

**LIFE SAFETY PLAN**

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

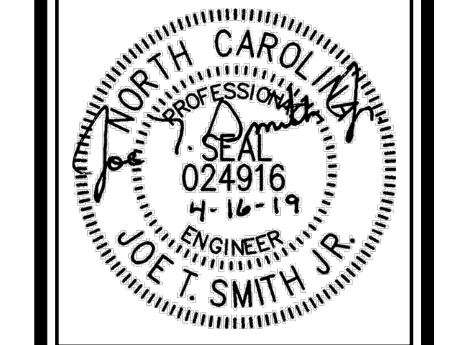
| LEGEND |  |
|--------|--|
| SYMBOL | DESCRIPTION  |
|        | COMMON PATH OF EXIT EGRESS TRAVEL                    |
|        | ROUTE OF TOTAL EXIT ACCESS TRAVEL DISTANCE           |
| PH     | DOOR PROVIDED WITH PANIC HARDWARE                    |
| ML     | DOOR PROVIDED WITH MAGNETIC LOCK AND EXIT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

| OCCUPANCY CLASSIFICATION OF INDICATED AREA |                      | DESCRIPTION                    |   |
|--|----------------------|--------------------------------|---|
| 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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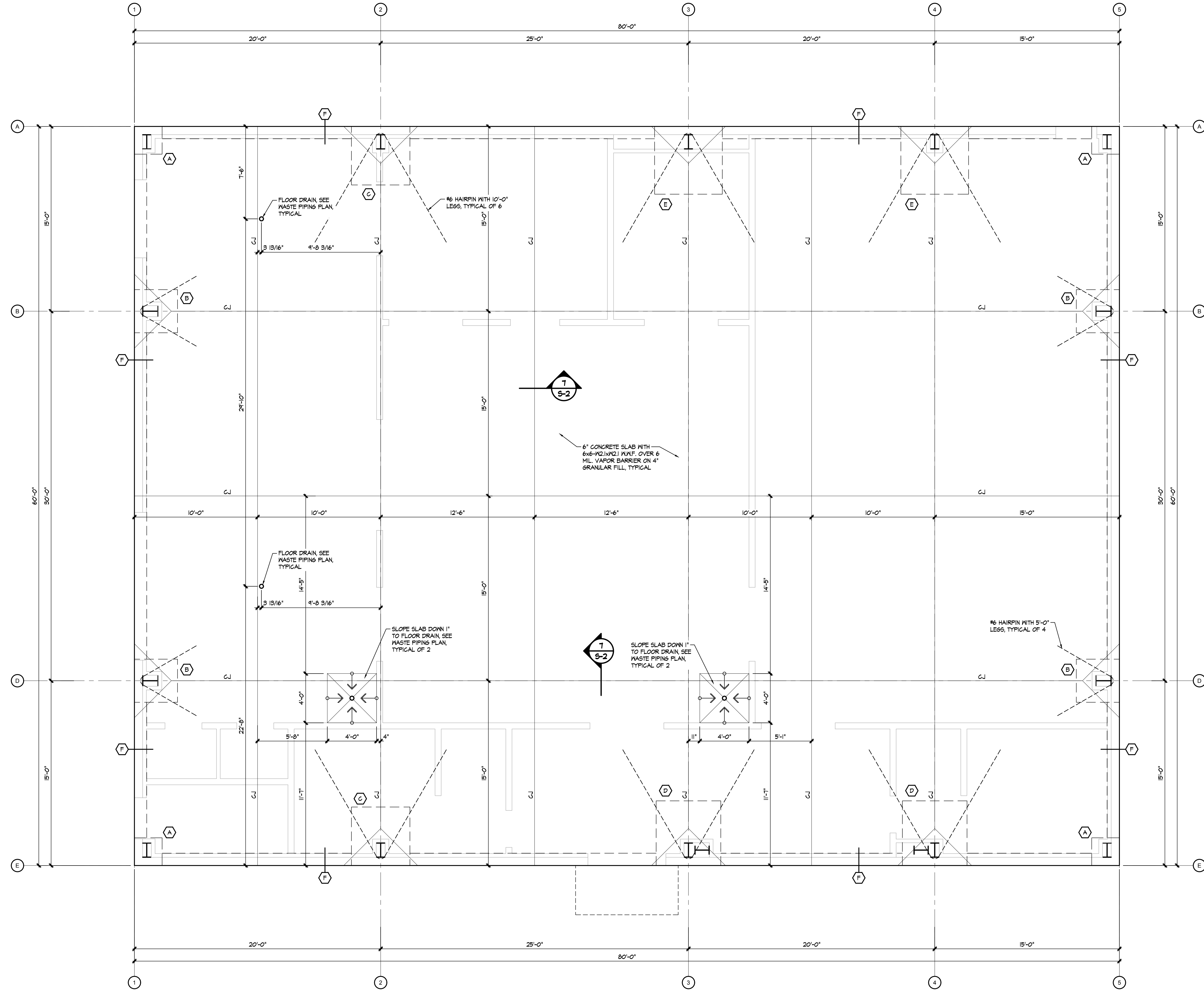
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New Facility for:  
**Campbell University Engineering Annex II**  
 Buies Creek, NC

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

**LF-1**

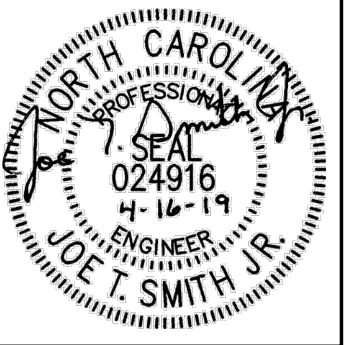


FOUNDATION PLAN

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

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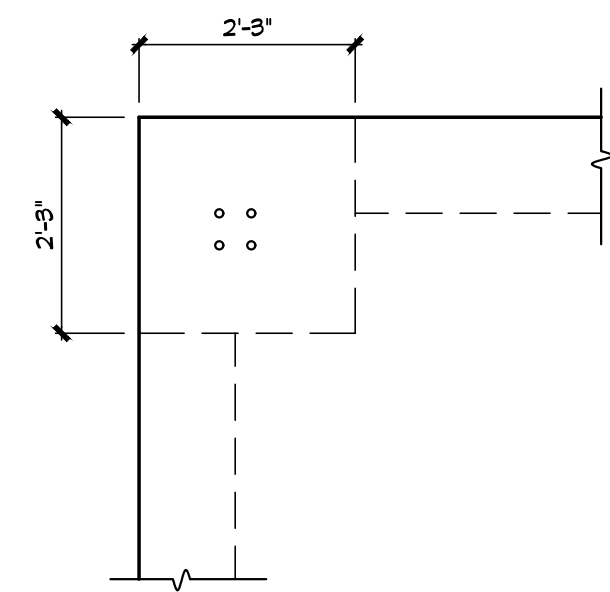


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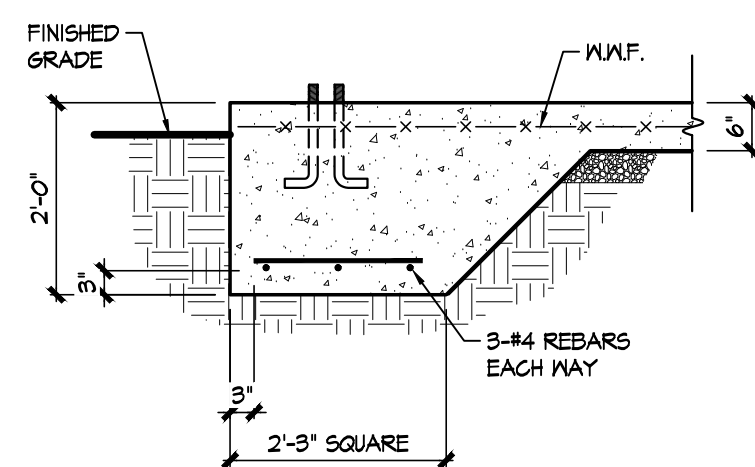
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**S-1**

