

# CLED RENOVATIONS - CONSTRUCTION DOCUMENTS - DECEMBER 19, 2022

419 LUCK AVE SW, ROANOKE, VA 24016

## PROJECT TEAM:

### OWNER:

CAROLINE LAROCCA EVENT DESIGN  
5848 BRIDLEWOOD DR.,  
ROANOKE, VA 24018

### ARCHITECT:

HILL STUDIO  
HUNTER GREENE  
120 WEST CAMPBELL AVE  
ROANOKE, VIRGINIA 24011  
540.342.5263 PHONE  
hgreene@hillstudio.com

### MECHANICAL ENGINEER:

MDR ENGINEERING  
MELINDA RUBLE  
P.O. BOX 20812  
ROANOKE, VIRGINIA 24018  
540.915.1576  
melinda@mdrengineering.com

### ELECTRICAL ENGINEER:

CARBO INC.  
BOYCE BLANCHARD  
P.O. BOX 186  
ROCKY MOUNT, VA 24151  
540.493.0301  
carboinc@embarqmail.com

## PROJECT DATA:

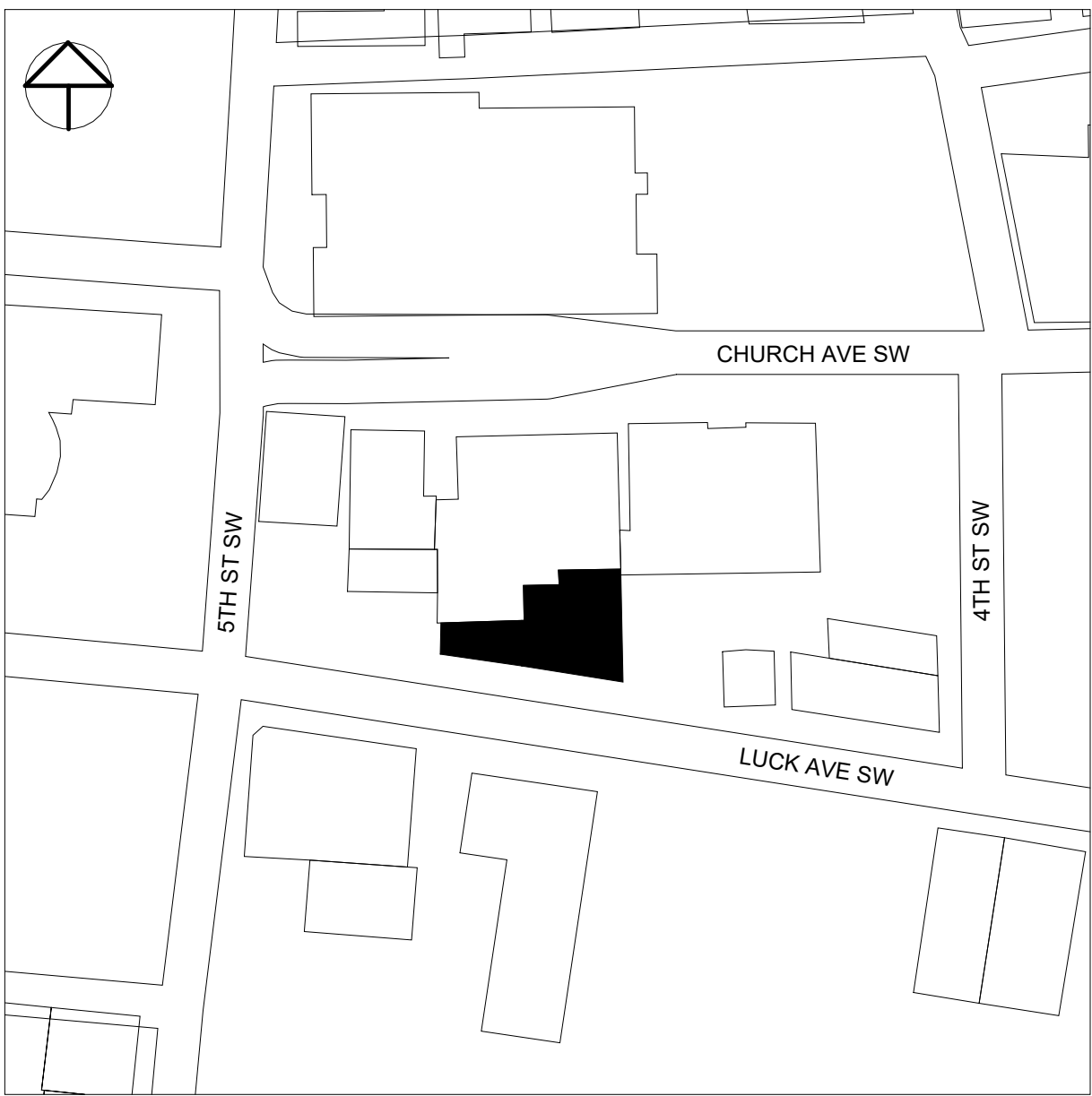
### APPLICABLE CODES AND STANDARDS:

VIRGINIA UNIFORM STATEWIDE BUILDING CODE REVISION 2018  
VIRGINIA EXISTING BUILDING CODE REVISION 2018  
SECRETARY OF THE INTERIORS STANDARDS FOR REHABILITATION

**OCCUPANCY USE GROUP:** BUSINESS. NO CHANGE IN EXISTING USE GROUP.



1 3D VIEW - INTERIOR WORK SPACE



SITE LOCATION

SHEET NUMBER	SHEET NAME
G001	COVER
LS101	LIFE SAFETY PLAN - FIRST FLOOR
A101	FLOOR PLAN - FIRST FLOOR
A102	FLOOR PLAN - SECOND FLOOR
A202	BUILDING ELEVATIONS
A301	BUILDING SECTIONS
A600	INTERIOR ELEVATIONS
A601	REFLECTED CEILING PLAN - FIRST FLOOR
A602	REFLECTED CEILING PLAN - SECOND FLOOR
A900	SCHEDULES
M101	MECHANICAL SPECIFICATIONS
M201	MECHANICAL LEGEND, SCHEDULES, NOTES & CONTROLS
M301	MECHANICAL FIRST FLOOR PLAN
M302	MECHANICAL SECOND FLOOR PLAN
M401	MECHANICAL DETAILS
E101	FIRST FLOOR LIGHTING PLAN
E102	FIRST FLOOR POWER PLAN
E103	LIGHTING PLAN
E104	POWER PLAN
E105	POWER PLAN
P101	PLUMBING LEGEND, SPECIFICATIONS, SCHEDULE & DETAILS
P201	PLUMBING FIRST FLOOR PLAN
P202	PLUMBING SECOND FLOOR PLAN



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419 LUCK AVE, ROANOKE  
VA

CONSTRUCTION  
DRAWINGS



COVER

Revisions:  
11/4/2022  
MONTH. DAY. YEAR

Drawn By: AB  
Review By: Checker  
Project No. 2224

Sheet No.  
G001



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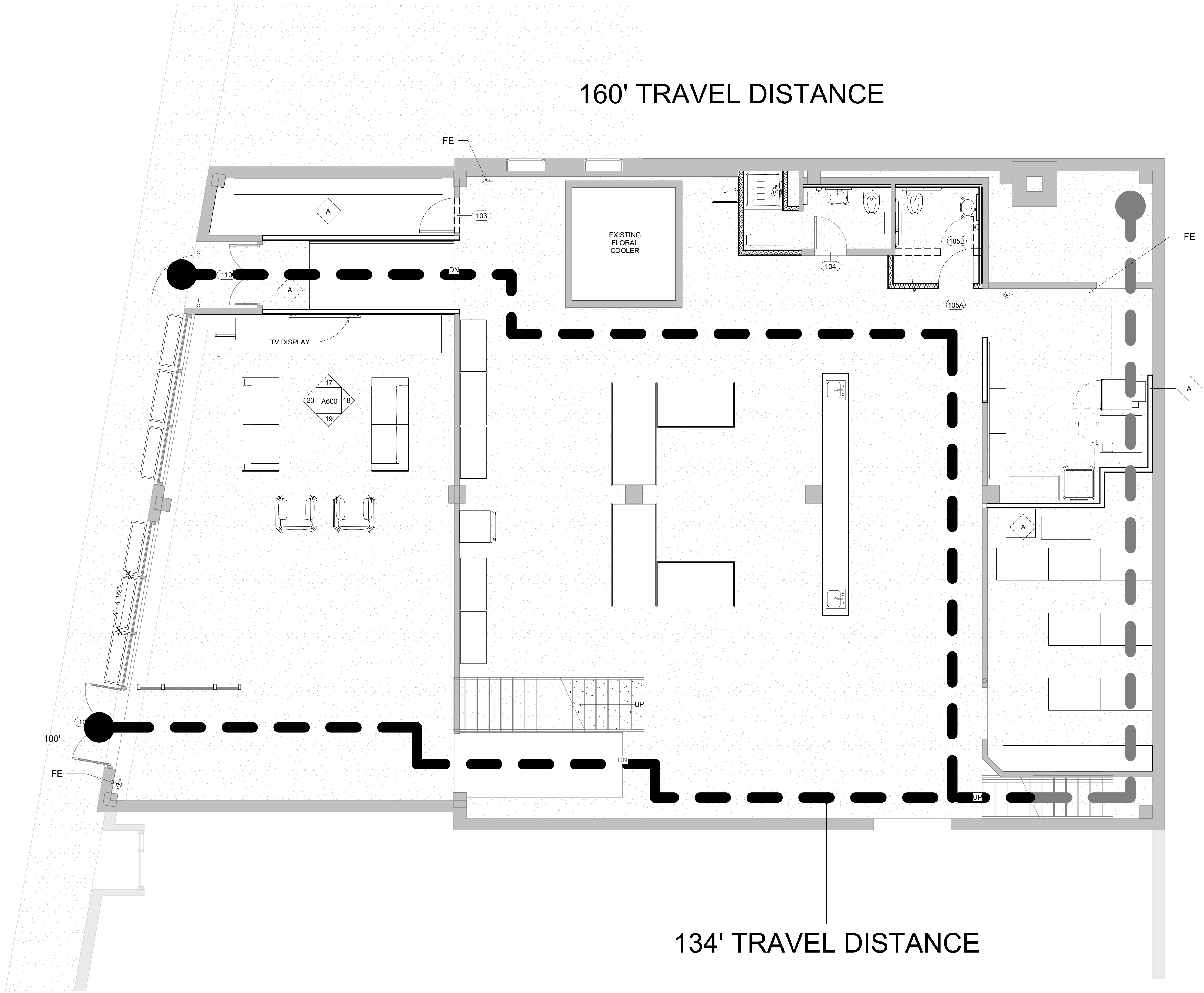
LIFE SAFETY  
PLAN - FIRST  
FLOOR

Revisions: 11/4/2022  
△ MONTH. DAY. YEAR

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Review By: Checker  
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Sheet No.

LS101



A10 RAISED LEVEL Copy 1  
LS101 A301 1/4" = 1'-0"



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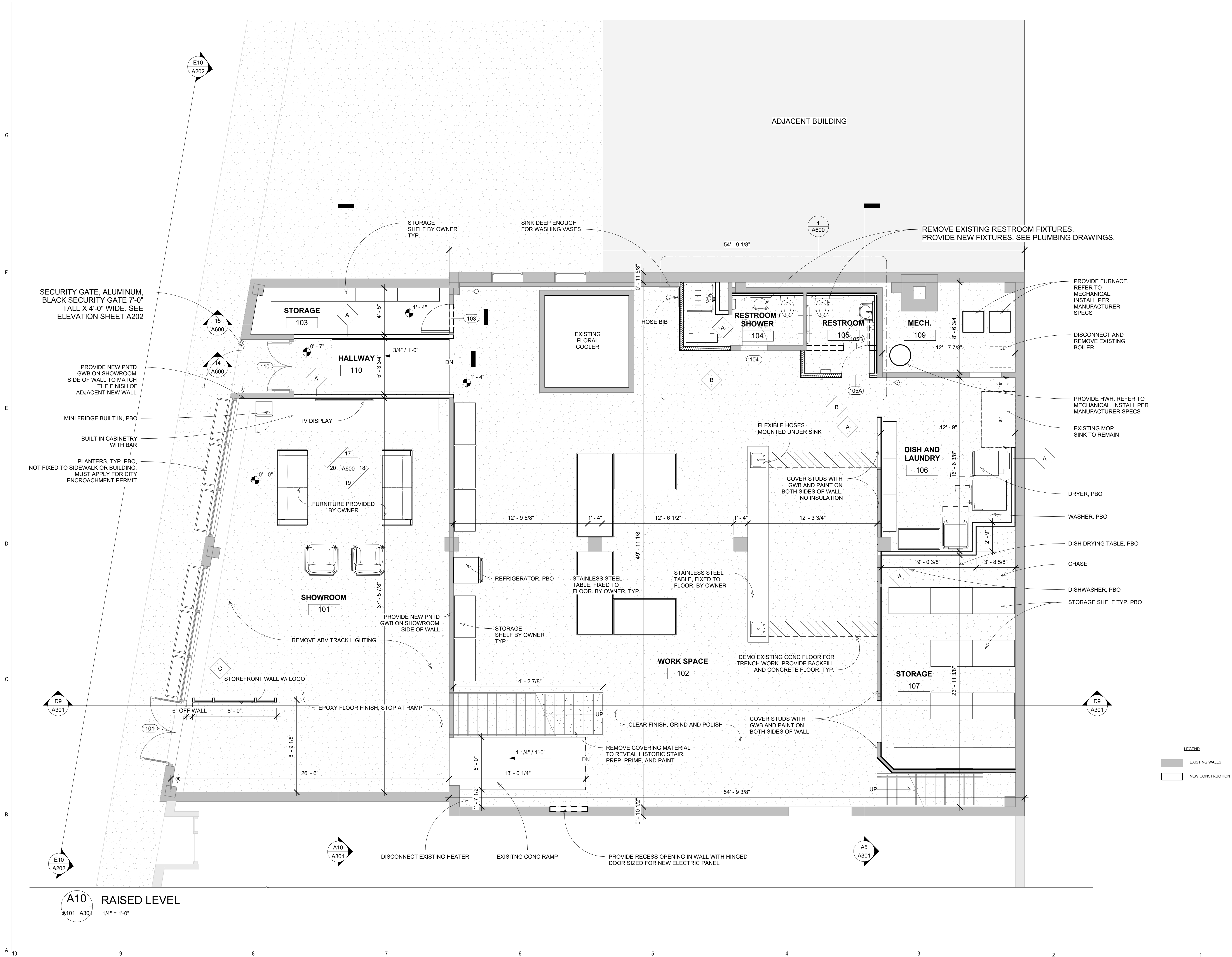
FLOOR PLAN -  
FIRST FLOOR

11/4/2022  
Revisions:  
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Sheet No.

A101



A 10 9 8 7 6 5 4 3 2 1





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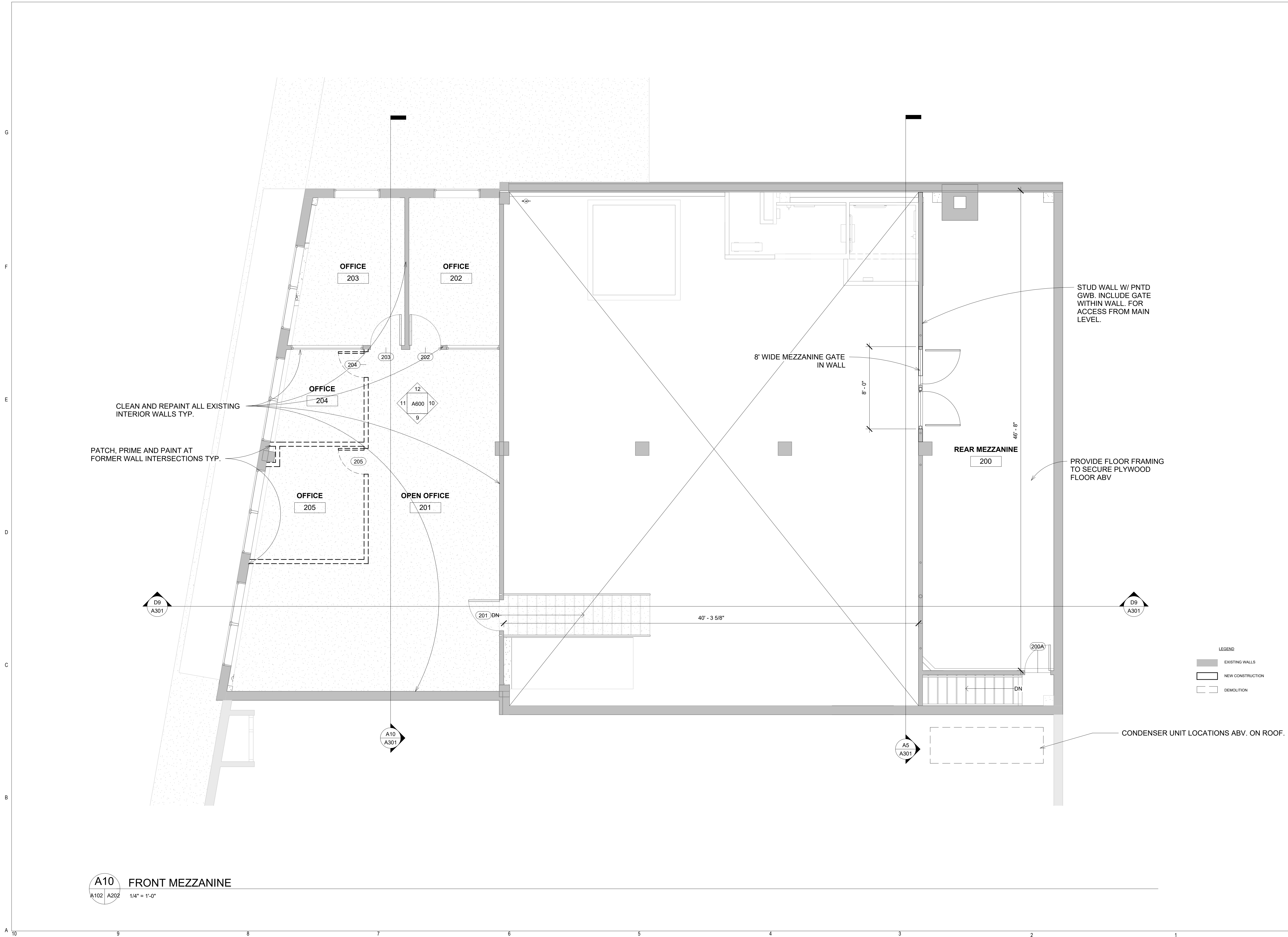
CONSTRUCTION  
DRAWINGS



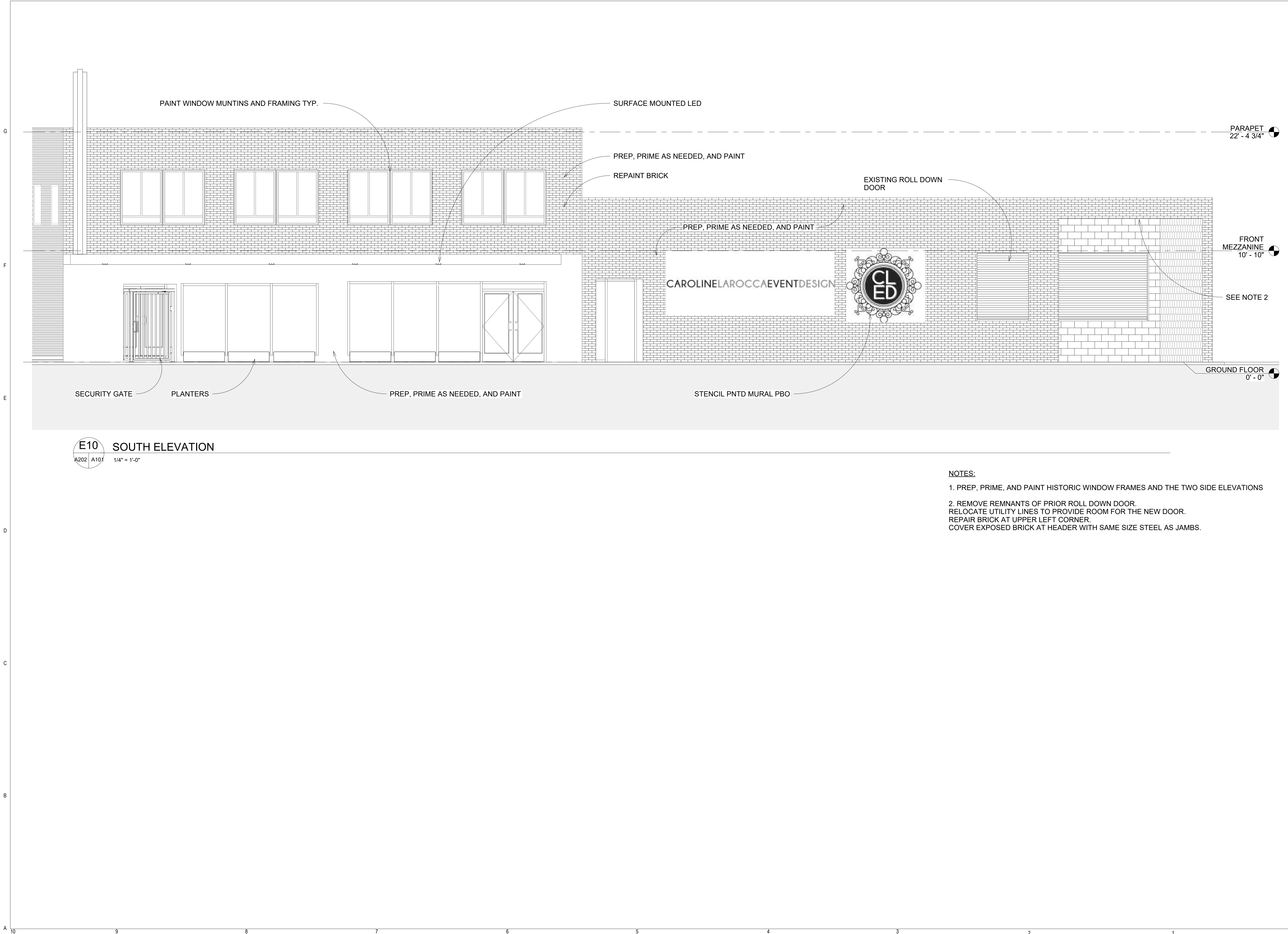
FLOOR PLAN -  
SECOND FLOOR

Revisions:	11/4/2022
△ MONTH. DAY. YEAR	
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A102



A10 FRONT MEZZANINE  
A102 A202 1/4" = 1'-0"



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BUILDING  
ELEVATIONS  
11/4/2022  
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Sheet No:  
A202



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DRAWINGS



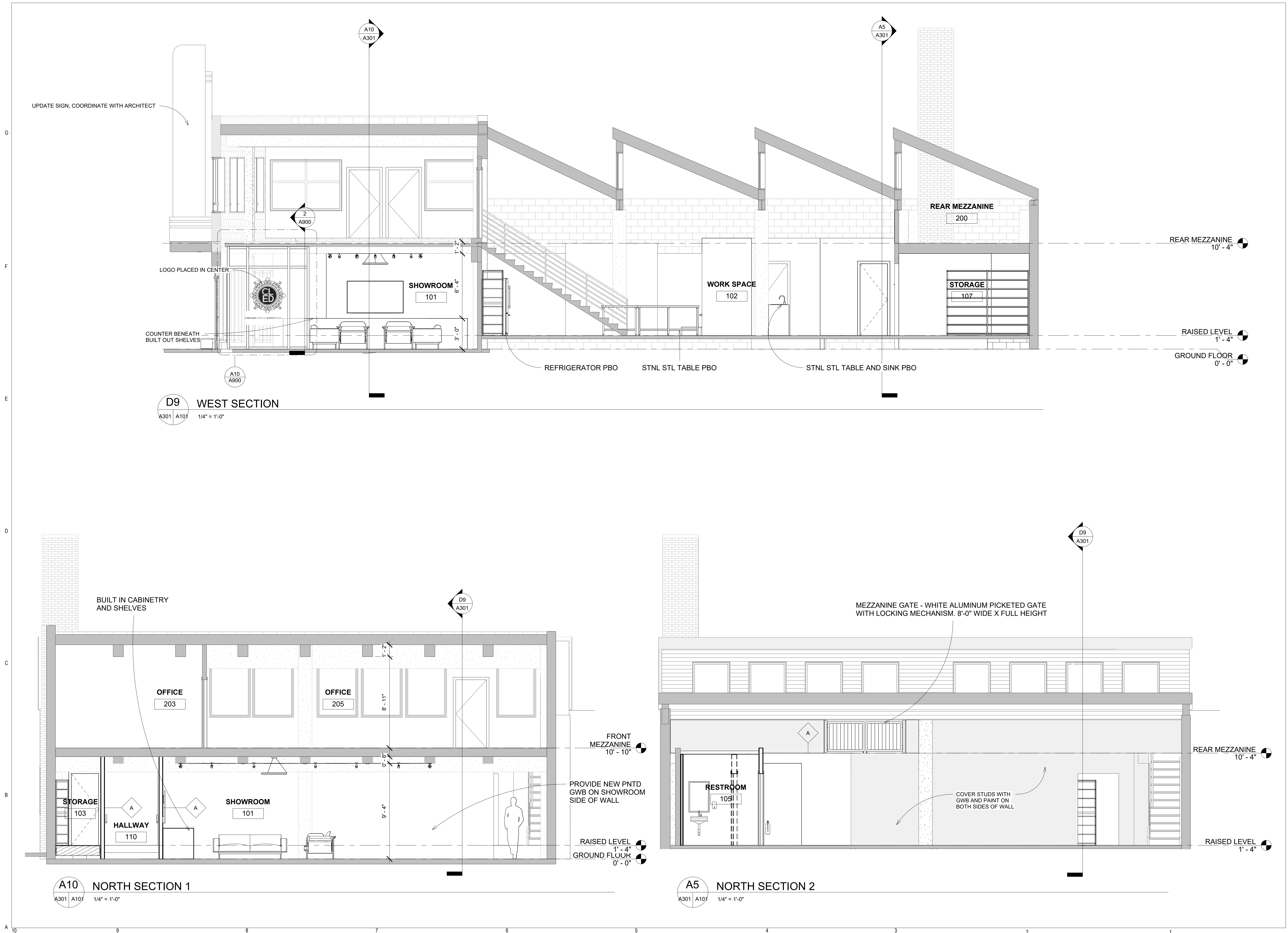
## BUILDING SECTIONS

Revisions:  
11/4/2022  
MONTH, DAY, YEAR

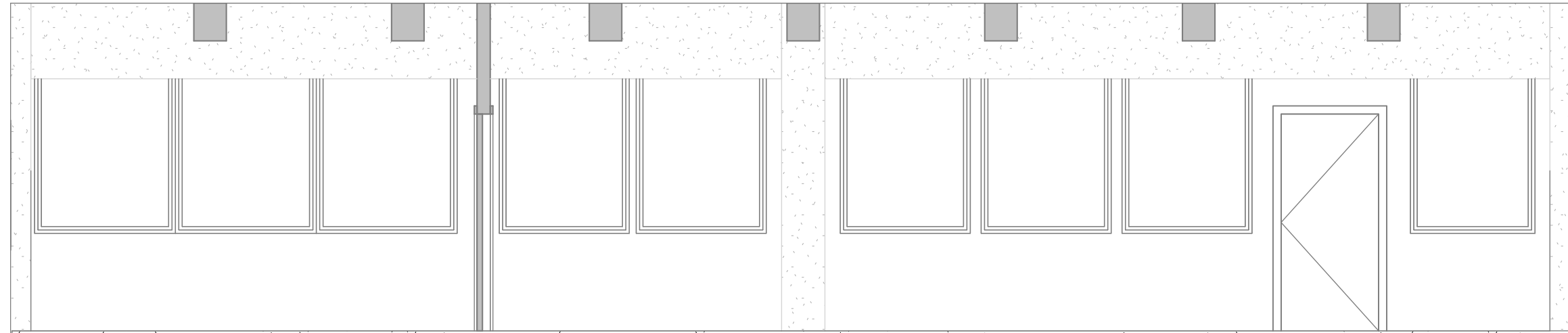
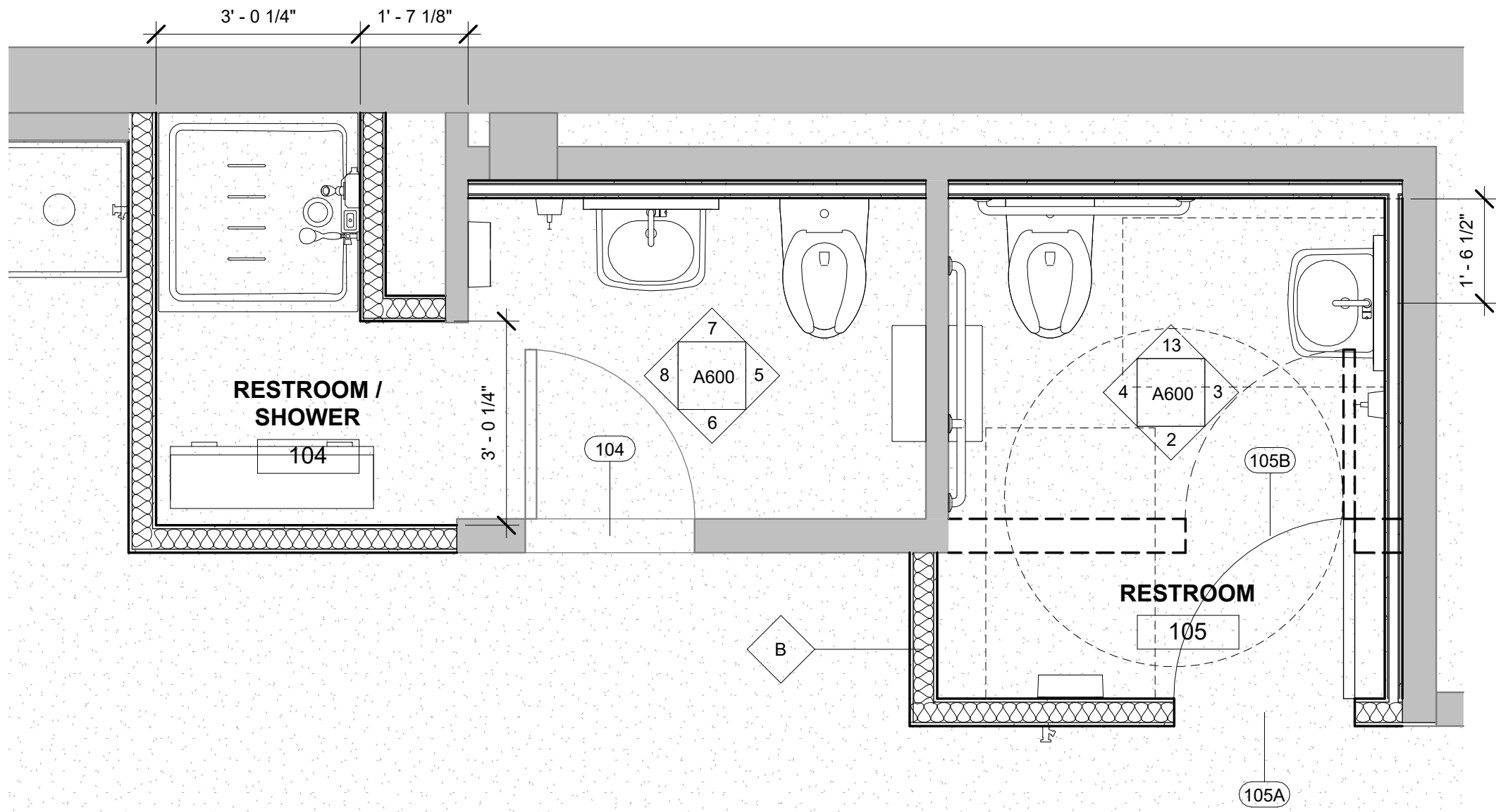
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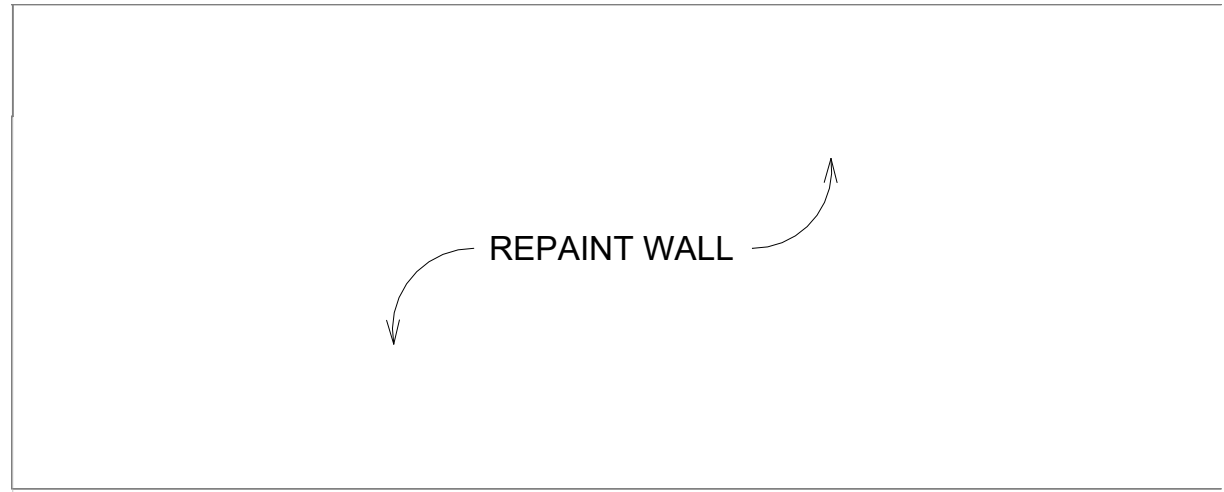
# A301



