

BACON DEVELOPMENT

109 MAGNOLIA PARK DR.
MOORESVILLE, NC 28117

2018 APPENDIX B

BUILDING CODE SUMMARY FOR ALL COMMERCIAL PROJECTS (EXCEPT FOR 1 AND 2 FAMILY DWELLINGS AND TOWNHOUSES)

Name of Project:	BACON DEVELOPMENT							
Address:	109 MAGNOLIA PARK DR. MOORESVILLE NC							
Zip Code:								
Proposed Use:	FACTORY/OFFICE							
Owner/Authorized Agent:	CHAD BACON Phone #: 704-360-8131 E-mail: chad@bacondevelopment.com							
Owned By:	<input type="checkbox"/> City/County	<input checked="" type="checkbox"/> Private	<input type="checkbox"/> State					
Code Enforcement Jurisdiction:	<input type="checkbox"/> City	<input checked="" type="checkbox"/> County	IREDELL COUNTY					
CONTACT:	Darden Engineering Services John C Darden III 38583 704-663-7738							
Designer	Firm	Name	License No.					
Architectural/Bldg Design:	Darden Engineering Services	John C Darden III	38583					
Civil:	Darden Engineering Services	John C Darden III	38583					
Electrical:	Allied Consulting Engineers	David Hood	030549					
Fire Alarm:	Allied Consulting Engineers	David Hood	030549					
Plumbing:	Allied Consulting Engineers	David Hood	030549					
Mechanical:	Allied Consulting Engineers	David Hood	030549					
Sprinkler/Standpipe:	Darden Engineering Services	John C Darden III	38583					
Structural:	Darden Engineering Services	John C Darden III	38583					
Retaining Wall/5' High:								
Other:								
2018 NC BUILDING CODE:	<input checked="" type="checkbox"/> NEW BUILDING <input checked="" type="checkbox"/> SHELL/CORE <input checked="" type="checkbox"/> 1st TIME INTERIOR COMPLETION <input type="checkbox"/> PHASED CONSTRUCTION - SHELL/CORE							
2018 EXISTING BUILDING CODE:	<input type="checkbox"/> PRESCRIPTIVE <input type="checkbox"/> ALTERATION - LEVEL I <input type="checkbox"/> HISTORIC PROPERTY <input type="checkbox"/> REPAIR <input type="checkbox"/> ALTERATION - LEVEL II <input type="checkbox"/> CHANGE OF USE <input type="checkbox"/> CHAPTER 14 <input type="checkbox"/> ALTERATION - LEVEL III							
CONSTRUCTED:	ORIGINAL USE(S) (CH. 3)							
RENOVATED:	CURRENT USE(S) (CH. 3)							
OCCUPANCY CATEGORY (TABLE 1604.5):	CURRENT:	PROPOSED:	II					
BUILDING DATA:								
Construction Type:	<input type="checkbox"/> I-A	<input type="checkbox"/> II-A	<input type="checkbox"/> III-A	<input type="checkbox"/> IV	<input type="checkbox"/> V-A	<input checked="" type="checkbox"/> V-B		
Construction Type:	<input type="checkbox"/> I-B	<input type="checkbox"/> II-B						
Sprinklers:	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Partial	<input type="checkbox"/> Yes	<input type="checkbox"/> NFPA 13	<input type="checkbox"/> NFPA 13R	<input type="checkbox"/> NFPA 13D		
Standpipes:	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes	Class:	<input type="checkbox"/> I	<input type="checkbox"/> II	<input type="checkbox"/> III	<input type="checkbox"/> Wet	<input type="checkbox"/> Dry
Primary Fire District:	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes	Flood Hazard Area:	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes			
Special Inspections Req:	<input checked="" type="checkbox"/> Yes							
Gross Building Area:								
Floor:	EXISTING SUITE B (Sq. ft.)	UPFIT SUITE A ONLY (Sq. ft.)	SUB-TOTAL (Sq. ft.)					
3rd Floor:								
2nd Floor:								
Mezzanine:			1,693					
1st Floor:			9,254					
Basement:								
TOTAL:			10,947					

ALLOWABLE AREA:					
Primary Occupancy Classification(s):					
Assembly	<input type="checkbox"/> A-1	<input type="checkbox"/> A-2	<input type="checkbox"/> A-3	<input type="checkbox"/> A-4	<input type="checkbox"/> A-5
Business	<input type="checkbox"/>				
Educational	<input type="checkbox"/>				
Factory	<input checked="" type="checkbox"/> F-1 Moderate	<input type="checkbox"/> F-2 Low			
Hazardous	<input type="checkbox"/> H-1 Detonate	<input type="checkbox"/> H-2 Deflagrate	<input type="checkbox"/> H-3 Combust	<input type="checkbox"/> H-4 Health	<input type="checkbox"/> H-5 HPM
Institutional	<input type="checkbox"/> I-1	<input type="checkbox"/> I-2	<input type="checkbox"/> I-3	<input type="checkbox"/> I-4	
I-2 Condition	<input type="checkbox"/> 1	<input type="checkbox"/> 2			
I-3 Condition	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
Mercantile	<input type="checkbox"/>				
Residential	<input type="checkbox"/> R-1	<input type="checkbox"/> R-2	<input type="checkbox"/> R-3	<input type="checkbox"/> R-4	
Storage	<input type="checkbox"/> S-1 Moderate	<input type="checkbox"/> S-2 Low	<input type="checkbox"/> High-Piled		
Utility & Misc.	<input type="checkbox"/> Parking Garage	<input type="checkbox"/> Open	<input type="checkbox"/> Enclosed	<input type="checkbox"/> Repair Garage	
Accessory Occupancy Classifications:					
Incidental Uses (Table 509):					
This separation is not exempt as a Nonseparated Use (see exceptions).					
Incidental Uses (Table 509):					
Special Uses (Chapter 4 - List Code Sections):					
Special Provisions: (Chapter 5 - List Code Sections):					

Mixed Occupancy: No Yes Separation _____ Hr. Exception: _____

Non-Separated Use (508.3)

Separated Use Separation (508.4): See below for area calculations

See below for area calculations for each story, the area of the occupancy shall be such that the sum of the ratios of the actual floor area of each use divided by the allowable floor area for each use shall not exceed 1.

Actual Area of Occupancy A + Actual Area of Occupancy B / Allowable Area of Occupancy A + Allowable Area of Occupancy B < 1
+ = ≤ 1.00

Story No.	Description and Use	(A) Bldg Area Per Story (Actual)	(B) Table 506.2 Area	(C) Area for Open Space Increase	(D) Allowable Area per Story or Unlimited
1	F-1 FACTORY	9,254	8,500	4,250	12,750

¹ Frontage area increases from Section 506.2 are computed thus:

a. Perimeter which fronts a public way or open space having 20 feet minimum width = 380 (F)

b. Total Building Perimeter = 380 (P)

c. Ratio (F/P) = 1 (F/P)

d. W = Minimum width of public way = 20 (W)

e. Percent of frontage k = 100 F/P, 0.25 x W/30 = .5 (W)

² Unlimited area applicable under conditions of Section 507.

³ Maximum Building Area = total number of stories in the building x E. (506.8)

⁴ The maximum area of open parking garages must comply with Table 406.5.4. The maximum area of air traffic control towers must comply with Table 412.3.1.

⁵ Frontage increase is based on the unsprinklered area value in Table 506.2.

ALLOWABLE HEIGHT		
	Allowable	Shown on Plans
Building Height in Feet	40'	28'
Building Height in Stories	1	1

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

Building Element	Fire Separation Distance (Feet)	Rating Req'd (w/reduction)	Detail # and Sheet #	Design # for Rated Assembly	Design # for Rated Penetration	Design # for Rated Joints
Structural frame, including columns, girders, trusses						
Bearing walls						
Exterior						
North	>30'	0				
East	>30'	0				
West	>30'	0				
South	>30'	0				
Interior						
Non-Bearing Walls & Partitions						
Exterior Walls						
North	N/A	N/A				
East	N/A	N/A				
West	N/A	N/A				
South	N/A	N/A				
Interior Walls & Partitions						
Floor Construction including supporting beams and joists	N/A	N/A				
Floor Ceiling Assembly	N/A	N/A				
Columns Supporting Floors	N/A	N/A				
Roof Construction including supporting beams and joists	N/A	N/A				
Roof Ceiling Assembly	N/A	N/A				
Columns Supporting Roof	N/A	N/A				
Shaft Enclosure - Ext.	N/A	N/A				
Shaft Enclosure - Other						
Corridor Separation	N/A	N/A				
Occupancy/Fire Barrier Sep.	N/A	N/A				
Party Wall Separation	N/A	N/A				
Smoke Barrier Separation	N/A	N/A				
Tenant/Dwelling	N/A	N/A				
Unit/Sleeping Unit Separation	N/A	N/A				
Incidental Use Separation	N/A	N/A				

* Indicate section number permitting reduction

PERCENTAGE OF WALL OPENING CALCULATIONS

Fire Separation Distance (ft) from Property Lines	Degree of Openings Protection (Table 705.8)	Allowable Area (%)	Actual Shown on Plans (%)
>30'	>N/A		

LIFE SAFETY SYSTEM REQUIREMENTS

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

LIFE SAFETY PLAN REQUIREMENTS:

Life Safety Plan Sheet #: S-4
 Fire and/or smoke rated wall locations (Chapter 7)
 Assumed and real property line locations (if not on site plan)
 Exterior wall opening area with respect to distance to assumed property lines (705.8)
 Occupancy types for each area as it relates to occupant load calculation (Table 1004.1.1)
 Occupant load for each area
 Exit access travel distances (1017)
 Common travel distances (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 (1010.19.7)
 Location of doors with electromagnetic egress locks (1010.19.9)
 Location of doors equipped with hold-open devices
 Location of emergency escape windows (1030)
 The square footage of each fire area (902)
 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

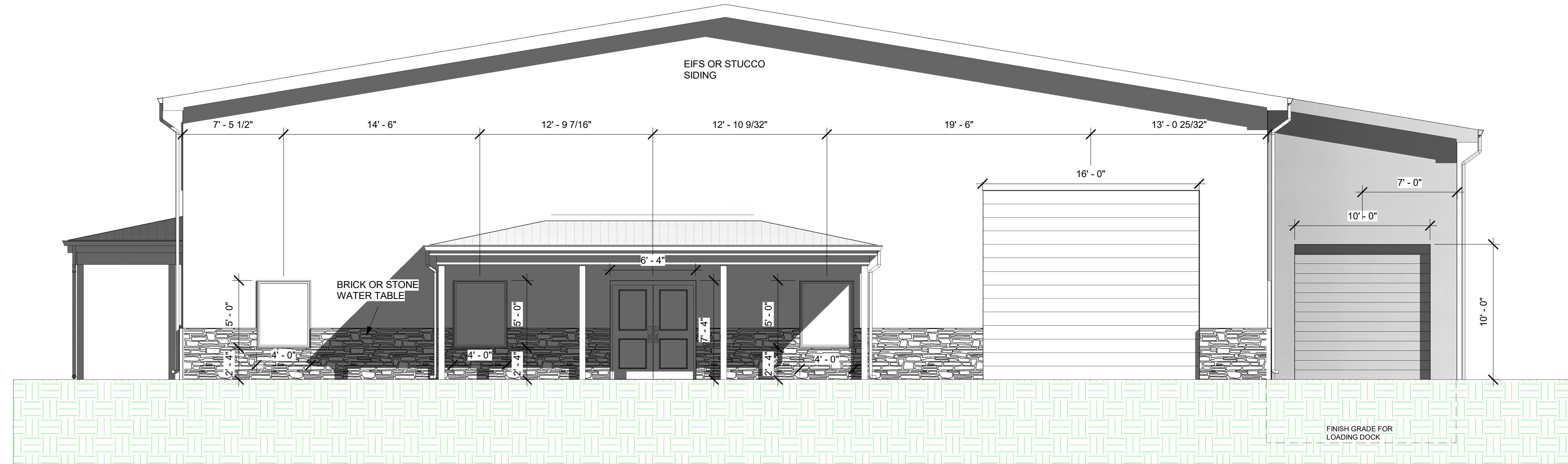
ACCESSIBLE DWELLING UNITS (SECTION 1107)

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

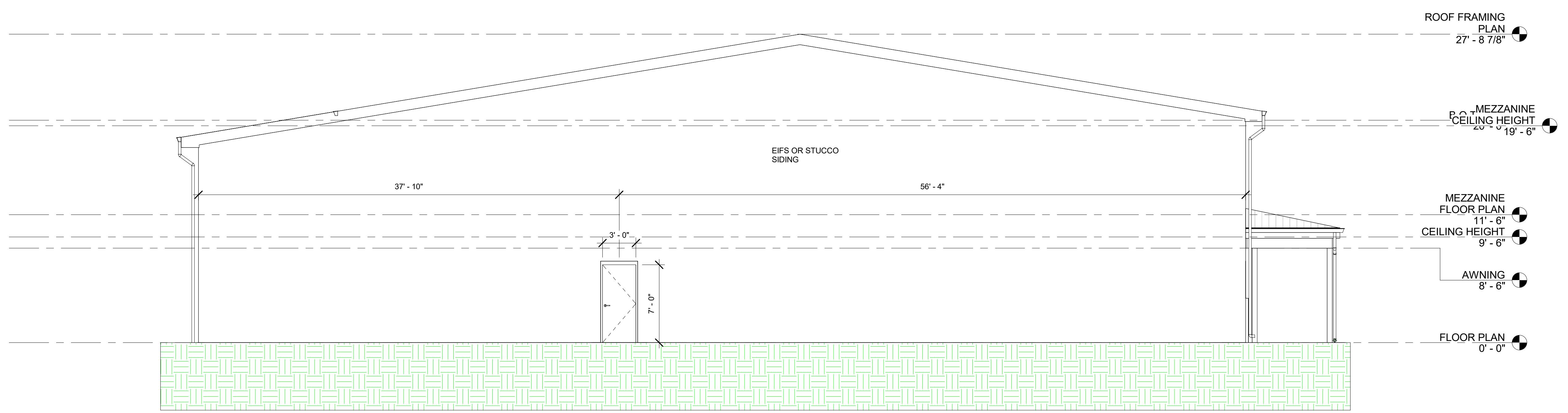
ACCESSIBLE PARKING (SECTION 1106)

Lot or Parking Area	Total # of Parking Spaces	# of Access. Spaces Provided	Van Spaces with 5' Access Aisle	12' Access Aisle	8' Access Aisle	Total # Accessible Provided

<tbl_r cells="7" ix="1" maxcspan="1" maxrspan="1" usedcols="7



ISO 1



REAR ELEVATION

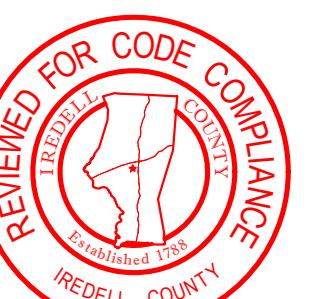
3/16" = 1'-0"

BACON DEVELOPMENT
109 MAGNOLIA PARK DR.
MORESVILLE, NC 28113
ELEVATION

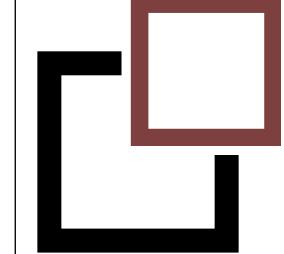
S-2

OF

13



DARDEN
ENGINEERING
SERVICES, PLLC
PHONE NO. 704-643-7738
EMAIL: info@dardeneng.com



DESIGN NO. 23-126
PROJECT NO. 38553
DRAWN BY JAB
CHECKED BY Approver
DATE 10/17/23

OWNER _____
DATE _____
DRAWN BY _____
DATE _____
CHECKED BY _____
DATE _____

© DARDEN ENGINEERING SERVICES

THIS DRAWING IS THE PROPERTY OF DARDEN ENGINEERING SERVICES

NO DRAWING MAY BE REPRODUCED, IN WHOLE OR

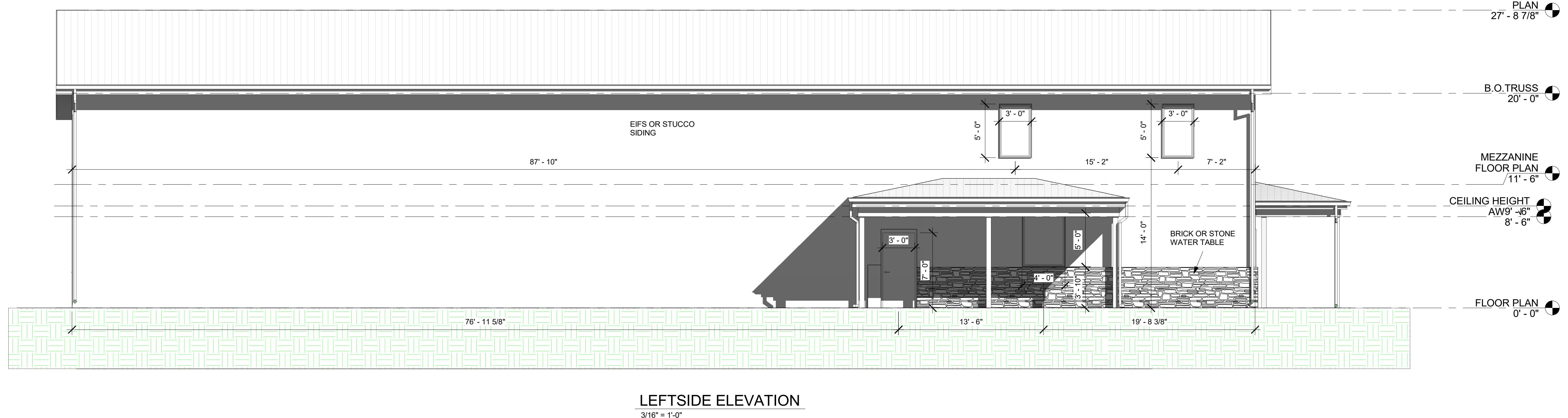
IN PART, WITHOUT THE WRITTEN CONSENT OF

DARDEN ENGINEERING SERVICES

REVISIONS

NOTE: ANY DEVIATION FROM THE PLAN MUST BE APPROVED BY DARDEN ENGINEERING SERVICES, PLLC.

13



DARDEN
ENGINEERING
SERVICES, PLLC

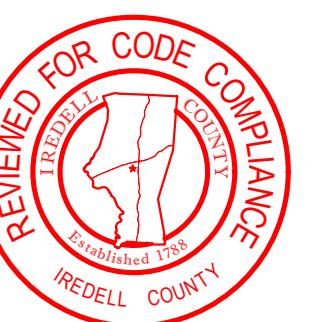
PHONE: 704-643-7738
EMAIL: info@dardeneeng.com

DESIGN NO. 23-126
PROJECT NO. 38553
DRAWN BY JAB
CHECKED BY JCDW
DATE 10/17/23

© DARDEN ENGINEERING SERVICES
THIS DRAWING IS THE PROPERTY OF DARDEN ENGINEERING SERVICES
NO DRAWING MAY BE REPRODUCED IN WHOLE OR
PART WITHOUT THE WRITTEN CONSENT OF DARDEN ENGINEERING SERVICES

1
2
3
4
5
6
NO. DATE DESCRIPTION BY CHGD
REVISIONS

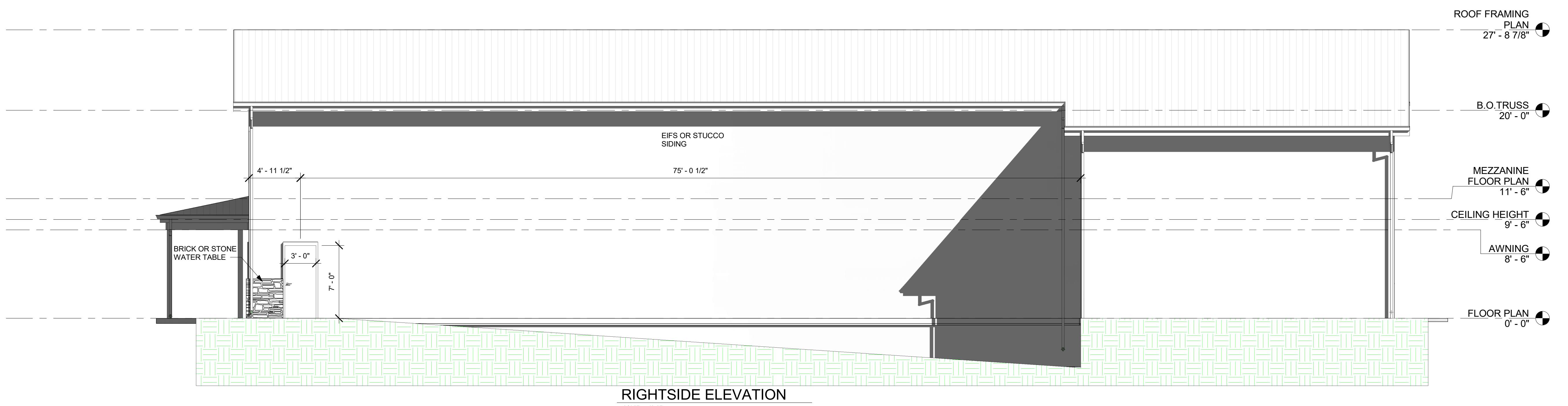
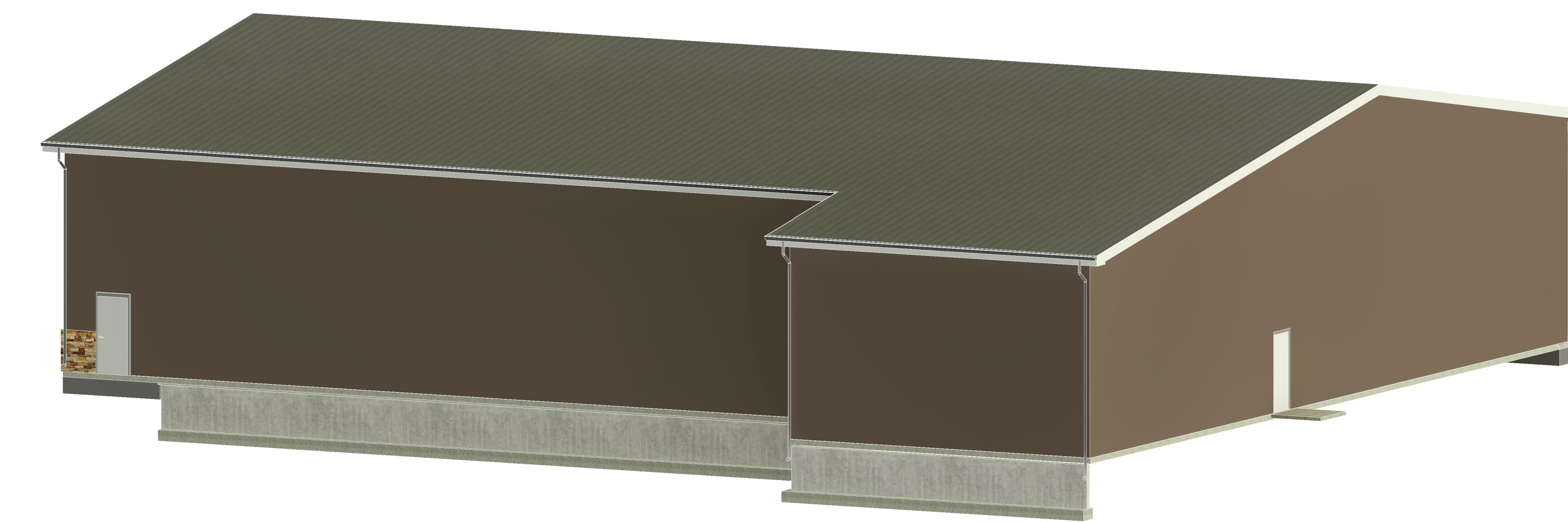
BACON DEVELOPMENT
109 MAGNOLIA PARK DR.
MORESVILLE, NC 28113
ELEVATION
3/16" = 1'-0"

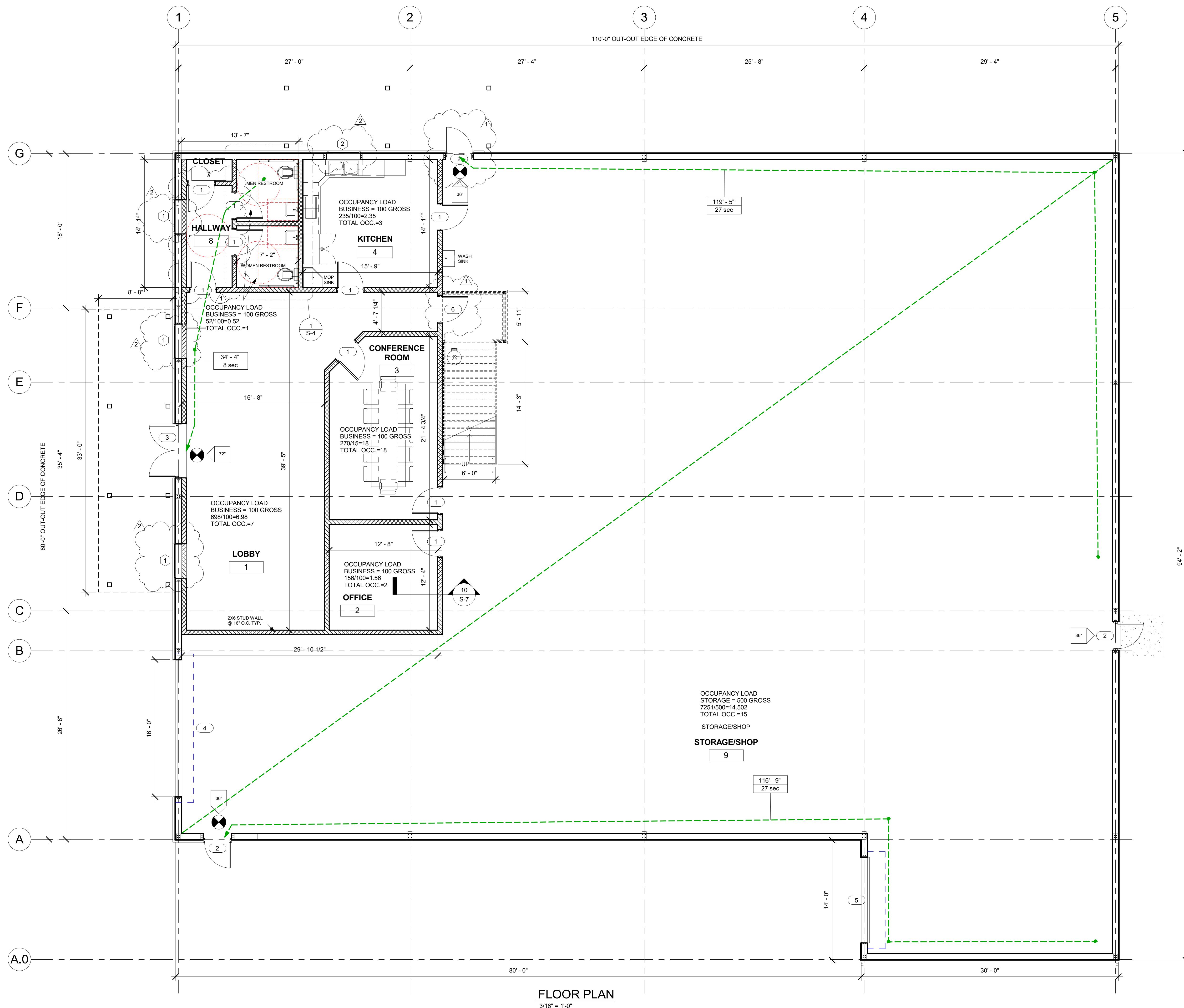


S-3

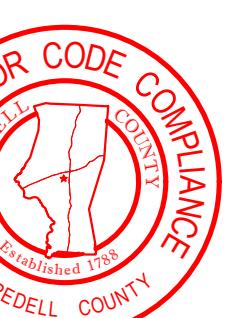
OF 13

NOTE: ANY DEVIATION FROM THE PLAN MUST BE APPROVED BY DARDEN ENGINEERING SERVICES, PLLC.





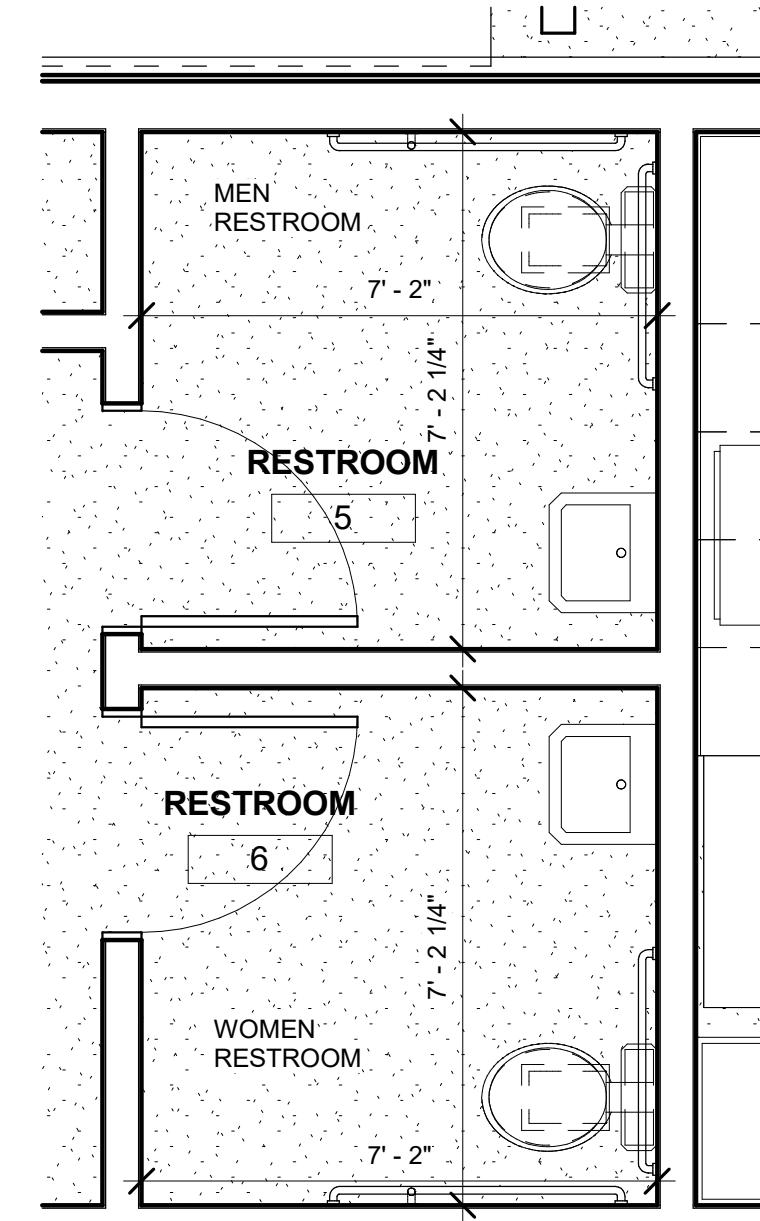
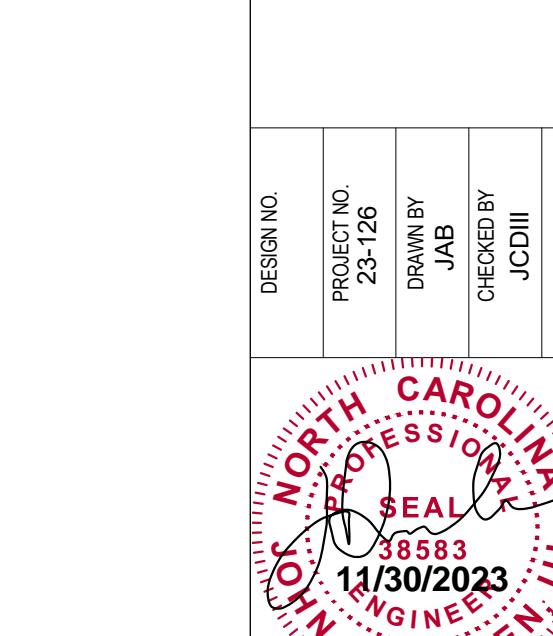
LIFE SAFETY PLAN		
DESC	ALLOWED	ON PLAN
OCCUPANCY	500/300/100	24
EXIT WIDTH	9.6"	144"
# OF EXITS	2	4
TRAVEL DIST.	200'	121'
MIN. EXIT SPACING	67'-0"	92'-0"



BACON DEVELOPMENT
109 MAGNOLIA PARK DR.
MORESVILLE, NC 28113
FLOOR PLAN/LIFE SAFETY PLAN
As indicated

S-4 **OF**
13

DARDEN
ENGINEERING
SERVICES, PLLC
PHONE NO. 704-643-7738
EMAIL: info@dardeneng.com



NOTE: ANY DEVIATION FROM THE PLAN MUST BE APPROVED BY DARDEN ENGINEERING SERVICES, PLLC.

DARDEN
SERVICES, PLLC
PHONE NO. 704-643-7738
EMAIL: info@dardeneng.com

DARDEN
SERVICES, PLLC
PHONE NO. 704-643-7738
EMAIL: info@dardeneng.com

Door Schedule					
Mark	Type	Width	Height	Frame Material	Comments
1	36" x 84"	3' - 0"	7' - 0"	METAL	SOLID CORE PANEL ADA COMPLIANT HARDWARE.
2	36" x 84" exterior	3' - 0"	7' - 0"	METAL	REQUIRED EMERGENCY EXIT. METAL PANEL DOOR ADA COMPLIANT HARDWARE.
3	72" x 84"	6' - 0"	7' - 0"	METAL	REQUIRED EMERGENCY EXIT. TEMPERED GLASS WITH ADA COMPLIANT HARDWARE.
4	20'x14'	16' - 0"	14' - 0"	METAL	ROLL UP DOOR
5	12'x9'	10' - 0"	10' - 0"	METAL	ROLL UP DOOR
6	36" x 84"	3' - 0"	7' - 0"	METAL	REQUIRED EMERGENCY EXIT. METAL PANEL DOOR ADA COMPLIANT HARDWARE.