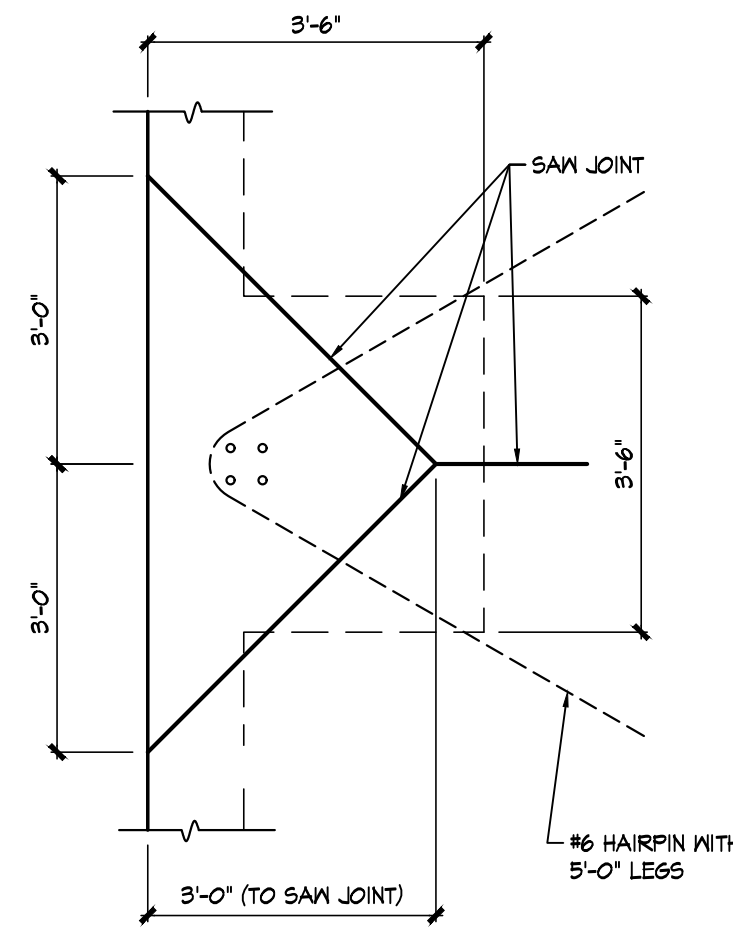


PLAN VIEW

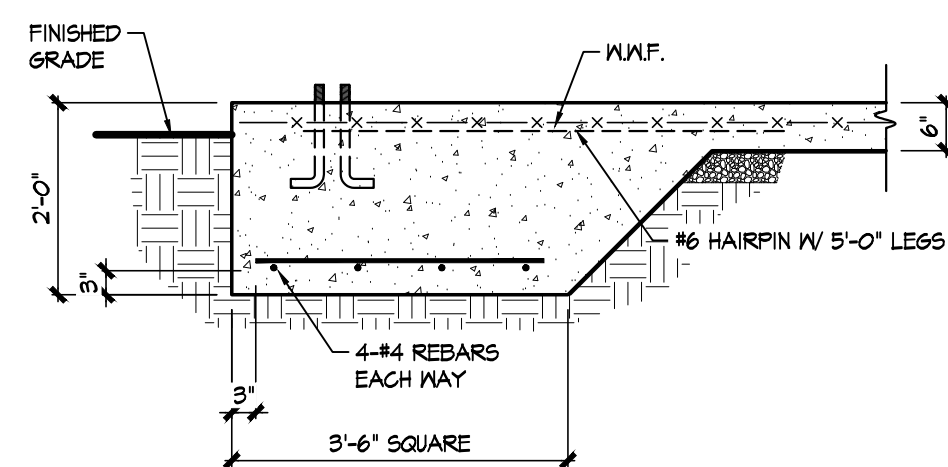


SECTION VIEW

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

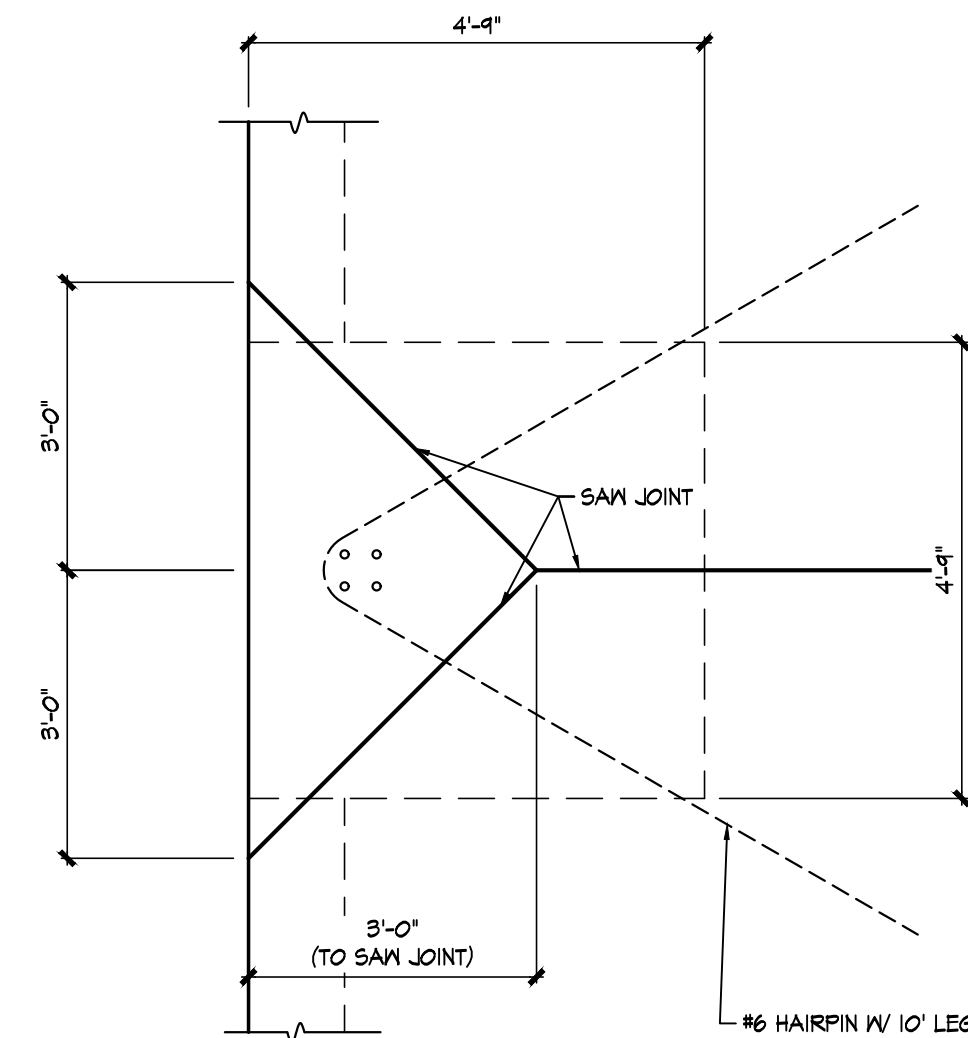


PLAN VIEW

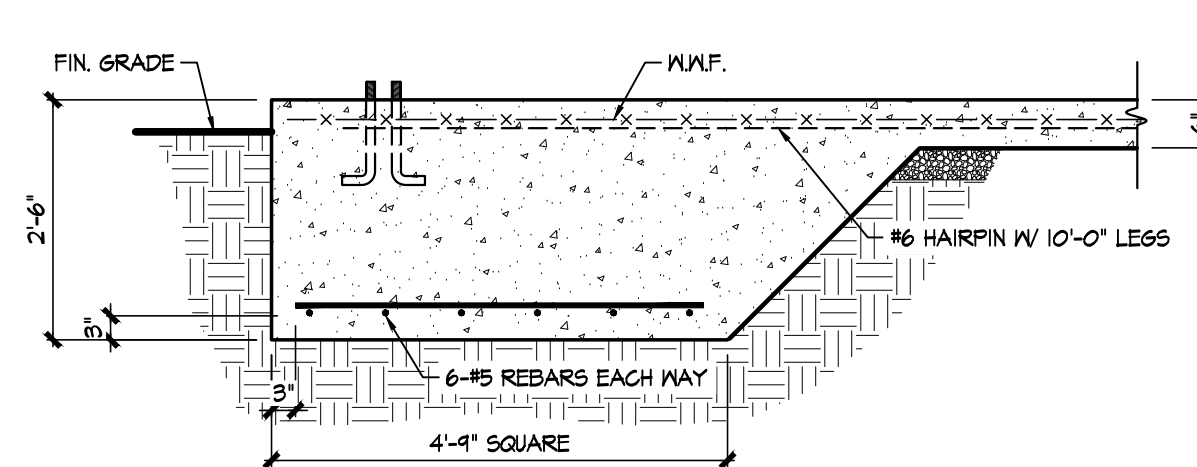


SECTION VIEW

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

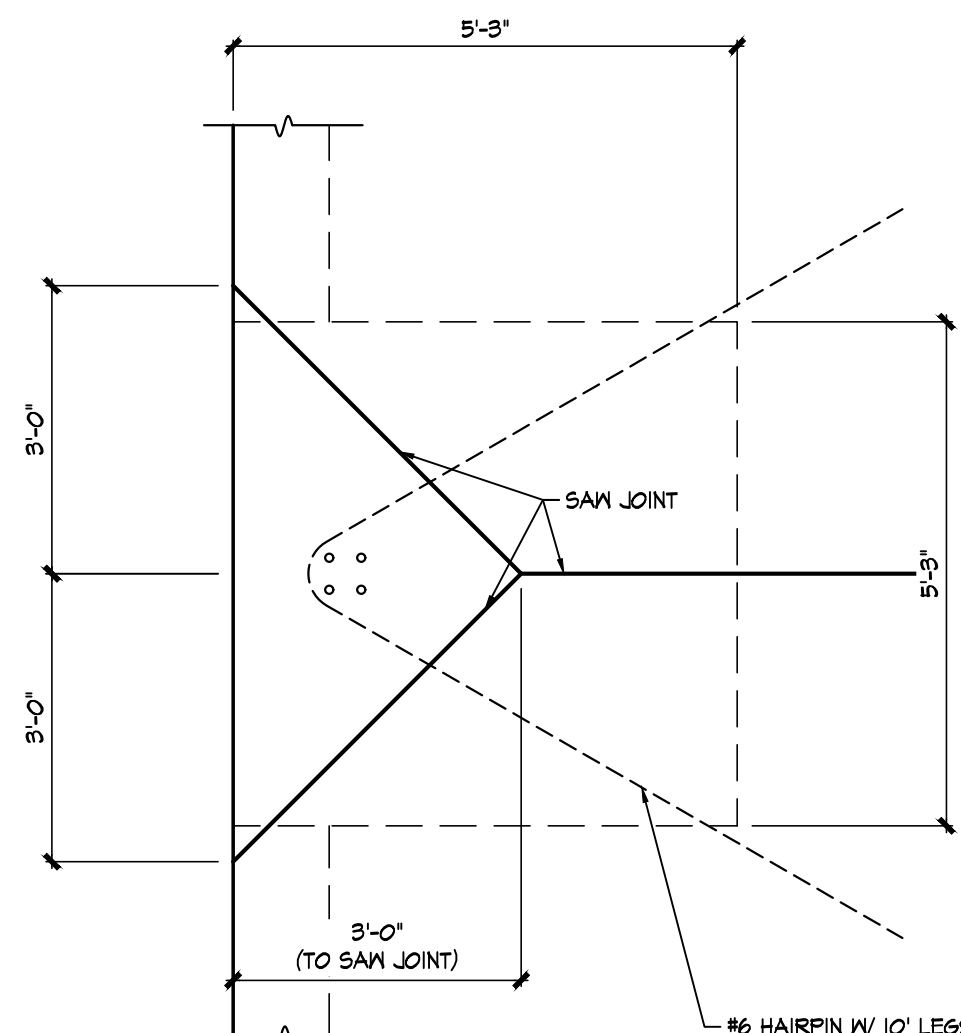


PLAN VIEW

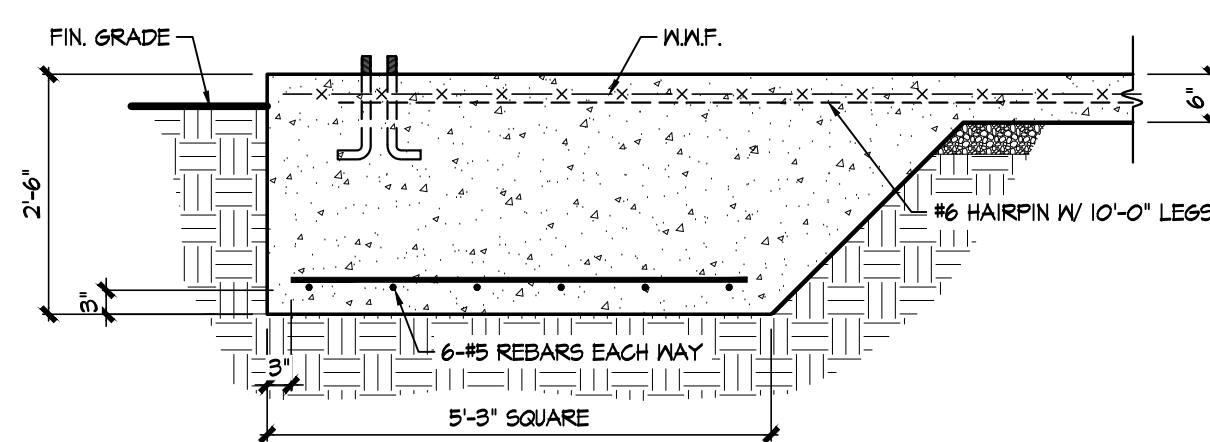


SECTION VIEW

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

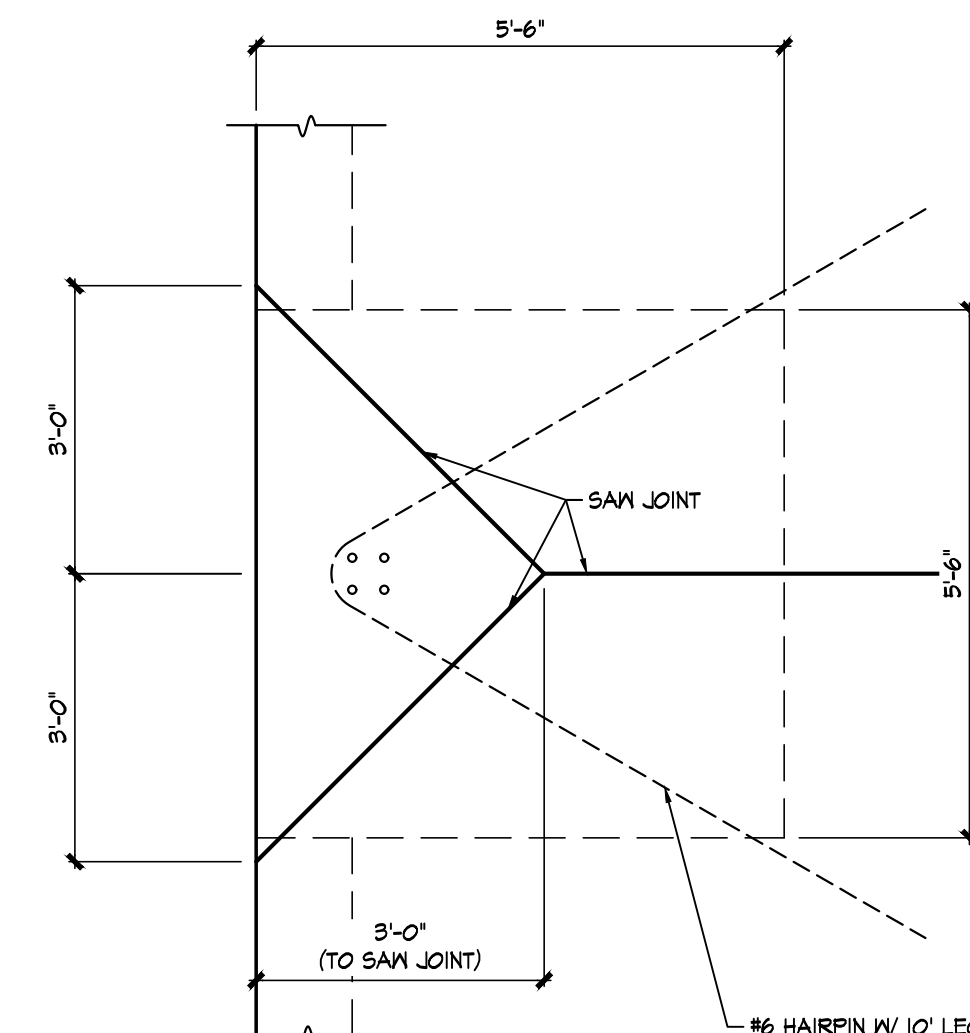


PLAN VIEW

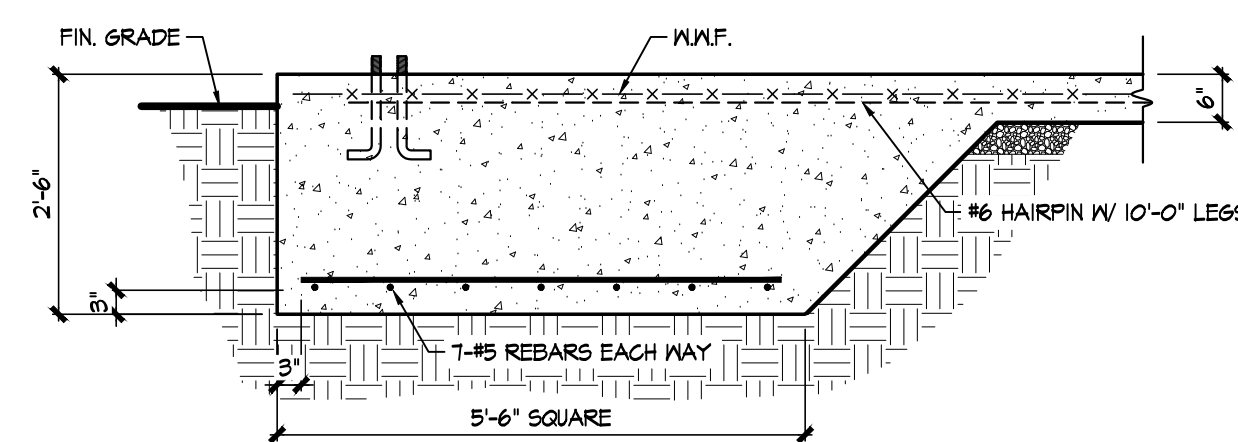


SECTION VIEW

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

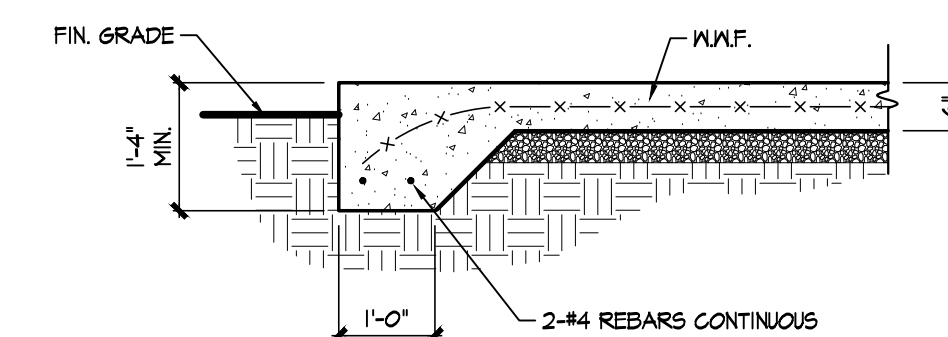


PLAN VIEW



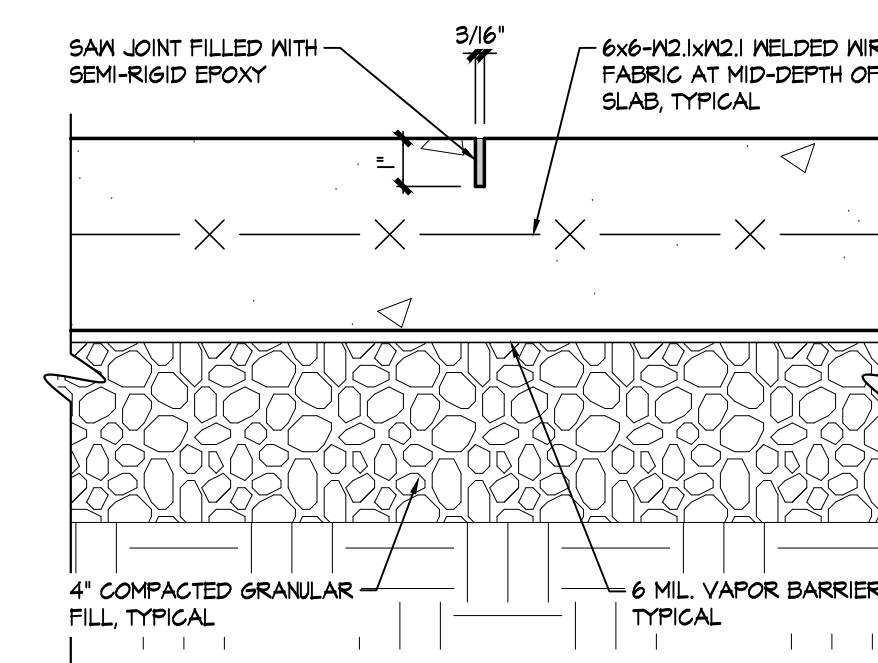
SECTION VIEW

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<sub>c</sub>) 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:
 

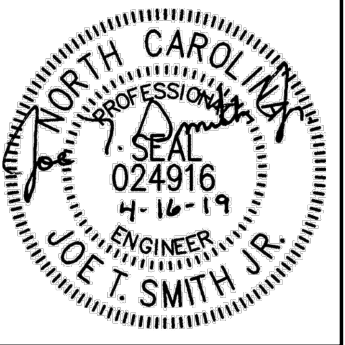
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| 6.1 FOOTINGS       | 5%                 |
| 6.2 INTERIOR SLABS | 0%, SEE NOTE BELOW |
| 6.3 EXTERIOR SLABS | 5%                 |

NOTE: IT IS RECOMMENDED THAT INTERIOR SLABS TO BE GIVEN A SMOOTH, DENSE, HARD-TROWELED FINISH NOT TO CONTAIN ENTRAINED 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.

