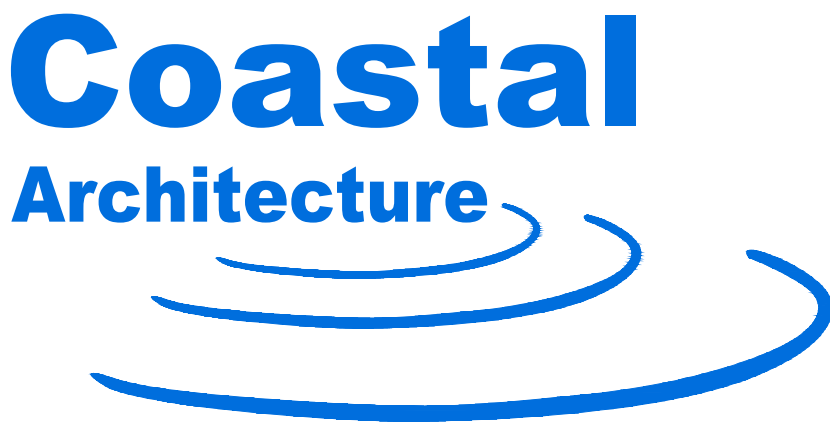


STYRON TREE SERVICE OFFICE

NEWPORT, NORTH CAROLINA

DRAWING LIST

CS-1	COVER SHEET
G-1	GENERAL DATA
G-2	LIFE SAFETY PLAN
A-1	FLOOR PLAN, FOUNDATION PLAN, AND ROOF FRAMING PLAN
A-3	DOOR & ROOM FINISH SCHEDULES AND TOILET ELEVATIONS & DETAILS
A-4	EXTERIOR ELEVATIONS
A-5	WALL SECTIONS
P-1	PLUMBING SPECIFICATIONS
P-2	PLUMBING PLAN
M-1	HVAC SCHED. NOTES AND LEGENDS
M-2	HVAC PLANS, SPECS, AND DETAILS
E-1	ELECTRICAL SPECIFICATIONS
E-2	ELECTRICAL PLANS



Coastal Architecture, DRAWINGS, SPECIFICATIONS, AND OTHER DOCUMENTS

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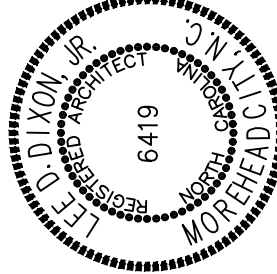
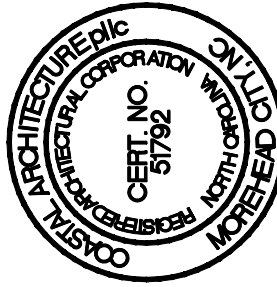
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STYRON TREE SERVICE OFFICE

NEWPORT, N.C.



COVER SHEET

21034

ISSUED: 10/19/21

DWG BY: BLS

CKD BY: LDD

REVISIONS

SHEET NO.

CS-1
OF

APPENDIX B
2018 BUILDING CODE SUMMARY
FOR ALL COMMERCIAL PROJECTS
(EXCEPT ONE- AND TWO-FAMILY DWELLINGS AND TOWNHOUSES)

Name of Project: **STYRON TREE SERVICE OFFICE**
Address: **NEWPORT, NORTH CAROLINA** Zip Code: **28510**
Owner/Authorized Agent: **STYRON** Phone # (**252**) **126** - **0311** E-Mail: **-**
Owned By: ☐ City/County ☒ Private ☐ State
Code Enforcement Jurisdiction: ☒ City **NEWPORT** ☐ County ☐ State

CONTACT:
DESIGNER FIRM NAME LICENSE # TELEPHONE # E-MAIL
Architectural **Coastal Architecture** **Lee Dixon** **6419** (**252**) **241-2121** **lee@coastalarchitecture.net**
Civil **-** **-** **-** **-** **-**
Electrical **Burke Design Group** **Ben Burke** **22038** (**919**) **111-1916** **benburke@ncrr.com**
Fire Alarm **Burke Design Group** **Ben Burke** **22038** (**919**) **111-1916** **benburke@ncrr.com**
Plumbing **Burke Design Group** **Ben Burke** **22038** (**919**) **111-1916** **benburke@ncrr.com**
Mechanical **Burke Design Group** **Ben Burke** **22038** (**919**) **111-1916** **benburke@ncrr.com**
Sprinkler-Standpipe **-** **-** **-** **-** **-**
Structural **-** **-** **-** **-** **-**
Retaining Walls > 5 feet High **-** **-** **-** **-** **-**
Other **-** **-** **-** **-** **-**
(*Other* should include firms and individuals such as truss, precast, pre-engineered, interior designers, etc.)

2018 NC BUILDING CODE: ☒ New Building ☐ Shell/Core ☐ 1st Time Interior Completions
☐ Addition ☐ Phased Construction—Shell Core
2018 NC EXISTING BUILDING CODE: ☐ Prescriptive ☐ Alteration Level I ☐ Historic Property
(check all that apply) ☐ 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): _____
OCCUPANCY CATEGORY (Table 1604.5): Current: _____ Proposed: _____

BASIC BUILDING DATA
Construction Type: ☐ I-A ☐ I-B ☐ I-A ☐ IV ☐ V-A
(check all that apply) ☐ I-B ☐ II-B ☐ II-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 ☐ Flood Hazard Area: ☐ No ☐ Yes
Special Inspections Required: ☐ No ☐ Yes

OFFICE GROSS BUILDING AREA TABLE		
Floor	Existing (sq ft)	New (sq ft)
3rd Floor		
2nd Floor		
Mezzanine		
1st Floor		1,120 + 240 (COVERED PORCH)
Basement		
TOTAL		1,360

ENERGY SUMMARY

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 versus the 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: ☒ 3A ☐ 4A ☐ 5A
Method of Compliance:
Energy Code: ☐ Performance ☒ Prescriptive
ASHRAE 90.1: ☐ Performance ☐ Prescriptive
Other: ☐ Performance (specify source) _____

THERMAL ENVELOPE: (Prescriptive method only)
Roof/ceiling Assembly (each assembly)
Description of assembly: **STANDING SEAM ROOF ON PLYWOOD ON TRUSSES W/ GWB CEILING**
U-Value of total assembly: _____
R-Value of insulation: **R-9**
Skylights in each assembly: **N/A**
U-Value of skylight: **N/A**
total square footage of skylights in each assembly: _____
Exterior Walls (each assembly)
Description of assembly: **2 x 6 STUDS W/ SIDING, PLYWOOD AND GWB INTERIOR**
U-Value of total assembly: _____
R-Value of insulation: **R-9**
Openings (windows or doors with glazing)
U-Value of assembly: _____
Solar heat gain coefficient: _____
projection factor: _____
Door R-Values: _____
Walls below grade (each assembly)
Description of assembly: _____
U-Value of total assembly: _____
R-Value of insulation: _____
Floors over unconditioned space (each assembly)
Description of assembly: _____
U-Value of total assembly: _____
R-Value of insulation: _____
Floors slab on grade
Description of assembly: _____
U-Value of total assembly: _____
R-Value of insulation: _____
Horizontal/vertical requirement: _____
slab heated: _____

STRUCTURAL DESIGN

DESIGN LOADS:
Importance Factors: Wind (IW) _____
Snow (IS) **10**
Seismic (IE) _____
Live Loads: Roof **20** psf
Mezzanine _____
Floor **50** psf
Ground Snow Load: **10** psf
Wind Load: Basic Wind Speed **141** mph (ASCE-7)
Exposure Category **C**
SEISMIC DESIGN CATEGORY: ☐ A ☒ B ☐ C ☐ D
Provide the following Seismic Design Parameters:
Occupancy Category (Table 1604.5) ☐ I ☒ II ☐ III ☐ IV
Spectral Response Acceleration **SS 0.204** %g **S1 0.51** %g
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) _____ psf
Presumptive Bearing capacity **1500** psf
Pile size, type, and capacity _____

MECHANICAL DESIGN

MECHANICAL SUMMARY

MECHANICAL SYSTEMS, SERVICE SYSTEMS AND EQUIPMENT

Thermal Zone
winter dry bulb: _____
summer dry bulb: _____

Interior design conditions
winter dry bulb: _____
summer dry bulb: _____
humidity ratio: _____
Building heating load: _____

Building cooling load: _____

Mechanical Spacing Conditioning System

Unitary
description of unit: _____
heating efficiency: _____
cooling efficiency: _____
size category of unit: _____
Boiler
Size category. If oversized, state reason: _____
Chiller
Size category. If oversized, state reason: _____
List equipment efficiencies: _____

ELECTRICAL DESIGN

ELECTRICAL SUMMARY

ELECTRICAL SYSTEM AND EQUIPMENT

Method of Compliance:
Energy Code: ☐ Prescriptive ☐ Performance
ASHRAE 90.1: ☐ Prescriptive ☐ Performance

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

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

PERCENTAGE OF WALL OPENING CALCULATIONS

FIRE SEPARATION DISTANCE (feet) FROM PROPERTY LINES	DEGREE OF OPENINGS PROTECTION (TABLE 705.8)	ALLOWABLE AREA (%)	ACTUAL SHOWN ON PLANS (%)
> 30	N.L.	N.L.	N.L.

LIFE SAFETY SYSTEM REQUIREMENTS

Emergency Lighting: ☒ Yes ☐ No
Exit Signs: ☒ Yes ☐ No
Fire Alarm: ☐ Yes ☒ No
Smoke Detection Systems: ☐ Yes ☒ No
Carbon Monoxide Detection: ☐ Yes ☒ No

LIFE SAFETY PLAN REQUIREMENTS

Life Safety Plan Sheet #: **G-2**
☒ Fire and/or smoke rated wall locations (Chapter 7)
☒ Assumed and real property line locations (If not on the site plan)
☒ Exterior wall opening area with respect to distance to assumed property lines (705.8)
☒ 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 # OF PARKING SPACES		# OF ACCESSIBLE SPACES PROVIDED			TOTAL # ACCESSIBLE UNITS PROVIDED
	REQUIRED	PROVIDED	REGULAR WITH 5' ACCESS AISLE	VAN SPACES WITH 132" ACCESS AISLE	8' ACCESS AISLE	
TOTAL						

PLUMBING FIXTURE REQUIREMENTS (TABLE 2902.1)

USE	WATERCLOSETS			URINALS	LAVATORIES			SHOWERS/ TUBS	DRINKING FOUNTAINS	
	Male	Female	Unisex		Male	Female	Unisex		Regular	Accessible
REQ'D			1	-			1	-	-	1
PROVIDED			1	-			1	-	-	1

SPECIAL APPROVALS

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

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• Architectural
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• Planning
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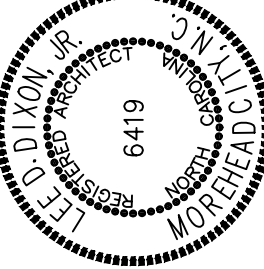
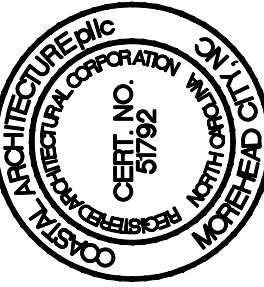
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STYRON TREE SERVICE OFFICE

NEWPORT, N.C.



GENERAL DATA

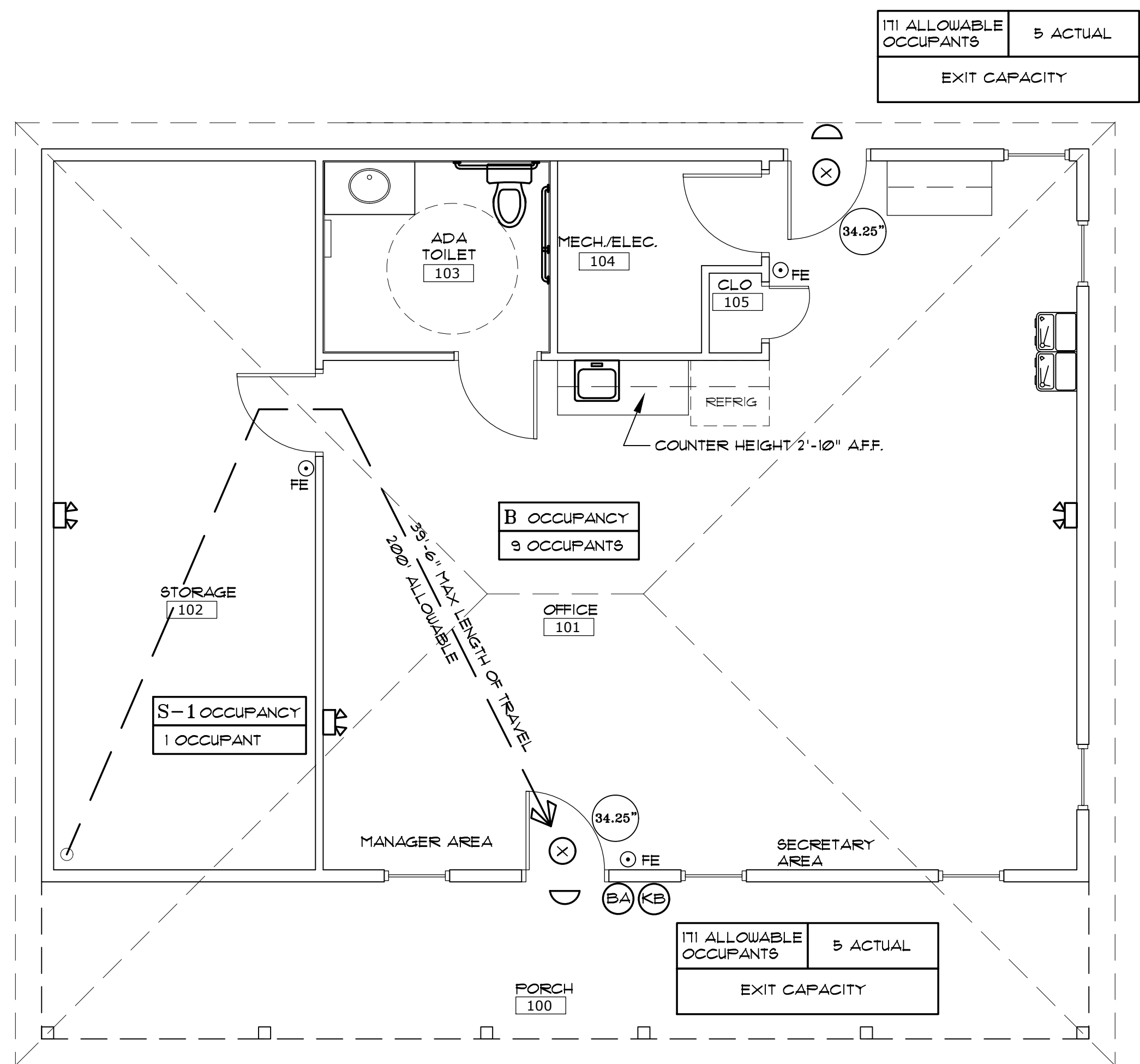
21034

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REVISIONS

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G-1
OF



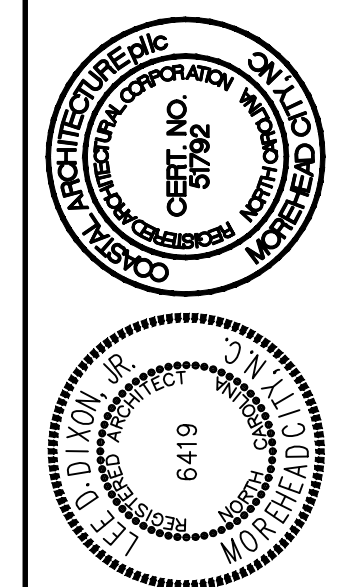
OFFICE LIFE SAFETY PLAN
SCALE: 1/4" = 1'-0"
NON SEPARATED MIXED USE

OCCUPANCY/LOAD TYPE KEYING:

- B = BUSINESS
S-1 = STORAGE (NON SEPARATED MIXED USE)

LEGEND:

- FE (F) = FIRE EXTINGUISHER ON STANDARD HOOK
(34.25") = CLEAR EXIT WIDTH
(X) = EXIT
(BA) = BUILDING ADDRESS- 6" MIN. HEIGHT, ON CONTRASTING BACKGROUND, READILY VISIBLE FROM STREET
(KB) = KNOX BOX, FIRE DEPARTMENT KEY LOCK BOX CONFIRM LOCATION W/ FIRE DEPARTMENT
(EL) = EMERGENCY LIGHT
(DL) = EGRESS LIGHT



