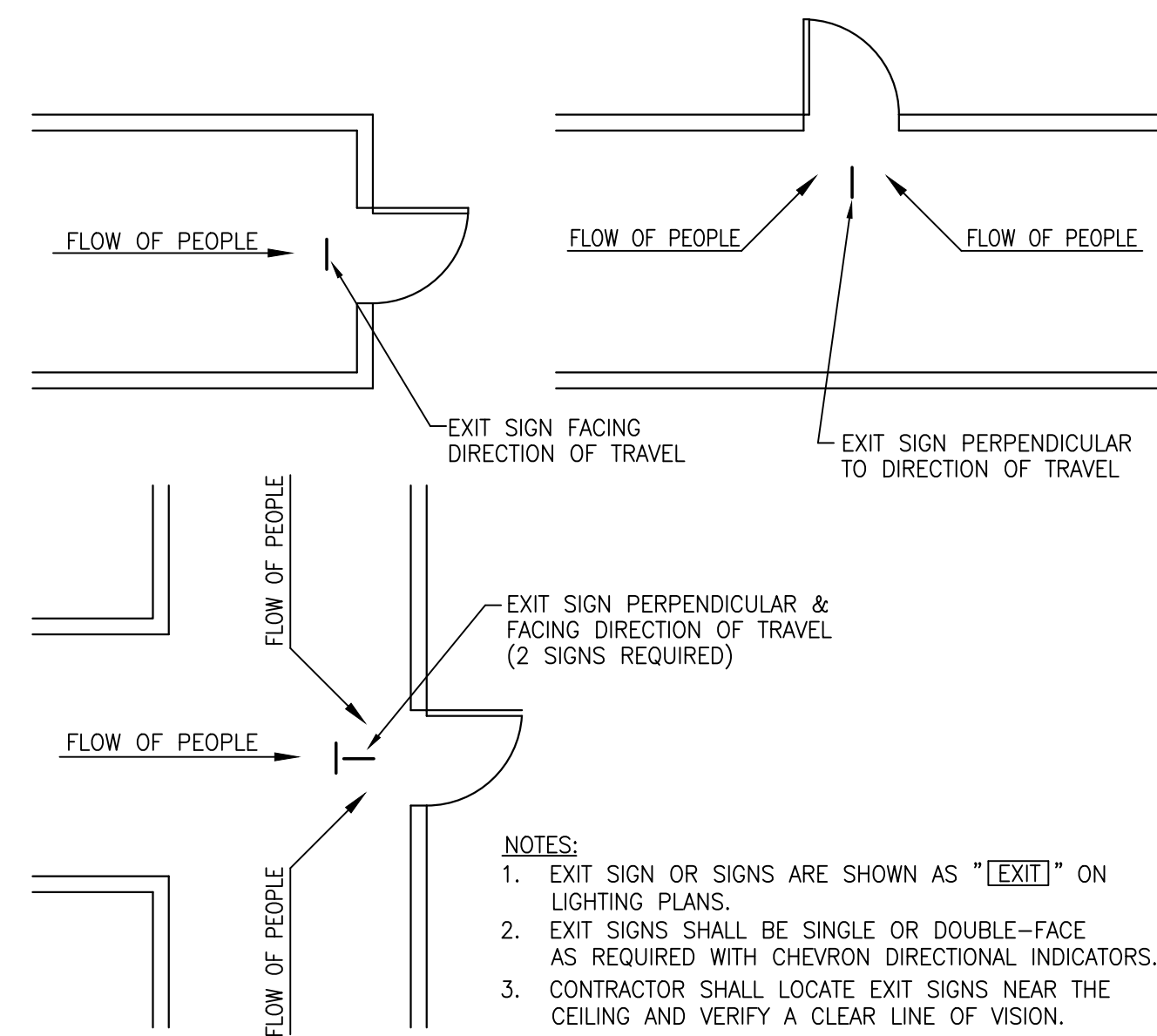
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REV#	DATE	DESCRIPTION