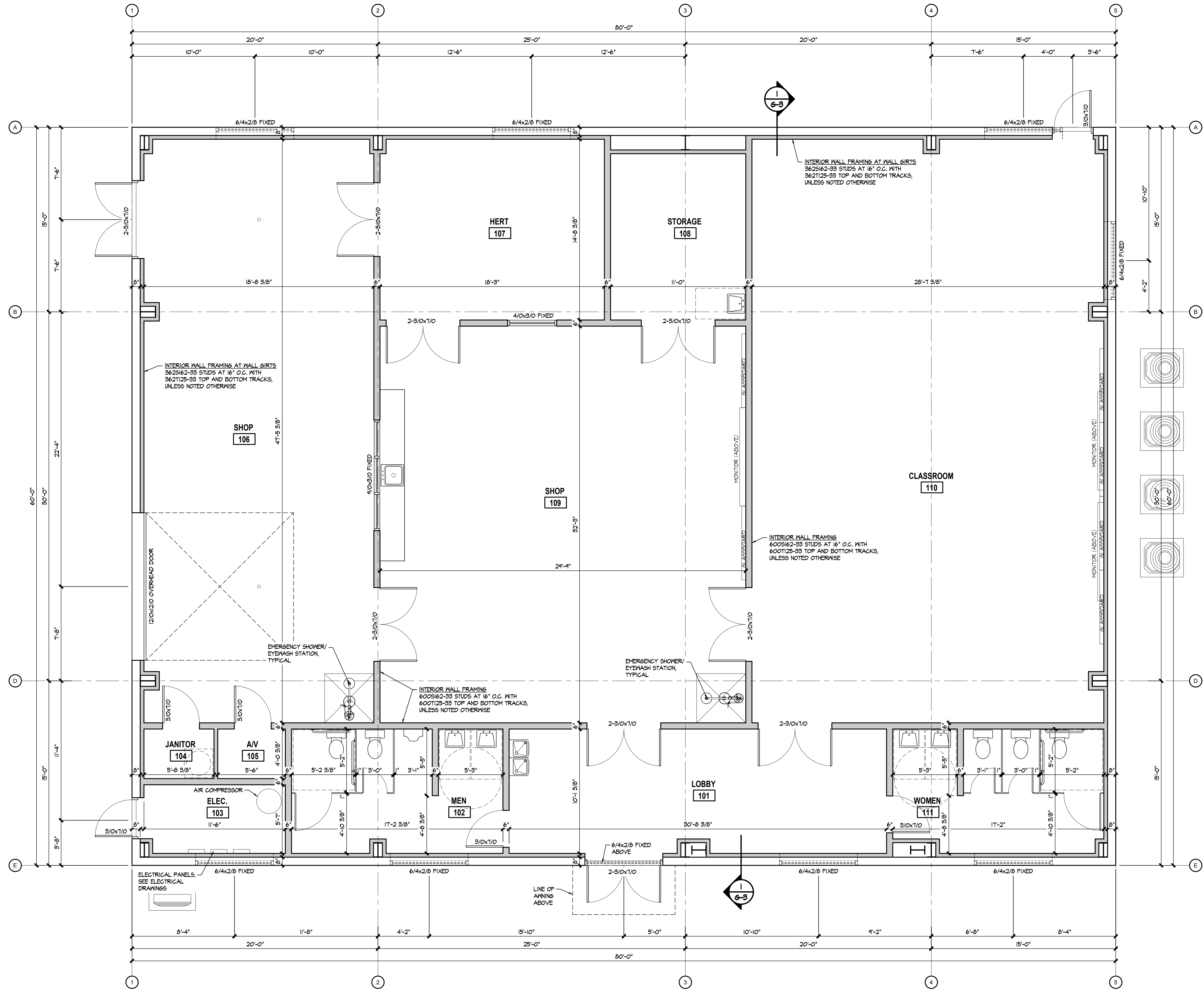
- CONCRETE SLABS ON GRADE SHALL BE CONSTRUCTED IN ACCORDANCE WITH ACI 302.1R-96 "GUIDE FOR CONCRETE SLAB AND SLAB CONSTRUCTION".
- CONTROL JOINTS SHALL BE SPACED IN SLABS ON GRADE AT A MAXIMUM OF 15'-0" O.C. UNLESS OTHERWISE NOTED.

**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.



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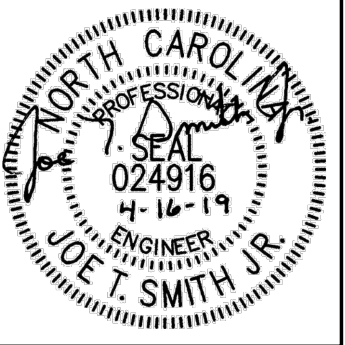
| WALL LEGEND   |  |
|---|--|
| METAL BUILDING WALL GIRT FRAMING. SEE FLOOR PLAN FOR LOCATIONS.   |  |
| FRAMED INTERIOR STUD WALLS. SEE FLOOR PLAN FOR WIDTH AND LOCATIONS.   |  |
| <b>NOTES:</b>   |  |
| 1. ALL EXTERIOR WALL DIMENSIONS THIS PLAN ARE TO FACE OF METAL BUILDING WALL GIRT FRAMING.                        |  |
| 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 SPACING.  |  |
| 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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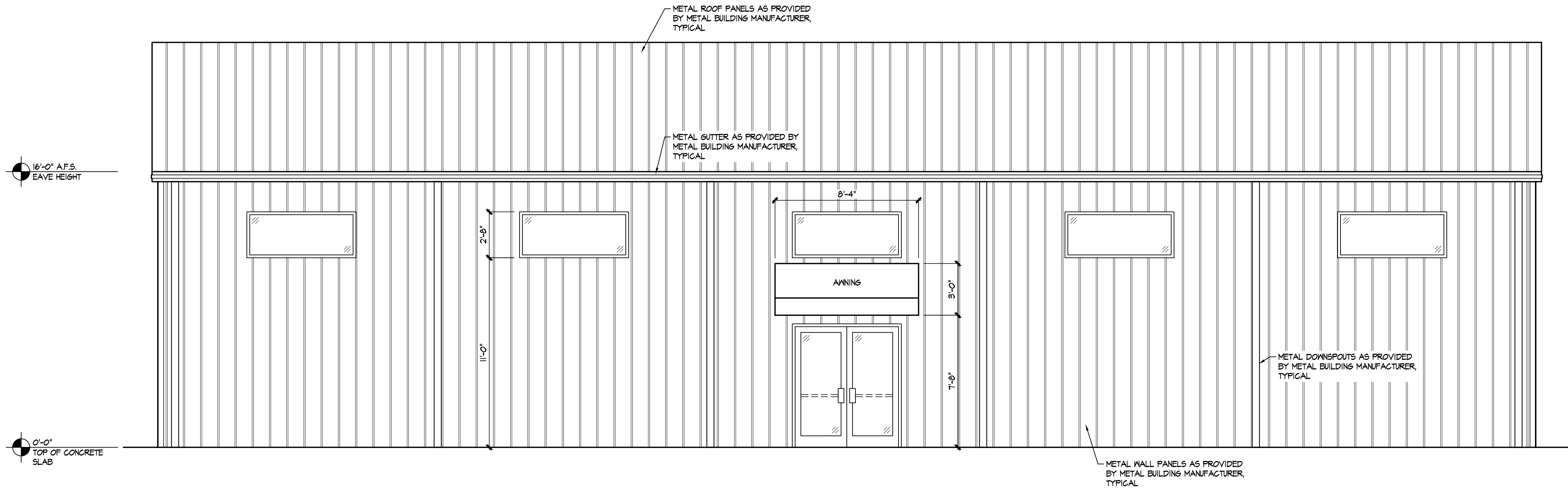
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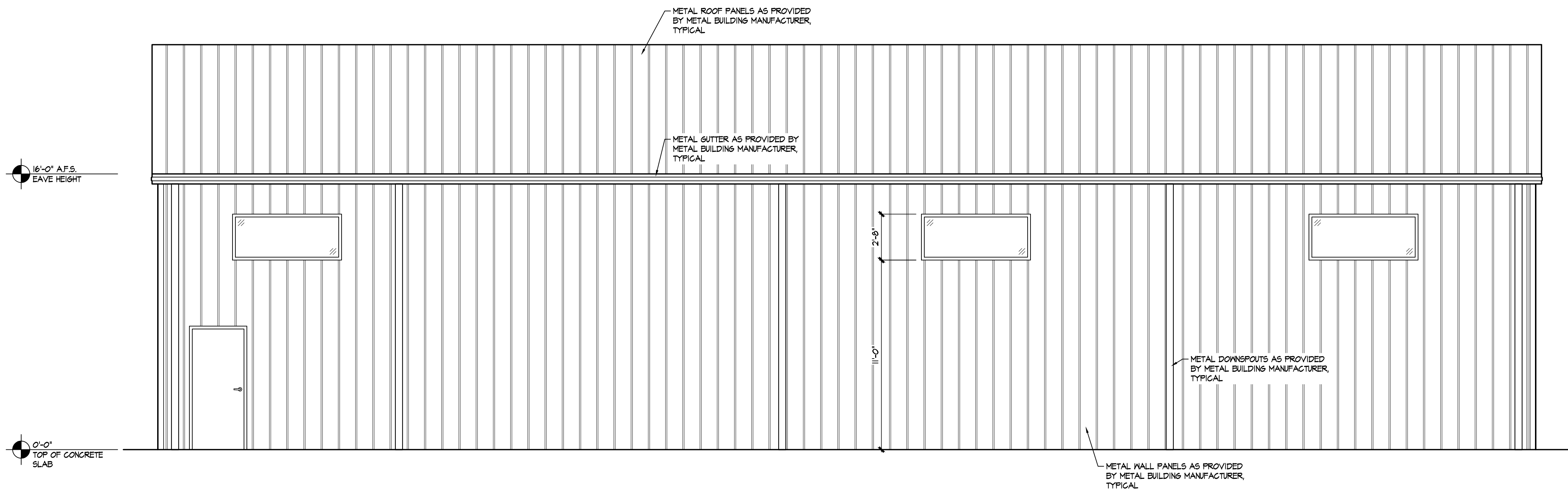
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FRONT ELEVATION

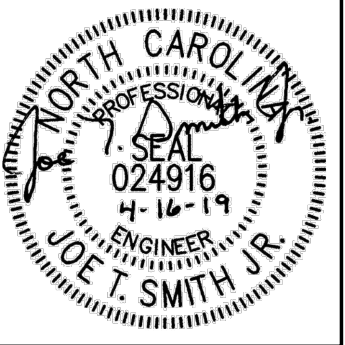
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REAR ELEVATION

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

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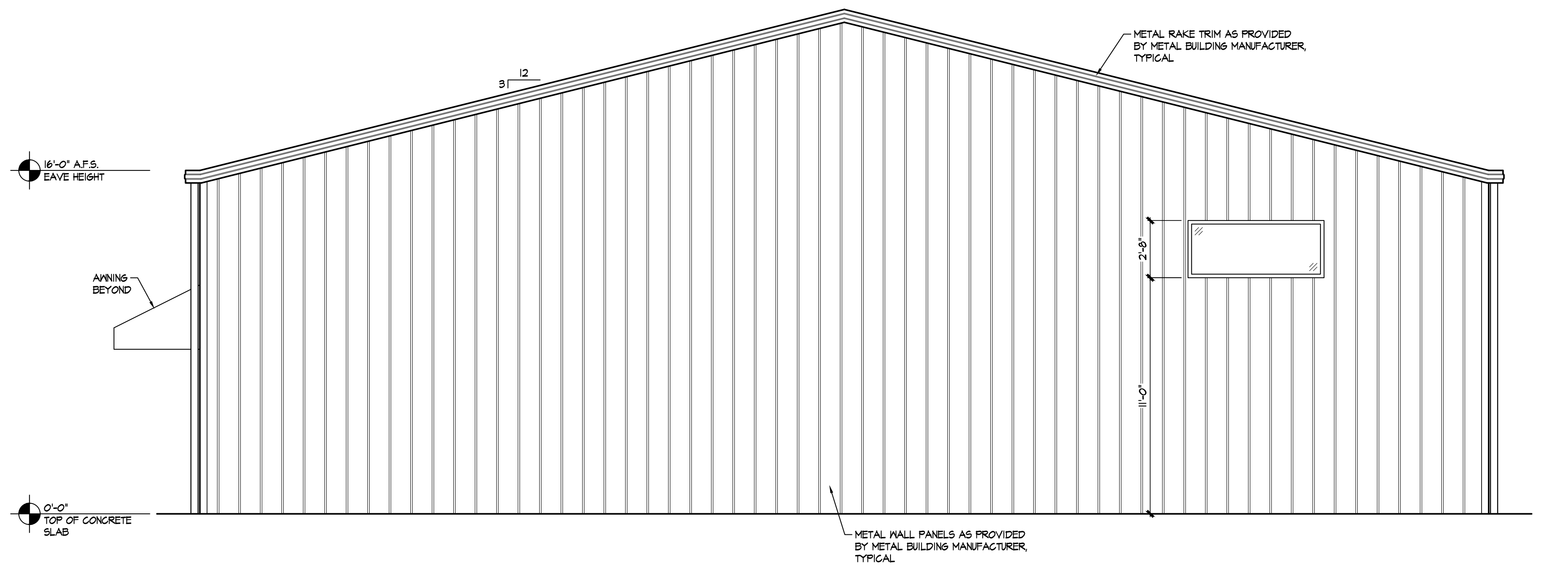
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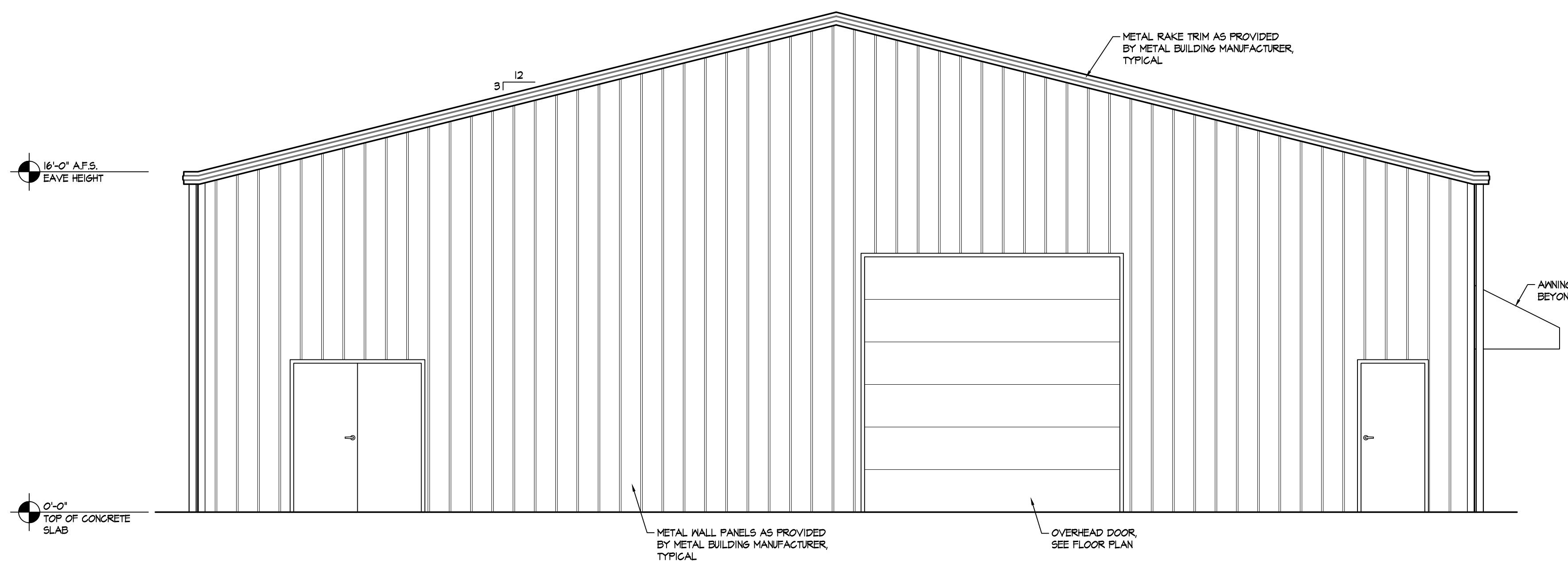