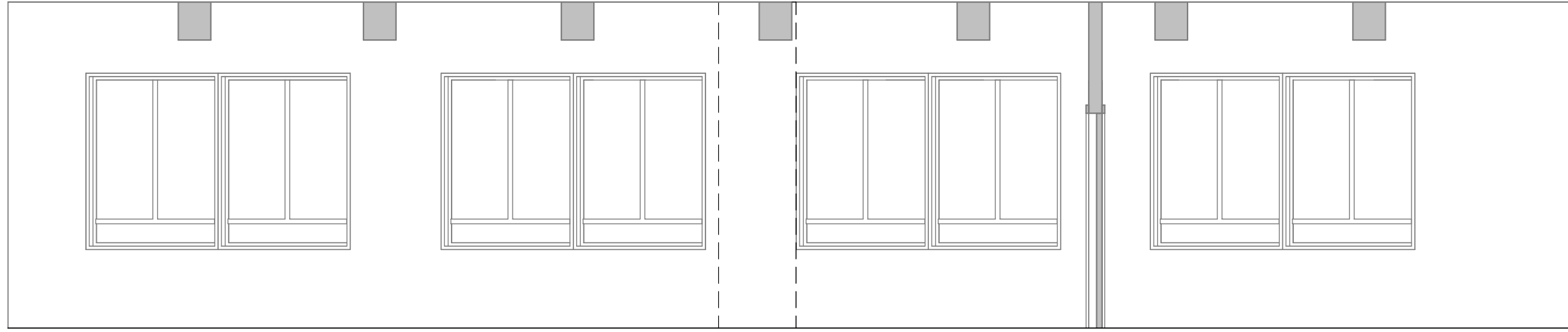
RESTROOM ACCESSORIES	
MARK	ITEM
1	HAND DRYER
2	TOILET TISSUE DISPENSER
3	BACK HORIZONTAL GRAB BAR
4	SIDE HORIZONTAL GRAB BAR
5	VERTICAL GRAB BAR
6	SOAP DISPENSER
7	WALL MOUNTED MIRROR



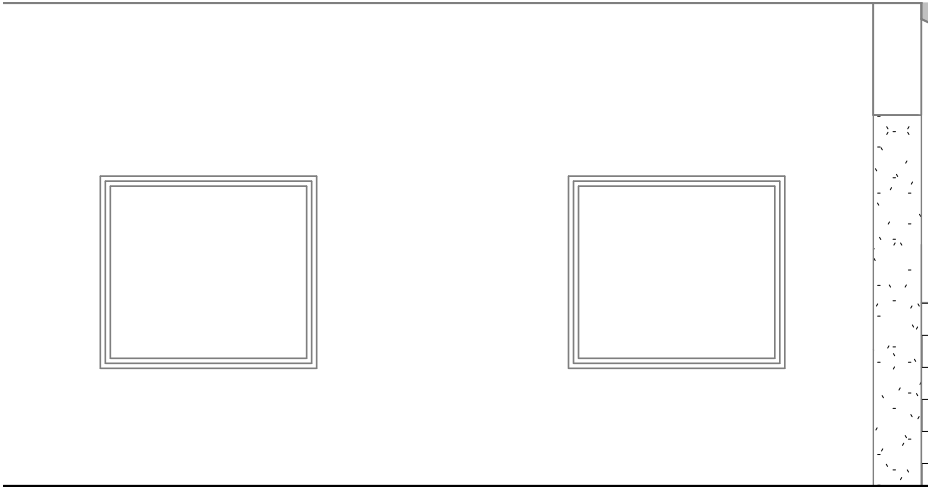
10 FRONT MEZZANINE - NORTH ELEVATION  
A600 A102 1/4" = 1'-0"



9 FRONT MEZZANINE - EAST ELEVATION  
A600 A102 1/4" = 1'-0"

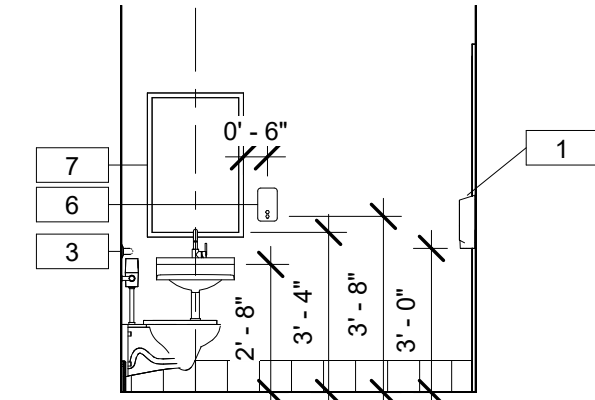


11 FRONT MEZZANINE - SOUTH ELEVATION  
A600 A102 1/4" = 1'-0"

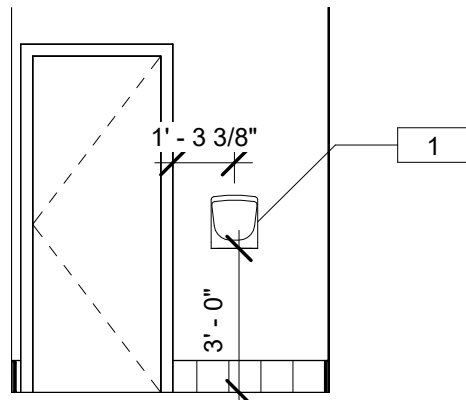


12 FRONT MEZZANINE - WEST ELEVATION  
A600 A102 1/4" = 1'-0"

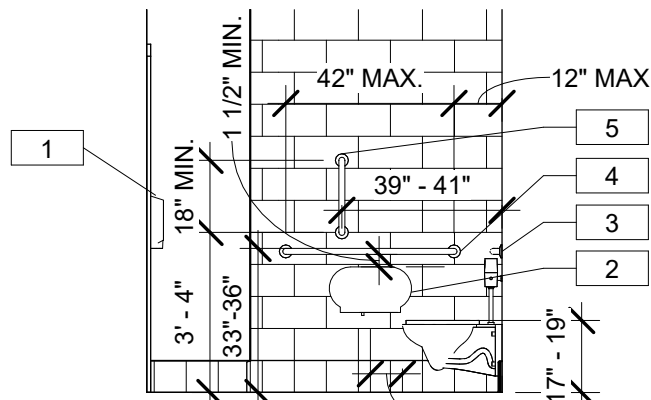
1 WORKSPACE BATHROOM  
A600 A101 1/2" = 1'-0"



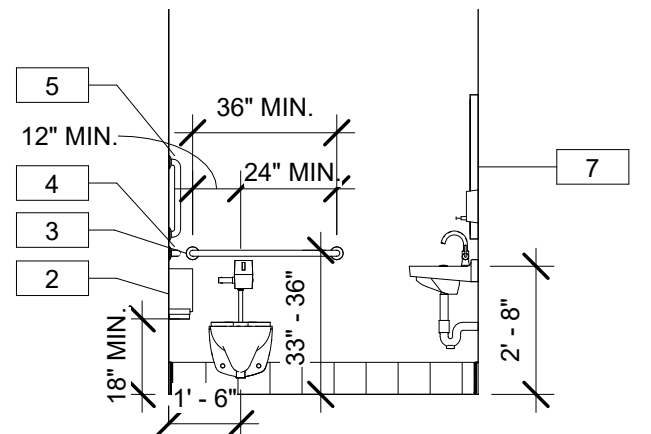
3 ADA RESTROOM - NORTH ELEVATION  
A600 A600 1/4" = 1'-0"



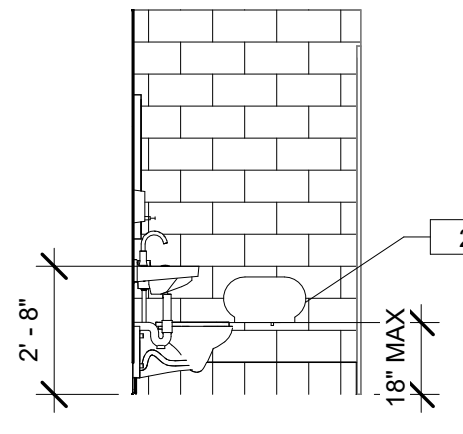
2 ADA RESTROOM - EAST ELEVATION  
A600 A600 1/4" = 1'-0"



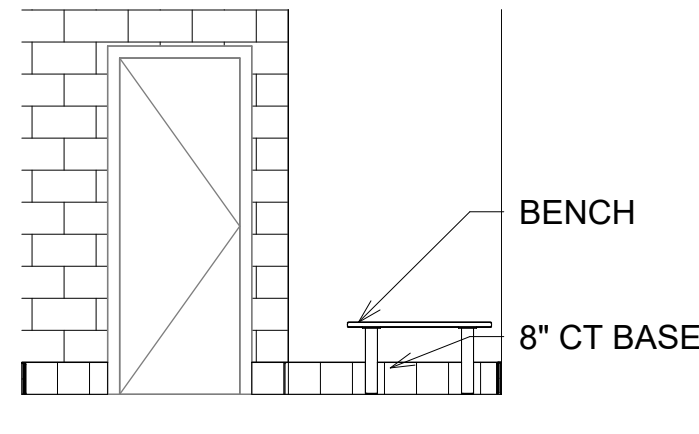
4 ADA RESTROOM - SOUTH ELEVATION  
A600 A600 1/4" = 1'-0"



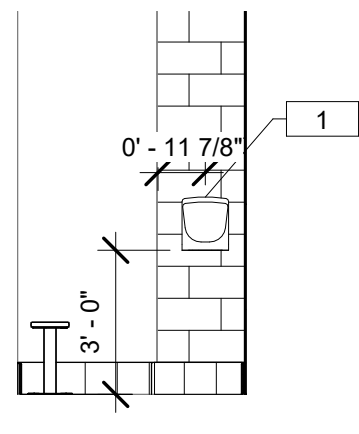
13 ADA RESTROOM - WEST ELEVATION  
A600 A600 1/4" = 1'-0"



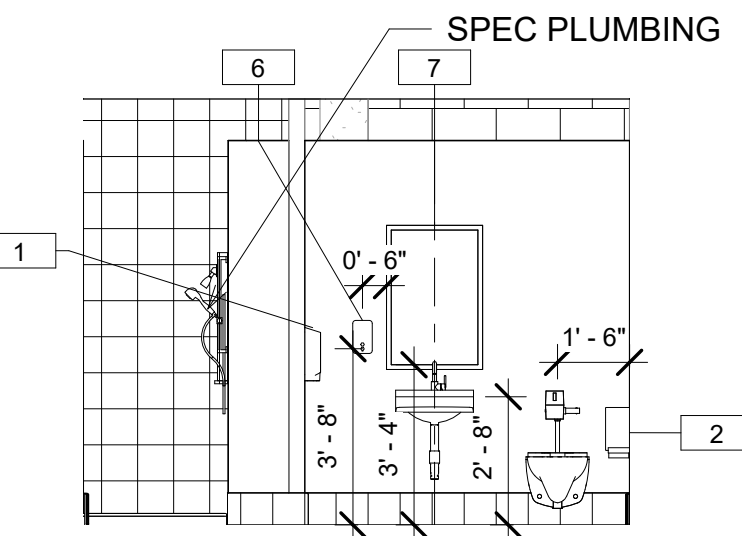
5 RESTROOM/SHOWER - NORTH ELEVATION  
A600 A600 1/4" = 1'-0"



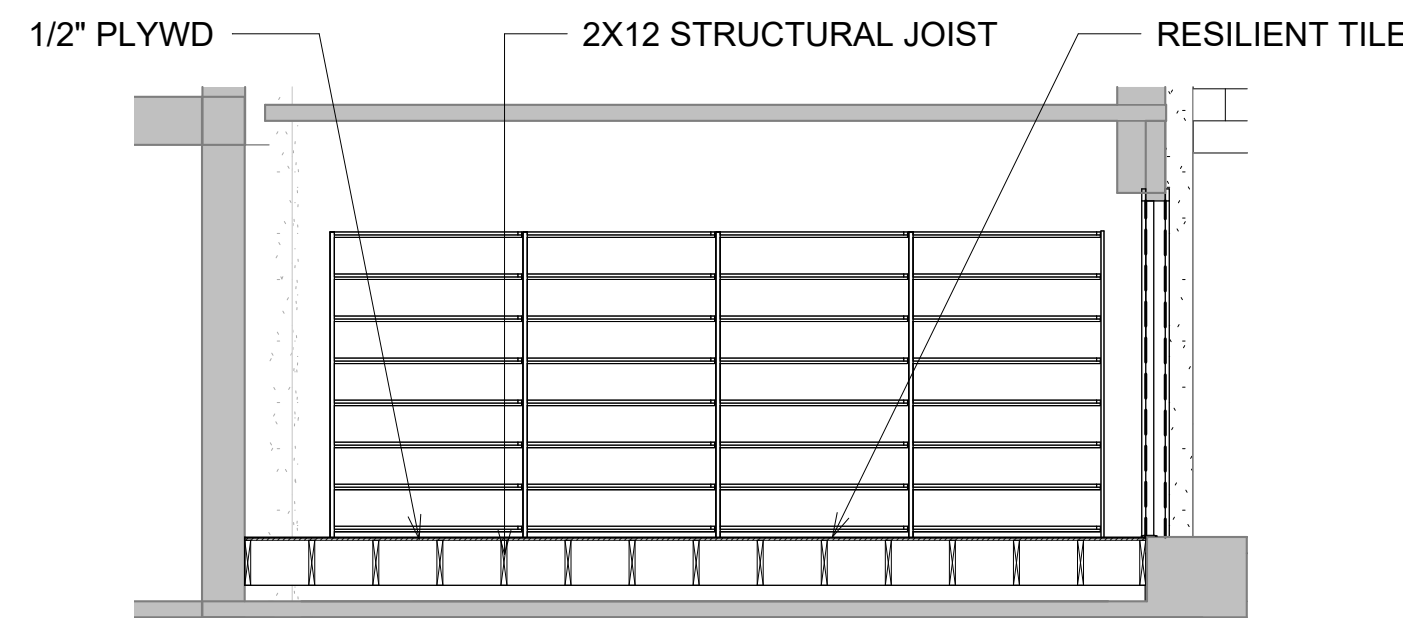
6 RESTROOM/SHOWER - EAST ELEVATION  
A600 A600 1/4" = 1'-0"



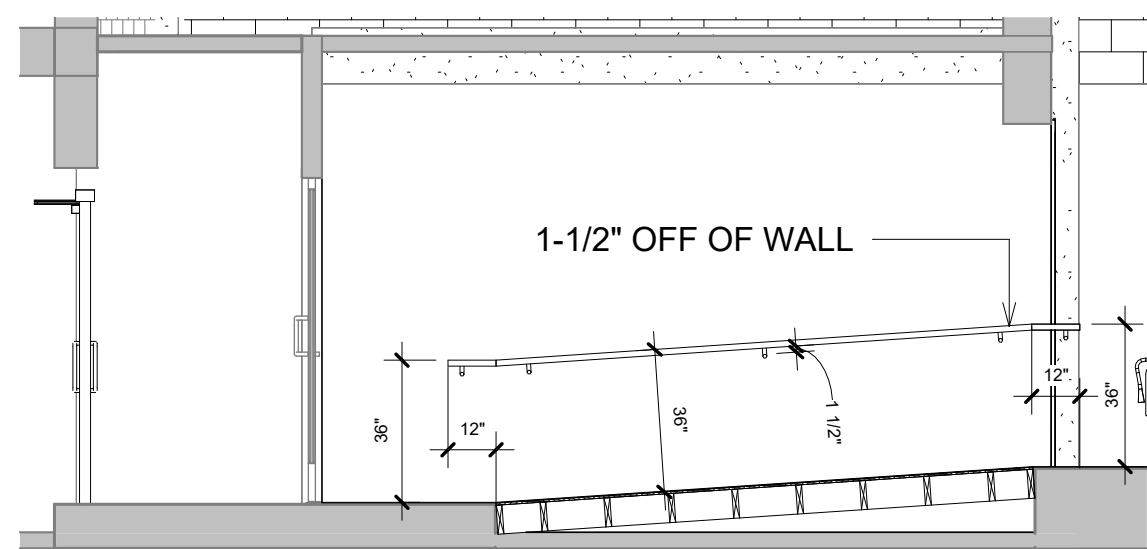
8 RESTROOM/SHOWER - SOUTH ELEVATION  
A600 A600 1/4" = 1'-0"



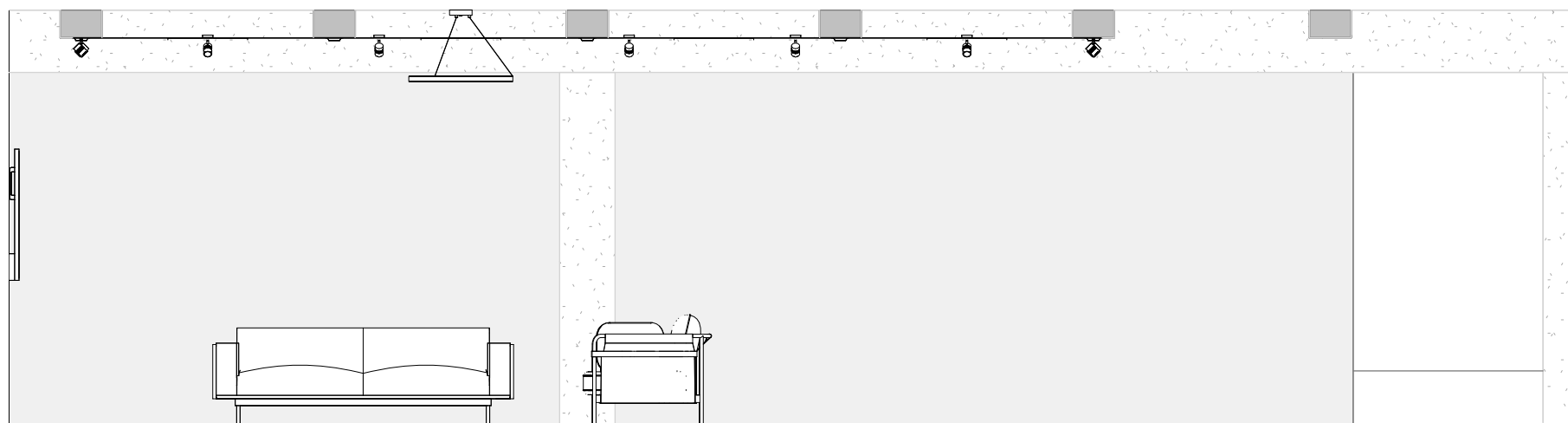
7 RESTROOM/SHOWER - WEST ELEVATION  
A600 A600 1/4" = 1'-0"



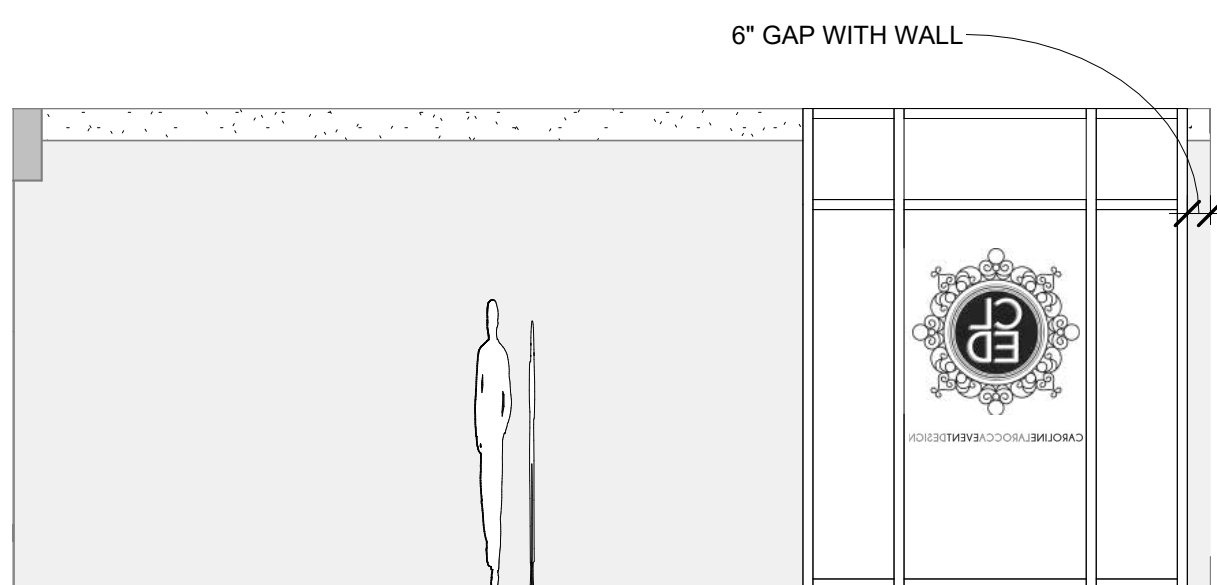
15 STORAGE SECTION  
A600 A101 1/4" = 1'-0"



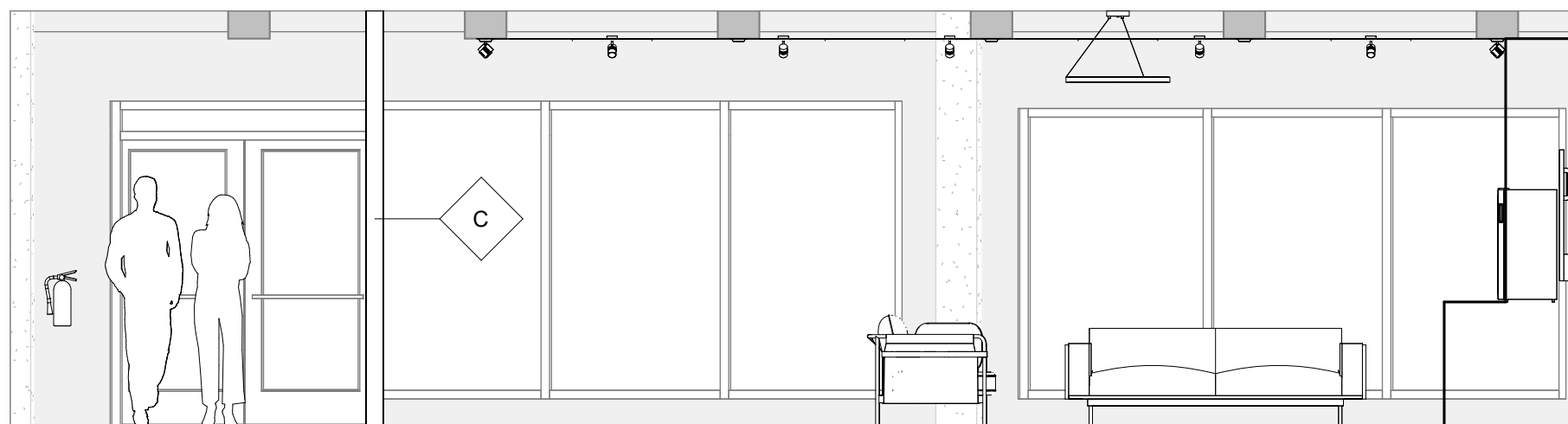
14 HALLWAY SECTION  
A600 A101 1/4" = 1'-0"



18 SHOWROOM - NORTH  
A600 A101 1/4" = 1'-0"



19 SHOWROOM - EAST  
A600 A101 1/4" = 1'-0"



20 SHOWROOM - SOUTH ELEVATION  
A600 A101 1/4" = 1'-0"



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INTERIOR  
ELEVATIONS

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11/4/2022  
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A600



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REFLECTED  
CEILING PLAN -  
FIRST FLOOR

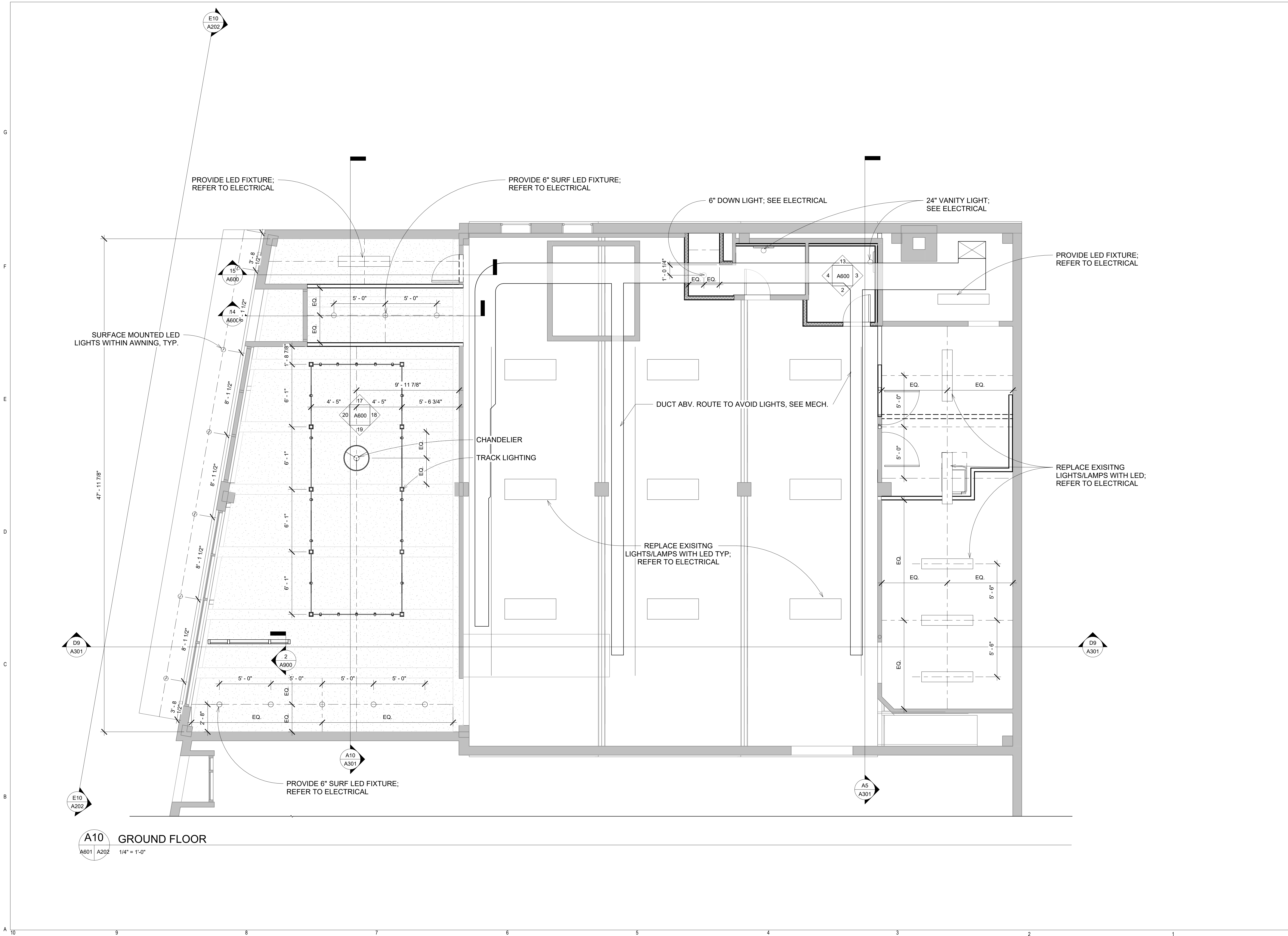
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A601







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## CONSTRUCTION DRAWINGS



Drawn By: AB  
Review By: Checker  
Project No. 2224

Sheet No. \_\_\_\_\_

# A602

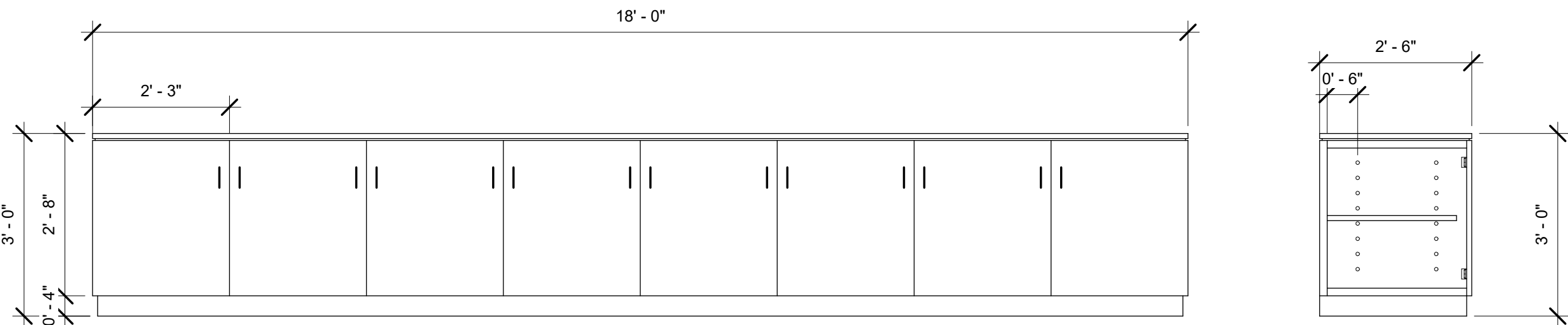


A602 A202 1/4" = 1'-0"