Window Schedule					
Mark	Type	Width	Height	Sill Height	Comments
1	48" x 60"	4' - 0"	5' - 0"	2' - 4"	METAL FRAM W/ TEMPER GLASS PANEL
2	48" x 60" 2	4' - 0"	5' - 0"	3' - 10"	METAL FRAM W/ TEMPER GLASS PANEL
3	36" x 60"	3' - 0"	5' - 0"	2' - 6"	METAL FRAM W/ TEMPER GLASS PANEL
4	36" x 60"	3' - 0"	5' - 0"	2' - 6"	METAL FRAM W/ TEMPER GLASS PANEL
5	36" x 60"	3' - 0"	5' - 0"	2' - 6"	
6	36" x 60"	3' - 0"	5' - 0"	2' - 6"	
7	36" x 60"	3' - 0"	5' - 0"	2' - 6"	
8	36" x 60"	3' - 0"	5' - 0"	2' - 6"	
9	36" x 60"	3' - 0"	5' - 0"	2' - 6"	

ROOM SCHEDULE						
Number	Name	Floor Finish	Base Finish	Wall Finish	Ceiling Finish	Area
1	LOBBY	CONCRETE	6" RUBBER BASE	PAINTED GYPSUM BOARD PAINT COLOR PER CLIENT	ACCOUSTICAL TILE	706 SF
2	OFFICE	CONCRETE	6" RUBBER BASE	PAINTED GYPSUM BOARD PAINT COLOR PER CLIENT	ACCOUSTICAL TILE	156 SF
3	CONFERENCE ROOM	CONCRETE	6" RUBBER BASE	PAINTED GYPSUM BOARD PAINT COLOR PER CLIENT	ACCOUSTICAL TILE	262 SF
4	KITCHEN	CONCRETE	6" RUBBER BASE	PAINTED GYPSUM BOARD PAINT COLOR PER CLIENT	ACCOUSTICAL TILE	235 SF
5	RESTROOM	CONCRETE	6" RUBBER BASE	PAINTED GYPSUM BOARD PAINT COLOR PER CLIENT	ACCOUSTICAL TILE	52 SF
6	RESTROOM	CONCRETE	6" RUBBER BASE	PAINTED GYPSUM BOARD PAINT COLOR PER CLIENT	ACCOUSTICAL TILE	52 SF
7	CLOSET	CONCRETE	6" RUBBER BASE	PAINTED GYPSUM BOARD PAINT COLOR PER CLIENT	ACCOUSTICAL TILE	13 SF
8	HALLWAY	CONCRETE	6" RUBBER BASE	PAINTED GYPSUM BOARD PAINT COLOR PER CLIENT	ACCOUSTICAL TILE	63 SF
9	STORAGE/SHOP	CONCRETE			OPEN TO ROOF TRUSSES	7251 SF
10	OFFICE	PER CLIENT	6" RUBBER BASE	PAINTED GYPSUM BOARD PAINT COLOR PER CLIENT	ACCOUSTICAL TILE	155 SF
11	RESTROOM	TILE	6" RUBBER BASE	PAINTED GYPSUM BOARD PAINT COLOR PER CLIENT	ACCOUSTICAL TILE	62 SF
12	STORAGE	PER CLIENT	6" RUBBER BASE	PAINTED GYPSUM BOARD PAINT COLOR PER CLIENT	ACCOUSTICAL TILE	1232 SF
13	OFFICE	PER CLIENT	6" RUBBER BASE	PAINTED GYPSUM BOARD PAINT COLOR PER CLIENT	ACCOUSTICAL TILE	157 SF

II. PRE-ENGINEERED STEEL BUILDING NOTES

A. METAL BUILDINGS SHALL BE DESIGNED, MANUFACTURED, ERECTED, AND CONSTRUCTED TO BE WEATHER-TIGHT. THE BUILDING SHALL INCLUDE THE STRUCTURAL FRAMING, ROOF, WALL COVERING (IF APPLICABLE), TRIM, CLOSURES, AND ACCESSORIES HEREIN DESCRIBED.

B. THE BUILDING MANUFACTURER SHALL FURNISH COMPLETE ERECTION DRAWINGS SHOWING ANCHOR BOLT SETTINGS, COLUMN REACTIONS, SIDEWALL, ENDWALL, AND ROOF FRAMING, TRANSVERSE CROSS-SECTIONS, COVERING AND FLASHING DETAILS, AND ACCESSORY INSTALLATION DETAILS TO CLEARLY INDICATE THE PROPER ASSEMBLY OF ALL BUILDING PARTS. SUBMITTED DRAWINGS SHALL BE SIGNED/SEALED BY A PROFESSIONAL ENGINEER LICENSED IN THE STATE OF (NC).

C. ALL STRUCTURAL STEEL SECTIONS AND WELDED PLATE MEMBERS SHALL BE DESIGNED IN ACCORDANCE WITH THE LATEST EDITION OF AISC "SPECIFICATIONS FOR THE DESIGN, FABRICATION, AND ERECTION OF STEEL FOR BUILDINGS."

D. ALL COLD-FORMED STRUCTURAL MEMBERS AND EXTERIOR COVERING SHALL BE DESIGNED IN ACCORDANCE WITH THE LATEST EDITION OF THE AISI "SPECIFICATION FOR THE DESIGN OF COLD-FORMED STEEL STRUCTURAL MEMBERS."

E. THE BUILDING COMPONENTS SHALL BE DESIGNED TO MEET THE MOST SEVERE CONDITIONS PRODUCED BY THE FOLLOWING LOAD COMBINATIONS:

1. DL + LL
2. DL + WL

F. ALL SHOP CONNECTIONS SHALL BE BOLTED WITH ASTM SPECIFICATION A-307 OR A-325 BOLTS AS SHOWN ON DRAWINGS. A-325 BOLTS SHALL BE TIGHTENED BY TURN OF THE NUT METHOD. WHERE REQUIRED, CONNECTIONS IN THE SECONDARY MEMBERS SHALL BE MADE WITH SPECIAL 1/2-INCH OVAL HEAD BOLTS AND HEX NUTS. THE FRAYING SURFACES OF ALL BOLTED CONNECTIONS SHALL BE SMOOTH AND FREE FROM BURRS OR DISTORTIONS.

G. ALL FRAMING MEMBERS SHALL CARRY AN EASILY VISIBLE IDENTIFYING MARK.

H. WIND BRACING SHALL CONSIST OF DIAGONAL BRACING, WIND POSTS OR BENTS. DIAGONAL BRACING SHALL BE PROVIDED IN ROOF AS REQUIRED FOR DIAPHRAGM ACTION. DOUBLE ROOF PURLINS, INTERCONNECTED BY DIAPHRAGMS, SHALL BE PROVIDED BETWEEN THE RIGID FRAMES AT ALL POINTS OF ATTACHMENT OF DIAGONAL ROOF BRACING.

I. THE INSIDE OF ALL RIGID FRAMES SHALL BE BRACED LATERALLY BY ANGLES CONNECTED TO THE FLANGE AND WEB OF THE FRAME AND TO THE WEB OF THE PURLIN OR GIRT SO THAT THE ALLOWABLE COMPRESSIVE STRESS IS ADEQUATE FOR ANY COMBINATION OF LOADING.

J. ANCHOR BOLTS SHALL RESIST 100 PERCENT OF THE CRITICAL COLUMN REACTIONS (SHEAR AND TENSION) DETERMINED FROM THE LOAD COMBINATIONS. THE MANUFACTURER IS RESPONSIBLE FOR THE NUMBER OF BOLTS, ANCHOR BOLT DIAMETER AND PROJECTION ABOVE THE CONCRETE FOUNDATION.

K. ROOF LIVE LOADS SHALL BE APPLIED TO THE HORIZONTAL ROOF PROJECTION. WIND LOAD SHALL BE ASSUMED TO ACT HORIZONTALLY AND SHALL BE APPLIED AS PRESSURE AND SUCTION IN ACCORDANCE WITH BOCA.

L. DESIGNS SHALL INCLUDE ALL MECHANICAL LOADS, CRANE LOADS, HEAVY PIPES, CATWALKS, STAGE RIGGING, ETC., PER ARCHITECTURAL, STRUCTURAL AND MECHANICAL DRAWINGS. DESIGNS SHALL INCLUDE A SUPERIMPOSED COLLATERAL DEAD LOAD OF 10 PSF.

M. ALL FRAMING MEMBERS SHALL BE SHOP-FABRICATED FOR BOLTED FIELD ASSEMBLY.

N. ALL HOT ROLLED STEEL SHEETS, PLATES, AND STRIP FOR BUILT-UP SECTIONS SHALL HAVE A MINIMUM YIELD POINT OF 50,000 PSI. HOT ROLLED STRUCTURAL SECTIONS SHALL CONFORM TO THE REQUIREMENTS OF ASTM SPECIFICATION A-36. TWELVE-, FOURTEEN-, FIFTEEN-, AND SIXTEEN-GAGE COLD-FORMED SECTIONS SHALL HAVE A MINIMUM TENSILE STRENGTH OF 62,500 PSI. GALVANIZED SHEET AND STRIP FOR STRUCTURAL FRAMING MEMBERS SHALL CONFORM TO ASTM SPECIFICATION A-446, GRADE A.

O. EXTEND ALL ANCHOR BOLTS TO AN EMBEDMENT DEPTH OF THREE (3) INCHES ABOVE BOTTOM OF FOOTING.

IV. STRUCTURAL COLD-FORMED STEEL

A. ALL WORK SHALL CONFORM TO THE STANDARDS OF THE "AMERICAN IRON AND STEEL INSTITUTE DESIGN OF COLD FORMED STEEL STRUCTURAL MEMBER" – LATEST EDITION.

B. ALL WELDING SHALL BE IN ACCORDANCE WITH THE "AMERICAN WELDING SOCIETY D.1.3, STRUCTURAL WELDING CODE FOR SHEET STEEL." MIN. 14 GAUGE MEMBERS SHALL BE USED AT WELDED CONNECTIONS. ALL WELDS SHALL BE TOUCHED UP WITH ZINC RICH PAINT.

C. THE CONTRACTOR SHALL SUBMIT SHOP DRAWINGS FOR APPROVAL SIGNED AND SEALED BY THE CONTRACTOR'S NC REGISTERED PROFESSIONAL ENGINEER TO THE ARCHITECT DEPICTING:

1. CROSS-SECTIONS, PLANS AND ELEVATIONS.
2. CONNECTION DETAILS SHOWING REQUIRED SCREWS/WELDS.
3. FLOOR TO FLOOR ELEVATIONS.
4. DIMENSIONS.
5. BRIDGING LOCATIONS.

D. ALL MATERIALS SHALL BE GALVANIZED AND COLD FORMED OF STEEL CONFORMING TO ASTM A570 GRADE D FOR JOISTS. ASTM 446 FOR TRACKS AND STUDS. MINIMUM 18 GAUGE (NO EXCEPTIONS.)

E. ALL AXIALLY LOADED STUDS SHALL HAVE FULL BEARING INSIDE TRACK WEB PRIOR TO ATTACHMENT. NO SPLICES IN LOADED STUDS ARE PERMITTED.

F. WALL STUD BRACING SHALL BE INSTALLED AT THIRD POINTS IN ALL BEARING PARTITIONS; AT MID-HEIGHT IN NON-LOAD BEARING PARTITIONS.

G. JOISTS SHALL BE LOCATED DIRECTLY OVER BEARING STUDS, OR A LOAD DISTRIBUTION MEMBER SHALL BE PROVIDED AT THE TOP TRACK.

H. DOUBLE STUDS AND WEB STIFFENERS SHALL BE PROVIDED AT ALL JOIST HEADER BEARING POINTS

I. END BLOCKING SHALL BE PROVIDED WHERE JOIST ENDS ARE NOT OTHERWISE RESTRAINED FROM ROTATION.

J. UNIFORM AND LEVEL JOIST BEARING SHALL BE PROVIDED IN ALL CASES.

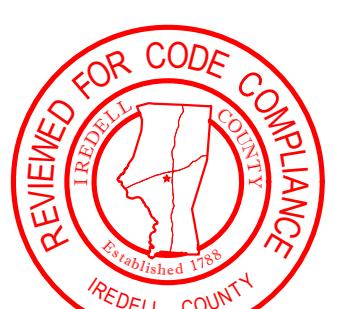
K. ADDITIONAL JOISTS SHALL BE PROVIDED UNDER PARALLEL PARTITIONS WHEN THE PARTITION LENGTH EXCEEDS ONE-HALF THE JOIST SPAN; ALSO, ADDITIONAL JOISTS SHALL BE PROVIDED AROUND ALL FLOORS AND ROOF OPENINGS WHICH INTERRUPT ONE OR MORE SPANNING MEMBERS.

L. JOIST BRIDGING SHALL BE INSTALLED AS INDICATED ON FRAMING PLAN.

M. ALL LIGHT GAUGE FRAMING SHALL BE DESIGNED BY THE MANUFACTURER'S ENGINEER FOR THE CODE REQUIRED LOADS. STUDS SUPPORTING MASONRY VENEER SHALL LIMIT LATERAL DEFLECTION TO L/600. SHOP DRAWINGS SHALL BE PREPARED UNDER AND STAMPED BY THE CONTRACTOR'S PROFESSIONAL ENGINEER REGISTERED IN NC SUBMITTED TO ARCHITECT FOR APPROVAL.

III. CONCRETE

- A. ALL CONCRETE WORK SHALL BE IN ACCORDANCE WITH ACI 301, ACI 318 AND ACI 302.
- B. CEMENT SHALL COMPLY WITH ASTM C150, TYPE I OR III.
- C. REINFORCING STEEL SHALL BE DEFORMED BILLET STEEL CONFORMING TO ASTM A615 GRADE 60. ALL REINFORCEMENT SPLICES SHALL BE A MINIMUM OF 40 BAR DIAMETERS.
- D. PROVIDE WWF 6x6 - W1.4xW1.4 IN ALL SLAB-ON-GRADE. ALL WIRE FABRIC SHALL CONFORM TO ASTM A185. ALL MESH EDGES SHALL LAP A MINIMUM OF TWO (2) SQUARES.
- E. CONCRETE SLUMP SHALL = 4" \pm 1".
- F. MINIMUM CONCRETE COVER BETWEEN FACE OF REINFORCING BAR AND FACE OF CONCRETE SHALL BE AS FOLLOWS:
 1. CONCRETE CAST AGAINST EARTH = 3"
 2. FORMED CONCRETE EXPOSED TO WEATHER OR EARTH = 2"
 3. FORMED CONCRETE NOT EXPOSED TO WEATHER:
 - a. SLABS = 3/4"
 - b. BEAMS, COLUMNS = 1-1/2"
- G. ALL CONCRETE EXPOSED TO WEATHER SHALL HAVE A MINIMUM AIR ENTRAINMENT OF 6% \pm 1.5% PER ACI- 318 4.2.1.
- H. GROUT SHALL BE NON-SHRINKABLE, NON-METALLIC CONFORMING TO ASTM C1107, AND SHALL HAVE A SPECIFIED COMPRESSIVE STRENGTH AT 28 DAYS OF 5,000 PSI. PREGROUTING OF BASE PLATES SHALL NOT BE PERMITTED.
- I. PROVIDE REINFORCED CONSTRUCTION JOINTS IN ALL SUSPENDED CONCRETE SLABS AT A MAXIMUM OF 75'-0" O.C. JOINTS SHALL BE LOCATED IN THE MIDDLE ONE-THIRD OF THE SPAN. CONTRACTOR SHALL SUBMIT A PROPOSED CONSTRUCTION JOINT PLAN TO THE STRUCTURAL ENGINEER FOR APPROVAL PRIOR TO COMMENCEMENT OF CONCRETE WORK.
- J. MATERIALS: (fc BASED ON 28 DAY UNLESS NOTED)
 1. CONCRETE UNLESS NOTED: f c = 3000 PSI., NORMAL WEIGHT AGGREGATE.
 2. CONCRETE FOR OTHER INTERIOR FLOOR SLABS: f c = 3500 PSI AT 28 DAYS, 1800 PSI AT 3 DAYS, NORMAL WEIGHT AGGREGATE, MINIMUM CEMENTITIOUS-MATERIALS CONTENT PER ACI 301-05 TABLE 4.2.2.1, PLASTICIZING OR WATER REDUCING ADMIXTURE REQUIRED, MAXIMUM WATER/CEMENTITIOUS RATIO = 0.50.
 3. CONCRETE FOR EXTERIOR FLAT WORK, WALKS, POOL DECKS, ETC.: f c = 3500 PSI, (4.5% TO 7.5% ENTRAINED AIR), MAXIMUM WATER/CEMENTITIOUS RATIO = 0.45. LIMIT POZZOLAN CONTENT PER ACI 301-05 TABLE 4.2.2.9.
 4. CONCRETE FOR FOUNDATION WALLS AND RETAINING WALLS WITH EXTERIOR EXPOSURE: f c = 4000 PSI, (4.5% TO 7.5% ENTRAINED AIR), MAXIMUM WATER/CEMENTITIOUS RATIO = 0.50.
 5. REINFORCING STEEL:
 - a. DEFORMED BARS: ASTM A615, ASTM A706, OR ASTM A996, 60 KSI YIELD.
 - b. WELDED WIRE FABRIC: ASTM A185, FLAT SHEETS ONLY.
 6. FLY ASH: ASTM C618, TYPE F OR C. WHEN USED, FLY ASH-TO-TOTAL CEMENTITIOUS RATIO SHALL BE 15% MINIMUM. WHEN USED IN INTERIOR SLABS, FLY ASH-TO-TOTAL CEMENTITIOUS RATIO SHALL BE 25% MAXIMUM.
 7. GROUND GRANULATED BLAST FURNACE SLAG: ASTM C989. TOTAL GROUND GRANULATED BLAST FURNACE SLAG -TO- TOTAL CEMENTITIOUS RATIO SHALL NOT EXCEED 50% MAXIMUM.
 8. FLY ASH, NATURAL POZZOLANS, SILICA FUME, OR GROUND GRANULATED BLAST FURNACE SLAG: WHEN EXPOSED TO DEICING CHEMICALS, LIMIT THE MAXIMUM WEIGHT TO THE PERCENTAGES OF THE TOTAL WEIGHT OF CEMENTITIOUS MATERIALS GIVEN IN TABLE 4.2.2.9 OF ACI 301-05.
 9. PLASTICIZING ADMIXTURE: ASTM C1017.
 10. WATER REDUCING ADMIXTURE: ASTM C494.
 11. CHLORIDE CONTENT OF CONCRETE: LIMIT TOTAL CHLORIDE ION CONTENT TO AMOUNT INDICATED IN TABLE 4.2.2.6 OF ACI 301-05. ADMIXTURES CONTAINING CHLORIDE ARE NOT PERMITTED IN REINFORCED CONCRETE OR CONCRETE CONTAINING METALS.
- K. IF CONCRETE ARRIVES AT THE POINT OF DELIVERY WITH A SLUMP BELOW THAT WHICH WILL RESULT IN THE SPECIFIED SLUMP AT THE POINT OF PLACEMENT AND IS UNSUITABLE FOR PLACING AT THAT SLUMP, THE SLUMP MAY BE ADJUSTED ONCE ONLY TO THE REQUIRED VALUE BY ADDING WATER UP TO THE AMOUNT ALLOWED IN THE ACCEPTED MIXTURE PROPORTIONS. ADDITION OF WATER SHALL BE IN ACCORDANCE WITH ASTM C231. DO NOT EXCEED THE SPECIFIED WATER



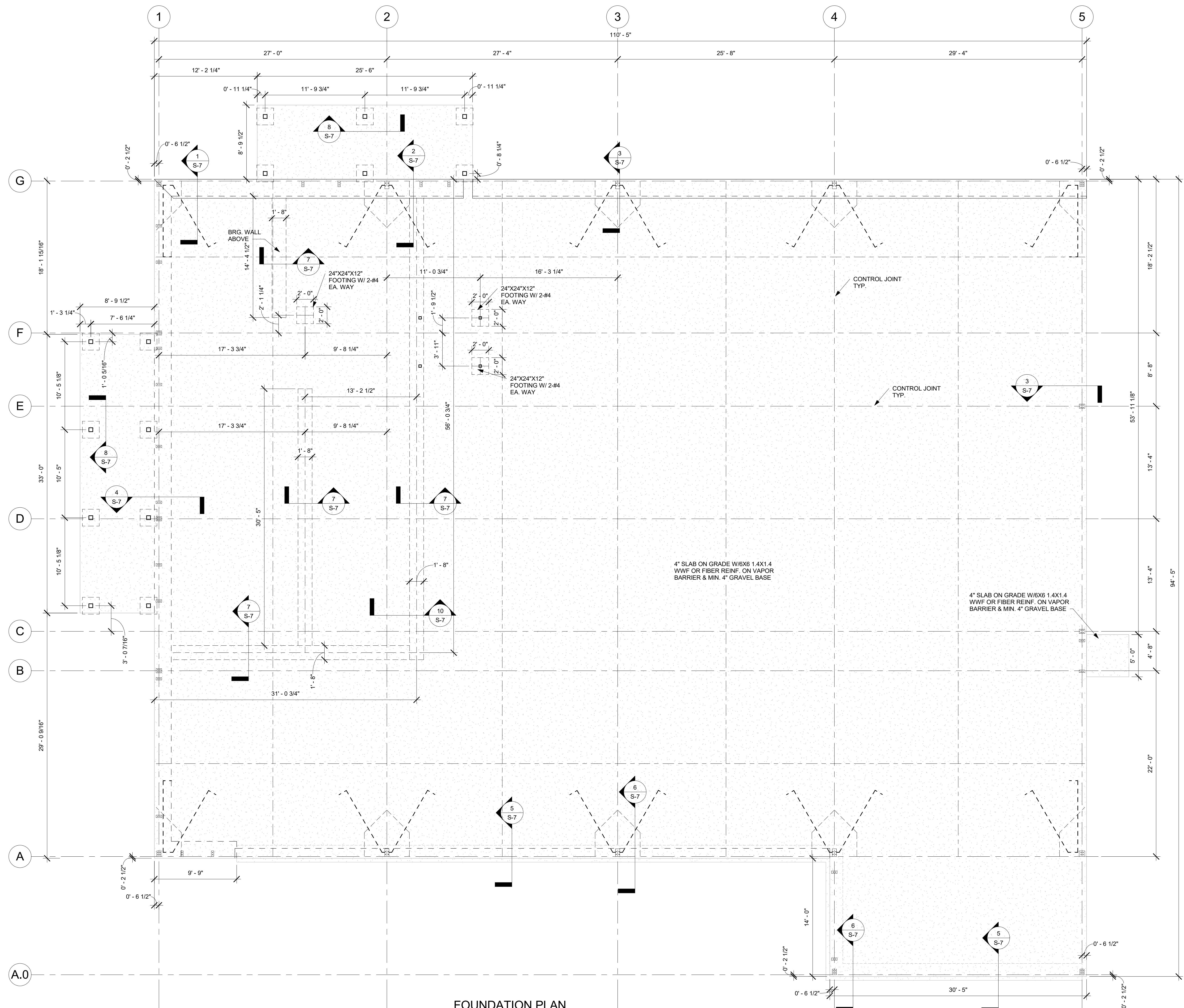
ACON DEVELOPMENT

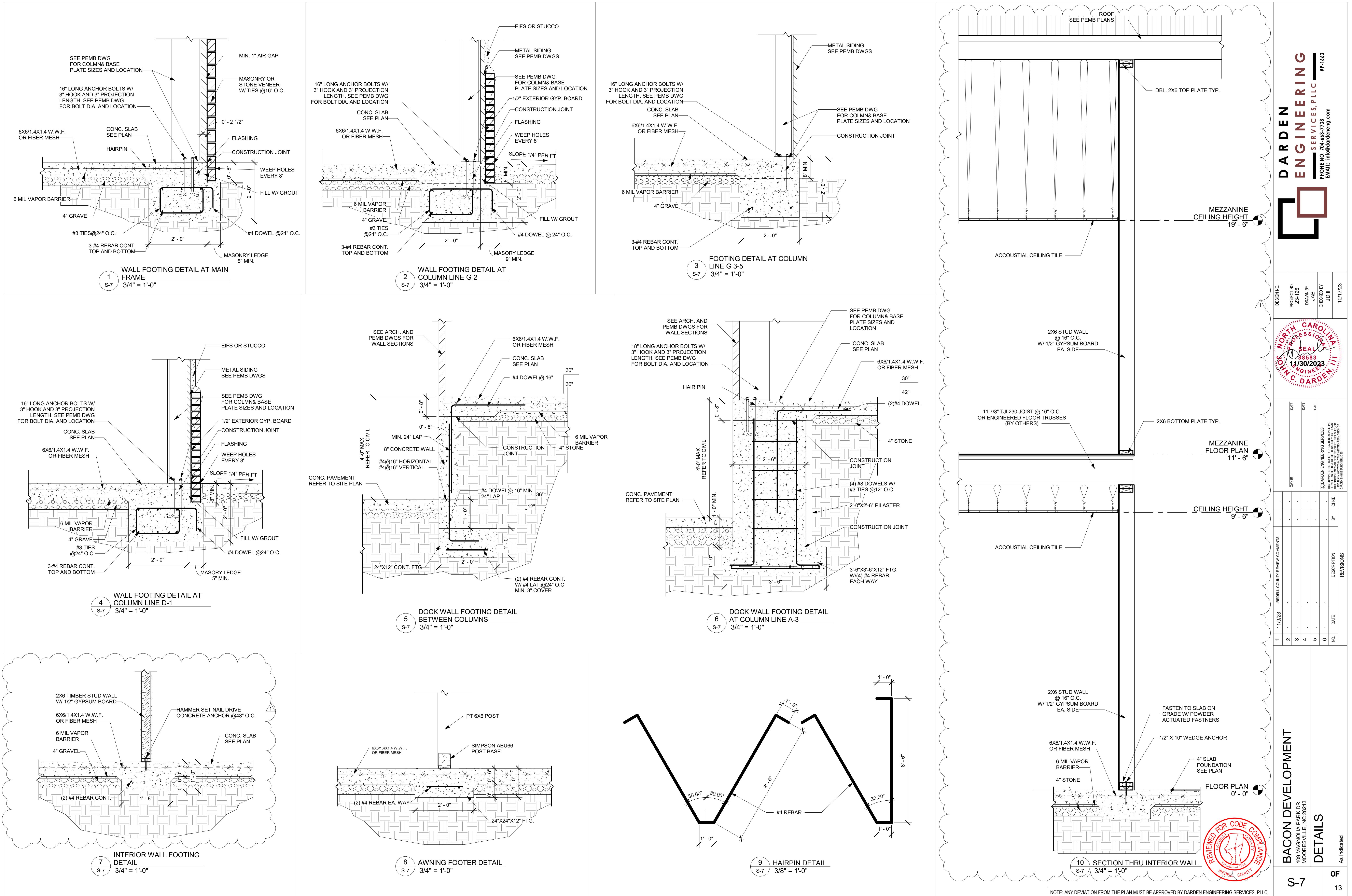
9 MAGNOLIA PARK DR.
DORESVILLE, NC 28213