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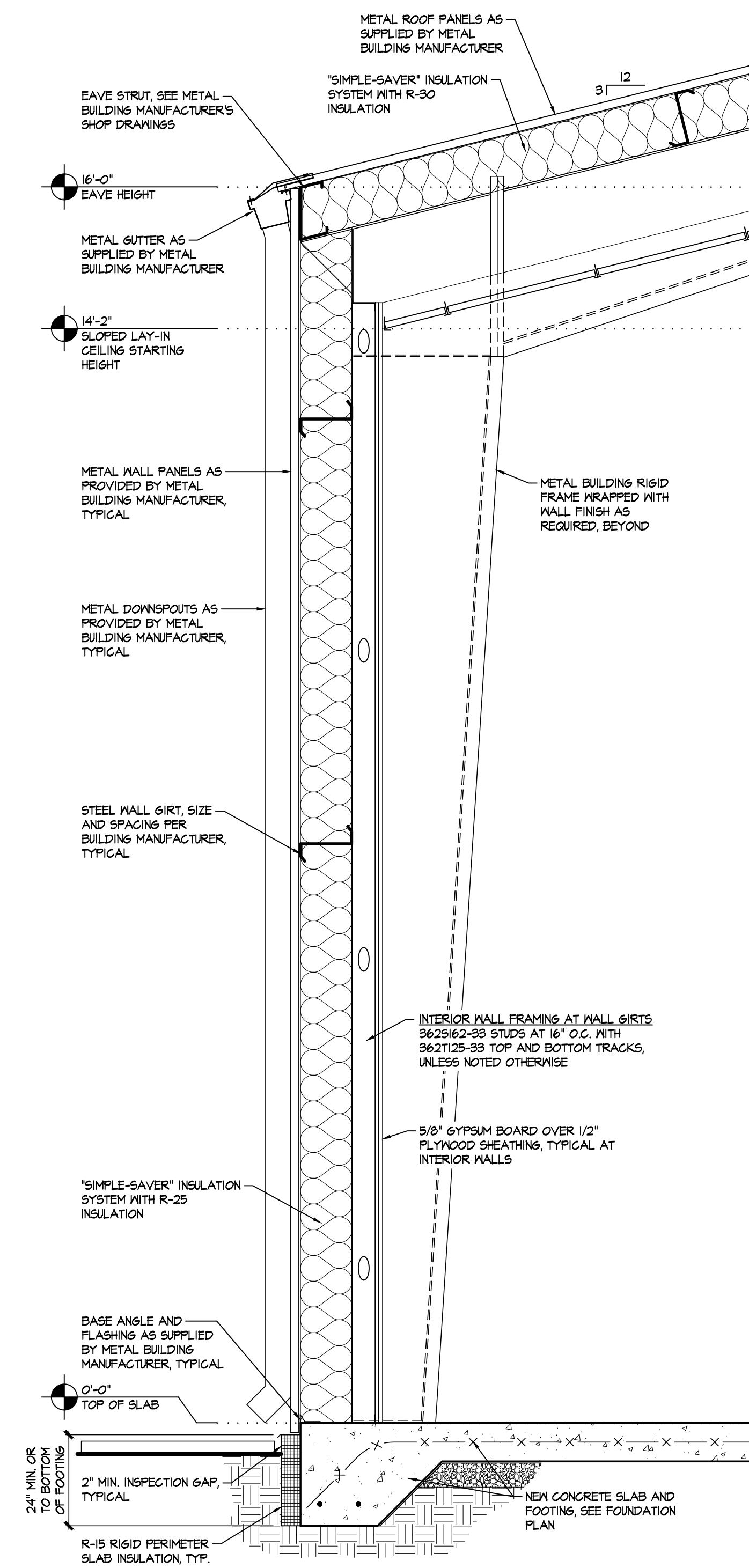
RIGHT ELEVATION

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



LEFT ELEVATION

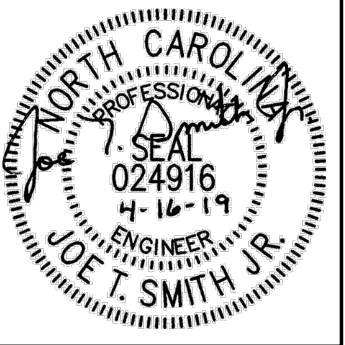
SCALE: 1/4" = 1'-0"



1 SECTION  
G-3

TYPICAL WALL SECTION

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

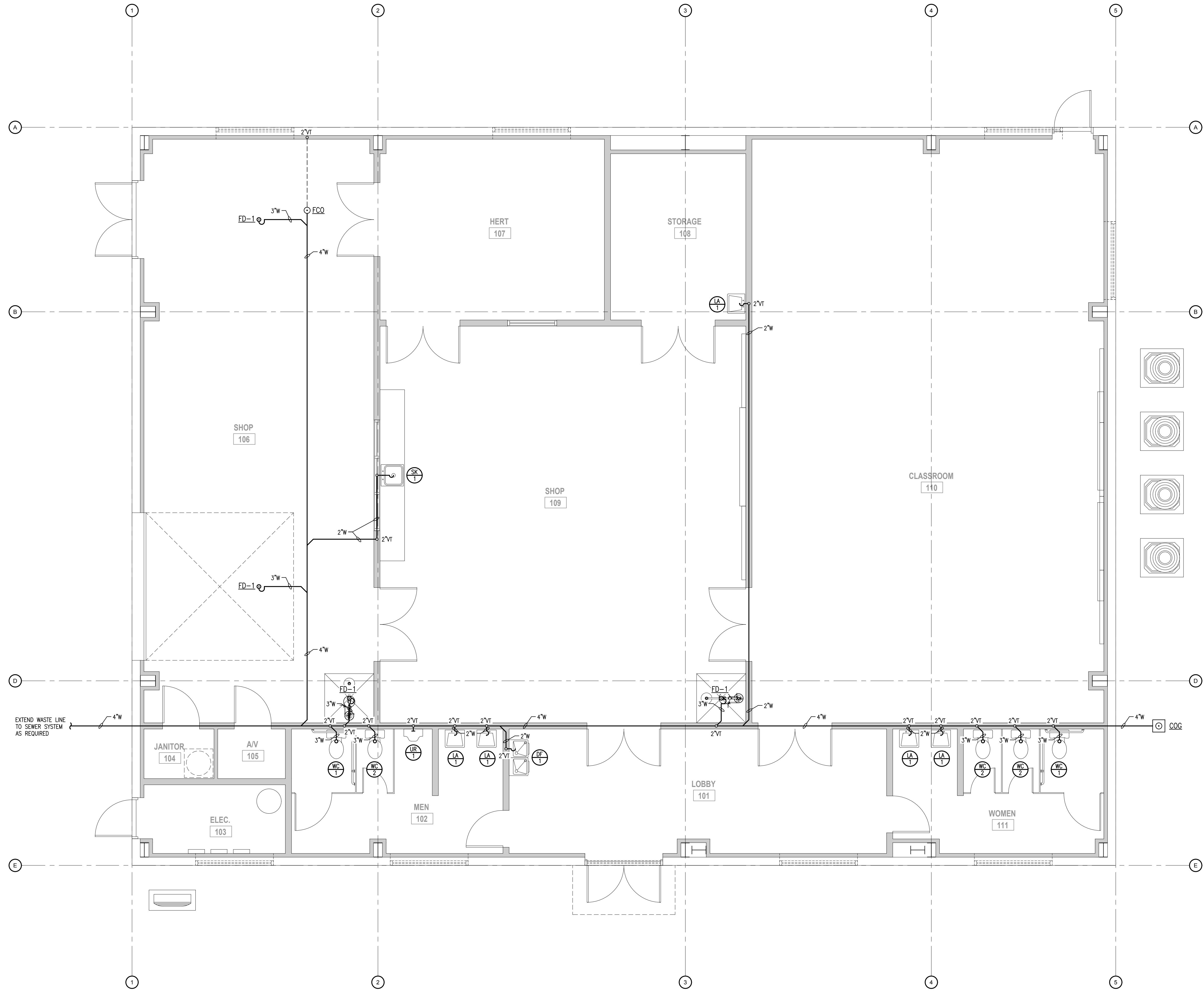


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**G-3**

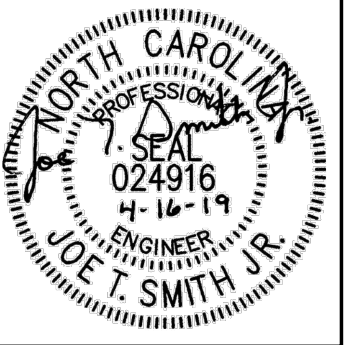


**PLUMBING WASTE PIPING PLAN**

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

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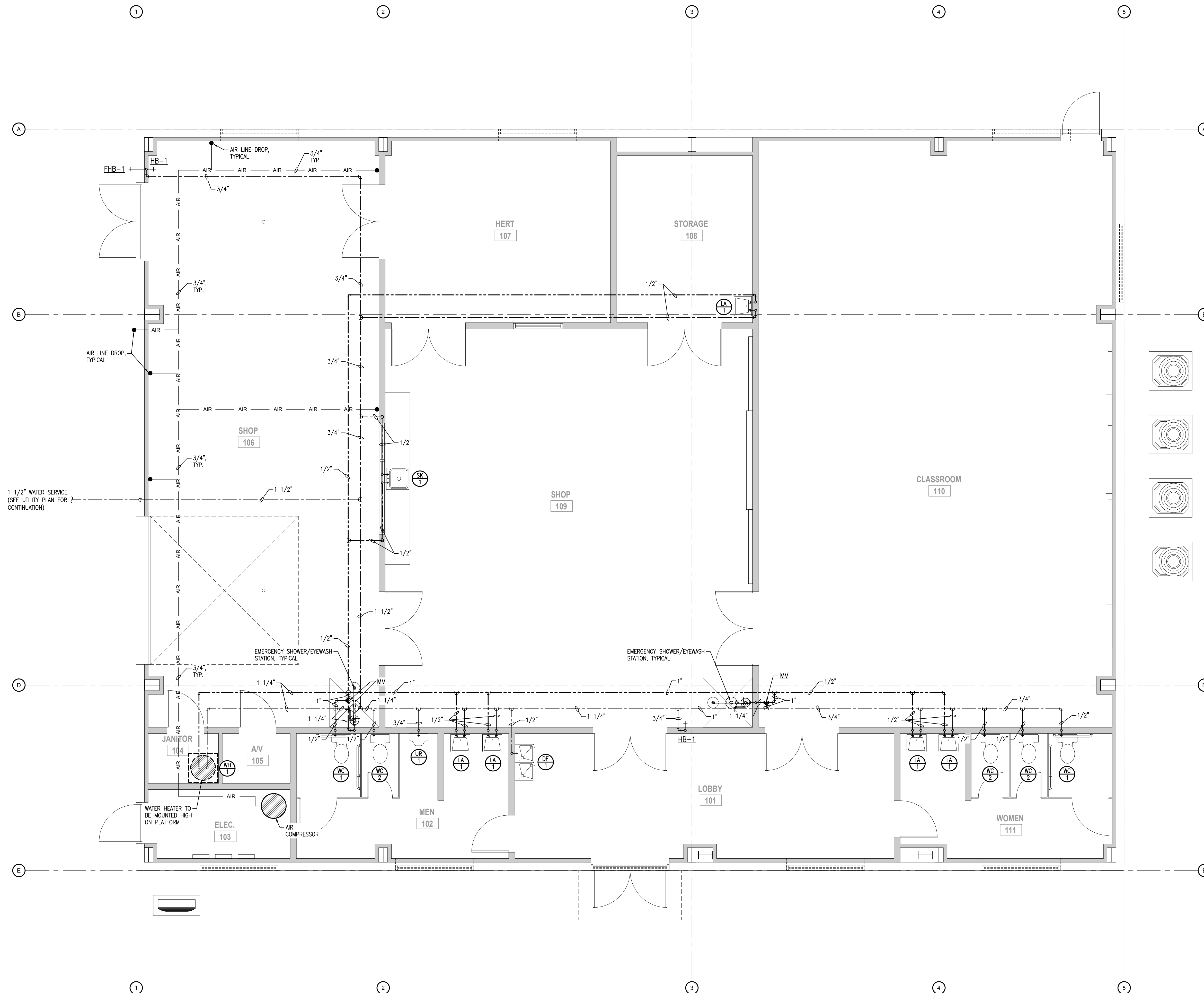
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**P-1**



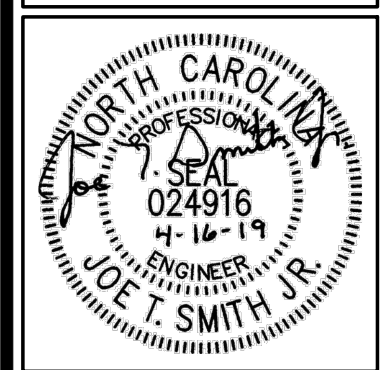


**PLUMBING SUPPLY PIPING PLAN**

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**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  |

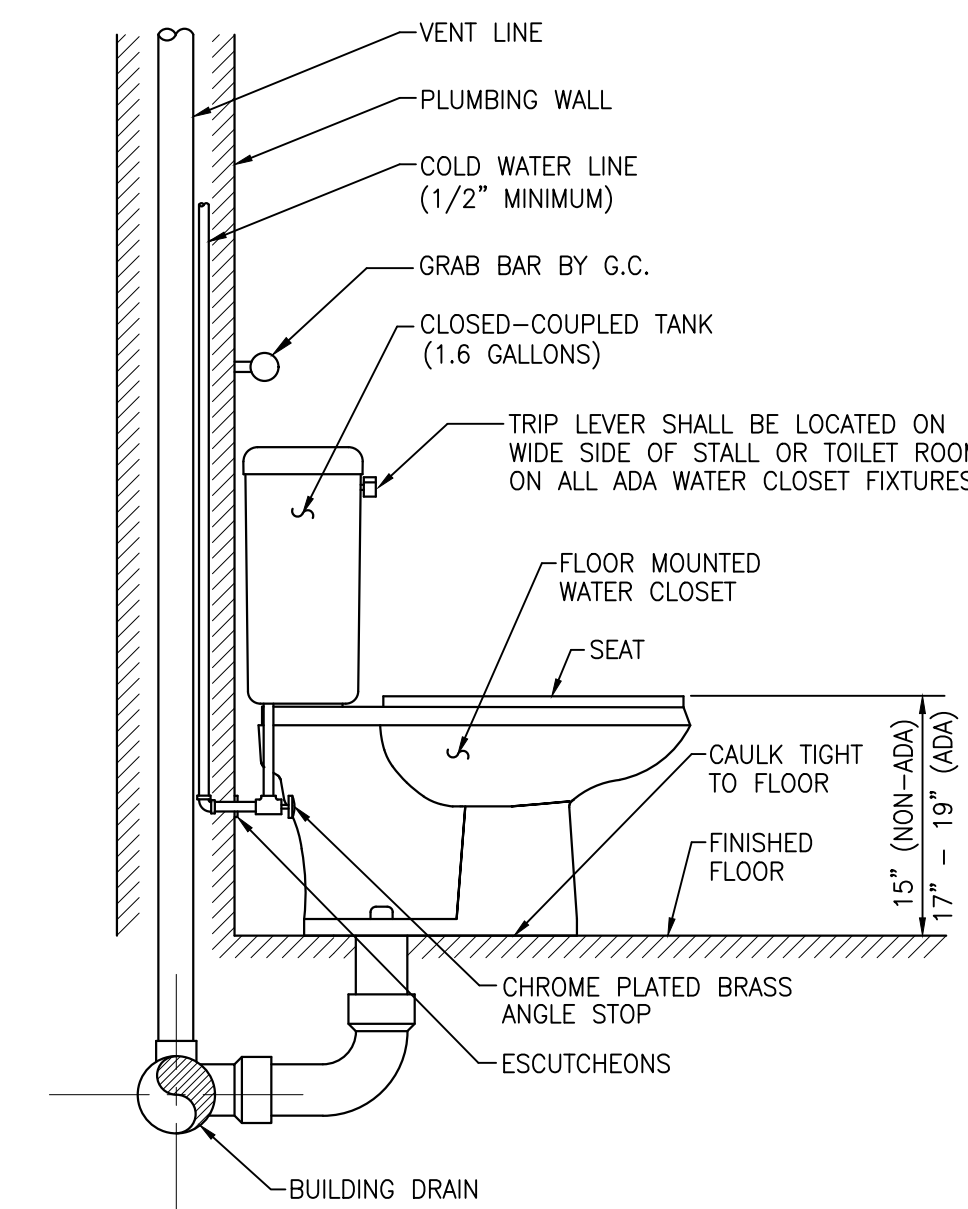
**NOTE:**  
P.C. SHALL COORDINATE ADA WATER CLOSET TRIP LEVER TO BE LOCATED ON WIDE SIDE OF STALL OR TOILET ROOM.