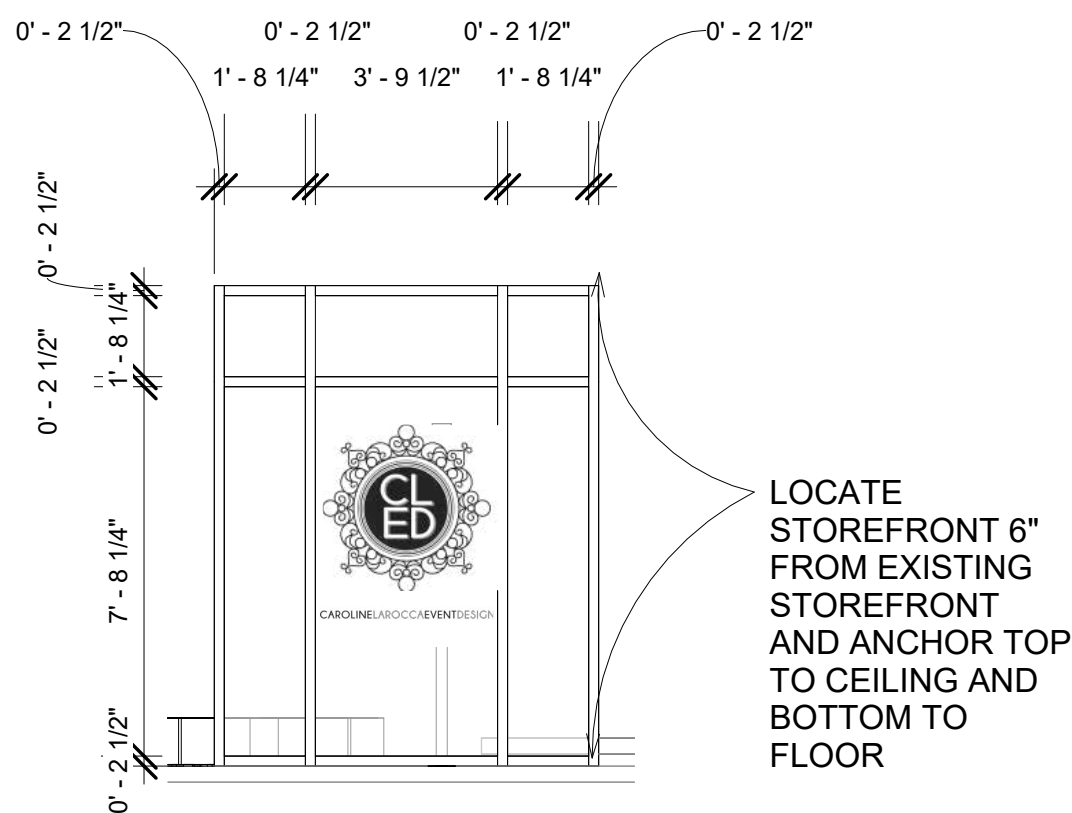
A602 A202 1/4" = 1'-0"

Door Schedule									
Mark	Door					Existing	Demo	Hardware	Comments
	Width	Height	Thickness	Material	Finish				
117	5' - 0"	8' - 4"							
119	12' - 0"	8' - 4"							
120	14' - 0"	15' - 8"							
101	6' - 0"	6' - 10 3/4"		MTL W/ GLSS		Yes	No		
103	2' - 8"	7' - 0"	0' - 2"	WD		No	No		
104	2' - 6"	7' - 0"	0' - 2"	WD		Yes	No		
105A	2' - 8"	7' - 0"	0' - 2"	WD		No	No		
105B	2' - 6"	7' - 0"	0' - 2"	WD		Yes	Yes		
110	4' - 8 5/32"	6' - 9 1/2"		MTL W/ GLSS		Yes	No		
200A	2' - 6"	6' - 8"	0' - 2"	WD		Yes	No		
121	4' - 0"	3' - 0"		WD		No	No		
123	4' - 0"	3' - 0"		WD		No	No		
201	3' - 0"	6' - 8"	0' - 2"	WD		Yes	No		
202	3' - 0"	6' - 8"	0' - 2"	WD		Yes	No		
203	3' - 0"	6' - 8"	0' - 2"	WD		Yes	No		
204	2' - 6"	6' - 8"	0' - 2"	WD		Yes	No		
205	2' - 6"	6' - 8"	0' - 2"	WD		Yes	No		

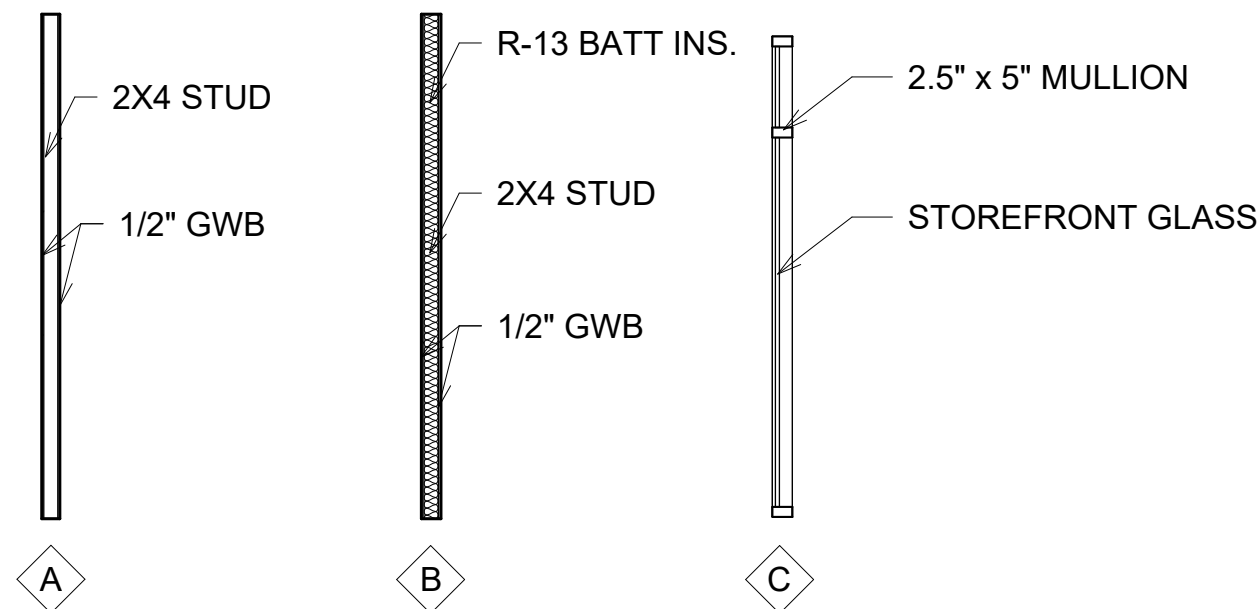
FINISH SCHEDULE						
ROOM NUMBER	ROOM NAME	FLOOR FINISH	BASE FINISH	WALL FINISH	CEILING FINISH	COMMENTS
101	SHOWROOM	TWO PART EPOXY ON CONCRETE	VINYL WALL BASE	PNT GWB	EXPOSED CEILING	
102	WORK SPACE	POLISHED CONCRETE	VINYL WALL BASE	PNT GWB	EXPOSED CEILING	
103	STORAGE	POLISHED CONCRETE	VINYL WALL BASE	PNT GWB	EXPOSED CEILING	
104	RESTROOM / SHOWER	CERAMIC TILE	CT BASE	PNT GWB AND CT	HARD CEILING	DAL TILE OR EQUAL
105	RESTROOM	CERAMIC TILE	CT BASE	PNT GWB AND CT	HARD CEILING	DAL TILE OR EQUAL
106	DISH AND LAUNDRY	POLISHED CONCRETE	NO BASE	PNT GWB	EXPOSED JOIST	
107	STORAGE	POLISHED CONCRETE	VINYL WALL BASE	PNT GWB	EXPOSED CEILING	
109	MECH.	CONC FLR	NO BASE	EXPOSED CONC	EXPOSED CEILING	
110	HALLWAY	VINYL TILE FLOORING	VINYL WALL BASE	PNT GWB	PNT CEILING TILE	
200	REAR MEZZANINE	PAINTED PLYWOOD	NO BASE	PNT GWB	EXPOSED CEILING	
201	OPEN OFFICE	CLEAN EXISTING CONCRETE	VINYL WALL BASE	PNT GWB	PNT CEILING TILE	
202	OFFICE	CLEAN EXISTING CONCRETE	VINYL WALL BASE	PNT GWB	PNT CEILING TILE	
203	OFFICE	CLEAN EXISTING CONCRETE	VINYL WALL BASE	PNT GWB	PNT CEILING TILE	
204	OFFICE	CLEAN EXISTING CONCRETE	VINYL WALL BASE	PNT GWB	PNT CEILING TILE	
205	OFFICE	CLEAN EXISTING CONCRETE	VINYL WALL BASE	PNT GWB	PNT CEILING TILE	



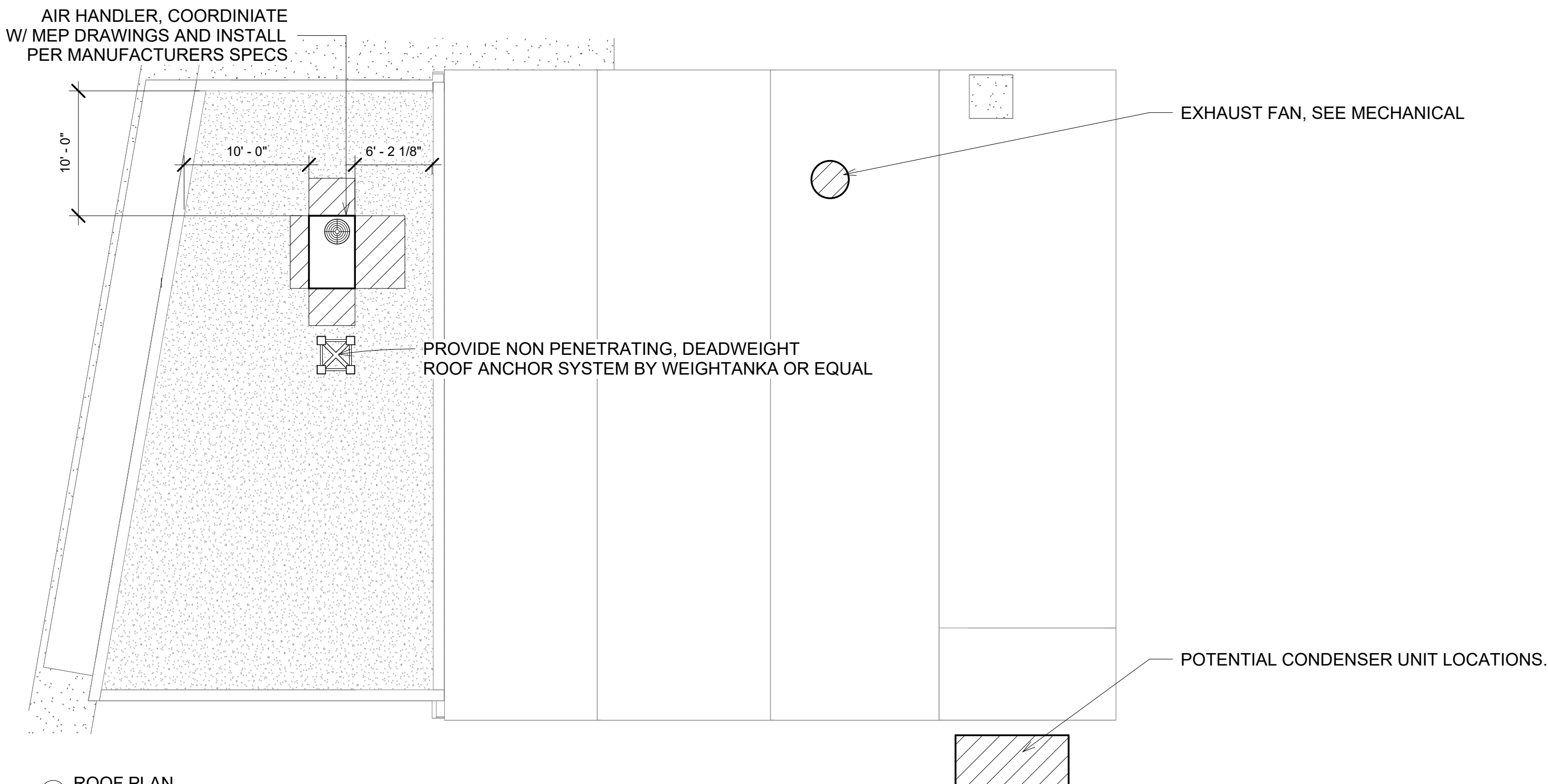
CABINET DETAILS  
1/2" = 1'-0"



STOREFRONT DETAIL  
1/4" = 1'-0"



WALL PARTITIONS  
1/4" = 1'-0"



ROOF PLAN  
1/8" = 1'-0"



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DRAWINGS



SCHEDULES

Revisions: 11/4/2022

MONTH, DAY, YEAR

Drawn By: AB

Review By: Checker

Project No: 2224

Sheet No.

A900



G

F

E

D

C

B

A

1. GENERAL PROVISIONS

- A. INSTALLATION SHALL BE IN STRICT ACCORDANCE WITH THE 2018 VIRGINIA CONSTRUCTION CODE INCLUDING REFERENCED CODES AND STANDARDS AND IN ACCORDANCE WITH MANDATES OF THE LOCAL BUILDING OFFICIALS.
- B. THE GENERAL ARRANGEMENT AND LOCATIONS OF DUCTWORK, PIPING, FIXTURES, ETC. ARE INDICATED BY THE DRAWINGS AND SHALL BE INSTALLED IN ACCORDANCE THEREWITH; WITH THE EXCEPTION OF SUCH CHANGES AS MAY BE REQUIRED ON ACCOUNT OF OTHER TRADES. CONTRACTOR SHALL COORDINATE WORK WITH INSTALLATION OF OTHER SUBCONTRACTORS.
- C. MECHANICAL WORK SHALL BE COORDINATED WITH THE CONTRACTOR AS TO SCHEDULING, DIMENSIONING AND LOCATION OF EQUIPMENT.
- D. MAJOR ITEMS ARE SHOWN ON THE PROJECT PLANS. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL INCIDENTAL ITEMS REQUIRED TO PROVIDE A COMPLETE AND FUNCTIONAL SYSTEM.
- E. TRADE NAMES AND CATALOG NUMBERS SHALL BE INTERPRETED AS ESTABLISHING A GENERAL DESIGN AND STANDARD OF QUALITY AND SHALL NOT BE CONSTRUED AS LIMITING COMPETITION. UNLESS STATED OTHERWISE, THE CONTRACTOR MAY USE ANY ARTICLE WHICH, IN HIS JUDGEMENT, AND WITH WRITTEN COMMENT FROM THE ARCHITECT/ENGINEER INDICATING NO OBJECTION, IS EQUAL OR SUPERIOR TO THAT SPECIFIED. DRAWINGS SHOWING CHANGES OR REVISIONS REQUIRED BY THE SUBSTITUTION FOR SPECIFIED ITEMS SHALL BE SUBMITTED WITH THE SHOP DRAWING DATA, AND THE COSTS OF ALL SUCH CHANGES SHALL BE BORNE BY THE CONTRACTOR.
- F. SIMILAR ITEMS SHALL BE PROVIDED BY A SINGLE MANUFACTURER.
- G. ALL REQUIRED WALL OR FLOOR OPENINGS SHALL BE COORDINATED WITH THE CONTRACTOR.
- H. ALL PIPING SHALL BE ABOVE CEILING UNLESS INDICATED OTHERWISE.
- I. DO NOT INSTALL PVC PIPING OR ANY COMBUSTIBLE MATERIAL IN ANY AIR PLENUM.
- J. ALL EQUIPMENT SHALL BE WIPED CLEAN, REMOVING ALL TRACES OF OIL, DIRT, OR PAINT SPOTS.
- K. PROVIDE SUPPORTS TO RIGIDLY ATTACH ALL EQUIPMENT, APPURTENANCES AND PIPE AS REQUIRED FOR SUPPORT. PRIOR TO INSTALLATION OF HANGERS AND INSERTS, THE CONTRACTOR SHALL COORDINATE LOCATIONS AND REQUIREMENTS TO MINIMIZE CONFLICTS WITH OTHER BUILDING SYSTEMS. INSTALLATION OF PIPE HANGERS AND SUPPORTS SHALL BE IN STRICT ACCORDANCE WITH MSS SP-58, 69 AND 89.
- L. CONTRACTOR SHALL MAKE FINAL CONNECTIONS TO ALL EQUIPMENT INDICATED TO BE FURNISHED BY OTHERS.
- M. ALL MATERIALS AND WORKMANSHIP SHALL BE WARRANTED TO BE FREE FROM DEFECTS FOR A PERIOD OF ONE YEAR FROM DATE OF ACCEPTANCE AND CONTRACTOR SHALL MAKE GOOD, WITHOUT ADDITIONAL COST TO THE OWNER, ANY DEFECT WHICH MAY APPEAR WITHIN THAT PERIOD. MANUFACTURER'S WARRANTIES EXTENDING BEYOND ONE YEAR SHALL BE PROCESSED AND TURNED OVER TO THE OWNER.

2. SUBMISSION OF SHOP DRAWINGS, PRODUCT DATA, SAMPLES AND PROJECT INFORMATION

- A. SHOP DRAWINGS SHALL BE SUBMITTED FOR THE FOLLOWING ITEMS:
- (1) MECHANICAL SLEEVE SEALS
  - (2) FIRE BARRIER PENETRATION SEALS
  - (3) INSULATION
  - (4) ALL MECHANICAL EQUIPMENT
- B. IDENTIFY ALL MECHANICAL SHOP DRAWINGS, PRODUCT DATA AND SAMPLES WITH THE NAME OF THE PROJECT. CLEARLY MARK THE SPECIFIC ITEMS INTENDED FOR USE. SUBMIT ALL RELATED ITEMS AT ONE TIME.
- C. PRIOR TO SUBSTANTIAL COMPLETION OF THE PROJECT, SUBMIT THE FOLLOWING INFORMATION FOR REVIEW AND APPROVAL:
- (1) OPERATING AND MAINTENANCE INSTRUCTIONS.
  - (2) "AS BUILT" DRAWINGS.

3. "AS BUILT" DRAWINGS: CONTRACTOR SHALL KEEP AN ACCURATE RECORD OF THE LOCATION OF ALL CONCEALED DUCTWORK, PIPING, VALVES, CONTROLS, ETC., BOTH INTERIOR AND EXTERIOR. ON COMPLETION OF THE WORK, ONE PRINT EACH OF THE CONTRACT DRAWINGS WHICH ARE APPLICABLE SHALL BE NEATLY AND CLEARLY MARKED IN COLOR TO SHOW ALL VARIATIONS BETWEEN THE WORK ACTUALLY PROVIDED AND THAT INDICATED ON THE CONTRACT DRAWINGS.

4. OPERATING AND MAINTENANCE MANUALS

- A. GENERAL: PRIOR TO COMPLETION OF THE PROJECT, THE CONTRACTOR SHALL PROVIDE TWO HARDBACKED LOOSELEAF RING TYPE BINDERS, IDENTIFIED WITH THE NAME OF THE PROJECT. CONTRACTOR SHALL DELIVER THESE BINDERS TO THE ENGINEER FOR REVIEW AND TRANSMITTAL TO THE OWNER. ALTERNATIVELY, ELECTRONIC DOCUMENTS MAY BE PROVIDED WITH OWNER'S AGREEMENT.
- B. THE FOLLOWING ITEMS AND OTHER ADDITIONAL PERTINENT DATA FOR EACH ITEM OF EQUIPMENT SHALL BE INCLUDED:
- (1) NAME OF MANUFACTURER.
  - (2) NAME, ADDRESS AND TELEPHONE NUMBER OF NEAREST MANUFACTURER'S REPRESENTATIVE.
  - (3) COPY OF LATEST APPROVED SHOP DRAWING.
  - (4) MANUFACTURER'S OPERATING AND MAINTENANCE MANUAL INCLUDING LUBRICATION DATA.
  - (5) PARTS NUMBERS FOR ALL REPLACEABLE ITEMS.
  - (6) SERIAL NUMBERS OF ALL PRINCIPAL ITEMS OF EQUIPMENT.
  - (7) CONTROL DIAGRAMS AND SEQUENCE OF OPERATION.
  - (8) MANUFACTURER'S WRITTEN GUARANTEES THAT EXTEND BEYOND THE CONTRACTOR'S ONE YEAR GUARANTEE.
- C. THE OPERATING AND MAINTENANCE MANUALS SHALL BE CONSIDERED A PART OF THE FINAL INSPECTION AND THEY SHALL BE SUBMITTED FOR APPROVAL AT LEAST THIRTY (30) DAYS PRIOR TO REQUEST FOR FINAL INSPECTION.

5. ACCESS DOORS: ACCESS DOORS SHALL BE PROVIDED FOR ALL CONCEALED VALVES, CONTROLS, AND ANY OTHER EQUIPMENT OR MATERIALS REQUIRING INSPECTION OR MAINTENANCE. ACCESS DOORS SHALL BE FURNISHED FOR FLOORS, WALLS AND CEILINGS, OF ADEQUATE SIZE SO THAT CONCEALED ITEMS WILL BE READILY ACCESSIBLE FOR SERVICING OR FOR REMOVAL AND REPLACEMENT IF NECESSARY.

6. PAINTING

- A. SCOPE OF WORK: MECHANICAL EQUIPMENT, MATERIALS, AND RELATED PIPING DO NOT REQUIRE PAINTING EXCEPT AS INDICATED BELOW.
- B. EQUIPMENT WITH A FACTORY APPLIED FINISH WILL NOT REQUIRE ADDITIONAL PAINTING EXCEPT TOUCH-UP WITH MATCHING FINISH WHERE IT IS DAMAGED.
- C. PIPING, FABRICATED SUPPORTS, OR OTHER UNFINISHED AND UNPROTECTED MATERIALS LOCATED OUTDOORS SHALL BE PAINTED WITH A SUITABLE PRIMER AND COMPATIBLE FINISH PAINT. COLOR SHALL BE AS DIRECTED BY ENGINEER.
- D. PAINT INSIDE OF DUCTWORK WITH MATTE BLACK PAINT WHERE VISIBLE BEHIND AIR INLETS AND OUTLETS.
- E. PROTECTION OF WORK: PAINTING SHALL BE DONE WITH ALL POSSIBLE CARE TO PROTECT THIS WORK AND WORK OF OTHER TRADES. ALL DAMAGE TO THIS AND OTHER WORK CAUSED BY THE PAINTING OPERATIONS SHALL BE CORRECTED, CLEANED OR REPAIRED AS REQUIRED. HARDWARE, SPECIAL CONTROL ITEMS, GAUGES, THERMOMETERS, NAMEPLATES, INSTRUMENT GLASS AND OTHER SIMILAR ITEMS SHALL BE REMOVED OR PROPERLY PROTECTED DURING THE PAINTING OPERATIONS TO INSURE THAT THESE ITEMS ARE NOT COVERED OR SPLATTERED WITH PAINT.

7. IDENTIFICATION

- A. SUBMITTALS
- (1) SUBMIT LIST OF WORDING, SYMBOLS, LETTER SIZE, AND COLOR CODING FOR MECHANICAL IDENTIFICATION.
  - (2) SUBMIT VALVE CHART AND SCHEDULE, INCLUDING VALVE TAG NUMBER, LOCATION, FUNCTION, AND VALVE MANUFACTURER'S NAME AND MODEL NUMBER.
  - (3) PRODUCT DATA: PROVIDE MANUFACTURERS CATALOG LITERATURE FOR EACH PRODUCT REQUIRED.
- B. NAMEPLATES
- (1) DESCRIPTION: LAMINATED THREE-LAYER PLASTIC WITH ENGRAVED LETTERS ON LIGHT CONTRASTING BACKGROUND COLOR.
- C. TAGS
- (1) METAL TAGS: BRASS WITH STAMPED LETTERS; TAG SIZE MINIMUM 1-1/2 INCHES (40 MM) DIAMETER.
  - (2) CHART: TYPEWRITTEN LETTER SIZE LIST IN ANODIZED ALUMINUM FRAME.
- D. STENCILS
- (1) STENCILS: WITH CLEAN CUT SYMBOLS AND LETTERS OF FOLLOWING SIZE:
    - (A) 3/4 TO 1-1/4 INCHES (20-30 MM) OUTSIDE DIAMETER OF INSULATION OR PIPE: 8 INCHES (200 MM) LONG COLOR FIELD, 1/2 INCHES (15 MM) HIGH LETTERS.
    - (B) 1-1/2 TO 2 INCHES (40-50 MM) OUTSIDE DIAMETER OF INSULATION OR PIPE: 8 INCHES (200 MM) LONG COLOR FIELD, 3/4 INCH (20 MM) HIGH LETTERS.
    - (C) 2-1/2 TO 6 INCHES (65-150 MM) OUTSIDE DIAMETER OF INSULATION OR PIPE: 12 INCHES (300 MM) LONG COLOR FIELD, 1-1/4 INCHES (30 MM) HIGH LETTERS.

(D) DUCTWORK AND EQUIPMENT: 2-1/2 INCHES (65 MM) HIGH LETTERS.

(2) STENCIL PAINT: SEMI-GLOSS ENAMEL, COLORS CONFORMING TO ASME A13.1.

E. PIPE MARKERS

- (1) COLOR: CONFORM TO ASME A13.1.
  - (2) PLASTIC PIPE MARKERS: FACTORY FABRICATED, FLEXIBLE, SEMI-RIGID PLASTIC, PREFORMED TO FIT AROUND PIPE OR PIPE COVERING; MINIMUM INFORMATION INDICATING FLOW DIRECTION ARROW AND IDENTIFICATION OF FLUID BEING CONVEYED.
- F. CEILING TACKS
- (1) DESCRIPTION: STEEL WITH 3/4 INCH (20 MM) DIAMETER COLOR CODED HEAD.
  - (2) COLOR CODE AS FOLLOWS:
    - (A) YELLOW - HVAC EQUIPMENT
    - (B) RED - FIRE DAMPERS/SMOKE DAMPERS
    - (C) GREEN - PLUMBING VALVES
    - (D) BLUE - HEATING/COOLING VALVES

G. INSTALLATION

- (1) DEGREASE AND CLEAN SURFACES TO RECEIVE ADHESIVE FOR IDENTIFICATION MATERIALS.
- (2) INSTALL PLASTIC NAMEPLATES WITH CORROSIVE-RESISTANT MECHANICAL FASTENERS OR ADHESIVE. APPLY WITH SUFFICIENT ADHESIVE TO ENSURE PERMANENT ADHESION AND SEAL WITH CLEAR LACQUER.
- (3) INSTALL TAGS WITH CORROSION RESISTANT CHAIN.
- (4) INSTALL PLASTIC PIPE MARKERS IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.
- (5) IDENTIFY AIR CONDITIONING UNITS AND FANS WITH PLASTIC NAMEPLATES OR STENCIL PAINTING.
- (6) IDENTIFY CONTROL PANELS AND MAJOR CONTROL COMPONENTS OUTSIDE PANELS WITH PLASTIC NAMEPLATES.
- (7) IDENTIFY DUCTWORK WITH PLASTIC NAMEPLATES OR STENCILED PAINTING. IDENTIFY WITH AIR HANDLING UNIT OR FAN AND AREA BEING SERVED.
- (8) TAG AUTOMATIC CONTROLS, INSTRUMENTS, AND RELAYS. KEY TO CONTROL SCHEMATIC.
- (9) IDENTIFY PIPING, CONCEALED OR EXPOSED, WITH PLASTIC PIPE MARKERS OR STENCILED PAINTING. IDENTIFY SERVICE, FLOW DIRECTION, AND PRESSURE. INSTALL IN CLEAR VIEW AND ALIGN WITH AXIS OF PIPING. LOCATE IDENTIFICATION NOT TO EXCEED 20 FEET (6 M) ON STRAIGHT RUNS INCLUDING RISERS AND DROPS, ADJACENT TO EACH VALVE AND TEE, AT EACH SIDE OF PENETRATION OF STRUCTURE OR ENCLOSURE, AND AT EACH OBSTRUCTION.
- (10) PROVIDE CEILING JACKS TO LOCATE VALVES ABOVE T-BAR TYPE PANEL CEILINGS. LOCATE IN CORNER OF PANEL CLOSEST TO EQUIPMENT.

8. CONCRETE EQUIPMENT PADS

- A. UNLESS OTHERWISE NOTED, CONCRETE PADS NOT LESS THAN 4 INCHES HIGH AND WHICH PROTECT NOT LESS THAN 4 INCHES BEYOND THE EQUIPMENT ON ALL SIDES SHALL BE PROVIDED ALL FLOOR-MOUNTED EQUIPMENT. CONCRETE SHALL HAVE A COMPRESSIVE STRENGTH OF 3000 PSI @ 28 DAYS, 3% TO 8% AIR ENTRAINMENT, 6 INCHES SLUMP MAXIMUM UPON PLACEMENT. CONCRETE SHALL NOT BE PLACED WHEN TEMPERATURE WILL FALL BELOW 32 DEGREES F DURING PLACEMENT OR DURING A PERIOD OF THREE DAYS AFTER PLACEMENT. ANCHOR BOLTS SHALL BE SET PRIOR TO POURING OF THE SLABS. ARRANGE PAD AND OUTDOOR UNIT SO THAT COILS ARE A MINIMUM OF 12" ABOVE FINISHED GRADE.

9. INSULATION

- A. FLAME/SMOKE RATINGS: PROVIDE COMPOSITE PLUMBING INSULATION (INSULATION, JACKETS, COVERINGS, SEALERS, MASTICS AND ADHESIVES) WITH FLAME-SPREAD RATING OF 25 OR LESS, AND SMOKE-DEVELOPED RATING OF 50 OR LESS, AS TESTED BY ANSI/ASTM E84 (NFPA 255) METHOD. INSULATION SHALL BE LABELED BY THE MANUFACTURER. THE LABEL SHALL INDICATE THE INSULATING VALUE, FLAME SPREAD AND SMOKE-DEVELOPED RATING.
- B. SUBMITTALS: SUBMIT MANUFACTURER'S SPECIFICATIONS AND INSTALLATION INSTRUCTIONS FOR EACH TYPE OF INSULATION. SUBMIT SCHEDULE SHOWING MANUFACTURER'S PRODUCT NUMBER THICKNESS, AND FURNISHED ACCESSORIES FOR EACH SYSTEM REQUIRING INSULATION.
- C. INSTALLATION: INSULATION SHALL BE APPLIED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS USING ONLY ADHESIVES, MASTICS AND PLUMBING FASTENERS APPROVED BY THE INSULATION MANUFACTURER. INSULATION SHALL NOT BE APPLIED UNTIL AFTER THE EQUIPMENT HAS BEEN TESTED WITH RESULTS ACCEPTABLE TO THE ARCHITECT/ENGINEER. INSULATION WITH A VAPOR BARRIER JACKET SHALL BE APPLIED WITH A CONTINUOUS, UNBROKEN VAPOR SEAL AND ALL JOINTS SHALL BE SEALED WITH A VAPOR BARRIER ADHESIVE UNLESS OTHERWISE INDICATED. STAPLES, STICK CLIPS AND HANGERS SHALL BE VAPOR SEALED WHERE THEY PUNCTURE VAPOR BARRIER JACKETS.

D. MATERIALS:

- (1) FLEXIBLE DUCT INSULATION: ASTM C1290, MINERAL FIBER BLANKET, WITH OPERATING TEMPERATURE OF 250°F. THERMAL CONDUCTIVITY "K"=0.30 AT 75°F, DENSITY=0.75 LB/CU. FT. F AT 75 DEGREES F. FACTORY APPLIED JACKET (ASJ) SHALL CONSIST OF WHITE KRAFT PAPER BONDED TO ALUMINUM FOIL AND REINFORCED WITH GLASS FIBER YARN. EQUAL TO OWENS-CORNING ASJ.
- (2) FLEXIBLE CERAMIC FIBER INSULATION: BLANKET TYPE INSULATION, MINIMUM 8LB/CU FT DENSITY, HAVING A "K" FACTOR OF 0.24 AT 70°F MEAN TEMPERATURE. NON-COMBUSTIBLE WITH FLAME SPREAD, SMOKE DEVELOPED, AND FUEL CONTRIBUTED INDEXES OF 0. ASTM 84/UL 725; MELTING POINT OF 3200°F. NORMAL SERVICE RANGE UP TO 2300°F; INSTALL WITH 3" THICKNESS FOR 2-HOUR FIRE RATING AND ZERO CLEARANCE TO COMBUSTIBLES. INSULATION SHALL BE THERMAL CERAMICS KAOWOOL FIREMASTER BLANKET, FIBERFRAX DURABLANKET, OR APPROVED EQUAL.
- (3) ELASTOMERIC CELLULAR FOAM PIPE INSULATION: ASTM C534, TYPE 1 TUBULAR FORM, UNSLIT TUBING OR PRE-SLIT TUBULAR WITH FACTORY APPLIED PRESSURE SENSITIVE ADHESIVE. "K"=0.27 AT 75 DEGREES F, SERVICE TEMPERATURE 0°F TO 200°F. NO JACKET REQUIRED.