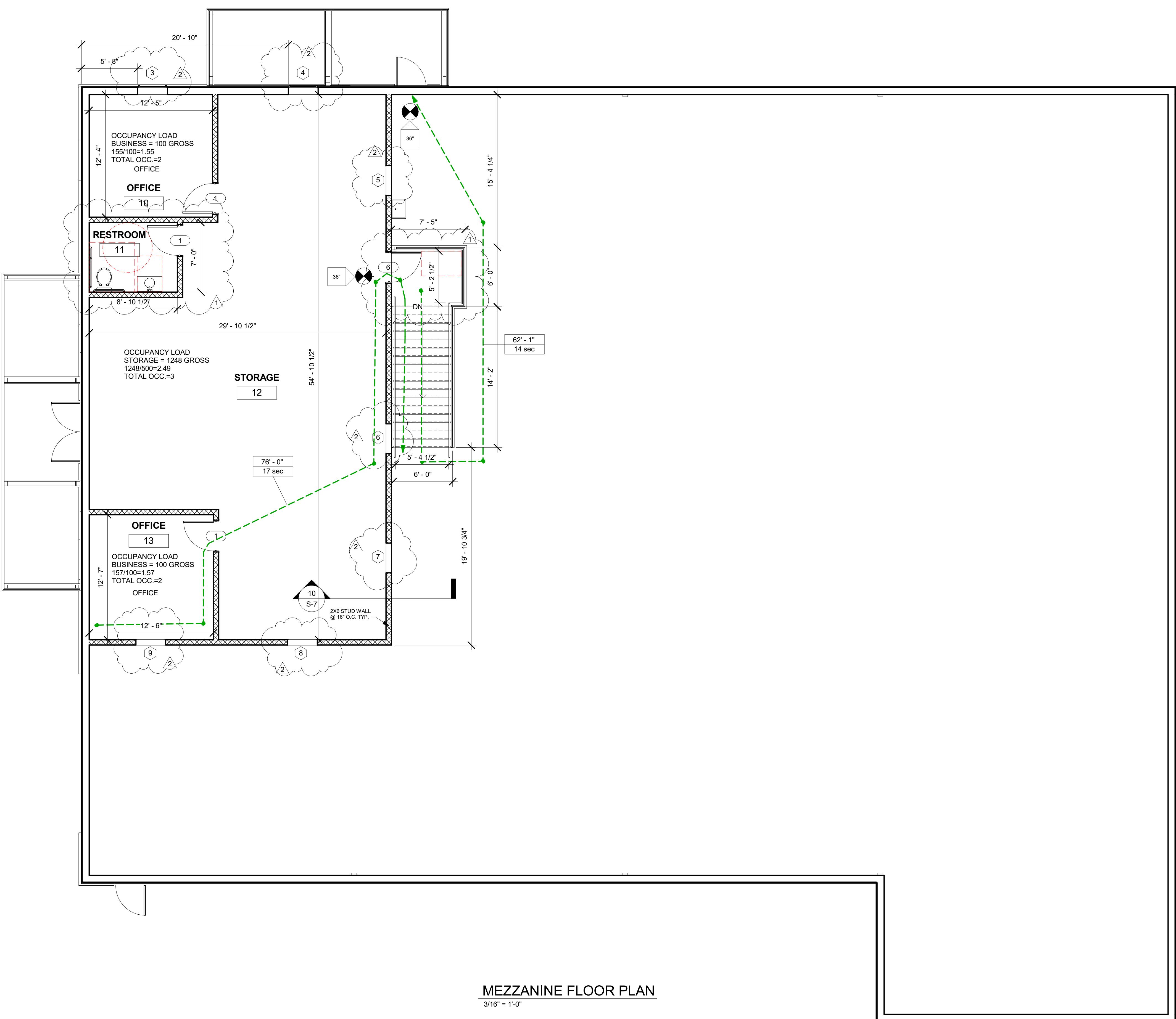
BACON DEVELOPMENT

9 MAGNOLIA PARK DR.
DORESVILLE, NC 28213

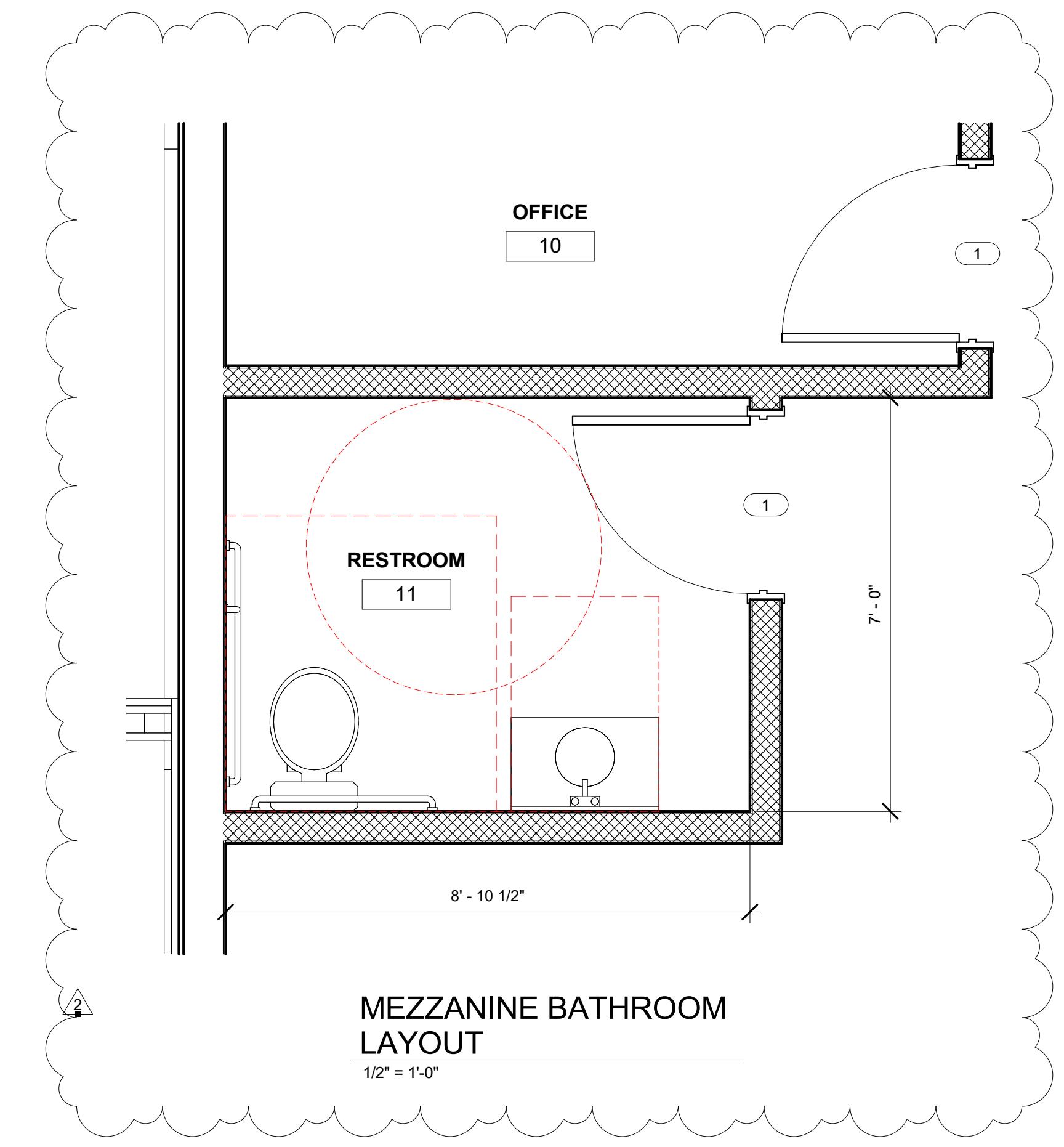
S-5



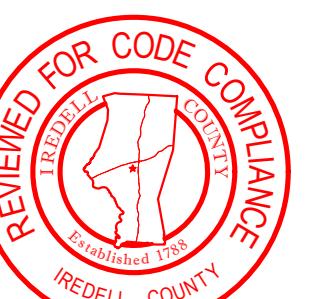




MEZZANINE FLOOR PLAN



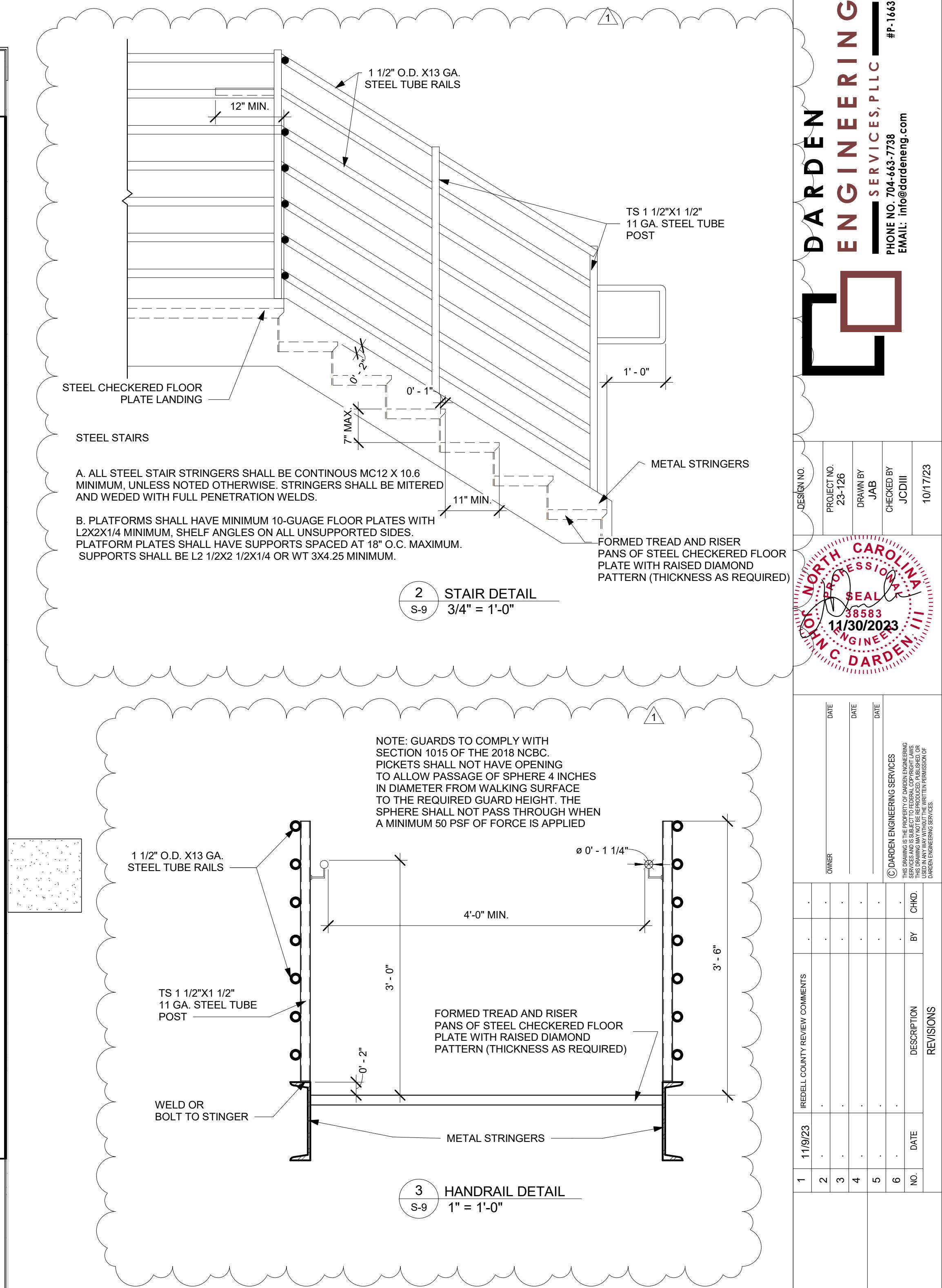
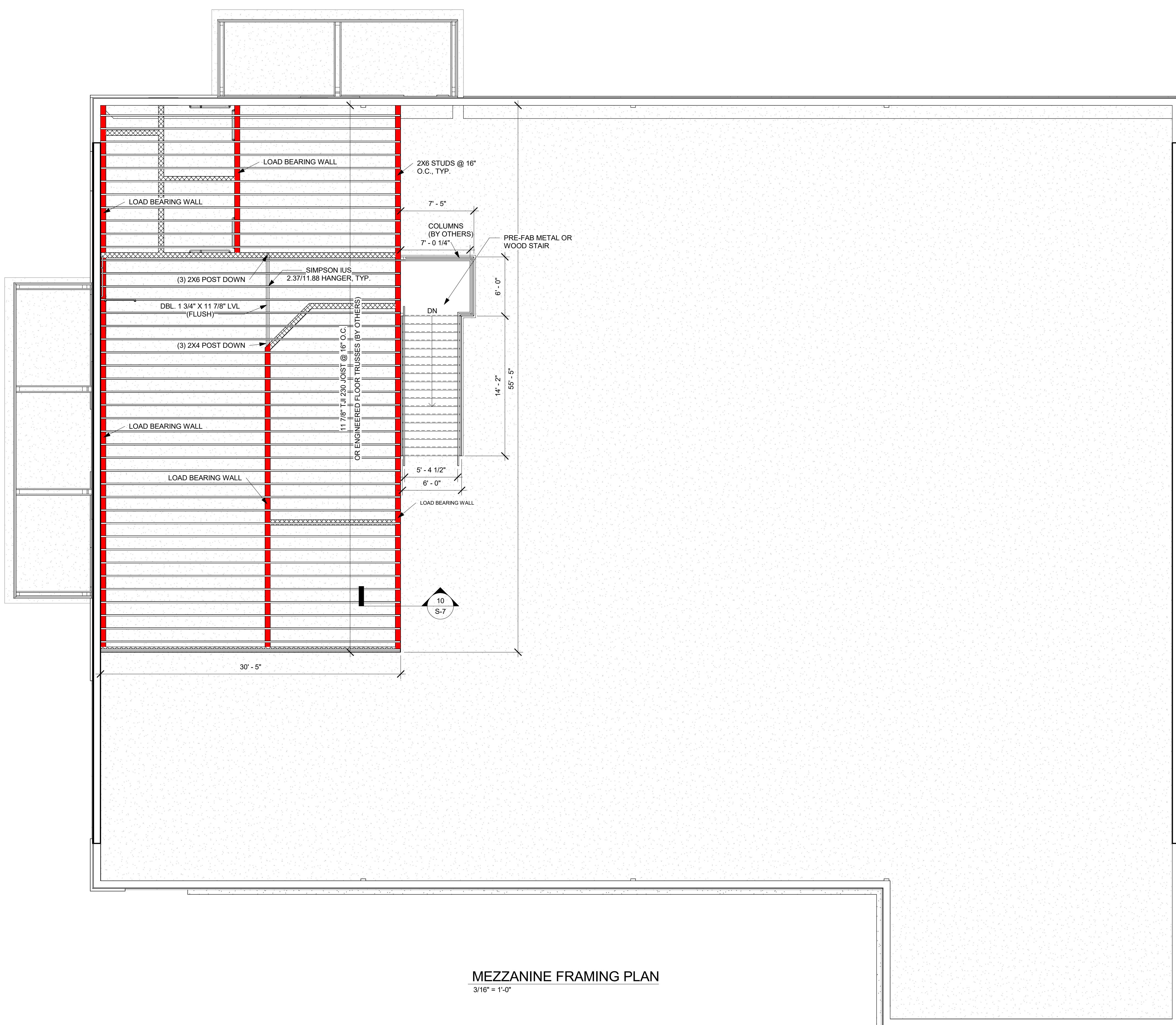
MEZZANINE BATHROOM LAYOUT



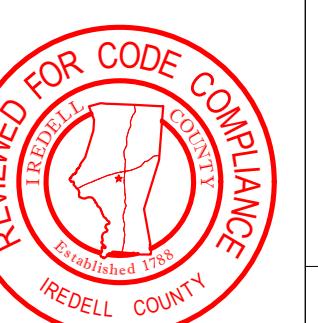
BACON DEVELOPMENT
109 MAGNOLIA PARK DR.
MOORESVILLE, NC 28117

**MEZZANINE FLOOR PLAN/ LIFE
SAFETY**

As indicated



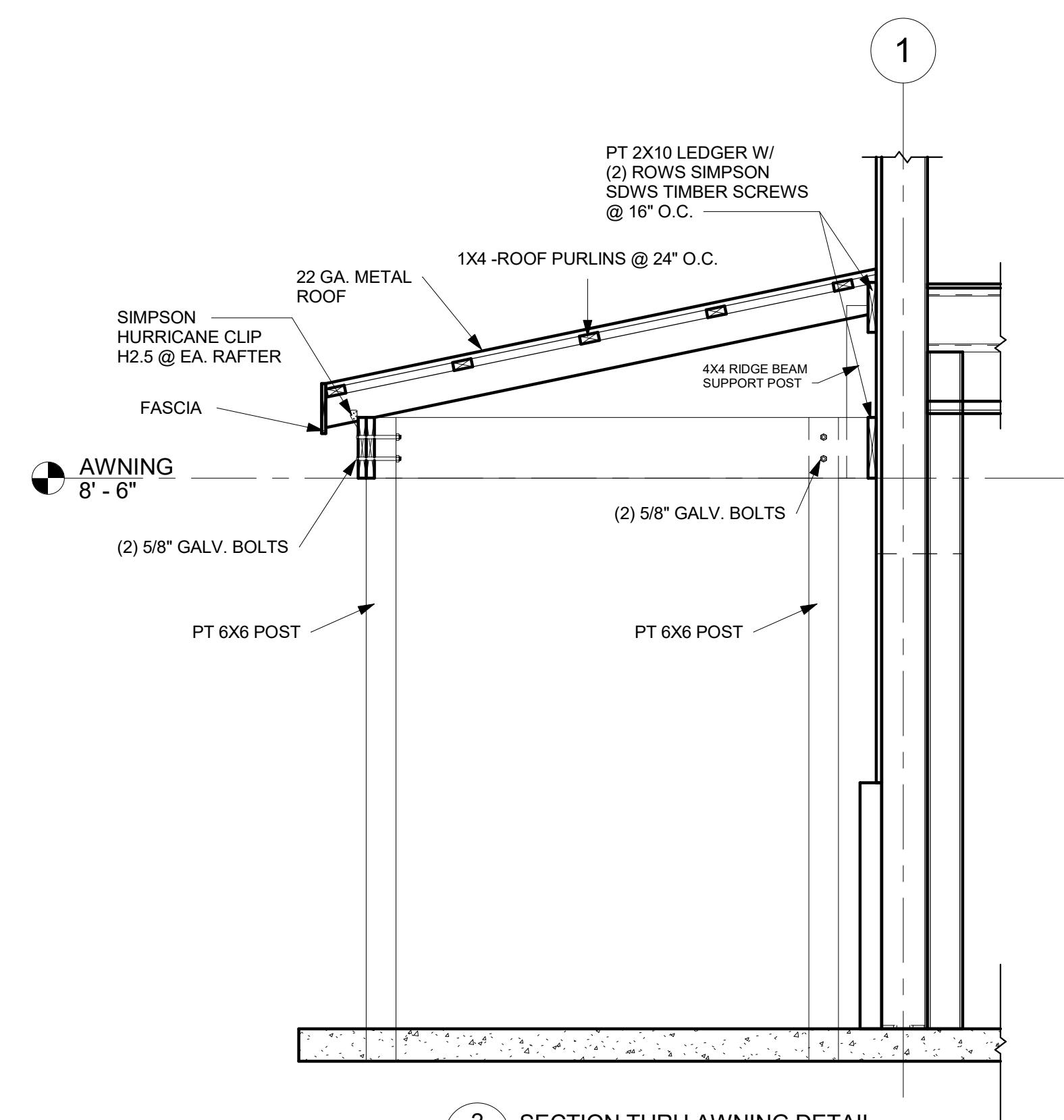
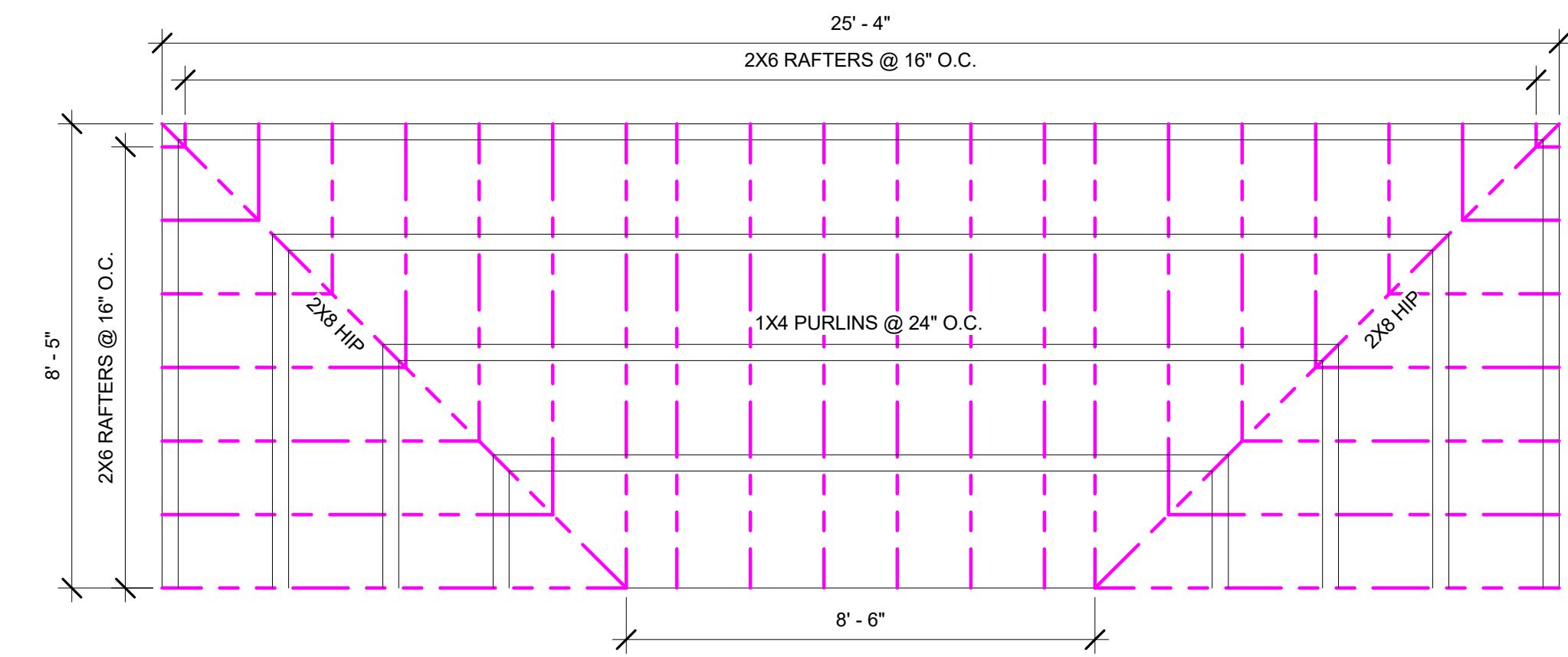
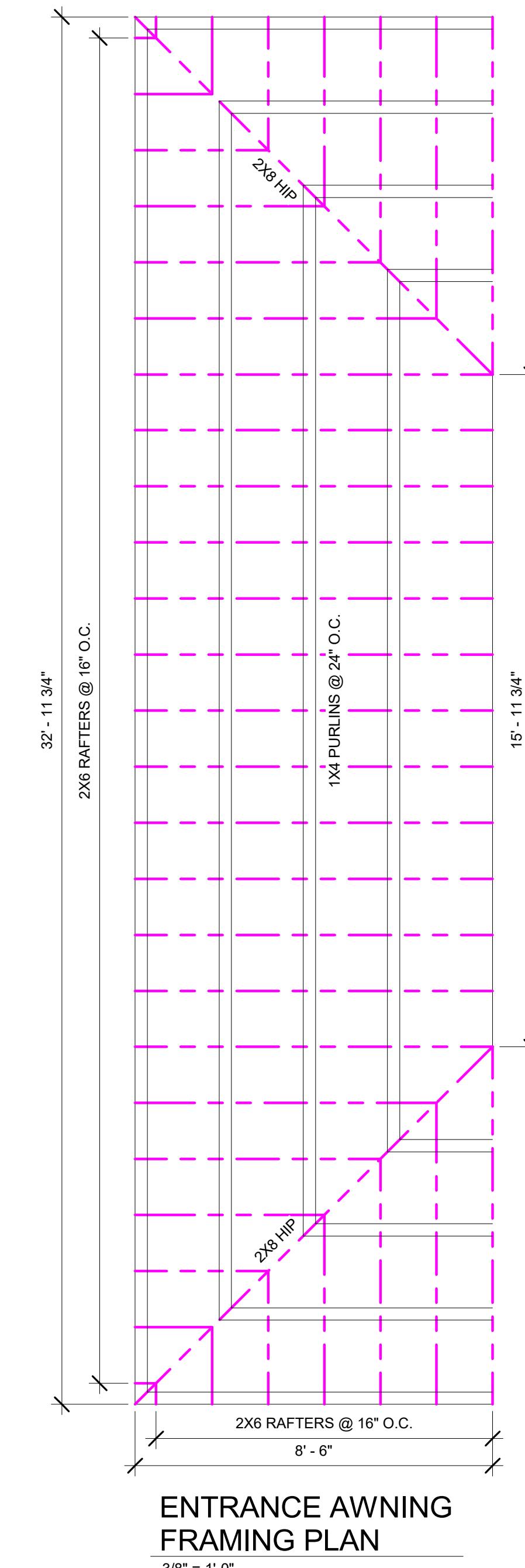
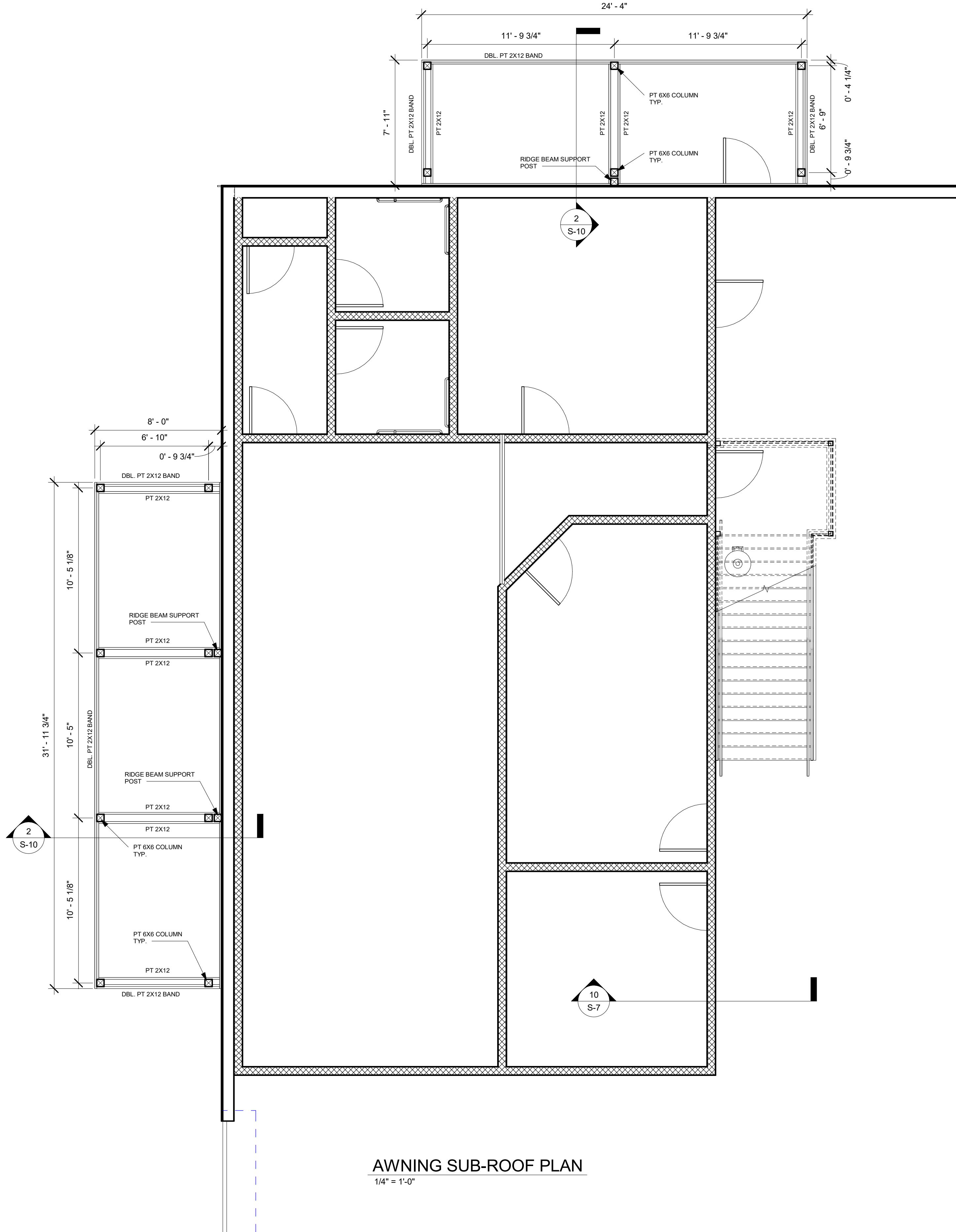
BACON DEVELOPMENT
109 MAGNOLIA PARK DR.
MORESVILLE, NC 28113
MEZZANINE FRAMING PLAN
As indicated



DARDEN
ENGINEERING
SERVICES, PLLC
#P-1663
PHONE NO. 704-643-7738
EMAIL: info@dardeneng.com

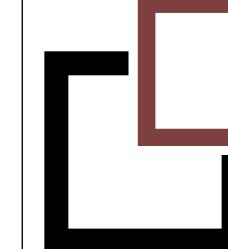
S-9 OF 13

NOTE: ANY DEVIATION FROM THE PLAN MUST BE APPROVED BY DARDEN ENGINEERING SERVICES, PLLC.

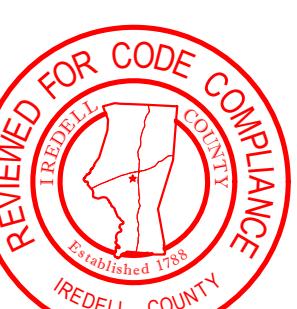


BACON DEVELOPMENT
109 MAGNOLIA PARK DR.
MORESVILLE, NC 28113
AWNING ROOF FRAMING PLAN

DARDEN
ENGINEERING
SERVICES, PLLC
PHONE NO. 704-643-7738
EMAIL: info@dardeneing.com

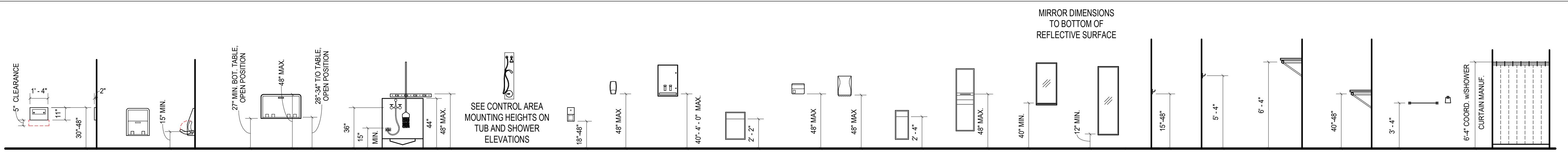


DESIGN NO. 23-126
PROJECT NO. 38553
DRAWN BY JAB
CHECKED BY JDII
DATE 10/17/23



S-10
OF
13

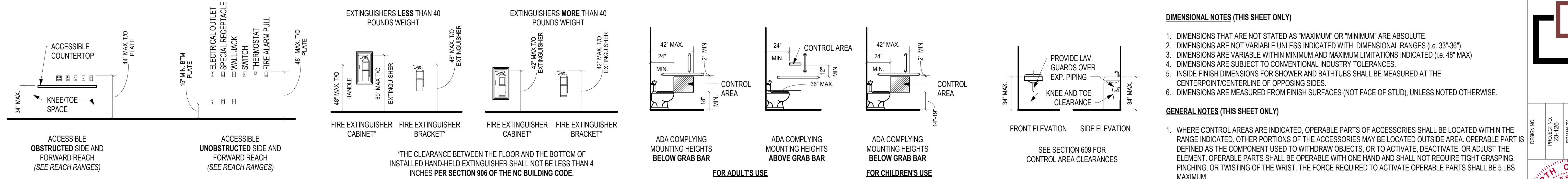
NOTE: ANY DEVIATION FROM THE PLAN MUST BE APPROVED BY DARDEN ENGINEERING SERVICES, PLLC.



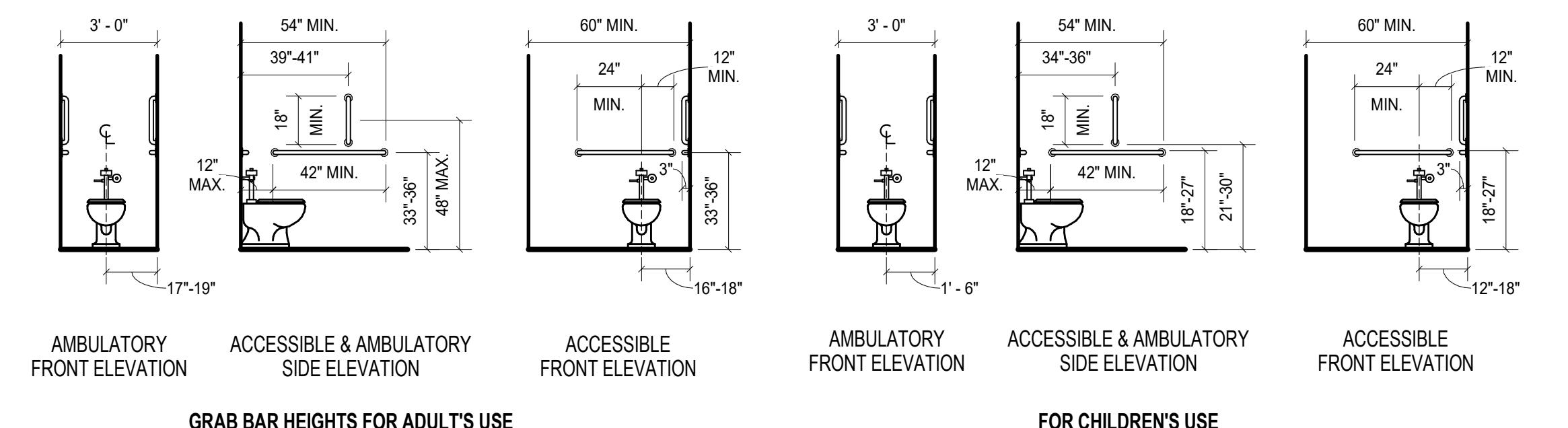
TOILET SEAT COVER CHILD PROTECTION SEAT BABY CHANGING STATION MOP & BROOM HOOK STRIP HAND-HELD SHOWER HEAD TOILET TISSUE DISPENSER SANITARY NAPKIN DISPENSER SANITARY NAPKIN RECEPTACLE HAND DRYER PAPER TOWEL DISPENSER PAPER TOWEL RECEPTACLE PAPER TOWEL DISPENSER AND RECEPTACLE FRAMED MIRROR AT LAVATORY FRAMED MIRROR ACCESSIBLE COAT HOOK STANDARD COAT RACK/SHelves COAT RACK/SHelves (WITHIN TOILET COMPARTMENTS) ACCESSIBLE COAT RACK/SHelves (WITHIN TOILET COMPARTMENTS) TOWEL BAR SHOWER CURTAIN ROD

BATHROOM ACCESSORIES MOUNTING HEIGHTS

*DIMENSIONS INDICATED ARE FOR UNOBSTRUCTED SIDE AND FORWARD REACH. SEE OBSTRUCTED REACH RANGE DIMENSIONS FOR REQUIRED HEIGHTS AT ALTERNATE SITUATIONS. REFER TO MANUFACTURER'S WRITTEN INSTRUCTIONS FOR ADDITIONAL ANSI INSTALL REQUIREMENTS.