| 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" |  |

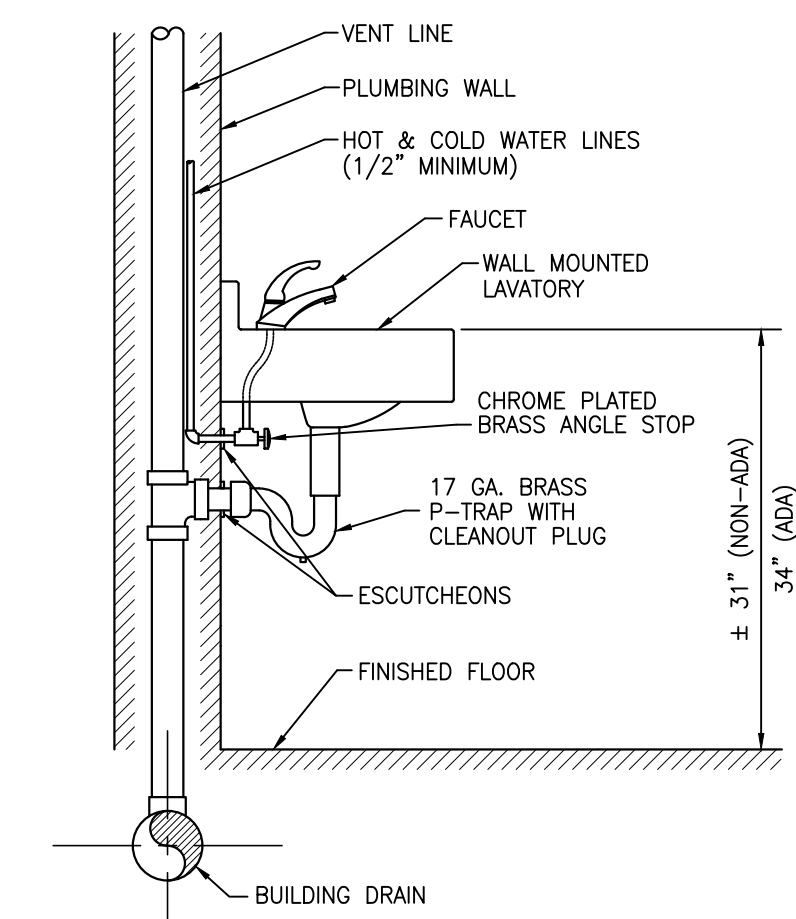
| ELECTRIC WATER HEATER SCHEDULE |        |      |            |     |         |      |          |          |       |       |        |
|--------------------------------|--------|------|------------|-----|---------|------|----------|----------|-------|-------|--------|
| MARK                           | 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         |

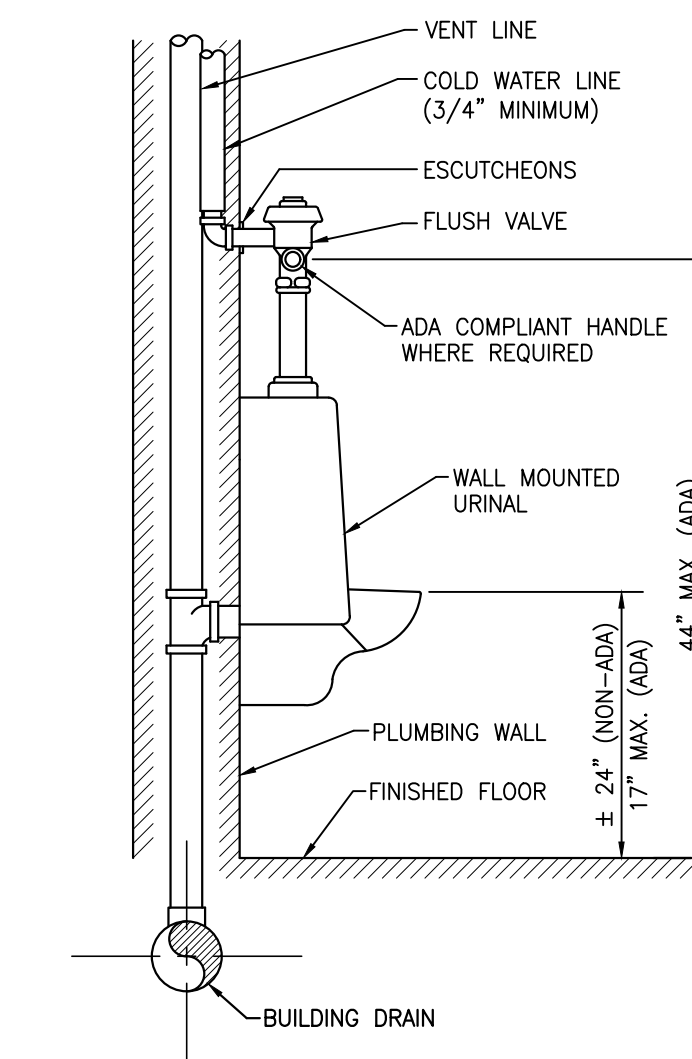


**DETAIL NO. 1**  
FLOOR MOUNTED WATER CLOSET WITH FLUSH TANK  
SCALE: NTS

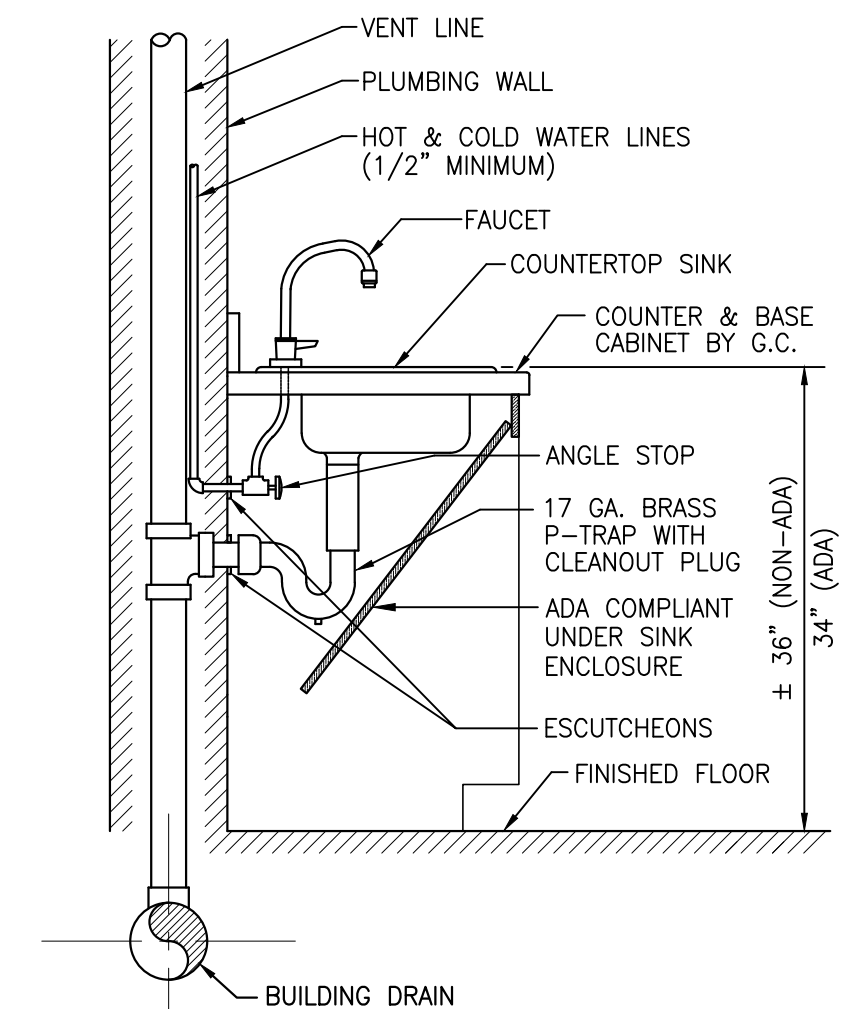


**NOTES:**  
1. PROVIDE ADA LAVATORIES WITH PRE-WRAPPED ANTI-MICROBIAL MOLDED CLOSED CELL VINYL ON EXPOSED HOT & COLD WATER AND DRAIN LINES.  
2. WATER SUPPLY INLETS AND RISERS SHALL BE BRASS OR COPPER (CHROME PLATED WHERE EXPOSED TO VIEW).

**DETAIL NO. 2**  
WALL MOUNTED LAVATORY  
SCALE: NTS

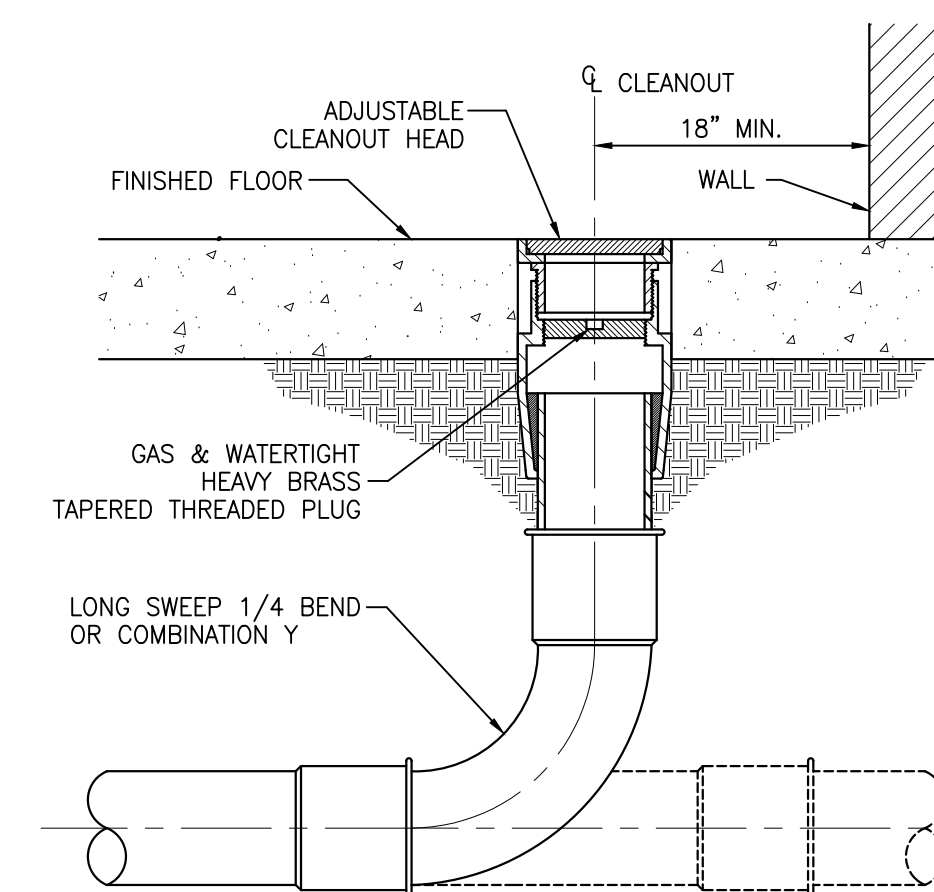


**DETAIL NO. 3**  
WALL MOUNTED URINAL  
SCALE: NTS

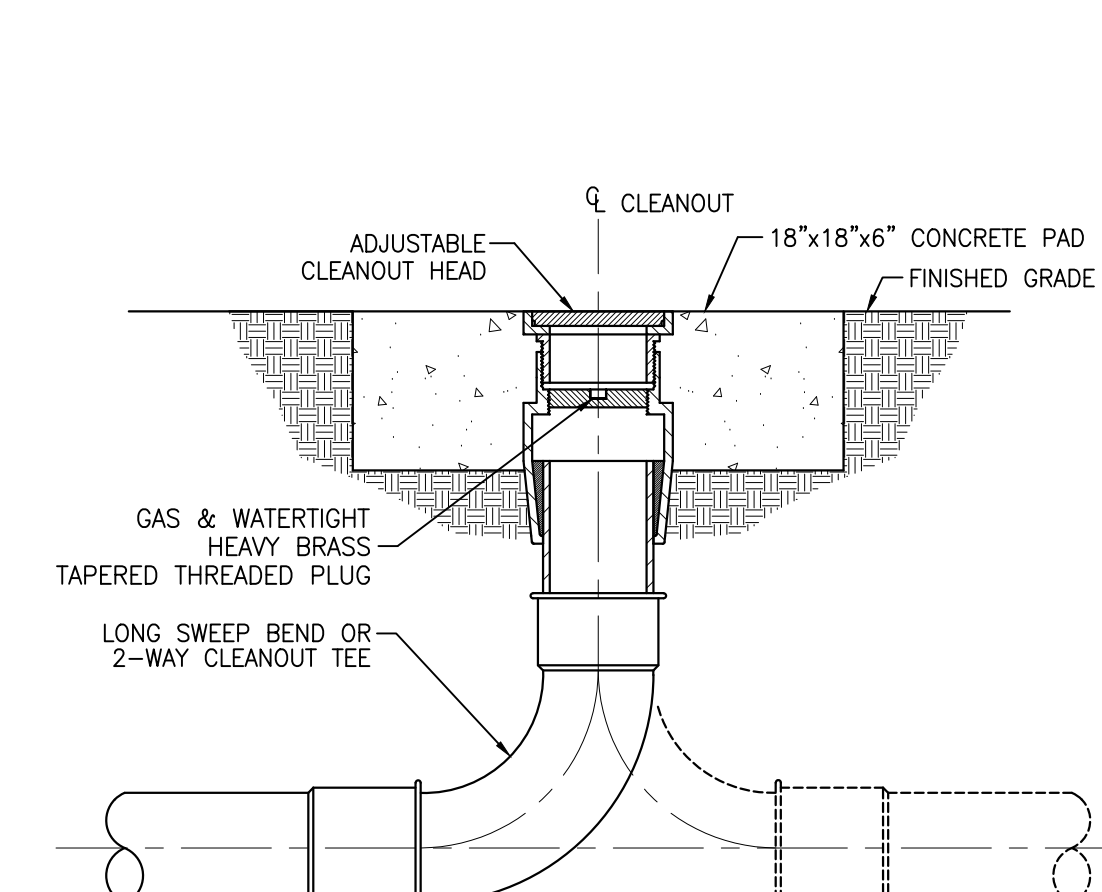


**NOTES:**  
1. G.C. SHALL PROVIDE ADA COMPLIANT UNDERSPACE SINK PROTECTIVE ENCLOSURES FOR ALL ADA SINKS.  
2. WATER SUPPLY INLETS AND RISERS SHALL BE BRASS OR COPPER (CHROME PLATED WHERE EXPOSED TO VIEW).