E. DUCT INSULATION

- (1) DUCT INSULATION: INSULATE ALL SUPPLY AIR, OUTDOOR AIR DUCTS AND RETURN DUCTS.
  - (2) PROVIDE INSULATION WITH VAPOR RETARDER JACKETS. PIPING SYSTEM WITH EQUIVALENT THICKNESS AND COMPOSITION OF INSULATION AS APPLIED TO ADJOINING PIPE RUN.
  - (3) EXTEND DUCT INSULATION WITHOUT INTERRUPTION THROUGH WALLS, FLOORS AND SIMILAR PIPING PENETRATIONS, EXCEPT WHERE OTHERWISE INDICATED.
  - (4) INSTALL PROTECTIVE METAL SHIELDS AND INSULATED INSERTS WHEREVER NEEDED TO PREVENT COMPRESSION OF INSULATION.
  - (5) SUPPLY, RETURN AND OUTSIDE AIR DUCTS: INSULATE WITH 2" THICK FLEXIBLE DUCTWORK INSULATION.
  - (6) SUPPLY, RETURN AND OUTSIDE AIR DUCTS EXPOSED TO WEATHER: INSULATE WITH 2.5" THICK FLEXIBLE DUCTWORK INSULATION. PROTECT INSULATION WITH 26 GAUGE GALVANIZED SHEET METAL JACKET SEALED WEATHERTIGHT.
- F. PIPE INSULATION
- (1) REFRIGERANT SUCTION AND HOT GAS PIPING: INSULATE 1-1/2" AND SMALLER PIPES WITH 1-1/2" THICK ELASTOMERIC CELLULAR FOAM INSULATION. INSULATE LARGER THAN 1-1/2" PIPES WITH 2" THICK ELASTOMERIC CELLULAR FOAM.
  - (2) CONDENSATE DRAIN PIPING: INSULATE ALL PIPING WITH 1/2" THICK ELASTOMERIC CELLULAR FOAM INSULATION.

10. DUCTWORK

- A. GALVANIZED STEEL DUCTS: ASTM A653/A653M GALVANIZED STEEL SHEET, LOCK-FORMING QUALITY, HAVING G60 ZINC COATING IN CONFORMANCE WITH ASTM A90/90M.
- B. FABRICATE AND SUPPORT IN ACCORDANCE WITH SMACNA HVAC DUCT CONSTRUCTION STANDARDS - METAL AND FLEXIBLE.
- C. WHERE RECTANGULAR ELBOWS ARE USED, FURNISH TURNING VANES.
- D. INCREASE DUCT SIZES GRADUALLY, NOT EXCEEDING 15' DIVERGENCE WHEREVER POSSIBLE; MAXIMUM 30' DIVERGENCE UPSTREAM OF EQUIPMENT AND 45' CONVERGENCE DOWNSTREAM.
- E. FLEXIBLE DUCT CONNECTIONS SHALL BE FABRICATED IN ACCORDANCE WITH SMACNA HVAC DUCT CONSTRUCTION STANDARDS - METAL AND FLEXIBLE.
- F. VOLUME CONTROL DAMPERS SHALL BE RUSKIN MODEL MD-35 AND SHALL BE FABRICATED IN ACCORDANCE WITH SMACNA HVAC DUCT CONSTRUCTION STANDARDS - METAL AND FLEXIBLE.

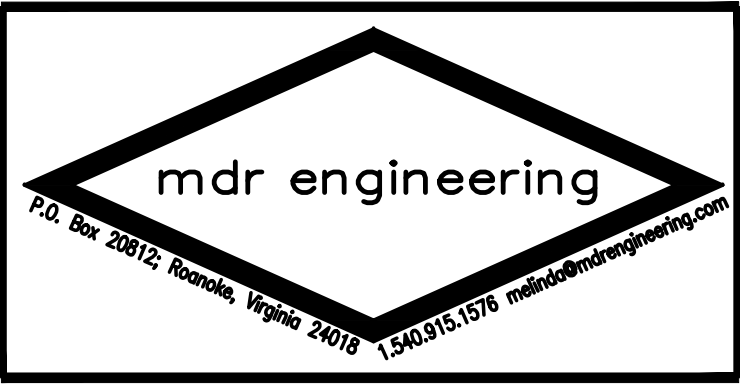
11. DIFFUSERS, REGISTERS AND GRILLES

- A. DIFFUSERS, REGISTERS AND GRILLES SHALL BE THE TYPE, MATERIAL, AIR PATTERN AND FINISH INDICATED ON THE DRAWINGS.
- B. INSTALL AIR OUTLETS AND INLETS IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS. INSTALL DIFFUSERS, REGISTERS AND GRILLES TO DUCTWORK WITH AIRTIGHT CONNECTION.

12. CLEANING AND TESTING

- A. CLEAN EQUIPMENT AND FIXTURES TO A SANITARY CONDITION WITH CLEANING MATERIALS APPROPRIATE TO THE SURFACE AND MATERIAL BEING CLEANED. CLEAN DUCT SYSTEMS AND FORCE AIR AT HIGH VELOCITY THROUGH DUCT TO REMOVE ACCUMULATED DUST.
- B. REPLACE FILTERS OF OPERATING EQUIPMENT.
- C. HEATING AND COOLING SYSTEMS AND EXHAUST SYSTEMS SHALL BE TESTED, ADJUSTED AND BALANCED (TAB). AIR HANDLING SYSTEMS SHALL BE ADJUSTED TO WITHIN +/- 10% OF DESIGN. THE TOTAL OF AIR OUTLETS AND INLETS SHALL BE ADJUSTED TO WITHIN PLUS 10% AND MINUS 5% OF DESIGN TO SPACE. ADJUST OUTLETS AND INLETS IN SPACE TO WITHIN +/- 10% OF DESIGN.
- D. THE TAB CONTRACTOR SHALL NOT BE AFFILIATED IN ANY WAY BE WITH THE INSTALLING CONTRACTOR OR EQUIPMENT SUPPLIERS. PROVIDE TAB REPORT.

END OF SPECIFICATIONS



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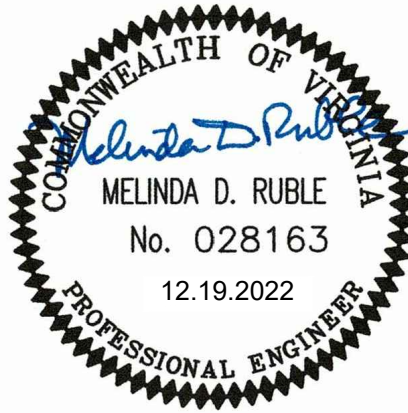
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Revisions: 12/19/2022  
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Drawn By: MDR  
Review By: MDR  
Project No: 2224

Sheet No.

M101



ROOFTOP AIR CONDITIONING UNIT SCHEDULE

MARK	MANUFACTURER & MODEL NO.	SA CFM	OA CFM	VOLTS Ø	S.P. IN WG EXT.	COOLING SECTION		HEATING SECTION		MCA	MOCP	WEIGHT (LBS)
						TOTAL CAP. MBH	SENS CAP. MBH	MBH INPUT	MBH OUTPUT			
RTU-1	TRANE YSC060	1990	130	208/3	0.75	56.4	47.7	100.0	81.0	29	40	800

- NOTES:
- UNITS TO HAVE ONE YEAR MANUFACTURER'S WARRANTY INCLUDING PARTS, LABOR AND REFRIGERANT, FIVE YEAR MANUFACTURER'S WARRANTY FOR COMPRESSORS.
  - RTU'S TO HAVE HINGED ACCESS DOORS, NON-FUSED DISCONNECT SWITCH, CONDENSER COIL GUARDS, LOW AMBIENT CONTROL, LOW LEAKAGE OUTDOOR AIR DAMPERS, COMPARATIVE ENTHALPY ECONOMIZER, 2" MERV 8 FILTER, CONVENIENCE OUTLET, THROUGH THE BASE ELECTRICAL, SYMBIO CONTROLS, LOW AMBIENT, SIDE DISCHARGE.

SPLIT SYSTEM FURNACE SCHEDULE

MARK	MANUFACTURER & MODEL NO.	CFM	EVAP. FAN HP	VOLTS Ø	S.P. IN WG EXT.	INDOOR UNIT				OUTDOOR UNIT			
						GAS FURNACE			WEIGHT	MARK	MANUFACTURER & MODEL NO.	VOLTS Ø	MCA
						INPUT (MBH)	OUTPUT (MBH)	% EFF					
F-1	TRANE S9X1C100USPSB	1990	1	120/1	0.75	100	96.0	96.0	13.3	15	55.8	44.7	140 LBS.
F-2	TRANE S9X1C100USPSB	1990	1	120/1	0.75	100	96.0	96.0	13.3	15	55.8	44.7	140 LBS.

- NOTES:
- INCLUDE MATCHED COOLING COIL, PROGRAMMABLE, WALL MOUNTED THERMOSTAT, CONDENSATE NEUTRALIZATION KIT, AUXILIARY DRAIN PAN WITH OVERFLOW SENSOR, CONDENSATE PUMP (IF REQUIRED) AND CONCENTRIC VENT SYSTEM. UNITS TO BE TWINNED WITH NECESSARY CONTROLS.
  - WEIGHTS ARE APPROXIMATE AND INCLUDE ACCESSORIES
  - ALL AIR HANDLERS HAVE SINGLE POINT POWER CONNECTIONS

FAN SCHEDULE

UNIT	CFM	S.P.	RPM	MOTOR			SELECTION BASED ON GREENHECK	CONTROL	NOTES
				HP	VOLTS	PH			
EF-1	250	0.25	1390	1/6	120	1	GB-097	RUN DURING OCCUPANCY	1

- SCHEDULE NOTES:
- PROVIDE WITH ROOF CURB, ELECTRICAL DISCONNECT AND BIRDSCREEN. CONTROL AS INDICATED IN SCHEDULE.

GRILLES, REGISTERS AND DIFFUSERS SCHEDULE

MARK	MANUFACTURER & MODEL NO.	DESCRIPTION	MATERIAL	FINISH	ACCESSORIES & FEATURES
GRILLES & REGISTERS					
TR-1	METALAIRE V4004-1	10"x6" DOUBLE DEFLECTION SIDEWALL SUPPLY REGISTER	STEEL	WHITE	MODEL OBD DAMPER
TR-2	METALAIRE V4004-1	12"x8" DOUBLE DEFLECTION SIDEWALL SUPPLY REGISTER	STEEL	WHITE	MODEL OBD DAMPER
TR-3	METALAIRE V4004-1	6"x6" DOUBLE DEFLECTION SIDEWALL SUPPLY REGISTER	STEEL	WHITE	MODEL OBD DAMPER
TG-1	METALAIRE SRH-1	12"x8" FIXED BLADE SIDEWALL RETURN GRILLE	STEEL	WHITE	---
TG-2	METALAIRE SRH-1	10"x10" FIXED BLADE SIDEWALL RETURN GRILLE	STEEL	WHITE	---
CR-1	METALAIRE SRH-1	6"x6" FIXED BLADE CEILING EXHAUST REGISTER	STEEL	WHITE	OPPOSED BLADE DAMPER
CG-1	METALAIRE SRH-1	12"x30" FIXED BLADE CEILING EXHAUST REGISTER	STEEL	WHITE	---
DG-1	METALAIRE DGGF	12"x12" DOUBLE FLANGE FRAME DOOR GRILLE	ALUMINUM	WHITE	---
DG-2	METALAIRE DGGF	30"x30" DOUBLE FLANGE FRAME DOOR GRILLE	ALUMINUM	WHITE	---

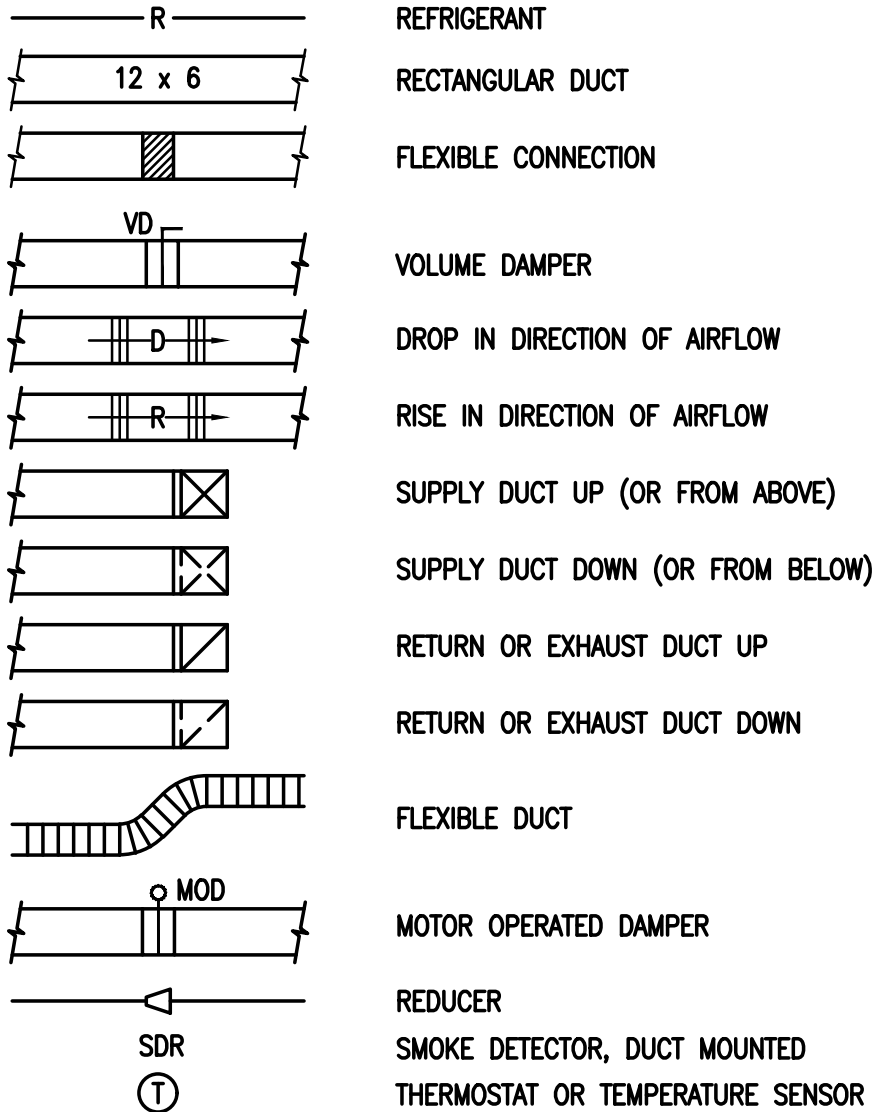
GENERAL MECHANICAL NOTES

- INSTALL THERMOSTATS, HUMIDISTATS AND TEMPERATURE AND HUMIDITY SENSORS WITH CENTER AT 4'8" ABOVE FLOOR. WHERE THERMOSTATS AND SNAP SWITCHES (SEE ELECTRICAL DRAWINGS) ARE INDICATED IN CLOSE PROXIMITY ON THE SAME WALL, THE LOCATIONS SHALL BE COORDINATED SO THAT THE THERMOSTAT IS CENTERED DIRECTLY OVER THE SNAP SWITCH OR GROUP OF SNAP SWITCHES.
- DUCT DIMENSIONS INDICATED ARE SHEET METAL DIMENSIONS.
- COORDINATE LOCATIONS OF CEILING MOUNTED DIFFUSERS, REGISTERS AND GRILLES WITH LIGHT FIXTURES AND CEILING GRID. REFER TO ELECTRICAL DRAWINGS.
- FIRST FIGURE OF DUCT SIZE INDICATES DIMENSION OF SIDE SHOWN OR INDICATED.
- ACCESS SHALL BE MAINTAINED TO ALL CONTROL DEVICES. ACCESS PANEL SIZES AND LOCATIONS SHALL BE DETERMINED PRIOR TO BIDDING AND SHALL BE INCLUDED IN THE BID PRICE FOR CONTRACT WORK. ACCESS PANELS SHALL BE INSTALLED WHERE REQUIRED AND SHALL BE FIRE RATED WHEN USED IN FIRE RESISTIVE CONSTRUCTION.
- PIPING AND DUCTWORK SHALL BE SUPPORTED FROM, OR ANCHORED TO, THE BUILDING STRUCTURE; CEILING CONSTRUCTION SHALL NOT BE USED FOR SUPPORT OR ANCHORING OF WORK.
- TEMPERATURE CONTROL WIRING WIRING LESS THAN 100 VOLTS SHALL BE PROVIDED IN DIVISION 15. WIRING 100 VOLTS AND GREATER SHALL BE PROVIDED IN DIVISION 16.
- MAINTAIN ACCESS BELOW EQUIPMENT INSTALLED ABOVE CEILINGS. DO NOT OBSTRUCT ACCESS WITH PIPING OR DUCTWORK.
- PROVIDE MANUAL VOLUME DAMPERS AS REQUIRED TO PROPERLY BALANCE THE SYSTEM.
- CONTRACTOR SHALL CLOSELY COORDINATE LOCATIONS OF ALL PANELBOARDS WITH LOCATIONS OF ALL DUCTWORK AND PLUMBING PIPING. DUCTWORK AND PLUMBING PIPING SHALL NOT BE INSTALLED OVER TOP OF ANY PANELBOARD. DUCTWORK AND PLUMBING PIPING SHALL NOT BE INSTALLED OVER ANY OF THE CODE REQUIRED CLEAR SPACES AT ANY PANELBOARD LOCATION.

HVAC CONTROLS

- PROVIDE DOCUMENTATION AND TRAINING TO OWNER ALONG WITH ONE YEAR WARRANTY. LABEL ALL CONTROLS AND EQUIPMENT THE SAME AS IDENTIFIED ON THE DRAWINGS AND SUBMITTALS. SUBMIT SHOP DRAWINGS AND DETAILED SEQUENCE OF OPERATION OF CONTROL SYSTEM PRIOR TO INSTALLATION.
- CONTROLS SHALL INCLUDE ALL THERMOSTATS, SENSORS, VALVES, DAMPERS, TRANSFORMERS, STARTERS, RELAYS, WIRING, INTERLOCKS AND OTHER DEVICES TO ENABLE THE SEQUENCE OF OPERATION. CONTROLS SHALL BE COORDINATED WITH THE EQUIPMENT PROVIDED.
- PROVIDE START-UP AND VERIFICATION OF CONTROL SYSTEM & SEQUENCE OF OPERATION. COORDINATE WITH TEST & BALANCE CONTRACTOR TO OPERATE EQUIPMENT IN ALL MODES AND DEVICE POSITIONS.
- ROOM SENSOR SHALL HAVE DIGITAL DISPLAY AND TIMED OVERRIDE BUTTON. ALL SENSORS SHALL HAVE THE CAPABILITY TO ADJUST ROOM TEMPERATURE SETPOINT OR TO HAVE THIS FUNCTION LOCKED OUT.
- HVAC SYSTEMS: IN OCCUPIED MODE, THE SUPPLY FAN SHALL RUN CONTINUOUSLY. THE OUTSIDE AIR DAMPER SHALL OPEN AND THE UNIT CONTROLLER WILL MAINTAIN ROOM SETPOINT BY CYCLING THE COOLING/HEATING. IN UNOCCUPIED MODE, THE UNITS SHALL BE DE-ENERGIZED UNTIL A CALL FOR SETBACK HEATING OR COOLING BY THE UNIT CONTROLLER. THE OUTSIDE AIR DAMPER SHALL REMAIN CLOSED AT ALL TIMES DURING UNOCCUPIED MODE. OVERRIDE BUTTON ON THERMOSTAT SHALL PLACE THE UNIT IN OCCUPIED MODE FOR TWO HOURS (ADJUSTABLE).

LEGEND



ABBREVIATIONS

- BTU BRITISH THERMAL UNIT  
CD CEILING DIFFUSER  
CFD CEILING FIRE DAMPER  
CFM CUBIC FEET PER MINUTE  
CG CEILING GRILLE  
COP COEFFICIENT OF PERFORMANCE  
CR CEILING REGISTER  
DB DRY BULB TEMPERATURE  
EAT ENTERING AIR TEMPERATURE  
EER ENERGY EFFICIENCY RATIO  
EFF EFFICIENCY  
EXT EXTERNAL  
F DEGREES FAHRENHEIT  
FPM FEET PER MINUTE  
FT FEET  
HP HORSEPOWER  
IN INCH, INCHES  
LAT LEAVING AIR TEMPERATURE  
MAX MAXIMUM  
MBH THOUSAND BTU PER HOUR  
VD VOLUME DAMPER  
MH MOUNTING HEIGHT  
MIN MINIMUM  
MOD MOTOR OPERATED DAMPER  
NC NORMALLY CLOSED  
NIC NOT IN CONTRACT  
NO NORMALLY OPEN  
OA OUTSIDE AIR  
PD PRESSURE DROP  
PS PRESSURE SENSOR  
PSI POUNDS PER SQUARE INCH  
PSIG POUNDS PER SQUARE INCH GAGE  
RA RETURN AIR  
SP STATIC PRESSURE  
TEMP TEMPERATURE  
TG TOP GRILLE  
TR TOP REGISTER  
TYP TYPICAL  
WB WET BULB TEMPERATURE  
WC, WG WATER COLUMN  
AFF ABOVE FINISHED FLOOR  
ABV ABOVE  
AD ACCESS DOOR  
BEL BELOW  
BET BETWEEN  
CLG CEILING  
CONN CONNECT, CONNECTION  
CONT CONTINUED  
DN DOWN  
EA EACH  
FL FLOOR  
FLEX FLEXIBLE  
FR FROM  
GALV GALVANIZED  
REQD REQUIRED  
SH SHEET  
SDR DUCT MOUNTED SMOKE DETECTOR



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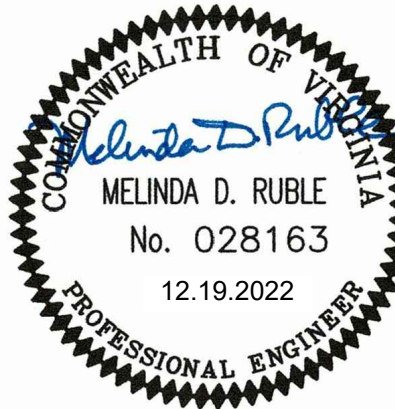
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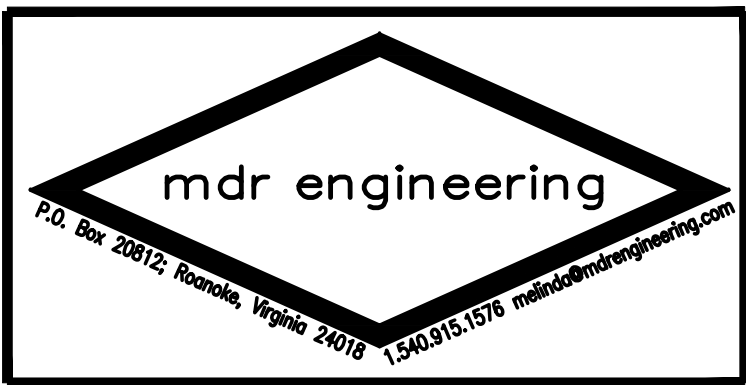
MECHANICAL  
LEGEND,  
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Project No: 2224

Sheet No.

M201







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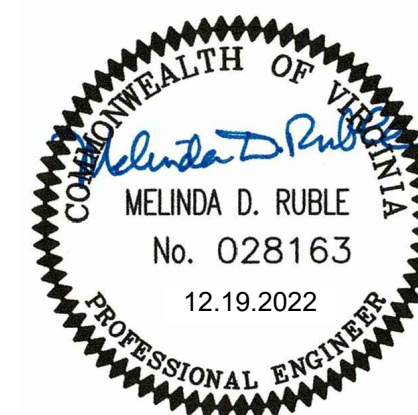
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CONSTRUCTION  
DRAWINGS



MECHANICAL  
FIRST FLOOR  
PLAN

12/19/2022

Revisions:  
△ MONTH, DAY, YEAR

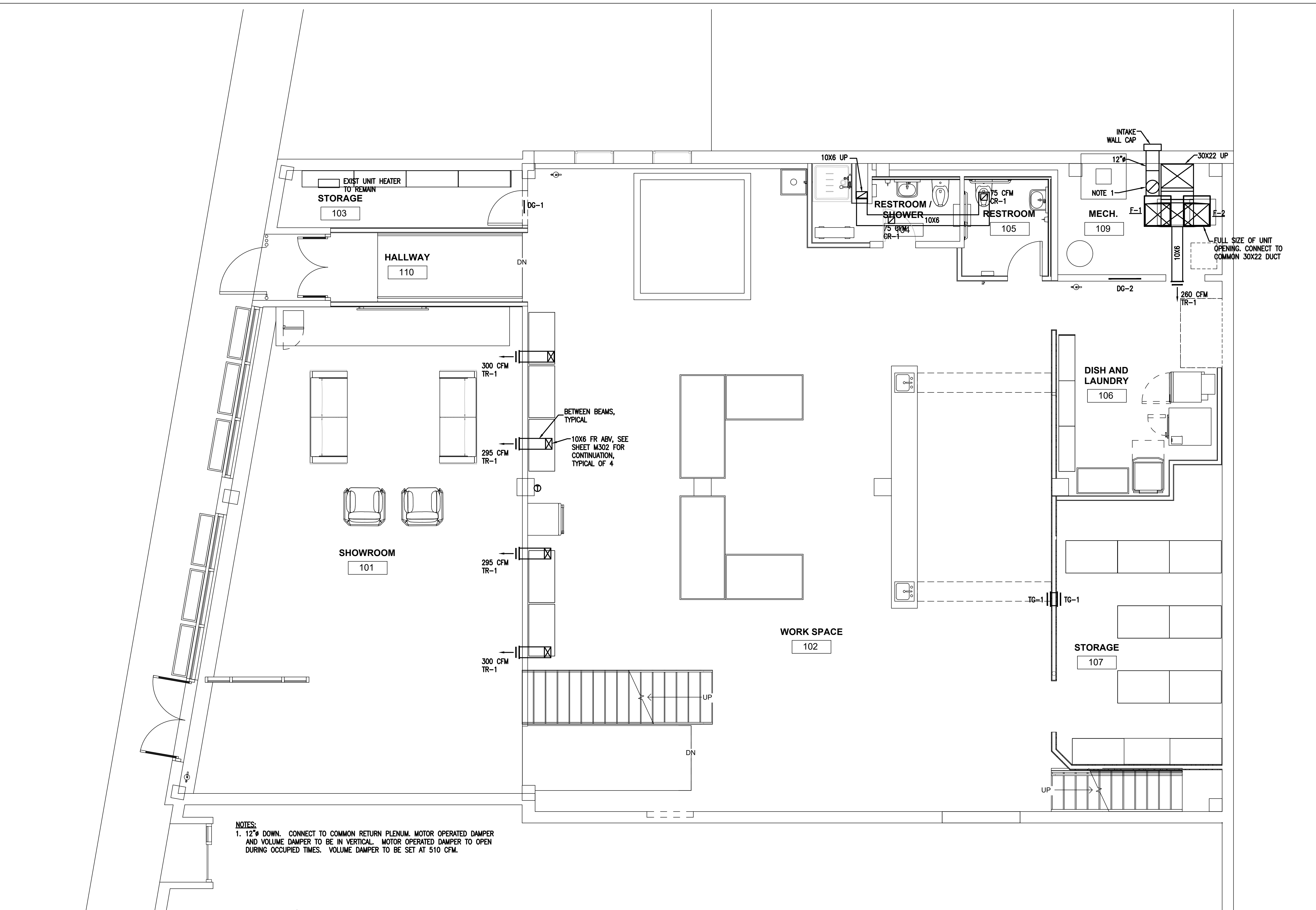
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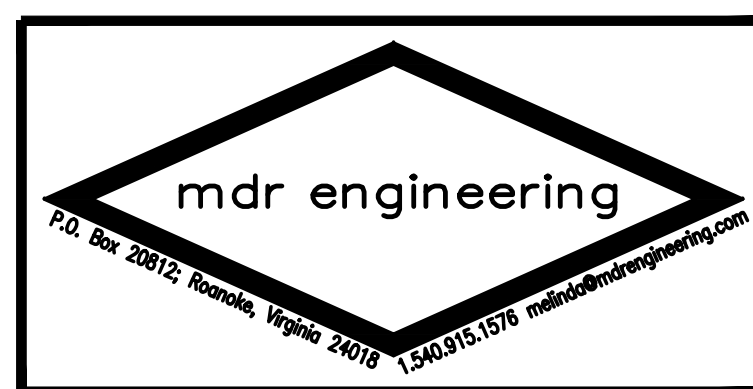
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M301



① MECHANICAL FIRST FLOOR PLAN  
1/4" = 1'-0"





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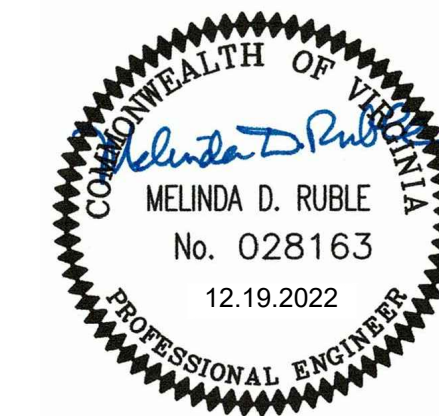
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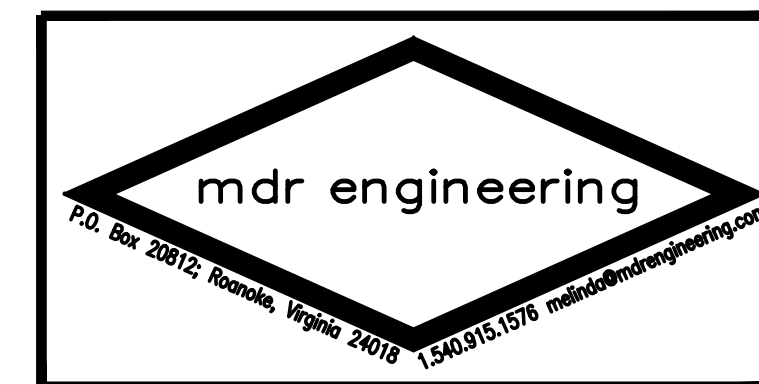
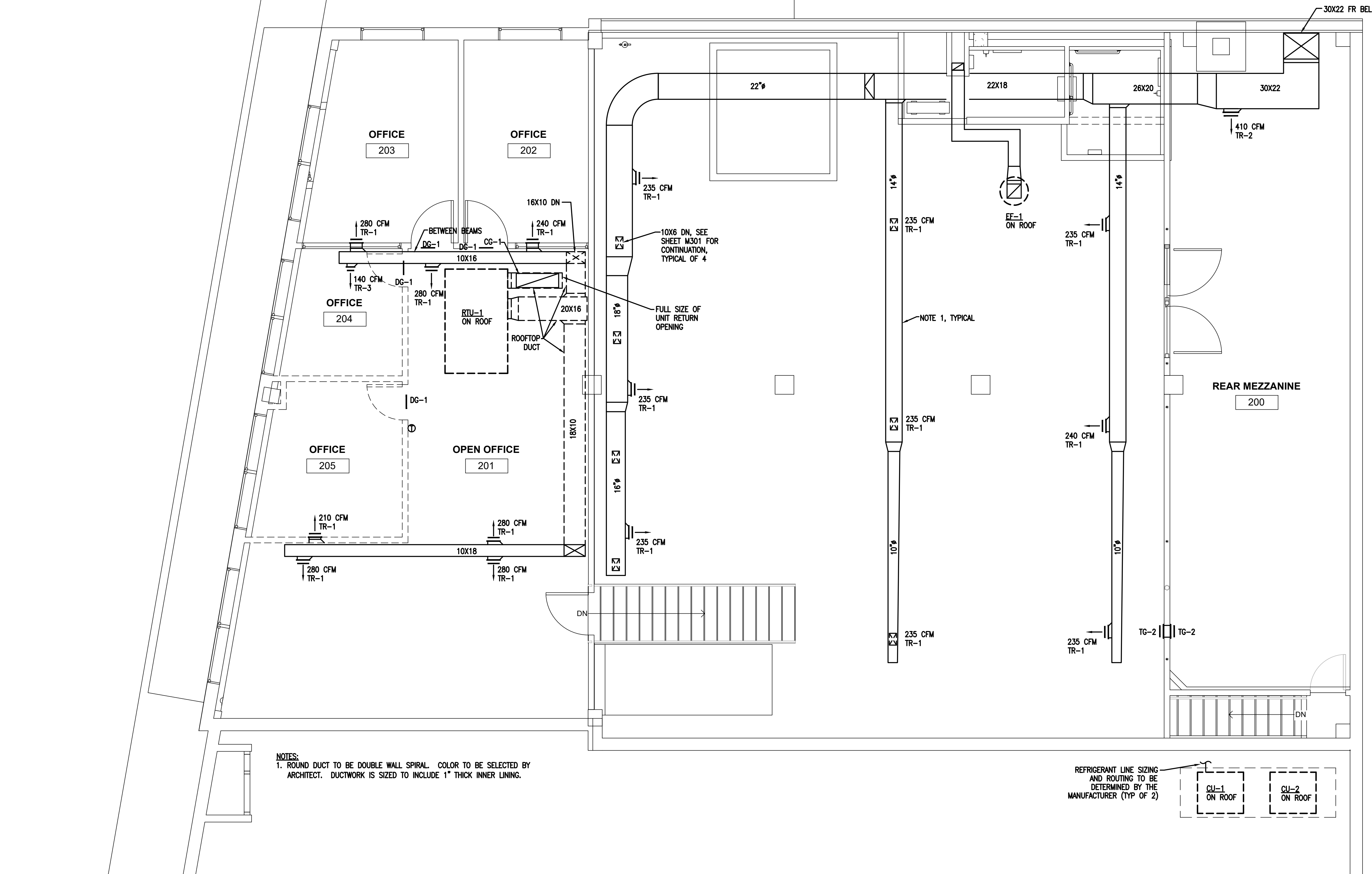
MECHANICAL  
SECOND FLOOR  
PLAN