LIFE SAFETY PLANS

21034

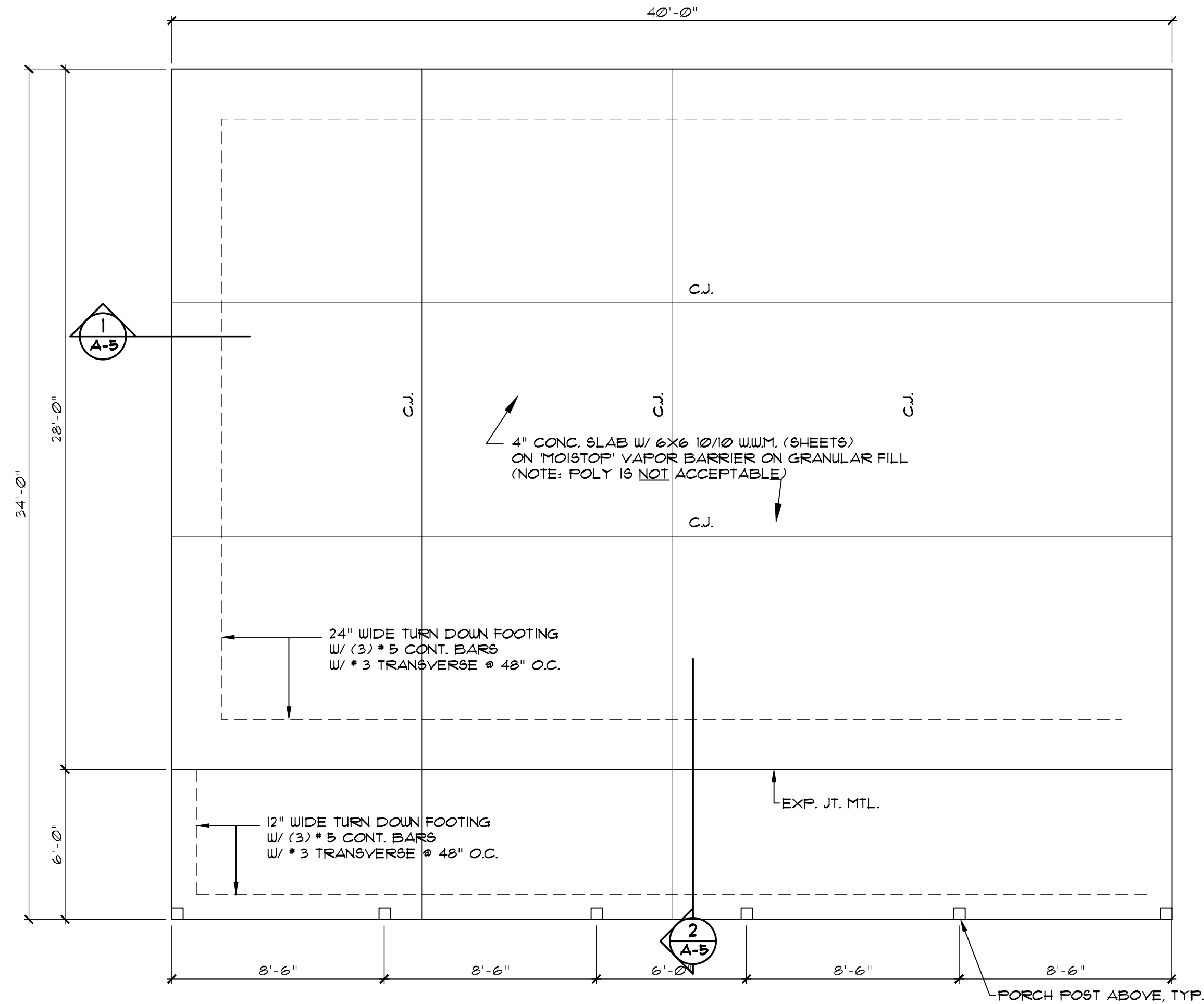
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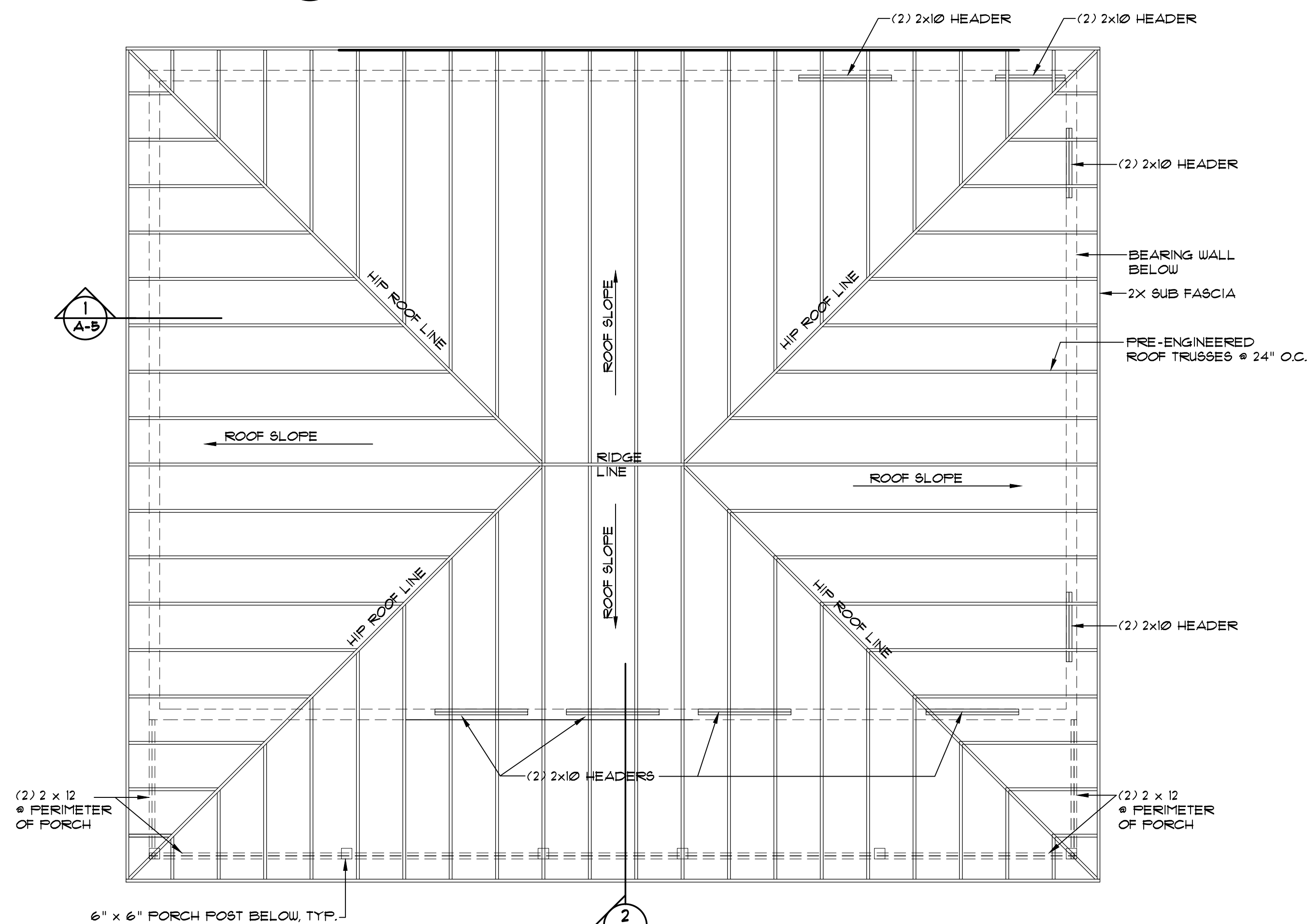
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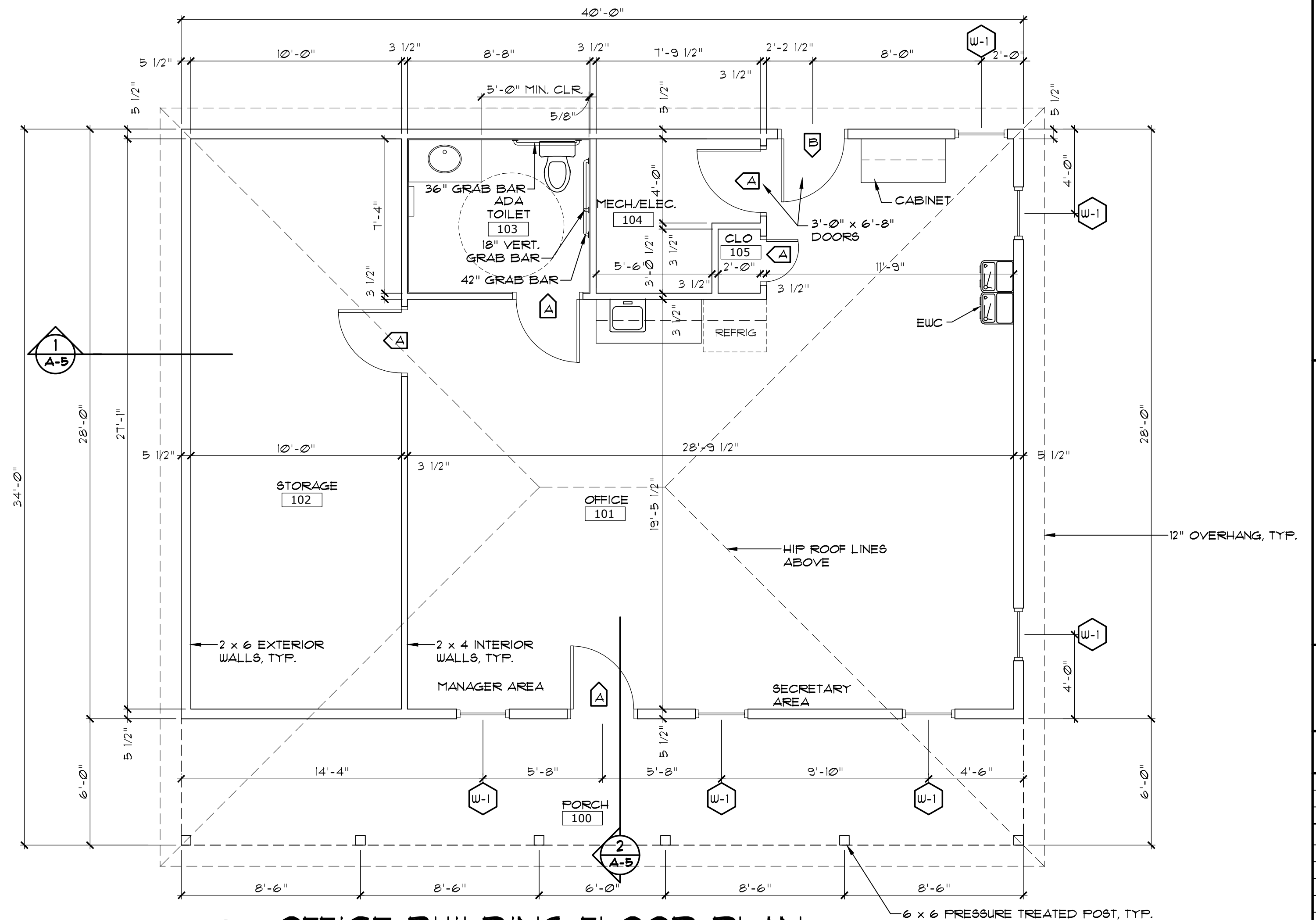
SHEET NO.
G-2
OF



2 OFFICE BUILDING FOUNDATION PLAN
SCALE: 1/4"=1'-0"



3 OFFICE BUILDING ROOF FRAMING PLAN
SCALE: 1/4"=1'-0"

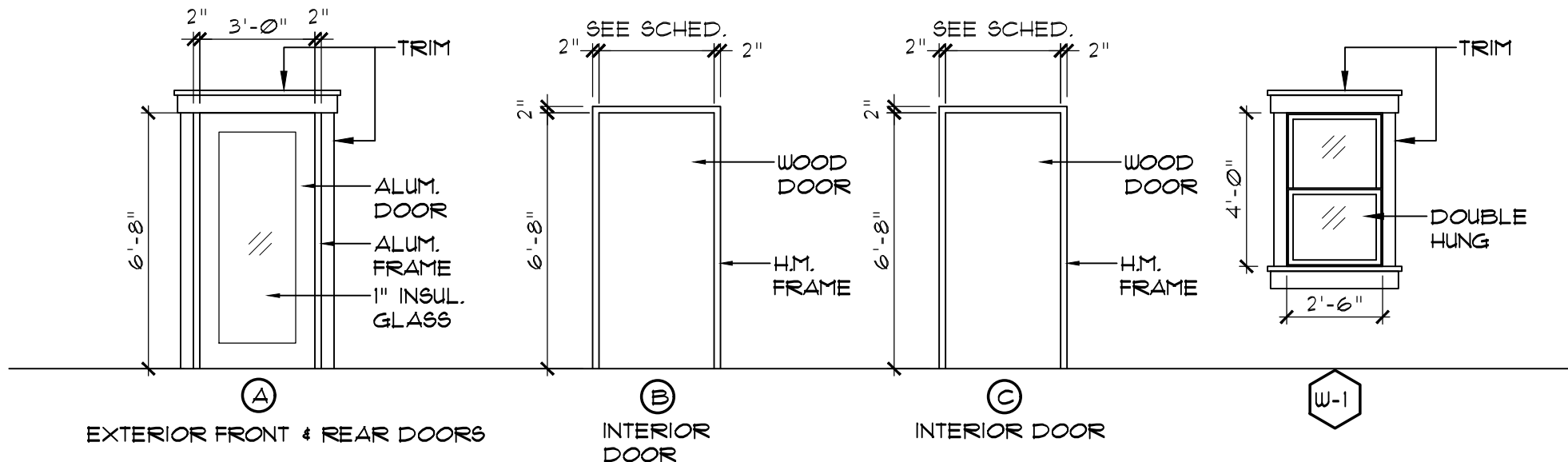


1 OFFICE BUILDING FLOOR PLAN
SCALE: 1/4"=1'-0"

DOOR LEGEND	
OFFICE	DOOR 101A
ROOM	DOOR 101A

WINDOW SCHEDULE				
MARK	TYPE	SIZE (NOMINAL)	MODEL	REMARKS
W-1	SEE ELEVATION	2'-6"W x 4'-0"H	-	MEET REQ'D WIND LOAD

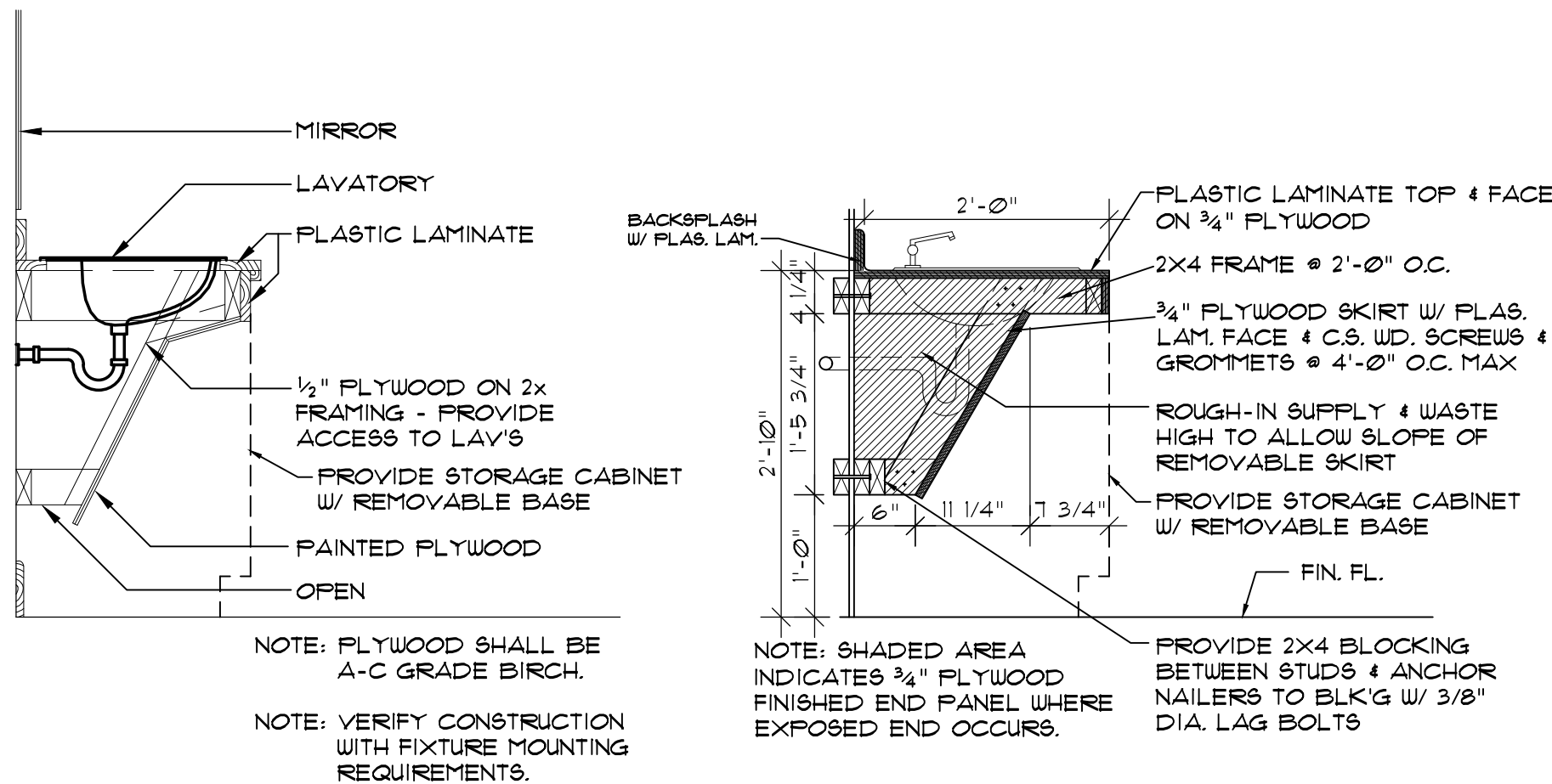
ALL GLASS TO BE TEMPERED



NOTE: ALL GLASS IS TEMPERED

A-3 DOOR & WINDOW ELEVATIONS

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



B-3 DETAIL @ VANITY

SCALE: 1" = 1'-0"

C-3 SECTION @ VANITY

SCALE: 1" = 1'-0"

DOOR SCHEDULE					
DOOR NO.	SIZE	DOOR		FRAME	
		MAT.	TYPE	MAT.	TYPE
101A	3'-0" X 6'-8"	ALUM.	A	ALUM.	A
102A	3'-0" X 6'-8"	H.M.	C	H.M.	C
103A	3'-0" X 6'-8"	WD	B	H.M.	B
104A	3'-0" X 6'-8"	WD	B	H.M.	B
105A	2'-0" X 6'-8"	WD	B	H.M.	B

DOOR LEGEND

OFFICE
101

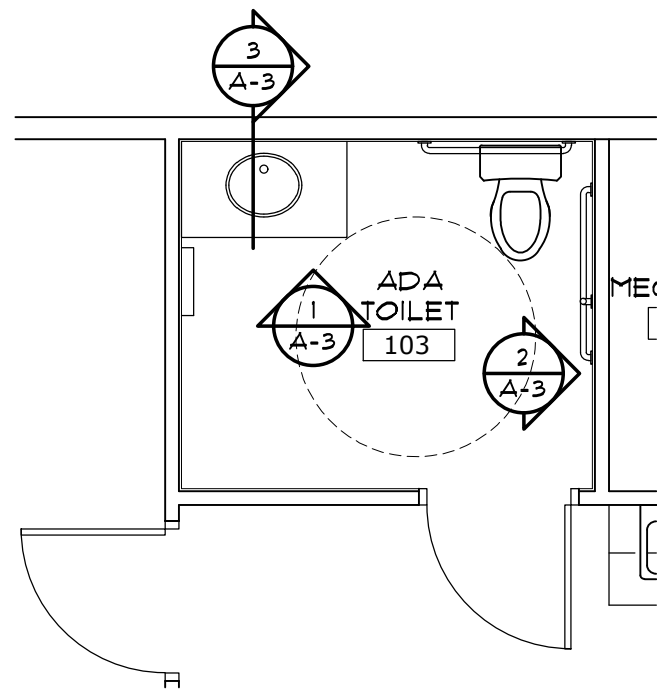


DOOR 101A

DOOR INDICATOR
ROOM #

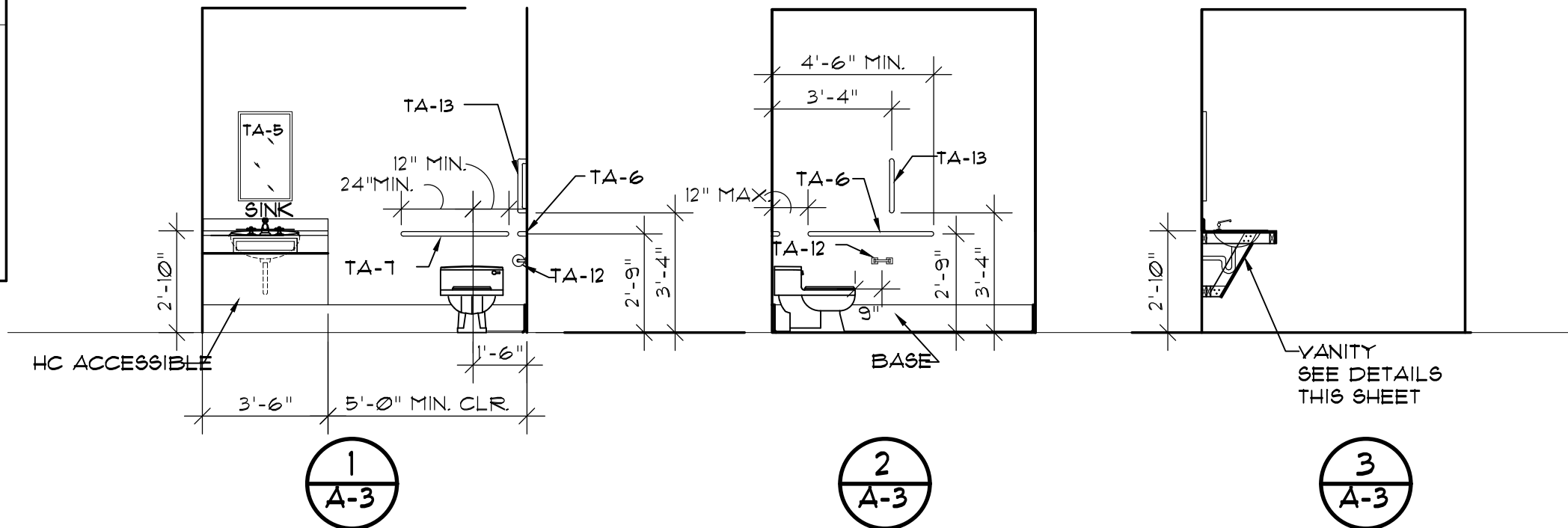
ROOM FINISH SCHEDULE						
ROOM NUMBERS	ROOM	FLOORS	BASE	WALLS	CEILINGS	HEIGHT (NOMINAL)
100	PORCH	CONC. BROOM FINISH	-	-	HARDI PANEL - PTD	8'-2"
101	OFFICE	LVP	WD-PTD	GWB-PTD	GWB-PTD	8'-2"
102	STORAGE	CONC. SEALED	WD-PTD	GWB-PTD	GWB-PTD	8'-2"
103	TOILET	LVP	WD-PTD	GWB-PTD	GWB-PTD	8'-2"
104	MECH/ELEC.	LVP	WD-PTD	GWB-PTD	GWB-PTD	8'-2"
105	CLOSET	LVP	WD-PTD	GWB-PTD	GWB-PTD	8'-2"