**DETAIL NO. 4**  
COUNTERTOP MOUNTED SINK  
SCALE: NTS

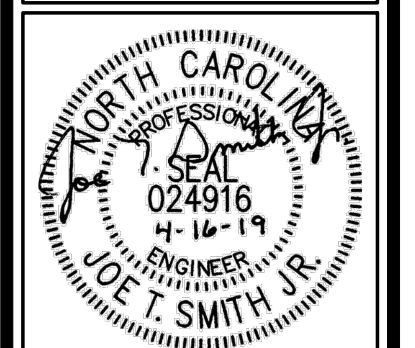


**DETAIL NO. 5**  
FLOOR CLEANOUT WITH SWEEP BEND OR COMBINATION Y  
SCALE: NTS



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

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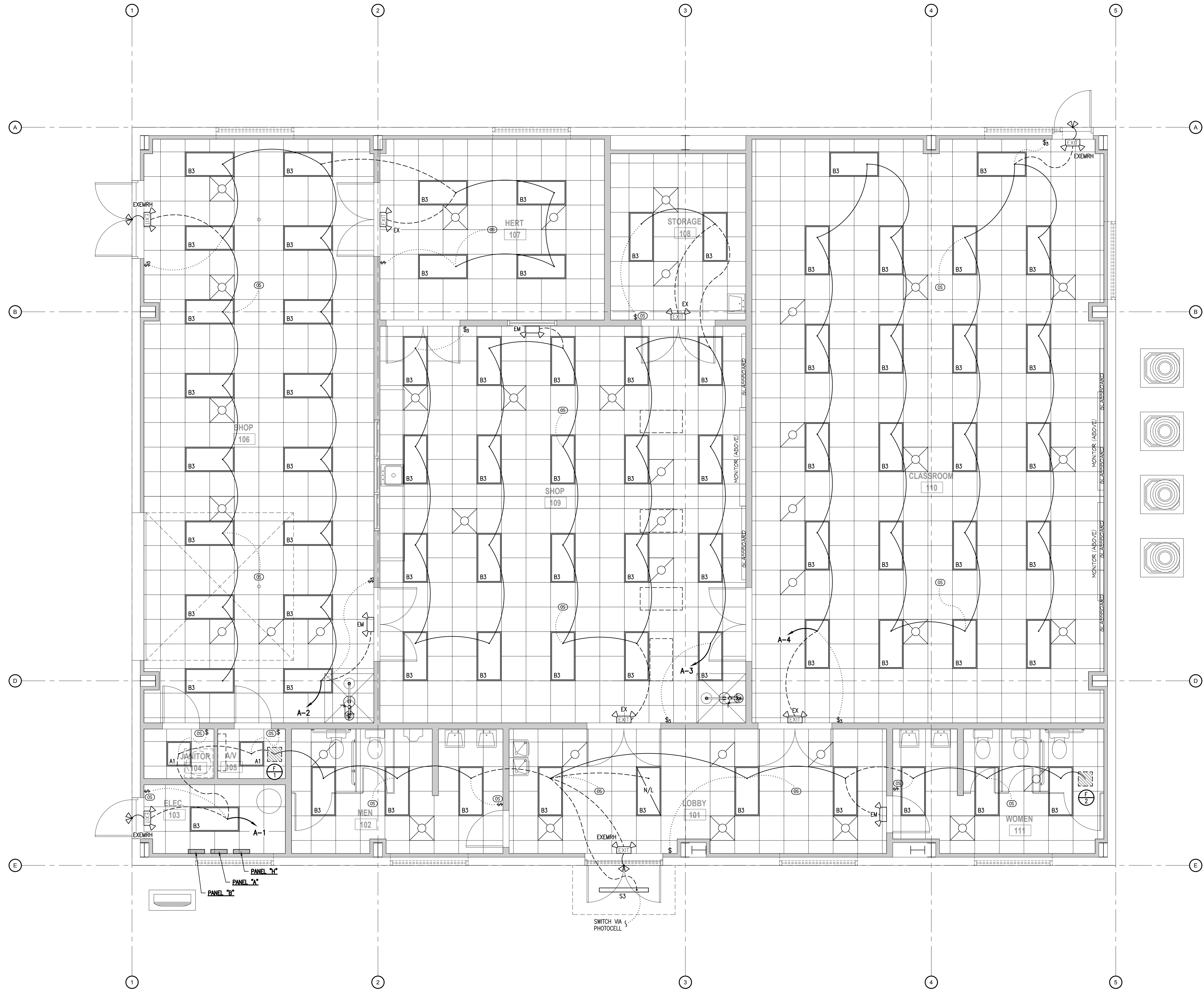
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New Facility for:  
**Campbell University Engineering Annex II**  
Butes Creek, NC

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

**P-3**



**ELECTRICAL LIGHTING PLAN**

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

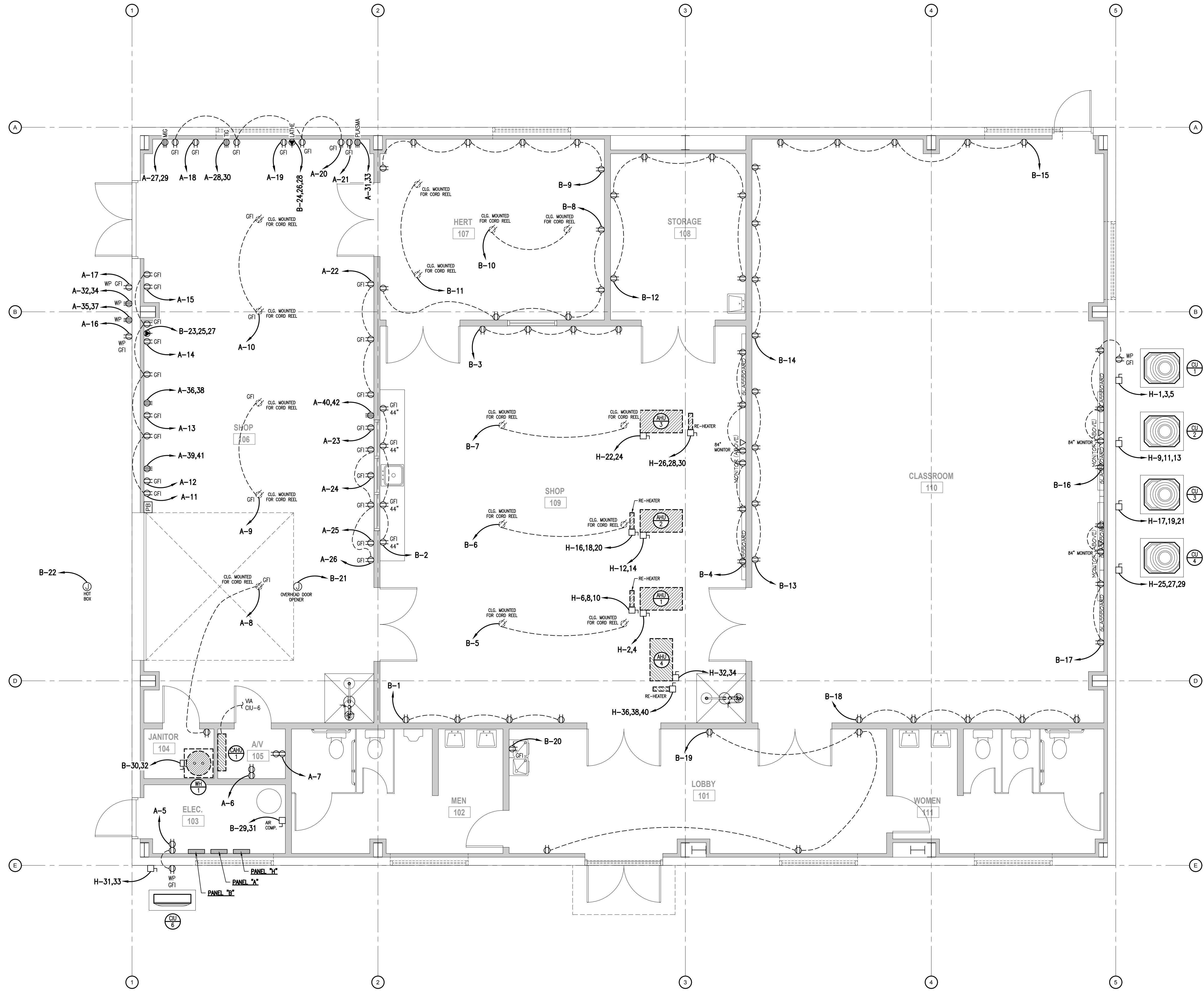
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| REV | DATE | REVISIONS | DESCRIPTION |
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New Facility for:  
**Campbell University  
 Engineering Annex II**  
 Buies Creek, NC

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

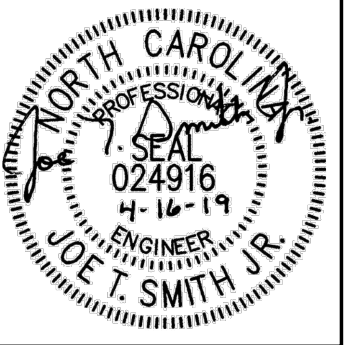


**ELECTRICAL POWER PLAN**

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

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| REV | DATE | DESCRIPTION |
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New Facility for:  
**Campbell University  
 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           | ---        | ---             |

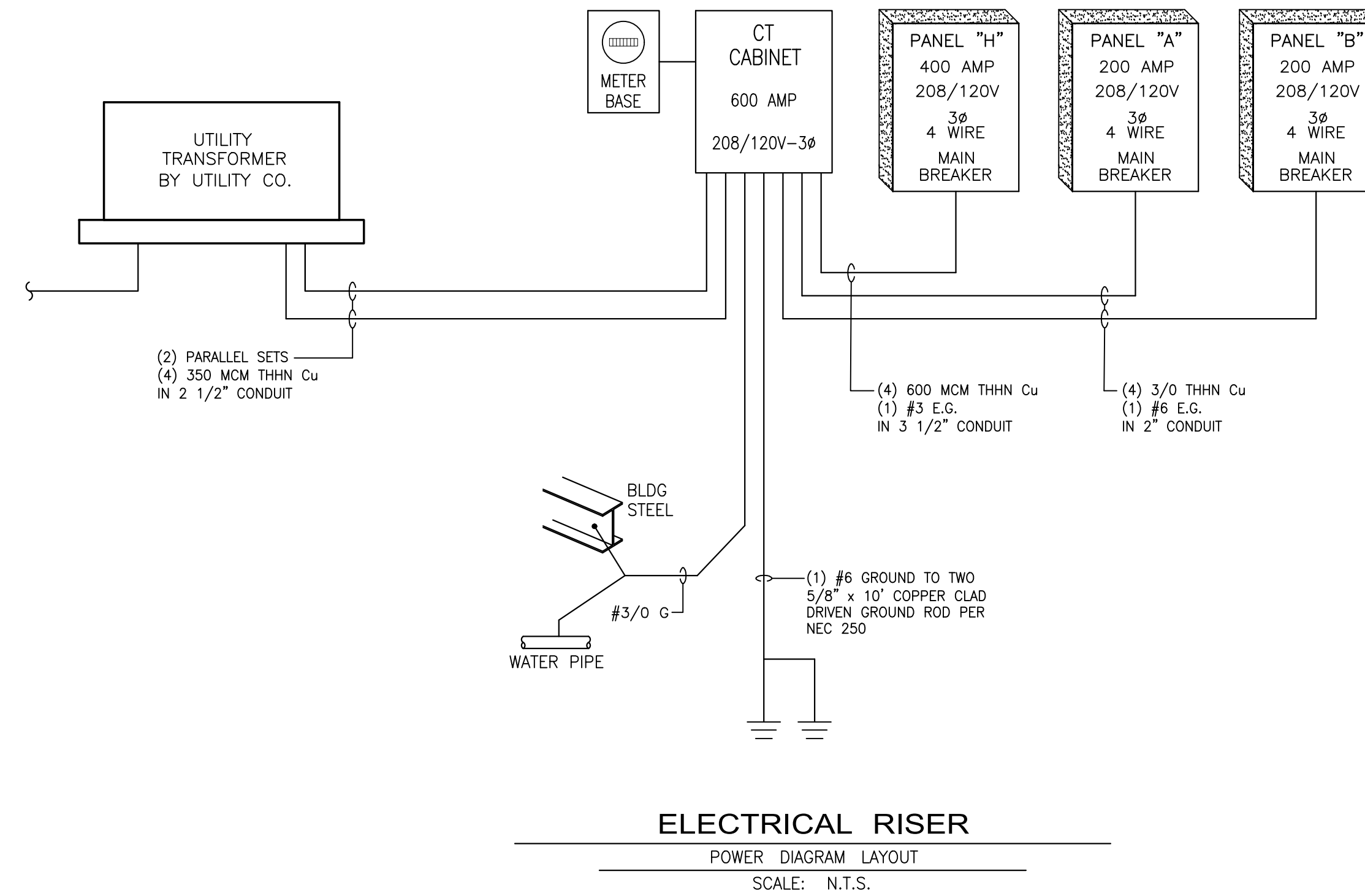
\* NOTE: VERIFY BREAKER AND CONDUCTOR SIZES WITH EQUIPMENT MANUFACTURER PRIOR TO INSTALLATION

| 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) * |
| ---                            | ---             | 35                     | 30    | 36           | #10        | ---                              |
| ---                            | ---             | 37                     | 30    | 38           | #10        | ---                              |
| ---                            | ---             | 39                     | 30    | 40           | #10        | ---                              |
| ---                            | ---             | 41                     | 30    | 42           | #10        | ---                              |

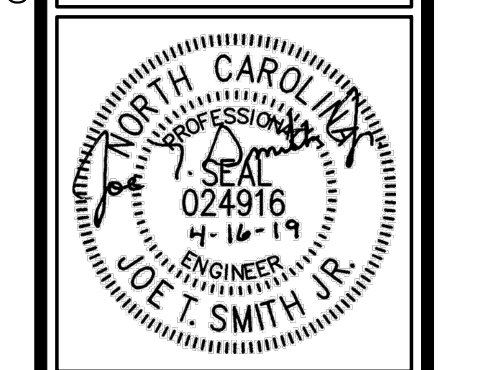
\* NOTE: VERIFY BREAKER AND CONDUCTOR SIZES WITH EQUIPMENT MANUFACTURER PRIOR TO INSTALLATION

| 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           | #10        | LATHE (GFCI BREAKER) * |
| AIR COMPRESSOR       | #8              | 25                     | 60    | 26           | #10        | WATER HEATER WH-1 *    |
| ---                  | ---             | 27                     | 20    | 28           | ---        | ---                    |
| ---                  | ---             | 29                     | 20    | 30           | ---        | ---                    |
| ---                  | ---             | 31                     | 20    | 32           | ---        | ---                    |
| ---                  | ---             | 33                     | 20    | 34           | ---        | ---                    |
| ---                  | ---             | 35                     | 20    | 36           | ---        | ---                    |
| ---                  | ---             | 37                     | 20    | 38           | ---        | ---                    |
| ---                  | ---             | 39                     | 20    | 40           | ---        | ---                    |
| ---                  | ---             | 41                     | 20    | 42           | ---        | ---                    |