12/19/2022  
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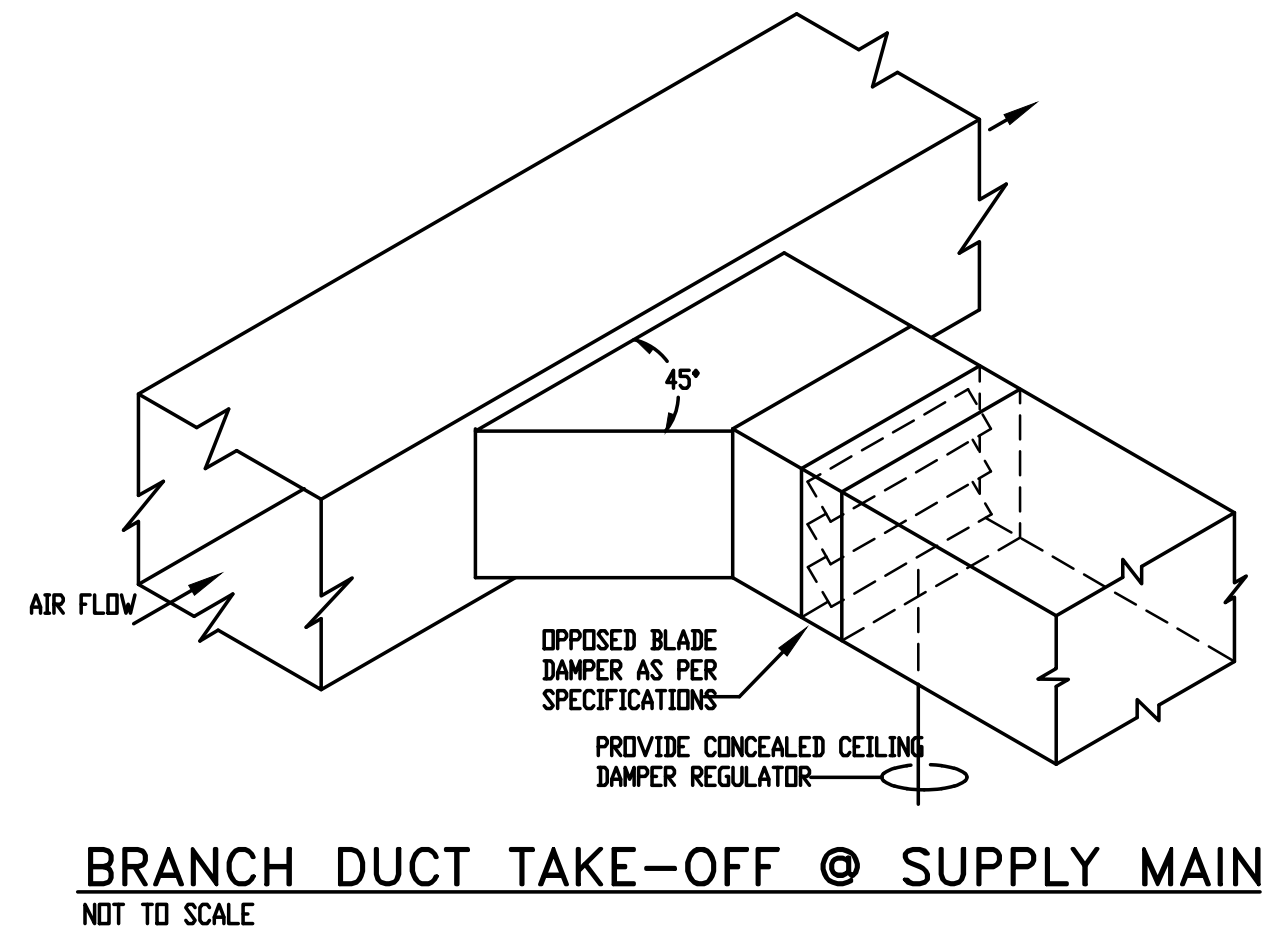
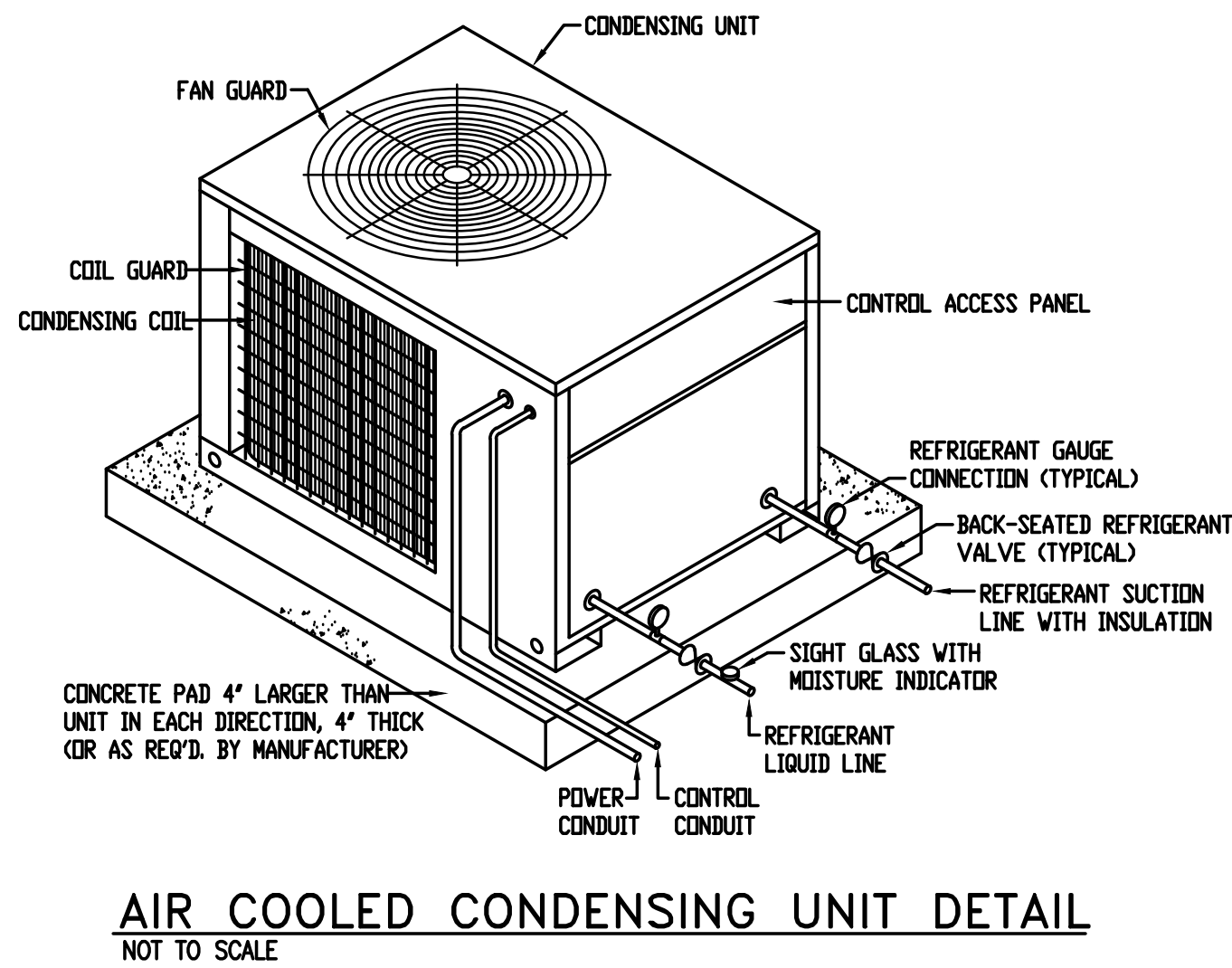
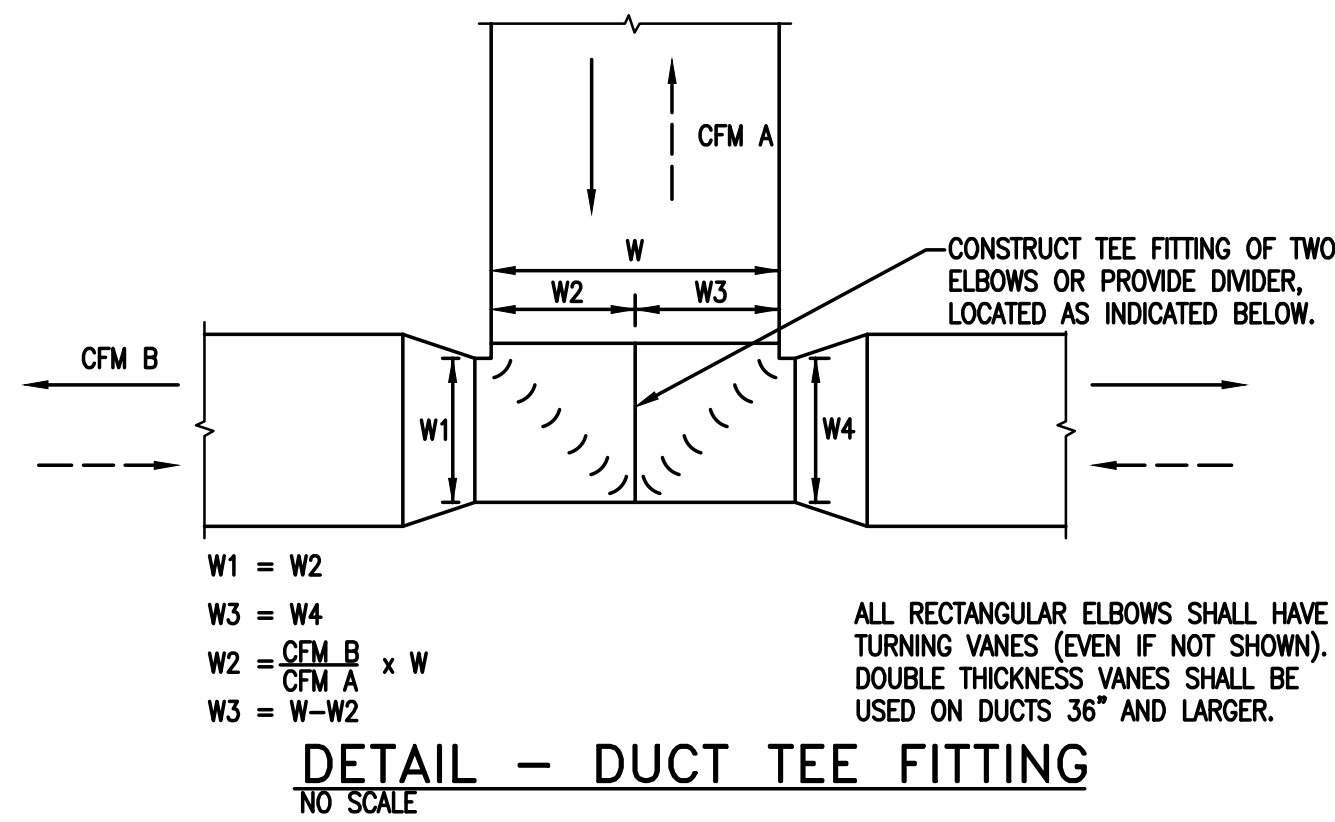
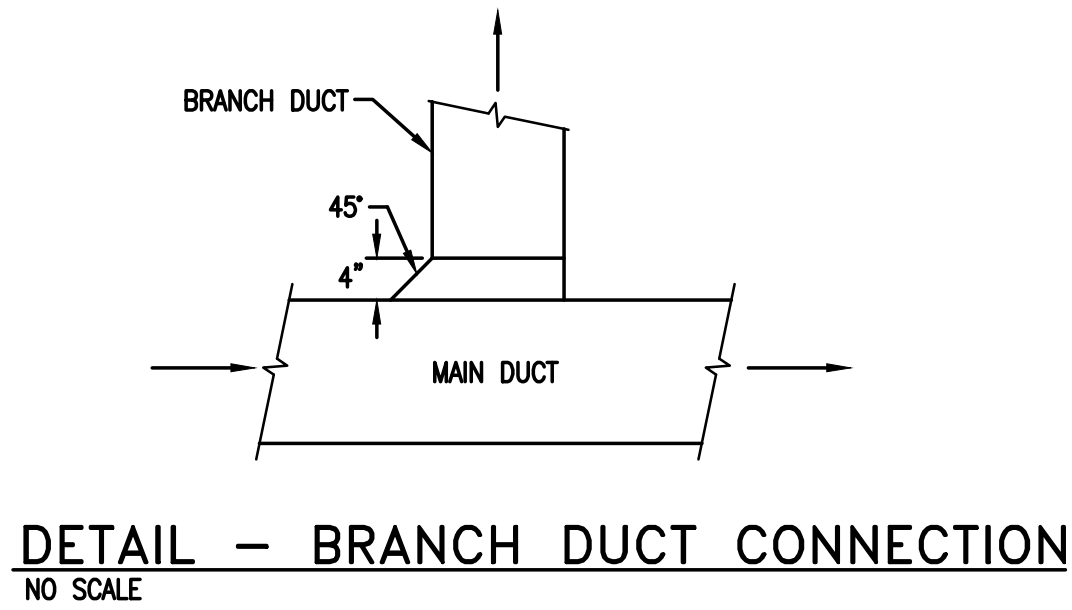
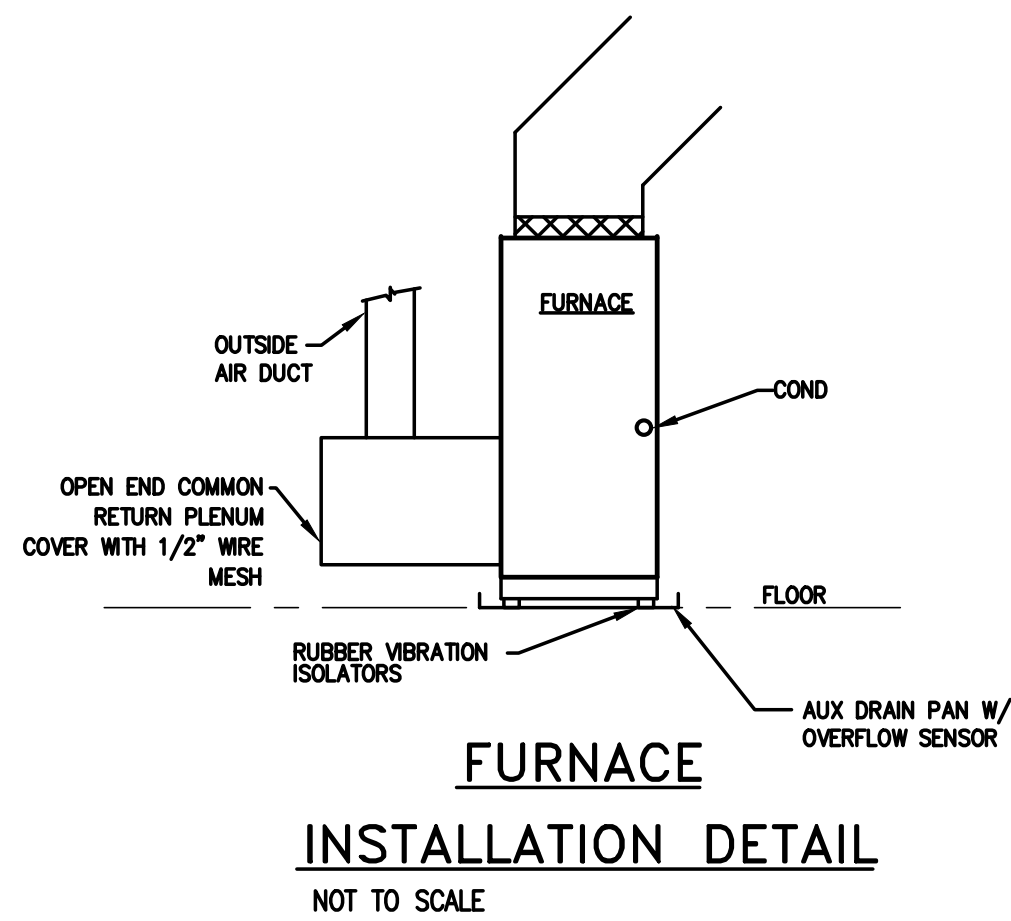
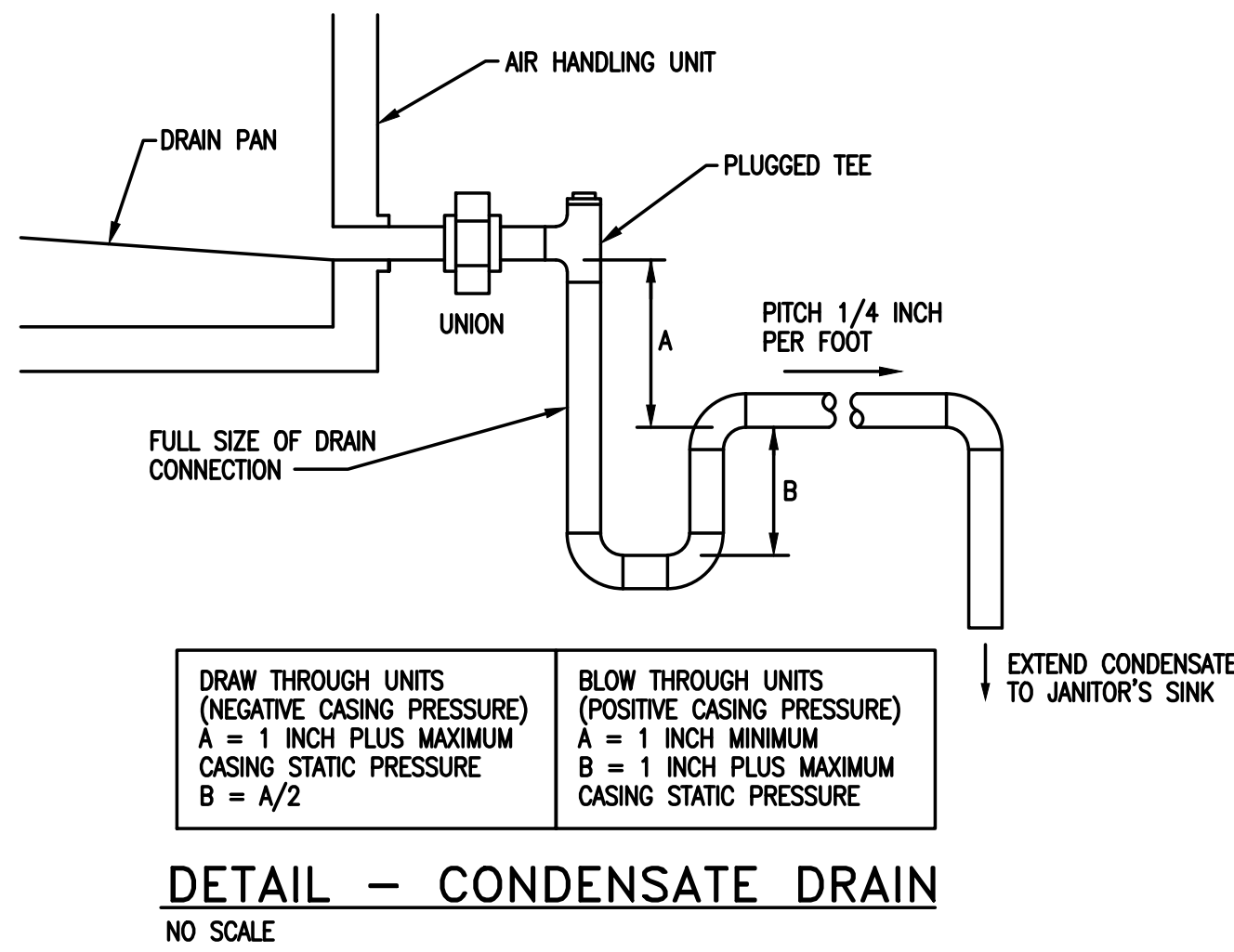
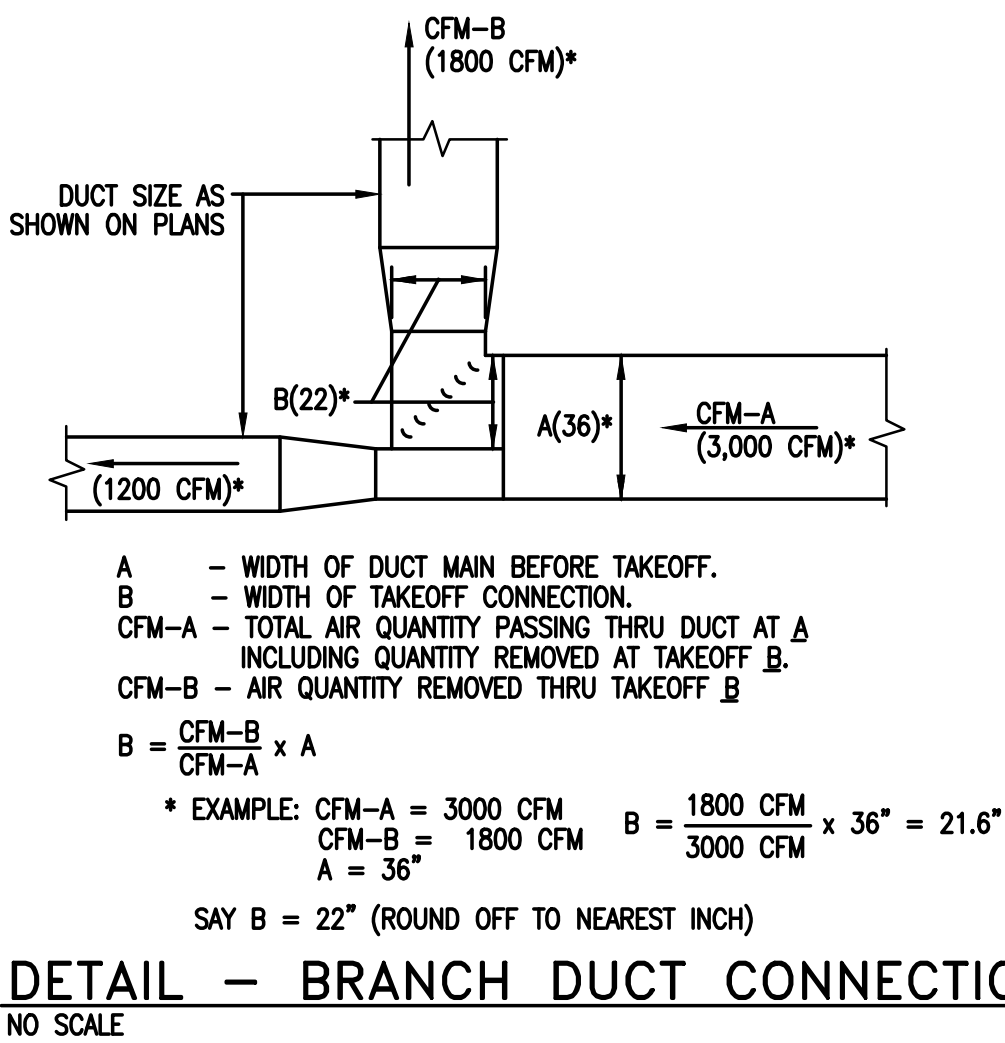
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M302





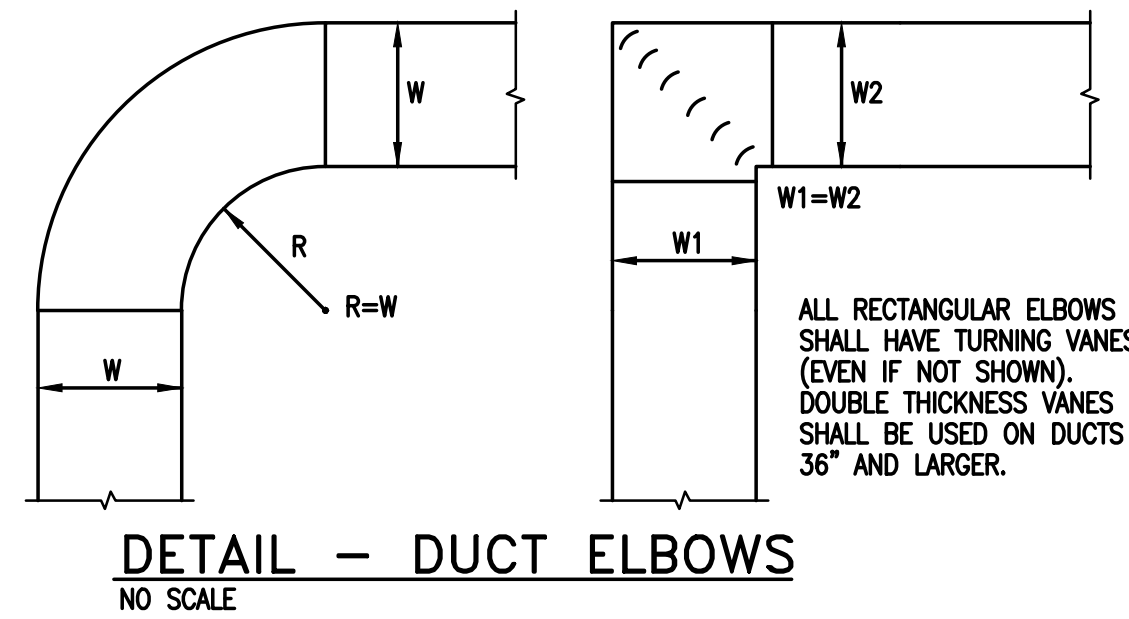
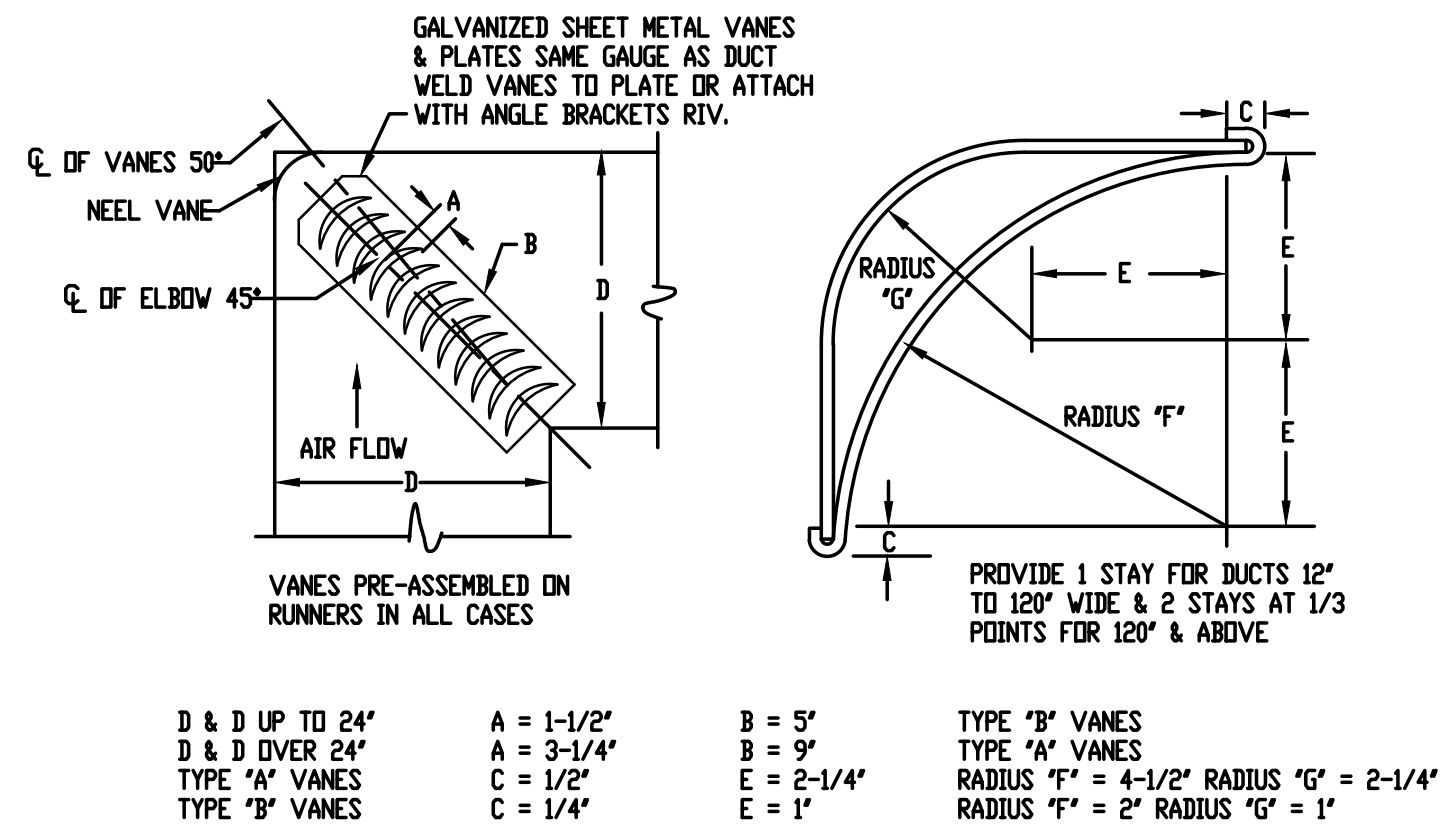
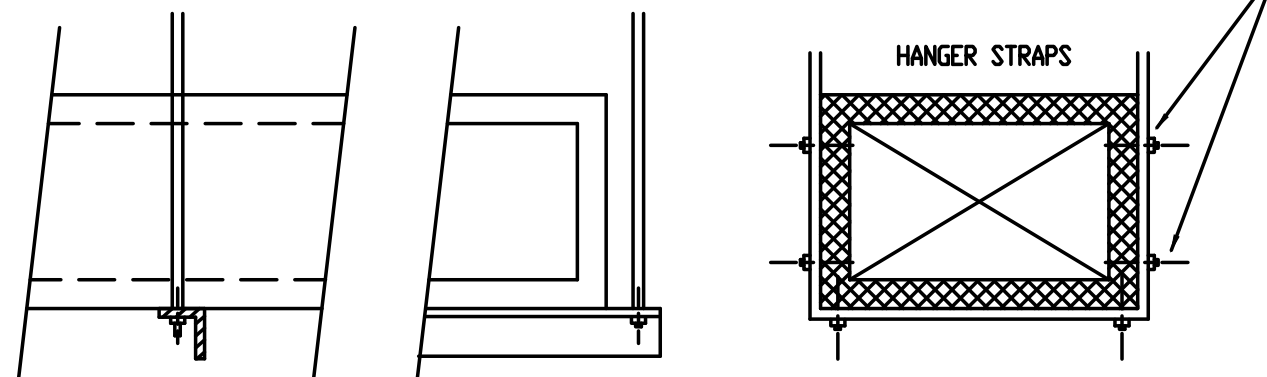


HANGER SIZES FOR RECTANGULAR DUCT			
MAX. SIDE	HANGER	HORIZONTAL SUPPORT ANGLE	MAXIMUM SPACING
30"	1"X18" GAGE STRAP	NONE REQUIRED	10'-0"

**NOTE:**  
ALL SUPPLY AIR DUCT SHALL BE WRAPPED EXTERNALLY AS PER SPECIFICATIONS

**NO POP RIVETS ALLOWED**

SELF TAPPING CADMIUM PLATED HEX HEAD SHEET METAL SCREW STRAPS TO BE TIGHT AGAINST DUCT.



