

MECHANICAL GENERAL NOTES

- ALL WORK AND MATERIALS SHALL BE PURCHASED AND INSTALLED IN ACCORDANCE WITH ALL NATIONAL & 2018 NORTH CAROLINA BUILDING CODES AND REGULATIONS (AS WELL AS ALL APPLICABLE LOCAL CODES & REGULATIONS). THE CONTRACTOR SHALL BE RESPONSIBLE TO ENSURE THAT ALL HVAC WORK IS PROVIDED AND INSTALLED IN STRICT ACCORDANCE WITH SEISMIC REQUIREMENTS.
- DO NOT SCALE FROM THESE DRAWINGS.
- THE EXACT MOUNTING HEIGHTS AND LOCATIONS OF ALL HVAC EQUIPMENT SHALL BE FIELD VERIFIED AND COORDINATED WITH ALL OTHER MECHANICAL, ELECTRICAL, PLUMBING, FIRE SPRINKLER, ARCHITECTURAL AND STRUCTURAL SYSTEMS. DURINGS SHOP DRAWINGS SUBMISSIONS, SHOW ALL MOUNTING HEIGHTS OF DUCTWORK, UNITS, ETC.
- VERIFY ALL EQUIPMENT VOLTAGES WITH THE ELECTRICAL CONTRACTOR PRIOR TO ORDERING EQUIPMENT.
- ELECTRICAL CONTRACTOR WILL PROVIDE DISCONNECT SWITCHES FOR ALL HVAC EQUIPMENT INCLUDING WEATHERPROOF UNITS AS REQUIRED. UNLESS UNITS ARE SPECIFIED WITH FACTORY MOUNTED & INSTALLED DISCONNECT SWITCHES, REFER TO MECHANICAL EQUIPMENT SCHEDULE FOR EXACT DETAILS.
- PROVIDE PHASE LOSS PROTECTION FOR ALL POLY-PHASE MOTOR DEVICES.
- DUCTWORK SHALL BE CONSTRUCTED OF GALVANIZED SHEET STEEL IN STRICT COMPLIANCE WITH THE LATEST EDITION OF THE ASHRAE, NFPA, AND SMACNA GUIDE RECOMMENDATIONS. ALL DUCTS TO HAVE PITTSBURGH TYPE LOCK FOR LONGITUDINAL SEAMS AND DRIVE SLIP / "S" SLIP FOR TRANSVERSE JOINTS. DUCT MATE JOINT SYSTEM IS ACCEPTABLE IN LIEU OF PRIOR SEAM SYSTEMS. SIZES AS SHOWN INDICATE INSIDE CLEAR DIMENSIONS OF THE AIR PASSAGE. DUCTWORK SHALL BE FULLY INSULATED AS PER APPLICABLE CODES AND WRITTEN SPECIFICATIONS.
- DUCT SIZES MUST BE VERIFIED FOR CLEARANCES AT THE JOB SITE PRIOR TO FABRICATION. DIMENSIONS MAY BE CHANGED TO ACCOMMODATE CONSTRUCTION AS LONG AS EFFECTIVE CROSS-SECTIONAL AREA IS MAINTAINED. DUCT TRANSITIONS SHALL BE CONSTRUCTED WITH A SLOPE OF 1" TO 4". ALL DEVIATIONS FROM ORIGINAL CONTRACT DRAWINGS SHALL BE REVIEWED BY ENGINEER DURING THE SHOP DRAWING PROCESS.
- PROVIDE ELBOWS OR TEES WITH TURNING VANES FOR ALL CHANGES OF DUCT DIRECTION. PROVIDE SPLITTER DAMPERS WITH LOCKING QUADRANTS IN ALL TEES.
- PROVIDE MANUAL BALANCING DAMPERS AS REQUIRED TO PROPERLY BALANCE EACH INDIVIDUAL AIR DISTRIBUTION SYSTEM. IF THE LOCATION OF THE BALANCING DAMPER IS NOT DEFINED ON THE DRAWINGS, THE FOLLOWING MINIMUMS STANDARDS SHALL GOVERN. ALL SUPPLY, RETURN, AND EXHAUST MAIN BRANCHES FROM TRUNKS, EACH SPLIT AND ALL SUB-BRANCHES FROM MAIN SHALL INCORPORATE BALANCING DAMPERS.
- PROVIDE FLEXIBLE CONNECTORS AT ALL DUCT CONNECTIONS TO VIBRATING EQUIPMENT. THESE CONNECTORS SHALL BE INSTALLED IN CLOSE PROXIMITY TO SUCH EQUIPMENT.
- ALL ACCESS DOORS REQUIRED IN GENERAL CONSTRUCTION ARE TO BE PROVIDED AND INSTALLED BY THE GENERAL CONTRACTOR. IT IS THE RESPONSIBILITY OF THE HVAC CONTRACTOR TO IDENTIFY SIZE, TYPE AND LOCATION OF SUCH DOORS FOR PROPER ACCESS TO ALL CONCEALED HVAC EQUIPMENT, VALVES AND OTHER RELATED EQUIPMENT. THE HVAC CONTRACTOR SHALL IDENTIFY THESE REQUIREMENTS ON A COORDINATED SHOP DRAWING PRIOR TO SYSTEM FABRICATION AND INSTALLATION.