ROOM FINISH SCHEDULE REMARKS



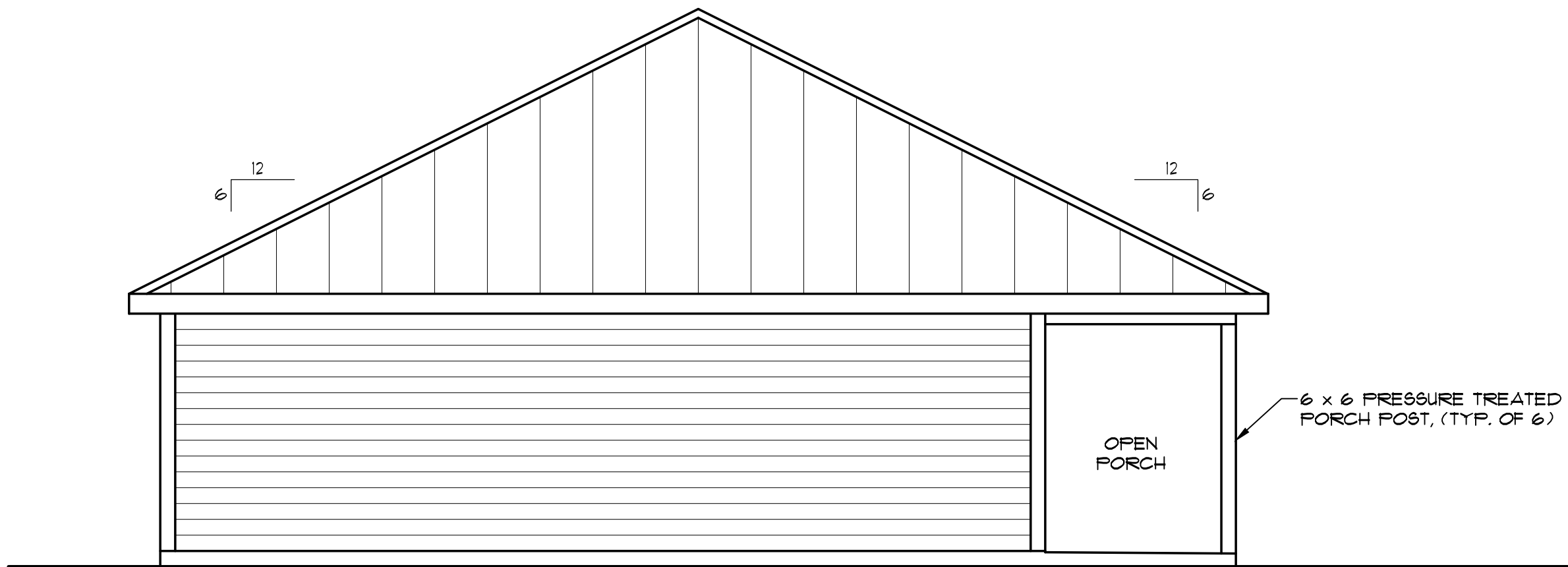
PLAN

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

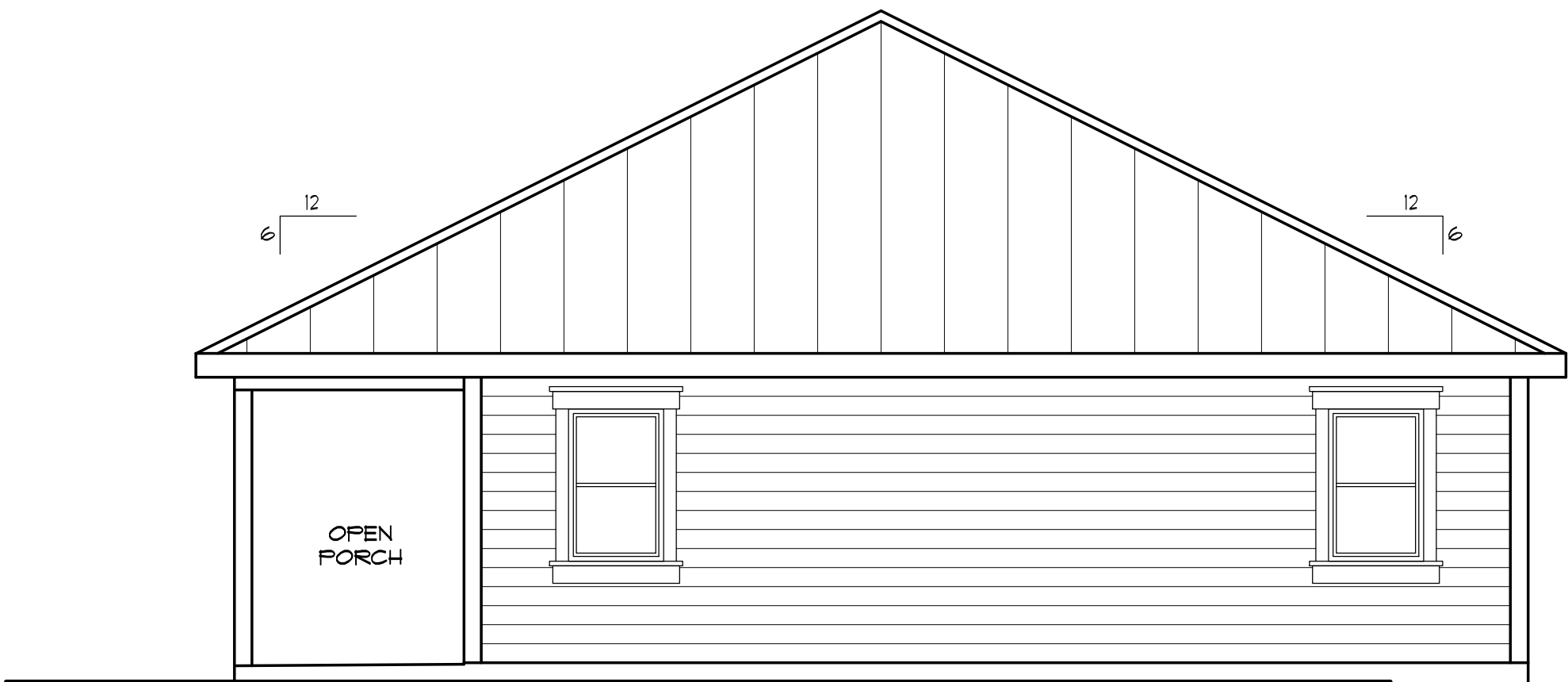


D-3 TOILET 103 ELEVATIONS

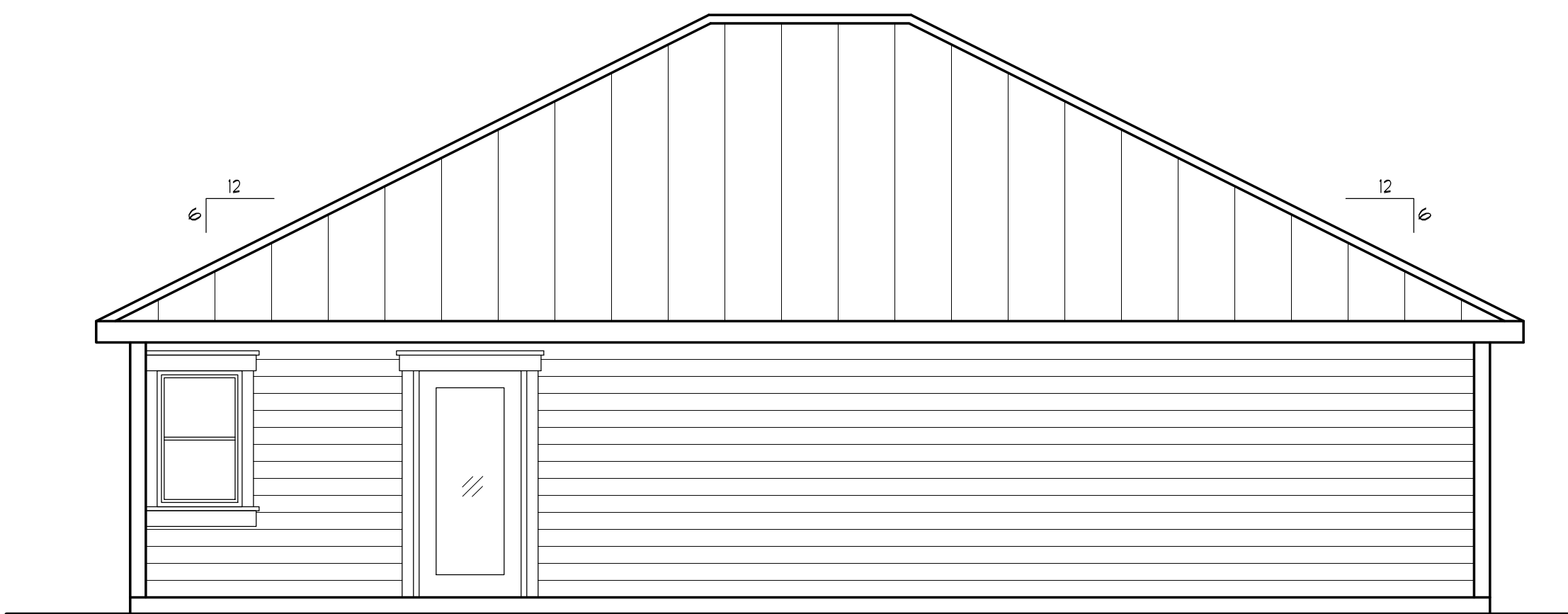
SCALE: 1/4" = 1'-0"



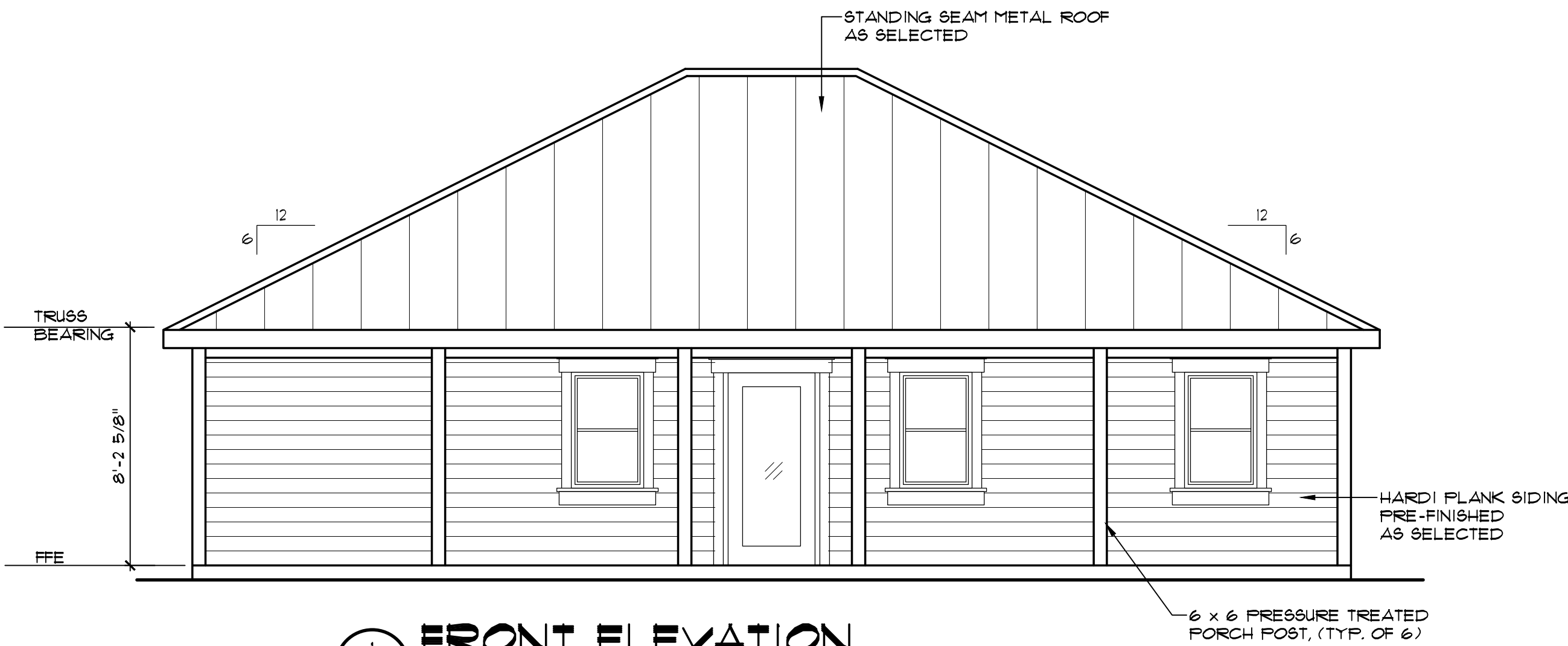
4 LEFT SIDE ELEVATION
A-1 SCALE: 1/4"=1'-0"



3 RIGHT SIDE ELEVATION
A-1 SCALE: 1/4"=1'-0"



2 REAR ELEVATION
A-1 SCALE: 1/4"=1'-0"



1 FRONT ELEVATION
A-1 SCALE: 1/4"=1'-0"



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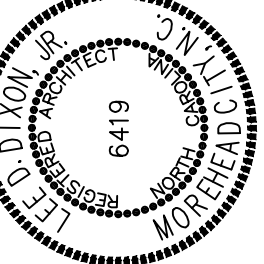
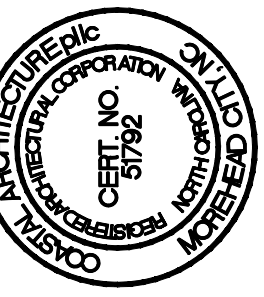
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EXTERIOR ELEVATIONS

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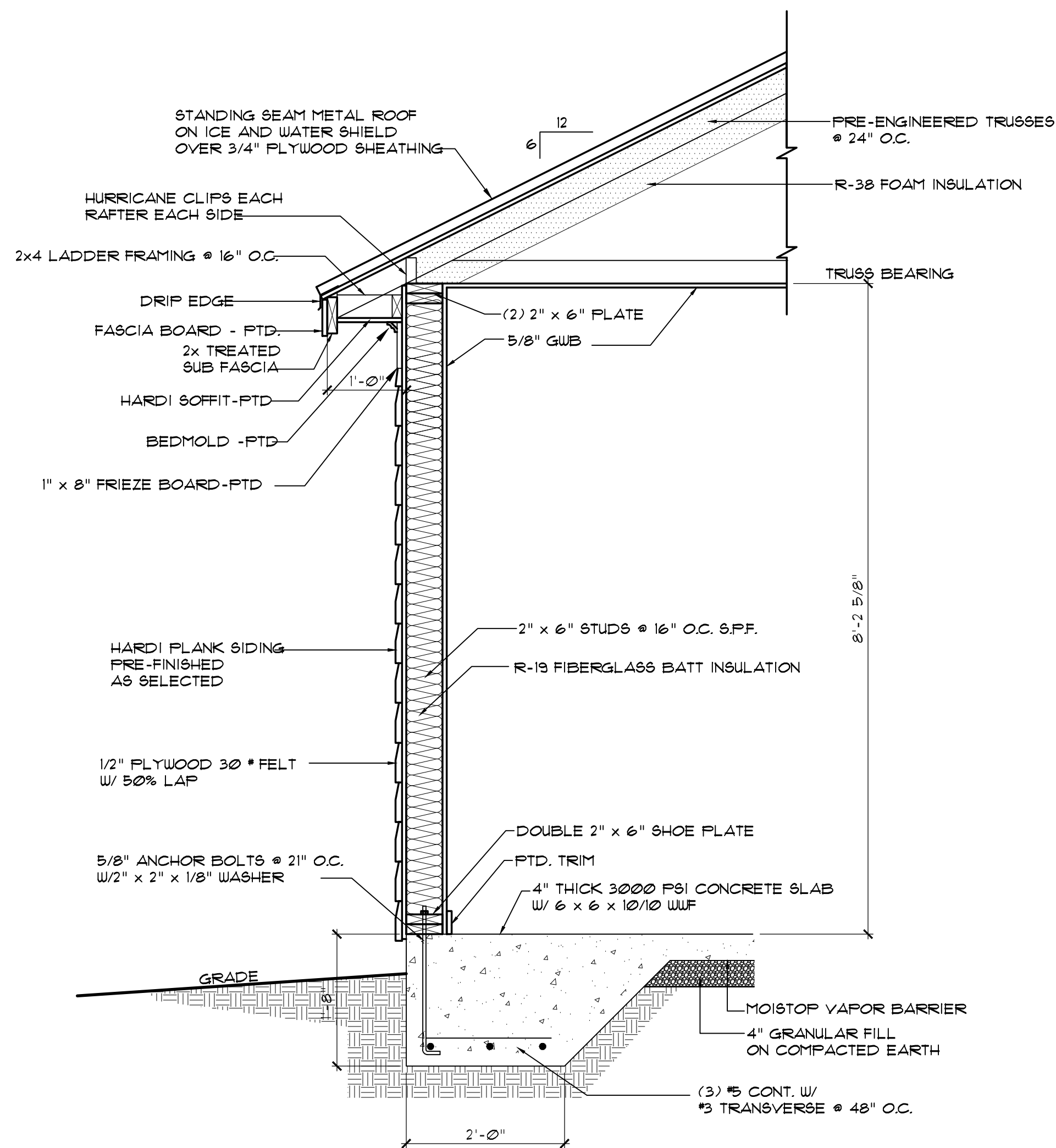
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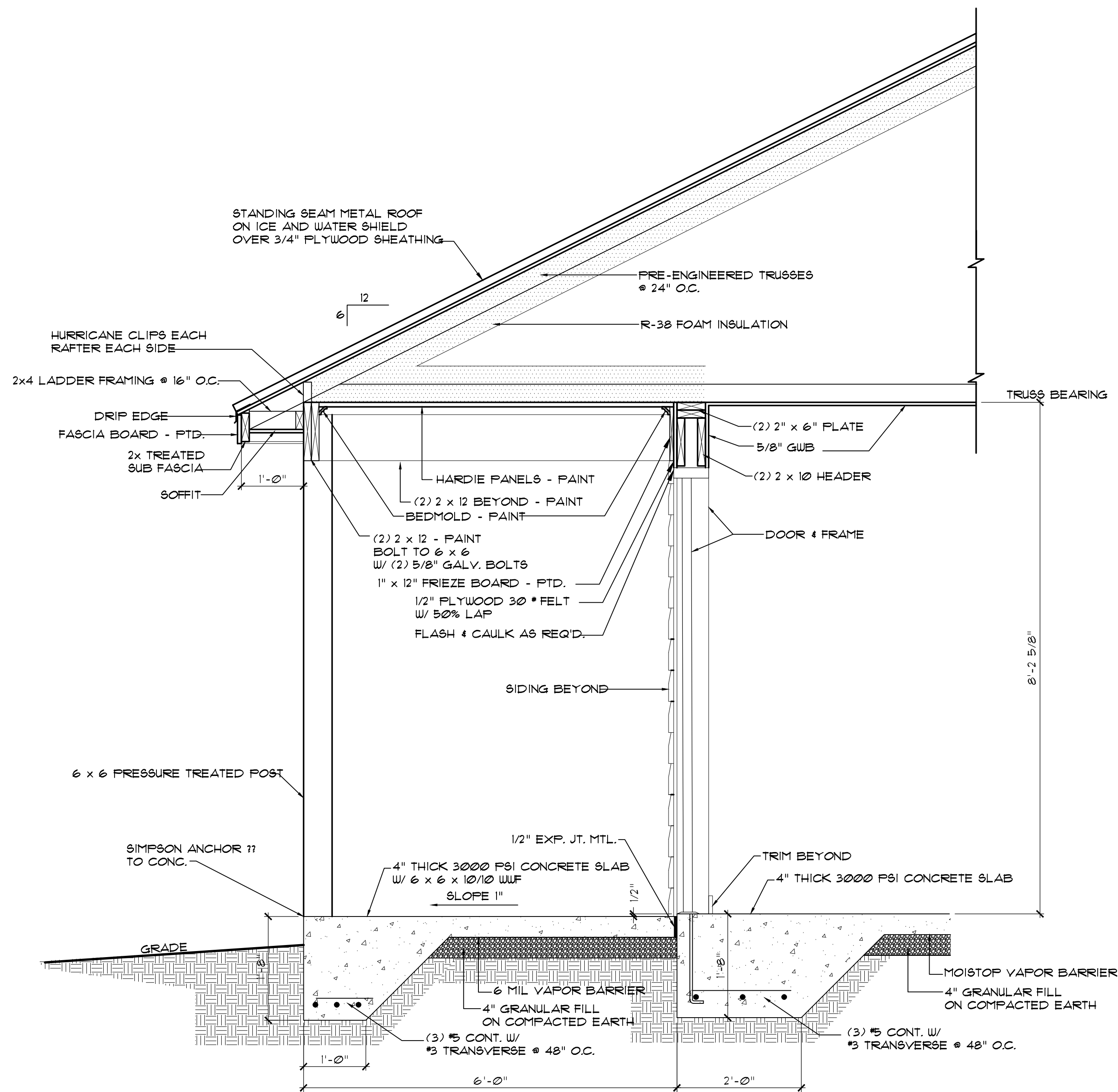
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SHEET NO.

A-4
OF



1 WALL SECTION
A-5 SCALE: 3/4"=1'-0"



2 WALL SECTION
A-5 SCALE: 3/4"=1'-0"

DIVISION 15A — PLUMBING

1.1 DESCRIPTION OF THE WORK

- A. Work under this section includes, but is not necessarily limited to, furnishing and installing the following:
- Plumbing fixtures, water heaters, and any other equipment necessary.
 - Cold and hot water piping and insulation.
 - DWV piping.
 - Connection of all equipment; drain, vent, water.
- B. All work under this contract shall be installed in compliance with the latest edition of the following codes and standards insofar as they apply.
- The National Electrical Code.
 - 2018 N.C. Building Code: Plumbing, and all applicable category codes.
 - American Society of Sanitary Engineering Standard 1010.
 - All local codes and ordinances.
- C. These codes are minimum standards. If codes require a more stringent method of construction than the specifications require, the codes shall govern.
- D. The Plumbing Contractor shall be licensed in the State of North Carolina and have all local licenses required for the work.
- E. Obtain all permits, licenses, inspections, etc., required for the work, and pay for the same.

1.2 INTENT

- A. The intent of these specifications and accompanying drawings is to convey as reasonably as possible the requirements for a complete job ready for the building to operate. The Plumbing Contractor shall take this into consideration and include in his base bid allowance for contingencies as will allow him to provide minor pieces of equipment and labor not specifically indicated but required for the job to operate properly, at no additional cost to the Owner.

1.3 COORDINATION

- A. Coordinate work with other contractors. Notify Architect of apparent conflicts early to expedite construction. If structural damage appears imminent, stop work and notify Architect for a decision before resuming operations.
- B. Locations shown are approximate. The Plumbing Contractor shall refer to the architectural drawings for placement of equipment, fixtures, etc. Where locations are not clear, the Contractor shall obtain the exact locations from the Architect.
- C. Coordinate all exterior piping connections w/Architect, site contractor/plans. Verify manhole elevations and provide backwater valves as required if flood level rims are below next upstream manhole cover elevation. Fixtures with flood level rims above upstream manhole shall not discharge thru b/w valve. Notify engineer of backwater valve requirement, any issue prior to bid.