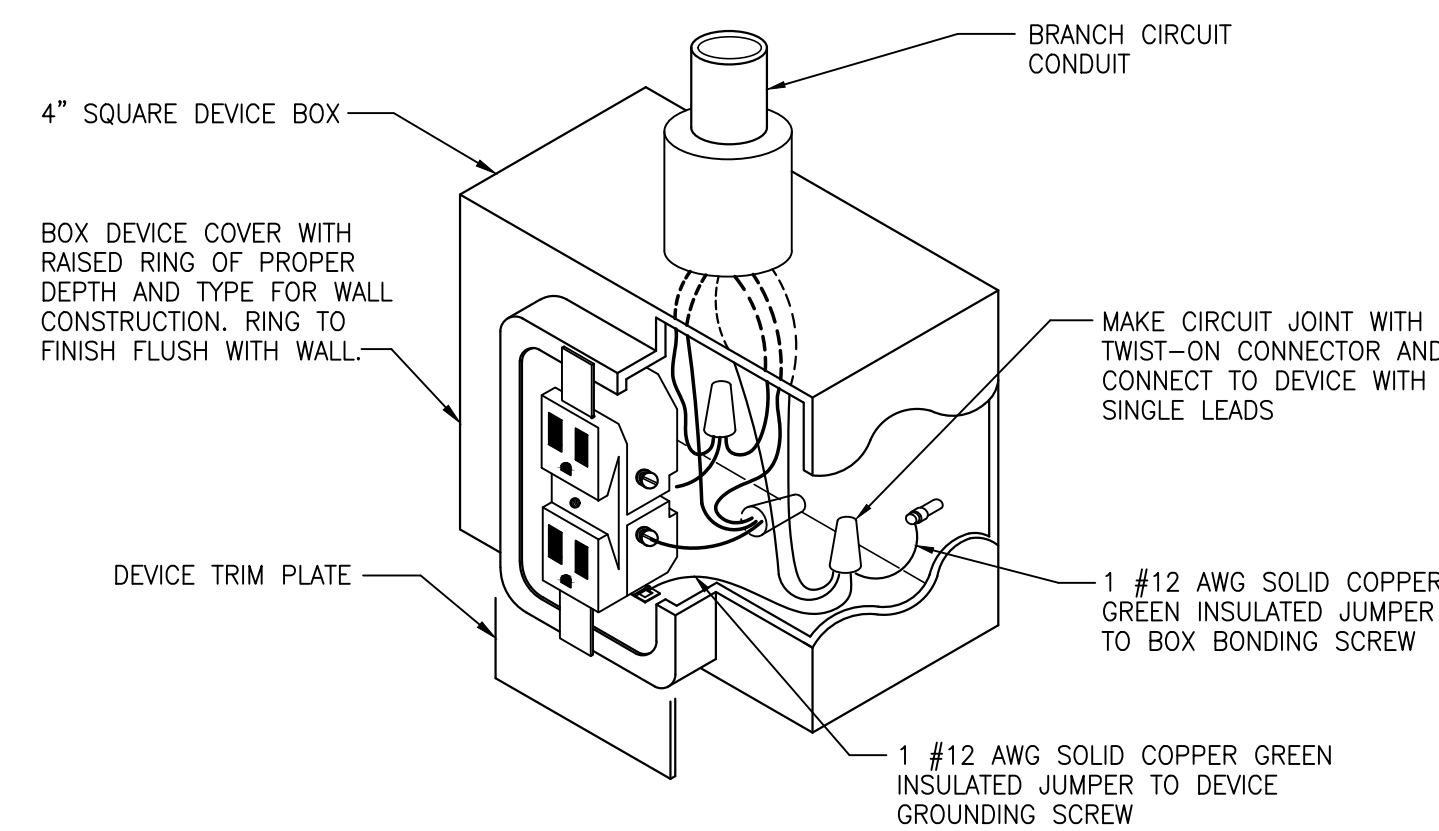
New Facility for:
**Campbell University
 Engineering Annex II**
 Buies Creek, NC