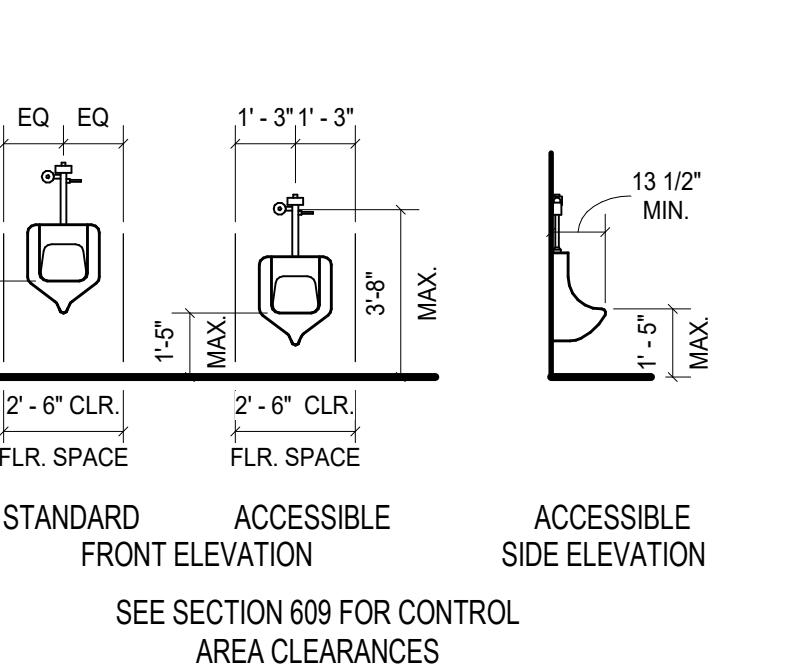


GENERAL WALL DEVICES MOUNTING HEIGHTS

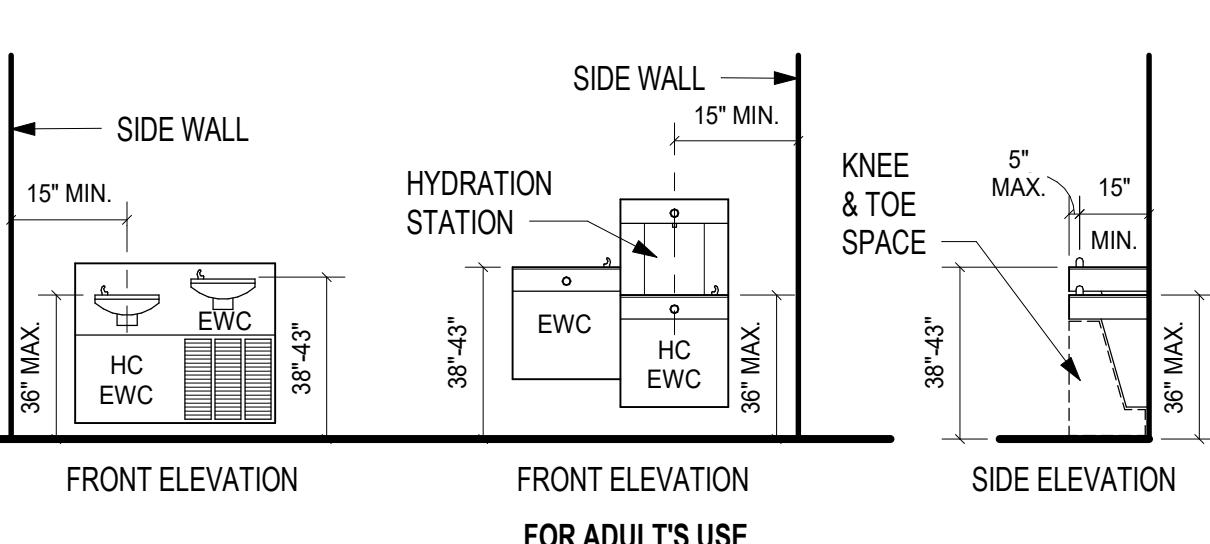


GRAB BAR HEIGHTS FOR ADULT'S USE

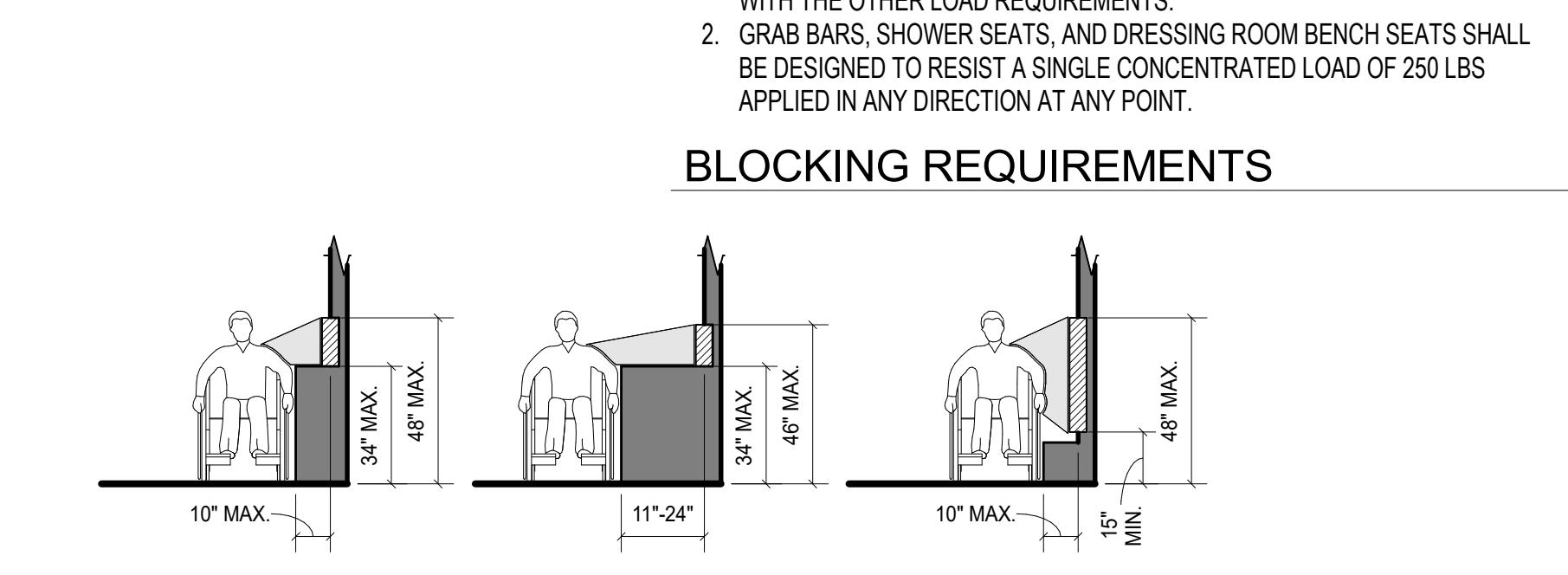
DISPENSER MOUNTING HEIGHTS



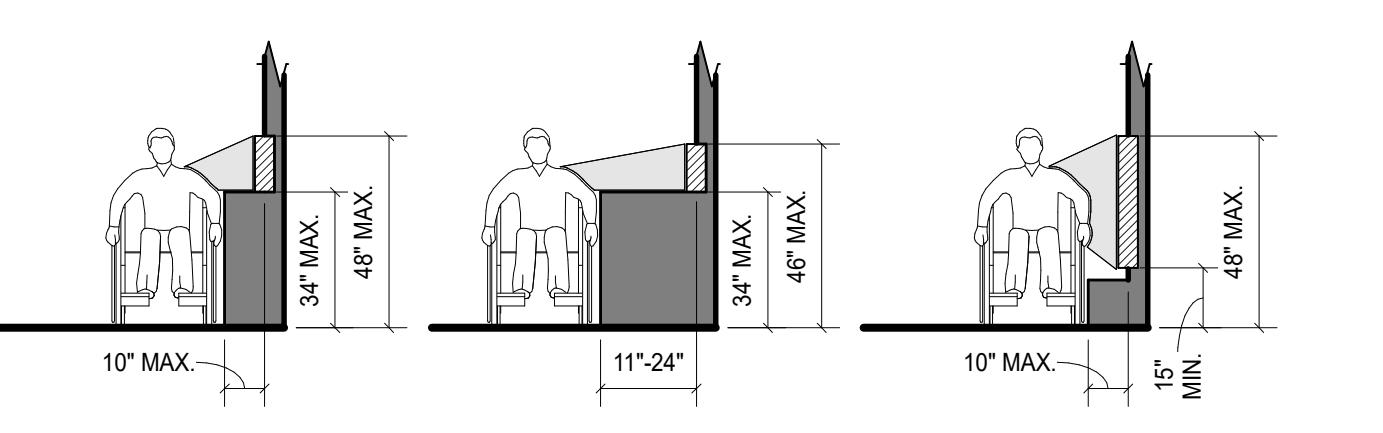
URINAL MOUNTING HEIGHTS



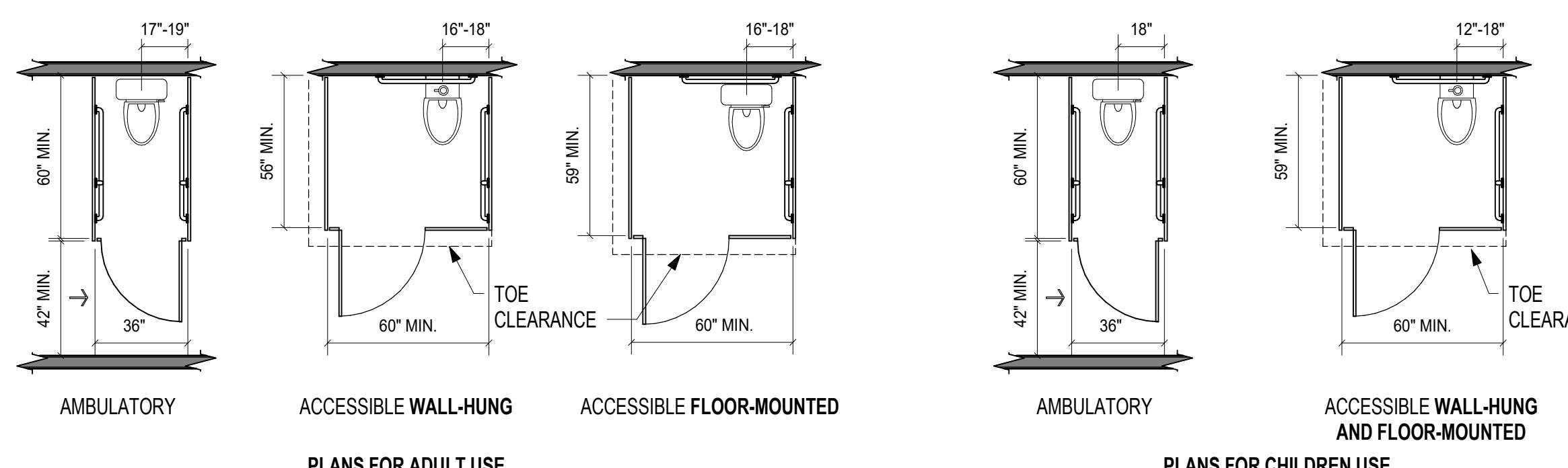
REDUCED VERTICAL CLEARANCE



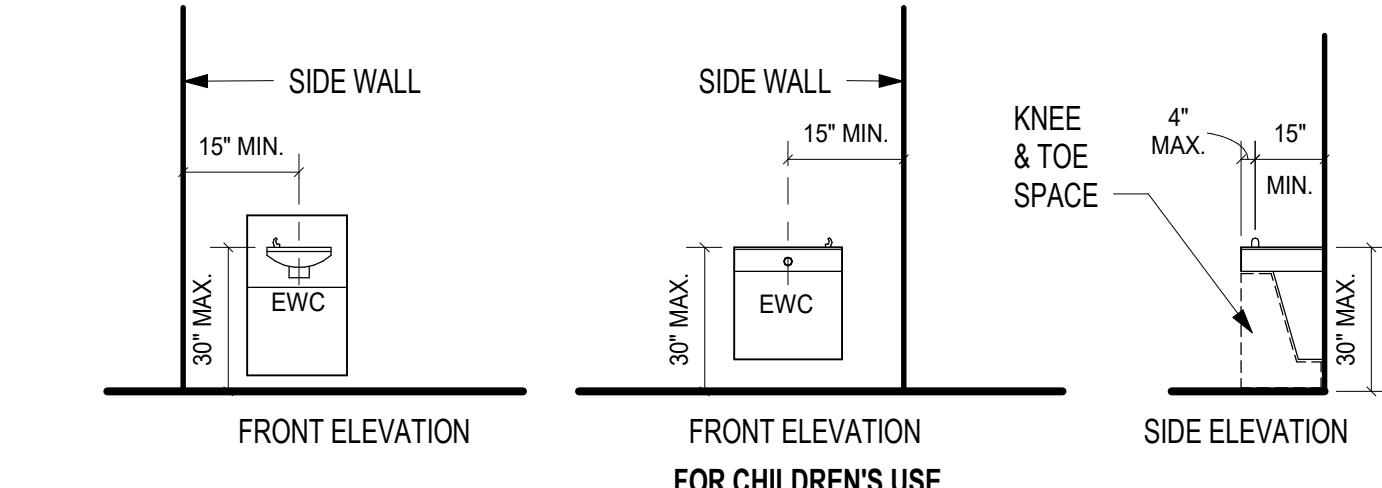
BLOCKING REQUIREMENTS



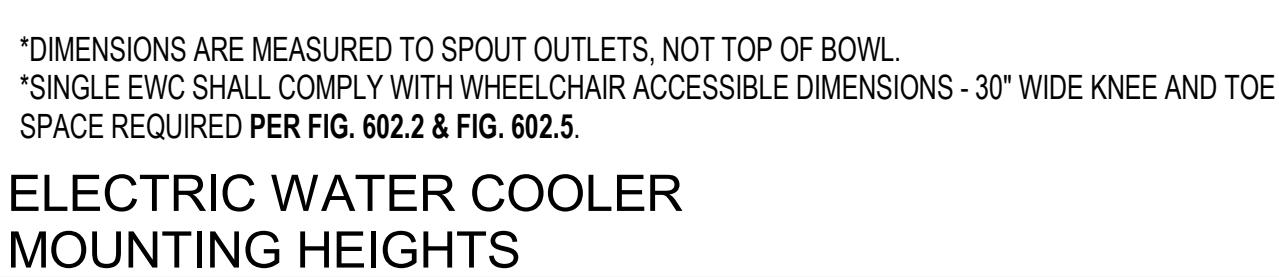
WATER CLOSET & GRAB BAR MNT'G HGTS



PLANS FOR CHILDREN USE



WATER CLOSET / TOILET COMPARTMENTS



*DIMENSIONS ARE MEASURED TO SPOUT OUTLETS, NOT TOP OF BOWL.

**SINGLE EWC SHALL COMPLY WITH WHEELCHAIR ACCESSIBLE DIMENSIONS - 30" WIDE KNEE AND TOE SPACE REQUIRED PER FIG. 602.2 & FIG. 602.5.

REVIEWED FOR CODE COMPLIANCE
IREDELL COUNTY
109 MAGNOLIA PARK DR.
MORESVILLE, NC 28113

As indicated

REVIEWED FOR CODE COMPLIANCE
IREDELL COUNTY
109 MAGNOLIA PARK DR.
MORESVILLE, NC 28113

As indicated

REVIEWED FOR CODE COMPLIANCE
IREDELL COUNTY
109 MAGNOLIA PARK DR.
MORESVILLE, NC 28113

As indicated

REVIEWED FOR CODE COMPLIANCE
IREDELL COUNTY
109 MAGNOLIA PARK DR.
MORESVILLE, NC 28113

As indicated

REVIEWED FOR CODE COMPLIANCE
IREDELL COUNTY
109 MAGNOLIA PARK DR.
MORESVILLE, NC 28113

As indicated

REVIEWED FOR CODE COMPLIANCE
IREDELL COUNTY
109 MAGNOLIA PARK DR.
MORESVILLE, NC 28113

As indicated

REVIEWED FOR CODE COMPLIANCE
IREDELL COUNTY
109 MAGNOLIA PARK DR.
MORESVILLE, NC 28113

As indicated

REVIEWED FOR CODE COMPLIANCE
IREDELL COUNTY
109 MAGNOLIA PARK DR.
MORESVILLE, NC 28113

As indicated

REVIEWED FOR CODE COMPLIANCE
IREDELL COUNTY
109 MAGNOLIA PARK DR.
MORESVILLE, NC 28113

As indicated

REVIEWED FOR CODE COMPLIANCE
IREDELL COUNTY
109 MAGNOLIA PARK DR.
MORESVILLE, NC 28113

As indicated

REVIEWED FOR CODE COMPLIANCE
IREDELL COUNTY
109 MAGNOLIA PARK DR.
MORESVILLE, NC 28113

As indicated

REVIEWED FOR CODE COMPLIANCE
IREDELL COUNTY
109 MAGNOLIA PARK DR.
MORESVILLE, NC 28113

As indicated

REVIEWED FOR CODE COMPLIANCE
IREDELL COUNTY
109 MAGNOLIA PARK DR.
MORESVILLE, NC 28113

As indicated

REVIEWED FOR CODE COMPLIANCE
IREDELL COUNTY
109 MAGNOLIA PARK DR.
MORESVILLE, NC 28113

As indicated

REVIEWED FOR CODE COMPLIANCE
IREDELL COUNTY
109 MAGNOLIA PARK DR.
MORESVILLE, NC 28113

As indicated

REVIEWED FOR CODE COMPLIANCE
IREDELL COUNTY
109 MAGNOLIA PARK DR.
MORESVILLE, NC 28113

As indicated

REVIEWED FOR CODE COMPLIANCE
IREDELL COUNTY
109 MAGNOLIA PARK DR.
MORESVILLE, NC 28113

As indicated

REVIEWED FOR CODE COMPLIANCE
IREDELL COUNTY
109 MAGNOLIA PARK DR.
MORESVILLE, NC 28113

As indicated

REVIEWED FOR CODE COMPLIANCE
IREDELL COUNTY
109 MAGNOLIA PARK DR.
MORESVILLE, NC 28113

As indicated

REVIEWED FOR CODE COMPLIANCE
IREDELL COUNTY
109 MAGNOLIA PARK DR.
MORESVILLE, NC 28113

As indicated

REVIEWED FOR CODE COMPLIANCE
IREDELL COUNTY
109 MAGNOLIA PARK DR.
MORESVILLE, NC 28113

As indicated

REVIEWED FOR CODE COMPLIANCE
IREDELL COUNTY
109 MAGNOLIA PARK DR.
MORESVILLE, NC 28113

As indicated

REVIEWED FOR CODE COMPLIANCE
IREDELL COUNTY
109 MAGNOLIA PARK DR.
MORESVILLE, NC 28113

As indicated

REVIEWED FOR CODE COMPLIANCE
IREDELL COUNTY
109 MAGNOLIA PARK DR.
MORESVILLE, NC 28113

As indicated

REVIEWED FOR CODE COMPLIANCE
IREDELL COUNTY
109 MAGNOLIA PARK DR.
MORESVILLE, NC 28113

As indicated

REVIEWED FOR CODE COMPLIANCE
IREDELL COUNTY
109 MAGNOLIA PARK DR.
MORESVILLE, NC 28113

As indicated

REVIEWED FOR CODE COMPLIANCE
IREDELL COUNTY
109 MAGNOLIA PARK DR.
MORESVILLE, NC 28113

As indicated

REVIEWED FOR CODE COMPLIANCE
IREDELL COUNTY
109 MAGNOLIA PARK DR.
MORESVILLE, NC 28113

As indicated

REVIEWED FOR CODE COMPLIANCE
IREDELL COUNTY
109 MAGNOLIA PARK DR.
MORESVILLE, NC 28113

As indicated

REVIEWED FOR CODE COMPLIANCE
IREDELL COUNTY
109 MAGNOLIA PARK DR.
MORESVILLE, NC 28113

As indicated

REVIEWED FOR CODE COMPLIANCE
IREDELL COUNTY
109 MAGNOLIA PARK DR.
MORESVILLE, NC 28113

As indicated

REVIEWED FOR CODE COMPLIANCE
IREDELL COUNTY
109 MAGNOLIA PARK DR.
MORESVILLE, NC 28113

As indicated

REVIEWED FOR CODE COMPLIANCE
IREDELL COUNTY
109 MAGNOLIA PARK DR.
MORESVILLE, NC 28113

As indicated

REVIEWED FOR CODE COMPLIANCE
IREDELL COUNTY
109 MAGNOLIA PARK DR.
MORESVILLE, NC 28113

As indicated

REVIEWED FOR CODE COMPLIANCE
IREDELL COUNTY
109 MAGNOLIA PARK DR.
MORESVILLE, NC 28113

As indicated

REVIEWED FOR CODE COMPLIANCE
IREDELL COUNTY
109 MAGNOLIA PARK DR.
MORESVILLE, NC 28113

As indicated

REVIEWED FOR CODE COMPLIANCE
IREDELL COUNTY
109 MAGNOLIA PARK DR.
MORESVILLE, NC 28113

As indicated

REVIEWED FOR CODE COMPLIANCE
IREDELL COUNTY
109 MAGNOLIA PARK DR.
MORESVILLE, NC 28113

As indicated

REVIEWED FOR CODE COMPLIANCE
IREDELL COUNTY
109 MAGNOLIA PARK DR.
MORESVILLE, NC 28113

As indicated

REVIEWED FOR CODE COMPLIANCE
IREDELL COUNTY
109 MAGNOLIA PARK DR.
MORESVILLE, NC 28113

As indicated

REVIEWED FOR CODE COMPLIANCE
IREDELL COUNTY
109 MAGNOLIA PARK DR.
MORESVILLE, NC 28113

As indicated

REVIEWED FOR CODE COMPLIANCE
IREDELL COUNTY
109 MAGNOLIA PARK DR.
MORESVILLE, NC 28113

As indicated

REVIEWED FOR CODE COMPLIANCE
IREDELL COUNTY
109 MAGNOLIA PARK DR.
MORESVILLE, NC 28113

As indicated

REVIEWED FOR CODE COMPLIANCE
IREDELL COUNTY
109 MAGNOLIA PARK DR.
MORESVILLE, NC 28113

As indicated

REVIEWED FOR CODE COMPLIANCE
IREDELL COUNTY
109 MAGNOLIA PARK DR.
MORESVILLE, NC 28113

As indicated

REVIEWED FOR CODE COMPLIANCE
IREDELL COUNTY
109 MAGNOLIA PARK DR.
MORESVILLE, NC 28113

As indicated

REVIEWED FOR CODE COMPLIANCE
IREDELL COUNTY
109 MAGNOLIA PARK DR.
MORESVILLE, NC 28113

As indicated

REVIEWED FOR CODE COMPLIANCE
IREDELL COUNTY
109 MAGNOLIA PARK DR.
MORESVILLE, NC 28113

As indicated

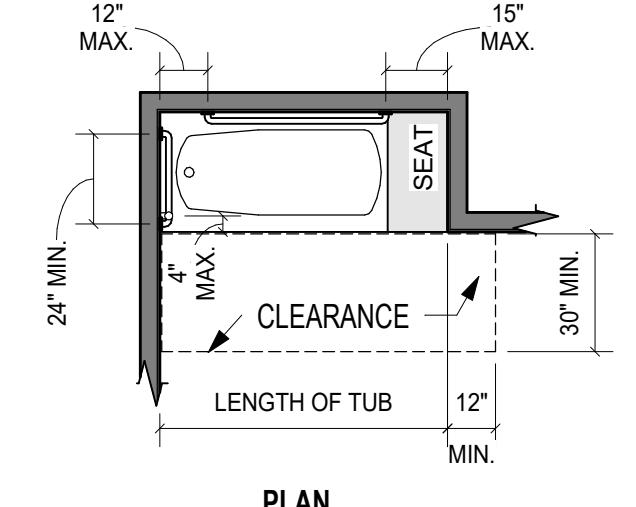
REVIEWED FOR CODE COMPLIANCE
IREDELL COUNTY
109 MAGNOLIA PARK DR.
MORESVILLE, NC 28113

As indicated

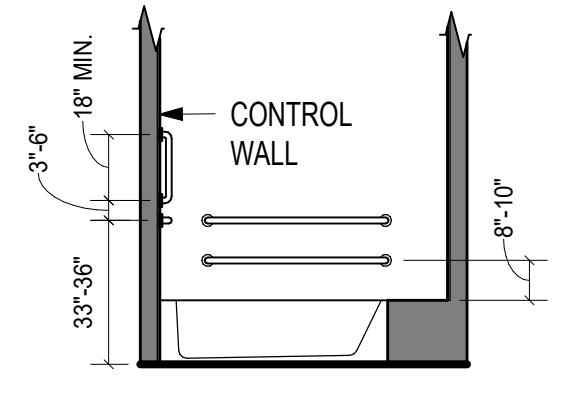
REVIEWED FOR CODE COMPLIANCE
IREDELL COUNTY
109 MAGNOLIA PARK DR.
MORESVILLE, NC 28113

As indicated

REVIEWED FOR

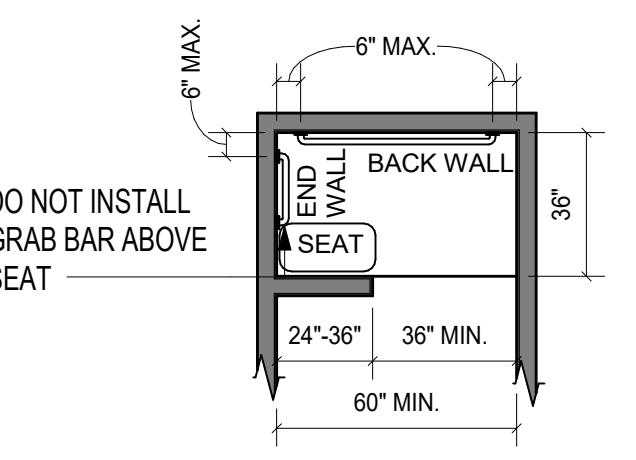


PLAN PER FIG. 607.2 & 607.4.1

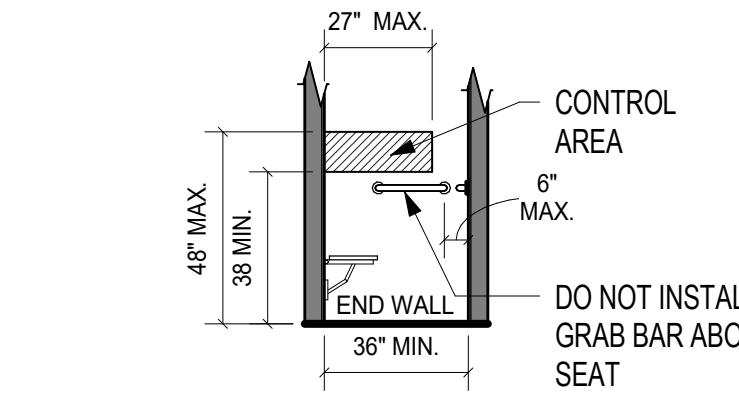


*L-SHAPE GRAB BARS COMPLYING w/INDICATED DIMENSIONS MAY BE USED IN LIEU OF SEPARATE GRAB BARS INDICATED.

BATHTUBS WITH PERMANENT SEATS

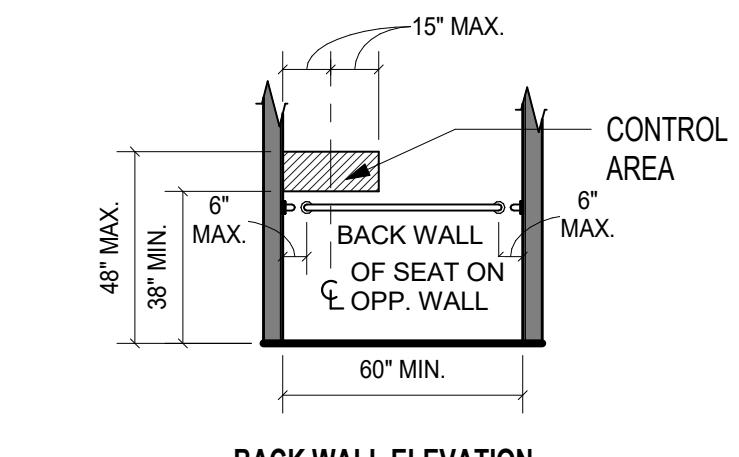


PLAN PER FIG. 608.4.3



END WALL ELEVATION PER FIG. 608.4.3

SEE SECTION 609 FOR CONTROL AREA CLEARANCES

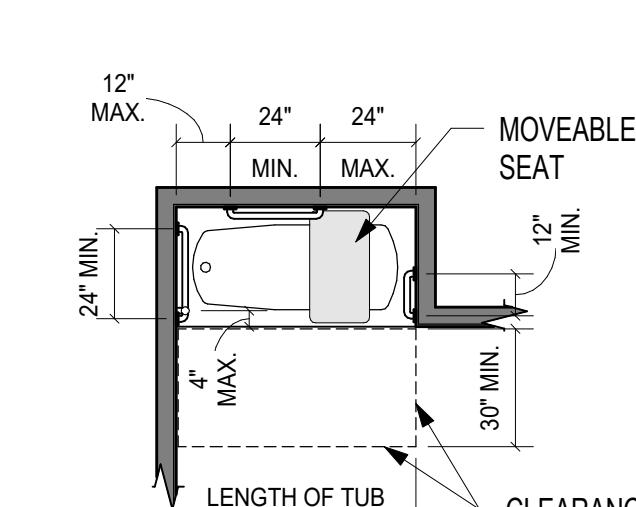


BACK WALL ELEVATION PER FIG. 608.4.3

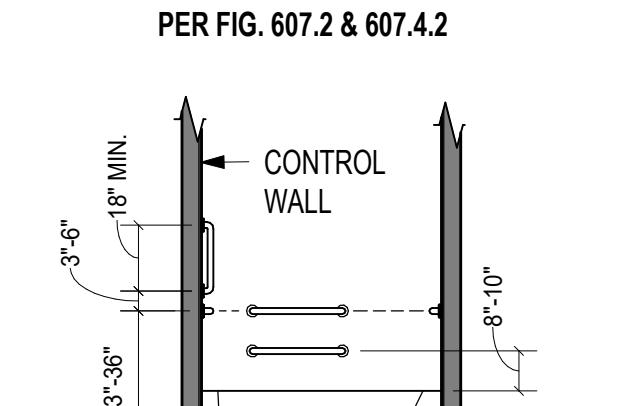
SEE SECTION 609 FOR CONTROL AREA CLEARANCES

*EXTEND GRAB BARS LENGTH OF BACK WALL AND END WALL

ALTERNATE ROLL-IN TYPE SHOWER

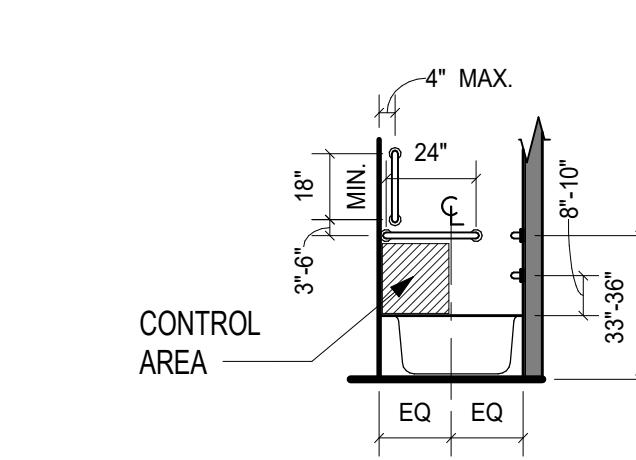


PLAN PER FIG. 608.2.1

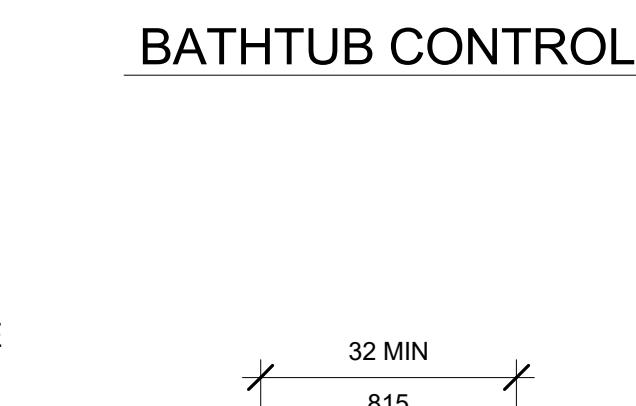


BACK WALL ELEVATION PER FIG. 607.4.2

BATHTUBS WITHOUT PERMANENT SEATS

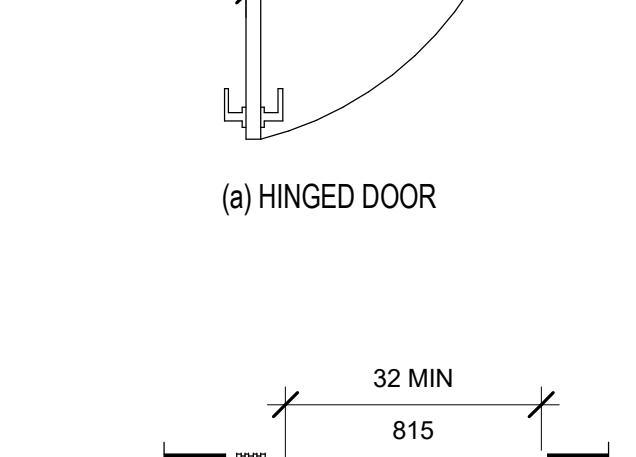


PLAN PER FIG. 608.4.1



BACK WALL ELEVATION PER FIG. 607.4.1

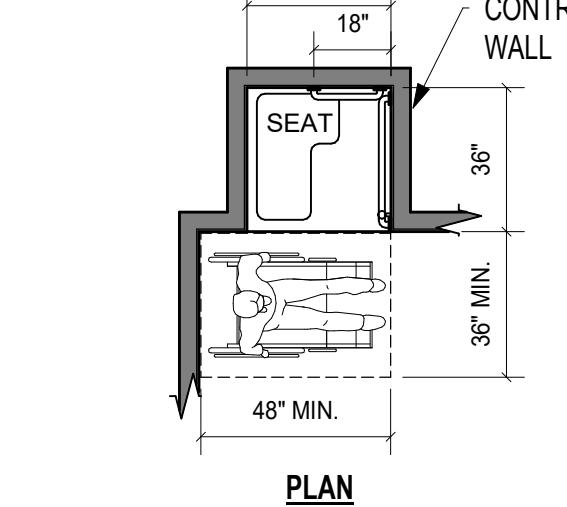
SEE SECTION 609 FOR CONTROL AREA CLEARANCES