1.4 SHOP DRAWINGS

- A. Shop drawings shall be submitted for plumbing fixtures and for pipes. These may consist of the manufacturer's standard catalog or tear sheets and shall have the exact items being offered clearly identified.
- B. Provide loose key angle stops and chrome plated supply pipe water supplies to fixtures.
- C. All exposed piping traps and accessories for fixtures shall be chrome plated. Provide chrome plated escutcheon plates where pipes enter walls.
- D. Provide shutoff valves for all sinks, water heaters, toilets, washing machines, refrigerator ice-maker, exterior hose bibbs and all other plumbing fixtures.
- E. Provide trap primers for all floor drains in areas not served by hose bibbs.

2.2 PIPING

- A. Drain-Waste-Vent: All DWV piping shall be Schedule 40 PVC-DWV u.o.n., with the following exceptions: Use cast iron piping in all return air plenums, penetrations of rated walls/floors/ceilings, and in areas/walls adjacent to cooking equipment exhaust hoods. Review Arch. and Mech. drawings. ABS or cast iron piping shall be used for drainage/discharge with a temperature greater than 140 deg. F for a minimum distance of 10'-0".
- B. Hot and cold water piping above grade: Type "L" copper w/solder joints (ASTM-B88), hard drawn with wrought copper fittings (ANSI B16.22). PEX piping with copper fittings may be used with owner/tenant approval and as allowed per code. Copper piping shall be used in areas/walls adjacent to cooking equipment exhaust hoods. Review Arch. and Mech. drawings.
- C. Cold water piping below grade: Type "K" copper (ASTM-B8A) soft drawn.
- D. Hangers: Use pipe hangers where required on 8-foot centers with saddles to avoid crushing insulation.
- E. Solder: 95/5. Lead free.
- F. Unions: Provide unions where indicated on drawings, in long runs of piping (except drainage) and at equipment to provide convenient disassembly. Provide dielectric unions when connecting copper tubing to equipment and piping made of ferrous materials.

2.3 CLEANOUTS

- A. Hex plugs in rough areas: Recessed plugs with cover plates in exposed locations.

2.4 SHOCK ARRESTERS

- A. Provide shock arresters as required by codes, manufacturer's recommendations and accepted industry standards for quality construction. Provide for all quick closing valves.

PART 3 — EXECUTION

3.1 CONNECTIONS

- A. This contract includes complete connection of cold water, hot water, drainage, and vent piping as required. All fittings, valves, accessories, cutoffs, drains, etc., required to complete such connections shall be included.
- B. The connection to water closets shall be made watertight with gasket and wax ring. Floor flanges shall be caulked into position. Plastic caps shall be provided on the tie down bolts, and shall be secured in place by screwing down on threaded brass washers.
- C. Where water pipes connect to exposed chrome plated trim, use proper chrome plated escutcheons.

3.2 SERVICE ACCESS

- A. All valves and accessories shall be insulated so that they can be properly serviced. In no case shall the Plumbing Contractor install equipment or other components in situations that do not meet code requirements or manufacturer's requirements. Provide access doors as required to access valves, etc.

3.3 ROUTING OF PIPING

- A. Coordinate routing of piping with others, line up work true to or at right angle to adjacent surfaces and in a workmanlike manner. Support all interior piping from building structure by means of hanger or inserts to maintain pitch of lines, to prevent vibration, and to secure piping space.

- B. Space pipe hangers 8'-0" on center for one inch and smaller pipe, 4'-0" on center for 1-1/4 inch and larger pipe. Provide expansion loops as required.
- C. Pipe hangers for insulated lines shall have suitable saddles to protect insulation.

3.4 INSULATION

- A. All H/W and C/W piping shall be insulated with a min. of 1" inch elastomeric insulation (R=8.5 min.) in unconditioned areas. See NCSCB-Plumbing Sect. 305 for all protection requirements. All H/W piping of circulating systems shall be insulated with 1" insulation per Sect. C404.4 of the NCSCB 2018 Energy Conservation Code.
- B. Provide pre-fabricated insulation kits for all sink and lavatory exposed drain and supply piping.

3.5 INSPECTIONS AND TESTS

- A. Before being concealed, all water, soil and vent piping shall be tested to determine if they are water- and air-tight.
- B. Prior to placing into service, entire system shall be tested for leaks in strict accordance with state and local codes.

3.6 STERILIZATION OF PIPING

- A. Sterilize the new water piping thoroughly with a solution containing not less than 50 parts per million of available chlorine, using liquid chlorine, or sodium hydrochloride solution, introduced into the system in an approved manner. The sterilizing solution shall remain in the system in an approved manner. The sterilizing solution shall remain in the system for a period of 24 hours. After sterilization, flush the solution from the system with clean water until the residual chlorine content is not greater than 0.2 parts per million, unless otherwise directed.

3.7 SERVICE PRESSURE

- A. Provide approved water-pressure reducing valve (PRV) if service pressure exceeds 80 psi to reduce pressure to 80 psi static or less and as required per NCSCB-Plumbing Sect. 604.8.

3.8 DRAINDOWN

- A. Contractor to provide for complete plumbing system drain down.

3.9 CLEAN UP

- A. During construction, keep the site clear of debris and upon completion, and before final inspection, clean up the premises to remove all evidence of his work. In addition, upon completion of construction, clean, wash, and/or polish all fixtures, equipment and exposed material and leave them bright and clean.

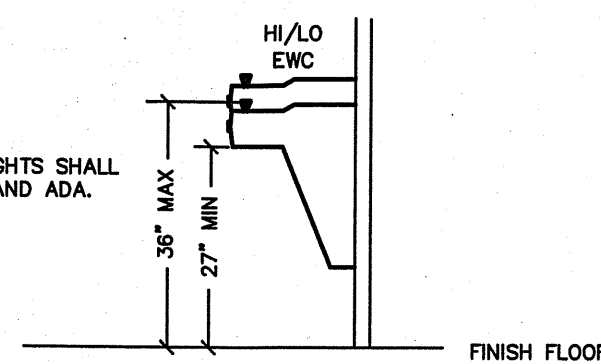
3.10 GUARANTEES

- A. Guarantee all materials and labor included in the plumbing work for a period of one year from date of final acceptance by the Owner.
- B. Any defects in the system which become evident during the guarantee period shall be corrected without cost to the Owner. This shall include the replacing of defective materials where required, and the repair of damage caused by leaking pipes, etc., and damage to building surfaces caused in making repairs.

GENERAL NOTES — PLUMBING

- ALL WORK SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE STATE CODE, ALL LOCAL AND OTHER APPLICABLE CODES.
- ALL WORK SHALL BE PERFORMED BY EXPERIENCED AND SKILLED CRAFTSMEN. THE PLUMBING CONTRACTOR (PC) SHALL COORDINATE ALL OF HIS WORK WITH THE GENERAL CONTRACTOR (GC).
- THE PLUMBING PLANS AND SPECIFICATIONS SHALL BE THOROUGHLY REVIEWED PRIOR TO PURCHASING MATERIALS AND INSTALLATION AND ALL DISCREPANCIES OR INTERFERENCES BROUGHT TO THE ENGINEERS ATTENTION.
- THESE PLANS ARE DIAGRAMMATIC AND MAY NOT SHOW MINOR DETAILS AND LOCATIONS. THE PC SHALL PROVIDE ALL MISC. ITEMS NEEDED FOR A COMPLETE SYSTEM REGARDLESS IF NOTED ON THE DRAWINGS OR NOT. FOR DIMENSIONS REFER TO ARCHITECTURAL PLANS.
- THE GC SHALL PROVIDE ALL WALL, FLOOR AND ROOF OPENINGS OF THE SIZE AND LOCATION REQUIRED BY THE PC AND SHALL BE RESPONSIBLE FOR PAINTING AND FLOOR FINISHES. THE PC SHALL PROPERLY SEAL ALL PENETRATIONS AND PROVIDE ESCUTCHEON PLATES AT ALL FINISHED LOCATIONS.
- ALL NEW WATER PIPING SHALL BE INSTALLED TIGHT TO STRUCTURE, ADEQUATELY SUPPORTED AND PROTECTED AND PROPERLY PITCHED TO ALLOW TOTAL DRAINAGE.
- ALL WATER PIPING SHALL BE HYDROSTATICALLY TESTED FOR A MINIMUM OF 15 MINUTES AT A MINIMUM OF 100 PSIG BEFORE COVERING AND ALL LEAKS CORRECTED. THE ENTIRE WATER DISTRIBUTION SYSTEM SHALL BE DISINFECTED PRIOR TO PLACING IN SERVICE.
- PROVIDE MIN. 18" SHOCK ABSORBERS WITH STOPS ON ALL HOT AND COLD WATER FIXTURE RUNS AS REQUIRED BY CODE.
- VENT LINES SHALL SLOPE UP TO ALL STACKS AND TERMINATE A MIN. OF 12" ABOVE ROOF LINE.
- PROVIDE CUT SHEETS ON ALL PLUMBING FIXTURES FOR ARCHITECT AND OWNER APPROVAL PRIOR TO ORDERING ANY FIXTURES.

NOTE:
ALL MOUNTING HEIGHTS SHALL
MEET THE NCSCB AND ADA.



2 EWC DETAIL SCALE: NOT TO SCALE

SYMBOL LEGEND — PLUMBING

SYMBOL	DESCRIPTION (U.O.N.)
	WASTE PIPING (W)
	VENT PIPING (V)
	COLD WATER PIPING (CW)
	HOT WATER PIPING (HW)
	SHUT-OFF VALVE
	DIELECTRIC UNION
	CLEANOUT FINISH FLOOR
	WALL/HORIZONTAL CLEANOUT
	CLEANOUT FINISH GRADE—PROVIDE FLUSH CONCRETE COLLAR AND BRONZE COVER
	VENT THRU ROOF (VTR)
A.F.F.	ABOVE FINISHED FLOOR
U.O.N.	UNLESS OTHERWISE NOTED
	POINT OF NEW CONNECTION TO EXISTING
	2 HOUR FIRE BARRIER

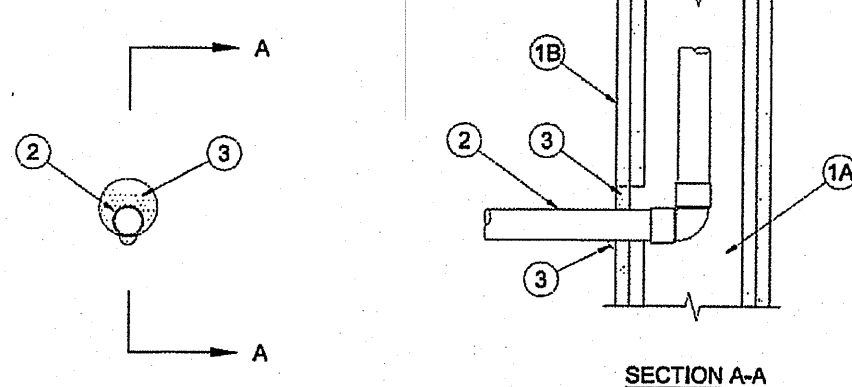
FIXTURE SCHEDULE — PLUMBING *

- ET* EXPANSION TANK
AMTROL MODEL ST-5, 2.0 GALLON, STEEL CONSTRUCTION, NON-ASME RATED.
- EW* ELECTRIC WATER HEATER
A.O. SMITH MODEL EJC-10, 10 GALLON, 1,650 WATTS, 120V, 3/4" INLET AND OUTLET. PROVIDE DRAIN PAN, EXPANSION TANK AND PRESSURE RELIEF VALVE.
- EWC* HIGH/LOW ELECTRIC WATER COOLER
HALSEY TAYLOR DUAL LEVEL ELECTRIC WATER COOLER, MODEL # HAC8FSBL-Q ADA COMPLIANT, PIPE TO SINGLE DRAIN AND SUPPLY LINE. VERIFY MODEL— H/L/O SIDE WITH TENANT, ARCH.
- LAV* LAVATORY (COUNTERTOP)
KOHLER PENNINGTON SELF RIMMING COUNTERTOP LAVATORY, K-2196-4, 4" CENTERS, WHITE COLOR, ADA COMPLIANT, PROVIDE K-6998 P-TRAP WITH DELTA FAUCET MODEL 523LF-HGMHDF, SHUT-OFF VALVES.
- SI* BREAK ROOM SINK
ELKAY LR1517 SINGLE BASIN STAINLESS STEEL SINK (MODEL LRAD1517 IF ADA COMPLIANCE REQUIRED), 18 GA., SELF-RIMMING, FURNISHED WITH THREE FAUCET HOLES AND CENTER DRAIN. PROVIDE ELKAY FAUCET MODEL LK610A02L2 WITH TWO LEVER HANDLES, CHROME PLATED BRASS P-TRAP AND SHUT-OFF VALVES. COORDINATE EXACT UNIT WITH OWNER AND GENERAL CONTRACTOR. COORDINATE SIZE WITH CABINETRY PRIOR TO ORDERING.
- VB* ICE MAKER VALVE BOX
OATEY VALVE BOX WITH 3/8" BRONZE SHUT-OFF VALVE. FLUSH TO WALL.
- WC* WATER CLOSET (ADA FLUSH TANK)
KOHLER HIGHLINE WATER CLOSET, K-3979, ADA COMPLIANT 1.6 GPF. PROVIDE PROPER OPEN FRONT ADA SEAT, K-7637 SUPPLY AND STOP, WAX SEAL, CLOSET BOLT KIT. PROVIDE MODEL WITH FLUSH CONTROL ON SIDE OPPOSITE GRAB BAR.

* OR APPROVED EQUAL. SUBMIT ALL ITEMS FOR APPROVAL BY TENANT AND ARCHITECT PRIOR TO ORDERING.
ALL OTHER PLUMBING FIXTURES SHOWN ARE PROVIDED BY THE TENANT AND INSTALLED BY THE PLUMBING CONTRACTOR. SEE PLANS FOR NUMBER AND LOCATION. COORDINATE ALL REQUIREMENTS WITH EQUIPMENT SERVED.

System No. W-L-1527
August 24, 2016

ANSIUL1479 (ASTM B814)	CANULC 8115
F Ratings — 1 and 2 Hr (See Item 1)	F Ratings — 1 and 2 Hr (See Item 1)
T Ratings — 1 and 2 Hr (See Item 1)	FT Ratings — 1 and 2 Hr (See Item 1)
L Rating At Ambient — Less Than 1 CFM/ft	FL Ratings — 1 and 2 Hr (See Item 1)
L Rating At 400 F — Less Than 1 CFM/ft	FTL Ratings — 1 and 2 Hr (See Item 1)
	L Rating At Ambient — Less Than 5.1 L/min²
	L Rating At 400 F — Less Than 5.1 L/min²



1. Wall Assembly — The 1 or 2 hr fire-rated gypsum wallboard/stud wall assembly shall be constructed of the materials and in the manner specified in the individual U200, U400, V400 or W400 Series Wall and Partition Design in the UL Fire Resistance Directory and shall include the following construction features:

- A. Studs — Wall framing may consist of either wood studs or steel channel studs. Wood studs to consist of nominal 2 by 4 in. (51 by 102 mm) lumber spaced 16 in. (406 mm) OC. Steel studs to be min 3-1/2 in. (89 mm) wide and spaced max 24 in. (610 mm) OC.
- B. Gypsum Board* — One or two layers of nominal 5/8 in. (16 mm) thick gypsum board as specified in the individual Wall and Partition Design. Max diam of opening is 6 in. (127 mm).
- The hourly F, T, FT, FH and FTH Ratings of the firestop system are equal to the hourly fire rating of the wall assembly in which it is installed.

2. Metallic Penetrant — One metallic pipe, conduit or tube to be installed either concentrically or eccentrically, penetrating wall assembly on one side of wall. The annular space between the pipe, conduit or tubing and the periphery of opening shall be min 0 in. (point contact) to max 7/8 in. (22 mm). Pipe, conduit or tubing shall be rigidly supported within the wall and on the penetrated side of the wall assembly. The following types and sizes of metallic pipes, conduits or tubing may be used:

- A. Steel Pipe — Nom 3 in. (76 mm) diam (or smaller) Schedule 5 (or heavier) steel pipe.
- B. Iron Pipe — Nom 3 in. (76 mm) diam (or smaller) cast or ductile iron pipe.
- C. Conduit — Nom 3 in. (76 mm) diam (or smaller) steel electrical metallic tubing (EMT), nominal 3 in. (76 mm) diam steel steel conduit or nominal 1 in. (25 mm) diam (or smaller) flexible steel conduit.
- D. Copper Tubing — Nom 1 in. (25 mm) diam (or smaller) Type L (or heavier) copper tubing.
- E. Copper Pipe — Nom 1 in. (25 mm) diam (or smaller) Regular (or heavier) copper pipe.

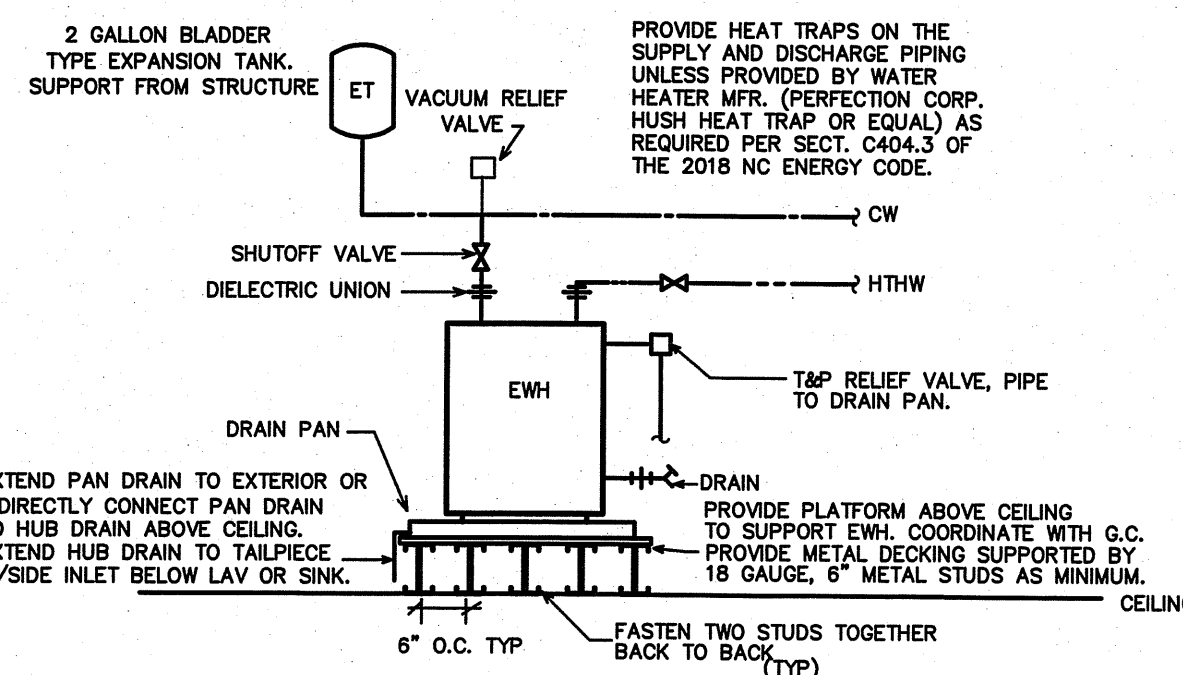
3. Fill, Void or Cavity Material* — Sealant — Min 5/8 in. (16 mm) thickness of fill material applied with annulus. Flush with surface of wall assembly. At point contact location, min 3/8 in. (10 mm) diam bead of fill material to be applied at the penetrant/gypsum board interface. SPECIFIED TECHNOLOGIES INC — SpecSeal Series SSS Sealant or SpecSeal LCI Sealant

* Indicates such products shall bear the UL or cUL Certification Mark for jurisdictions employing the UL or cUL Certification (such as Canada), respectively.

Last Updated on 2015-08-24

GENERAL MOUNTING SHOWN.
VERIFY REQUIREMENTS WITH
ARCH., COORDINATE WITH
STRUCTURE/G.C.

NOTE:
PROVIDE LOW VOLTAGE WATER SENSOR (LITTLE
GIANT HW-9 OR EQUAL) IN DRAIN PAN, MOUNT
ALARM IN NOTICEABLE AREA BELOW CEILING.
COORDINATE ALARM LOCATION W/TENANT.



NOTE:
WATER HEATERS, PIPING, AND PIPING APPURTENANCES
PROVIDED BY P.C. WATER HEATER SUPPORTS BY P.C.