DATE: 16 April 2019
 DRAWN BY: T.B.
 SCALE: AS NOTED



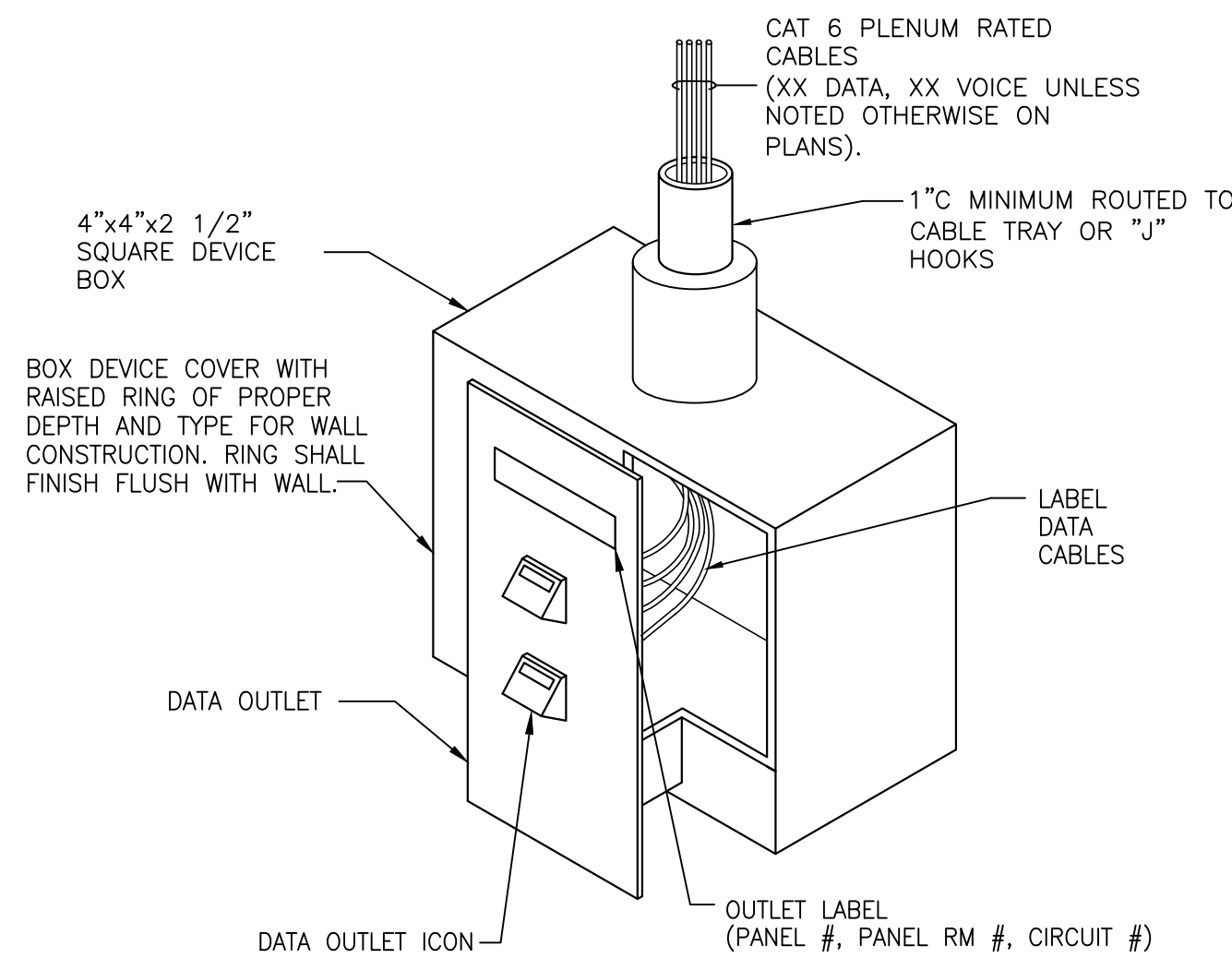
DETAIL NO. 1

LOCATIONS OF EXIT SIGNS
SCALE: NTS



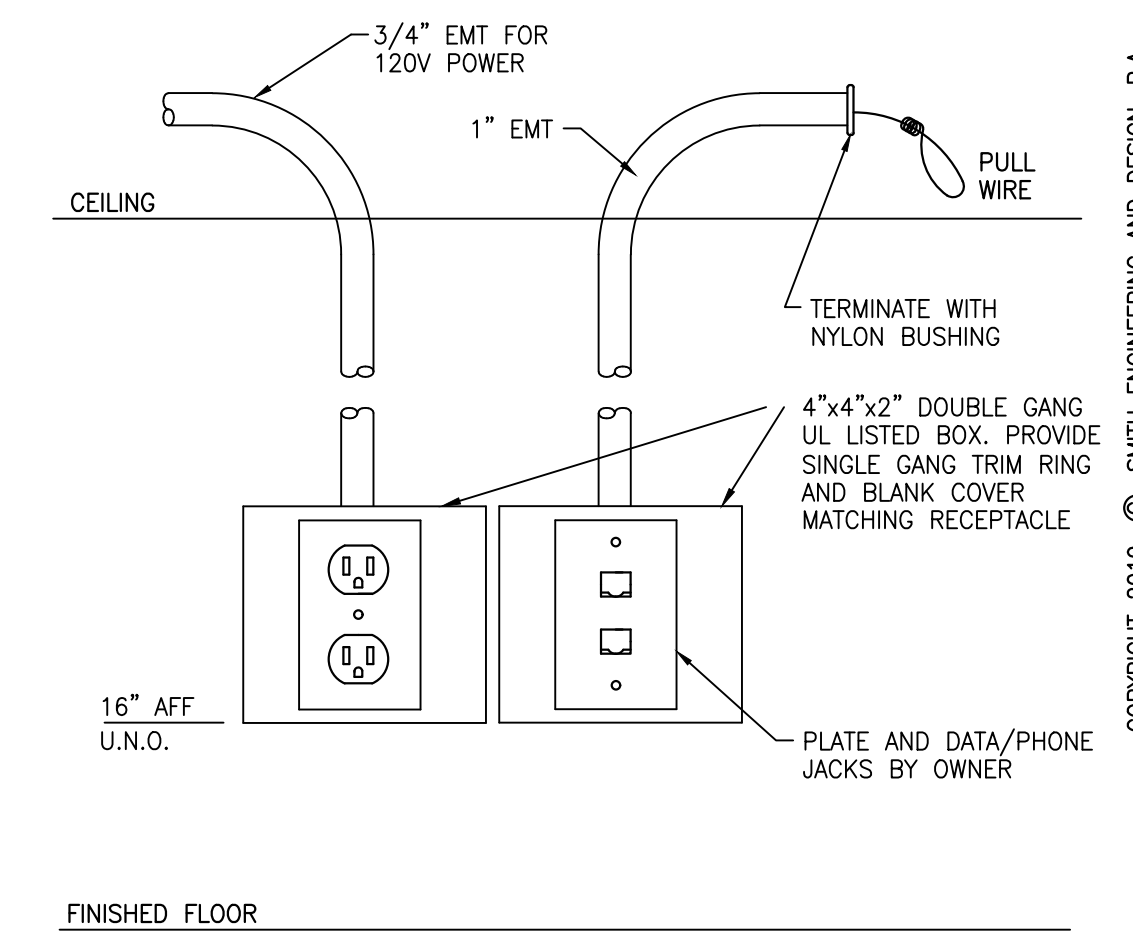
DETAIL NO. 2

RECEPTACLE GROUNDING DIAGRAM
SCALE: NTS



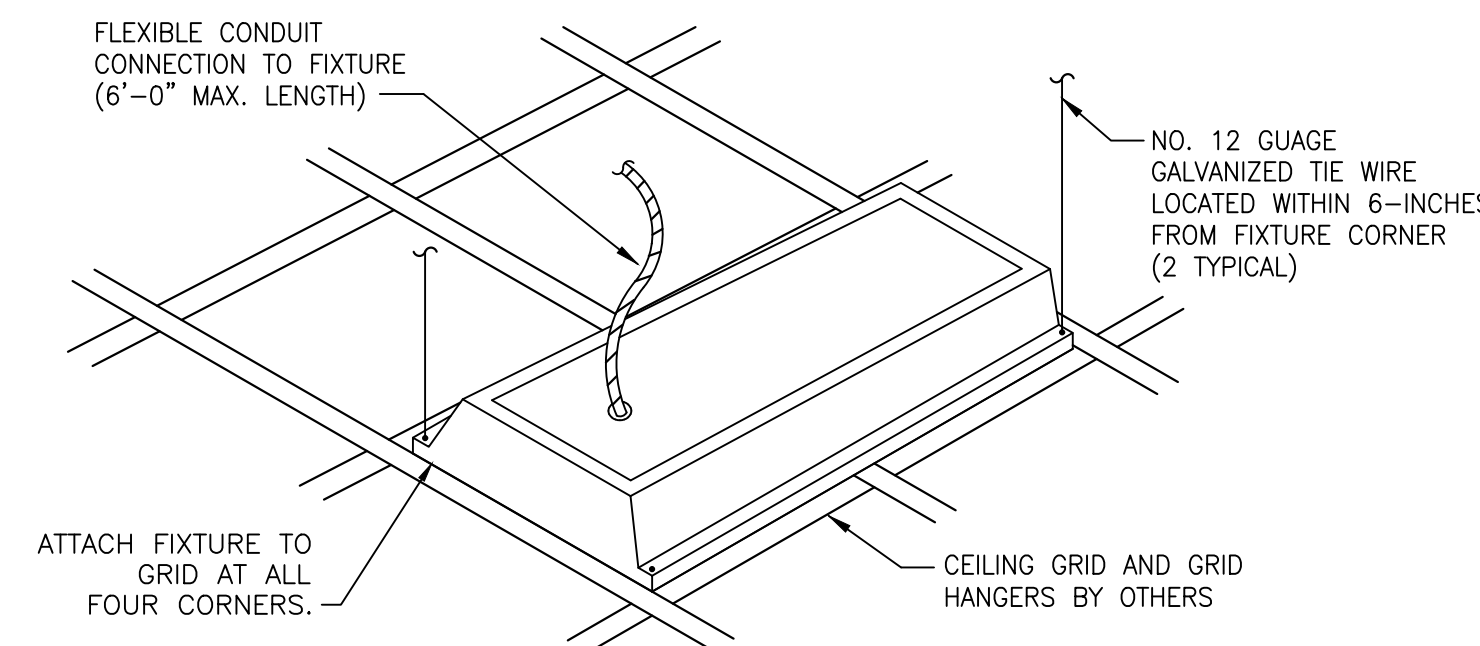