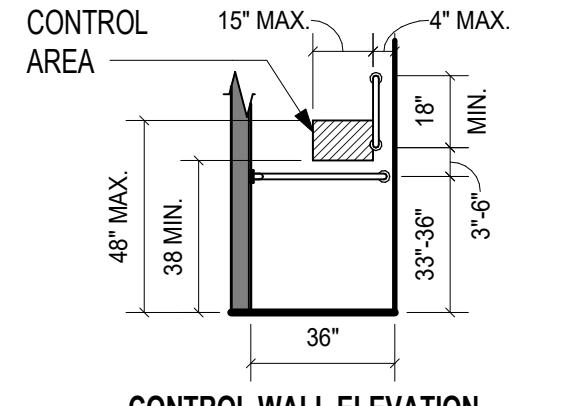
END WALL ELEVATION PER FIG. 608.4.3

SEE SECTION 609 FOR CONTROL AREA CLEARANCES

*EXTEND GRAB BARS LENGTH OF BACK WALL AND END WALL

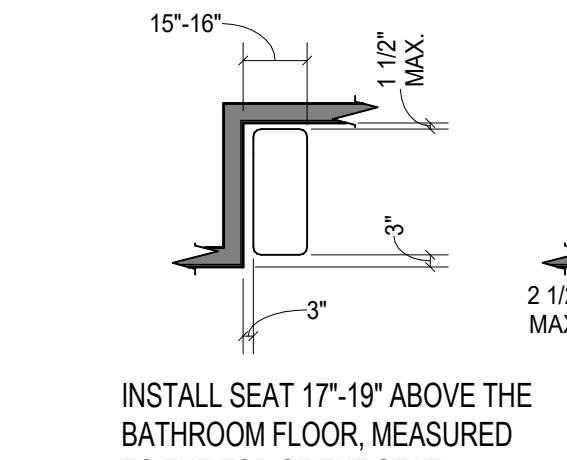


PLAN PER FIG. 607.2 & 607.4.2

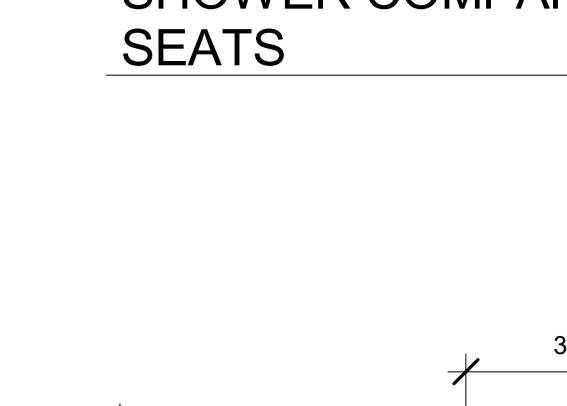


BACK WALL ELEVATION PER FIG. 607.4.2

TRANSFER-TYPE SHOWER

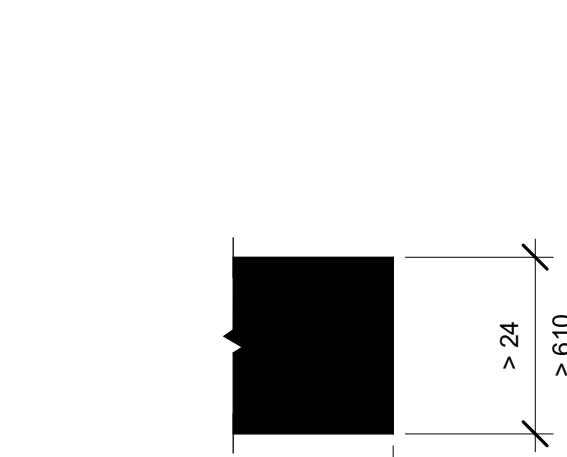


PLAN PER FIG. 608.4.2



BACK WALL ELEVATION PER FIG. 607.4.1

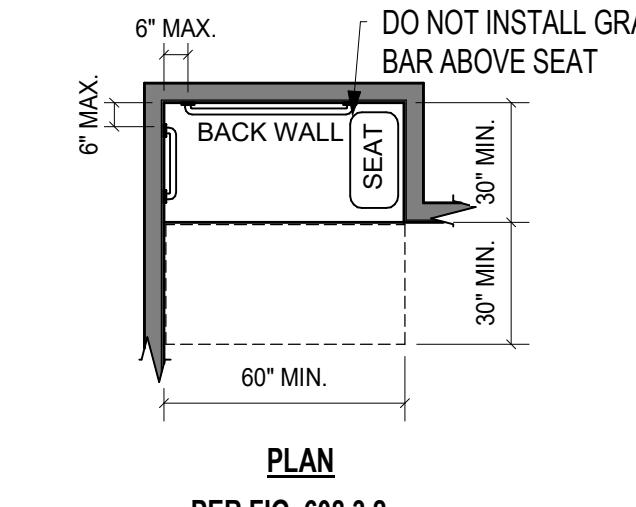
SEE SECTION 609 FOR CONTROL AREA CLEARANCES



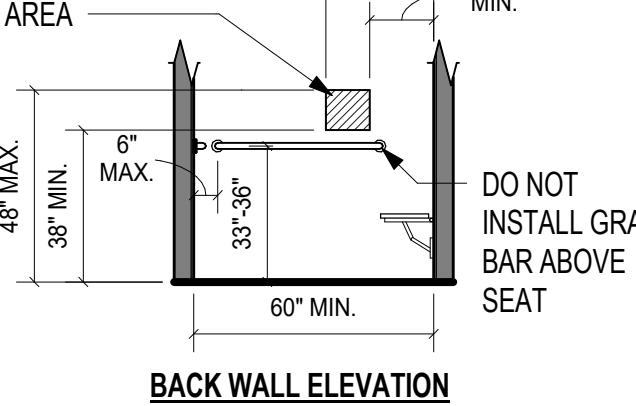
END WALL ELEVATION PER FIG. 608.4.3

SEE SECTION 609 FOR CONTROL AREA CLEARANCES

*EXTEND GRAB BARS LENGTH OF BACK WALL AND END WALL



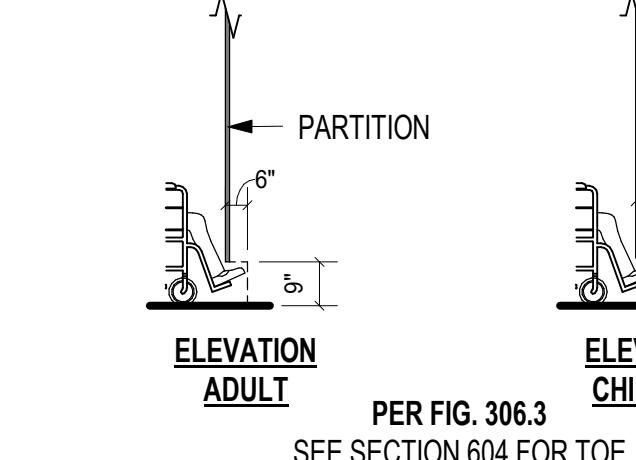
PLAN PER FIG. 608.3.2



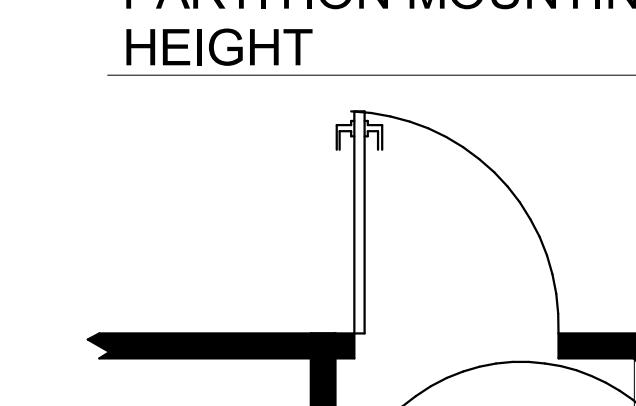
BACK WALL ELEVATION PER FIG. 608.4.2

SEE SECTION 609 FOR CONTROL AREA CLEARANCES

STANDARD ROLL-IN-TYPE SHOWER

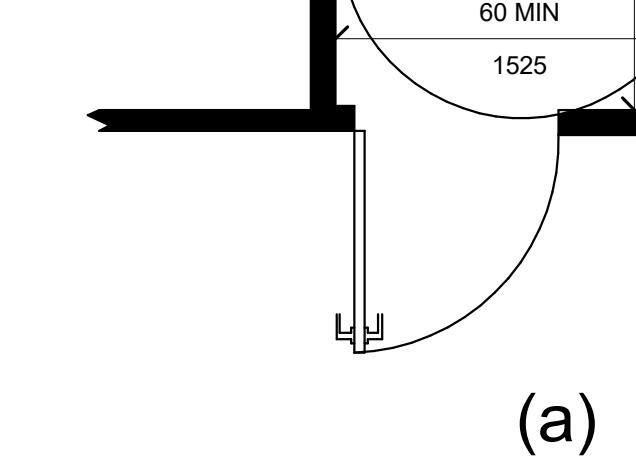


PLAN PER FIG. 608.4.2



BACK WALL ELEVATION PER FIG. 607.4.1

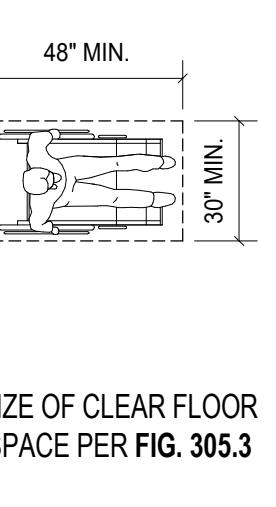
SEE SECTION 609 FOR CONTROL AREA CLEARANCES



END WALL ELEVATION PER FIG. 608.4.3

SEE SECTION 609 FOR CONTROL AREA CLEARANCES

*EXTEND GRAB BARS LENGTH OF BACK WALL AND END WALL



SIZE OF CLEAR FLOOR SPACE PER FIG. 305.3

CLEAR FLOOR SPACE

CIRCLE TURNING SPACE PER FIG. 304.3.1

T-SHAPE TURNING SPACE PER FIG. 304.3.2

TURNING SPACES

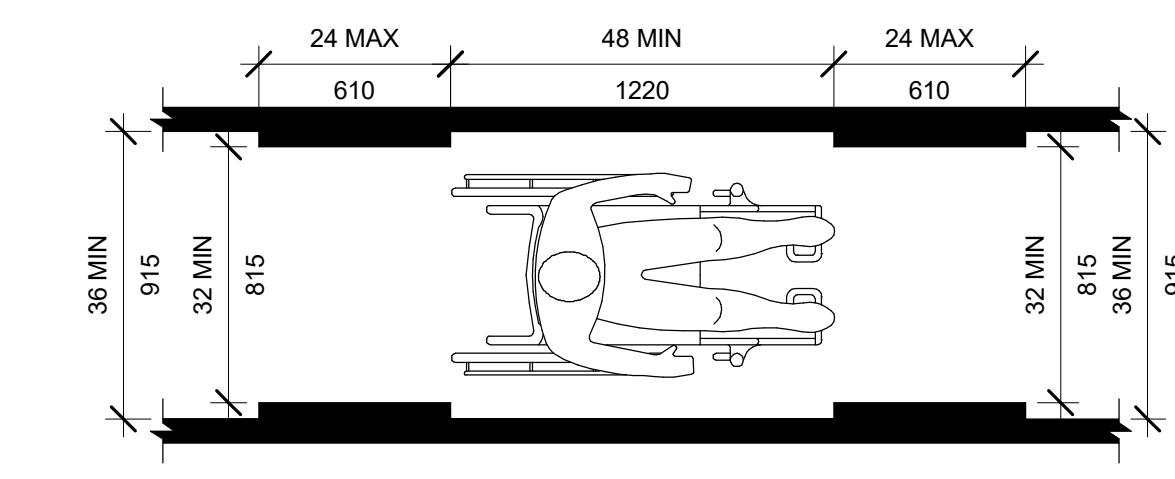
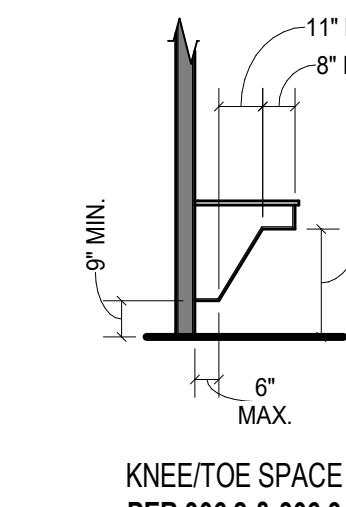


FIG. 403.5
CLEAR WIDTH OF AN ACCESSIBLE ROUTE



KNEE/TOE SPACE PER 306.2 & 306.3

KNEE AND TOE SPACE

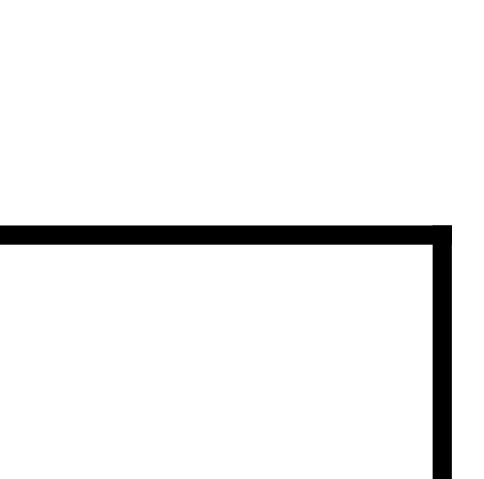
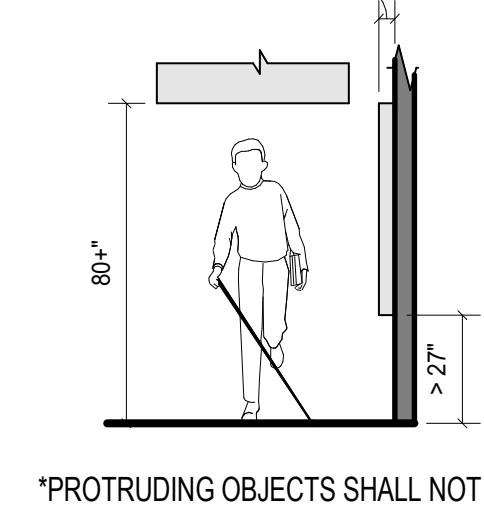


FIG. 403.5
CLEAR WIDTH OF AN ACCESSIBLE ROUTE



*PROTRUDING OBJECTS SHALL NOT REDUCE THE CLEAR WIDTH REQUIRED FOR ACCESSIBLE ROUTES PER FIG. 307.2

LIMITS OF PROTRUDING OBJECTS

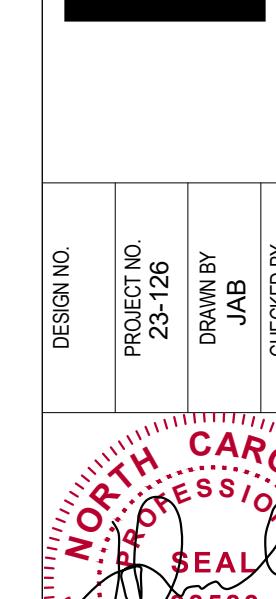
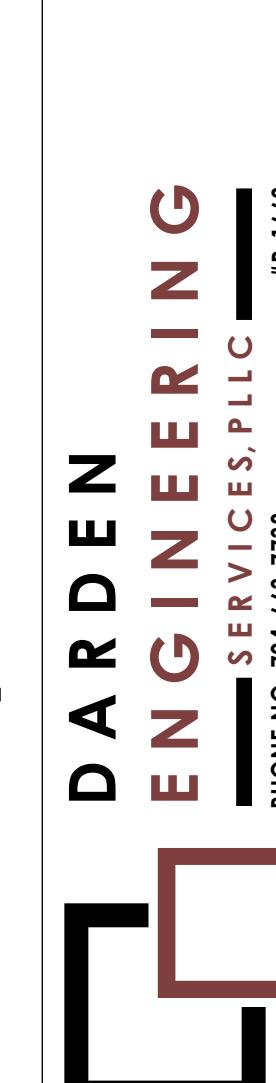
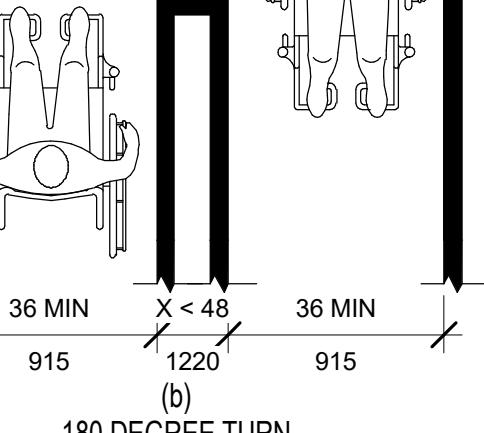
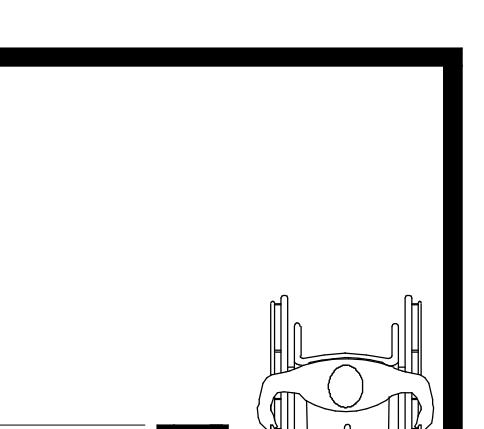
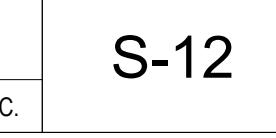
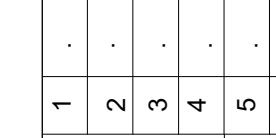
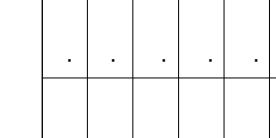
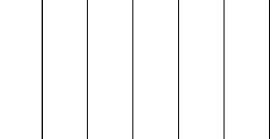
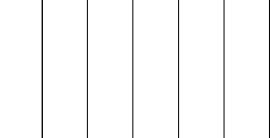
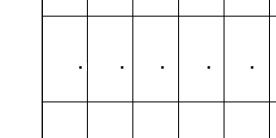
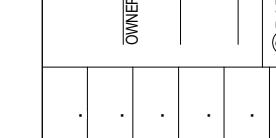
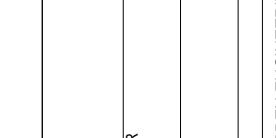
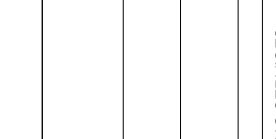
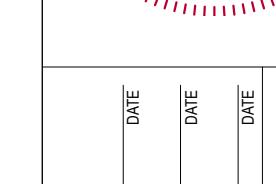


FIG. 403.5.1 CLEAR WIDTH AT 180° TURN



(b) SLIDING DOOR

(d) DOORWAYS WITHOUT DOORS

(c) FOLDING DOOR

(a) HINGED DOOR

(d) DOORWAYS WITHOUT DOORS

(c) FOLDING DOOR

(a) HINGED DOOR

(b) SLIDING DOOR

(d) DOORWAYS WITHOUT DOORS

(c) FOLDING DOOR

(a) HINGED DOOR

(b) SLIDING DOOR

(d) DOORWAYS WITHOUT DOORS

(c) FOLDING DOOR

(a) HINGED DOOR

(b) SLIDING DOOR

(d) DOORWAYS WITHOUT DOORS

(c) FOLDING DOOR

(a) HINGED DOOR

(b) SLIDING DOOR

(d) DOORWAYS WITHOUT DOORS

(c) FOLDING DOOR

(a) HINGED DOOR

(b) SLIDING DOOR

(d) DOORWAYS WITHOUT DOORS

(c) FOLDING DOOR

(a) HINGED DOOR

(b) SLIDING DOOR

(d) DOORWAYS WITHOUT DOORS

(c) FOLDING DOOR

(a) HINGED DOOR

(b) SLIDING DOOR

(d) DOORWAYS WITHOUT DOORS

(c) FOLDING DOOR

(a) HINGED DOOR

(b) SLIDING DOOR

(d) DOORWAYS WITHOUT DOORS

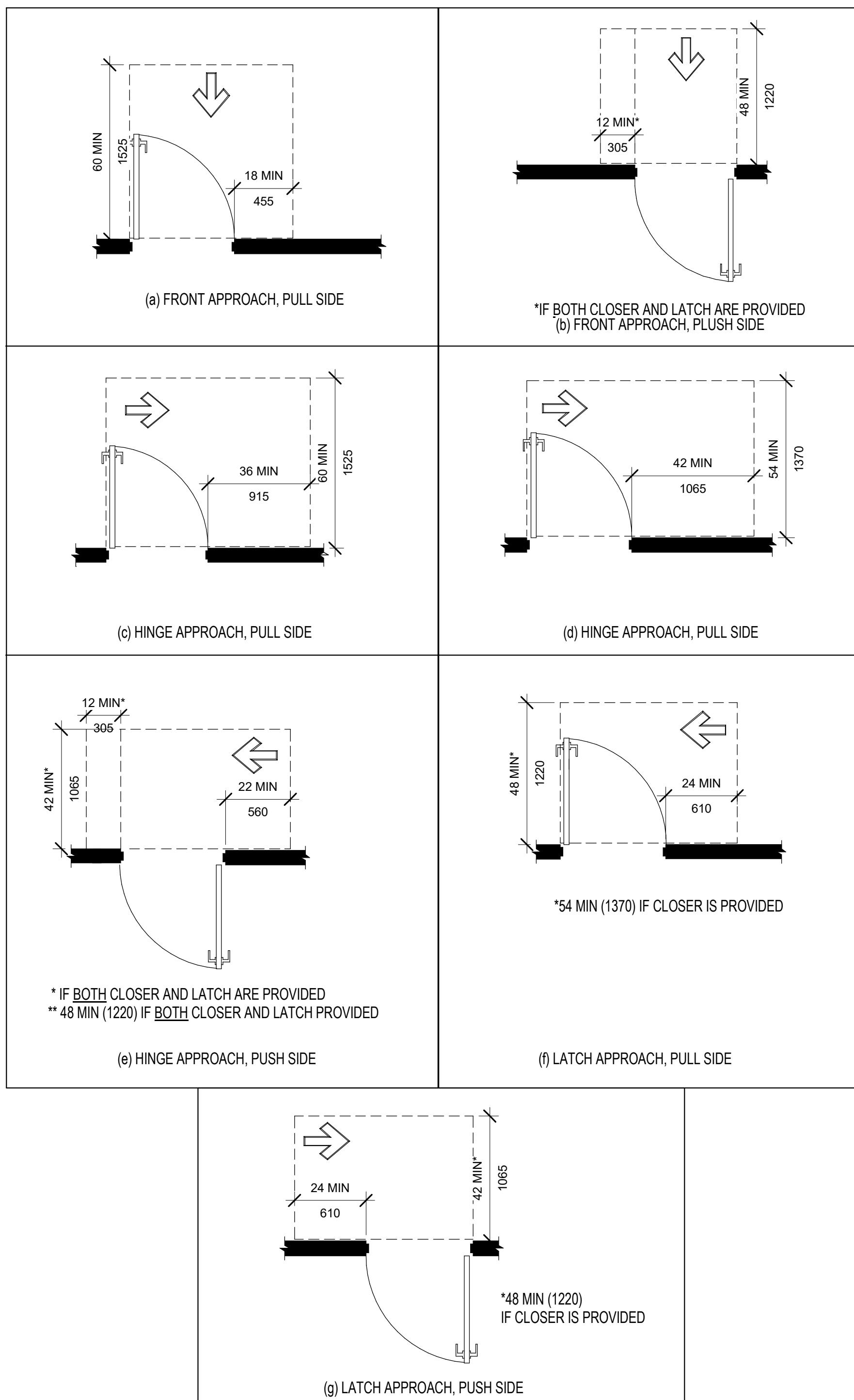


FIG. 404.2.3.2
MANEUVERING
CLEARANCE AT MANUAL
SWINGING DOORS

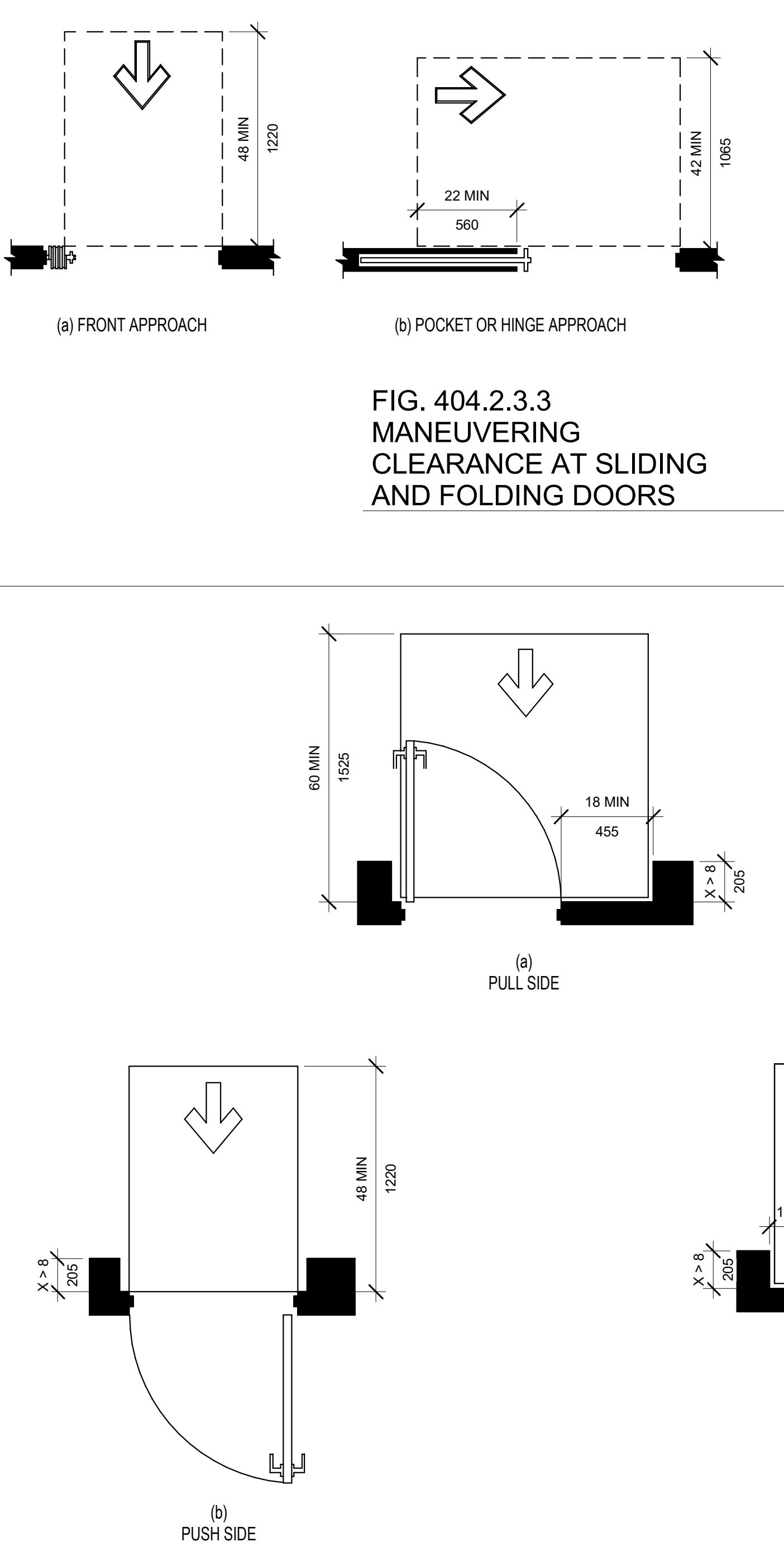


FIG. 404.2.3.3
MANEUVERING
CLEARANCE AT SLIDING
AND FOLDING DOORS

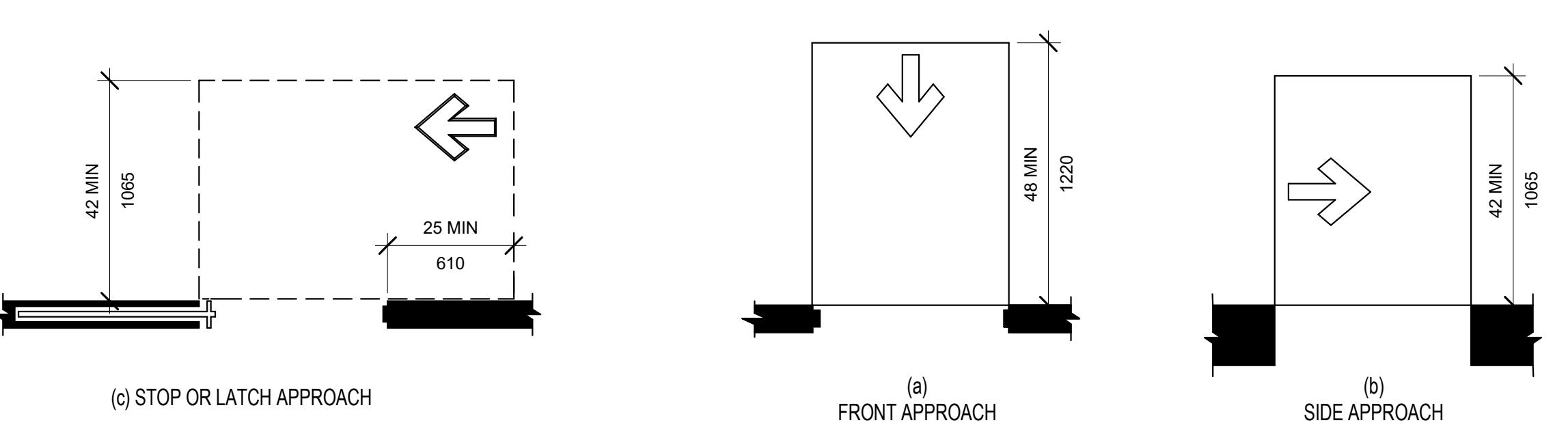


FIG. 404.2.3.4
MANEUVERING
CLEARANCE AT
DOORWAYS WITHOUT
DOORS

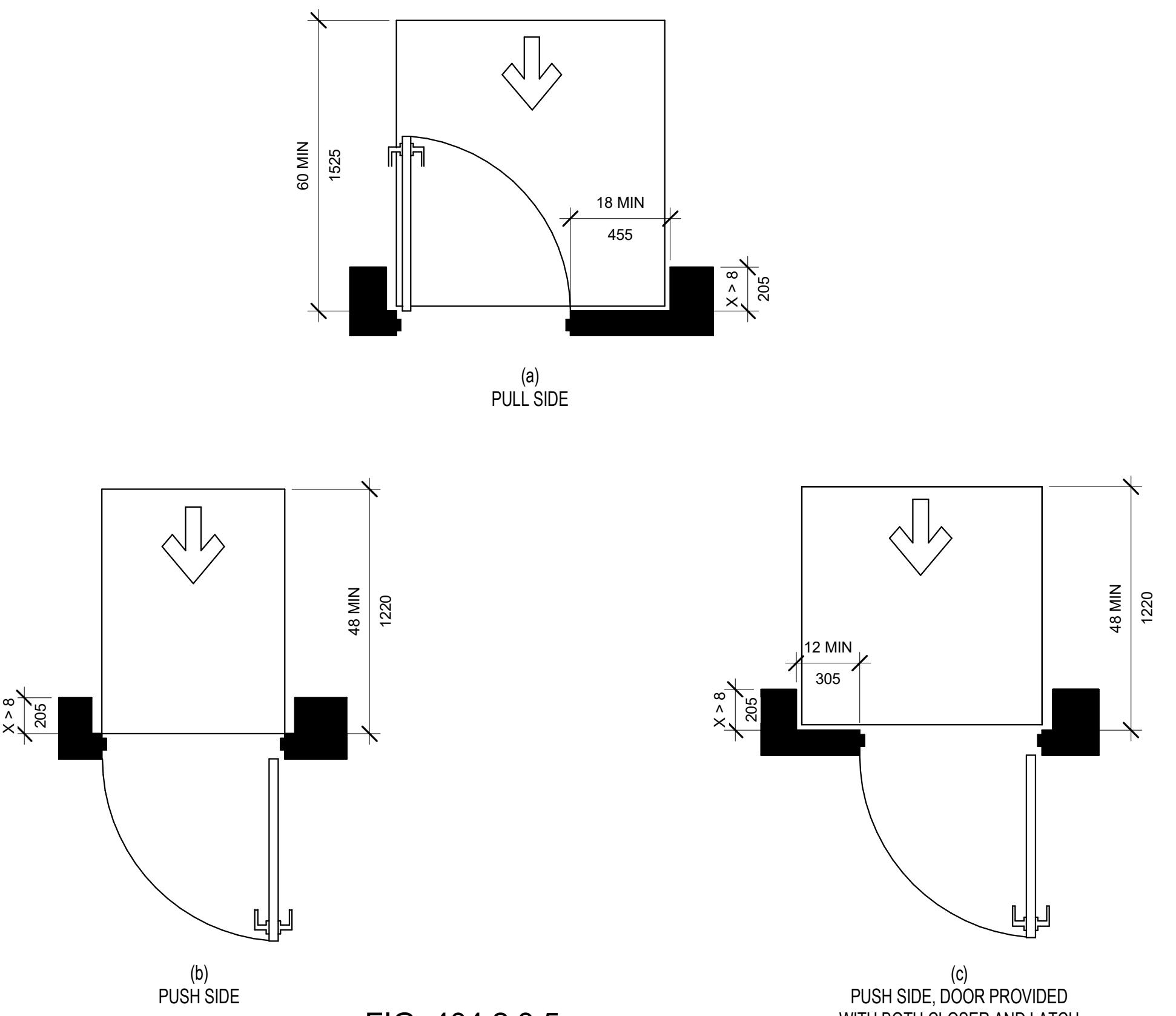
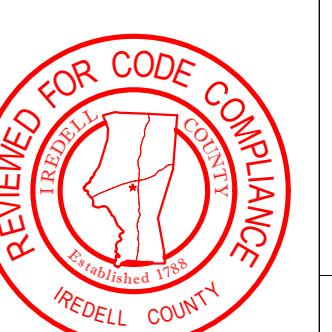


FIG. 404.2.3.5
MANEUVERING
CLEARANCE AT RECESSED
DOORS



BACON DEVELOPMENT
109 MAGNOLIA PARK DR.
MORESVILLE, NC 28113
DOOR CLEARANCES
S-13
OF
13

NOTE: ANY DEVIATION FROM THE PLAN MUST BE APPROVED BY DARDEN ENGINEERING SERVICES, PLLC.

DARDEN
ENGINEERING
SERVICES, PLLC
PHONE NO. 704-643-7738
EMAIL: info@dardenden.com

#P-1663



DESIGN NO.
PROJECT NO.
DRAWN BY
CHECKED BY
APPROVED
10/17/23



THIS DRAWING IS THE PROPERTY OF DARDEN ENGINEERING SERVICES, PLLC.
IT IS NOT TO BE COPIED OR USED FOR ANY OTHER PURPOSE.
IT IS THE DRAWING OF THE DESIGNER AND IS THE PROPERTY OF
DARDEN ENGINEERING SERVICES, PLLC.