1 EWH DETAIL SCALE: NOT TO SCALE

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Coastal
Architecture
PLC

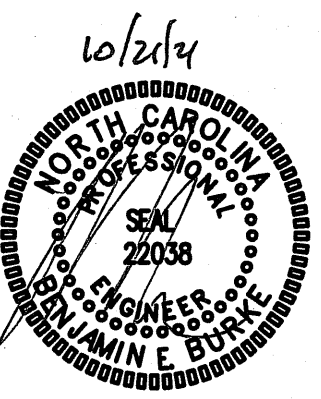
Architectural
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Planning
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NEWPORT, NORTH CAROLINA



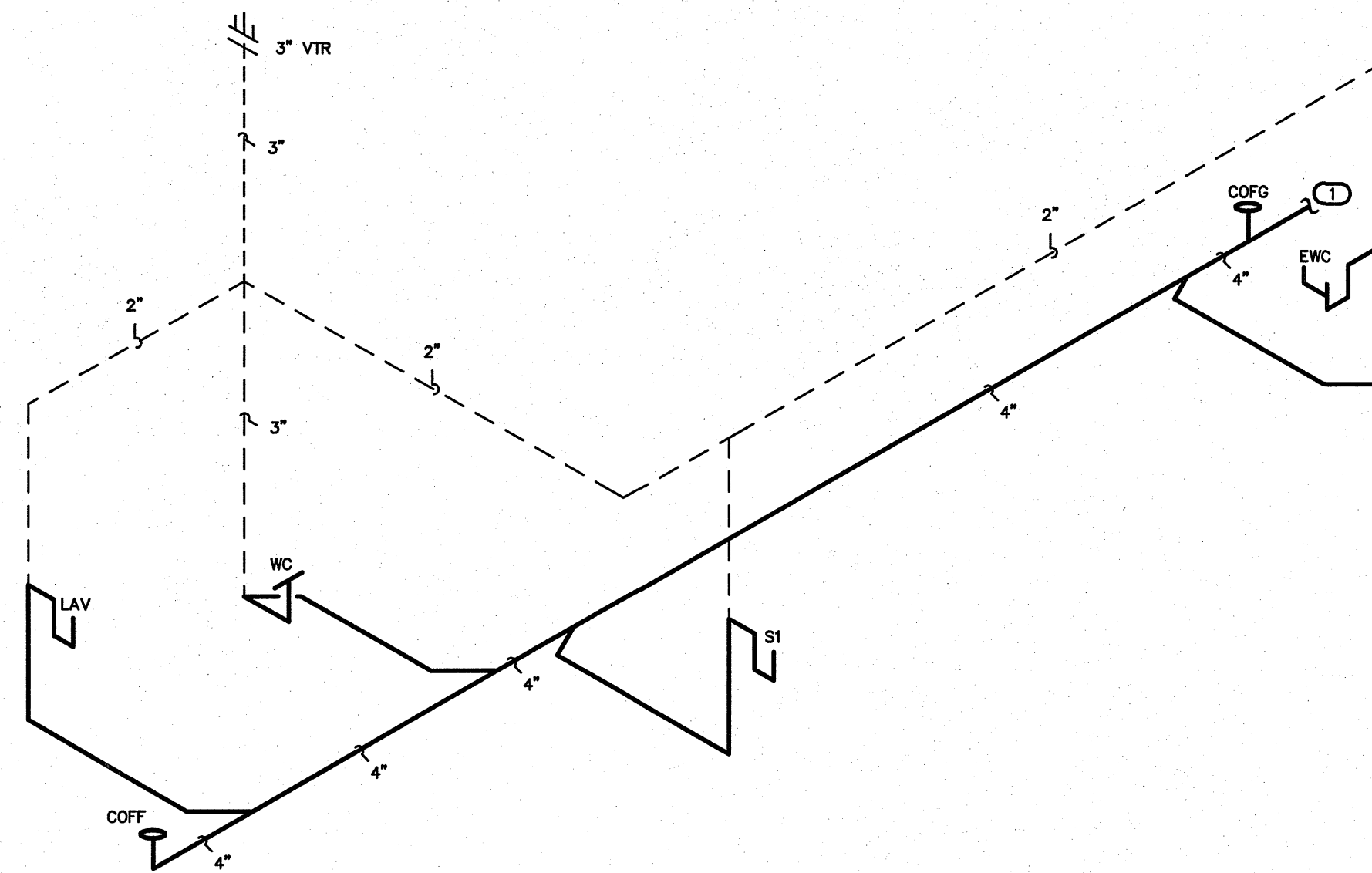
PLUMBING
SPECIFICATIONS

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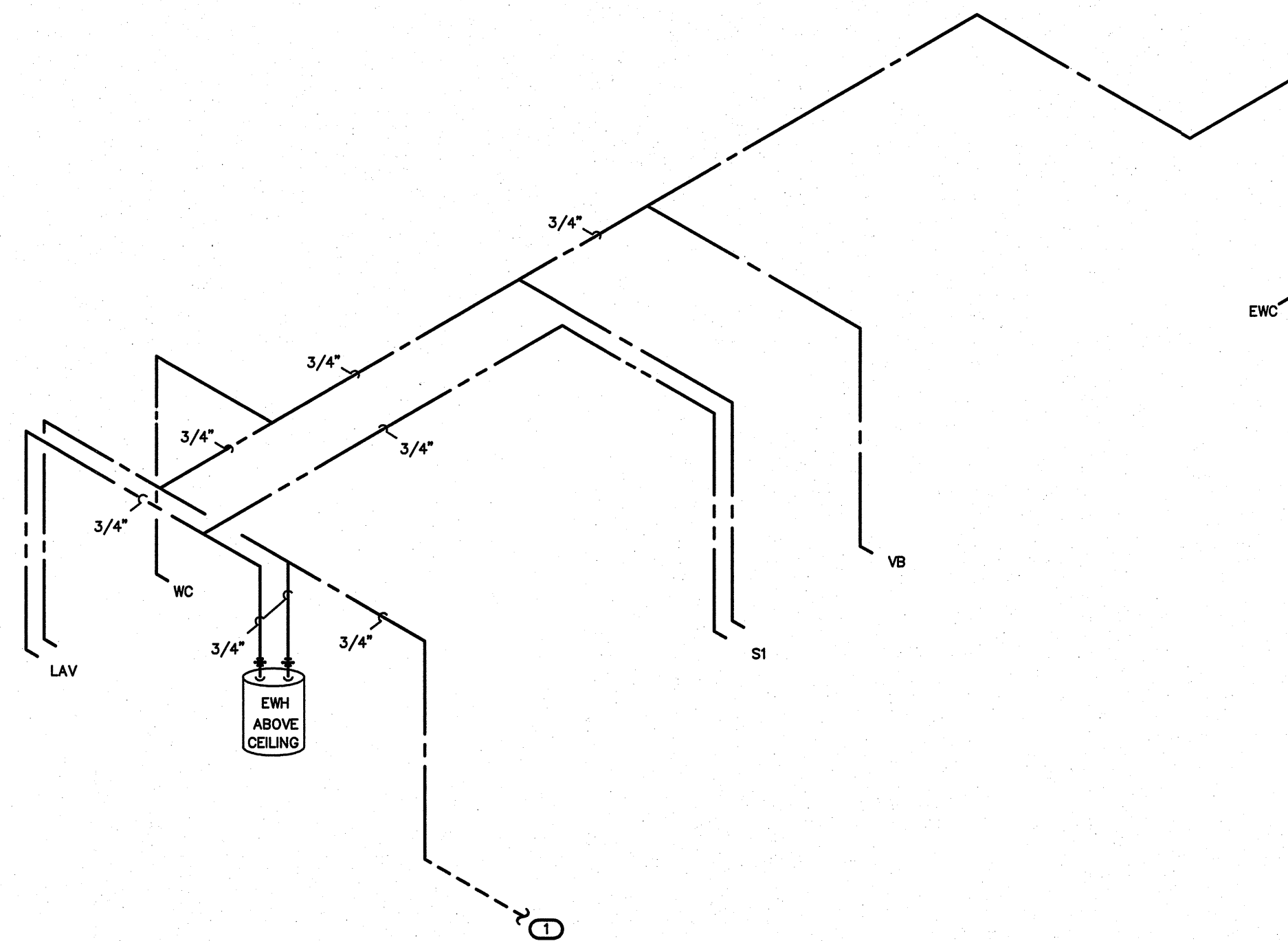
ISSUED: 10-19-21
DWG BY: IR
CKD BY: BEB
REVISIONS

SHEET NO.

P-1



3 OFFICE BUILDING DWV RISER
SCALE: 1/4" = 1'-0"



4 OFFICE BUILDER WATER RISER
SCALE: 1/4" = 1'-0"

KEY NOTES FOR SHEET P2-1
 1 EXTEND 4" BUILDING DRAIN TO SEPTIC AREA.
 COORDINATE WITH SITE UTILITIES.

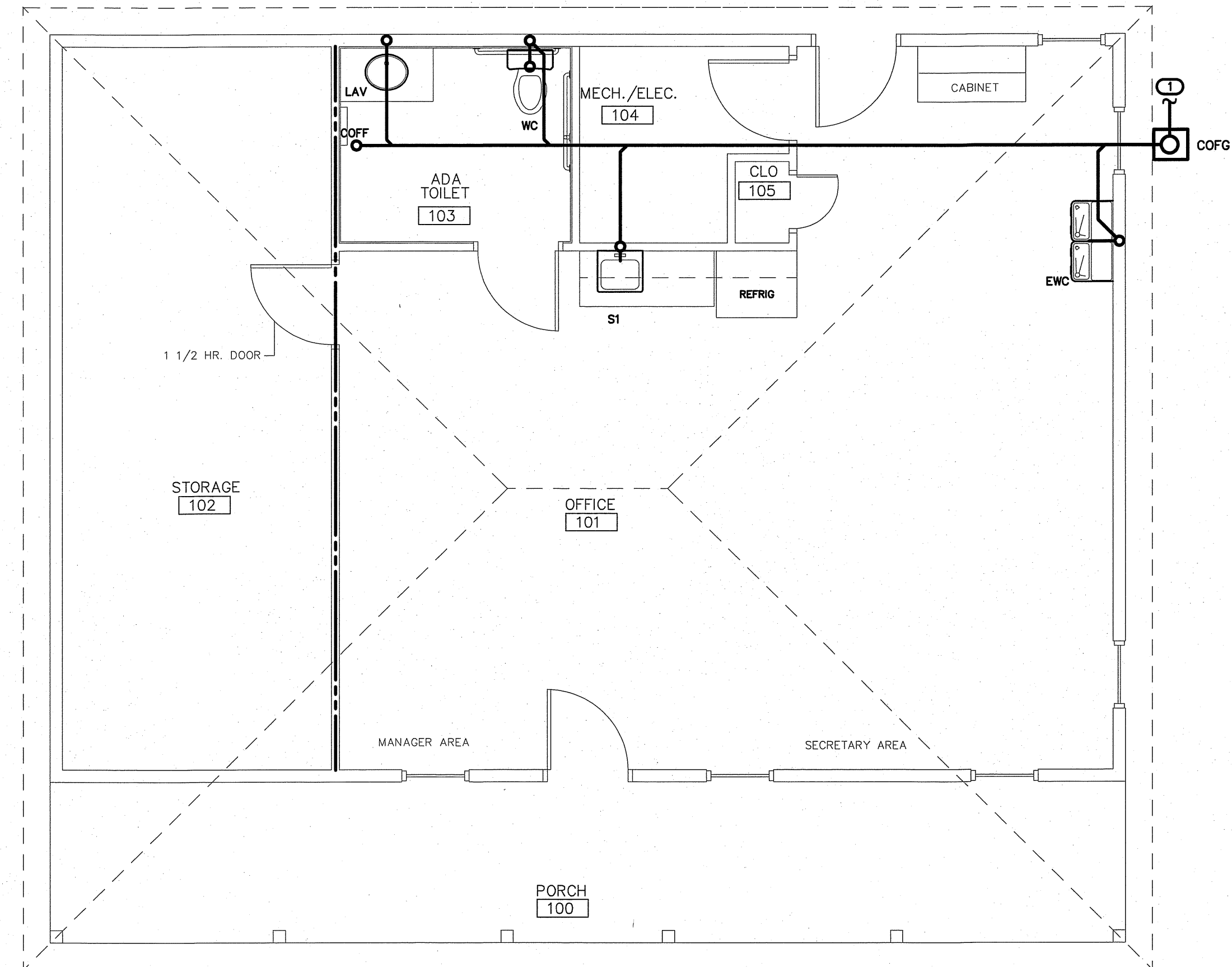
(VERIFY ALL EQUIPMENT REQUIREMENTS PRIOR TO ROUGH-IN)

PIPE SIZING SCHEDULE				
FIXTURE TYPE	DRAIN	VENT	CW	HW
(EWC) ELECTRIC WATER COOLER	1 1/4"	1 1/4"	1/2"	-
(LAV) LAVATORY	1 1/2"	1 1/4"	1/2"	1/2"
(S1) SINK	1 1/2"	1 1/4"	1/2"	1/2"
(VB) VALVE BOX	-	-	1/2"	-
(WC) FLUSH TANK WATER CLOSET	3"	1 1/2"	1/2"	-

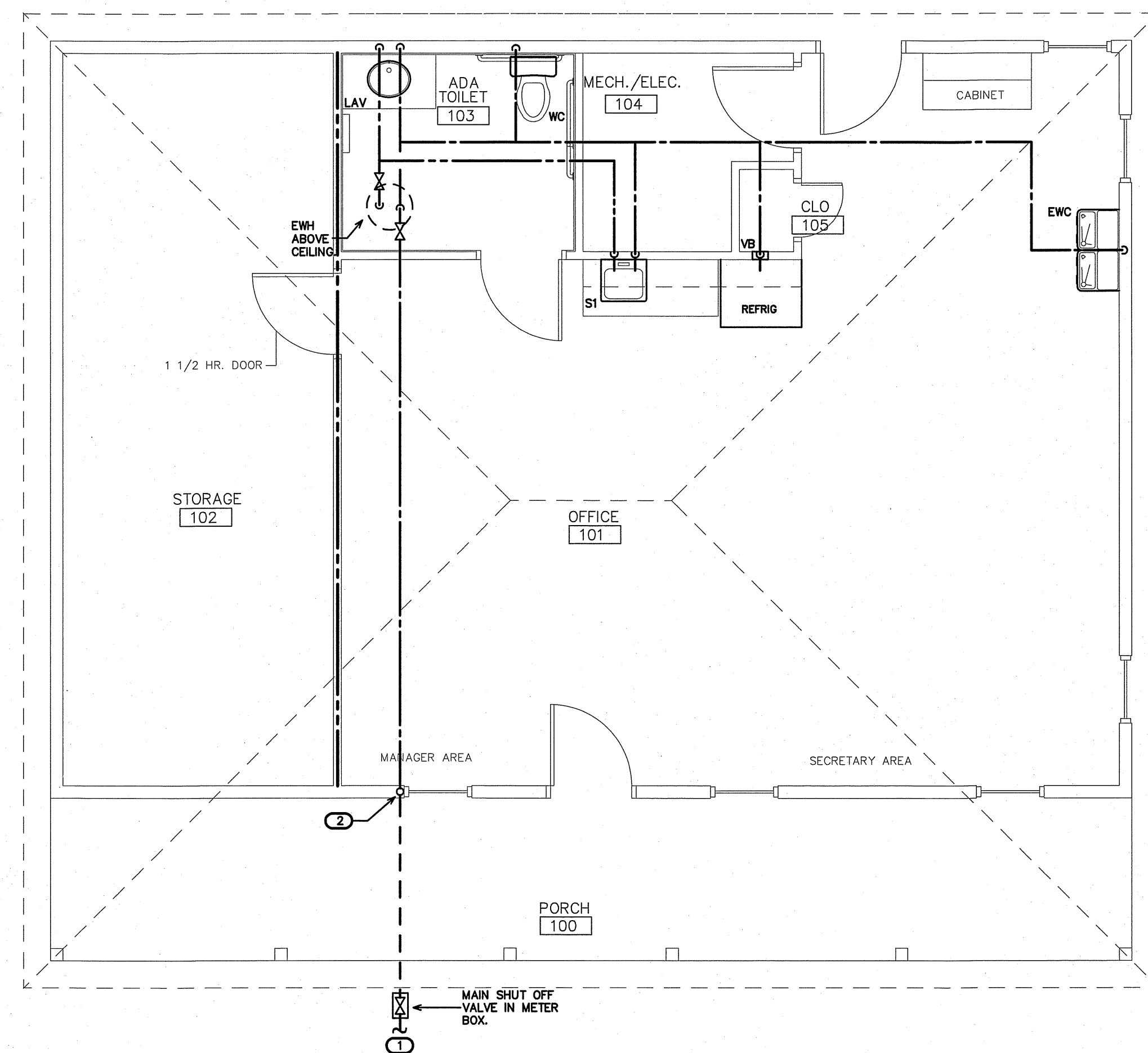
* PROVIDE BACKFLOW PREVENTER PER NCSBC-PLUMBING SECT. 608.3, EX: ASSE 1024 (WATTS SERIES 7 OR EQUAL) ASSE 1022 (WATTS SERIES SD-3 EQUAL) ETC., WHERE REQUIRED IF NOT AN INTEGRAL PART OF THE EQUIPMENT.

DWV/WATER RISER NOTES:
 REPRESENTATIVE SIZES ARE GIVEN FOR EACH TYPE OF FIXTURE.
 SEE EQUIPMENT OR PIPE SIZING SCHEDULE.
 MINIMUM 2" DRAIN LINE SIZE UNDER SLAB.
 MAINTAIN PIPE SIZES SHOWN UNTIL LARGER SIZE IS REACHED.
 PIPE SIZES ARE MINIMUMS FOR INDIVIDUAL FIXTURES U.O.N.

KEY NOTES FOR SHEET P2-2
 1 CONNECT TO RP2 IN HOT BOX ON SITE.
 COORDINATE WITH SITE/CIVIL PLANS.
 2 RISE CW MAIN TO RUN ABOVE CEILING.
 VERIFY LOCATION AND ROUTING.



1 OFFICE BUILDING DWV PLAN
SCALE: 1/4" = 1'-0"



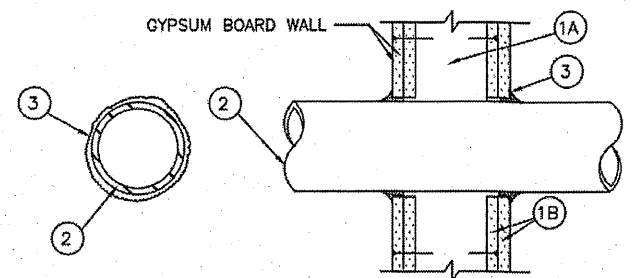
2 OFFICE BUILDING WATER PLAN
SCALE: 1/4" = 1'-0"

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DUCTLESS SPLIT SYSTEM HEAT PUMP SCHEDULE	
DHP-1 OUTDOOR HEAT PUMP UNIT	• MITSUBISHI MODEL #MXZ-3B24NA, 1.5 TON OUTDOOR HEAT PUMP UNIT, 16 SEER. 208 VOLT, 1 PHASE, CONDENSING UNIT 17.2A MCA, 20A MOP. FAN COIL UNIT IS POWERED VIA FIELD PROVIDED WIRING FROM OUTDOOR UNIT. SERVES (2) INDOOR FAN-COIL UNITS (DFC-1.1, DFC-1.2).
DFC-1.1 DIRECT EXPANSION FAN COIL UNIT	• MITSUBISHI MODEL #MSZ-GE06NA FAN COIL UNIT. NET COOLING CAPACITY = 6,000 BTUH, 145 CFM LO TO 400 CFM HI, 0.5 TON NOMINAL. PROVIDE WIRED PROGRAMMABLE THERMOSTAT, AND CONDENSATE PUMP. FAN MOTOR 0.76, FLA 240 VOLT. SINGLE PH.
DFC-1.2 DIRECT EXPANSION FAN COIL UNIT	• MITSUBISHI MODEL #MSZ-GE06NA FAN COIL UNIT. NET COOLING CAPACITY = 6,000 BTUH, 145 CFM LO TO 400 CFM HI, 0.5 TON NOMINAL. PROVIDE WIRED PROGRAMMABLE THERMOSTAT, AND CONDENSATE PUMP. FAN MOTOR 0.76, FLA 240 VOLT. SINGLE PH.
DFC-1.3 DIRECT EXPANSION FAN COIL UNIT	• MITSUBISHI MODEL #MSZ-GE06NA FAN COIL UNIT. NET COOLING CAPACITY = 6,000 BTUH, 145 CFM LO TO 400 CFM HI, 0.5 TON NOMINAL. PROVIDE WIRED PROGRAMMABLE THERMOSTAT, AND CONDENSATE PUMP. FAN MOTOR 0.76, FLA 240 VOLT. SINGLE PH.

• OR APPROVED EQUAL

EXHAUST FAN SCHEDULE	
EXHAUST FAN #X (EF-X)	• CARNES MODEL# VCD0010C EXHAUST FAN, 93 CFM @ 1/4" SP, 640 RPM, 1.1 AMPS, 120V. THE ELECTRICAL CONTRACTOR SHALL PROVIDE THE SWITCH AND WIRE THE UNIT. THE HVAC CONTRACTOR SHALL PROVIDE UNIT, 6" RIGID DUCT TO WALL CAP. LOCATE EXHAUST TERMINATION A MINIMUM OF 10'-0" FROM ANY INTAKES.