- ALL CEILING MOUNTED EQUIPMENT MUST BE SUPPORTED DIRECTLY FROM BUILDING STRUCTURE WITH COMBINATION SPRING AND EOPRENE-IN-SHEAR HANGERS AND ROD. PROVIDE SUPPLEMENTARY STEEL AS REQUIRED TO ADEQUATELY SUPPORT THE LOAD.
- M.C. MUST CONTRACT AN INDEPENDENT NEBB CERTIFIED AIR BALANCING & TESTING COMPANY TO PERFORM THE AIR BALANCING WORK AND ASSOCIATED SYSTEM AIR BALANCING REPORT. ALL WORK SHALL BE PERFORMED IN STRICT COMPLIANCE WITH ALL APPLICABLE CODES, REGULATIONS, PLANS AND WRITTEN SPECIFICATIONS. SUBMIT THE FINAL AIR BALANCE REPORT TO THE ENGINEER FOR REVIEW AND APPROVAL. PRIOR TO SUBSTANTIAL COMPLETION OF THE PROJECT, AS DETERMINED BY THE G.C. AND OWNER/CLIENT. THE AIR BALANCE REPORT MUST INCLUDE ALL SUPPLY, RETURN, & EXHAUST AIR TERMINALS, FRESH AIR (OUTSIDE AIR) INTAKE AND VENTILATION EXHAUST CFM RATES FOR ALL UNITS. ALSO INCLUDE ACTUAL SUPPLY & RETURN AIR VELOCITY & STATIC PRESSURE READINGS ALONG WITH ALL MOTOR AMPERAGES FOR ALL UNITS.
- FIRE ALARM CONTRACTOR IS TO PROVIDE & INSTALL 12V SMOKE DETECTORS WITH AUXILIARY CONTACTS. UPON ACTIVATION THE SMOKE DETECTORS SHALL SHUT DOWN THE AIR DISTRIBUTION SYSTEMS AND ACTIVATE A VISIBLE AND AUDIBLE SUPERVISOR SIGNAL AT A CONSTANTLY ATTENDED LOCATION IN ACCORDANCE WITH NFPA 90A & 90B. THE M.C. IS RESPONSIBLE FOR WIRING BETWEEN THE FAN SHUTDOWN RELAY AND THE HVAC UNIT. THE M.C. IS RESPONSIBLE TO COORDINATE THE INSTALLATION OF THE SMOKE DETECTORS WITH THE FIRE ALARM CONTRACTOR.
- THE MECHANICAL CONTRACTOR IS TO INCLUDE IN HIS BID ALL LOW VOLTAGE CONTROL WIRING, THERMOSTATS, RELAYS, TRANSFORMERS, STARTERS ETC FOR A COMPLETE OPERATING CONTROL SYSTEM AS DESCRIBED IN THE SEQUENCE OF OPERATIONS. (MO) IS ALSO RESPONSIBLE FOR LINE VOLTAGE CONTROL FOR EXHAUST FANS CONTROLLED FROM LIGHT SWITCH AND THERMOSTATS. ALL CONTROL WIRING IN THE AREAS THAT DO NOT HAVE DROPPED CEILINGS (THE MC) MUST PROVIDE ALL CONTROL WIRING CONDUIT. IN AREAS OF DROPPED CEILING PLENUM RATED CONTROL WIRING CAN BE RUN EXPOSED ABOVE CEILING.
- ALL MECHANICAL EQUIPMENT SHALL BE MOUNTED AND/OR INSTALLED PER MANUFACTURER'S REQUIREMENTS/SPECIFICATIONS.
- IN ACCORDANCE WITH 2018 EECNC, HEATING AND COOLING LOADS HAVE BEEN CALCULATED USING COMPUTATIONAL PROCEDURES VIA CARRIER HAP SOFTWARE
- IN AGREEMENT WITH 2018 EECNC SECTION C403.2.4.3, SHUT-OFF DAMPERS SHALL BE INSTALLED AT ALL STAIRWAY ENCLOSURE PENETRATIONS, ELEVATOR SHAFT PENETRATIONS, AND OUTDOOR AIR INTAKE BUILDING ENVELOPE PENETRATIONS. PERFORMANCE REQUIREMENTS AND CONTROLS SHALL MATCH THOSE DETAILED IN THE ABOVE REFERENCED CODE.
- SUPPLY AIR DUCT IN FIRST FLOOR OFFICE AREA (ABOVE SUSPENDED CEILING) SHALL HAVE MINIMUM R-6 RATED INSULATION. DUCT SEALING SHALL COMPLY WITH REQUIREMENTS OF SECTION 603.9 OF THE 2018 NC MECHANICAL CODE. NO OTHER DUCTWORK THROUGHOUT THE BUILDING SHALL BE INSULATED.
- INSULATION SHALL CONFORM TO STATE OF NORTH CAROLINA ENERGY CODES AND