© DARDEN ENGINEERING SERVICES

10/17/23

REVISIONS

ELECTRICAL SPECIFICATIONS

PART 1: GENERAL

- A. PROVIDE ALL WORK AND MATERIALS FOR THE INSTALLATION OF COMPLETE WIRING SYSTEMS AS SPECIFIED HEREIN AND INDICATED ON THE DRAWINGS.
- B. ALL ELECTRICAL PERMITS AND INSPECTION FEES SHALL BE OBTAINED AND PAID FOR BY THE ELECTRICAL CONTRACTOR.
- C. ELECTRICAL CONTRACTOR SHALL GUARANTEE ALL WORK AND MATERIALS FOR ONE YEAR EFFECTIVE THE DAY THE PROJECT IS ACCEPTED BY THE OWNER.
- D. THE ELECTRICAL CONTRACTOR SHALL HAVE A MINIMUM OF 5 YEARS COMMERCIAL EXPERIENCE TO BE QUALIFIED TO PERFORM THE WORK HERE-IN. ANY CONTRACTOR THAT DOES NOT HAVE THE EXPERIENCE REQUIRED MAY BE REMOVED FROM THE PROJECT AT ANYTIME.
- E. WORK SHALL BE IN ACCORDANCE WITH THE 2020 NATIONAL ELECTRICAL CODE, OSHA STATE BUILDING CODE AND ALL OTHER APPLICABLE LOCAL REQUIREMENTS. ALL WORK SHALL COMPLY WITH THE LATEST ADDITION OF NECA STANDARDS OF INSTALLATION.
- F. ALL MATERIALS, DEVICES AND APPLIANCES SHALL BE NEW, EXCEPT WHERE OTHERWISE NOTED, AND SHALL BE LISTED BY AN APPROVED TESTING AGENCY. FACTORY ASSEMBLED EQUIPMENT SHALL BE LISTED AND LABELED AS AN ASSEMBLY. ANY EQUIPMENT NOT LISTED SHALL HAVE PRIOR APPROVAL FROM THE LOCAL AUTHORITY HAVING JURISDICTION. ALL MATERIALS SHALL COMPLY WITH APPLICABLE ANSI, IEEE AND NEMA STANDARDS.
- G. PROVIDE ALL CUTTING, PATCHING, CHANNELING AND CHASING FOR INSTALLATION OF WORK AND REPAIR ANY DAMAGE OF EXISTING OR NEW INSTALLATIONS AT THE CONTRACTORS EXPENSE.
- H. SHOP DRAWINGS AND CATALOG DATA SHALL BE SUBMITTED FOR APPROVAL PRIOR TO BEGINNING WORK. SUBMIT FOUR COPIES OF SHOP DRAWINGS FOR LIGHTING FIXTURES, LAMPS, BALLASTS AND PANELBOARDS. SUBMIT FOUR COPIED OF CATALOG DATA FOR DISCONNECT SWITCHES AND WIRING DEVICES.
- I. PROVIDE ENGRAVED PHENOLIC NAMEPLATES FOR PANELBOARDS, WIRING TROUGHS, AND FUSED SWITCHES. WHITE LETTERS ON BLACK FOR 120/208 VOLT SYSTEMS. LABEL ALL BREAKERS INSIDE THE PANEL NEXT TO THE BREAKER USING THE NUMBER SCHEME INDICATED ON THE DRAWINGS.
- J. AN ELECTRICAL INSPECTION CERTIFICATE SHALL BE ISSUED BY THE LOCAL INSPECTION AUTHORITIES BEFORE APPROVAL FOR FINAL PAYMENT.
- K. THE CONDUIT AND NEUTRAL SYSTEM SHALL BE GROUNDED AT THE MAIN SERVICE EQUIPMENT. GROUNDING ELECTRODE SYSTEM SHALL BE INSTALLED PER N.E.C. ARTICLE 250 AND AS INDICATED ON THE DRAWINGS.
- L. WIRING SHALL BE TESTED FOR CONTINUITY AND GROUNDS BEFORE BEING ENERGIZED. FAULTY WIRING SHALL BE REPLACED AT NO ADDITIONAL EXPENSE TO THE OWNER.
- M. IF, DURING THE COURSE OF WORK, THE ELECTRICAL CONTRACTOR DISCOVERS A PROBLEM WITH THE PERFORMANCE OF THE INSTALLATION RELATIVE TO THE PLANS AND SPECIFICATIONS OR NEC OR OTHER CODES, THE CONTRACTOR SHALL IMMEDIATELY BRING THE PROBLEM TO THE ATTENTION OF THE ARCHITECT OR ENGINEER FOR RESOLUTION PRIOR TO THE EXECUTION OF THE WORK.
- N. THE ELECTRICAL CONTRACTOR SHALL CONNECT ALL EQUIPMENT REQUIRING ELECTRICAL CONNECTIONS, UNLESS OTHERWISE NOTED, EXCEPT FOR CONTROL WIRING FOR EQUIPMENT NOT PROVIDED BY THE ELECTRICAL CONTRACTOR. CONTROL WIRING FOR SUCH EQUIPMENT SHALL BE PROVIDED BY THE RESPECTIVE DISCIPLINE.
- O. COORDINATE LOCATION AND REQUIREMENTS FOR ELECTRICAL SERVICE WITH THE POWER COMPANY WHERE MORE THAN ONE SERVICE IS SUPPLIED TO A BUILDING, PROVIDE IDENTIFICATION AT EACH SERVICE PER NEC 230-2(B) AND AS INDICATED ON THE DRAWINGS.
- P. COORDINATE LOCATION AND REQUIREMENTS FOR TELEPHONE SERVICE WITH THE TELEPHONE COMPANY AND AS INDICATED ON THE DRAWINGS.
- Q. THE ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING AND PROVIDING TEMPORARY POWER.

PART 2: RACEWAY

- A. CONDUIT SHALL BE ZINC-COATED EMT INDOORS. EMT FITTINGS SHALL BE STEEL SCREW. MINIMUM SIZE SHALL BE $\frac{1}{2}$ "C, UNLESS OTHERWISE NOTED. USE SCHEDULE 40 PVC OUTDOORS ABOVE 8'-0" OR BELOW GRADE. USE IMC WHERE REQUIRED BY CODE OR EXPOSED BELOW 8'-0".
- B. SUPPORT ALL CONDUITS WITH STRAPS AND CLAMPS. RUN ALL CONDUIT PARALLEL OR PERPENDICULAR TO BUILDING WALLS.
- C. JUNCTION AND PULL BOXES SHALL BE CODE GAUGE GALVANIZED SHEET METAL.
- D. LIQUID-TIGHT FLEXIBLE METAL CONDUIT SHALL BE USED FOR EQUIPMENT CONNECTIONS, BUT NOT AS A WIRING METHOD OTHERWISE.
- E. MC CABLE MAY BE USED AS A WIRING METHOD WHERE ALLOWED BY CODE.
- F. RACEWAY PENETRATIONS THROUGH FLOOR SLABS AND FIRE-RATED WALLS SHALL BE FILLED WITH IMPERVIOUS, NON-SHRINK GROUT SUITABLY TIGHT TO PREVENT THE TRANSFER OF SMOKE, WATER, AND DUST. ROOF PENETRATIONS SHALL BE WITHIN THE EQUIPMENT CURB WHERE POSSIBLE.
- G. CONDUIT INSTALLED UNDERGROUND OR IN CONCRETE SHALL HAVE JOINTS MADE WATER-TIGHT BY USE OF POLYPTETRA-FLUOROETHYLENE TAPE. APPROVED SEALS SHALL BE PROVIDED IN HAZARDOUS LOCATIONS AS REQUIRED BY THE N.E.C.

PART 3: CONDUCTORS

- A. ALL CONDUCTORS SHALL BE SINGLE CONDUCTOR COPPER. THHN/THWN, SOLID FOR SIZES #14 THROUGH #10. THHN/THWN STRANDED FOR SIZES #8 AND LARGER.
- B. BRANCH CIRCUITS SHALL NOT BE SMALLER THAN #12 AWG. CONTROL WIRING MAY BE #14 AWG.
- C. CONDUCTORS SHALL BE COLOR CODED BLACK/RED/BLUE FOR 120/208 VOLT SYSTEMS FOR A, B, AND C PHASES, RESPECTIVELY.
- D. WIRING TO LIGHTING FIXTURES SHALL BE AS REQUIRED BY UL LABEL.
- E. ALL BRANCH CIRCUIT OR CABLE ASSEMBLIES SHALL CONTAIN AN INSULATED GREEN GROUNDING CONDUCTOR SIZED PER NEC 250-122.
- F. ALL CONDUCTORS INSTALLED IN VERTICAL RACEWAYS SHALL BE SUPPORTED AT INTERVALS AS REQUIRED PER NEC ARTICLE 300-19.
- G. ALL EQUIPMENT AND DEVICE TERMINATIONS SHALL BE UL LISTED FOR USE WITH 75°C INSULATED CONDUCTORS AT THEIR 75°C AMPACITY.
- H. PROVIDE A SEPARATE NEUTRAL FOR EACH PHASE CONDUCTOR IN ALL BRANCH CIRCUITS.

PART 4: WIRING DEVICES

- A. WIRING DEVICES SHALL BE ALMOND WITH MATCHING PLASTIC COVER PLATES, SPECIFICATION GRADE AS INDICATED BELOW, EQUAL TO THE COOPER (EATON) QUALITY INDICATED. (EQUAL BY WATTS STOPPER AND LEVITON)
- TOGGLE SWITCHES SHALL BE AS FOLLOWS:

SINGLE POLE 20 AMP	COOPER 1221
DOUBLE POLE 20 AMP	COOPER 1222
THREE WAY 20 AMP	COOPER 1223
FOUR WAY 20 AMP	COOPER 1224
- WALL MOUNTED SENSORS SHALL BE AS FOLLOWS:

VACANCY SINGLE SWITCH	COOPER VNW-P-1001-MV
VACANCY DUAL SWITCH	COOPER VNW-P-1001-DMV
VACANCY DIMMER	COOPER VSW-D-010
VACANCY PRESET	COOPER VNW-P-010
- CEILING MOUNTED SENSORS SHALL BE AS FOLLOWS:

VACANCY SINGLE SWITCH	COOPER VAC-DT
OCUPANCY SINGLE SWITCH	COOPER CO-DT
POWER PACKS	COOPER SP20-RD4
- DUPLEX RECEPTACLES SHALL HAVE A NYLON FACE AND SHALL BE AS FOLLOWS:

15 AMP DUPLEX	COOPER 5252
20 AMP DUPLEX	COOPER 5362
15 AMP DUPLEX-GFCI	COOPER GF5262
20 AMP DUPLEX-GFCI	COOPER GF5362

- B. DUPLEX RECEPTACLES ON DEDICATED CIRCUIT SHALL BE 20 AMP. OTHER DUPLEX RECEPTACLES MAY BE 15 AMP, UNLESS OTHERWISE NOTED.
- C. OUTLET BOXES SHALL NOT BE MOUNTED BACK-TO-BACK.
- D. A MAXIMUM OF 10 RECEPTACLES SHALL BE ON EACH BRANCH CIRCUIT.
- E. WEATHERPROOF COVERS SHALL HAVE A LID SO THAT PLUGS MAY BE INSTALLED WITHOUT COMPROMISING THE WP FUNCTION, EQUAL TO INTERMATIC GUARDIAN ONE #WP1020C.
- F. ALL OUTLETS (INCLUDING TELEPHONE, CABLE TV AND DATA) SHALL HAVE COVER PLATES, BLANK IF NOT USED.

PART 5: DISCONNECT SWITCHES

- A. DISCONNECT SWITCHES SHALL BE HEAVY-DUTY TYPE IN NEMA 1 ENCLOSURES (UNLESS OTHERWISE INDICATED), FUSED OR NON-FUSED AS INDICATED. FUSED SWITCHES SHALL HAVE REJECTION-TYPE FUSE CLIPS. SWITCHES SHALL BE SQUARE D, OR EQUAL. FUSES SHALL BE CLASS R-5, TIME DELAY. A SET OF 3 SPARE FUSES OF EACH SIZE AND TYPE SHALL BE FURNISHED TO THE OWNER.

PART 6: PANELBOARDS

- A. PANELBOARDS SHALL BE DEAD-FRONT SAFETY TYPE. ALL CIRCUIT BREAKERS SHALL BE MOLDED-CASE, BOLT-ON, AUTOMATIC THERMAL MAGNETIC TYPE, CALIBRATED FOR 40°C, OR AMBIENT COMPENSATION. CABINET SHALL BE 20 INCHES WIDE MINIMUM, WITH NOT LESS THAT 4-INCH WIRING GUTTERS AT TOP, SIDES, AND BOTTOM. SQUARE D "NF", "NQOD", OR EQUAL. BUS SHALL BE ALUMINUM WITH RATINGS AS INDICATED ON DRAWINGS. LUGS SHALL BE SIZED TO ACCOMMODATE CONDUCTORS INDICATED ON THE POWER RISER DIAGRAM.
- B. PROVIDE HANDLE LOCK-ON DEVICES ON ALL CIRCUIT BREAKERS CONNECTED TO EMERGENCY, EXIT, AND NIGHT LIGHTING, FIRE ALARM, TELEPHONE AND SECURITY SYSTEMS.
- C. CIRCUIT BREAKERS USED FOR SWITCHING OF LIGHTING OR SIGN CIRCUITS SHALL BE SWITCHING DUTY RATED AND SHALL BE MARKED "SWD".

PART 7: LIGHT FIXTURES

- A. CATALOG NUMBERS GIVEN DENOTE MINIMUM QUALITY AND PERFORMANCE REQUIRED. EQUAL EQUIPMENT BY OTHER MANUFACTURERS IS ACCEPTABLE AS INDICATED ON THE LIGHT FIXTURE SCHEDULE.
- B. LAY-IN FIXTURES SHALL BE SUSPENDED FROM STRUCTURE WITH 2 WIRES AT OPPOSITE CORNERS. DO NOT SUPPORT FROM CEILING GRID.
- C. SEE ARCHITECTURAL REFLECTED CEILING PLANS FOR EXACT LOCATION OF LIGHT FIXTURES.
- D. ALL RECESSED LIGHTING FIXTURES SHALL BE THERMALLY PROTECTED.

PART 8: TELEPHONE/DATA SYSTEM

- A. FURNISH AND INSTALL A COMPLETE TELEPHONE/DATA CONDUIT SYSTEM AS INDICATED ON THE DRAWINGS. ALL OUTLET BOXES FOR TELEPHONE AND/OR DATA JACKS SHALL BE DOUBLE GANG WITH A SINGLE-GANG OPENING.
- B. PULL AND LEAVE IN EACH CONDUIT ONE PULL CORD FOR PULLING IN CABLE. ALL WIRING, OUTLETS AND EQUIPMENT SHALL BE PROVIDED AND INSTALLED BY THE OWNERS TELE/DATA SUPPLIER.
- C. TELEPHONE SERVICE CONDUITS SHALL BE PROVIDED TO THE PROPERTY LINE OR AS INDICATED ON THE DRAWINGS.

- D. THE ELECTRICAL CONTRACTOR SHALL FURNISH AND INSTALL A #6 AWG GREEN COPPER WIRE IN A 3/4" CONDUIT FROM THE NEAREST COLD WATER METAL MAIN TO A LUG AT THE TELEPHONE/DATA BACKBOARD.

PART 9: LIGHTING CONTROLS

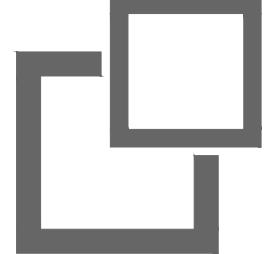
- A. SEE WRING DEVICES FOR WALL MOUNTED CONTROLLERS.
- B. ALL SENSORS SHALL BE DUAL TECHNOLOGY ULTRASONIC AND PASSIVE INFRARED. EACH SHALL HAVE A SEGMENTED LENS WITH INTERNAL GROOVES. DEVICES SHALL HAVE POWER FAILURE MEMORY. BE COMPLIANT WITH NEMA WD7 2011 AND HAVE TIME DELAYS FROM 10 TO 30 MINUTES.
- C. CEILING MOUNTED SENSORS SHALL BE SUPPLIED WITH POWER PACKS AS REQUIRED.
- D. FURNISH AND INSTALL AN ELECTRONIC TIME CONTROLLER WHERE INDICATED. CONTROLLER SHALL BE CAPABLE OF SWITCHING 40 AMPERES PER POLE CONTINUOUSLY AT 120 VOLTS AND SHALL BE SPST (DPST, 3PST, DPDT, SPDT, AS REQUIRED).
- E. LIGHTING CONTACTORS SHALL SWITCH A LOAD AT 120 VOLTS, 60 HZ AND SHALL HAVE THE NUMBER OF POLES INDICATED ON THE DRAWINGS. THE CONTACTOR SHALL BE CONTINUOUSLY RATED 20 AMPERES PER POLE FOR ALL TYPES OF BALLAST AND TUNGSTEN LIGHTING AND RESISTANCE LOADS.
- F. ALL LIGHTING CONTACTORS SHALL BE ELECTRICALLY HELD AND HAVE A NEMA 1 ENCLOSURE UNLESS OTHERWISE NOTED.

PART 11: FIRE STOPPING

- A. ALL PENETRATIONS OF NON-RATED PENETRATIONS SHALL BE SEALED WITH RATED MATERIALS MEETING ASTM E-814.
- B. PROVIDE FIRE STOPPING DEVICE(S) OR SYSTEM(S) WHICH HAVE BEEN TESTED AND LISTED AS COMPLYING WITH ASTM E-814. INSTALL THE DEVICE(S) OR SYSTEM(S) IN ACCORDANCE WITH THE CONDITIONS OF THEIR LISTING. PROVIDE THE APPROPRIATE DEVICE(S) OR SYSTEM(S) WITH AN "F" RATING EQUAL TO THE RATING OF THE ASSEMBLY BEING PENETRATED.
- C. DEVICE(S) AND/OR SYSTEM(S) SHALL BE BY HILTI, 3M OR EQUIVALENT.
- D. WHERE OPENINGS FOR INSTALLATION OF ELECTRICAL BOXES EXCEEDS 16 SQUARE INCHES IN RATED WALLS OR PARTITIONS, THE OPENING SHALL BE PROTECTED AS REQUIRED BY THE APPROPRIATE WALL LISTING TYPE.

SYMBOL SCHEDULE

	CONDUIT AND/OR WIRING SYSTEM CONCEALED IN CONSTRUCTION IN FINISHED AREAS, EXPOSED IN UNFINISHED AREAS. NUMBER OF TICKS INDICATES TWO CONDUCTORS (GROUND WIRES NOT SHOWN).
	CONDUIT TURNING UP
	CONDUIT TURNING DOWN
	CONDUIT STUB. TERMINATE WITH BUSHING OR CAP IF UNDERGROUND.
	BREAK IN CONDUIT, SEE PLAN FOR CONTINUATION.
	NON-RIGID RACEWAY SYSTEM
	JUNCTION BOX SIZED PER NEC.
	SINGLE POLE, 20 AMP, COOPER 1221, OR EQUAL.
	DOUBLE POLE, 20 AMP, COOPER 1222, OR EQUAL.
	THREE WAY, 20 AMP, COOPER 1223, OR EQUAL.
	FOUR WAY, 20 AMP, COOPER 1224.
	WALL MOUNTED SENSORS SHALL BE AS FOLLOWS:
	CEILING MOUNTED SENSORS SHALL BE AS FOLLOWS:
	CONDUIT AND/OR WIRING SYSTEM CONCEALED BELOW FLOOR OR FLOOR SLAB.
	WALL MOUNTED ROUND LIGHT FIXTURE. LETTER INDICATES TYPE, SEE LIGHT FIXTURE SCHEDULE.
	FIXTURE WITH INTEGRAL 1100 LUMEN BATTERY INVERTER AND/OR ON EMERGENCY LIGHTING CIRCUIT. LETTER INDICATES TYPE, SEE LIGHT FIXTURE SCHEDULE FOR TYPE AND FOR BATTERY REQUIREMENT. SUPPORT FIXTURES IN SAME MANNER AS LISTED ABOVE.
	JUNCTION BOX SIZED PER NEC.
	SINGLE POLE SWITCH, 20 AMP, 120/277 VOLT, COOPER 1221, OR EQUAL.
	DOUBLE POLE SWITCH, 20 AMP, 120/277 VOLT, COOPER 1222, OR EQUAL.
	THREE WAY SWITCH, 20 AMP, 120/277 VOLT, COOPER 1223, OR EQUAL.
	FOUR WAY SWITCH, 20 AMP, 120/277 VOLT, COOPER 1224, OR EQUAL.
	DIMMER SWITCH, 1200W, 120V, LUTRON NT-SERIES, UNLESS OTHERWISE NOTED. PROVIDE DOUBLE GANG J-BOX FOR DIMMERS 1600W AND ABOVE.
	FRACTIONAL HORSEPOWER MANUAL MOTOR STARTER WITH O.L.'S
	SENSOR SWITCH OR EQUAL. WALL MOUNTED DUAL TECHNOLOGY OCCUPANCY MANUAL ON-AUTO OFF-30MIN. TIMEOUT.
	SENSOR SWITCH OR EQUAL. CEILING OR WALL MOUNTED EXIT SIGN RESPECTIVELY. SOLID SPACES INDICATE FACES. PROVIDE ARROWS AS INDICATED ON PLANS. SEE LIGHT FIXTURE SCHEDULE.
	WALL MOUNTED COMBINATION EMERGENCY BATTERY PACK AND EXIT SIGN. SEE LIGHT FIXTURE SCHEDULE.
	FIRE ALARM DUCT SMOKE DETECTOR.
	FIRE ALARM DUCT DETECTOR REMOTE INDICATING LIGHT.
	NON-FUSED DISCONNECT SWITCH, SIZE AS INDICATED ON DRAWINGS, NEMA 1 ENCLOSURE U.O.N.
	FUSED DISCONNECT SWITCH, SIZE AS INDICATED ON DRAWINGS, FUSE PER NAMEPLATE DATA OR AS INDICATED, NEMA 1 ENCLOSURE U.O.N.
	ENCLOSED CIRCUIT BREAKER, SIZE AS INDICATED ON DRAWINGS, NEMA 1 ENCLOSURE U.O.N.
	SENSOR SWITCH OR EQUAL. CEILING MOUNTED DUAL TECHNOLOGY OCCUPANCY MANUAL VIA WALL SWITCH AUTO OFF-30MIN. TIMEOUT. 2000 SOFT COVERAGE. PROVIDE POWER PACKS AND LOW VOLTAGE CONNECTIONS AS REQUIRED.
	DUPLEX RECEPTACLE, 15 AMP, 120 VOLT (USE 20 AMP FOR SINGLE RECEPTACLE ON A CIRCUIT), MOUNT 18" A.F.F. U.O.N., COOPER 5252 OR EQUAL.
	DUPLEX RECEPTACLE MOUNTED ABOVE COUNTER BACKSPLASH, OR AT 48" A.F.F. U.O.N., COOPER 5252 OR EQUAL.
	DOUBLE DUPLEX RECEPTACLE MOUNT AT 18" A.F.F., TWO NEMA 5-15R DUPLEX RECEPTACLES IN A COMMON BOX AND COVER PLATE.
	GROUND FAULT CIRCUIT INTERRUPTER RECEPTACLE, NEMA 5-20R DUPLEX. ALL RECEPTACLES INSTALLED OUTSIDE, WITHIN 6' OF A SINK OR IN A KITCHEN SHALL BE GFCI.
	GROUND FAULT RECEPTACLE FOR ELECTRIC WATER COOLER.
	DOUBLE DUPLEX RECEPTACLE MOUNT AT 18" A.F.F., U.O.N., COOPER 5252 OR EQUAL.
	WEATHERPROOF RECEPTACLE. NEMA 5-15R DUPLEX. COVER SHALL BE COOPER 1991 WHERE MOUNTED HORIZONTAL AND #4966 WHERE MOUNTED VERTICAL.
	DUPLEX RECEPTACLE MOUNTED IN "F" FOR FLOOR AND "C" FOR CEILING. FLOOR BOX SHALL BE CAST ALUMINUM WITH BRASS COVER.
	125/250V,

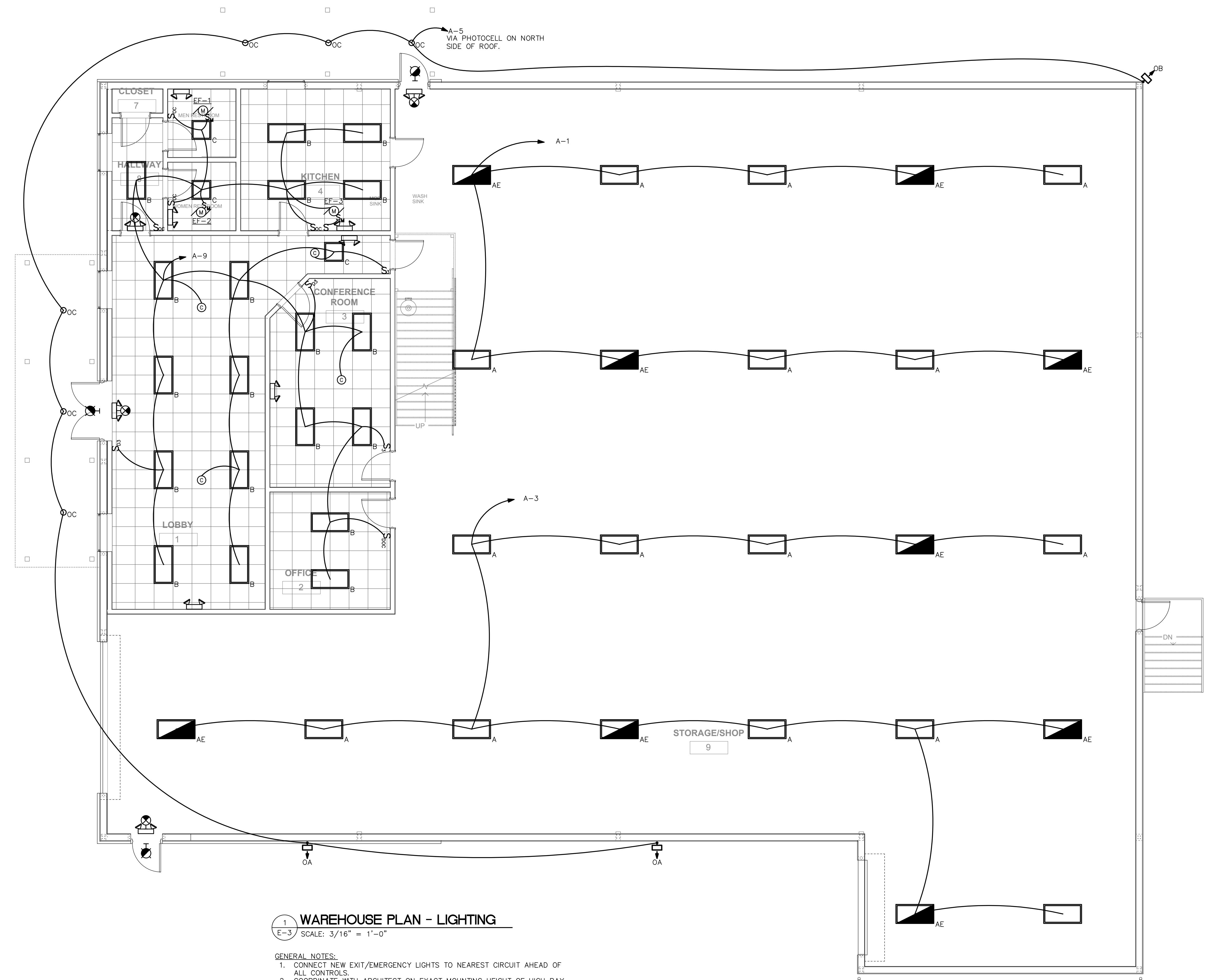


DESIGN NO.	PROJECT NO.	DRAWING NO.
23-126	23-126	JAB
CHECKED BY		JDH
9/12/23		

OWNER	DATE

© DARDEN ENGINEERING SERVICES	
SERVICES ARE IN ACCORDANCE WITH THE 2018 ILLINOIS BUILDING CODE AND THE 2018 INTERNATIONAL ENERGY CODE. THIS DRAWING IS THE PROPERTY OF DARDEN ENGINEERING SERVICES, PLLC. IT IS THE PROPERTY OF THE OWNER AND IS TO BE KEPT IN A SECURE LOCATION. COPIES OF THIS DRAWING ARE NOT TO BE MADE WITHOUT THE WRITTEN PERMISSION OF DARDEN ENGINEERING SERVICES, PLLC.	

BACON DEVELOPMENT	
109 MAGNOLIA PARK DR	
MORESVILLE, NC 28213	
FIRST FLOOR AND WAREHOUSE	
LIGHTING	
REVIEWED FOR CODE COMPLIANCE	REVIEWED FOR CODE COMPLIANCE
IREDELL COUNTY	IREDELL COUNTY
E-3	OF
6	6



DESIGN NO.	PROJECT NO.	DRAWING NO.	CHECKED BY
23-126	JAB	JDIII	J.D.
9/12/23			

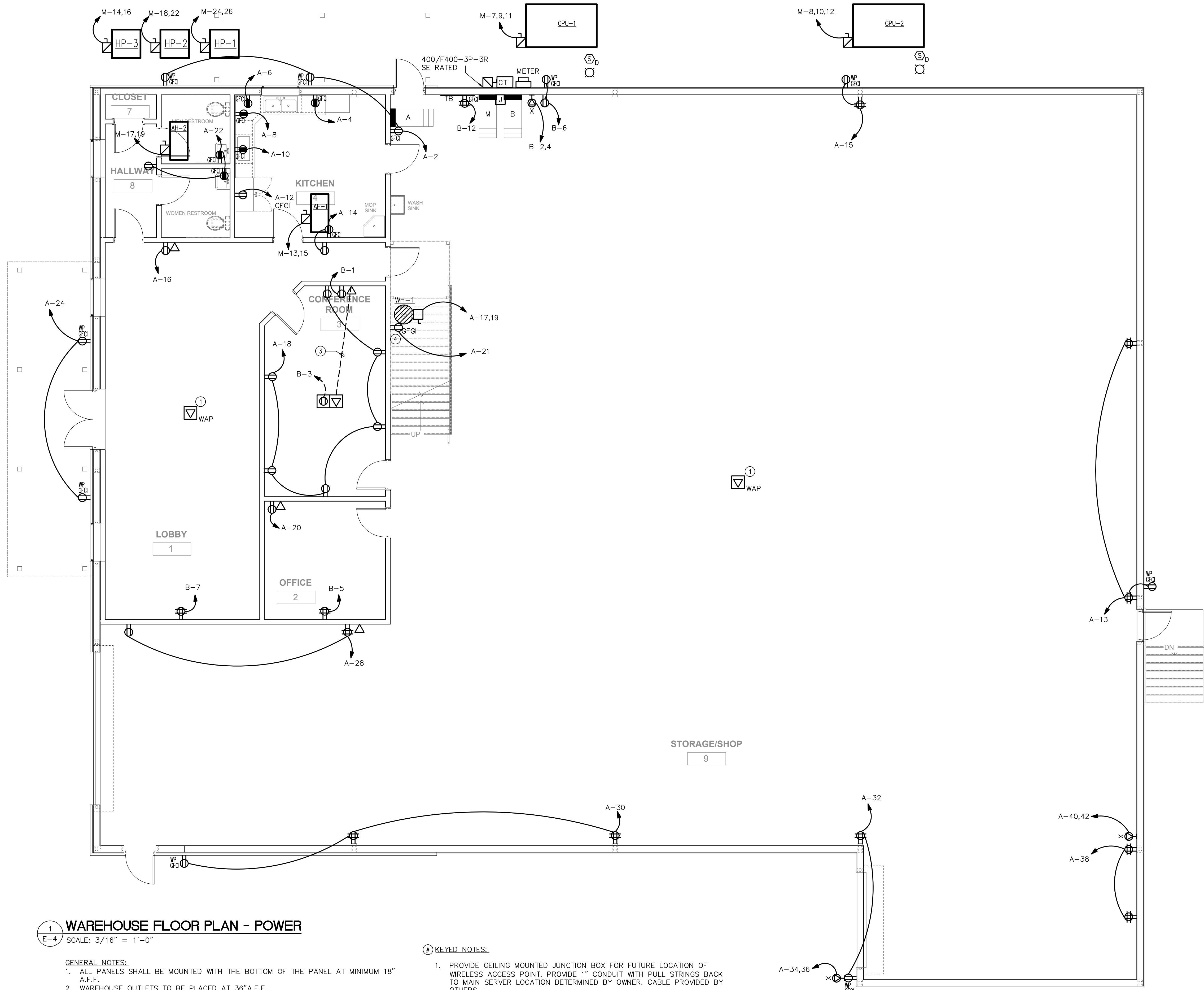


OWNER	DATE
.....
.....
.....
.....
.....
.....
.....

DATE	DATE
.....
.....
.....
.....
.....
.....
.....

DATE	DATE
.....
.....
.....
.....
.....
.....
.....

REVISIONS	REVISIONS
.....
.....
.....
.....
.....
.....
.....


WAREHOUSE FLOOR PLAN - POWER

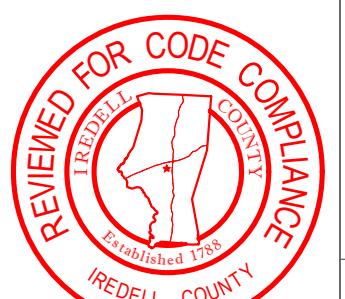
E-4 SCALE: 3/16" = 1'-0"

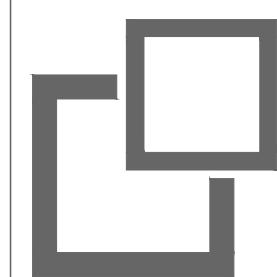
GENERAL NOTES:

- ALL PANELS SHALL BE MOUNTED WITH THE BOTTOM OF THE PANEL AT MINIMUM 18" A.F.F.
- WAREHOUSE OUTLETS TO BE PLACED AT 36" A.F.F.