U.L. #WL1001

1. Wall Assembly - The 1,2,3, or 4 hr fire-rated gypsum wallboard/stud wall assembly shall be constructed of the materials and in the manner described in the individual U300 or U400 Series Wall or Partition Designs in the UL Fire Resistance Directory and shall include the following construction features:
- A. Study - Wall framing may consist of either wood studs (max 2 h fire rated assemblies) or steel channel studs. Wood studs to consist of nom 2 by 4 in. lumber spaced 16 in. OC with nom 2 by 4 in. lumber end platings and cross braces. Steel studs to be min 3-5/8 in. wide by 1-3/8 in. deep channels spaced max 24 in. OC.
- B. Wallboard, Gypsum* - Nom 1/2 or 5/8 in. thick, 4ft. wide with square or tapered edges. The gypsum wallboard type, thickness, number of layers, fastener type and sheet orientation shall be as specified in the individual U300 or U400 Series Design in the UL Fire Resistance Directory. Max diam of opening is 13-1/2 in.
2. Pipe or Conduit - Nom 12 in. diam (or smaller) Schedule 10 (or heavier) steel pipe, nom 12 in. diam (or smaller) service weight (or heavier) cast iron soil pipe, nom 12 in. diam (or smaller) Class 50 (or heavier) ductile iron pressure pipe, nom 6 in. diam (or smaller) steel conduit, nom 4 in. diam (or smaller) steel electrical metallic tubing or Type L or (or heavier) copper tubing or nom 1 in. (or smaller) flexible steel conduit. When copper pipe or flexible steel conduit is used, max F Rating of firestop system (Item 3) is 2h. Steel pipes or conduits larger than nom 4 in. diam may only be used in wall constructed using steel channel studs. A max of one pipe or conduit is permitted in the firestop system. Pipe or conduit to be installed near center of stud cavity width and to be rigidly supported on both sides of wall assembly.
3. Fill, Void or Cavity Material* - Caulk - Caulk fill material installed to completely fill annular space between pipe or conduit and gypsum wallboard and with a min 1/4 in. diam bead of caulk applied to perimeter of pipe or conduit at its egress from the wall. Caulk installed symmetrically on both sides of wall assembly. The hourly F Rating of the firestop system is dependent upon the hourly fire rating of the wall assembly in which it is installed, as shown in the following table. The T Rating of the firestop system is dependent upon the type or size of the pipe or conduit and the hourly fire rating of the wall assembly in which it is installed, as tabulated below:

Max Pipe or Conduit Diam, in	Annular Space, in	F Rating, hr	T Rating, hr
1	0 to 3/16	1 or 2	0 ^a , 1 or 2
1	1/4 to 1/2	3 or 4	3 or 4
4	0 to 1/4	1 or 2	0
4	0 to 1-3/8	1 or 2	0
6	1/4 to 1/2	3 or 4	0
12	3/16 to 3/8	1 or 2	0

* When copper pipe is used, T Rating is 0 hr.
0 to 1-1/2 in. annular space applies only when Type CP-25 WB+ caulk is used.

Manufactured by Mfg. Co. - Types CP-25 SLL, CP-25 NS, CP-25 WB, CP-25 WB+.
(NOTE: L Rating apply only when Type CP-25 WB+ caulk is used).
*bearing the UL Classification Marking

1 UL PENETRATION DETAIL

SCALE: NTS

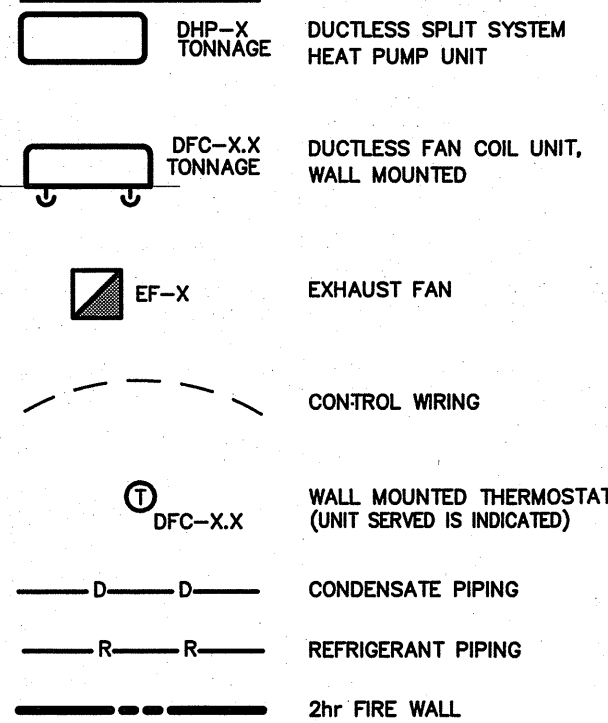
GENERAL NOTES - MECHANICAL

- ALL WORK SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE STATE CODE AND ALL LOCAL AND OTHER APPLICABLE CODES.
- ANY PERMITS AND INSPECTION FEES SHALL BE SECURED AND PAID FOR BY THE MECHANICAL CONTRACTOR (MC).
- ALL WORK SHALL BE PERFORMED BY EXPERIENCED AND SKILLED CRAFTSMEN. THE MC SHALL COORDINATE ALL OF HIS WORK WITH THE GENERAL CONTRACTOR (GC) AND OTHER TRADES.
- THE LOCATION OF ALL DUCT, PIPING AND EQUIPMENT SHALL BE ADJUSTED TO ACCOMMODATE ANTICIPATED OR ENCOUNTERED INTERFERENCES.
- THESE PLANS ARE DIAGRAMMATIC AND MAY NOT SHOW MINOR DETAILS AND LOCATIONS. FOR DIMENSIONS REFER TO THE ARCHITECTURAL PLANS.
- THE MC SHALL BE RESPONSIBLE FOR ALL ELECTRICAL STARTERS INTERLOCKS, CONTROL WIRING CONDUIT AND POWER WIRING FROM DISCONNECTS TO HIS EQUIPMENT, USING A LICENSED ELECTRICIAN.
- THE MC SHALL USE FIRE DAMPERS FOR PROTECTION OF THE OPENING IN ACCORDANCE WITH STATE AND LOCAL CODES IN ALL LOCATIONS WHERE PENETRATIONS OF RATED WALLS AND FLOORS OCCUR. SEE ARCHITECTURAL PLANS FOR RATED WALL AND FLOOR LOCATIONS. PROVIDE ACCESS DOORS AT ALL DAMPER LOCATIONS. LOCATE DOORS FOR EASY ACCESS.
- INSTALL FLEXIBLE CONNECTORS ON SUPPLY AND RETURN DUCTWORK AHU. ALL MECHANICAL EQUIPMENT SHALL OPERATE FREE OF OBJECTIONAL NOISE AND VIBRATION.
- INSTALL TURNING VANES IN SUPPLY DUCTS AT ALL ELBOWS AND SPLITTER DAMPERS. PROVIDE BALANCING DAMPERS IN ALL DUCTS WHERE SHOWN OR REQUIRED FOR SYSTEM BALANCING.
- DUCT DIMENSIONS ARE SHOWN INSIDE CLEAR.
- THE MC SHALL KEEP THE PREMISES CLEAR OF DEBRIS FROM HIS WORK DURING CONSTRUCTION AND LEAVE THE AREA AND BUILDING CLEAN AT THE COMPLETION OF HIS WORK. HE SHALL ALSO LEAVE CLEAN ALL EXPOSED EQUIPMENT IN HIS CONTRACT.
- PROVIDE ALL REQUIRED ROOF PENETRATIONS FOR THE INSTALLATION OF THE NEW EQUIPMENT. ALL FLASHINGS ARE BY THE MECHANICAL CONTRACTOR. ALL ROOFING WORK SHALL BE DONE BY A LICENSED ROOFING CONTRACTOR SO AS TO MAINTAIN ORIGINAL WARRANTY.
- THE M.C. SHALL COORDINATE WITH AND PROVIDE EQUIPMENT SPEC. SHEETS TO THE GENERAL AND ELECTRICAL CONTRACTORS FOR REVIEW PRIOR TO ORDERING EQUIPMENT.
- PROPERLY SUPPORT ALL DUCT WORK, AND EQUIP FROM STRUCTURE. PROVIDE ALL STRUCTURAL SUPPORTS FOR THE LOADS AS REQUIRED AT NO ADDITIONAL COST TO THE OWNER.

OUTDOOR AIR CALCULATIONS

OUTSIDE AIR PROVIDED BY NATURAL VENTILATION PER NCSCC MECHANICAL CODE,
SECTION 402. 1059 SQ.FT. TOTAL X 0.04 = 42 SQ.FT. REQUIRED FREE AREA.
OPERABLE DOORS AND WINDOWS TO EXTERIOR PROVIDE 80 SQ.FT. OF FREE AREA.

LEGEND - MECHANICAL



APPENDIX B

2018 BUILDING CODE SUMMARY FOR ALL COMMERCIAL PROJECTS

MECHANICAL DESIGN
(PROVIDE ON THE MECHANICAL SHEETS IF APPLICABLE)
MECHANICAL SUMMARY

MECHANICAL SYSTEMS, SERVICE SYSTEM AND EQUIPMENT

Thermal Zone	
winter dry bulb	16F
summer dry bulb	93F
Interior Design Conditions	
winter dry bulb	72F
summer dry bulb	75F
relative humidity	50%
Building Heating Load (New addition only)	13,100 BTU/hr
Building Cooling Load (New addition only)	16,700 BTU/hr
Mechanical Spacing Conditioning System	
Unitary -	The tenant space is served the following systems: (1) New 1.5 ton ductless split system heat pump unit with (3) 0.5 ton indoor fan coil units.
Boiler -	Not applicable to this project.
Chiller -	Not applicable to this project.
Equipment efficiencies	
Efficiencies and outputs are listed on equipment schedules - See drawings.	

ENGINEER

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Coastal
Architecture
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Architectural
Design
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Interiors

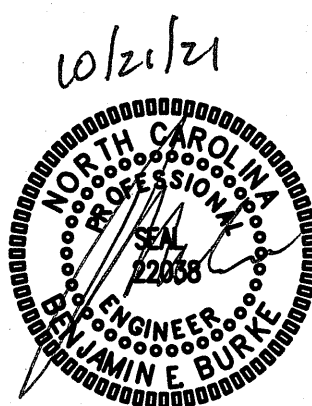


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STYRON TREE SERVICE
OFFICE
NEWPORT, NORTH CAROLINA



HVAC
SCHED. NOTES
LEGENDS

21034

ISSUED: 10-21-21

DWG BY: CLS

CKD BY: BEB

REVISIONS

SHEET NO.

M-1

DIVISION 15 B - HEATING, VENTILATING AND AIR CONDITIONING

1.1 DESCRIPTION OF THE WORK

- Work under this section includes, but is not necessarily limited to, furnishing and installing the following:
 - Heating, ventilation, and air conditioning equipment.
 - Ductwork.
 - Grilles and diffusers.
 - Controls and control wiring.
 - Condensate piping.
- All work under this contract shall be installed in compliance with the latest edition of the following codes and standards insofar as they apply:
 - ASHRAE Guide
 - National Electric Code.
 - 2018 NC State Building Code: Mech Code.
 - The Electrical Specifications for this project.
 - SMAQNA HVAC Duct Construction Standards.
 - All local codes and ordinances.
 - ARI rating.
 - 2018 NC State Building Code: Energy Conservation Code.
- These codes are minimum standards. If codes require a more stringent method of construction than the specifications require, the codes shall govern.
- The HVAC Contractor shall be licensed in North Carolina and have all local licenses required for the work.

1.2 INTENT

- The intent of these specification and the accompanying drawing is to convey as reasonably as possible the requirements for a complete job ready for the building to operate. The HVAC Contractor shall take this into consideration and include in his bid allowance for contingencies as will allow him to provide minor pieces of equipment and labor not specifically indicated but required for the job to operate properly, at no additional cost to the Owner.

1.3 COORDINATION

- Coordinate work with other contractors. Notify Owner of apparent conflicts early to expedite construction. If structural damage appears imminent, stop work and notify Owner for a decision before resuming operations.
- Locations shown are approximate. The HVAC Contractor shall verify with owner, the placement of equipment, fixtures, outlets, etc. The drawings do not give exact details as to elevations and locations of various pipes, fittings, ducts, conduit, etc., and do not show all offsets and other installation details which may be required.
- Changes in duct or piping design caused by obstructions shall be submitted to Engineer in sketch form for study and comment prior to execution. Additional cost will not be allowed for this type of work.

1.4 SHOP DRAWINGS

- Shop drawings shall be submitted for all major items of equipment. These may consist of the manufacturer's standard catalog or tear sheets and shall have the exact items being offered clearly identified. Shop drawings shall include but are not limited to the following:
 - All equipment and accessories.
 - Grilles and diffusers.
 - Unit sizes and requirements.

PART 2 - PRODUCTS

2.1 EQUIPMENT

- All air handling devices must have the manufacturer's recommended filter rack, for 1" thick filters.

2.2 PIPING

- Condensate drain piping shall be PVC pipe. Provide tee and plug at changes in direction. Route pipe to proper termination point. All condensate piping shall be insulated with flexible elastomeric insulation. Provide copper piping in plenum areas.

2.3 DUCTWORK

- Ductwork shall be built in accordance with SMAQNA HVAC Duct construction standards. Furnish and install all supply, return, and ventilation ductwork shown, together with splitters, deflectors, dampers, etc. This work shall be constructed of new galvanized prime grade steel sheets. The gauges of metal to be used and the construction and bracing of joints shall be in accordance with the SMAQNA recommendations.
- Seal all sheet metal joints with fiber impregnated mastic.
- Support from building structure on strap hangers not over 8 feet apart.
- Use manufactured turning vanes in each elbow where required or where indicated on drawings.
- Flexible connectors shall be 3 inches wide, of fireproof material and used to isolate noise between equipment and ductwork on supply and return side of all units.
- Round runouts, where used, shall be built in accordance with the above standards, and each runout shall also have manufactured side take off, adjustable quadrant damper at all accessible locations and shall be of Owens Corning INL-25 flexible duct with UL label. Flex duct lengths allowed up to 14 feet. Duct must be supported with sufficient hangers in order to prevent sags. Serpentine routing will not be permitted. Quadrant damper to be 22 gauge easily adjustable manually with exterior handle (similar to HVAC Kwik-set) and is not to be mounted in side take-off.

2.4 DUCT INSULATION (LOW PRESSURE)

- All insulation, linings, coverings and adhesives shall have a flame spread classification of 25 or less and a smoke developed rating of not more than 50, exposed exterior piping.
- All duct insulation shall comply with Section 604, of the N. C. Building Code: Mechanical Code
- All supply and return ductwork shall be completely insulated, either internally or externally.
- Rectangular ductwork shall be lined with two-inch thick, 1.5 lb. per cubic foot density, duct liner, Armstrong, CSO Ultraliner, Johns Manville or approved equal.
- As an alternative to duct liner, rectangular duct may be wrapped with Class I - 2", 3/4 lb. density (R-5.5) thick reinforced foil back fiberglass insulation, Owens-Corning Series ED or equal. Tape shall be Kraft reinforced foil tape or equal.
- Exhaust air duct does not require insulation, unless otherwise noted on the plans.
- Insulation shall be held in place with adhesive and welding pins 16" on center.
- Duct dimensions shown on the drawings are Net Inside Dimensions

2.5 THERMOSTATS

- Provide programmable electronic thermostats.
- Submit proposed thermostats for approval.

2.6 ROOF PENETRATIONS

- Provide pre-manufactured roof flashings compatible with equipment served.
- Coordinate roof work with roof system used. Provide proper flashing as required.
- Provide 1 year warranty on all roof work performed.

2.7 DUCT SMOKE DETECTORS

- Duct detectors are not required since units air flows are 2000 cfm or less per NCSBC: Mechanical Code, Section 606.2.

PART 3 - EXECUTION

3.1 PIPING

- The HVAC Contractor shall coordinate such routing with others, to line his work true to adjacent spaces and in a workmanlike manner and to use only short radius 90 degree elbows. Where required, piping to be sturdily supported and separated in a manner satisfactory to the Engineer.
- The HVAC Contractor shall paint all exterior refrigerant piping, with UV resistant paint as recommended by the closed cell insulation manufacturer.
- Insulate all condensate lines for their entire length with 1/2" closed cell insulation. Install insulation per the manufacturers recommendations.

3.2 ELECTRICAL WORK

- The electrical contractor shall provide all switches, starters, wire conduit for the air conditioning, heating and ventilation equipment. Control wiring shall be by the heating and air conditioning contractor.
- HVAC Contractor is responsible for verifying that power terminals have been properly grounded prior to operating equipment and must find connections to all equipment including control wiring.
- All materials and workmanship shall be in accordance with the electrical specifications for the project. All wiring shall be color coded, and as-built wiring diagram prepared showing all connections and colors of wiring and delivered to the Owner.
- Furnish certification for acceptance of control wiring from local electrical inspector prior to acceptance.

3.3 CLEAN UP

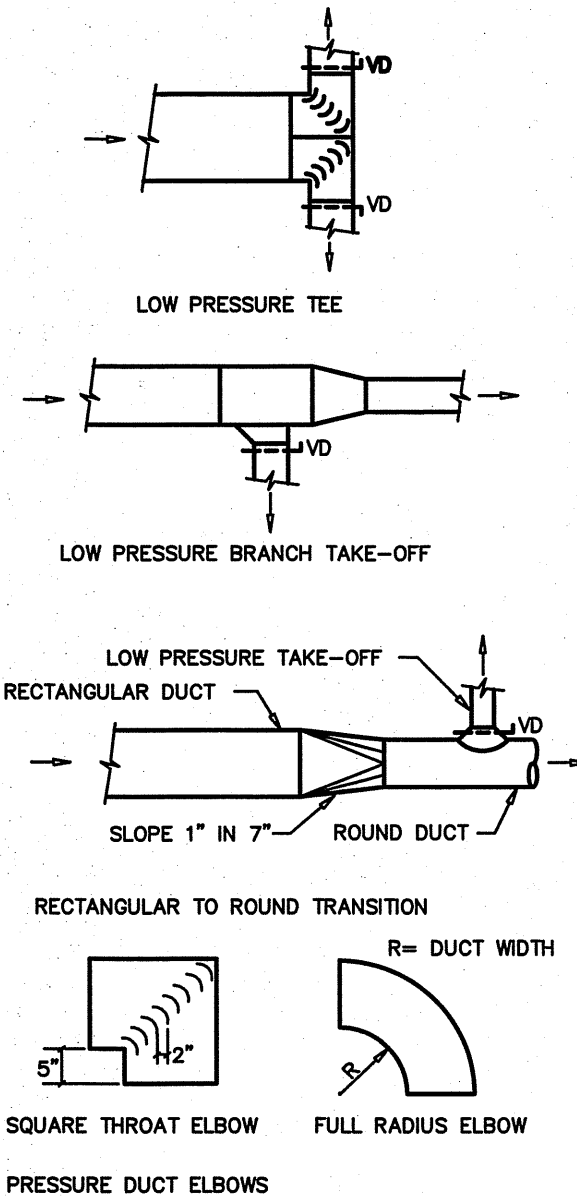
- During construction, keep the site clean of debris. Upon completion, and before final inspection, clean up the premises to remove all evidence of work. In addition upon completion of construction leave equipment clean.
- Furnish one box of clean filters, for each size required, at the time of final inspection to the owner.

3.4 OPERATOR'S MANUAL AND DIAGRAM

- The HVAC Contractor shall prepare in one copy a manual describing the proper maintenance and operation of the system. This manual shall not consist of standard factory instructions (although these may be included) but shall be prepared to describe this particular job.
- The manual shall be bound, indexed, dated and signed by the HVAC Contractor.
- Qualified representative of the HVAC contractor shall meet with the designated representatives of the Owner and the Owner's representative shall be instructed in the proper operation and maintenance of the control system and other systems.