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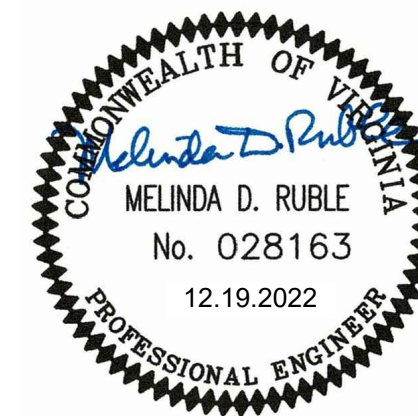
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MECHANICAL  
DETAILS

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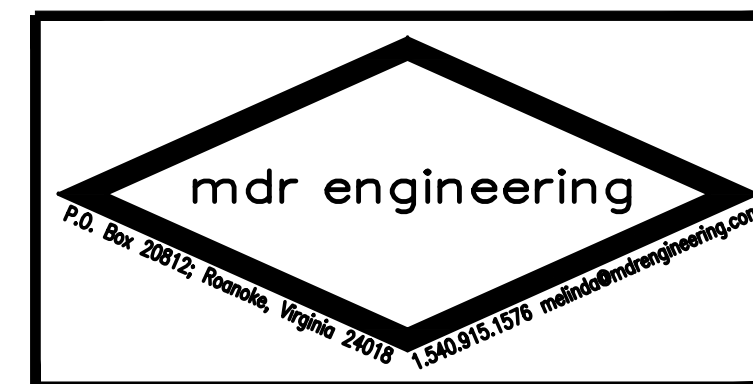
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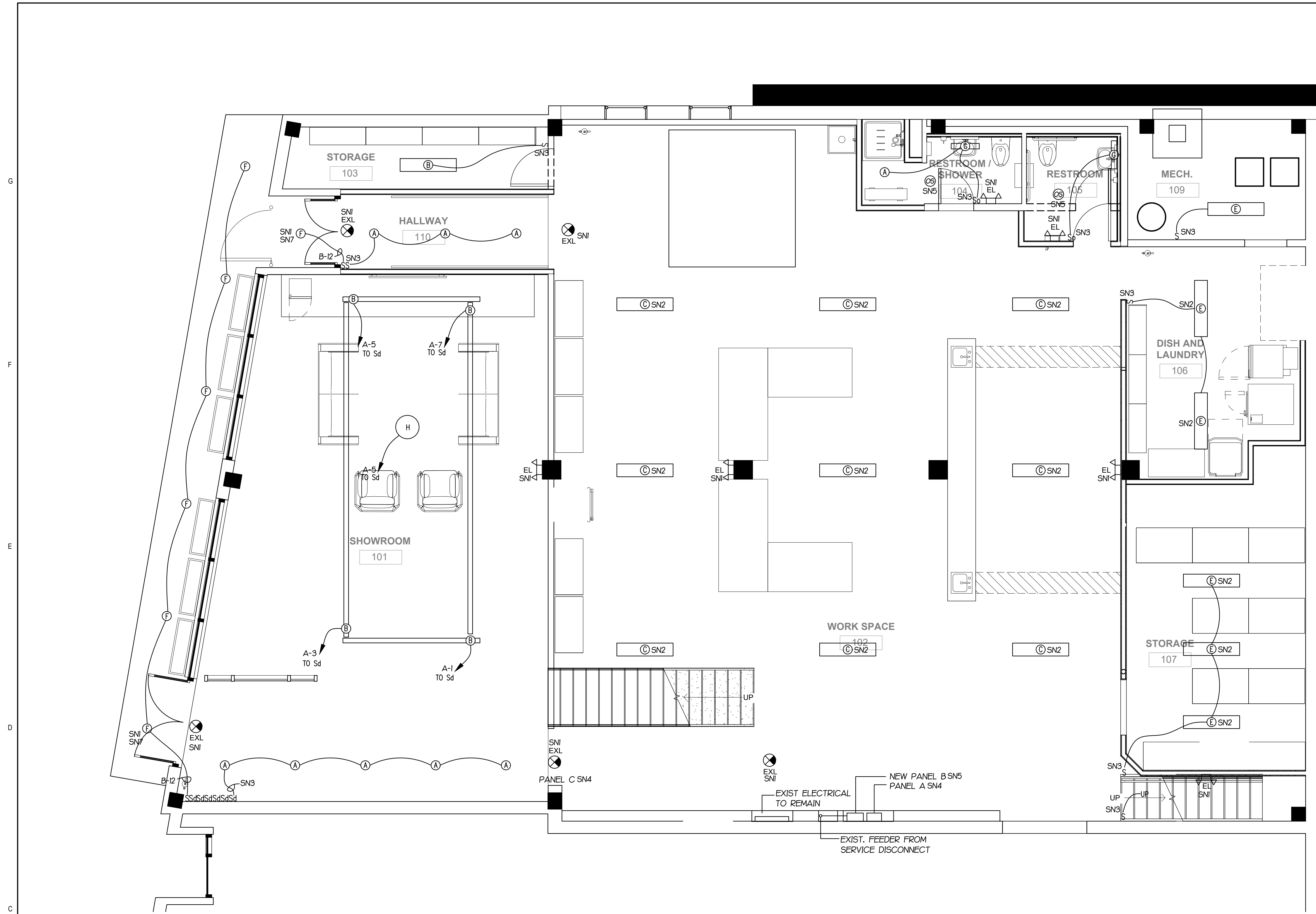
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Sheet No.

**M401**





1 FIRST FLOOR - LIGHTING PLAN  
1/4" = 1'-0"

LIGHT FIXTURE SCHEDULE				
MARK	DESCRIPTION	LAMP	MOUNTING	BASIS OF DESIGN
A	7" SURFACE LED DOWN LIGHT	LED	CEILING	RUD SM34 7R 9W 930 120V W
B	LIGHT TRACK		CEILING	NORA TRACK NT
B	LED TRACK HEAD	LED	TRACK	NORA NTE-856 (SEE ARCH FOR QUANTITY)
C	WALLPACK WEM BALLAST	LED	WALL	LITHONIA VST P1 40K VWMVLYBBW PE E7WH
D	2X4 LED TROFFER	LED	CEILING	RUD EZPANHE 2X4 46W YNDN, SMKEZPAN2X4
E	4 FT LINEAR LED	LED	CEILING	RUD GUS 4 36 YN WID10
F	4" SURFACE LED DOWN LIGHT	LED	CEILING	RAB WFRL 4 9W 90CRI 3000K 120 W S
G	24" VANITY LIGHT	LED	WALL	LITHONIA FMVTSL 30K 90CRI BN M4
EL	EMERGENCY LIGHTS	LED	WAL	LITHONIA EU2 LED M12
ER	REMOTE EMERGENCY LIGHTS	LED	WAL	LITHONIA ELA LED T WP
EXL	EXIT WITH TWIN HEAD LIGHTS	LED	CEILING/WALL	LITHONIA ECR LED M6

SHEET NOTES:

- SNI - CONNECT EGRESS LIGHTS TO UN-SWITCHED LEG OF LOCAL LIGHTING BRANCH CIRCUIT.
- SN2 - CONNECT TO EXISTING SWITCHED LIGHTING BRANCH CIRCUIT.
- SN3 - CONNECT TO EXISTING LIGHTING BRANCH CIRCUIT.
- SN4 - EXISTING PANEL TO REMAIN. VERIFY ALL CIRCUITS AND PROVIDE A TYPED PANEL DIRECTORY.
- SN5 - NEW PANE B TO REPLACE EXISTING FUSED DISCONNECT SWITCH.
- SN6 - OCCUPANCY SWITCH TO EXHAUST FAN EF-1 OFF ROOF, CIRC B-2B.
- SN7 - FOR THIS FIXTURE PROVIDE RAB EMERGENCY DRIVER DRI-25-EMGR-DC.

GENERAL DEMOLITION NOTES

- NOTES APPLY TO ALL SHEETS
- DN1: PRIOR TO DEMOLITION VERIFY THE SOURCE ALL ELECTRICAL CIRCUITS SERVING THE RENOVATED ROOMS.
- DN2: PROVIDE WIRING AS REQUIRED TO MAINTAIN POWER FOR EXISTING ELECT. DEVICES AND EQUIPMENT WHICH ARE TO REMAIN, INCLUDING DEVICES AND EQUIP. THAT MAY BE OUTSIDE THE WORK AREA.
- DN3: PROVIDE MISC. SELECTIVE DEMOLITION AND RELOCATION OF EXIST. ELECTRICAL COMPONENTS AS REQUIRED FOR PROPER INSTALLATION OF THE PROPOSED CONSTRUCTION. THESE DRAWINGS DO NOT PURPORT TO SHOW ALL MISC. DEMOLITION. CONTRACTOR TO VERIFY EXISTING CONDITIONS PRIOR TO SUBMITTING A BID.
- DN4: CONDUITS TO BE REMOVED THAT ARE IN AN INACCESSIBLE AREA OR IMBEDDED IN MASONRY OR CONCRETE, SHALL BE ABANDONED IN PLACE. CONDUCTORS SHALL BE REMOVED AND CONDUIT CUT OFF FLUSH AND SEALED OR CAPPED AS REQUIRED TO ACCOMMODATE NEW WORK AND FINISHES.. CONDUITS AT SLABS SHALL BE FILLED FULL WITH NON-SHRINK GROUT. FOR FLUSH BOXES NOT USED FOR NEW CONSTRUCTION AND TO REMAIN, PROVIDE BLANK STAINLESS STEEL COVER PLATE. EXISTING CONCEALED CONDUITS MAY BE RE-USED.
- DN5: REMOVE AND/OR RELOCATE EXISTING CONDUIT WITHIN RENOVATION AREA THAT CONFLICT WITH INSTALLATION OF NEW CEILINGS.
- DN6: SEE ARCHITECTURAL, PLUMBING AND HVAC DRAWING FOR ADDITIONAL WORK REQUIREMENTS.

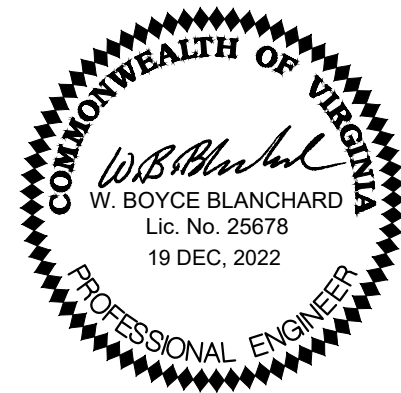
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FIRST FLOOR  
LIGHTING PLAN

12/19/2022

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Review By: WBB  
Project No. 2224

Sheet No.

E101

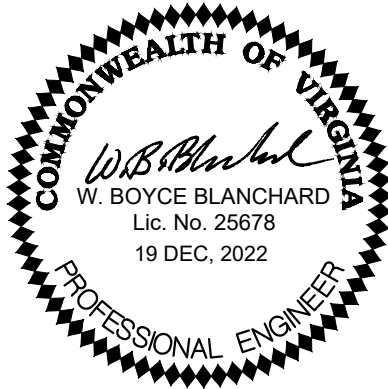




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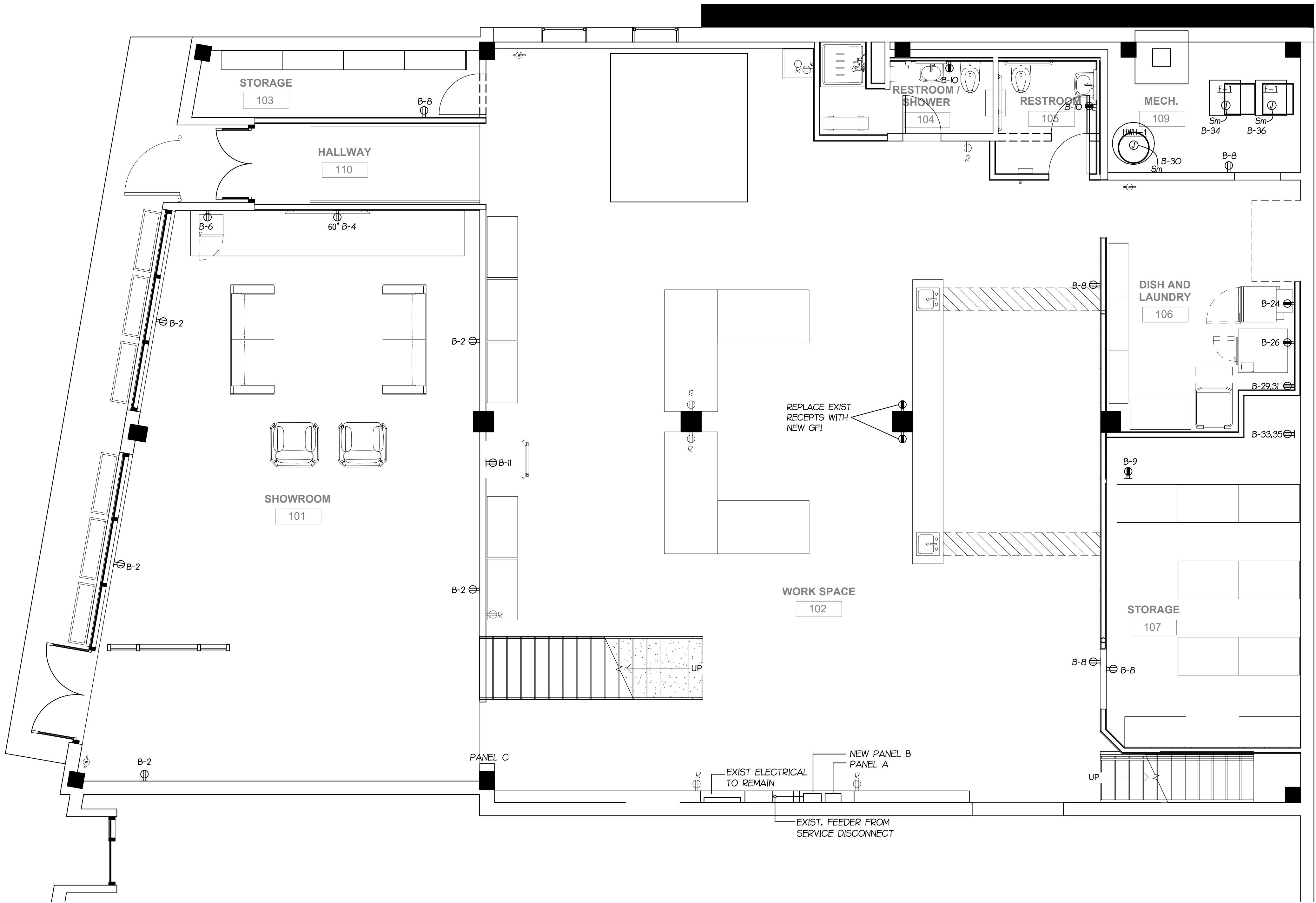
## FIRST FLOOR POWER PLAN

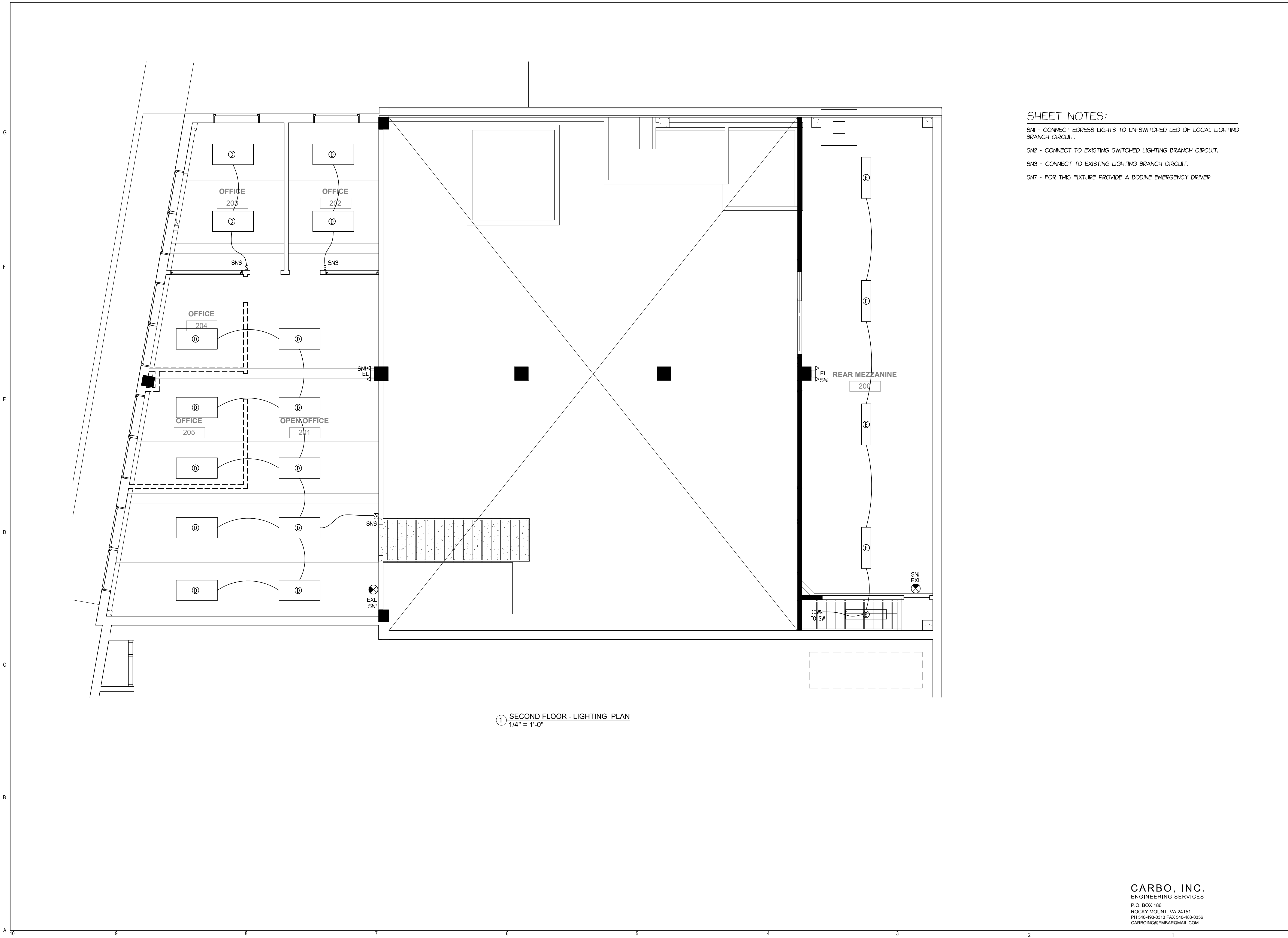
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① FIRST FLOOR - POWER PLAN  
1/4" = 1'-0"





**SHEET NOTES:**

SNI - CONNECT EGRESS LIGHTS TO UN-SWITCHED LEG OF LOCAL LIGHTING BRANCH CIRCUIT.

SN2 - CONNECT TO EXISTING SWITCHED LIGHTING BRANCH CIRCUIT.

SN3 - CONNECT TO EXISTING LIGHTING BRANCH CIRCUIT.

SN7 - FOR THIS FIXTURE PROVIDE A BODINE EMERGENCY DRIVER

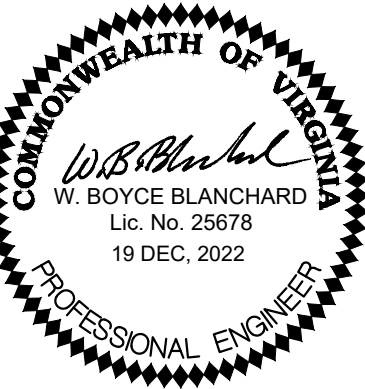


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**SECOND FLOOR  
LIGHTING PLAN**

12/19/2022

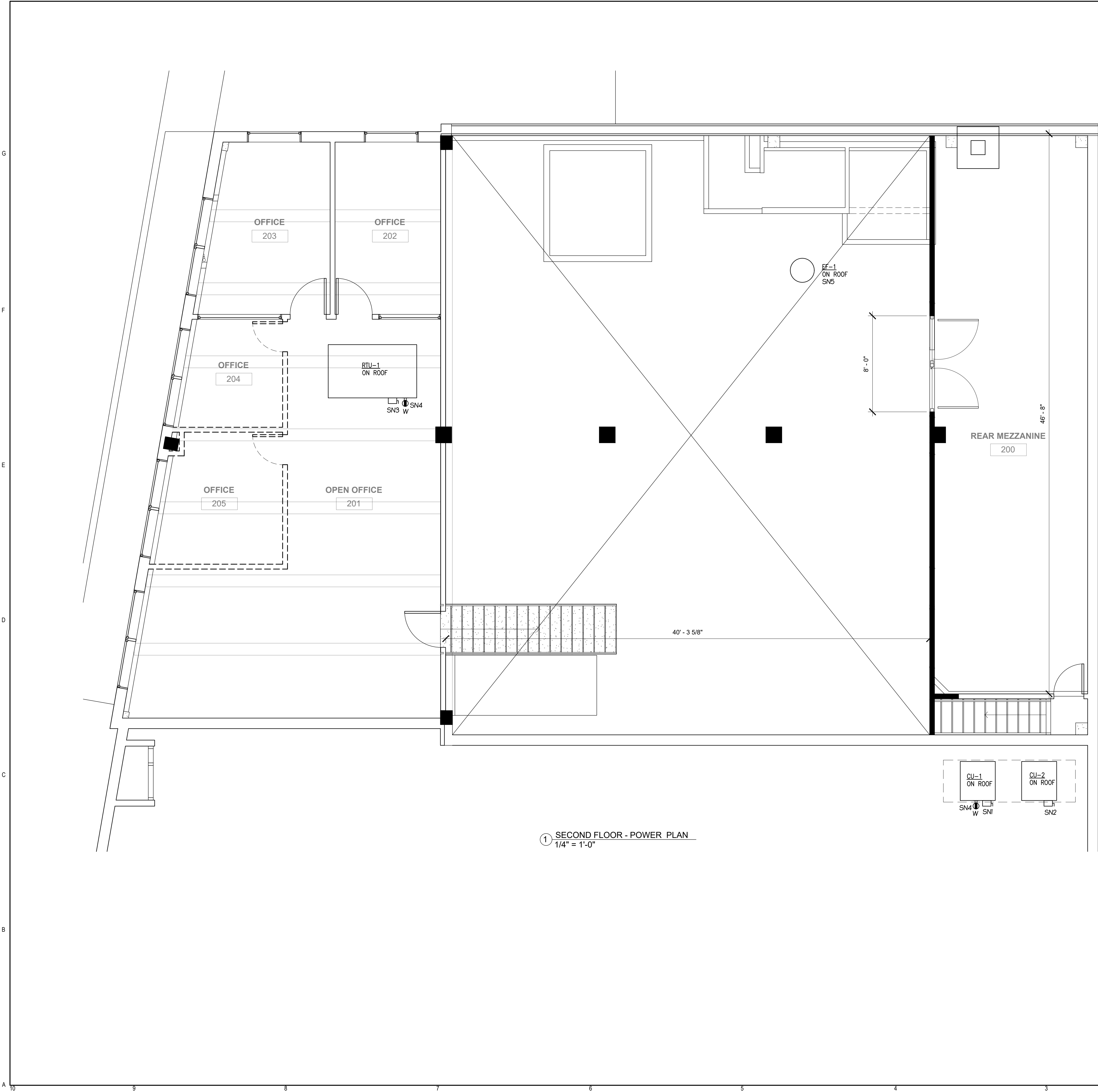
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**E103**



SHEET NOTES:

SN1 - PROVIDE A 60A/2P NON FUSED NEMA 3R DISCONNECT SWITCH FOR OUTDOOR UNIT, CIRC. B-25,27.

SN2 - PROVIDE A 60A/2P NON FUSED NEMA 3R DISCONNECT SWITCH FOR OUTDOOR UNIT, CIRC. B-30,32.

SN3 - PROVIDE A 60A/3P NON FUSED NEMA 3R DISCONNECT SWITCH FOR ROOF TOP UNIT RTU-1, CIRC. B-38,40,42.

SN4 - PROVIDE A WEATHER PROOF GFI RECEPTACLE MOUNTED OR ADJACENT TO MECH UNIT, CIRC. B-28.

SN5 - EXHAUST FAN CONTROLLED BY OCCUPANCY SENSOR SWITCHES IN TOILETS, CIRC. B-28.

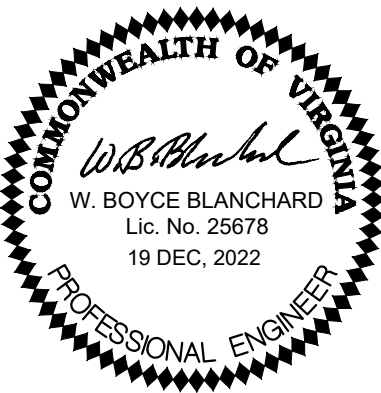


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SECOND FLOOR  
POWER PLAN

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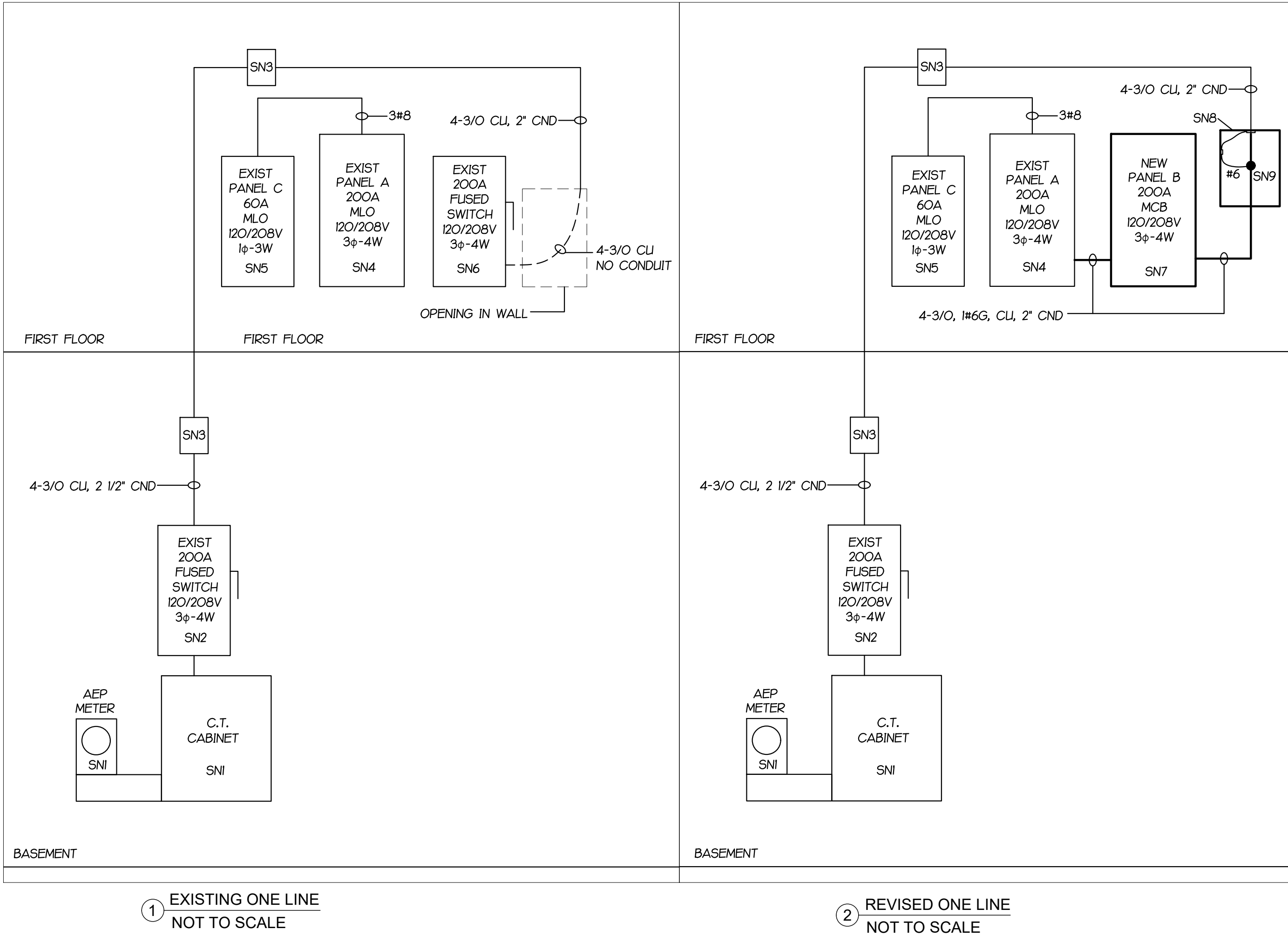
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G  
F  
E  
D  
C  
B  
A



### SHEET NOTES:

- SN1 - EXISTING C.T. CABINET TO REMAIN.
- SN2 - EXISTING 120/208V/3P/4W FUSED SERVICE DISCONNECT SWITCH TO REMAIN. PROVIDE NEW 200A FUSES. LABEL SWITCH AS 'SERVICE DISCONNECT FOR 419 LUCK AVE - CLED'.
- SN3 - PULL BOX TO REMAIN.
- SN4 - EXISTING PANEL A TO REMAIN. VERIFY ALL CIRCUITS AND PROVIDE A TYPED PANEL DIRECTORY. REMOVE ALL OUT OF SERVICE WIRE.
- SN5 - EXISTING PANEL C TO REMAIN. VERIFY ALL CIRCUITS AND PROVIDE A TYPED PANEL DIRECTORY. REMOVE ALL OUT OF SERVICE WIRE.
- SN6 - EXISTING 200A FUSED DISCONNECT TO BE REMOVED.
- SN7 - NEW 200A/3P/4W PANELBOARD 'PANEL B'.
- SN8 - PROVIDE A 12X12X6 JUNCTION BOX WITH A GROUNDING BUSHING BONDED TO PULL BOX & GALVANIZED STEEL CONDUIT WITH BARE #6.
- SN9 - SPLICE NEW 3/0 FEEDER TO EXISTING. SPLICE TO BE A COMPRESSION BUTT SPLICE.