KEYED NOTES:

- PROVIDE CEILING MOUNTED JUNCTION BOX FOR FUTURE LOCATION OF WIRELESS ACCESS POINT. PROVIDE 1" CONDUIT WITH PULL STRINGS BACK TO MAIN SERVER LOCATION DETERMINED BY OWNER. CABLE PROVIDED BY OTHERS.
- PROVIDE 10KVA MINIMUM UPS SYSTEM (SPECIFIED BY OWNER) FOR PANEL B. REFER TO RISER DIAGRAM OF MORE DETAILS.
- PROVIDE 1" CONDUIT WITH PULL STRING FROM FLOOR BOX TO WALL JUNCTION BOX, AND STUBBED UP TO ACCESSIBLE CEILING FOR DATA. CABLE PROVIDED BY OTHERS.
- PROVIDE RECIRC PUMP POWER OUTLET WITHIN 2FT OF ELECTRIC WATER HEATER. COORDINATE WITH PLUMBING ON EXACT LOCATION OF RECIRC PUMP.




DESIGN NO.
PROJECT NO.
DRAWN BY
CHECKED BY
9/12/23

SEAL
030549
J. DAVID HOOD
ENGINEER
9-12-23

© DARDEN ENGINEERING SERVICES
THIS DRAWING IS THE PROPERTY OF DARDEN ENGINEERING SERVICES
THIS DRAWING MAY NOT BE COPIED OR USED FOR ANY OTHER PURPOSE
DARDEN ENGINEERING SERVICES

BACON DEVELOPMENT
109 MAGNOLIA PARK DR.
MORESVILLE, NC 28213
MECHANICAL SPECS AND VENT
CALCULATIONS
M-1
OF
6

HEATING VENTILATING AND AIR CONDITIONING
GENERAL

- A. QUALIFICATIONS OF INSTALLERS. ALL WORK SHALL BE PERFORMED BY THOROUGHLY TRAINED AND EXPERIENCED WORKMEN COMPLETELY FAMILIAR WITH THE ITEMS REQUIRED AND WITH MANUFACTURER'S RECOMMENDED METHODS AND PROCEDURES.
- B. CODES: ALL WORK SHALL COMPLY WITH APPLICABLE STATE AND LOCAL CODES. ALL DUCT WORK SHALL BE INSTALLED IN ACCORDANCE WITH THE LATEST SMACNA DUCT MANUAL.
- C. ELECTRICAL: ALL ELECTRICAL EQUIPMENT SHALL BE UL LISTED AND APPROVED. ELECTRICAL CONTRACTOR TO PROVIDE ALL HIGH VOLTAGE ELECTRICAL WIRING, CONDUIT, DISCONNECT SWITCHES, FUSES, ETC. TO HVAC EQUIPMENT. ALL FINAL ELECTRICAL CONNECTIONS ARE BY ELECTRICAL CONTRACTOR.
- D. RECORD DRAWINGS: CONTRACTOR SHALL MAINTAIN AN ACCURATE RECORD OF ALL AS-BUILT CONDITIONS DURING THE PROGRESS OF THE WORK AND TURN THEM OVER TO THE OWNER AT COMPLETION.
- E. OPERATING MANUALS: CONTRACTOR SHALL FURNISH OWNER WITH 3 SETS OF INSTALLATION, OPERATION AND MAINTENANCE MANUALS WITHIN 15 CALENDAR DAYS OF ACCEPTANCE OF THE SYSTEM.
- F. GUARANTEE: PROVIDE ONE YEAR GUARANTEE ON ALL MATERIALS, EQUIPMENT AND WORK PERFORMED, BEGINNING ON THE DAY THE SYSTEM IS COMPLETELY OPERATIONAL AND ACCEPTABLE BY THE OWNER. PROVIDE 5 YEAR GUARANTEE ON ALL COMPRESSORS.
- G. CONTRACTOR SHALL SECURE AND PAY FOR ALL NECESSARY PERMITS, LICENSES, INSPECTIONS, APPROVALS, FEES, ETC REQUIRED BY STATE, MUNICIPAL AND LOCAL CODES.
- H. DRAWINGS SHOW GENERAL ARRANGEMENT OF EQUIPMENT AND SYSTEMS AND SHOULD BE FOLLOWED AS CLOSE AS PRACTICAL. CONTRACTOR SHALL COORDINATE WITH OTHER CONTRACTORS PRIOR TO STARTING WORK AND PROVIDE ALL NECESSARY OFFSETS, BENDS, ETC. REQUIRED TO PROMOTE A COMPLETE PROJECT WITH NO EXTRA CHARGES TO THE CONTRACT. DO NOT SCALE DRAWINGS FOR MEASUREMENTS. SEE ARCHITECTURAL DRAWINGS AND REFLECTED CEILING PLANS (IF PROVIDED) FOR EXACT LOCATIONS OF DOORS, WINDOWS, CEILING DIFFUSERS, ETC. COORDINATE LOCATION AND TYPE OF AIR DISTRIBUTION WITH ARCHITECTURAL REFLECTED CEILING PLAN PRIOR TO STARTING WORK.

PRODUCTS
EQUIPMENT

- A. ALL EQUIPMENT SHALL BE OF THE CAPACITY AND TYPES SHOWN ON THE EQUIPMENT SCHEDULES AND SHALL BE THE LISTED MANUFACTURER AND MODEL NUMBER. CONTRACTOR MAY BID "OR EQUAL" EQUIPMENT AT HIS OWN RISK. OWNER SHALL BE THE SOLE JUDGE WHETHER EQUIPMENT IS "EQUAL" TO THAT SPECIFIED. IF DETERMINED TO NOT BE EQUAL, CONTRACTOR WILL FURNISH EQUIPMENT SCHEDULED AT NO EXPENSE TO THE OWNER.
- B. THE MECHANICAL CONTRACTOR SHALL PROVIDE LOW VOLTAGE CONTROL LINES TO THE HVAC EQUIPMENT. COORDINATE ROUTING AND INSTALLATION WITH THE GENERAL CONTRACTOR.

DUCTWORK

- A. CONSTRUCT METAL DUCTWORK IN ACCORDANCE WITH SMACNA DUCT CONSTRUCTION MANUAL INCLUDING REQUIRED THICKNESS, BRACING, JOINTS AND FITTINGS AS APPROPRIATE. ALL METAL DUCT SHALL BE EITHER ASTM A653 GALVANIZED STEEL OR ASTM B209 ALUMINUM. ALL SUPPLY AND EXHAUST DUCTS SHALL COMPLY WITH SMACNA DUCT CONSTRUCTION STANDARDS FOR PRESSURE CLASS 1" W.G. AND LEAKAGE CLASS 6 CFM/100 SF. ALL RETURN AND OUTDOOR AIR DUCTS SHALL COMPLY WITH SMACNA PRESSURE CLASS 1" W.G. AND LEAKAGE CLASS 6 CFM/100 SF. PROVIDE SPLITTER DAMPERS OR VOLUME DAMPERS WHERE REQUIRED FOR PROPER BALANCING OF THE SYSTEM.
- B. INSTALL FLEXIBLE CONNECTIONS BETWEEN HVAC UNITS, FANS AND DUCTWORK.
- C. INSTALL TURNING VANES AT ALL TEES & ELBOWS.
- D. ALL DUCT DIMENSIONS GIVEN ARE INSIDE CLEAR DIMENSIONS.
- E. THE FIRST 15' FROM THE EQUIPMENT SHALL BE INTERNALLY LINED.
- F. RUNOUTS FROM MAIN/BRANCH DUCTS MAY BE FLEXIBLE DUCT CONFORMING TO THE REQUIREMENTS OF UL 181 FOR CLASS 1 FLEXIBLE AIR DUCTS. REFER TO SMACNA STANDARDS, SECTION II FOR INSTALLATION OF FLEXIBLE DUCTS. DUCTS SHALL BE CONTINUOUS, SINGLE PIECES NOT OVER 6 FEET LONG, AS STRAIGHT AND SHORT AS FEASIBLE. FLEXIBLE DUCTS SHALL NOT PENETRATE FLOORS, OR ANY CHASE OR PARTITION DESIGNATED AS A FIRE OR SMOKE BARRIER, INCLUDING CORRIDOR PARTITIONS FIRED RATED ONE HOUR OR TWO HOUR. PROVIDE JM QUIET FLEX OR EQUAL.
- G. ALL SUPPLY AND RETURN DUCT SHALL BE INSULATED PER SECTION 403.2.9 OF THE LATEST NC ENERGY CODE. CONCEALED SHEET METAL DUCT MAY BE EXTERNALLY INSULATED WITH MINERAL FIBER BOARD OR BLANKET OR MAY BE INTERNALLY INSULATED WITH DUCT LINER (R-VALUE = 6 MINIMUM). ALL RECTANGULAR SUPPLY AND RETURN DUCTS SHALL BE LINED WITH A MINIMUM OF 1" THICK DUCT LINER OR WRAPPED WITH A MINIMUM OF 1" THICK DUCT WRAP WITH VAPOR BARRIER. ROUND DUCTWORK SHALL BE WRAPPED WITH A MINIMUM OF 1" THICK DUCT WRAP WITH VAPOR BARRIER. INTERNALLY LINED INSULATION SHALL MEET BACTERIOLOGICAL STANDARD ASTM C 665.
- H. EXPOSED SPRAL DUCTWORK SHALL BE LINED WITH A MINIMUM OF 1" THICK DUCT LINER WITH BLACK ACRYLIC POLYMER SURFACE TOWARD AIR STREAM OR SHALL BE DOUBLE WALL DUCT. R-VALUE = 6 MINIMUM.
- I. EXTERIOR DUCTS SHALL BE INSULATED WITH 2" THICK RIGID EXTERNAL FIBERGLASS INSULATION IN ADDITION TO 1" THICK DUCT LINER (R=8 MIN) MECHANICALLY FASTENED @ 12" O.C. MAX. ALL VOIDS IN INSULATION JOINTS WILL BE CHINKED AND TAPE WITH FSK TAPE. DUCT SHALL BE FINISHED WITH .032 STUCCO EMBOSSED ALUMINUM SHEET FASTENED WITH #8 STAINLESS STEEL TEK SCREWS. DUCTS OVER 18" WILL REQUIRE A SCREW STRIP IMPALED OVER MECHANICAL FASTENERS. ALL JOINTS AND LAPS IN ALUMINUM SHALL BE INSTALLED TO SHED WATER AND PROPERLY CAULKED TO AVOID WATER INFILTRATION. THERE SHALL BE NO METAL JOINTS ON THE TOP OF DUCT. FINISHED METAL SHALL HAVE A SMOOTH APPEARANCE WITH A MINIMUM NUMBER OF LAPS.

INSULATION
DUCT - EXTERNAL

- FLEXIBLE GLASS FIBER; MINIMUM 1 1/2" THICK, ANSI/ASTM C553, TYPE 1; COMMERCIAL GRADE; 1.0 PCF; 'K' VALUE OF 0.29 BTU-IN./HR. FT2-F AT 75 DEGREES F. CERTAINED STANDARD DUCT WRAP WITH FSK FACING, OR EQUAL FACING SHALL HAVE MAXIMUM VAPOR TRANSMISSION RATE OF 0.02 PERMS. ADHESIVES: WATERPROOF FIRE RETARDANT TYPE. LAGGING ADHESIVE: FIRE RESISTIVE TO ASTM E84. IMPALE ANCHORS: GALVANIZED STEEL, 12 GAGE, SELF-ADHESIVE PVA OR PVA. JOINT TAPE: GLASS FIBER CLOTH, OPEN MESH R=6 MINIMUM. JM MICROLITE XG OR EQUAL.
- DUCT - INTERNAL
- MINIMUM 1" THICK, 2# DENSITY MEETING FS HH-1-545 TYPE II AND NFPA 90-A. APPLY FLAME-RETARDANT BLACK PLASTIC COATING ON AIR SIDE SURFACE. APPROVE INSULATION WITH EC-1128 ON INSIDE SURFACE OF DUCT. FIRM BUTT ALL JOINTS AND SEAL WITH ADHESIVE TO FORM CONTINUOUS SMASH-SEALED LINER. INSTALL STICK-CLIPS OR WELDERS @ 6" ON CENTER EACH WAY IN ADDITION TO ADHESIVE. INCREASE DUCT SIZE AS NECESSARY TO PROVIDE CLEAR AIR STREAM AS INDICATED ON DRAWINGS. R-VALUE = 6 MINIMUM. JM LINACOUSTIC RC OR EQUAL.
- FOR EXPOSED DUCTWORK
- MINIMUM 1" THICK, R-VALUE = 5 MINIMUM AT 75 DEGREES F. JM SPIRACOUSTIC PLUS OR EQUAL. DOUBLE WALL DUCT MAY ALSO BE PROVIDED.

EXECUTION
INSTALLATION

- A. COORDINATE AND AVOID INTERFERENCE WITH STRUCTURE AND WITH WORK OF OTHER TRADES. PRESERVE ADEQUATE HEAD ROOM AND SERVICE ROOM. PROVIDE MANUFACTURER'S RECOMMENDED CLEARANCES AROUND MECHANICAL EQUIPMENT FOR MAINTENANCE, PERFORMANCE, AND FILTER/COIL REMOVAL. THE M.C. SHALL COORDINATE THE REQUIRED OPENINGS IN ROOF STRUCTURE WITH THE C.C. IN ORDER TO PROVIDE ADEQUATE SPACE, ACCESS AND SUPPORT FOR THE MECHANICAL UNIT. SERVICE REQUIREMENTS FOR ANY EQUIPMENT SHALL COMPLY WITH ALL CODES AND

AUTHORITY HAVING JURISDICTION, PROVIDE ALL NECESSARY ACCESS PANELS, PLATFORMS, HANDRAILS, ETC. AS REQUIRED BY STATE AND LOCAL CODES. ALL SUSPENDED MATERIALS AND EQUIPMENT SHALL BE INDIVIDUALLY SUPPORTED FROM THE BUILDING STRUCTURE. DO NOT SUSPEND ITEMS FROM THE CEILING OR ITS SUPPORT SYSTEM.

- B. VERIFY LOCATION OF ROOF AND WALL PENETRATIONS FOR RELIEF AND OUTSIDE AIR OPENINGS WITH ARCHITECT, STRUCTURAL, AND OWNER PRIOR TO INSTALLATION. ALL PENETRATIONS THROUGH EXTERIOR WALLS AND ROOF SHALL BE FLASHED AND COUNTERFLASHED IN A WATERPROOF, CODE APPROVED MANNER. COORDINATE COLOR, LOCATION, AND ELEVATION WITH ARCHITECT/OWNER PRIOR TO STARTING WORK FOR ALL EQUIPMENT LOCATED ON ROOF AND EXTERIOR WALL. RELIEF AND INTAKE OPENINGS SHALL MAINTAIN A MINIMUM OF 10' FROM EACH OTHER.
- C. ALL CUTTING AND PATCHING OF WALLS, FLOORS, AND ROOF WHICH ARE NECESSARY FOR THE MECHANICAL SYSTEM IN THE BUILDING SHALL BE PROVIDED BY THE GENERAL CONTRACTOR. IT IS THE MECHANICAL CONTRACTOR'S RESPONSIBILITY TO COORDINATE THE SIZES AND LOCATION OF ALL OPENINGS WITH THE GENERAL CONTRACTOR.
- D. AS REQUIRED BY LOCAL CODES AND AUTHORITY HAVING JURISDICTION, MECHANICAL CONTRACTOR SHALL PROVIDE U.S. LISTED DYNAMIC FIRE DAMPERS AND/OR SEAL ALL PENETRATIONS OF RATED WALLS WHERE REQUIRED FOR FIRE PROTECTION. REQUIREMENT OF U.S. LISTED HVAC SYSTEMS & THE USE OF THE SYSTEMS ON THE PLANS OR NOT. PENETRATIONS ON THE EXTERIOR WALLS, FLOORS AND ROOF OF NON-COMBUSTIBLE CONSTRUCTION SHALL BE FIRESTOPPED WITH NONCOMBUSTIBLE MATERIALS. PENETRATIONS OF RATED WALLS, PARTITIONS AND FLOOR OF COMBUSTIBLE CONSTRUCTION SHALL BE FIRESTOPPED WITH MATERIALS EQUIVALENT TO TWO INCHES OF WOOD. FIRESTOPPING SHALL COMPLY WITH ASTM E-814. M.C. SHALL COORDINATE CLOSELY WITH ARCHITECT PLANS.
- E. WHEN OBSTRUCTIONS REQUIRE A CHANGE IN THE DUCT SHAPE, MAINTAIN THE EQUIVALENT AREA AND PRESSURE DROP OF ORIGINAL DUCT, WHEN CHANGING FROM RECTANGULAR TO EXPANDED ROUND OR OVAL DUCT, M.C. SHALL MAINTAIN A MAXIMUM VELOCITY OF 700 FPM. ALL SIZES SHOWN ARE NET INSIDE DIMENSIONS OF CLEAR AIRSTREAM. MAKE ALL DUCT ELBOWS RIGHT ANGLES WITH ELBOW TURNS OR TURNING BLADES OR CONSTRUCT WITH A RADIUS OF 1.5 TIMES THE DUCT WIDTH. INSTALL FLAT BRAIDED WIRE GROUND STRAP ACROSS FLEXIBLE CONNECTS AT AHU'S AND DUCTS. SECURELY ANCHOR ALL GRilles, REGISTERS AND DIFFUSERS AND SEAL WITH RUBBER GASKETS TO PREVENT LEAKAGE.
- F. THOROUGHLY CLEAN ALL DUCTS, EQUIPMENT, PARTS, ETC. FREE FROM ALL DIRT, GREASE, OIL AND FOREIGN SUBSTANCES.
- G. DO NOT CLOSE-IN ANY WORK UNTIL IT HAS BEEN INSPECTED, TESTED AND APPROVED BY AUTHORITIES HAVING JURISDICTION.

TEST AND ADJUSTING

- A. PROVIDE ALL NECESSARY PERSONNEL, EQUIPMENT AND SERVICES NECESSARY TO DEMONSTRATE INTEGRITY OF THE COMPLETE INSTALLATION. ALL WORK SHALL BE IN ACCORDANCE WITH AABE STANDARDS.
- B. PROVIDE AN INDEPENDENT TEST AND BALANCE REPORT BY A CERTIFIED TEST AND BALANCE CONTRACTOR. TEST AND REGULATE ALL COMPONENTS TO CONFORM TO QUANTITIES SHOWN ON THE DRAWINGS. APPROVE LARGER OR SMALLER PULLEYS AS REQUIRED AT NO ADDITIONAL COST. PROVIDE NEW AIR FILTERS FOR EQUIPMENT. FOR EACH SYSTEM SUBMIT AS A MINIMUM THE FOLLOWING:

1. AIR VOLUMES AT EACH SUPPLY, RETURN, AND EXHAUST OUTLET.
2. AIR TEMPERATURES AT HVAC UNIT, LEAVING AND RETURNING.
3. AIR VOLUMES AND STATIC PRESSURE SUPPLIED, RETURNED, OR EXHAUSTED BY EACH FAN, INCLUDING AT HVAC UNIT.
4. MOTOR SPEED, FAN SPEED, AND AMP READING FOR EACH FAN.
5. AVERAGE VELOCITY ON INTAKE OF EACH FAN.
6. AVERAGE VELOCITY, EAT, LAT, AND PRESSURE DROP ACROSS EACH COIL.

- C. IF BALANCING DAMPERS ARE NOT PROVIDED IN RETURN DUCTWORK, CONTRACTOR SHALL BALANCE SUPPLY SIDE TO AIR QUANTITIES INDICATED ON PLANS AND SHALL BALANCE OUTSIDE AIR AND RETURN AIR FLOWS AT THE EQUIPMENT TO AIR QUANTITIES INDICATED IN THE SCHEDULE.
- D. IF CONTRACTOR'S INDEPENDENT TAB SUBCONTRACTOR FAILS TO PERFORM THE ABOVE TESTS TO THE SATISFACTION OF THE ENGINEER, THE ENGINEER MAY RETAIN THE SERVICES OF AN OUTSIDE CONSULTANT TO PERFORM SAID SERVICES AT THE SOLE EXPENSE OF THE CONTRACTOR AND WITHOUT ANY EXPENSE TO THE OWNER.
- E. UPON COMPLETION OF ALL WORK AND BALANCING, THOROUGHLY TRAIN AND INSTRUCT OWNER'S PERSONNEL IN ALL ASPECTS OF THE OPERATION AND MAINTENANCE OF THE INSTALLED SYSTEMS.

SEISMIC

A COMPLETE SYSTEM OF SEISMIC RESTRAINTS SHALL BE DESIGNED BY MASON INDUSTRIES AND SEALED BY THEIR REGISTERED ENGINEER AND INSTALLED BY THIS CONTRACTOR AS REQUIRED BY APPLICABLE CODES FOR THE LOCALE OF THIS PROJECT.

GENERAL CONDITIONS

AIA DOCUMENT A201 "GENERAL CONDITIONS OF THE CONTRACT FOR CONSTRUCTION" (LATEST VERSION) IS HEREBY MADE A PART OF THESE DOCUMENTS.

REFRIGERANT PIPING:

- A. REFRIGERANT PIPING:
 1. MEET REQUIREMENTS OF ASTM B 280, HARD DRAWN STRAIGHT LENGTHS. SOFT COPPER TUBING NOT PERMITTED.
 2. DO NOT USE PRE-CHARGED REFRIGERANT LINES.
- B. CONNECTION MATERIAL:
 1. BRAZING RODS IN ACCORDANCE WITH ANSI / AWS A5.8:
 - a. COPPER TO COPPER CONNECTIONS:
 - 1) CLASSIFICATION BCP-4 COPPER PHOSPHORUS (6 PERCENT SILVER).
 - 2) CLASSIFICATION BCP-5 COPPER PHOSPHORUS (15 PERCENT SILVER).
 - b. COPPER TO BRASS OR COPPER TO STEEL CONNECTIONS: CLASSIFICATION B&G-5 SILVER (45 PERCENT SILVER).
 - c. DO NOT USE RODS CONTAINING CADMIUM.

C. VALVES:

- 1. EXPANSION VALVES:
 - a. FOR PRESSURE TYPE DISTRIBUTORS, EXTERNALLY EQUALIZED WITH STAINLESS STEEL DIAPHRAGM, AND SAME REFRIGERANT IN THERMOSTATIC ELEMENTS AS IN SYSTEM.
 - b. SIZE VALVES TO PROVIDE FULL RATED CAPACITY OF COOLING COIL SERVED. COORDINATE SELECTION WITH EVAPORATOR COIL AND CONDENSING UNIT.

D. SIGHT GLASS:

- 1. CONSTRUCTION, MOISTURE AND LIQUID INDICATOR WITH PROTECTION CAP.
- 2. SIGHT GLASS SHALL BE FULL LINE SIZE.
- 3. SIGHT GLASS CONNECTIONS AND SIGHT GLASS BODY SHALL BE SOLID COPPER OR BRASS, NO COPPER-COATED STEEL SIGHT GLASSES ALLOWED.

E. PIPE CLAMPS:

- a. ACCEPTABLE MANUFACTURERS:
 - 1) HYDRA-ZORB.
 - 2) ZSI CUSH-A-CLAMP.
 - 3) HILT CUSH-A-CLAMP.
- b. INSULATION - 1" ARMAFLEX. EXTERIOR SHALL BE COVERED WITH CHILDRS ALUMINUM JACKET FASTENED WITH ALUMINUM BANDS @ 12" O.C. OR USE ARMATUFF PLUS WITH 10 YEAR MEMBRANE BREAK-DOWN WARRANTY DUE TO ULTRAVIOLET LIGHT.
- c. PIPE HANGERS AND SUPPORTS - INSTALL IN ACCORDANCE WITH ASME B31.5.

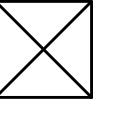
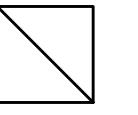
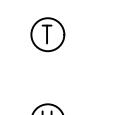
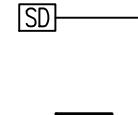
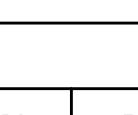
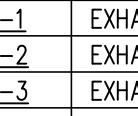
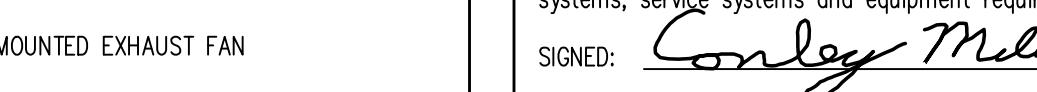
F. PIPE GAS PIPING:

- 1. WORK TO INCLUDE PIPING FROM GAS METER(S), SERVICE PRESSURE REGULATOR OR EXISTING PIPING TO ALL GAS-FIRED EQUIPMENT SERVING BUILDING, INCLUDING FINAL CONNECTIONS TO EQUIPMENT.
- 2. ALL WORK SHALL BE IN ACCORDANCE WITH THE STATE ADOPTED FUEL GAS CODE, ALL APPLICABLE LOCAL CODE REQUIREMENTS, AND THE REGULATIONS OF THE GAS COMPANY PROVIDING SERVICE.
- 3. FUEL GAS PIPING UNDER GROUND:
 - 1) SCHEDULE 40 BLACK STEEL PIPE, ASTM A53 WITH POLYETHYLENE JACKET,

WELDED JOINTS AND STANDARD WEIGHT BLACK STEEL BUTT WELD OR SOCKET WELD FITTINGS, ASTM A243

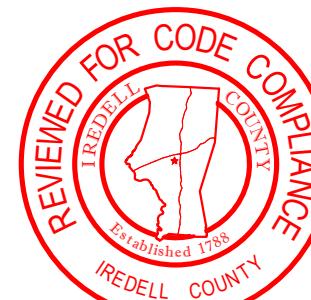
- 3.3. POLYETHYLENE PIPE, ASTM 2513, WITH HEAT FUSION JOINTS AND FITTINGS, ASTM D2513.
- 4. FUEL GAS PIPING ABOVE GROUND:
 - 1) ASTM A 53 SCHEDULE 40 SEAMLESS BLACK STEEL PIPE WITH MALLEABLE FITTINGS AND THREADED JOINTS.
 - 2) COPPER TUBING AS PERMITTED BY GAS CODE AND LOCAL AUTHORITIES.
- 4.1. FUEL GAS PIPING ABOVE GROUND:
 - 1) ASTM A 53 SCHEDULE 40 SEAMLESS BLACK STEEL PIPE WITH MALLEABLE FITTINGS AND THREADED JOINTS.
 - 2) COPPER TUBING AS PERMITTED BY GAS CODE AND LOCAL AUTHORITIES.
- 4.2. VALVES SHALL BE FULL PORT BALL VALVES APPROVED FOR USE IN FUEL GAS PIPING SYSTEMS.
- 4.3. PROVIDE SHUT-OFF VALVE, UNION, VENT LIMITING GAS REGULATOR, Drip LEG, AND TEST CONNECTION AT EACH PIECE OF GAS-FIRED EQUIPMENT TO PROVIDE PRESSURE TO EQUIPMENT AS REQUIRED BY MANUFACTURER.
- 4.4. ALL PIPING EXPOSED TO THE OUTDOORS, RUN IN UNCONDITIONED SPACES, OR EXPOSED IN FINISHED SPACES SHALL BE PAINTED WITH TWO COATS OF ENAMEL. COLOR TO BE YELLOW, AS SELECTED BY ARCHITECT, OR AS REQUIRED BY GAS COMPANY.
- 4.5. CORRUGATED STAINLESS STEEL TUBING SHALL NOT BE USED WITHOUT WRITTEN APPROVAL, EXCEPT FOR CONNECTIONS AT EQUIPMENT.
- 4.6. BEFORE INSTALLING ANY FUEL GAS PIPING, VERIFY THAT GAS IS AVAILABLE AT THE PRESSURE INDICATED ON THE DRAWINGS. IF THE AVAILABLE PRESSURE IS DIFFERENT THAN THE DESIGN PRESSURE, IMMEDIATELY SEEK CLARIFICATION THROUGH ARCHITECT TO DETERMINE IF PIPE SIZES NEED TO BE REVISED.

VENTILATION CALCULATIONS			
BASED ON TABLE 403.3 OF THE 2018 NCNC			
BASED ON EQUATION 4-1 FROM SECTION 403.3.1.1: $V_{b2} = R_p P_z + R_o A_z$ WHERE: A _z = ZONE FLOOR AREA P _z = ZONE POPULATION R _p = PEOPLE OUTDOOR AIR RATE R _o = AREA OUTDOOR AIR RATE			
AH-1			
CONFERENCE: $V_{b2} = (250 \times 0.06) + \frac{250 \times 50 \times 5}{1000} = 78 \text{ CFM OA REQUIRED}$			
EV = 0.8 $V_{o2} = V_{b2}/Ev = 78/0.8 = 97 \text{ CFM}$ $Z_p = V_{o2}/\text{TOT. AIRFLOW IN SPACE} = 97/550 = .18$			
CORRIDOR: $V_{b2} =$			

MECHANICAL LEGEND	
	SUPPLY AIR DIFFUSER
	RETURN AIR GRILLE
	WALL MOUNTED THERMOSTAT
	1/4" DOOR UNDERCUT
	GAS
	MANUAL VOLUME DAMPER
	SHUT-OFF VALVE
	TURNING VANES
	DUCT MOUNTED SMOKE DETECTOR
	CEILING MOUNTED EXHAUST FAN
NORTH CAROLINA STATE BUILDING CODE MECHANICAL SYSTEMS, SERVICE SYSTEMS AND EQUIPMENT METHOD OF COMPLIANCE:  <input checked="" type="checkbox"/> ENERGY COST BUDGET <input type="checkbox"/>	
EXTERIOR DESIGN CONDITIONS THERMAL ZONE 4A Prescriptive <input checked="" type="checkbox"/> ENERGY COST BUDGET <input type="checkbox"/> INTERIOR DESIGN CONDITIONS winter dry bulb 18° F. summer dry bulb 95° F. BUILDING HEATING LOAD 72° F. BUILDING COOLING LOAD 75° F. relative humidity 50% R.H. 250.7 MBH 313.4 MBH MECHANICAL SPACING CONDITIONING SYSTEM UNITARY description of unit SEE SCHEDULES heating efficiency SEE SCHEDULES cooling efficiency SEE SCHEDULES heat output of unit SEE SCHEDULES cooling output of unit SEE SCHEDULES BOILER total boiler output of unit N/A CHILLER total chiller capacity N/A LIST EQUIPMENT EFFICIENCIES Equipment schedules with motors (mechanical systems) motor horsepower SEE SCHEDULES number of phases SEE SCHEDULES minimum efficiency SEE SCHEDULES motor type SEE SCHEDULES # of poles SEE SCHEDULES DESIGNER STATEMENT: 1 To the best of my knowledge and belief, the design of this building complies with the mechanical systems, service systems and equipment requirements of the North Carolina State Building Code. SIGNED:  NAME: Corey R. Miller TITLE: MECHANICAL DESIGNER	

FAN SCHEDULE												
SYMBOL	TYPE	CFM	APPROX. S.P.	DRIVE	RPM	ELECTRICAL DATA		MANUFACTURER	CONTROL	ACCESSORIES		
						WATTS	H.P.	VOLTAGE				
FF-1	EXHAUST	100	0.25	DIRECT	708	128	-	120V/1φ	SP-B150	D	1 2 4 5 6 8 13	
FF-2	EXHAUST	100	0.25	DIRECT	708	128	-	120V/1φ	SP-B150	D	1 2 4 5 6 8 13	
FF-3	EXHAUST	150	0.25	DIRECT	1040	128	-	120V/1φ	SP-B150	E	1 2 4 5 6 8 13	
FF-4	EXHAUST	100	0.25	DIRECT	708	128	-	120V/1φ	SP-B150	D	1 2 4 5 6 8 13	
ACCESSORIES												
CONTROL:												
1: DISCONNECT BY E.C.	7: DISCHARGE HOOD	A: WALL MOUNTED SWITCH										
2: BACKDRAFT DAMPER	8: WL. WALL LOUVER DISCHARGE	B: WALL MOUNTED PUSH BUTTON SWITCH										
3: PREFAB. ROOF CURB	9: MFG ROOF CAP	C: WALL MOUNTED THERMOSTAT										
4: BIRDSCREEN	10: WALL MOUNTING COLLAR	D: INTERLOCK WITH ROOM LIGHT SWITCH										
5: SPEED CONTROLLER	11: MOTOR SIDE FAN GUARD	E: CONTINUOUS OPERATION										
6: HANGING BRACKETS WITH VIBRATION ISOLATION	12: 2" WASHABLE ALUMINUM FILTERS	F: INTERLOCK WITH KITCHEN HOOD CONTROLS										
13: EXHAUST GRILLE												
14: UL 762												
NOTES:												
1. ALL FANS SHALL BE U.L. LISTED AND LABELED AND SHALL BE AMCA CERTIFIED. 2. ALL FANS SHALL BE SUPPLIED BY ONE MANUFACTURER UNLESS NOTED OTHERWISE. 3. MECHANICAL CONTRACTOR SHALL PROVIDE MAGNETIC STARTER WITH AUXILIARY CONTACTS AS REQUIRED. 4. BACKDRAFT DAMPER ON ROOF SUPPLY FANS SHALL BE MOTORIZED. 5. WHEN A SPEED CONTROLLER IS REQUIRED AND MOUNTED TO EXHAUST FAN, SPEED SHALL BE ADJUSTED TO PROVIDE LISTED AIRFLOW PRIOR TO CEILING BEING INSTALLED.												