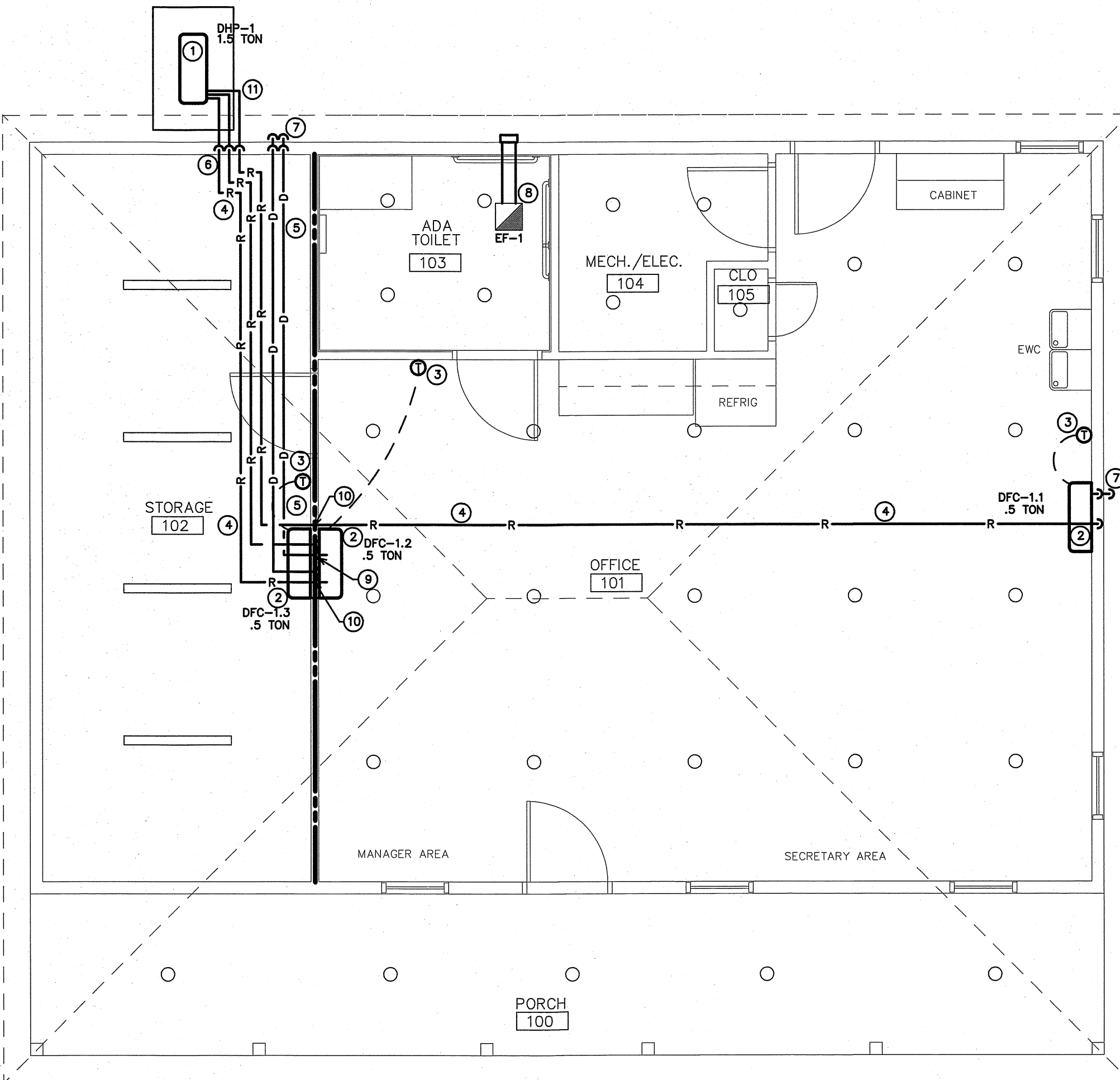
3.5 GUARANTEE

- Guarantee all materials and labor included in the HVAC work for a period of one year from date of final acceptance by the owner. In addition, motor compressors shall be a nonprorated five year warranty. Any part or parts of the work or equipment which prove to be defective during the guarantee period shall be replaced at no additional cost to the owner or tenant.
- All air flows must be measured and balanced to within 10% of design airflows. All equipment used must have a current certification. Provide two copies of the balance report to the owner at closeout. The HVAC contractor shall return and re-balance to occupant comfort after 90 days from close-out. Provide all balance dampers needed for satisfactory operation regardless if shown on the drawings or not, and shift location of thermostats thermostats if required for occupancy comfort.



2 DUCT CONSTRUCTION DETAIL

SCALE: NOT TO SCALE



1 HVAC PLAN

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

- KEY NOTES FOR SHEET M-2
- NEW 1.5 TON DUCTLESS SPLIT SYSTEM OUTDOOR HEAT PUMP UNIT. MOUNT UNIT ON NEW 4" THICK CONCRETE PAD. PROVIDE ALL MANUFACTURER'S REQUIRED CLEARANCES AROUND UNIT.
 - MOUNT NEW DUCTLESS SPLIT SYSTEM FAN-COIL UNIT WITH BOTTOM AT 12" BELOW FINISH CEILING. COORDINATE FINAL LOCATION WITH OWNER TO ACCOMMODATE OWNERS SHELVING, DISPLAYS ETC.
 - MOUNT THERMOSTAT AT 48" AFF.
 - RUN REFRIGERANT PIPING CONCEALED IN ATTIC SPACE.
 - RUN PUMPED CONDENSATE CONCEALED IN ATTIC SPACE.
 - RUN REFRIGERANT PIPING UP CONCEALED IN EXTERIOR WALL.
 - RUN CONDENSATE PIPING DOWN CONCEALED IN EXTERIOR WALL. STUB OUT OF WALL AS LOW AS POSSIBLE ON WALL. TERMINATE WITH ELBOW TURNED DOWN PLANTED AREA.
 - NEW TOILET EXHAUST FAN, RUN 6" RIGID DUCT TO WALL CAP.
 - PROVIDE COPPER CONDENSATION DRAIN LINES AT 2HR RATED WALL. TRANSITION BACK TO PVC ON EITHER SIDE.
 - PROPERLY SEAL REFRIGERANT LINES AT 2HR RATED WALL PENETRATION.
 - PROVIDE UV PROTECTIVE SHIELD/COVER ON EXPOSED REFRIGERANT LINE INSULATION.

ENGINEER

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 Architecture
 PLLC

Architectural
 Design
 Planning
 Interiors

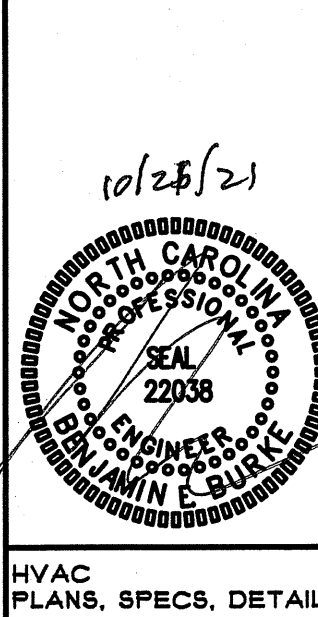


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STYRON TREE SERVICE
 OFFICE
 NEWPORT, NORTH CAROLINA



HVAC
 PLANS, SPECS, DETAILS

21034

ISSUED: 10-21-21
 DWG BY: CLS
 CKD BY: BEB

REVISIONS

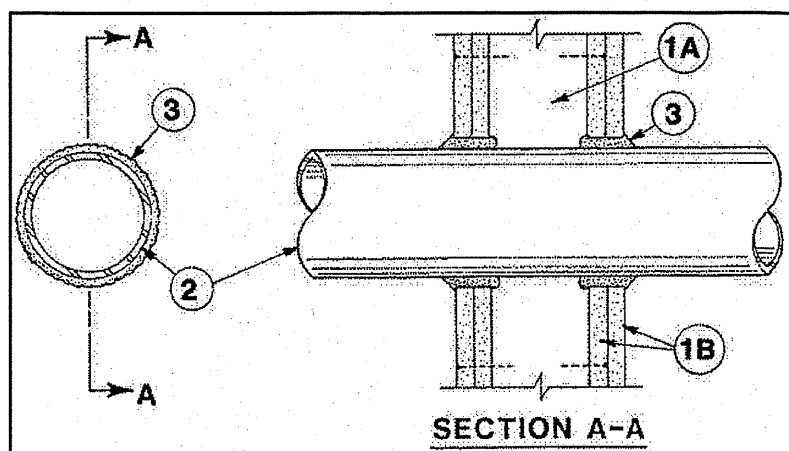
SHEET NO.
 M-2

F Ratings — 1, 2, 3 and 4 Hr (See Items 2 and 3)

T Ratings — 0, 1, 2, 3, and 4 Hr (See Item 3)

L Rating At Ambient — less than 1 CFM/sq ft

L Rating At 400 F — less than 1 CFM/sq ft



1. **Wall Assembly** — The 1, 2, 3 or 4 hr fire-rated gypsum wallboard/stud wall assembly shall be constructed of the materials and in the manner described in the individual U300 or U400 Series Wall or Partition Designs in the UL Fire Resistance Directory and shall include the following construction features:

A. **Studs** — Wall framing may consist of either wood studs (max 2 h fire rated assemblies) or steel channel studs. Wood studs to consist of nom 2 by 4 in. lumber spaced 16 in. OC with nom 2 by 4 in. lumber end plates and cross braces. Steel studs to be min 3-5/8 in. wide by 1-3/8 in. deep channels spaced max 24 in. OC.

B. **Gypsum Boards** — Nom 1/2 or 5/8 in. thick, 4 ft. wide with square or tapered edges. The gypsum wallboard type, thickness, number of layers, fastener type and sheet orientation shall be as specified in the individual U300 or U400 Series Design in the UL Fire Resistance Directory. Max diam of opening is 26 in.

2. **Through-Penetrant** — One metallic pipe, conduit or tubing installed either concentrically or eccentrically within the firestop system. The annular space between pipe, conduit, or tubing and periphery of opening shall be min of 0 in. (point contact) to max 2 in. Pipe, conduit or tubing to be rigidly supported on both sides of wall assembly. The following types and sizes of metallic pipes, conduits or tubing may be used:

A. **Steel Pipe** — Nom 24 in. diam (or smaller) Schedule 10 (or heavier) steel pipe.

B. **Iron Pipe** — Nom 24 in. diam (or smaller) service weight (or heavier) cast iron soil pipe, nom 12 in. diam (or smaller) or Class 50 (or heavier) ductile iron pressure pipe.

C. **Conduit** — Nom 6 in. diam (or smaller) steel conduit or nom 4 in. diam (or smaller) steel electrical metallic tubing.

D. **Copper Tubing** — Nom 6 in. diam (or smaller) Type L (or heavier) copper tubing.

E. **Copper Pipe** — Nom 6 in. diam (or smaller) Regular (or heavier) copper pipe.

F. **Through Penetrating Products** — **Flexible Metal Piping** — The following types of steel flexible metal gas piping may be used:

1. Nom 2 in. diam (or smaller) steel flexible metal gas piping. Plastic covering on piping may or may not be removed on both sides of floor or wall assembly.

OMEGA FLEX INC

2. Nom 1 in. diam (or smaller) steel flexible metal gas piping. Plastic covering on piping may or may not be removed on both sides of floor or wall assembly.

GASTITE, DIV OF TITEX

3. Nom 1 in. diam (or smaller) steel flexible metal gas piping. Plastic covering on piping may or may not be removed on both sides of floor or wall assembly.

WARD MFG LLC

Fill, Void or Cavity Materials — **Caulk or Sealant** — Min 5/8, 1-1/4, 1-7/8 and 2-1/2 in. thickness of caulk for 1, 2, 3 and 4 hr rated assemblies, respectively, applied within annulus, flush with both surfaces of wall. Min 1/4 in. diam bead of caulk applied to gypsum board/penetrant interface at point contact location on both sides of wall. The hourly F Rating of the firestop system is dependent upon the hourly fire rating of the wall assembly in which it is installed, as shown in the following table. The hourly T Rating of the firestop system is dependent upon the type or size of the pipe or conduit and the hourly fire rating of the wall assembly in which it is installed, as tabulated below:

Max Pipe or Conduit Diam in	F RATING Hr	T RATING Hr
1	1 or 2	0+, 1 or 2
4	3 or 4	3 or 4
1	1 or 2	0
6	3 or 4	0
12	1 or 2	0

*When copper pipe is used, T Rating is 0 hr.

3M COMPANY — GP 25NB+ or FB-3000 WT.

*Bearing the UL Classification Mark

DIVISION 16 — ELECTRICAL

PART 1 — GENERAL

1.1 DESCRIPTION OF THE WORK

A. Work under this section includes, but is not necessarily limited to, furnishing and installing the following:

1. Electrical service and service equipment.
2. Lighting and power distribution system.
3. Provide lighting fixtures selected by owner with lamps to match.
4. Wiring devices, boxes, cover plates, etc.
5. Source of power for all items of equipment.
6. Grounding.
7. Other requirements and/or systems where shown.

B. All work shall be complete and items, equipment, etc., shall be electrically connected for proper and correct operation.

C. All work under this contract shall be installed in accordance with the latest edition of the following codes and standards insofar as they apply:

1. The 2017 National Electrical Code.
2. The National Electrical Safety Code.
3. Underwriter's Laboratories, Inc., Standards and approved listings.
4. Electrical Testing Laboratories standards.
5. North Carolina Building Code, Latest Edition and Revisions.
6. All local codes and ordinances.

D. The Electrical Contractor shall be licensed in the State of North Carolina and have all local licenses required for the work.

E. Obtain all permits, licenses, inspections, etc., required for the work and pay for the same. Furnish final certificate of inspection and approval from the electrical inspector having jurisdiction prior to acceptance of the work.

F. All work shall be done by skilled mechanics and shall present a neat, trim, workmanlike condition when complete.

1.2 INTENT

A. The intent of these specifications and the accompanying drawings is to convey as reasonably as possible the requirements for a complete job ready for the building to operate. The Electrical Contractor shall take this into consideration and include in his bid allowance for contingencies as will allow him to provide minor pieces of equipment and labor not specifically indicated but required for the job to operate properly, at no additional cost to the Owner.

1.3 COORDINATION

A. Coordinate work with other contractors. Notify Architect of apparent conflicts early to expedite construction. If structural damage appears imminent, stop work and notify Architect for a decision before resuming operations.

B. Locations shown are approximate. The drawings do not give exact details as to elevations and locations of various pipes, fittings, ducts, conduit, etc., and do not show all offsets and other installation details which may be required. Coordinate all locations with architect before any rough-in.

1.4 SHOP DRAWINGS

A. Shop drawings shall be submitted for panels and service equipment, lighting, wiring devices, and cover plates. These may consist of the manufacturer's standard catalog or tear sheets and shall have the exact items being offered clearly identified.

PART 2 — PRODUCTS AND MATERIALS

2.1 GENERAL

A. All material shall be new and shall bear the manufacturer's name, trade name, and UL label where such standard has been established for the particular material. Materials shall be the standard products of manufacturer's regularly engaged in the manufacture of the required type of equipment and the manufacturer's latest approved design.

1. Boxes installed in concealed locations shall be set flush with the finished surfaces.
2. Provide rated boxes in all fire barriers & walls installed per code.

2.2 NOT USED

2.3 CONDUCTORS

A. Conductors shall be color coded, sizes #8 and larger may be color taped on the job. Color coding shall be: Standard Practice.

B. Conductors shall be manufactured by Dodge, Southwire or approved equal. Conductors shall meet the latest requirements of NEMA and IPCA and shall be UL approved.

C. Metallic sheathed "MC" cable may be used where allowed by N.E.C.

D. Conductors shall be spliced and taped as follows:

1. Size #10 and #12, use Ideal "Wing Nuts" or TAB "Piggy" connectors. Connectors shall be rated for 150 degrees C for use in recessed lighting fixtures.
2. Size #8 and larger shall be solderless screw and screw-clamping type, smoothly covered and shaped with rubber gum type with final cover vinyl plastic electrical type. In lieu of rubber gum and vinyl plastic type, factory fabricated approved preformed insulating covers may be used. All connectors shall be UL approved.
3. No split-bolt type connectors may be used.

E. All branch wire and connections shall be copper and sized per National Electric Code.

F. All conductors shall be continuous without splice between junction, outlet, device boxes, etc. No splicing will be permitted in panelboard cabinets, safety switches, etc.

G. All wiring in mechanical spaces shall be plenum rated.

H. Provide GFI protection within 6'-0" of any sink.

I. All multi-wire branch circuits shall comply with 2017 NEC, 210.4(B).

J. All wiring at medical facilities shall comply with 2017 NEC, 517.1.

2.4 PANELBOARDS, SAFETY SWITCHES

A. Panelboards shall comply with NEMA Standard PB 1 — Latest Edition and as manufactured by Square D or ITE—Siemens.

B. The contractor shall be responsible for correctly phasing the circuits in the panelboards.

C. Safety switches shall be general duty type, size and rating as required for load service. Safety switches shall be fused or unfused as shown and/or as required. Safety switches serving motor loads shall be horsepower rated for load served.

2.5 NOT USED

2.6 WIRING DEVICES

A. Wiring devices shall be commercial grade by Bryant, Leviton, or approved equal. With matching cover. Color by Architect.

B. Wiring devices installed under a Kitchen Hood shall have stainless steel covers.

C. Wiring devices installed over counters shall comply with ANSI A117.1.

2.7 NOT USED

2.8 CONDUIT

- A. PVC conduit will be allowed where N.E.C. approved.
- B. All service conduit shall be rigid where exposed below 6'-0" AFF or exposed to the elements or hazardous conditions.

PART 3 — EXECUTION

3.1 CIRCUIT GROUNDING

A. All circuits shall contain an insulated, green, copper grounding conductor, sized in accordance with Table 250-95 of the NEC. Grounding conductors shall be connected to equipment grounding bus in panelboard and securely attached and grounded to the device or enclosure at the other end.

3.2 GROUNDING TYPE CONVENIENCE OUTLETS AND SWITCHES

A. Outlets and switches shall be solidly grounded to equipment grounding system with a green colored insulated conductor. Electrical connections shall be continuous from equipment ground bus in panelboard to the hex nut on the convenience outlet or switch.

3.3 MOTORS

A. All motors shall be connected to conduit system with short length (minimum length 24" and maximum length 36") of flexible liquidtight conduit.

3.4 NOT USED

3.5 EQUIPMENT LABELING

A. Provide permanent name plates for all panelboards, safety switches, wiring troughs, etc., for identification of equipment controlled, services, etc. Nameplates shall be securely and permanently attached to equipment with stainless steel screws. Nameplates shall include the name of the equipment and where it is fed from.

B. All switch plates, receptacle plates and outlet covers shall be labeled with machine printed vinyl labels identifying the circuit(s) within.

C. All empty conduit runs shall be identified and indicated where they terminate.

D. Provide typewritten directory in each panelboard to clearly identify each circuit, service, etc.

3.6 NOT USED

3.7 NOT USED

3.8 JUNCTION AND/OR PULL BOXES

A. Boxes shall be installed where necessary to avoid excessive runs and/or too many bends between outlets.

3.9 PULL WIRE

A. Leave pull wire in each empty conduit run.

3.10 NOT USED

3.11 GROUNDING

A. All grounding shall be in accordance with Article 250 of the NEC. In addition, the following requirements shall be met:

1. Grounding conductors shall be installed as to permit the shortest and most direct path from equipment to ground. All connections to grounding conductors shall be accessible.
2. Equipment ground continuity shall be maintained through flexible metal conduit.
3. All wiring devices equipped with grounding connection shall be solidly grounded to ground system with grounding conductors.
4. The frame of all lighting fixtures shall be securely grounded to the equipment ground system with grounding conductors.
5. All equipment enclosures, and non-current-carrying metallic parts of electrical equipment, raceway systems, etc., shall be effectively and adequately bonded to ground.
6. All equipment enclosures, and non-current-carrying metallic parts of electrical equipment, raceway systems, etc., shall be effectively and adequately bonded to ground.

3.12 ELECTRICAL WORK IN CONNECTION WITH OTHER WORK

A. **PLUMBING WORK:** The Electrical Contractor shall furnish and install switches and devices as shown and electrically connect electric water heaters, etc. All other electrical work required will be performed by the PLUMBING CONTRACTOR.

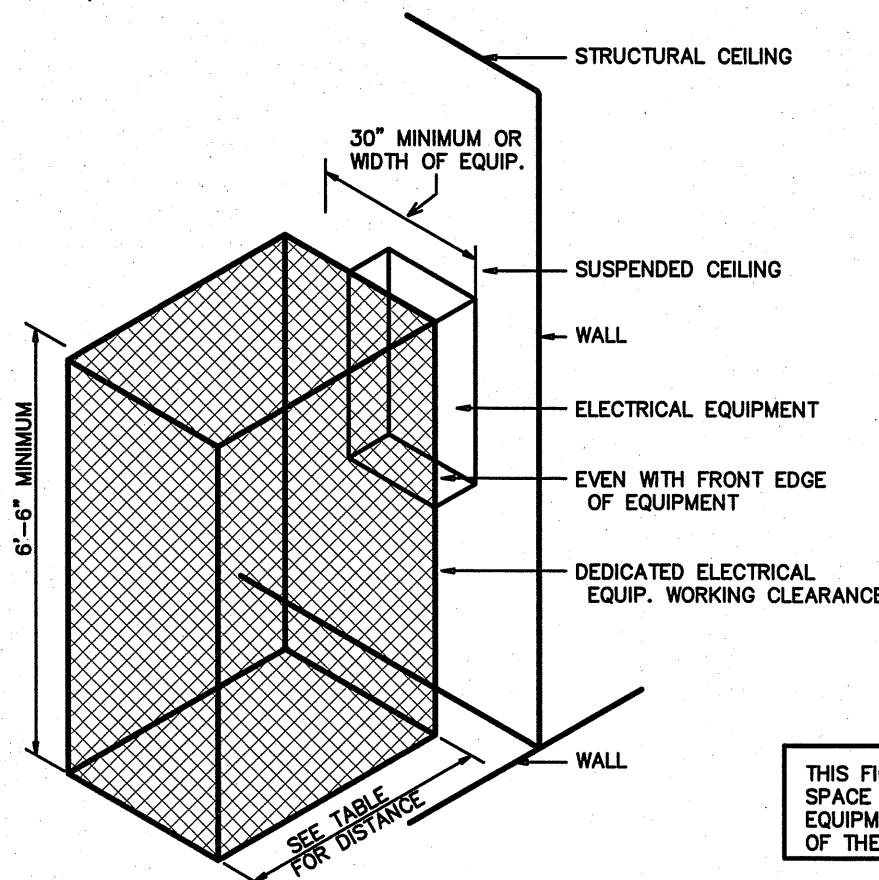
B. **HEATING AND AIR CONDITIONING WORK:** The Electrical Contractor shall provide all disconnect switches, starters, and associated hardware for the equipment furnished including all line and load side wiring and conduit. Final connections to the equipment will be by the HVAC contractor. All control wiring will be accomplished by the HVAC contractor. Coordinate all work associated with the HVAC contractor.

3.13 CLEAN UP

A. During construction, keep the site clean of debris. Upon completion, and before final inspection, clean up the premises to remove all evidence of work. In addition upon completion of construction leave equipment clean.

3.14 GUARANTEE

A. Guarantee all materials and labor included in the electrical work for a period of one year from date of final acceptance by the Owner. Any part or parts of the work or equipment which prove to be defective during the guarantee period shall be replaced at no additional cost to the Owner.