PANEL B									
120/208 VOLT 3 PHASE 4 WIRE 42 POLE			200 AMP MCB 10 KAIC COPPER BUS			SQUARE D TYPE NQ SURFACE MOUNTED NEMA 1			
CRK	BRK	DESCRIPTION	WIRE SIZE	VA LOAD	VA LOAD	WIRE SIZE	DESCRIPTION	BRK	CRK
1	20	TRACK LIGHTS	12	250	900	12	SHOWROOM RECEPTACLES	20	2
3	20	TRACK LIGHTS	12	250	500	12	SHOWROOM MONITOR	20	4
5	20	TRACK LIGHTS & CHANDELIER	12	500	600	12	FRIG RECEPT	20	6
7	20	TRACK LIGHTS	12	250	540	12	RECEPTACLES	20	8
9	20	DISHWASHER	12	1200	360	12	RESTROOM RECEPTS	20	10
11	20	REFRIGERATOR	12	600	105	12	EXTERIOR LIGHTS	20	12
13		SPACE					SPARE	20	14
15		SPACE					SPARE	20	16
17		SPACE					SPARE	20	18
19		SPACE					SPARE	20	20
21		SPACE			150	12	WATER HEATER HWH-1	20	22
23		SPACE			1200	12	WASHING MACHINE	20	24
25	50/2	OUTDOOR UNIT CU-1	8	2579	1200	12	WASHING MACHINE	20	26
27			8	2579	360	12	GFI RECEPTS ON ROOF & EF-1	20	28
29	30/2	DRYER	10	2500	2579	8	OUTDOOR UNIT CU-2	50/2	30
31			10	2500	2579	8			32
33	30/2	DRYER	10	2500	150	12	FURNACE F-1	15	34
35			10	2500	150	12	FURNACE F-2	15	36
37			2	5542	2785	8			38
39	100/3	EXIST. PANEL A	2	5542	2786	8	ROOF TOP UNIT RTU-1	40/3	40
41		AEP DEMAND (13.3 X 1.25 = 16.63KW)	2	5542	2786	8			42

### ELECTRICAL SPECIFICATIONS

GENERAL:  
THESE SPECIFICATIONS DEFINE THE BASIC REQUIREMENTS FOR THE ELECTRICAL INSTALLATION.

THE SPECIFICATIONS ARE INTENDED TO CONVEY THE SCOPE OF WORK AND TO INDICATE THE GENERAL REQUIREMENTS FOR THE EQUIPMENT AND ITS INSTALLATION. THE ELECTRICAL CONTRACTOR SHALL PROVIDE QUALIFIED SUPERVISION, LABOR, EQUIPMENT, MATERIALS AND OTHER ITEMS NECESSARY FOR A SAFE, COMPLETE AND FUNCTIONING ELECTRICAL SYSTEM WHETHER OR ALL INCIDENTAL MATERIAL OR EQUIPMENT IS INDICATED HEREIN. THE WORK SHALL BE PERFORMED UNDER THE DIRECT SUPERVISION OF A LICENSED VA MASTER ELECTRICIAN.

PROJECT ARCHITECTURAL, SITE, ELECTRICAL, PLUMBING AND HVAC SPECIFICATIONS AND DRAWINGS SHALL BE EXAMINED BY THE ELECTRICAL CONTRACTOR, TO DETERMINE ELECTRICAL SYSTEMS INTERFACE AND CONDITIONS WHICH COULD CAUSE INTERFERENCE OR DEVIATIONS IN EQUIPMENT LOCATIONS OR ROUTING.

VERIFY ALL DIMENSION BY FIELD MEASUREMENTS. DO NOT SCALE DIMENSIONS FROM DRAWINGS.

WHEREVER THE WORD "PROVIDE" IS USED IN THESE SPECIFICATIONS OR ON THE DRAWINGS IT SHALL MEAN "THE ELECTRICAL CONTRACTOR IS TO PROVIDE AND INSTALL COMPLETE AND READY FOR INTENDED USE BY THE OWNER". THE DRAWINGS ARE DIAGNMMATIC IN NATURE AND DO NOT SHOW ALL DETAILS NECESSARY FOR A COMPLETE ELECTRICAL SYSTEM. THE ELECTRICAL CONTRACTOR SHALL PROVIDE ALL ITEMS REQUIRED FOR COMPLETE AND FUNCTIONAL SYSTEMS.

ITEMS OF WORK SHOWN ON THE DRAWINGS AND NOT MENTIONED IN THESE SPECIFICATIONS OR ITEMS OF WORK CALLED FOR IN THE SPECIFICATIONS BUT NOT SHOWN ON THE DRAWINGS SHALL BE CONSIDERED AS BEING SHOWN ON THE PLANS AND SPELLED OUT IN THE SPECIFICATIONS.

REGULATIONS AND ORDINANCES:  
ALL ELECTRICAL WORK SHALL BE INSTALLED IN STRICT COMPLIANCE WITH ALL APPLICABLE CODES, REGULATIONS AND ORDINANCES. THE INSTALLATION SHALL COMPLY WITH THE NATIONAL ELECTRICAL CODE (NEC), 2017 EDITION OF NFPA 70, AND ALL APPLICABLE STATE AND LOCAL CODES/ORDINANCES. ALL EQUIPMENT AND MATERIALS SHALL BE MANUFACTURED IN ACCORDANCE WITH THE FOLLOWING STANDARDS, WHERE APPLICABLE:  
NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION (NEMA)  
NATIONAL FIRE PROTECTION ASSOCIATION (NFPA)

ALL EQUIPMENT AND MATERIAL USED ON THIS PROJECT SHALL BE NEW AND LISTED BY THE UNDERWRITER'S LABORATORIES, ELECTRICAL TESTING LABORATORIES, INC. OR OTHER RECOGNIZED TESTING AGENCY AND SHALL BEAR THEIR LABEL.

ELECTRICAL REQUIREMENTS BY OTHER TRADES:  
POWER (ALL VOLTAGES 120 AND GREATER) WIRING AND CONNECTIONS TO HVAC EQUIPMENT, PLUMBING EQUIPMENT AND RELATED EQUIPMENT SHALL BE MADE BY THE ELECTRICAL CONTRACTOR. ALL HVAC CONTROL WIRING WILL BE THE RESPONSIBILITY OF THE INSTALLING TRADE.

GUARANTEE:  
THE ELECTRICAL CONTRACTOR SHALL GUARANTEE ALL EQUIPMENT AND MATERIAL FURNISHED UNDER HIS SCOPE OF WORK FOR A PERIOD OF ONE (1) YEAR AFTER DATE OF FINAL ACCEPTANCE. EQUIPMENT MANUFACTURER'S WARRANTIES SHALL BE PASSED TO THE OWNER. SHOULD ANY DEFECTS APPEAR WITHIN THIS PERIOD, THE ELECTRICAL CONTRACTOR SHALL REPAIR OR REPLACE SAID DEFECTS OR ANY DAMAGE TO BUILDING OR CONTENTS CAUSED BY DEFECTIVE WORKMANSHIP OR EQUIPMENT, AND SHALL MAKE REQUIRED ADJUSTMENTS AT NO COST TO THE OWNER.

ELECTRICAL CLEARANCES:  
THE ELECTRICAL CONTRACTOR SHALL COORDINATE THE DIMENSIONS AND ACCESS REQUIREMENTS OF ELECTRICAL EQUIPMENT TO ENSURE PROPER INSTALLATION AND REQUIRED CODE REQUIRED CLEARANCES AS STATED IN ARTICLE 110-26 OF THE NATIONAL ELECTRIC CODE. THE ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR ALL SITE WORK NECESSARY FOR THE ELECTRICAL WORK ON THIS PROJECT.

EQUIPMENT CONNECTIONS:  
THE ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING ALL DISTRIBUTION EQUIPMENT AND CONDUIT AND WIRING REQUIRED TO SERVE ALL EQUIPMENT INDICATED BY THIS DOCUMENT. CONNECTIONS SHALL BE MADE TO OWNER FURNISHED EQUIPMENT, CONTRACTOR SHALL VERIFY THE LOCATION OF EQUIPMENT AND ROUGH-IN REQUIREMENTS.

PROVIDE FLEXIBLE METAL CONDUIT CONNECTIONS FOR MOTOR CONNECTIONS AND OTHER EQUIPMENT SUBJECT TO MOVEMENT AND VIBRATION.

PROVIDE METAL JACKETED LIQUID-TIGHT FLEXIBLE METAL CONDUIT FOR CONNECTION OF MOTORS AND OTHER EQUIPMENT SUBJECT TO MOVEMENT AND VIBRATION WHERE SUBJECT TO HUMID, DAMP OR WET CONDITIONS. ALL OUTDOOR EQUIPMENT CONNECTIONS SHALL LIQUID TIGHT.

SUPPORTS AND HANGERS:  
THE ELECTRICAL CONTRACTOR SHALL PROVIDE ALL SUPPORTS AND HANGER MATERIALS REQUIRED TO SUPPORT CONDUIT, BOXES, FIXTURES AND EQUIPMENT REQUIRED FOR THIS PROJECT. HANGER/SUPPORT SPACING SHALL BE AS REQUIRED IN THE NEC. MATERIALS USED SHALL BE NEW AND APPROVED FOR THE PURPOSE.

WIRE:  
PROVIDE WIRE AND CABLE SUITABLE FOR THE LOCATION WHERE INSTALLED. USE BUILDING WIRE WITH 600 VOLT INSULATION. SIZE ALL CONDUCTORS TO COMPLY WITH NEC REQUIREMENTS FOR VOLTAGE DROP. MINIMUM CONDUCTOR SIZE SHALL BE NO. 14 AWG.

PROVIDE SOLID CONDUCTORS FOR POWER AND LIGHTING CIRCUITS NO. 10 AWG AND SMALLER UNLESS INDICATED OR SPECIFIED OTHERWISE. PROVIDE STRANDED CONDUCTORS FOR SIZES NO. 8 AWG AND LARGER UNLESS INDICATED OR SPECIFIED OTHERWISE. ALL CONDUCTORS SHALL BE COPPER. PROVIDE THIN WIRE AND CABLE FOR VOLT BRANCH CIRCUIT CABLES (NO. 10 AND SMALLER). PROVIDE XHHW OR THHN WIRE AND CABLE FEEDER CIRCUIT CONDUCTORS (NO. 8 AND LARGER).

TYPE MC METAL-CLAD CABLE SHALL BE ALLOWED CONCEALED IN FINISHED AREAS. MC SHALL BE INSTALLED AND SUPPORTED IN COMPLIANCE WITH THE NEC. MC CABLE MAY NOT BE SUPPORTED FROM CEILING SUPPORT WIRES, THE CONTRACTOR SHALL PROVIDE DROP WIRES AS NEEDED.

WIRE SHALL BE CODED BY THE INSULATION COLOR ON NO. 10 AWG AND SMALLER AND WITH 1" BAND OF COLORED TAPE ON NO. 6 AWG AND LARGER AS FOLLOWS:

120/208 VOLTS	PHASE
BLACK	PHASE
RED	PHASE
BLUE	PHASE
WHITE	NEUTRAL
GREEN	GROUND

CONDUCTORS SHALL BE SIZED PER REQUIREMENTS OF THE NEC, WITH MINIMUM CAPACITY BASED ON CIRCUIT BREAKER OR FUSE SIZE UNLESS CONDUCTOR SIZE IS SHOWN OTHERWISE ON THE PLAN OR IN THESE SPECIFICATIONS.

CONDUIT:  
CONDUIT SHALL BE CONCEALED IN FINISHED AREAS. CONDUITS SHALL BE SECURELY FASTENED. A MAXIMUM OF FOUR 90-DEGREE BONDS BETWEEN ANY TWO BOXES, FIXTURES OR PANELS SHALL BE PERMITTED FOR EACH CONDUIT RUN. CONDUIT SHALL BE SIZED IN ACCORDANCE WITH THE ALLOWABLE FILL PERMITTED BY THE NEC.

CONDUIT FOR CONCEALED POWER AND LIGHTING SHALL BE ELECTRICAL METALLIC TUBING (EMT) WITH STEEL FITTINGS. DIE-CAST FITTING SHALL NOT BE USED ON THIS PROJECT.

EXPOSED CONDUITS AND RACEWAYS SHALL RUN PARALLEL AND PERPENDICULAR TO BUILDING LINES.

HOLES THROUGH RATED SLABS AND WALL SHALL BE FIRE STOPPED HLTI FS-ONE OR APPROVED EQUAL.

BOXES AND COVERS:  
NEC-APPROVED KNOCKOUT BOXES SHALL BE FURNISHED AND INSTALLED FOR LIGHTS AND SWITCHES, AND NEC-APPROVED JUNCTION BOXES SHALL BE FURNISHED AND INSTALLED AS REQUIRED, WHETHER OR NOT SPECIFICALLY CALLED OUT ON PLANS.

PROVIDE A GROUNDING PIGTAIL BONDING WIRE IN ALL BOXES, USE STEEL CITY NO. GBC #12 OR EQUAL.

DEVICES:  
DEVICES SHALL BE AS SPECIFIED ON THE DRAWINGS. DEVICES SHALL BE SPECIFICATION GRADE COOPER, P&S, HUBBELL, OR LEVITON. COLOR TO BE SELECTED BY THE ARCHITECT.

FACE PLATES SHALL BE NYLON. PROVIDE A CLEAR LABEL WITH BLACK LETTERING WITH CIRC ID ON ALL PLATES.

ALL BRANCH CIRCUIT CONNECTIONS AT DEVICES SHALL BE MADE USING SCREW TERMINALS, THE USE OF PUSH (STAB) IN BACK WIRE CONNECTIONS ARE NOT ACCEPTABLE.

LIGHT FIXTURES:  
LIGHT FIXTURES SHALL BE AS SPECIFIED ON THE DRAWINGS OR APPROVED EQUAL.

SUPPORT LIGHTING FIXTURES AS REQUIRED BY NEC USING APPROVED MEANS.

DISTRIBUTION EQUIPMENT:  
PANELBOARDS SHALL BE SQ D AS SPECIFIED ON DRAWING OR EQUAL BY GE, SIEMENS OR CUTLER HAMMER.

SAFETY SWITCHES:  
SHALL BE GENERAL DUTY BY SQ D AS SPECIFIED ON DRAWING OR EQUAL BY GE SIEMENS OR CUTLER HAMMER. FUSED SHALL DUAL ELEMENT TYPE.

GROUNDING:  
PROVIDE GROUNDING AS NECESSARY TO COMPLY WITH THE NEC AND THE REQUIREMENTS OF THESE DOCUMENTS. THE NEUTRAL CONDUCTORS AND ALL METAL ENCLOSURES OF THE ELECTRICAL SYSTEM SHALL BE GROUNDED AND OR BONDED WITH COPPER CONDUCTOR IN ACCORDANCE WITH THE ARTICLE 250 OF THE NEC.

PROVIDE A GROUNDING PIGTAIL BONDING WIRE IN ALL METAL BOXES, USE STEEL CITY NO. GBC #12 OR EQUAL.

ELECTRICAL IDENTIFICATION:  
PROVIDE A TYPED CIRCUIT PANELBOARD DIRECTORY FOR PANELS A, B & D. LABEL RECEPTACLE COVER PLATE WITH CIRC. ID.

### DEVICE & SYMBOL LEGEND

SYMBOLS SHOWN ARE STANDARD SYMBOLS, SOME MAY NOT BE USED ON THIS PROJECT.

- B-20 A DUPLEX 20A RECEPTACLE, NEMA 5-20R SPEC GRADE (UNLESS NOTED OTHERWISE) MOUNT AT 18".  
B-20 INDICATES DEVICE IS TO BE ON PANEL B, CIRC. No. 20. TYPICAL AT ALL DEVICES AND SWITCHES.
- R A DUPLEX 20A GFI RECEPTACLE, NEMA 5-20R SPEC GRADE MOUNT AT 18" AFF LINO.
- A DRYER RECEPTACLE, SPEC GRADE NEMA 14-30, PROVIDE CORD AND PLUG. MOUNT AT 48" AFF LINO.
- w A DUPLEX 20A GFI WR RECEPTACLE, NEMA 5-20R WEATHER/TAMPER RESISTANT SPEC GRADE WITH HEAVY DUTY WEATHER PROOF IN-USE COVER, MOUNT AT 18" AFF LINO.
- S SINGLE POLE 20A SWITCH SPEC GRADE MOUNT AT 48" AFF TO CENTER.
- S<sub>3</sub> THREE-WAY 20A SWITCH SPEC GRADE MOUNT AT 48" AFF TO CENTER.
- S<sub>d</sub> LED DIMMER SWITCH, MOUNT AT 48" AFF TO CENTER.
- S<sub>o</sub> DUAL TECH DIMMING/OCCUPANCY SWITCH, SET OFF DELAY TO 15 MIN. MOUNT AT 48" AFF TO CENTER.
- S<sub>m</sub> TWO POLE MOTOR RATED SWITCH. MOUNT ON OR ADJACENT TO MECHANICAL UNIT. LABEL COVER WITH CIRCUIT ID.
- B-3 ARROW INDICATES HOME RUN CIRCUIT TO PANEL INDICATED (IE. PANEL B, CIRC. BKR. 3), 20A CIRCUIT, 2#12, #12G TYPICAL UNLESS NOTED OTHERWISE.
- ① JUNCTION BOX
- NON-FUSED SAFETY SWITCH (SIZE AS NOTED)
- ⊗ OCCUPANCY SENSOR, SENSORSWITCH #CMR 9, SET OFF DELAY TO 5 MIN.

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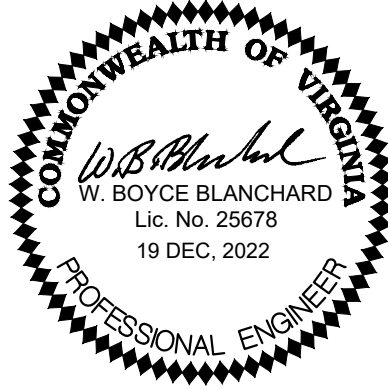


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### SPECIFICATION & ONE LINE DIAGRAM

12/19/2022

Revisions:

MONTH, DAY, YEAR

Drawn By: WBB

Review By: WBB

Project No. 2224

Sheet No.

# E105



PLUMBING SPECIFICATIONS

1. GENERAL PROVISIONS
- A. INSTALLATION SHALL BE IN STRICT ACCORDANCE WITH THE VIRGINIA CONSTRUCTION CODE INCLUDING REFERENCED CODES AND STANDARDS AND IN ACCORDANCE WITH MANDATES OF THE LOCAL BUILDING OFFICIALS.
- B. THE GENERAL ARRANGEMENT AND LOCATIONS OF PIPING, FIXTURES, ETC. ARE INDICATED BY THE DRAWINGS AND SHALL BE INSTALLED IN ACCORDANCE THEREWITH; WITH THE EXCEPTION OF SUCH CHANGES AS MAY BE REQUIRED ON ACCOUNT OF OTHER TRADES. CONTRACTOR SHALL COORDINATE WORK WITH INSTALLATION OF OTHER SUBCONTRACTORS.
- C. PLUMBING WORK SHALL BE COORDINATED WITH THE CONTRACTOR AS TO SCHEDULING, DIMENSIONING AND LOCATION OF EQUIPMENT.
- D. MAJOR ITEMS ARE SHOWN ON THE PROJECT PLANS. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL INCIDENTAL ITEMS REQUIRED TO PROVIDE A COMPLETE AND FUNCTIONAL SYSTEM.
- E. ALL PIPING SYSTEMS SHALL TERMINATE 5 FEET BEYOND THE BUILDING LINE UNLESS INDICATED OTHERWISE. EXTENSION OF THESE LINES SHALL BE PROVIDED BY THE SITE CONTRACTOR.
- F. TRADE NAMES AND CATALOG NUMBERS SHALL BE INTERPRETED AS ESTABLISHING A GENERAL DESIGN AND STANDARD OF QUALITY AND SHALL NOT BE CONSTRUED AS LIMITING COMPETITION. UNLESS STATED OTHERWISE, THE CONTRACTOR MAY USE ANY ARTICLE WHICH, IN HIS JUDGEMENT, AND WITH WRITTEN COMMENT FROM THE ARCHITECT/ENGINEER INDICATING NO OBJECTION, IS EQUAL OR SUPERIOR TO THAT SPECIFIED. DRAWINGS SHOWING CHANGES OR REVISIONS REQUIRED BY THE SUBSTITUTION FOR SPECIFIED ITEMS SHALL BE SUBMITTED WITH THE SHOP DRAWING DATA, AND THE COSTS OF ALL SUCH CHANGES SHALL BE BORNE BY THE CONTRACTOR.
- G. SIMILAR ITEMS SHALL BE PROVIDED BY A SINGLE MANUFACTURER.
- H. ALL REQUIRED WALL OR FLOOR OPENINGS SHALL BE COORDINATED WITH THE CONTRACTOR.
- I. ALL PIPING SHALL BE ABOVE CEILING UNLESS INDICATED OTHERWISE.
- J. DO NOT INSTALL PVC PIPING OR ANY COMBUSTIBLE MATERIAL IN ANY AIR PLENUM.
- K. ALL EQUIPMENT SHALL BE WIPED CLEAN, REMOVING ALL TRACES OF OIL, DIRT, OR PAINT SPOTS.
- L. PROVIDE SUPPORTS TO RIGIDLY ATTACH ALL EQUIPMENT, APURTANCES AND PIPE AS REQUIRED FOR SUPPORT. PRIOR TO INSTALLATION OF HANGERS AND INSERTS, THE CONTRACTOR SHALL COORDINATE LOCATIONS AND REQUIREMENTS TO MINIMIZE CONFLICTS WITH OTHER BUILDING SYSTEMS. INSTALLATION OF PIPE HANGERS AND SUPPORTS SHALL BE IN STRICT ACCORDANCE WITH MSS SP-58, 69 AND 89.
- M. CONTRACTOR SHALL MAKE FINAL CONNECTIONS TO ALL EQUIPMENT INDICATED TO BE FURNISHED BY OTHERS.
2. SUBMISSION OF SHOP DRAWINGS, PRODUCT DATA, SAMPLES AND PROJECT INFORMATION
- A. SHOP DRAWINGS SHALL BE SUBMITTED FOR THE FOLLOWING ITEMS:
- (1) STRAINERS
  - (2) INSULATION
  - (3) GAS COCKS
  - (4) CLEANOUTS
  - (5) FLOOR DRAINS
  - (6) GATE VALVES
  - (7) CHECK VALVES
  - (8) BACKFLOW PREVENTERS
  - (9) ALL SCHEDULED EQUIPMENT/FIXTURES INDICATED ON SHEET P101
- B. IDENTIFY ALL PLUMBING SHOP DRAWINGS, PRODUCT DATA AND SAMPLES WITH THE NAME OF THE PROJECT. CLEARLY MARK THE SPECIFIC ITEMS INTENDED FOR USE. SUBMIT ALL RELATED ITEMS AT ONE TIME.
- C. PRIOR TO SUBSTANTIAL COMPLETION OF THE PROJECT, SUBMIT THE FOLLOWING INFORMATION FOR REVIEW AND APPROVAL.
- (1) OPERATING AND MAINTENANCE INSTRUCTIONS.
  - (2) "AS BUILT" DRAWINGS.
3. GUARANTEE: ALL MATERIALS AND WORKMANSHIP SHALL BE GUARANTEED TO BE FREE FROM DEFECTS FOR A PERIOD OF ONE (1) YEAR FROM DATE OF ACCEPTANCE AND CONTRACTOR SHALL MAKE GOOD, WITHOUT ADDITIONAL COST TO THE OWNER, ANY DEFECTS WHICH MAY APPEAR WITHIN THAT PERIOD. MANUFACTURER'S WARRANTIES EXTENDING BEYOND ONE YEAR SHALL BE PROCESSED AND TURNED OVER TO THE OWNER.
4. "AS BUILT" DRAWINGS: CONTRACTOR SHALL KEEP AN ACCURATE RECORD OF THE LOCATION OF ALL CONCEALED PIPING, VALVES, CONTROLS, ETC., BOTH INTERIOR AND EXTERIOR. ON COMPLETION OF THE WORK, ONE PRINT EACH OF THE CONTRACT DRAWINGS WHICH ARE APPLICABLE SHALL BE NEATLY AND CLEARLY MARKED IN COLOR TO SHOW ALL VARIATIONS BETWEEN THE WORK ACTUALLY PROVIDED AND THAT INDICATED ON THE CONTRACT DRAWINGS.
5. OPERATING AND MAINTENANCE MANUALS
- A. GENERAL: PRIOR TO COMPLETION OF THE PROJECT, THE CONTRACTOR SHALL PROVIDE TWO HARDBACKED LOOSELEAF RING TYPE BINDERS, IDENTIFIED WITH THE NAME OF THE PROJECT. CONTRACTOR SHALL DELIVER THESE BINDERS TO THE ENGINEER FOR REVIEW AND TRANSMITTAL TO THE OWNER.
- B. THE FOLLOWING ITEMS AND OTHER ADDITIONAL PERTINENT DATA FOR EACH ITEM OF EQUIPMENT SHALL BE INCLUDED:
- C. THE OPERATING AND MAINTENANCE MANUALS SHALL BE CONSIDERED A PART OF THE FINAL INSPECTION AND THEY SHALL BE SUBMITTED FOR APPROVAL AT LEAST THIRTY (30) DAYS PRIOR TO REQUEST FOR FINAL INSPECTION.
6. ACCESS DOORS: ACCESS DOORS SHALL BE PROVIDED FOR ALL CONCEALED VALVES, CONTROLS, AND ANY OTHER EQUIPMENT OR MATERIALS REQUIRING INSPECTION OR MAINTENANCE. ACCESS DOORS SHALL BE FURNISHED FOR FLOORS, WALLS AND CEILINGS, OF ADEQUATE SIZE SO THAT CONCEALED ITEMS WILL BE READILY ACCESSIBLE FOR SERVICING OR FOR REMOVAL AND REPLACEMENT IF NECESSARY.
7. IDENTIFICATION
- A. SUBMITTALS
- (1) SUBMIT LIST OF WORDING, SYMBOLS, LETTER SIZE, AND COLOR CODING FOR MECHANICAL IDENTIFICATION.
  - (2) SUBMIT VALVE CHART AND SCHEDULE, INCLUDING VALVE TAG NUMBER, LOCATION, FUNCTION, AND VALVE MANUFACTURER'S NAME AND MODEL NUMBER.
  - (3) PRODUCT DATA: PROVIDE MANUFACTURERS CATALOG LITERATURE FOR EACH PRODUCT REQUIRED.

- B. NAMEPLATES
- (1) DESCRIPTION: LAMINATED THREE-LAYER PLASTIC WITH ENGRAVED LETTERS ON LIGHT CONTRASTING BACKGROUND COLOR.
- C. TAGS
- (1) METAL TAGS: BRASS WITH STAMPED LETTERS; TAG SIZE MINIMUM 1-1/2 INCHES (40 MM) DIAMETER.
  - (2) CHART: TYPEWRITTEN LETTER SIZE LIST IN ANODIZED ALUMINUM FRAME.
- D. INSTALLATION
- (1) DEGREASE AND CLEAN SURFACES TO RECEIVE ADHESIVE FOR IDENTIFICATION MATERIALS.
  - (2) INSTALL PLASTIC NAMEPLATES WITH CORROSIVE-RESISTANT MECHANICAL FASTENERS, OR ADHESIVE. APPLY WITH SUFFICIENT ADHESIVE TO ENSURE PERMANENT ADHESION AND SEAL WITH CLEAR LACQUER.
  - (3) INSTALL TAGS WITH CORROSION RESISTANT CHAIN.
  - (4) INSTALL PLASTIC PIPE MARKERS IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.
  - (5) IDENTIFY CONTROL PANELS AND MAJOR CONTROL COMPONENTS OUTSIDE PANELS WITH PLASTIC NAMEPLATES.
  - (6) IDENTIFY VALVES IN MAIN AND BRANCH PIPING WITH TAGS.
  - (7) IDENTIFY PIPING, CONCEALED OR EXPOSED, WITH PLASTIC PIPE MARKERS OR STENCILLED PAINTING. IDENTIFY SERVICE, FLOW DIRECTION, AND PRESSURE. INSTALL IN CLEAR VIEW AND ALIGN WITH AXIS OF PIPING. LOCATE IDENTIFICATION NOT TO EXCEED 20 FEET (6 M) ON STRAIGHT RUNS INCLUDING RISERS AND DROPS, ADJACENT TO EACH VALVE AND TEE, AT EACH SIDE OF PENETRATION OF STRUCTURE OR ENCLOSURE, AND AT EACH OBSTRUCTION.
  - (8) PROVIDE CEILING TACKS TO LOCATE VALVES ABOVE T-BAR TYPE PANEL CEILINGS. LOCATE IN CORNER OF PANEL CLOSEST TO EQUIPMENT.
8. PIPING SPECIALTIES
- A. PIPE ESCUTCHEONS: INSTALL PIPE ESCUTCHEONS ON EACH PIPE PENETRATION THRU FLOORS, WALLS PARTITIONS, AND CEILINGS WHERE PENETRATION IS EXPOSED TO VIEW AND ON EXTERIOR OF BUILDING. SECURE ESCUTCHEON TO PIPE OR INSULATION SO ESCUTCHEON COVERS PENETRATION HOLE, AND IS FLUSH WITH ADJOINING SURFACE. PROVIDE SHEET STEEL ESCUTCHEONS, SOLID OR SPLIT HINGED. FOR AREAS WHERE WATER AND CONDENSATION CAN BE EXPECTED TO ACCUMULATE, PROVIDE CAST BRASS OR SHEET BRASS ESCUTCHEONS, SOLID OR SPLIT HINGED.
- B. PIPE SLEEVES: INSTALL PIPE SLEEVES WHERE PIPING PASSES THROUGH WALLS, FLOORS, CEILINGS, AND ROOFS. DO NOT INSTALL SLEEVES THROUGH STRUCTURAL MEMBERS OF WORK, EXCEPT AS DETAILED ON DRAWINGS, OR AS REVIEWED BY ARCHITECT/ENGINEER. SIZE SLEEVES SO THAT PIPING AND INSULATION (IF ANY) WILL HAVE FREE MOVEMENT IN SLEEVE, INCLUDING ALLOWANCE FOR THERMAL EXPANSION.
- C. FIRE BARRIER PENETRATION SEALS: PROVIDE SEALS FOR ANY OPENING THROUGH FIRE-RATED WALLS, FLOORS, OR CEILINGS USED AS PASSAGE FOR PLUMBING COMPONENTS SUCH AS PIPING. INSTALLATION SHALL BE AS RECOMMENDED BY THE MANUFACTURER. SEALS SHALL BE EQUAL TO ONE OF THE FOLLOWING:
- (1) DOW-CORNING FIRESTOP SYSTEM PENETRATION SEALS INCLUDING FIRE STOP SEALANT AND FIRE STOP FOAM.
  - (2) 3M BRAND "FIRE BARRIER WRAP/STRIP" NO. FS-195, FIRE BARRIER CAULK, CP-25 AND PUTTY NO. 303 SHALL BE USED WHERE PVC, POLYPROPYLENE OR OTHER NON-METALLIC PIPES PASS THROUGH FLOORS AND FIRE RATED WALLS.
9. INSULATION
- A. FLAME/SMOKE RATINGS: PROVIDE COMPOSITE PLUMBING INSULATION (INSULATION, JACKETS, COVERINGS, SEALERS, MASTICS AND ADHESIVES) WITH FLAME-SPREAD RATING OF 25 OR LESS, AND SMOKE-DEVELOPED RATING OF 50 OR LESS, AS TESTED BY ANSI/ASTM E84 (NFPA 255) METHOD. INSULATION SHALL BE LABELED BY THE MANUFACTURER. THE LABEL SHALL INDICATE THE INSULATING VALUE, FLAME SPREAD AND SMOKE-DEVELOPED RATING.
- B. SUBMITTALS: SUBMIT MANUFACTURER'S SPECIFICATIONS AND INSTALLATION INSTRUCTIONS FOR EACH TYPE OF PLUMBING INSULATION. SUBMIT SCHEDULE SHOWING MANUFACTURER'S PRODUCT NUMBER, THICKNESS, AND FURNISHED ACCESSORIES FOR EACH PLUMBING SYSTEM REQUIRING INSULATION.
- C. INSTALLATION: INSULATION SHALL BE APPLIED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS USING ONLY ADHESIVES, MASTICS AND PLUMBING FASTENERS APPROVED BY THE INSULATION MANUFACTURER. INSULATION SHALL NOT BE APPLIED UNTIL AFTER THE EQUIPMENT HAS BEEN TESTED WITH RESULTS ACCEPTABLE TO THE ARCHITECT/ENGINEER.
- D. MATERIALS:
- (1) CELLULAR FOAM PIPE INSULATION: TUBULAR, FLEXIBLE, FIRE RESISTANT INSULATION WITH OPERATING TEMPERATURE RANGE OF -40 DEGREES F TO 220 DEGREES F, THERMAL CONDUCTIVITY K=0.027 BTU-IN/HOUR-SF-DEG F AT 75 DEGREES F. NO JACKET REQUIRED. EQUAL TO ARMSTRONG ARMAFLEX AP.
- E. PIPE INSULATION
- (1) INSULATION OMITTED: OMIT INSULATION ON EXPOSED PLUMBING FIXTURE RUNOUTS FROM FACES OF WALL OR FLOOR TO FIXTURE ON UNIONS, FLANGES, STRAINERS, FLEXIBLE CONNECTIONS, AND EXPANSION JOINTS.
  - (2) COVER VALVES, FITTINGS AND SIMILAR ITEMS IN EACH PIPING SYSTEM WITH EQUIVALENT THICKNESS AND COMPOSITION OF INSULATION AS APPLIED TO ADJOINING PIPE RUN.
  - (3) EXTEND PIPING INSULATION WITHOUT INTERRUPTION THROUGH WALLS, FLOORS AND SIMILAR PIPING PENETRATIONS, EXCEPT WHERE OTHERWISE INDICATED.
  - (4) INSTALL PROTECTIVE METAL SHIELDS AND INSULATED INSERTS WHEREVER NEEDED TO PREVENT COMPRESSION OF INSULATION.
  - (5) DOMESTIC COLD WATER PIPING, ABOVE GROUND: PIPING SHALL BE INSULATED WITH 1/2 INCH THICK GLASS FIBER, CELLULAR FOAM, OR POLYETHYLENE PIPE INSULATION.
  - (6) DOMESTIC HOT WATER PIPING (INCLUDING HOT WATER RECIRCULATING): PIPING SHALL BE INSULATED WITH 1 INCH THICK GLASS FIBER, CELLULAR FOAM, OR POLYETHYLENE PIPE INSULATION. VAPOR SEAL IS NOT REQUIRED.