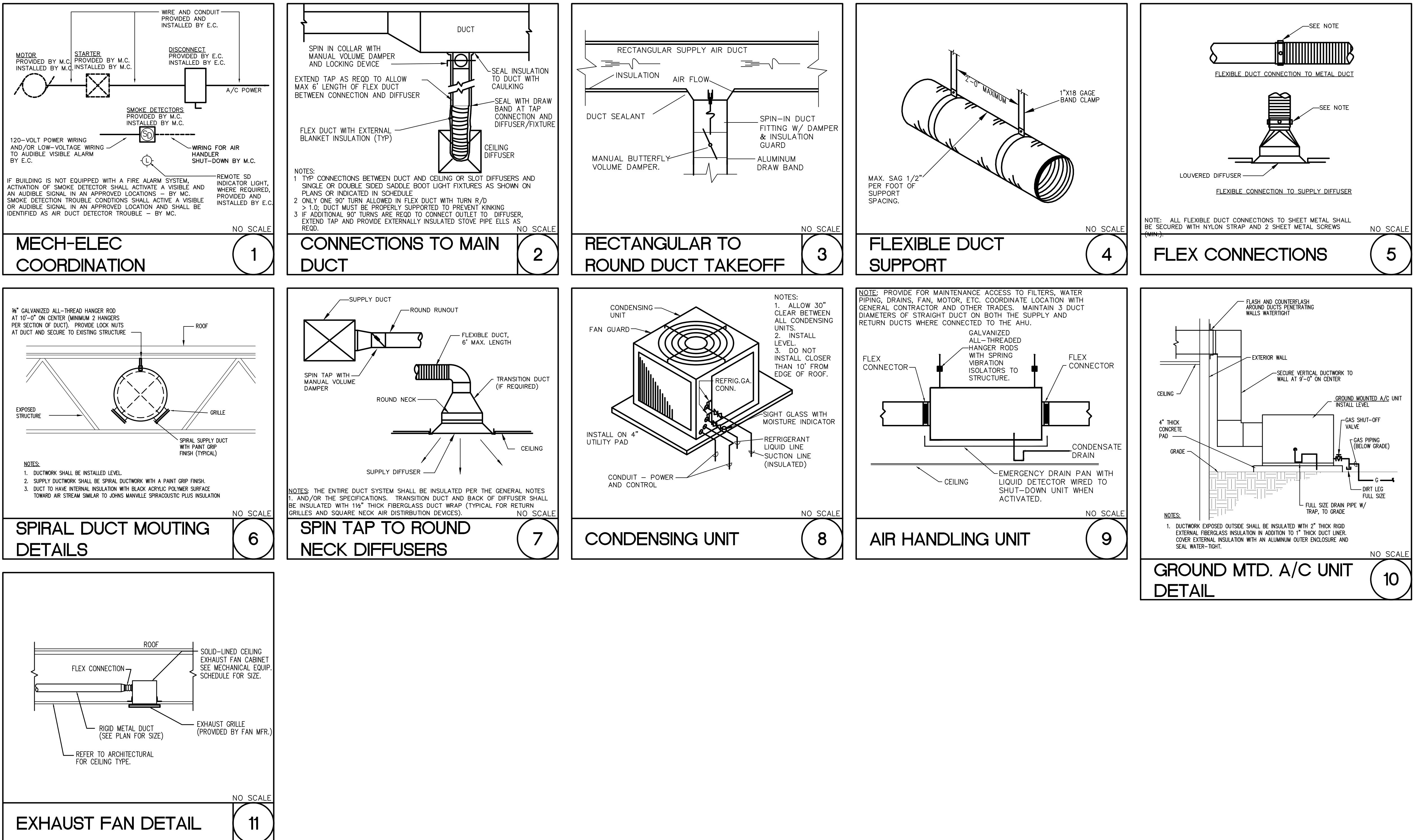
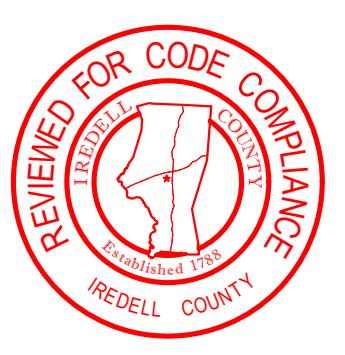
SPLIT SYSTEM HEAT PUMP SCHEDULE																						
TAG	TRANE AIR HANDLER MODEL NO.	NOMINAL TONS	LOCATION	TOTAL CFM	OA CFM	MAX FAN HP	ESP	MBH TOT. COOL	MBH SEN. COOL	MIN. SEER2	HEAT PUMP	HEAT KW	Volts /Phase	MCA	MOCP	TRANE HEAT PUMP MODEL NO.	Volts /Phase	HSPF	MCA	MOCP	NOTES	
AH-1	TEM4B0B24M21	1.5	SEE PLAN	600	90	1/3	0.40"	18.7	12.7	14.3	19.3	3.6	208/1φ	29	30	HP-1	4TWR4018N1	208/1φ	7.5	15	25	1 THRU 8
AH-2	TEM4A0C49M41	4.0	SEE PLAN	1600	100	3/4	0.40"	48.6	36.7	14.3	44.0	7.2	208/1φ	58	60	HP-2	4TWR4048N1	208/1φ	7.5	26	40	1 THRU 8
AH-3	TEM4A0C60S51	5.0	SEE PLAN	2000	200	3/4	0.40"	57.3	41.2	14.3	56.9	7.2	208/1φ	58	60	HP-3	4TWR4060N1	208/1φ	7.5	32	50	1 THRU 8
NOTE:																						
1 COOLING CAPACITIES ARE RATED IN ACCORDANCE WITH ARI STANDARD 210/290 AT 95° F AMBIENT OUTDOOR AIR TEMP., 80° F DRY BULB, 67° F WET BULB ENTERING AIR TEMP., AND NOMINAL AIR QUANTITY LISTED.																						
2 REFRIG. PIPING TO BE SIZED PER TOTAL INSTALL. EQUIV. LENGTH. LONG-LINE APP TO BE PROVIDED WHENEVER MFG. RECOMM. LENGTHS ARE EXCEEDED, INCL. LIQ. LINE SOLENOID VALVES, ACCUMULATOR, ETC. MAX T.E.L. IS 100'.																						
3 PROVIDE SINGLE POINT ELECTRICAL CONNECTION																						
4 PROVIDE HONEYWELL "VISION-PRO 8000" THERMOSTAT/HUMIDISTAT																						
5 PROVIDE NEW FILTERS IN UNIT WHEN BUILDING IS TURNED OVER TO OWNER/TENANT.																						
6 SES HEAT PUMP DEHUMIDIFICATION CONTROL MODULE HPDM-MP AS WELL AS EQUIPMENT AND CONTROLS AS REQUIRED FOR A COMPLETE WORKING SYSTEM																						
7 HEAT PUMP TO BE INSTALLED LEVEL ON MANUFACTURERS PREFORMED PAD.																						
8 PROVIDE LOW AMBIENT CONTROLS.																						
APPROVED EQUALS: CARRIER, YORK, LENNOX																						

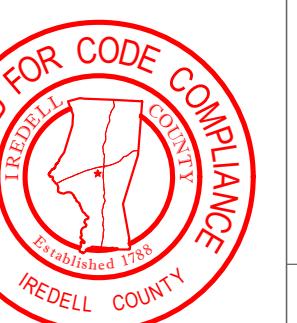


DESIGN NO.	PROJECT NO.	DATE
23-125	23-125	DATE
DRAWN BY	CRW	DATE
CHECKED BY	JDH	DATE
9/12/23		

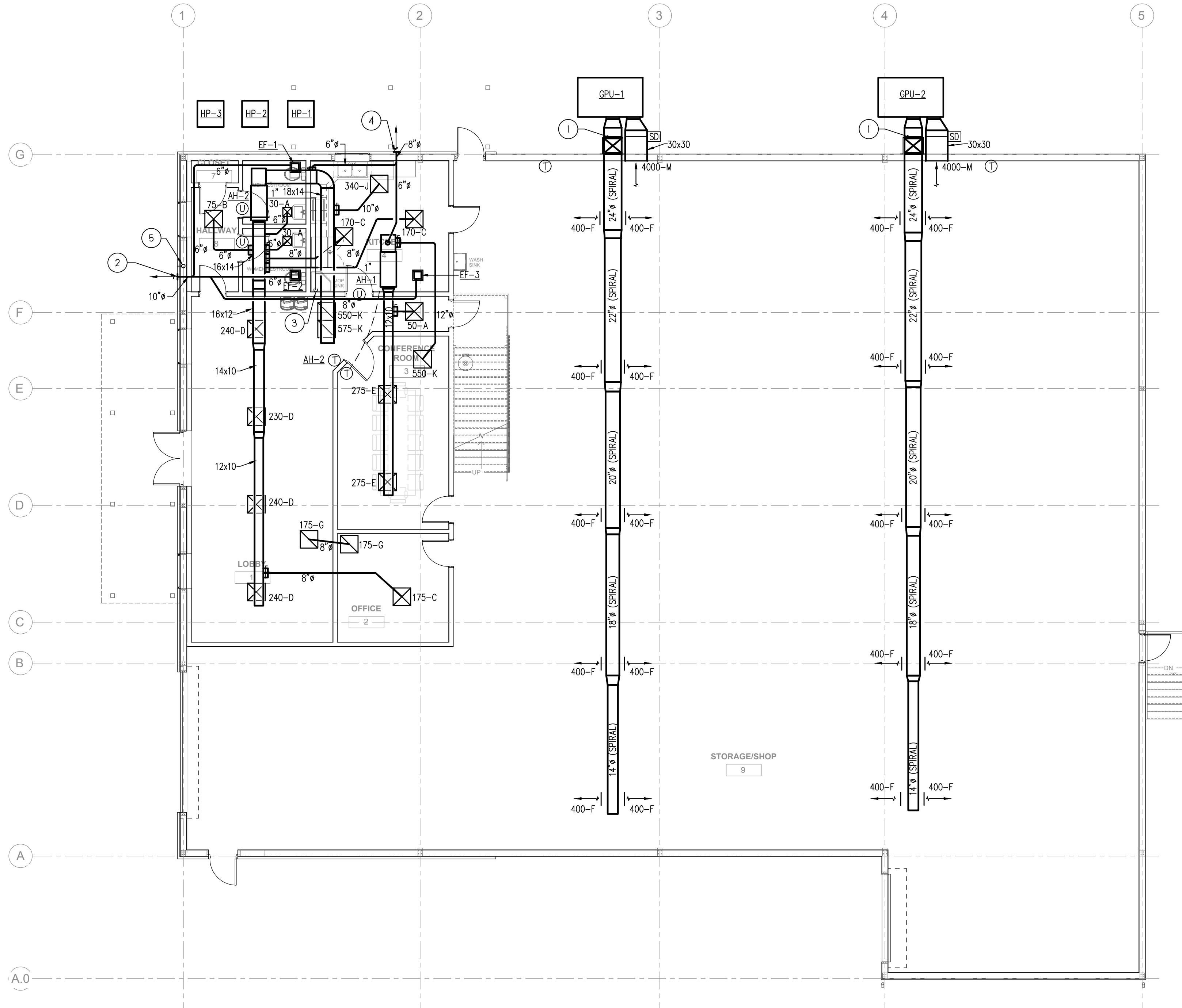
II-16-23

SEAL 030549
DARDEN ENGINEERING SERVICES
THIS DRAWING IS THE PROPERTY OF DARDEN ENGINEERING SERVICES
THIS DRAWING MAY NOT BE COPIED OR USED FOR ANY OTHER PURPOSE
DARDEN ENGINEERING SERVICES
DAVID HODD



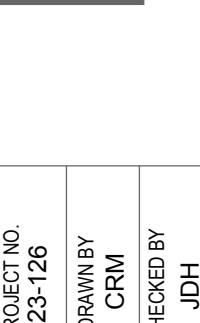
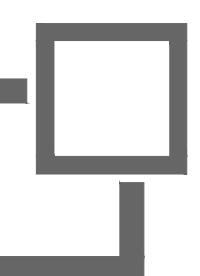


GENERAL COORDINATION NOTES	
1.	THE CONTRACTOR SHALL REVIEW THE ENTIRE SET OF DOCUMENTS INCLUDING BUT NOT LIMITED TO ALL ARCHITECTURAL, STRUCTURAL, MECHANICAL, ELECTRICAL, PLUMBING AND THE ENTIRE PROJECT MANUAL. THE CONTRACTOR SHALL ACKNOWLEDGE AND INCLUDE IN THE SCOPE OF WORK (CONTRACT) ALL CONDITIONS PERTINENT TO THE COMPLETION OF HIS WORK. THE CONTRACTOR SHALL FULLY COORDINATE HIS WORK WITH THE INSTALLATION OF WORK BY ALL OTHER TRADES AND MAKE NECESSARY FIELD ADJUSTMENTS AS REQUIRED TO ACCOMMODATE THE INSTALLATION. ALL OF THE ABOVE SHALL BE INCLUDED IN THE SCOPE OF WORK AT NO ADDITIONAL COST TO THE OWNER.
2.	THE CONTRACTOR SHALL CAREFULLY EXAMINE THE DRAWINGS AND SPECIFICATIONS, VISIT THE SITE OF THE WORK AND FULLY INFORM HIMSELF AS TO ALL CONDITIONS AND MATTERS THAT CAN, IN ANY WAY AFFECT THE WORK OR THE COST THEREOF. SHOULD THE CONTRACTOR FIND DISCREPANCIES IN, OR OMISSIONS FROM THE DRAWINGS, SPECIFICATIONS OR OTHER DOCUMENTS OR BE IN DOUBT AS TO THEIR INTENT, HE SHALL NOTIFY THE ARCHITECT/ENGINEER AT ONCE IN WRITING OF ANY DISCREPANCIES BETWEEN EXISTING CONDITIONS AND NEW WORK, OR BETWEEN HIS WORK AND THE WORK OF OTHER TRADES PRIOR AND OBTAIN CLARIFICATION PRIOR TO SUBMITTING BID. LACK OF SUCH NOTIFICATION SHALL BE CONSTRUED TO INDICATE NO DISCREPANCIES OR CONFLICTS. ADDITIONAL COMPENSATION WILL NOT BE GRANTED AFTER AWARD OF CONTRACT FOR ANY WORK REQUIRED TO COMPLY WITH THESE REQUIREMENTS.



MECHANICAL LOWER FLOOR PLAN
M-4
SCALE: 1/8" = 1'-0"

MECHANICAL KEYED NOTES					
1	ROUTE 24" x 20" SUPPLY UP TIGHT TO SIDE OF BUILDING. COVER DUCTWORK W/ PAINT GRIP SHEET METAL. PAINT TO MATCH ADJACENT WALLS.	OWNER	DATE	CRWD	DATE
2	FAN MFR. WALL CAP.	...	...	...	...
3	ROUTE 1-1/4" CONDENSATE DOWN IN CORNER AND SPILL TO MOP SINK.	...	...	...	...
4	GREENHECK WC-8 INTAKE WALL CAP W/ BIRD SCREEN.	...	...	...	...
5	1" CONDENSATE FROM ABOVE. ROUTE DOWN IN WALL AND OUT OF BUILDING IN SUCH A MANNER THAT IT DOES NOT CREATE A NUISANCE.	...	...	...	...



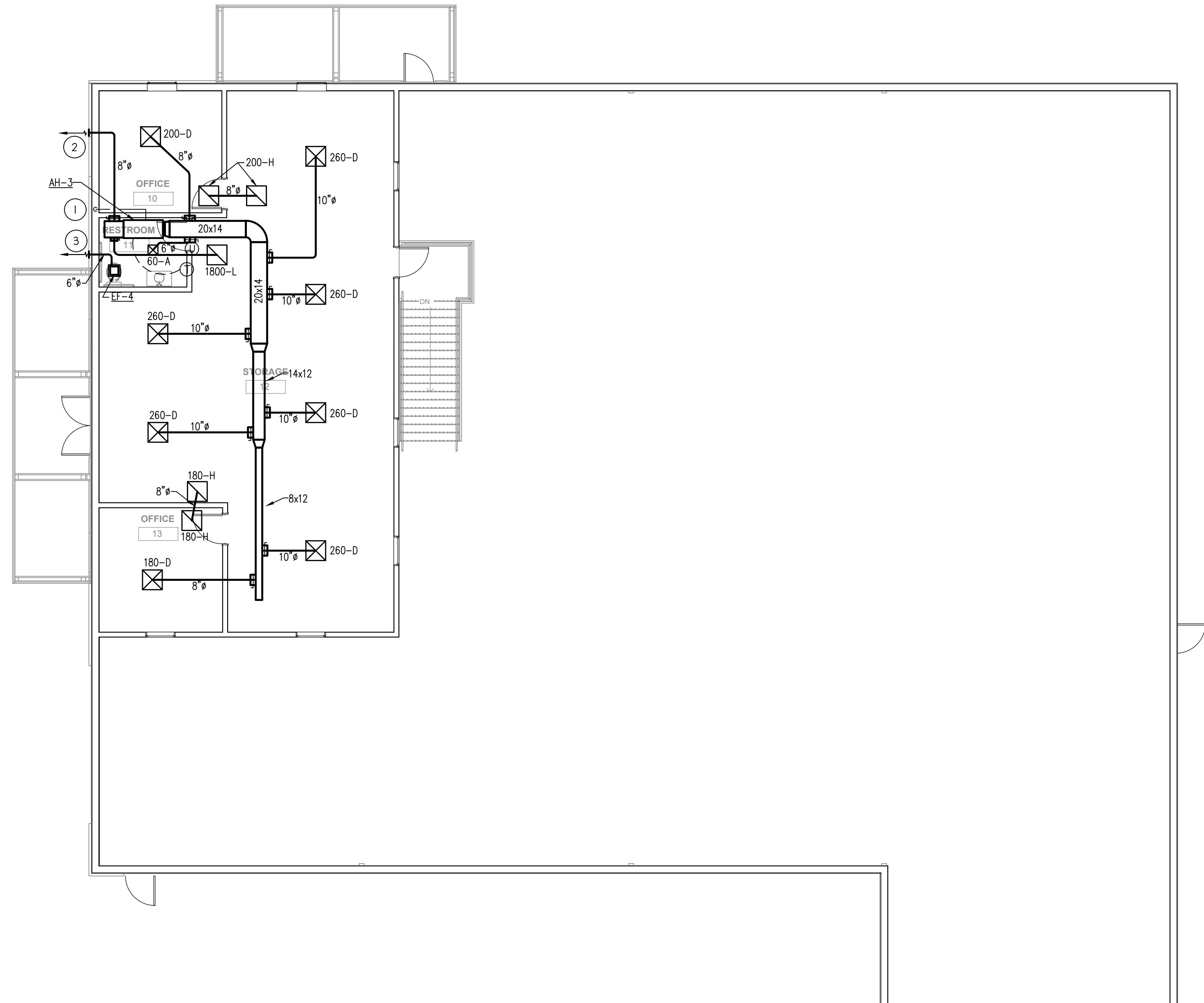
12-4-23

SEAL
030549
ENGINEER
DAVID
HOOD

12-4-23

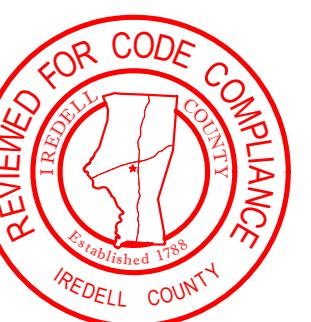
9/1/23

UPDATED FLOOR PLAN. NO HVAC CHANGES.


1
M-5
MECHANICAL MEZZANINE PLAN
SCALE: 1/8" = 1'-0"

MECHANICAL KEYED NOTES					
1	ROUTE 1" CONDENSATE DOWN IN WALL. REFER TO SHEET M-4 FOR CONTINUATION.				
2	GREENHECK WC-8 INTAKE WALL CAP W/ BIRD SCREEN.				
3	FAN MFR. WALL CAP.				

BACON DEVELOPMENT					
109 MAGNOLIA PARK DR. MORESVILLE, NC 28113					
MECHANICAL MEZZANINE PLAN					
NO.	DATE	DESCRIPTION	BY	CHKD	REVISIONS

M-5
OF
6

REVIEWED FOR CODE COMPLIANCE
IREDELL COUNTY
BUREAU OF BUILDING & SAFETY
As indicated



DESIGN NO.	PROJECT NO.	23-126
DRAWN BY		
CHECKED BY		
JDH		
9/1/2023		



12-4-23

PLUMBING GENERAL NOTES
GENERAL REQUIREMENTS:

- SCOPE: PROVIDE ALL LABOR, MATERIALS, AND EQUIPMENT REQUIRED FOR THE COMPLETION AND OPERATION OF ALL SYSTEMS IN THIS SECTION OF WORK.
- CODE COMPLIANCE: ALL WORK SHALL COMPLY WITH THE REQUIREMENTS OF ALL AUTHORITIES HAVING JURISDICTION, BUILDING DEPARTMENTS, AND DEPARTMENT OF HEALTH, APPLICABLE NATIONAL, STATE, AND LOCAL CODES, LAWS, AND REGULATIONS GOVERNING OR RELATING TO ANY PORTION OF THIS WORK. THIS WORK SHALL BE INCORPORATED INTO AND MADE A PART OF THESE CONTRACT DOCUMENTS AND SPECIFICATIONS. THE CONTRACTOR IS TO NOTIFY THE ARCHITECT/ENGINEER OF ANY WORK OR MATERIALS WHICH VIOLATE ANY OF THE ABOVE CODES, LAWS, OR REGULATIONS. ANY WORK DONE BY THE CONTRACTOR CAUSING SUCH A VIOLATION SHALL BE CORRECTED AT THE CONTRACTOR'S EXPENSE AND AT NO EXPENSE TO THE OWNER.
- PERMITS: APPLY FOR AND PAY FOR ALL NECESSARY PERMITS, FEES, AND INSPECTIONS REQUIRED BY ANY PUBLIC AUTHORITY HAVING JURISDICTION.
- WARRANTY: PROVIDE ALL LABOR, MATERIALS, AND EQUIPMENT UNDER THIS SECTION OF THE SPECIFICATIONS WITH A ONE YEAR WARRANTY FROM THE DATE OF ACCEPTANCE OF WORK BY THE OWNER.
- RECORD DRAWINGS: CONTRACTOR SHALL MAINTAIN AN ACCURATE RECORD OF ALL AS-BUILT CONDITIONS DURING CONSTRUCTION AND TURN OVER ONE COPY EACH TO THE OWNER AND THE ARCHITECT AFTER COMPLETION.
- OPERATING MANUALS: CONTRACTOR SHALL FURNISH TO THE OWNER PDF FILES OF OPERATION AND MAINTENANCE MANUALS FOR ALL FIXTURES AND PIECES OF EQUIPMENT.
- COORDINATION: VERIFY ALL ROUGH-IN LOCATIONS AND COORDINATE PIPING AND EQUIPMENT LOCATIONS WITH OTHER UNDER DIVISIONS OF THE SPECIFICATIONS TO AVOID CONFLICTS. CONTRACTOR MUST COORDINATE WITH OTHER TRADES FOR ALL STRUCTURES, PIPING, CONDUIT, DUCTWORK, LIGHTING, ETC TO PROPERLY BE INSTALLED. ANY CONFLICTS SHALL BE RESOLVED AT NO EXPENSE TO THE OWNER.
- SCALE: DO NOT SCALE PLANS. SEE ARCHITECTURAL PLANS FOR EXACT LOCATION OF DOORS, WINDOWS, FIXTURES, WALLS, WALL DIMENSIONS, ETC.
- FIELD VERIFICATION: FIELD VERIFY EXISTING CONDITIONS BEFORE BIDDING PROJECT AND BEFORE STARTING CONSTRUCTION AND NOTIFY THE ARCHITECT/ENGINEER OF RECORD OF ANY DISCREPANCIES BETWEEN THE CONSTRUCTION DOCUMENTS AND EXISTING CONDITIONS, AND/OR ANY POTENTIAL PROBLEMS OBSERVED, BEFORE CONTINUING WORK IN THE Affected AREAS.
- LABEL ALL PLUMBING PIPING WITH ADHESIVE PIPE LABELS INDICATING SERVICE AND DIRECTION OF FLOW. PIPE LABELS SHALL BE LOCATED NEAR ALL BRANCH CONNECTIONS, NEAR ALL FLOOR AND WALL PENETRATIONS, AND AT MAXIMUM INTERVALS OF 25' ALONG EACH RUN.
- PLUMBING SYSTEMS INCLUDE, BUT ARE NOT LIMITED TO:
-PLUMBING FIXTURES AND EQUIPMENT
-DOMESTIC WATER SYSTEM
-SANITARY WASTE AND VENT SYSTEM
-INSULATION

SANITARY WASTE AND VENT PIPING:

- FURNISH AND INSTALL COMPLETE SYSTEMS OF SANITARY WASTE AND VENT PIPING FROM ALL PLUMBING FIXTURES AND/OR EQUIPMENT REQUIRING WASTE AND VENT CONNECTIONS. ALL WASTE AND VENT PIPING SHALL BE CONCEALED IN THE BUILDING CONSTRUCTION WHERE POSSIBLE.
- SANITARY WASTE AND VENT PIPING BELOW GROUND:
2.1. ASTM A 74, SERVICE WEIGHT, HUB AND SPOIG, CAST IRON SOIL PIPE AND FITTINGS; AND GASKETED JOINTS. ALL PIPE AND FITTINGS SHALL BE MARKED WITH THE COLLECTIVE TRADEMARK OF THE CAST IRON SOIL PIPE INSTITUTE, AND LISTED BY NSF INTERNATIONAL.
- IF PERMITTED BY LOCAL CODES, ASTM D 2665 SCHEDULE 40 SOLID WALL PVC PIPE WITH ASTM D 2665 SCHEDULE 40 SOCKET-TYPE FITTINGS MAY BE USED. FOAM/CELLULAR CORE PVC PIPE IS NOT APPROVED.
- SANITARY WASTE AND VENT PIPING ABOVE GROUND:
3.1. ASTM A 888 AND C131 304 HUBLESS, CAST IRON SOIL PIPE AND FITTINGS; AND HEAVY DUTY SHIELDED, STAINLESS STEEL COUPLINGS. ALL PIPE AND FITTINGS SHALL BE MARKED WITH THE COLLECTIVE TRADEMARK OF THE CAST IRON SOIL PIPE INSTITUTE, AND LISTED BY NSF INTERNATIONAL.
- IF PERMITTED BY LOCAL CODES, ASTM D 2665 SCHEDULE 40 SOLID WALL PVC PIPE WITH ASTM D 2665 SCHEDULE 40 SOCKET-TYPE FITTINGS MAY BE USED. FOAM/CELLULAR CORE PVC PIPE IS NOT APPROVED.

WATER HAMMER ARRESTERS:

- INVERT ELEVATIONS SHALL BE ESTABLISHED AND VERIFIED BEFORE SANITARY PIPING IS INSTALLED IN ORDER THAT PROPER SLOPES WILL BE MAINTAINED. SLOPE SANITARY PIPING 2-1/2" AND SMALLER AT 1/4" PER FOOT MINIMUM, AND SLOPE SANITARY PIPING 3" AND LARGER AT 1/8" PER FOOT MINIMUM.
- THE MINIMUM SIZE FOR SANITARY AND VENT PIPING BELOW GROUND SHALL BE 2".
- WHERE SANITARY PIPING IS EXPOSED IN TOILET ROOMS, PROVIDE CHROME-PLATED BRASS PIPING WITH MATCHING ESCUTCHEONS. PROVIDE REMOVABLE TRAPS WITH INTEGRAL CLEANOUT PLUG FOR ALL LATATORIES AND SINKS.

- INSTALL CLEANOUTS IN A LOCATION THAT PERMITS ACCESS FOR SERVICE WITHOUT DAMAGE TO THE BUILDING OR FINISHED MATERIALS. CLEANOUT PLUGS SHALL BE INSTALLED ACCORDING WITH PLUMBING CODE REQUIREMENTS. PROVIDE CLEANOUTS IN HORIZONTAL PIPING NOT MORE THAN 100 FEET APART, AT THE BASE OF ALL SOIL AND WASTE STACKS, AND FOR EVERY FOUR 45° CHANGES LOCATED IN SERIES (A LONG SWEEP IS EQUIVALENT TO TWO 45° BENDS).
- DO NOT CONNECT HORIZONTAL BRANCHES WITHIN 10 PIPE DIAMETERS DOWNSTREAM OF THE BASE OF ANY SANITARY STACK.
- ALL INDIRECT WASTE PIPING SHALL DISCHARGE THROUGH AN AIR GAP INTO AN APPROVED WASTE RECEPTOR. THE AIR GAP BETWEEN THE INDIRECT WASTE PIPE AND THE FLOOR LEVEL RIM OF THE WASTE RECEPTOR SHALL BE A MINIMUM OF TWICE THE EFFECTIVE OPENING OF THE INDIRECT WASTE PIPE.
- ON SLOPED ROOFS, PAINT SANITARY VENT PIPING ABOVE ROOF TO MATCH ROOF COLOR.
- MODIFY PIPING AS REQUIRED SO THAT SANITARY VENT TERMINALS ARE A MINIMUM OF 10' FROM ANY BUILDING FRESH AIR INLET OR AS OTHERWISE REQUIRED BY LOCAL AUTHORITIES.

FIXTURES:

- PROVIDE COMPLETE FIXTURES AND INCLUDE SUPPLIES, STOPS, VALVES, FAUCETS, DRAINS, TRAPS, TALPIECES, ESCUTCHEONS, ETC. EXPOSED COPPER OR BRASS MATERIALS SHALL BE CHROME PLATED.
- SEAL ALL EDGES OF PLUMBING FIXTURES IN CONTACT WITH FLOORS, WALLS, OR COUNTERTOPS USING SANITARY-TYPE, ONE-PART, MILDEW RESISTANT SILICONE SEALANT. MATCH SEALANT COLOR TO FIXTURE COLOR.
- PROVIDE PERMANENTLY ATTACHED VACUUM BREAKERS FOR ALL FIXTURES/FAUCETS TO WHICH HOSES MAY BE CONNECTED.
- REFER TO ARCHITECTURAL DRAWINGS FOR MOUNTING HEIGHTS OF PLUMBING FIXTURES.
- OFFSET CLOSET FLANGES FOR CONNECTING WATER CLOSETS ARE NOT APPROVED WITHOUT WRITTEN CONSENT FROM ENGINEER.

DOMESTIC WATER PIPING:

- FURNISH AND INSTALL A COMPLETE SYSTEM OF DOMESTIC HOT AND COLD WATER FROM WATER SERVICE PIPE TO ALL FIXTURES AND/OR EQUIPMENT REQUIRING DOMESTIC WATER SUPPLIES. VERIFY LOCATION OF BEGINNING POINTS.
- ALL PIPE INSULATION SHALL RUN CONTINUOUSLY THROUGH FLOORS, WALLS, AND PARTITIONS.

DOMESTIC WATER PIPING:

- INSULATE METALLIC AND AUTOMATIC CIRCULATING HOT WATER SYSTEM WATER PIPING ABOVE GRADE (EXCEPT EXPOSED CONNECTIONS TO PLUMBING FIXTURES) WITH 1" ELASTOMERIC FOAM INSULATION, OR 1" FIBERGLASS PIPE INSULATION WITH FACTORY-APPLIED ALUMINUM JACKETING. 1/2" INSULATION MAY BE USED FOR METALLIC PIPING 1" AND LESS.

WATER HAMMER ARRESTERS REQUIREMENTS:

- PROVIDE WATER HAMMER ARRESTERS CONFORMING TO PDI-WH201 OR ASSE 1010, INSTALLED PER MANUFACTURER'S SPECIFICATIONS. WHERE QUICK CLOSING VALVES ARE UTILIZED, A QUICK CLOSING VALVE IS A VALVE OR FAUCET THAT CLOSES AUTOMATICALLY WHEN RELEASED, OR THAT IS CONTROLLED BY MECHANICAL MEANS FOR FAST-ACTION CLOSING. REFER TO WATER HAMMER ARRESTOR SCHEDULE.
- AS A MINIMUM, PROVIDE ONE WATER HAMMER ARRESTOR FOR EACH BRANCH LINE TO EACH TOILET ROOM LESS THAN 20' IN LENGTH, LOCATED BETWEEN THE LAST TWO FIXTURES SERVED. FOR BRANCH LINES GREATER THAN 20' IN LENGTH, A SECOND WATER HAMMER ARRESTOR IS REQUIRED.

BACKFLOW PREVENTER REQUIREMENTS FOR WATER SERVICE:

- VERIFY BACKFLOW PREVENTER REQUIREMENTS OF LOCAL AUTHORITY AND PROVIDE BACKFLOW PREVENTER AS REQUIRED, IF NOT PROVIDED BY SITE UTILITY CONTRACTOR. BACKFLOW PREVENTER TO BE PROVIDED BY SITE UTILITY CONTRACTOR.

WATER METER REQUIREMENTS:

- VERIFY WATER METER REQUIREMENTS OF LOCAL AUTHORITY, AND OWNER, AND PROVIDE WATER METER AS REQUIRED, IF NOT PROVIDED BY SITE UTILITY CONTRACTOR.

SEISMIC REQUIREMENTS:

- PROPERLY SUPPORT AND BRACE VERTICALLY AND HORIZONTALLY ALL APPARATUS, EQUIPMENT, ETC IN ACCORDANCE WITH APPLICABLE CODES TO PREVENT EXCESSIVE MOVEMENT DURING SEISMIC CONDITIONS.