ELECTRICAL EQUIPMENT WORKING CLEARANCE
PER ARTICLE 110-26 OF N.E.C.

WORKING CLEARANCES			
VOLTAGE TO GROUND NOMINAL	MIN. CLEAR DISTANCE IN FEET	CONDITION	
0-150	1	2	3
151-600	3	3	3-1/2
		4	4

WHERE THE CONDITIONS ARE AS FOLLOWS:

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

1 ELECTRICAL CLEARANCES

SCALE: NTS

APPENDIX B

2018 BUILDING CODE SUMMARY
FOR ALL COMMERCIAL PROJECTS

ELECTRICAL DESIGN
(PROVIDE ON THE ELECTRICAL SHEETS IF APPLICABLE)
ELECTRICAL SUMMARY

ELECTRICAL SYSTEM AND EQUIPMENT

Method of Compliance

Energy Code: Prescriptive ☒ Energy Cost Budget ☐

ASHRAE 90.1: Prescriptive ☒ Energy Cost Budget ☐

Lighting Schedule

lamp type required in fixture
number of lamps in fixture
ballast type used in fixture
number of ballasts in fixture
total wattage in fixture
total interior wattage specified vs. allowed
total exterior wattage specified vs. allowed

See Light
Fixture Schedule

868VA / 908VA
184VA / 750VA

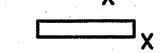
Additional Prescriptive Compliance

- ☒ 506.2.1 More Efficient Mechanical Equipment
- ☒ 506.2.2 Reduced Lighting Power Density
- ☒ 506.2.3 Energy Recovery Ventilation Systems
- ☒ 506.2.4 Higher Efficiency Service Water Heater
- ☒ 506.2.5 On-Site Supply of Renewable Energy
- ☒ 506.2.6 automatic Daylighting Control System

ELECTRICAL LEGEND



LIGHT FIXTURE: LETTER DENOTES FIXTURE TYPE
(REFER TO LIGHTING PLAN AND FIXTURE SCHEDULE).
NL = NIGHT LIGHT (NOT SWITCHED/ALWAYS ON)



DUPLEX RECEPTACLE — 120V; MOUNT 18" TO CENTER AFF UNLESS NOTED OTHERWISE. "WP" INDICATES WEATHER PROOF, "GFI" INDICATES GROUND FAULT CURRENT INTERRUPT PROTECTED. "U" INDICATES RECEPTACLE WITH (2) USB PORTS.



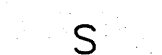
QUADRUPLEX RECEPTACLE — 120V



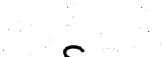
FLOOR OR CEILING OUTLET (AS NOTED) — 120V



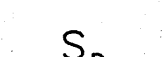
SPECIAL PURPOSE RECEPTACLE — REFER TO POWER PLAN AND PANEL SCHEDULE



LIGHT SWITCH



SWITCH WITH INTEGRAL PIR/US MOTION SENSOR FOR AUTOMATIC SWITCH-OFF WITH UP TO 2 HOUR ADJUSTABLE DELAY.



DIMMABLE LIGHT SWITCH



MOTOR RATED SWITCH



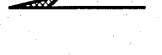
JUNCTION BOX



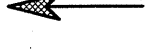
TELE/DATA OUTLET — PROVIDE JUNCTION BOX WITH CONDUIT BACK TO MTP. PROVIDE (1) TELEPHONE JACK AND (1) CAT 5 DATA JACK



SINGLE-POLE HOMERUN TO PANELBOARD



TWO-POLE OR 3-POLE HOMERUN TO PANELBOARD



EXIT LIGHT



EMERGENCY EGRESS FIXTURE



PHOTOCELL (LED COMPLIANT)



BRANCH CIRCUIT WIRING



SWITCH LEG



GROUND CONNECTION



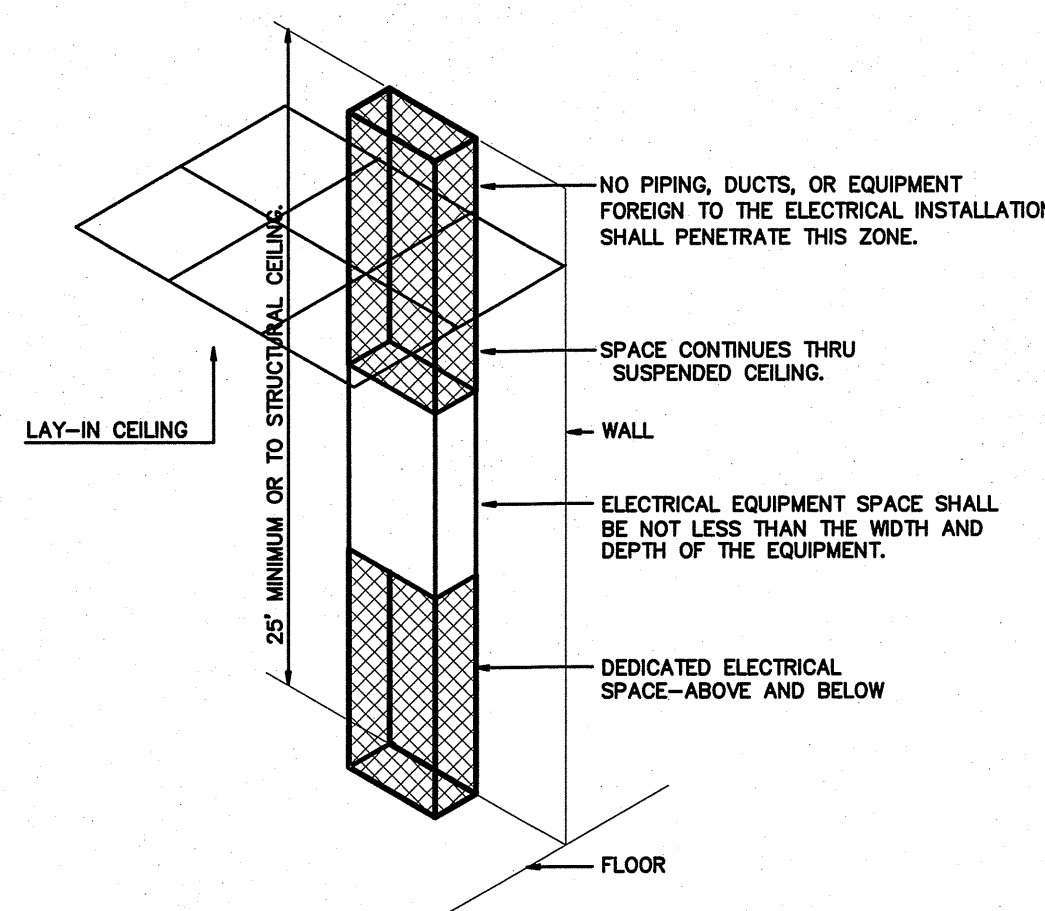
DISTRIBUTION PANELBOARD



DISCONNECTING MEANS AS REQUIRED BY CODE



2-HR FIRE WALL



ELECTRICAL EQUIPMENT DEDICATED SPACE
PER ARTICLE 110.26.F.1 OF N.E.C.

ENGINEER

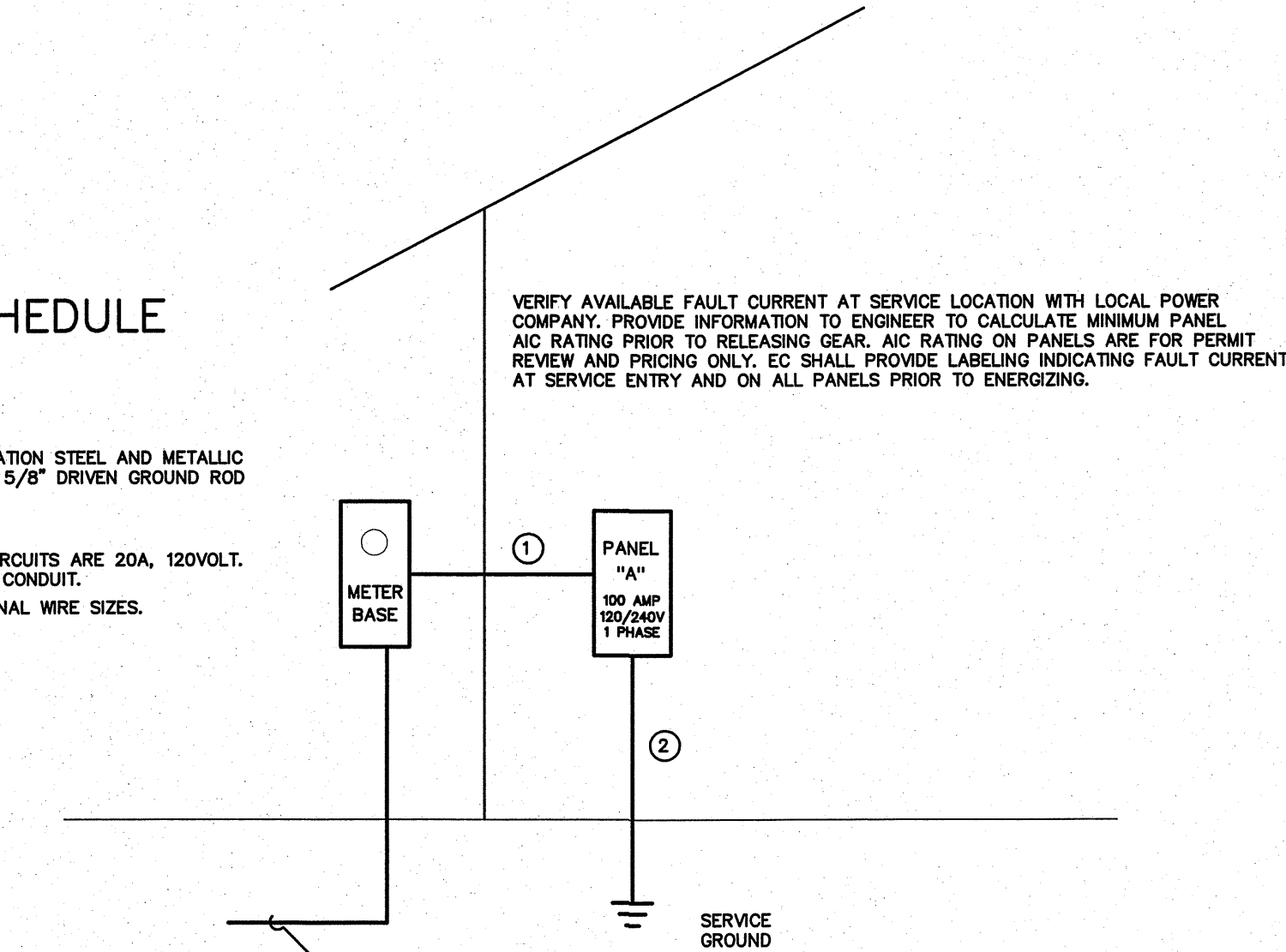
BURKE DESIGN GROUP

3305-109 DURHAM DRIVE
RALEIGH, NC 27603
PHONE: (919) 771-1916
FAX: (919) 779-0826
email: ben@bdg-nc.com
Corp. License # C-2852

RISER WIRING SCHEDULE

- 100A: 3-#3 IN 3/4" CONDUIT
- #8 CU GND TO BUILDING STEEL, FOUNDATION STEEL AND METALLIC WATER MAIN AND #6 CU GND TO 10' X 5/8" DRIVEN GROUND ROD

NOTE:
UNLESS OTHERWISE NOTED ALL OTHER CIRCUITS ARE 20A, 120VOLT.
PROVIDE 2-#12, 1-#12 CU GND IN 1/2" CONDUIT.
SEE EQUIPMENT SCHEDULES FOR ADDITIONAL WIRE SIZES.



ELECTRICAL SERVICE RISER

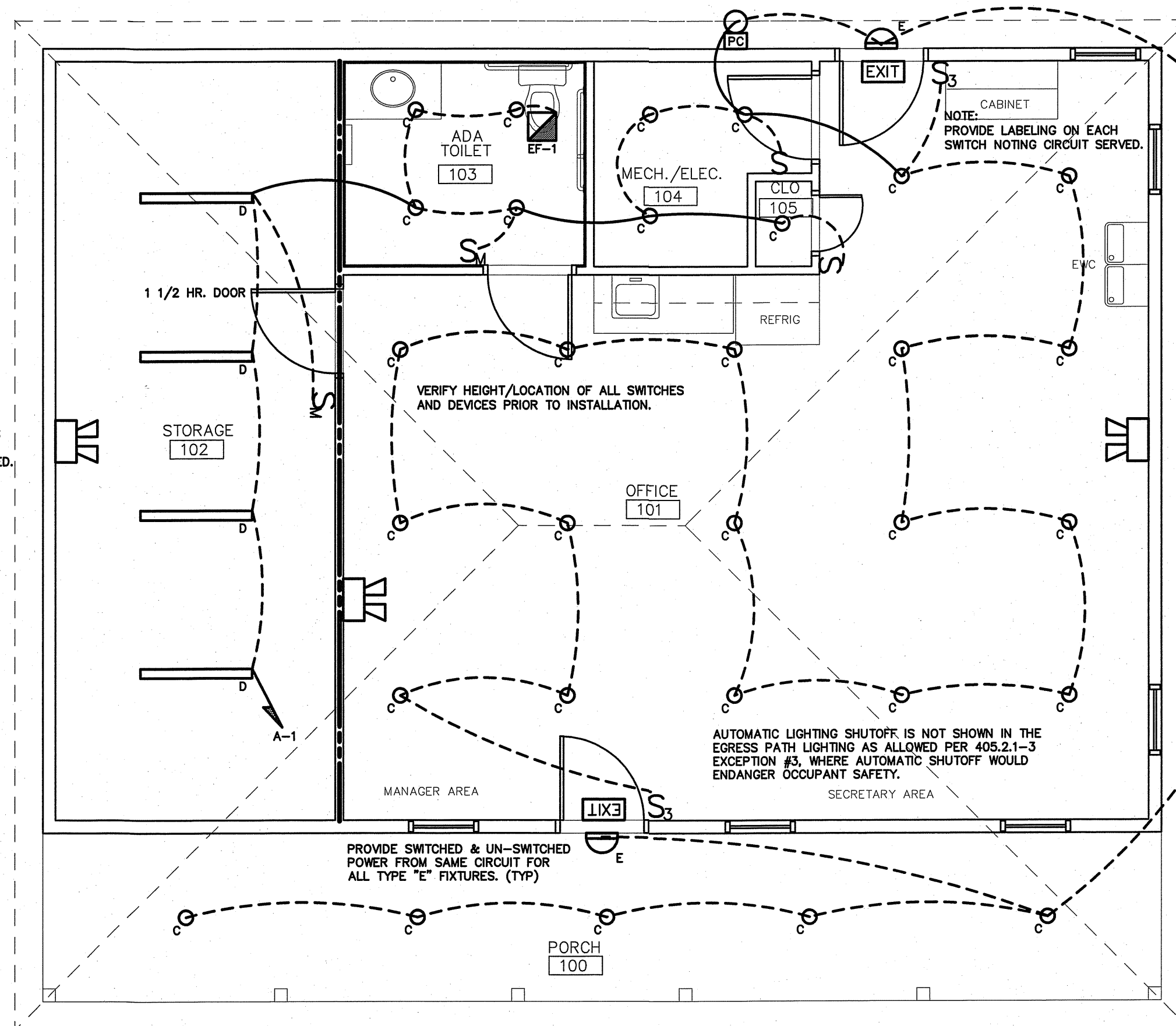
SCALE: 1/4" = 1'-0"

MARK	MANUFACTURER	CATALOG NO.	VOLT.	LAMPS	BALLAST	W/F	REMARKS
C	JUNO	IC22LED-04-14LM-35K	120	-	LED	-	30 6" LED RECESSED CAN FIXTURE *
D	COLUMBIA	LXM4-35HL-RFA-EU	120	-	LED	-	47 4" ENCLOSED LED GASKETED STRIP *
E	COMPASS	CU50	120	-	LED	-	17 EXTERIOR NORMAL/EMERGENCY LIGHT FIXTURE- COLOR BY ARCH *
EXIT	COMPASS	CER	120	-	LED	-	2 LED EXIT SIGN, COLOR BY ARCH *
EM	COMPASS	CU2	120	-	LED	-	10 EMERGENCY LIGHT, BATTERY BACKUP, BATTERY DIAGNOSTICS, COLOR BY ARCH *

* OR APPROVED EQUAL. PROVIDE CUT SHEETS FOR OWNER APPROVAL PRIOR TO ORDERING FIXTURES. CATALOG NUMBERS ARE FOR REFERENCE ONLY, ACTUAL NUMBERS MAY VARY.
THE EMERGENCY LIGHTS AND EXIT SIGNS MUST HAVE INTEGRAL BATTERIES, CHARGERS AND TEST SWITCHES.

PROVIDE PHOTOCELL CONTROLS FOR EXTERIOR LIGHTING CIRCUIT. LOCATE PHOTOCELL AWAY FROM ARTIFICIAL LIGHT. PROVIDE SHIELDING AS REQUIRED.

TIE ALL EXIT AND EMERGENCY LIGHTS TO NEAREST AVAILABLE UNSWITCHED LIGHTING CIRCUIT IN THE AREA SERVED.



1 LIGHTING PLAN

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

EQUIPMENT WIRING SCHEDULE

EQUIPMENT	MCA	MOCP	VOLTS	PH	WIRE SIZE
DHP-1	17.2A	20A	208V	1	2-#12, 1-#12 GND IN 1/2" CONDUIT
EW1	(1650W)	20A	120V	1	2-#12, 1-#12 GND IN 1/2" CONDUIT

NOTE:
THE ELECTRICAL CONTRACTOR SHALL VERIFY ALL EQUIPMENT ELECTRICAL REQUIREMENTS PRIOR TO ROUGH-IN AND RELEASING GEAR. ADJUST BREAKER, WIRE SIZES, ETC. AS REQUIRED.

NEW PANEL- 'A'		MAKE: CUTLER HAMMER TYPE: CH LOAD CENTER OR APPROVED EQUAL		RATING: 120/240 1 PHASE 3 WIRE MOUNTING: SURFACE		MLO MAIN CIRCUIT BREAKER EQUIPMENT GROUND BUS _____ SERVICE ENTRY RATED _____		<input checked="" type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO			
FED FROM:		LOAD SERVICE		CKT BRKR	WATTS PER PHASE A B	CKT NO	NEUTRAL A B	CKT NO	WATTS PER PHASE A B	CKT BRKR	LOAD SERVICE
LIGHTS		20A	1092	1	✓	1	✓	2	720	20A	REC- OFFICE/ MECH
EWH		20A		1650	3	✓	✓	4	720	20A	REC- OFFICE/ STORAGE
DHP-1		20A	1652	5	✓	5	✓	6	360	20A	REC- COUNTERTOP
				1652	7	✓	✓	8	180	20A	REC- TOILET
REC- EXTERIOR		20A	180	9	✓	9	✓	10	540	20A	REC- PORCH
SPACE					11	✓	✓	12	1800	20A	REFRIGERATOR
SPACE					13	✓	✓	14	888	20A	EWC
SPACE					15	✓	✓	16			SPACE
SPACE					17	✓	✓	18			SPACE
SPACE					19	✓	✓	20			SPACE
SPACE					21	✓	✓	22			SPACE
SPACE					23	✓	✓	24			SPACE
SPACE					25	✓	✓	26			SPACE
SPACE					27	✓	✓	28			SPACE
SPACE					29	✓	✓	30			SPACE
NOTES		SUB-TOTALS 'B'		2924	3302			100A BUS	2508	2700	SUB-TOTALS 'A'
(g) GFCI PROTECTED BREAKER								100A LUGS	2924	3302	SUB-TOTALS 'B'
								100A FEED	5432	6002	GRAND TOTAL
								VERIFY SIZE	45A	50A	AMPS/PHASE
NEC ALLOWABLE DEMAND FACTORS				DIVERSIFIED LOAD SUMMARY							
① DEMAND FACTORS PER NEC 220				LOAD TYPE				DEMAND FACTOR(%)		A B TOTAL DIVERSIFIED LOAD	
② LARGEST OF: NEC TABLE 220.12 OR CONNECTED LOAD				GENERAL LIGHTING				① 125%		1385	
③ NEC TABLE 220.56				TRACK LIGHTING				① 125%		---	
④ NEC 220.51				GENERAL USE RECEPTACLES				① 100% ② 100% ③ 100% ④ 100% ⑤ 100% ⑥ 100%		1800 900 2700	
⑤ NEC 220.43A, 200 VA/LINEAR FT				MOTORS AND EQUIPMENT				LARGEST 125% ALL OTHERS 100%		2085 2085 4130	
⑥ NON-COINCIDENT LOADS, LARGEST OF THE TWO LOADS IS COUNTED				WATER HEATERS				125%		2085 2085	
				KITCHEN EQUIPMENT				100%		---	
				FIX. ELEC. SPACE HEAT.				① 100%		---	
				SHOW WINDOW LIGHTS				① 125%		---	
				SIGN				125%		---	
				MISC				100%		888	
				PHASE (TOTAL VA AMPS)				6118		8828 12946	
				TOTAL VA AMPS				51A 57A		VOLTS = 54A TOTAL AMPS	