10. PLUMBING PIPING
- A. DOMESTIC WATER PIPING ABOVE GROUND
- PIPE: TYPE L HARD DRAWN COPPER  
FITTINGS: CAST BRONZE OR WROUGHT COPPER  
JOINTS: SOLDERED USING TIN-ANTIMONY (95-5) SOLDER
- B. DOMESTIC WATER PIPING UNDERGROUND
- PIPE: TYPE K SEAMLESS ROLL STOCK  
FITTINGS: CAST BRONZE OR WROUGHT COPPER  
JOINTS: SOLDERED USING TIN-ANTIMONY (95-5) SOLDER
- C. SOIL, WASTE AND VENT PIPING BELOW GRADE AND STORM SEWER BELOW GRADE
- SIZE: ALL  
PIPE: SCH. 40 PVC-DWV ASTM D-2665  
FITTINGS: PVC SOCKET FITTINGS (DWV)  
JOINTS: SOLVENT CEMENT JOINTS
- D. SOIL, WASTE AND VENT PIPING ABOVE GRADE AND STORM DRAINS & ROOF LEADERS
- SIZE: ALL  
PIPE: SCH. 40 PVC-DWV ASTM D-2665  
FITTINGS: PVC SOCKET FITTINGS (DWV)  
JOINTS: SOLVENT CEMENT JOINTS
- E. ALL PIPE OF THE SAME SIZE SHALL BE THE SAME MATERIAL.
- F. SLOPE ALL DRAIN LINES 1/4 INCH PER FOOT MINIMUM FOR SIZES LESS THAN 4 INCHES; SLOPE 1/8 INCH PER FOOT FOR SIZES 4 INCHES AND LARGER.
- G. SOIL, WASTE AND VENT PIPING LOCATED BELOW GRADE SHALL BE MINIMUM 2 INCHES SIZE.
- H. VENTS SHALL EXTEND 12 INCHES ABOVE THE ROOF. ROOF FLASHING SHALL BE COORDINATED WITH BY THE CONTRACTOR.
- I. DOMESTIC HOT AND COLD WATER PIPING SHALL BE 1/2 INCH SIZE UNLESS INDICATED OTHERWISE.
11. NATURAL GAS SYSTEMS
- A. GAS SERVICE PIPING:
- (1) ALL SIZES: SCHEDULE 40 BLACK STEEL PIPE, ASTM A120/A53-CW OR ASTM/A53 GRADE B (WELDED OR SEAMLESS); WROUGHT STEEL BUTTWELDING FITTINGS.
  - (2) WRAPPING FOR EXPOSED PIPING: MACHINE WRAP PIPE USING 50K OVERLAP WRAP, WITH POLYVINYL CHLORIDE TAPE. HAND WRAP FITTINGS USING 100% OVERLAP WRAP EXTENDING 6 INCHES BEYOND FITTING ONTO WRAPPED PIPE. COMPLY WITH TAPE MANUFACTURER'S INSTALLATION INSTRUCTIONS.
- B. BUILDING DISTRIBUTION PIPING AND VENT PIPING:
- (1) ALL SIZES: SCHEDULE 40 BLACK STEEL PIPE, ASTM A120/A53-CW OR ASTM/A53 GRADE B (WELDED OR SEAMLESS); MALLEABLE IRON THREADED FITTINGS (EXPOSED PIPING ONLY); WROUGHT STEEL BUTTWELDING FITTINGS (CONCEALED AND EXPOSED PIPING). OUTDOOR PIPING TO BE PAINTED WITH EXTERIOR GRADE ENAMEL PAINT, COLOR AS DETERMINED BY THE ARCHITECT.
- C. GAS COCKS:
- (1) GAS COCKS 2 INCHES AND SMALLER: 150 PSI NON-SHOCK WOG, BRONZE STRAIGHTWAY COCK, FLAT OR SQUARE HEAD, THREADED ENDS.
  - (2) GAS COCKS 2-1/2 INCHES AND LARGER: 125 PSI NON-SHOCK WOG, IRON BODY BRONZE MOUNTED, STRAIGHTWAY COCK, SQUARE HEAD, FLANGED ENDS.
- D. ALL GAS PIPING EQUIPMENT CONNECTIONS SHALL BE PROVIDED WITH A 6 INCHES DIRT TRAP, UNION AND GAS COCK SHUT OFF.
- E. ALL JOINTS SHALL BE SEALED WITH CHEMICALLY RESISTANT SEALER APPLIED TO MALE THREADS OF PIPE CONNECTION.
- F. GAS PIPING SHALL BE INSTALLED WITH A 1/64 INCH PER FOOT DOWNWARD SLOPE IN DIRECTION OF FLOW.

12. CLEANOUTS
- A. CLEANOUTS SHALL BE THE SAME SIZE AS LINE SERVED, BUT NOT LARGER THAN 4 INCHES, AND SHALL BE PROVIDED AT THE BASE OF EACH SOIL AND WASTE STACK, AT ALL POINTS WHERE DIRECTION CHANGE IS MORE THAN 45 DEGREES, AT MINIMUM INTERVALS OF 50 FEET FOR 4 INCHES AND SMALLER PIPING, AT MINIMUM INTERVALS OF 100 FEET FOR PIPING LARGER THAN 4 INCHES, AS REQUIRED BY CODE AND AS INDICATED ON THE DRAWINGS. COVERS SHALL BE SET FLUSH WITH FLOOR OR WALL.
13. FLOOR DRAINS
- A. PROVIDE FLOOR DRAINS OF SIZE AND TYPE AS INDICATED ON DRAWINGS. ALL DRAINS CONNECTING TO SANITARY SEWER SYSTEM SHALL BE FURNISHED WITH P-TRAP. DRAINS SHALL HAVE OUTLET COMPATIBLE WITH PIPING SYSTEM TO WHICH IT IS CONNECTED.
- B. INSTALL FLOOR DRAINS IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS. PROVIDE FLOOR DRAINS WHERE INDICATED ON DRAWINGS AND AT LOW POINTS OF SURFACE AREAS TO BE DRAINED.
14. PLUMBING VALVES
- A. PROVIDE SHUT-OFF VALVE AND UNION OR EQUIVALENT AT EACH HOT AND COLD WATER EQUIPMENT CONNECTION. PROVIDE SHUT-OFF VALVE ON EACH BRANCH OR RISER THAT SERVES TWO OR MORE PLUMBING FIXTURES.
- B. GATE VALVES 2-1/2 INCHES AND SMALLER: ALL BRONZE, RISING STEM, SOLID WEDGE DISC. STOCKHAM B-100 OR B-108.
- C. CHECK VALVES IN HORIZONTAL PIPES:

- (1) 2 INCHES AND SMALLER: ALL BRONZE, REGRINDING BRONZE DISC, HORIZONTAL SWING, Y-PATTERN. STOCKHAM B-3190R B-309.
- D. CHECK VALVES IN VERTICAL PIPES AND PUMP DISCHARGE: SILENT CHECK VALVE WITH SEMI-STEEL BODY, BRONZE TRIM AND STAINLESS STEEL SPRING. METRAFLX 700 SERIES.
- E. BALL VALVES MAY BE USED IN LIEU OF GATE VALVES 2 INCHES AND SMALLER. BALL VALVES SHALL HAVE BRONZE BODY, BRONZE BALL AND TPE SEATS AND SEALS. STOCKHAM S-216BRRIT OR S-216BRRS.
15. WATER HEATERS
- A. UL AND NEMA COMPLIANCE: PROVIDE ELECTRIC MOTORS AND ELECTRICAL COMPONENTS REQUIRED AS PART OF PLUMBING EQUIPMENT, WHICH HAVE BEEN LISTED AND LABELED BY UNDERWRITERS LABORATORIES AND COMPLY WITH NEMA STANDARDS.
- B. NEC COMPLIANCE: COMPLY WITH NATIONAL ELECTRICAL CODE (ANSI/NFPA 70) AS APPLICABLE TO INSTALLATION AND ELECTRICAL CONNECTIONS OF ANCILLARY ELECTRICAL COMPONENTS OF PLUMBING EQUIPMENT.
- C. WATER HEATERS SHALL BE FURNISHED WITH ASME RATED TEMPERATURE AND PRESSURE RELIEF VALVE WITH TEST LEVER.

16. PLUMBING FIXTURES
- A. CODES AND STANDARDS: COMPLY WITH APPLICABLE PORTIONS OF NATIONAL STANDARD PLUMBING CODE PERTAINING TO MATERIALS AND INSTALLATION OF PLUMBING FIXTURES.
- (1) ANSI STANDARDS: COMPLY WITH APPLICABLE ANSI STANDARDS PERTAINING TO PLUMBING FIXTURES AND SYSTEMS.
  - (2) PDI COMPLIANCE: COMPLY WITH STANDARDS ESTABLISHED BY PDI PERTAINING TO PLUMBING FIXTURE SUPPORTS.
  - (3) UL COMPLIANCE: CONSTRUCT WATER COOLERS IN ACCORDANCE WITH UL STANDARD 399 "DRINKING-WATER COOLERS", AND PROVIDE UL-LISTING AND LABEL.
  - (4) ANSI COMPLIANCE: CONSTRUCT AND INSTALL BARRIER FREE PLUMBING FIXTURES IN ACCORDANCE WITH ANSI STANDARD A117.1 "SPECIFICATIONS FOR MAKING BUILDINGS AND FACILITIES ACCESSIBLE TO AND USABLE BY PHYSICALLY HANDICAPPED PEOPLE".
- B. ALL EXPOSED FIXTURE SUPPLIES AND WASTE LINES SHALL BE CHROME PLATED.
- C. PLUMBING FIXTURES SHALL BE POSITIVELY VENTED AND TRAPPED IN ACCORDANCE WITH THE BOCA PLUMBING CODE, LATEST EDITION. WET VENTING IS ALLOWED IF WASTE PIPING IS OVERSIZED AND IN ACCORDANCE WITH CODE PROVISIONS. LOCATION OF VENT SHALL NOT EXCEED MAXIMUM DISTANCES TO THE TRAP AS ESTABLISHED WITHIN THE BOCA PLUMBING CODE.
17. CLEANING AND TESTING
- A. ALL WATER PIPING, VALVES, ETC. SHALL BE THOROUGHLY FLUSHED OF FOREIGN MATTER AND TESTED FOR LEAKS FOR A PERIOD OF TWO HOURS AT NOT LESS THAN 25 PSIG. ANY LEAKAGE SHALL BE REPAIRED. DISINFECT DOMESTIC WATER PIPING INCLUDING WATER SERVICE PIPING IN ACCORDANCE WITH AWWA C601.
- B. ALL DRAIN, WASTE AND VENT PIPING SHALL BE TESTED FOR LEAKS BY FILLING PIPING SYSTEM TO OVERFLOW AND ALLOWING TO STAND 24 HOURS. NO VISIBLE DROP IN WATER LEVEL WILL BE ACCEPTABLE.

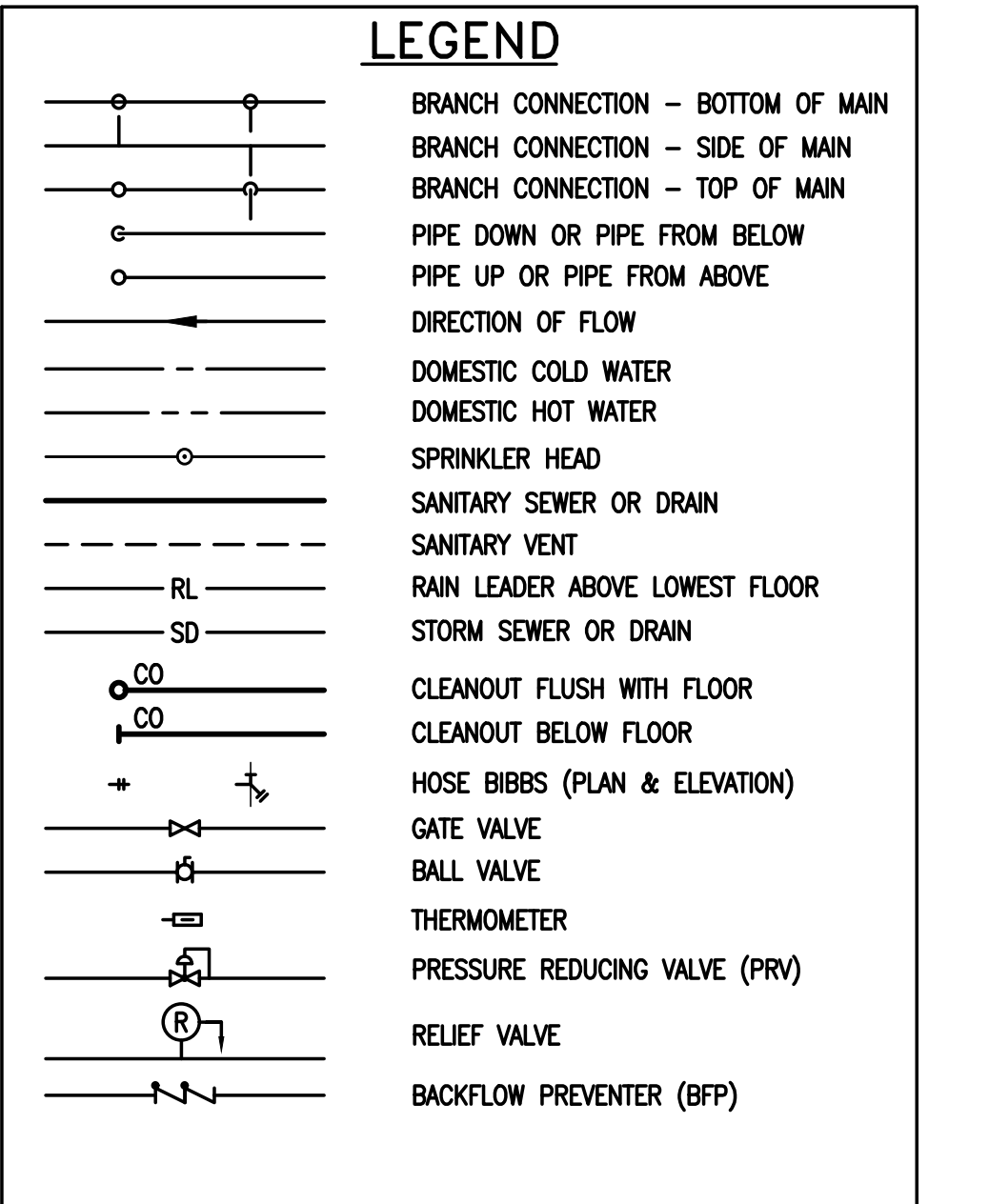
END OF SPECIFICATIONS

PLUMBING EQUIPMENT SCHEDULE

WC-1	KOHLER K-3979 HIGHLINE ELONGATED VITREOUS CHINA WATER CLOSET (HANDICAPPED, TANK TYPE, FLOOR MTD, 1.6 GAL/FLUSH CLASS FIVE FLUSHING TECHNOLOGY; #10-CC OLSONITE ELONGATED SEAT; BOLT CAPS.
L-1	AMERICAN STANDARD A0356.015, VITREOUS CHINA; MOEN FAUCET MODEL NO. 8417F15 WITH WHEELCHAIR OFFSET. GRID STRAINER, AND ANGLE SUPPLIES WITH LOOSE KEY STOPS. PROVIDE ZURN Z1251 CARRIER. PROVIDE THERMOSTATIC MIXING VALVE, WILKINS MODEL ZW1070, ASSE 1070 COMPLIANT
S-1	JUST MANUFACTURING #SLXD-2019-16-GR STAINLESS STEEL SINGLE BOWL SINK, 16 GAUGE, 304 STAINLESS, TOP MOUNT, 12" DEEP; KOHLER K-72218-B7-VS PULL DOWN KITCHEN FAUCET, TOUCHLESS, P-TRAP AND SUPPLIES, #LK35 STRAINER.
SH-1	OASIS LEGACY SH-3636, 36X36 SHOWER COMPLETE PACKAGE TO INCLUDE CURTAIN ROD, ELEVATED SHELVES; MOEN 2352 SINGLE HANDLE SHOWER VALVE WITH SHOWER HEAD, PRESSURE BALANCED. COLOR TO BE WHITE.
WMB	ABS BOXES, ONE BOX WITH CENTER DRAIN AND ONE BOX WITH TWO WATER VALVES & WATER HAMMER ARRESTORS. PROVIDE FLANGED BOXES SUITABLE FOR DRYWALL INSTALLATION.
JS-1	FIAT #489-2424 MOLDED STONE MOP SERVICE BASIN, 24"x24"x10", #830-AA WALL MTD FOUNTAIN W/ACQUILUM BREAKER & BUCKET HOOK; #832-AA HOSE & BRACKET, #E-77-AA VINYL BUMPER GUARD; #889-CC MOP HANGER & #00C-3-2 QUICK DRAIN CONNECTOR, #MSG2424 STAINLESS STEEL WALL GUARDS.
HHW-1	STATE SUF119-300NEA GAS FIRED WATER HEATER, 120 GAL CAPACITY TANK, 349 GAL/HR RECOVERY AT 40 DEG. F. ENT. AND 100 DEG.F. RISE, 120V/16; 300 MBH; T&P RELIEF VALVE.
FS-1	JOSAM #49300 FLOOR SINK, 8" SQUARE CAST IRON WITH 5-7/8"
CO	JOSAM CLEANOUT
	FLOOR ROUND, SATIN BRONZE TOP, RECESSED PLUG. WALL CHROME FLUSH WALL PLATE, RECESSED PLUG.

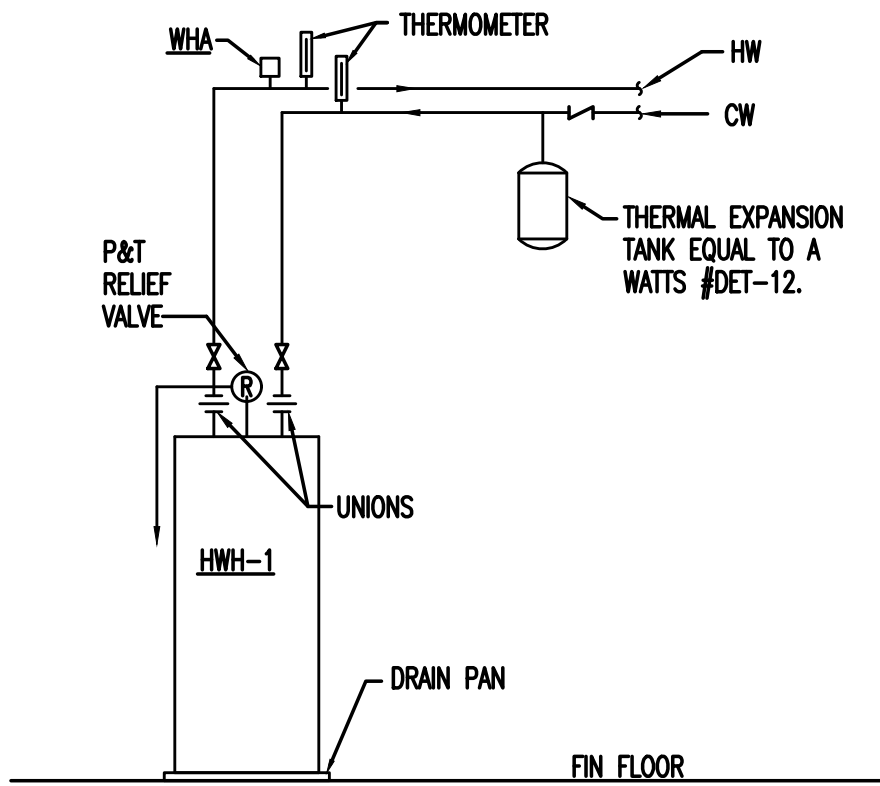
PLUMBING FIXTURE INSTALLATION SCHEDULE

FIXTURE	MARK	MH	CW	HW	VENT	WASTE
WATER CLOSET(HC)	WC-1	17"	3/4"	--	2"	4"
LAVATORY	L-1	34"	1/2"	1/2"	1-1/2"	2"
SINK	S-1	UNDERMOUNT	1/2"	1/2"	1-1/2"	2"
SHOWER	SH-1	72"(A)	1/2"	1/2"	-	-
JANITOR SINK	JS-1	FLOOR	1/2"	1/2"	1-1/2"	2"
NOTES						
1. SIZE GIVEN ARE FOR FIXTURE ONLY. EXCEPTIONS, IF ANY, ARE SHOWN ON PLANS.						
2. MOUNTING HEIGHT DIMENSIONS ARE TO FLOOD LEVEL RIM OF FIXTURE, UNLESS NOTED OTHERWISE.						
(A) MOUNTING HEIGHT TO SHOWER HEAD						



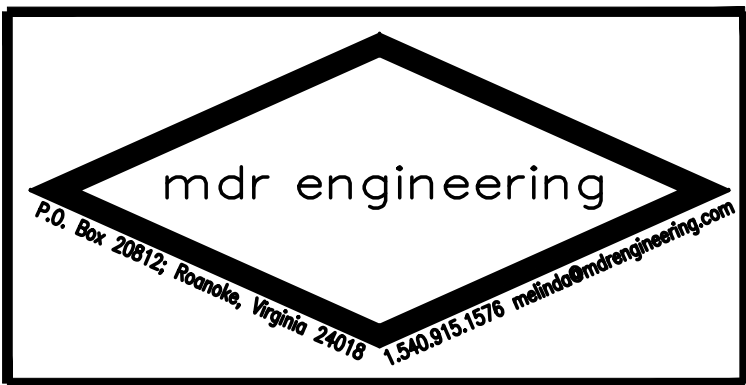
ABBREVIATIONS

ABV	ABOVE
BTU	BRITISH THERMAL UNIT
BEL	BELOW
BET	BETWEEN
CLG	CEILING
CO	CLEANOUT
CONC	CONCRETE
CONN	CONNECT, CONNECTION
CW	COLD WATER
CONT	CONTINUED
DN	DOWN
EA	EACH
EWFC	ELECTRIC WATER COOLER
F	DEGREES FARENHEIT
FD	FLOOR DRAIN
FL	FLOOR
FR	FROM
FT	FEET
GPM	GALLONS PER MINUTE
GV	GATE VALVE
HB	HOSE BIBB
HW	HOT WATER
IN	INCH, INCHES
MAX	MAXIMUM
MIN	MINIMUM
RD	ROOF DRAIN
REQD	REQUIRED
RL	ROOF LEADER
SH	SHEET
TEMP	TEMPERATURE
TYP	TYPICAL
V	SANITARY VENT
VTR	VENT THRU ROOF
W	SANITARY WASTE
WH	WALL HYDRANT



DETAIL - WATER HEATER

NO SCALE



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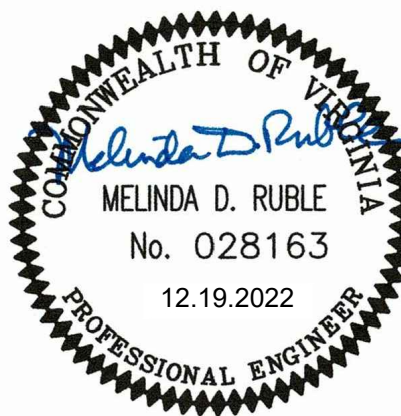
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PLUMBING  
LEGEND,  
SPECIFICATIONS,  
SCHEDULES &  
DETAILS

Revisions: 12/19/2022

△	MONTH, DAY, YEAR

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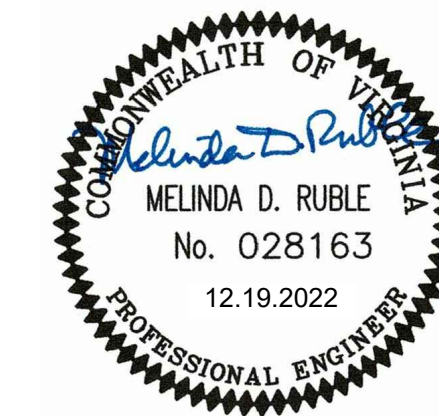
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PLUMBING  
FIRST FLOOR  
PLAN

12/19/2022

Revisions:  
△ MONTH, DAY, YEAR

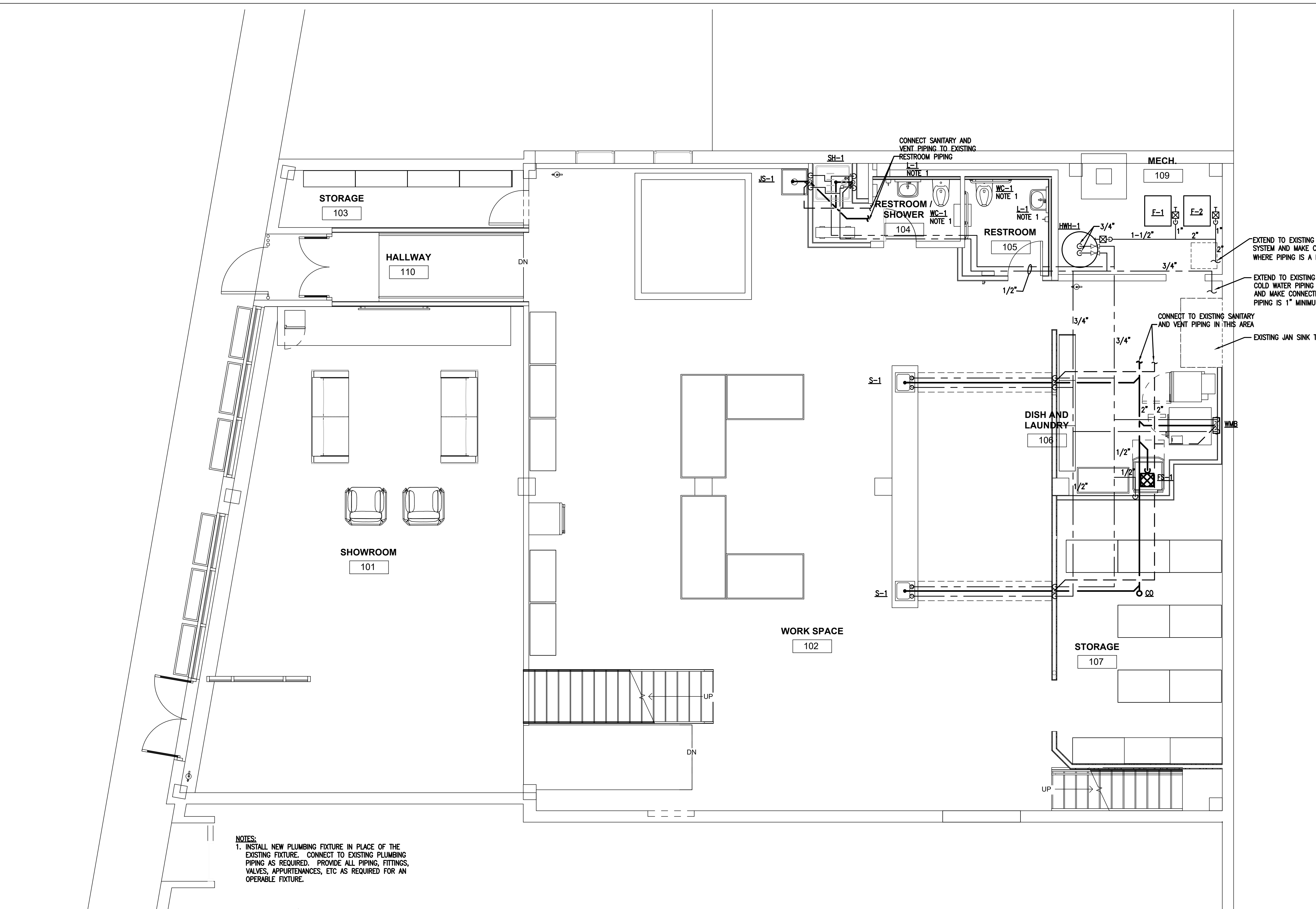
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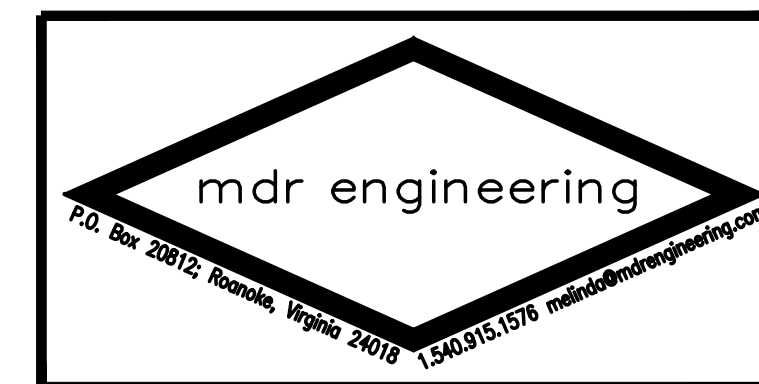
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# P201



① PLUMBING FIRST FLOOR PLAN  
1/4" = 1'-0"





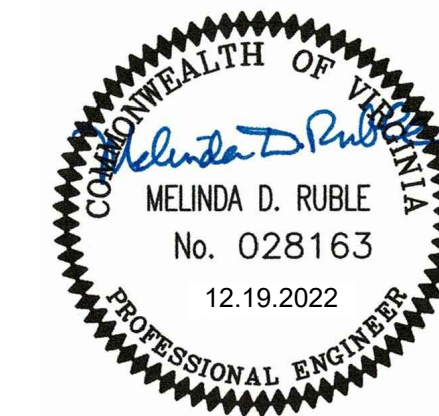
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P202

② PLUMBING SECOND FLOOR PLAN  
1/4" = 1'-0"