\* 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                         |
| Ⓢ <sub>DPST</sub> | DOUBLE POLE SINGLE THROW SWITCH          | MOUNT 48" TOD AFF                         |
| Ⓢ <sub>SPDT</sub> | SINGLE POLE DOUBLE THROW SWITCH          | MOUNT 48" TOD AFF                         |
| Ⓢ <sub>D</sub>    | FLUORESCENT DIMMER SWITCH                | MOUNT 48" TOD AFF COORDINATE WITH BALLAST |
| Ⓢ <sub>D3</sub>   | FLUORESCENT 3-WAY DIMMER SWITCH          | MOUNT 48" TOD AFF COORDINATE WITH BALLAST |
| Ⓢ <sub>D</sub>    | 1000W INCANDESCENT DIMMER SWITCH         | MOUNT 48" TOD AFF                         |
| Ⓢ <sub>D3</sub>   | 1000W INCANDESCENT 3-WAY DIMMER SWITCH   | MOUNT 48" TOD AFF                         |
| Ⓢ <sub>D</sub>    | 2000W INCANDESCENT DIMMER SWITCH         | MOUNT 48" TOD AFF                         |
| Ⓢ <sub>D3</sub>   | 2000W INCANDESCENT 3-WAY DIMMER SWITCH   | MOUNT 48" TOD AFF                         |
| Ⓢ <sub>P</sub>    | PILOT LIGHT SWITCH                       | MOUNT 48" TOD AFF                         |
| Ⓢ <sub>T</sub>    | 15-MINUTE TIMER SWITCH W/HOLD            | -   |
| Ⓢ <sub>3</sub>    | 3 WAY SWITCH                             | MOUNT 48" TOD AFF                         |
| Ⓢ <sub>4</sub>    | 4 WAY SWITCH                             | MOUNT 48" TOD AFF                         |
| Ⓢ <sub>K</sub>    | KEYED SWITCH                             | MOUNT 48" TOD AFF                         |
| Ⓢ <sub>K3</sub>   | KEYED 3-WAY SWITCH                       | MOUNT 48" TOD AFF                         |
| Ⓢ <sub>M</sub>    | MANUAL MOTOR STARTER SWITCH              | MOUNT AS REQUIRED                         |
| Ⓢ                 | RECEPTACLE                               | MOUNT 16" BOD AFF                         |
| Ⓢ                 | UPS RECEPTACLE                           | MOUNT 16" BOD AFF                         |
| Ⓢ <sub>IG</sub>   | ISOLATED GROUND RECEPTACLE               | MOUNT 16" BOD AFF                         |
| Ⓢ <sub>GFI</sub>  | GROUND FAULT RECEPTACLE                  | MOUNT 6" ABV. COUNTER                     |
| Ⓢ <sub>WP</sub>   | GROUND FAULT, WEATHERPROOF RECEPT.       | MOUNT 24" BOD AFG                         |
| Ⓢ <sub>CLG</sub>  | CEILING RECEPTACLE                       | -   |
| Ⓢ <sub>TR</sub>   | TAMPER RESISTANT RECEPTACLE              | -   |
| Ⓢ <sub>S</sub>    | SPECIAL RECEPTACLE                       | -   |
| Ⓢ <sub>FLR</sub>  | 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          |
| <b>TOTAL</b>  | <b>224.89 KVA</b> |                  | <b>184.65 KVA</b> |
| SERVICE LOAD  |                   |                  |                   |
| $\frac{184.65 \text{ KVA}}{0.208 \times \sqrt{3}} = 513 \text{ AMPS}$ |                   |                  |                   |

**ELECTRICAL SYSTEM AND EQUIPMENT**

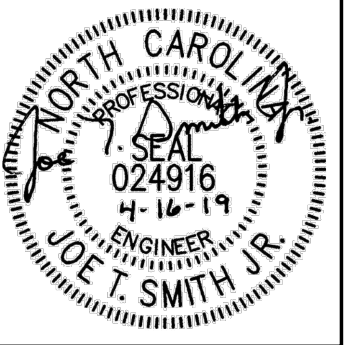
METHOD OF COMPLIANCE:  
 PRESCRIPTIVE  PERFORMANCE  TRADE-OFF

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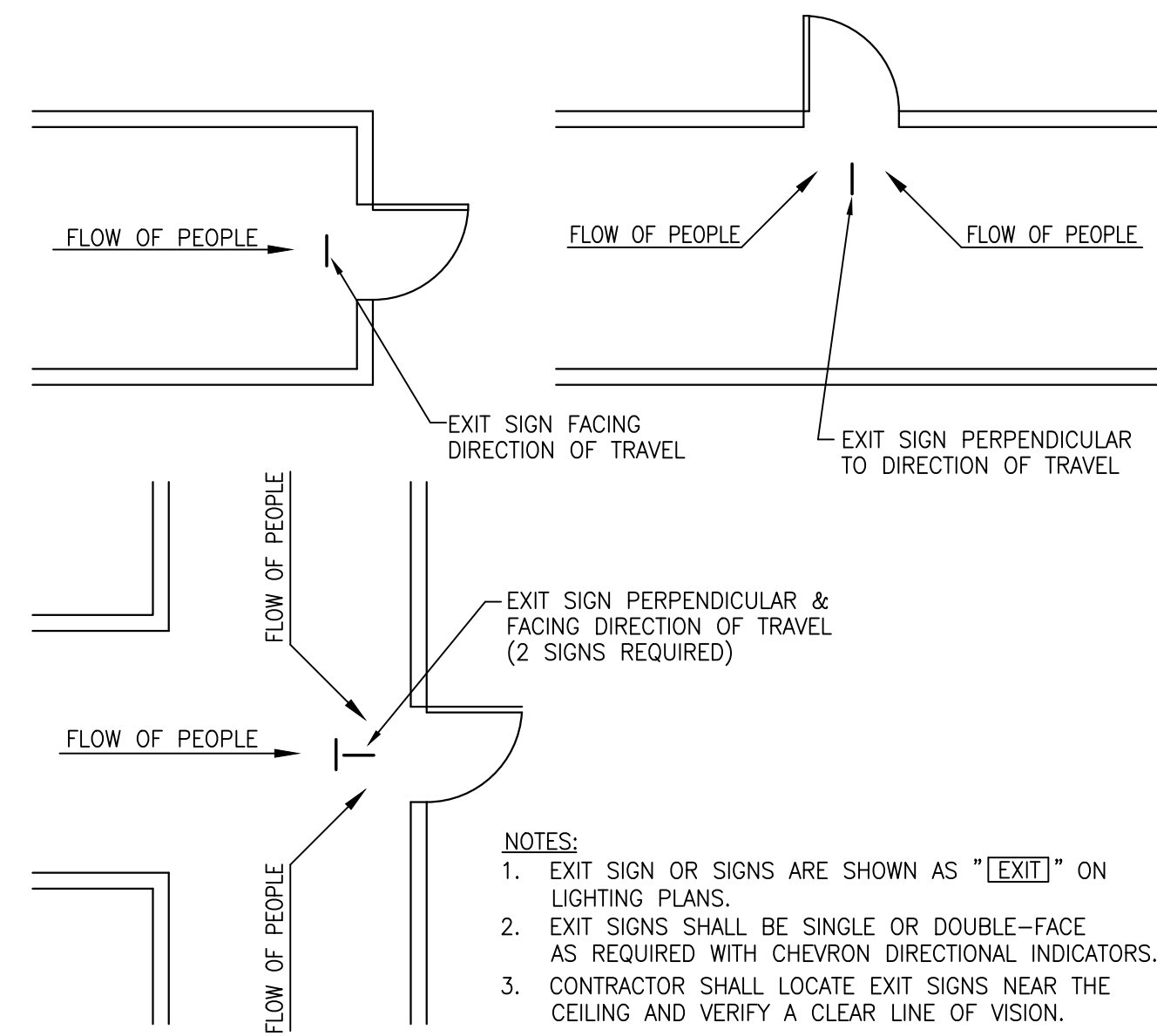
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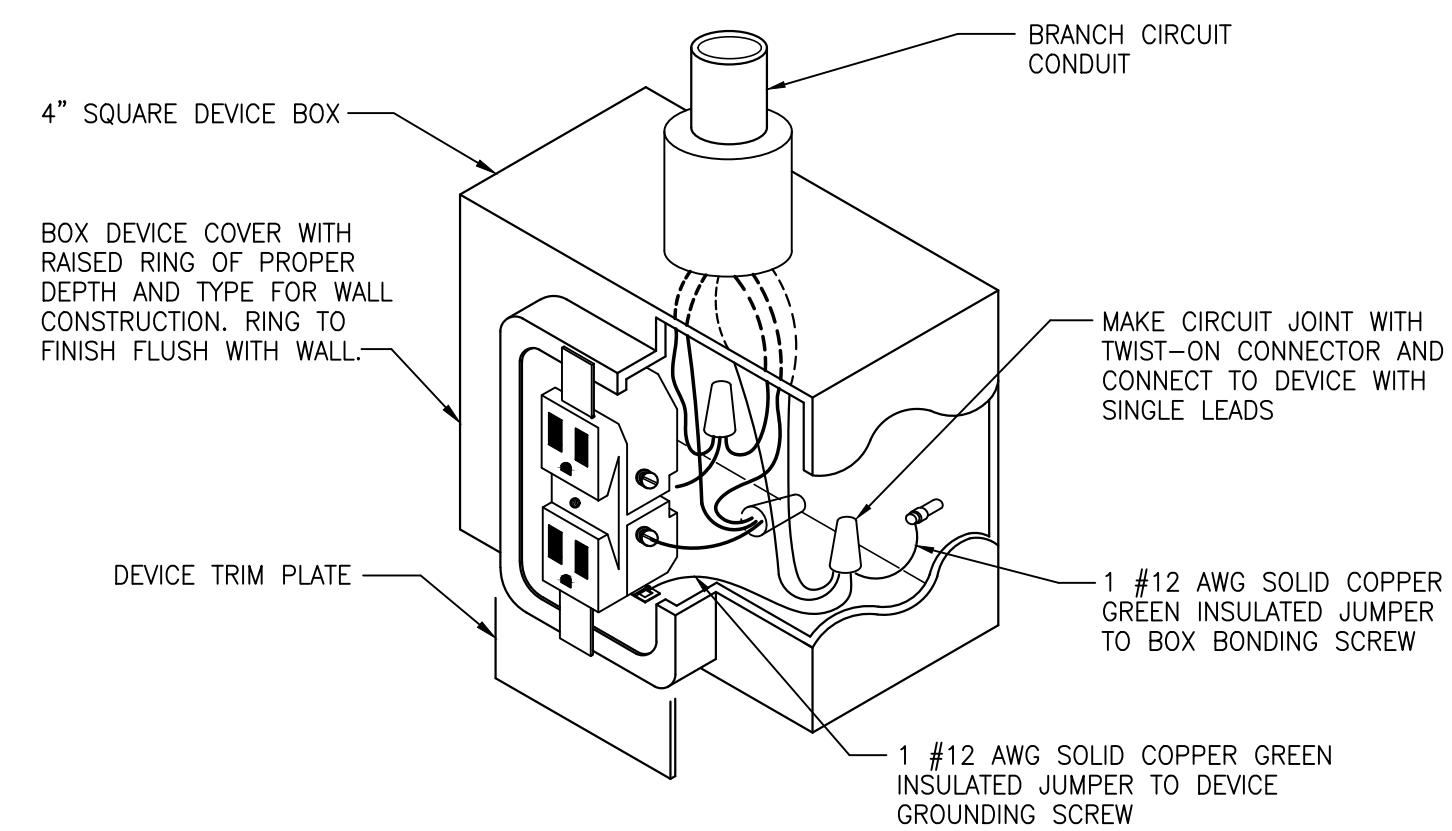
New Facility for:  
**Campbell University  
 Engineering Annex II**  
 Buies Creek, NC

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

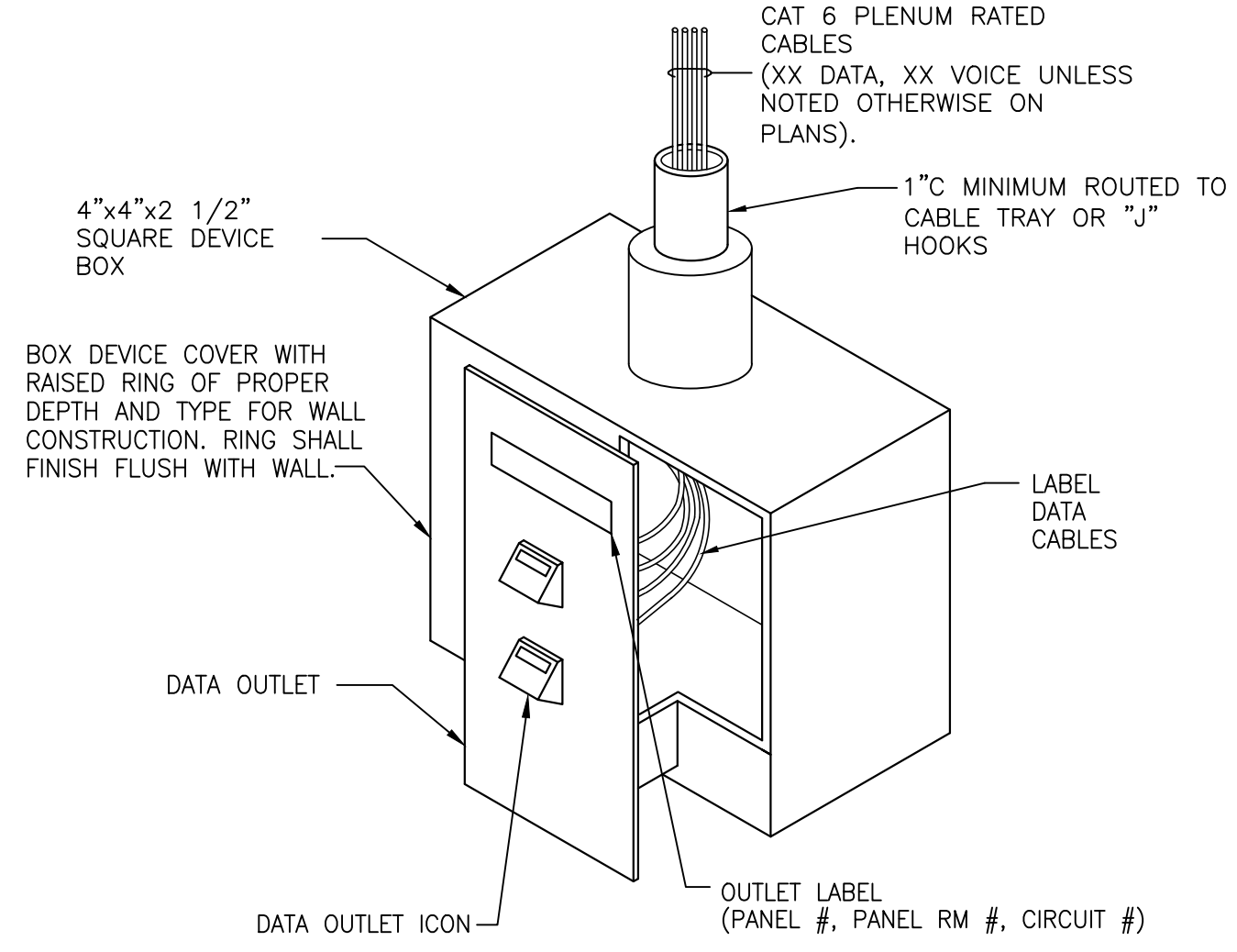


**DETAIL NO. 1**  
LOCATIONS OF EXIT SIGNS  
SCALE: NTS

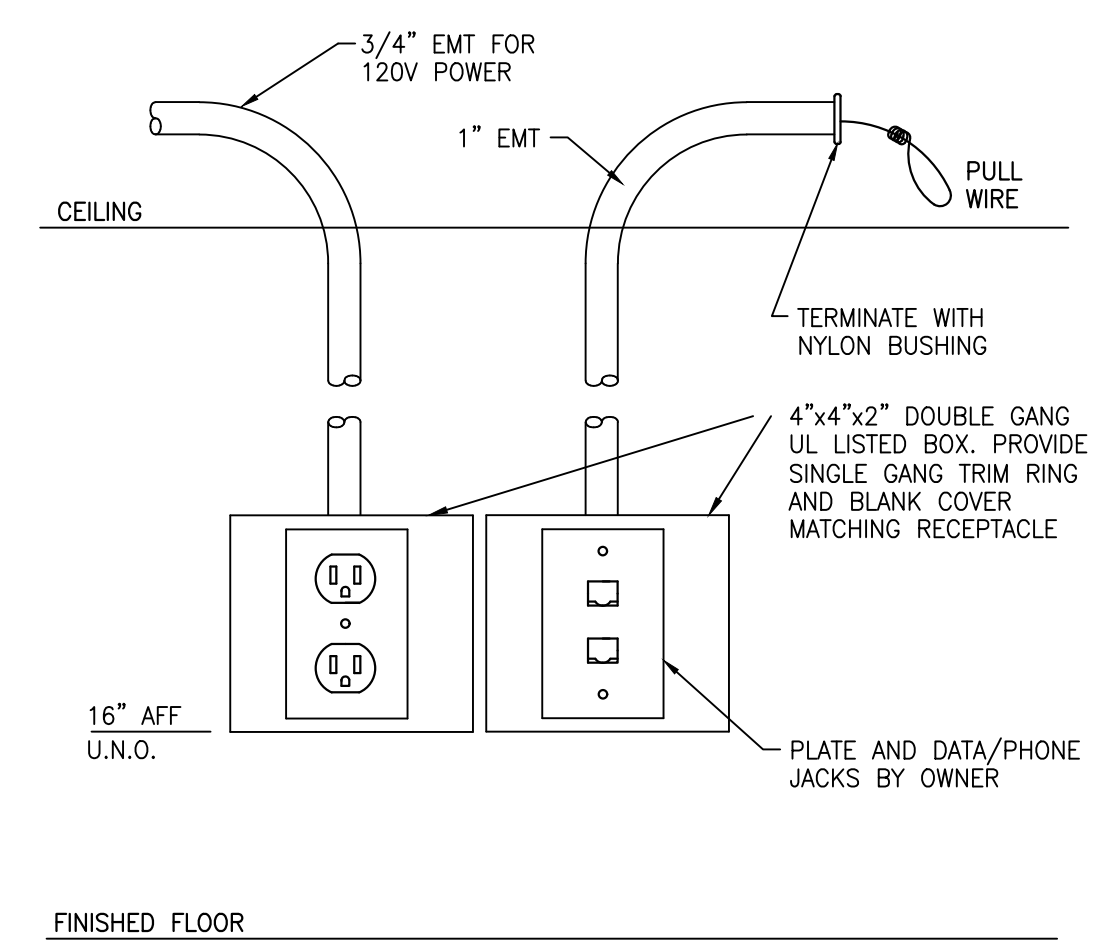
- NOTES:**
- EXIT SIGN OR SIGNS ARE SHOWN AS "EXIT" ON LIGHTING PLANS.
  - EXIT SIGNS SHALL BE SINGLE OR DOUBLE-FACE AS REQUIRED WITH CHEVRON DIRECTIONAL INDICATORS.
  - CONTRACTOR SHALL LOCATE EXIT SIGNS NEAR THE CEILING AND VERIFY A CLEAR LINE OF VISION.