DETAIL NO. 3

DATA OUTLET
SCALE: NTS



DETAIL NO. 4

POWER/DATA/PHONE OUTLET
SCALE: NTS



DETAIL NO. 5

TYPICAL RECESSED FIXTURE SUPPORT
SCALE: NTS

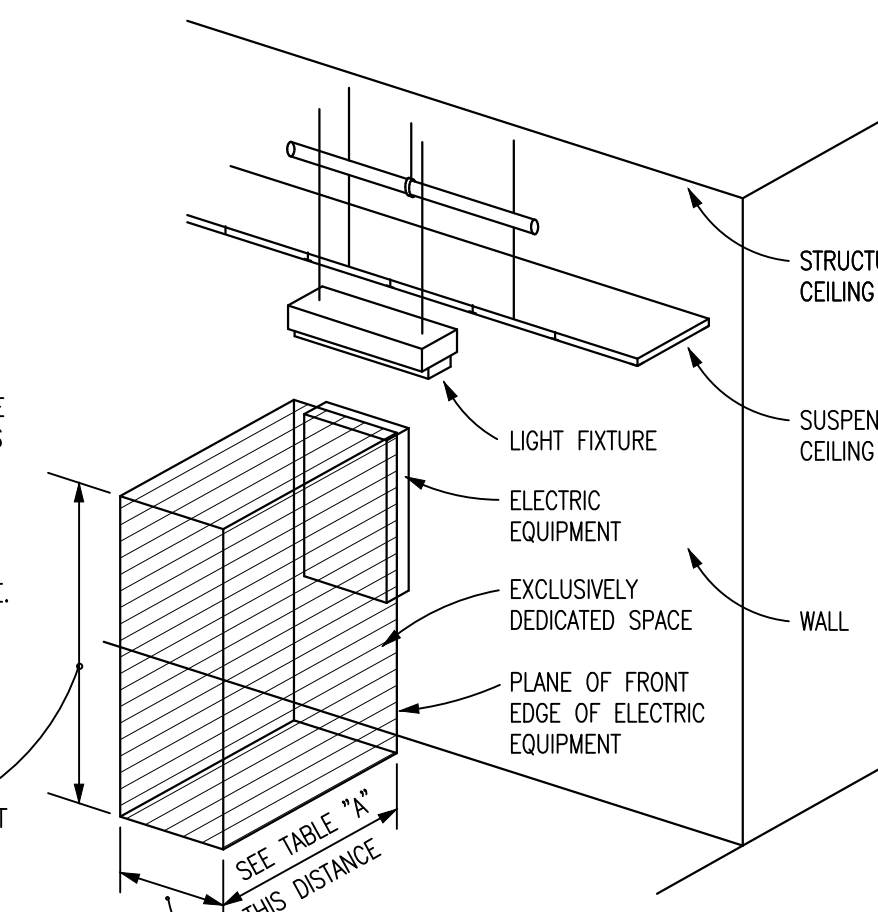
TABLE "A" WORKING CLEARANCES			
VOLTAGE TO GROUND (NOMINAL)	CONDITION	1	2
0-150		3'	3'
151-600		3'	3 1/2'

WHERE THE "CONDITIONS" ARE AS FOLLOWS:

- EXPOSED LIVE PARTS ON ONE SIDE AND NO LIVE OR GROUNDED PARTS ON THE OTHER SIDE OF THE WORKING SPACE, OR EXPOSED LIVE PARTS ON BOTH SIDES EFFECTIVELY GUARDED BY SUITABLE WOOD OR OTHER INSULATING MATERIALS. INSULATED WIRE OR INSULATED BUSBARS OPERATING AT NOT OVER 300 VOLTS SHALL NOT BE CONSIDERED LIVE PARTS.
- EXPOSED LIVE PARTS ON ONE SIDE AND GROUNDED PARTS ON THE OTHER SIDE.
- EXPOSED LIVE PARTS ON BOTH SIDES OF THE WORK SPACE (NOT GUARDED AS PROVIDED IN CONDITION 1) WITH THE OPERATOR BETWEEN.

NOTES:

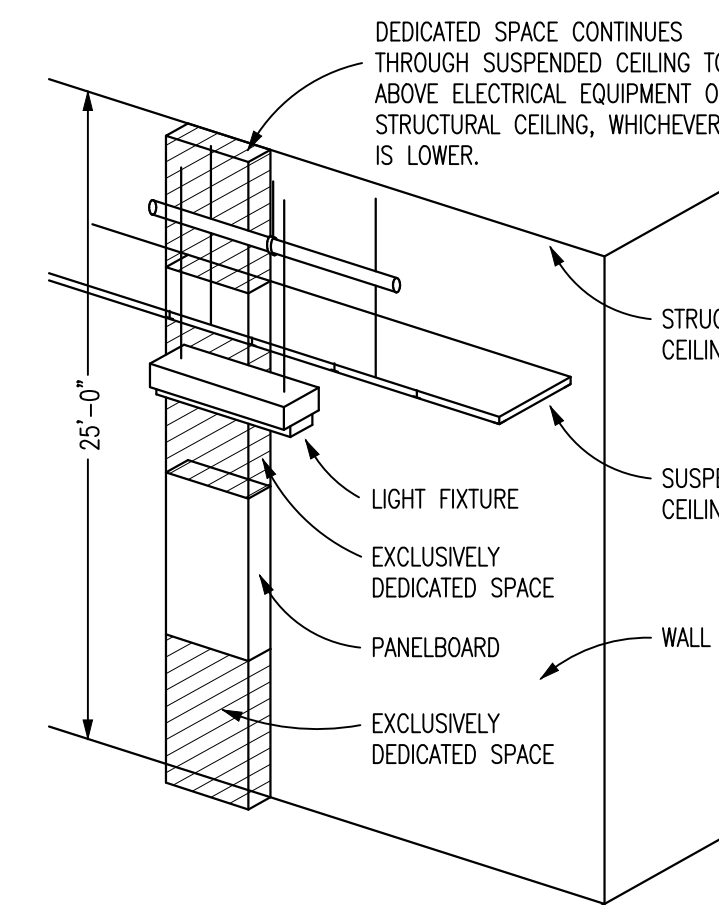
- THIS FIGURE ILLUSTRATES THE WORKING SPACE IN FRONT OF ELECTRICAL EQUIPMENT REQUIRED BY NEC SECTION 110-26.
- THIS INCLUDES BUT IS NOT LIMITED TO PANELBOARDS, SAFETY SWITCHES, MOTOR STARTERS, JUNCTION BOXES AND OTHER ELECTRICAL EQUIPMENT.



ALL ELECTRIC EQUIPMENT

DETAIL NO. 6

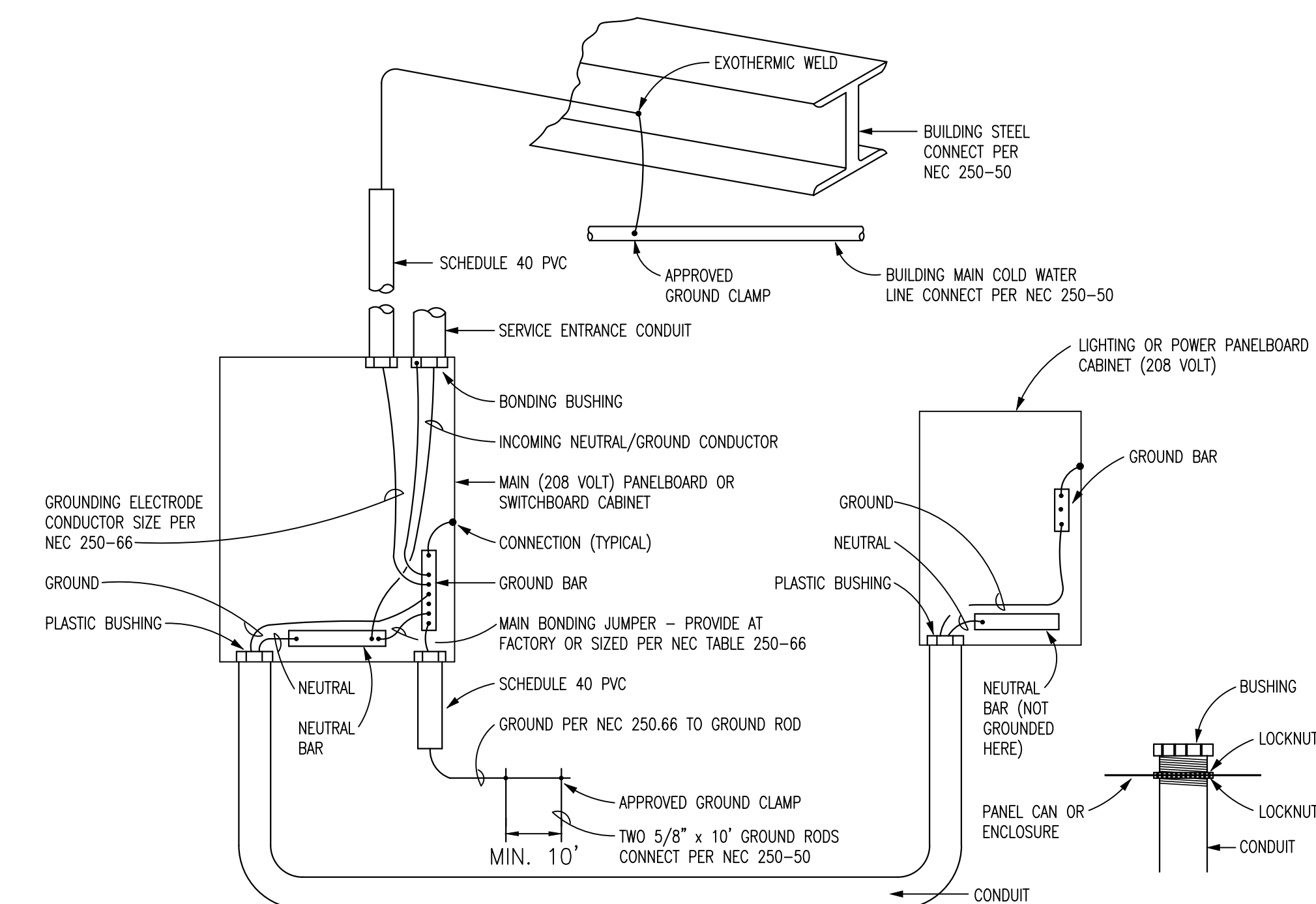
DEDICATED WORKING SPACE REQUIREMENTS
SCALE: NTS