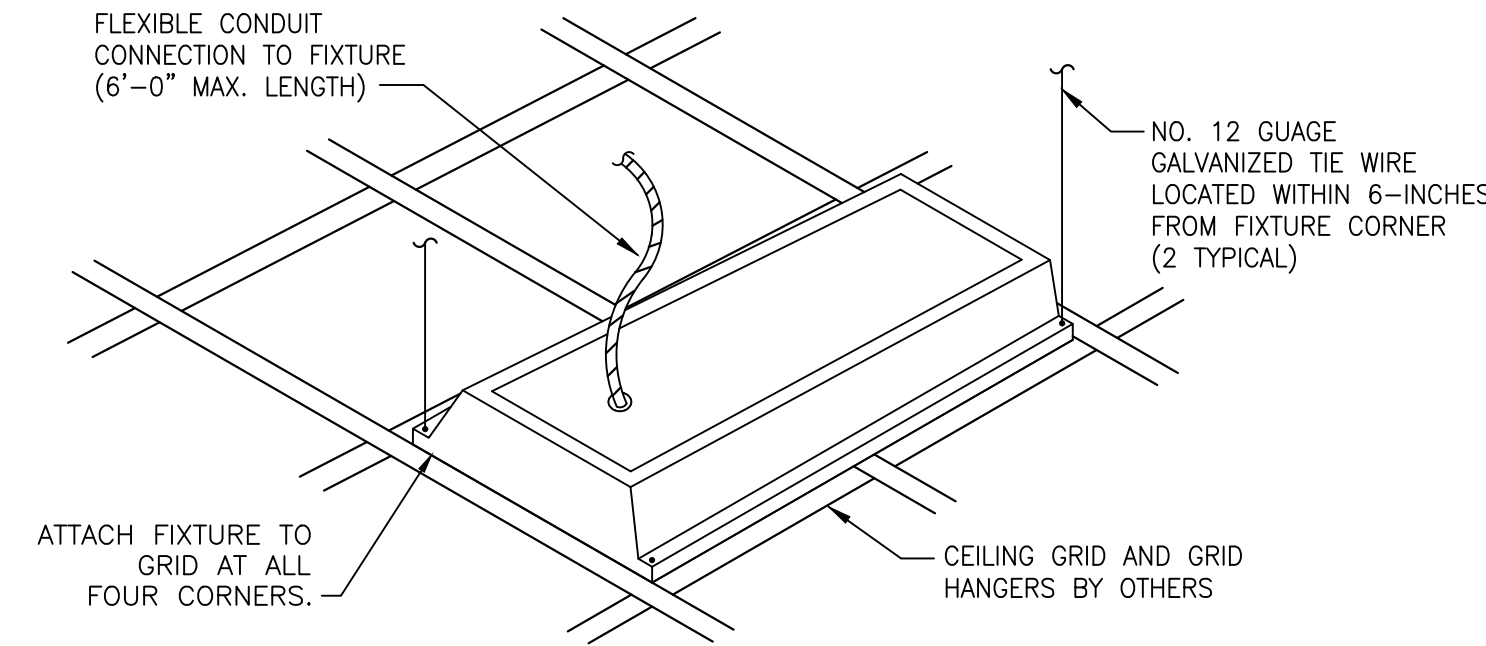
**DETAIL NO. 2**  
RECEPTACLE GROUNDING DIAGRAM  
SCALE: NTS



**DETAIL NO. 3**  
DATA OUTLET  
SCALE: NTS



**DETAIL NO. 4**  
POWER/DATA/PHONE OUTLET  
SCALE: NTS

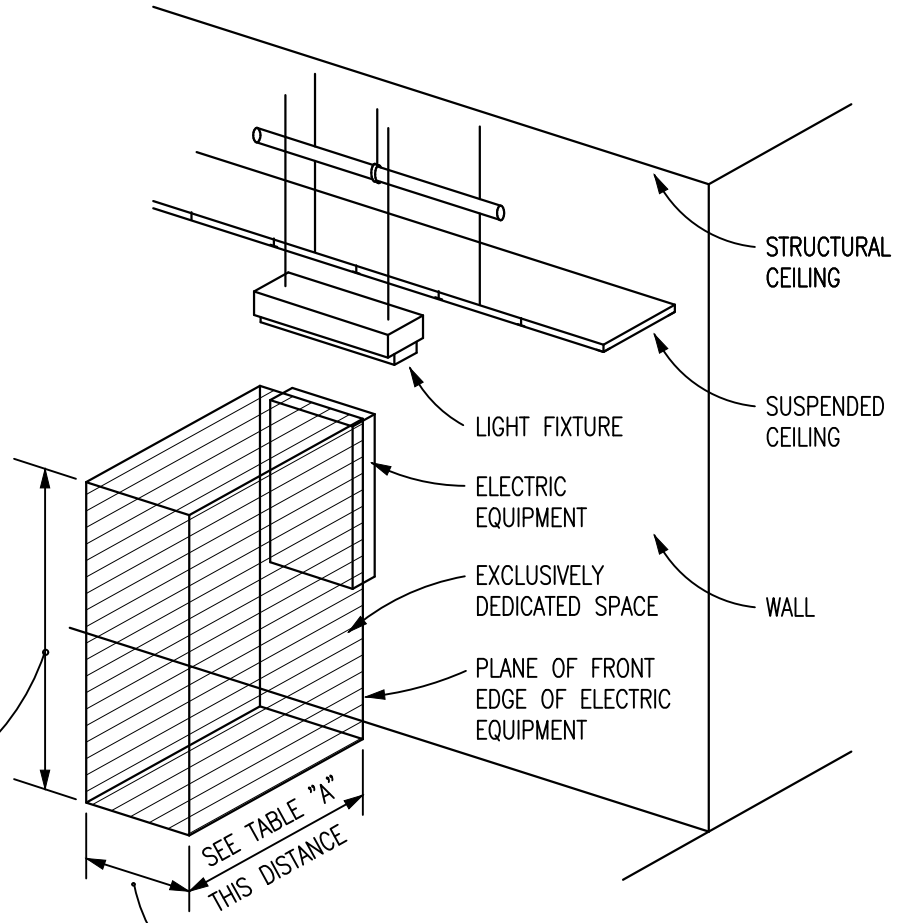


**DETAIL NO. 5**  
TYPICAL RECESSED FIXTURE SUPPORT  
SCALE: NTS

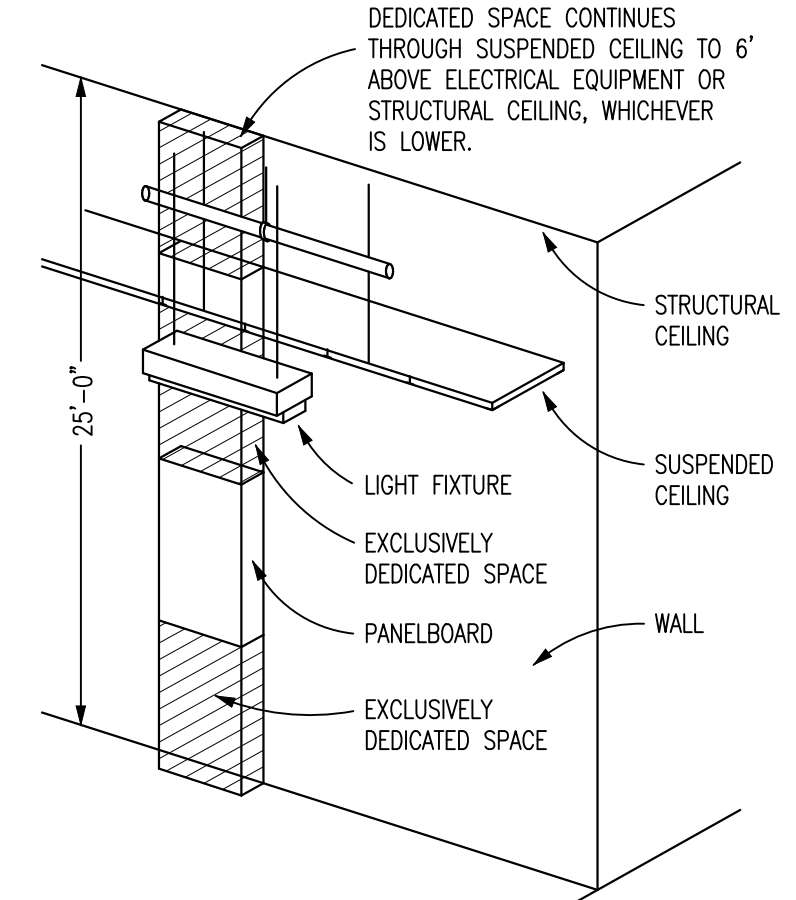
**TABLE "A"**  
**WORKING CLEARANCES**

| VOLTAGE TO GROUND (NOMINAL) | CONDITION 1              | CONDITION 2 | CONDITION 3 |
|-----------------------------|--------------------------|-------------|-------------|
|                             | (MINIMUM CLEAR DISTANCE) |             |             |
| 0-150                       | 3'                       | 3'          | 3'          |
| 151-600                     | 3'                       | 3 1/2'      | 4'          |

- 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.

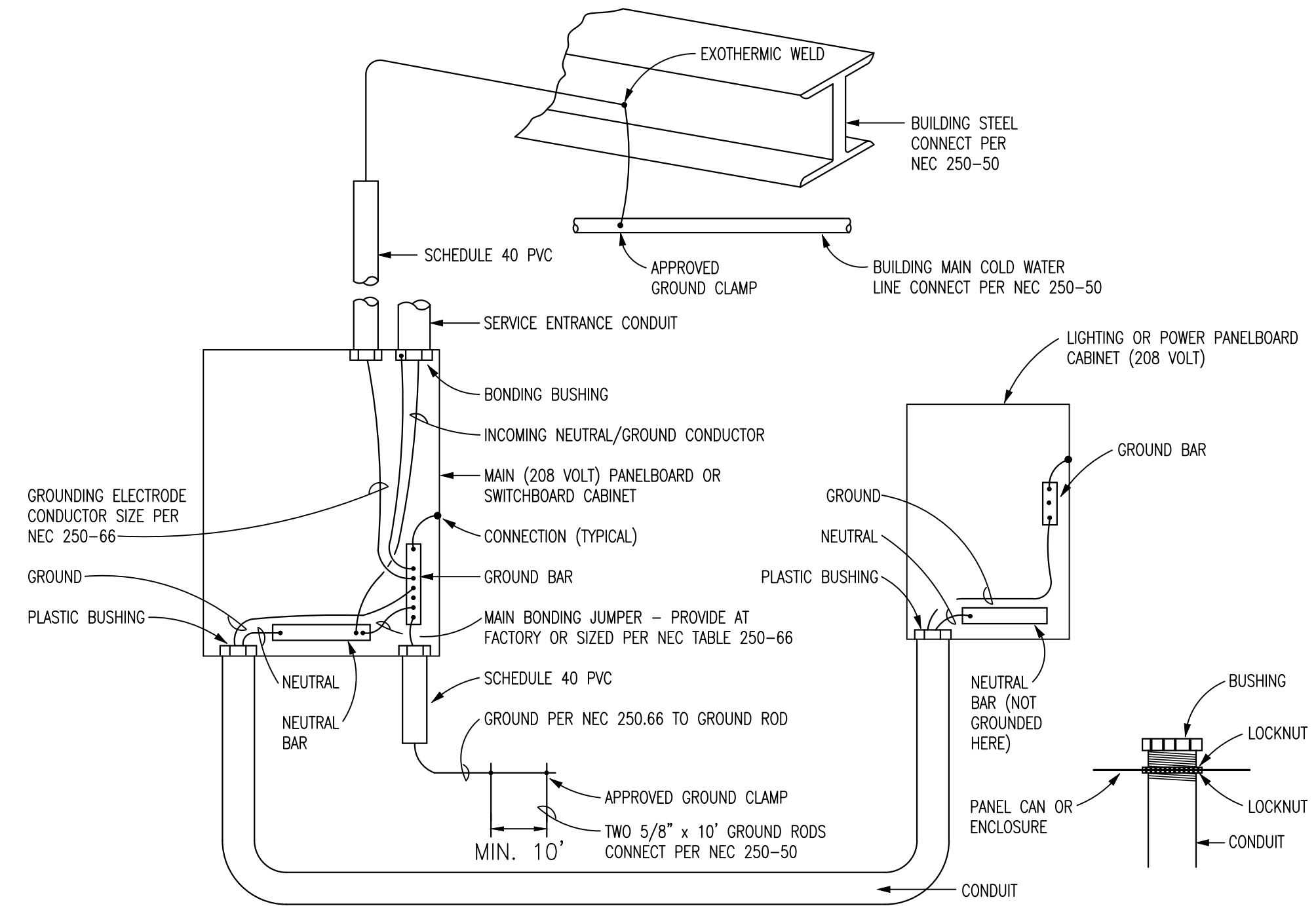


**DETAIL NO. 6**  
DEDICATED WORKING SPACE REQUIREMENTS  
SCALE: NTS



- 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.

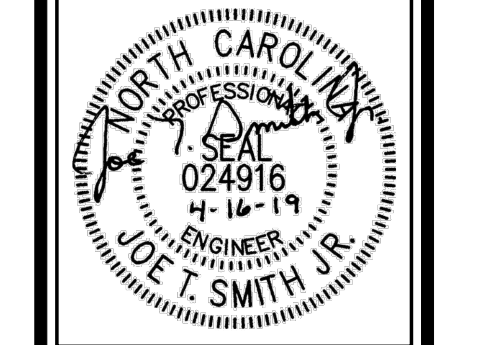
PANELBOARDS



- 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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**E-5**