NOTES:

- THIS FIGURE ILLUSTRATES THE ADDITIONAL EXCLUSIVELY DEDICATED SPACE REQUIRED OVER AND UNDER PANELBOARDS FOR CABLES, RACEWAYS, ETC. TO AND FROM PANELBOARDS REQUIRED BY NEC SECTION 110-26.
- NO PIPING, DUCTWORK OR EQUIPMENT FOREIGN TO THE ELECTRICAL EQUIPMENT OR ARCHITECTURAL APPURTENANCES SHALL BE PERMITTED TO BE INSTALLED IN, ENTER OR PASS THROUGH THE DEDICATED SPACES SHOWN. FOR EXCEPTIONS SEE NEC SECTION 110-26F.

PANELBOARDS



NOTES:

- GROUNDING ELECTRODE CONDUCTOR SHALL BE RUN CONTINUOUSLY (UNBROKEN) FROM COLD WATER LINE AND/OR BUILDING STEEL AND GROUND ROD TO GROUND BAR BEFORE BONDING TO ANY CONDUIT BUSHING.
- ALL THE FOLLOWING GROUNDING ELECTRODES THAT ARE PRESENT SHALL BE BONDED TOGETHER TO FORM THE GROUNDING ELECTRODE SYSTEM PER NEC 250.52:
 - METAL UNDERGROUND WATER PIPE IN DIRECT CONTACT WITH EARTH FOR 10 FT OR MORE
 - METAL FRAME OF THE BUILDING,
 - ANY ELECTRODE ENCASED BY AT LEAST 2 IN. OF CONCRETE, CONSISTING OF 20 FT OR MORE BARE OR ZINC GALVANIZED OR OTHER ELECTRICALLY CONDUCTIVE COATED STEEL REINFORCING BARS OR RODS NOT LESS THAN 1/2" IN DIAMETER.
 - GROUND RING ENCRICLING THE BUILDING
 - ROD AND PIPE ELECTRODES NOT LESS THAN 8 FT.
 - PLATE ELECTRODES

DETAIL NO. 7

TYPICAL BONDING & GROUNDING DIAGRAM
SCALE: NTS

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PROFESSIONAL ENGINEER
JOE L. SMITH JR.
024916
4-16-19

REV	DATE	DESCRIPTION

New Facility for:
**Campbell University
Engineering Annex II**
Butes Creek, NC

DATE: 16 April 2019
DRAWN BY: T.B.
SCALE: AS NOTED

E-5