FLUID OPERATING TEMPERATURE RANGE & USAGE (°F)	INSULATION CONDUCTIVITY		NORMAL PIPE OR TUBE SIZE (in)			
	CONDUCTIVITY BTU-IN/(in ² ·hr·°F)		<1	1 To 1 1/2	1 1/2 To 4	4 To 8
40-60	0.21-0.27		0.5	0.5	1.0	1.0

- PIPE SURFACES TO BE CLEAN AND DRY SURFACES, ENDS TIGHTLY BUTTED AND SECURED WITH SSL BUTT STRIPS.
- INSULATE PIPE FITTINGS AND VALVES TO SAME THICKNESS AS ADJACENT PIPE INSULATION. FITTINGS AND VALVES SHALL BE COVERED WITH WOVEN GLASS FABRIC.
- RUN INSULATION CONTINUOUS THROUGH HANGERS. USE 16 GAUGE SHEET STEEL 2 PIPE DIA. LONG, 100 DEGREE SUPPORT.
- ALL INSULATION SHALL HAVE SURFACE BURNING CHARACTERISTIC RATINGS OF FLAME SPREAD 25 AND SMOKE DEVELOPED 50.

B. PIPE COVERING:

- INSULATION SHALL BE JOHNS-MANVILLE, KNAUFF, OR APPROVED EQUAL. EXTERIOR PIPING SHALL BE PROVIDED WITH VENTURECLAD WEATHERPROOF JACKETING OR APPROVED EQUAL.

C. MINIMUM REQUIRED PIPE, VALVE, AND FITTING INSULATION FIELD-APPLIED JACKETING:

- OUTDOOR PIPES: 0.032" ALUMINUM JACKET.
- INDOOR, UNACCESSIBLE PORTIONS OF SHAFTS: NONE.
- INDOOR, ALL OTHER AREAS NOT LISTED ABOVE: PVC.

HVAC ABBREVIATIONS

IDENTIFIER	DESCRIPTION
AC	DIRECT EXPANSION AIR CONDITIONING UNIT
ACCU	AIR COOLED CONDENSING UNIT
AI	ANALOG INPUT
AO	ANALOG OUTPUT
AHU	AIR HANDLING UNIT
A.P.D.	AIR PRESSURE DROP
BACNET	BUILDING AUTOMATION AND CONTROL NETWORKS
BAS	BUILDING AUTOMATION SYSTEM
BG	BOTTOM GRILLE
BHP	BRAKE HORSEPOWER
BMS	BUILDING MANAGEMENT SYSTEM
BOT	BOTTOM
BR	BOTTOM REGISTER
BTU/HR	BRITISH THERMAL UNITS/HR
CA	COMMON ALARM
CD	CEILING DIFFUSER
CFM	CUBIC FEET PER MINUTE
CND	LOW PRESSURE CONDENSATE RETURN
COND	CONDENSATE DRAIN
CP	CONTROL PANEL
CR	CEILING REGISTER
CU	CONDENSING UNIT
DB	DRY BULB
DES	DAMPER END SWITCH
DIA	DIAMETER
DI	DIGITAL INPUT
DO	DIGITAL OUTPUT
DN	DOWN
EA	EXHAUST AIR
EAT	ENTERING AIR TEMPERATURE
EDB	ENTERING DRY BULB
EER	ENERGY EFFICIENCY RATIO
EF	EXHAUST FAN
EG	EXHAUST GRILLE
ESP	EXTERNAL STATIC PRESSURE
EWB	ENTERING WET BULB
EWT	ENTERING WATER TEMPERATURE
FAI	FRESH AIR INTAKE
FLA	FULL-LOAD-AMPERAGE
FPM	FEET PER MINUTE
FZ	FREEZE
G	GAS
GC	GENERAL CONTRACTOR
HP	HORSEPOWER
IAW	IN ACCORDANCE WITH
IF	INTAKE FAN
IR	INTERPOSING RELAY
LAT	LEAVING AIR TEMPERATURE
LPVR	LOW PRESSURE VAPOR REFRIGERANT
MAX	MAXIMUM
MBH	THOUSAND BTU PER HOUR
MIN	MINIMUM
PD	PRESSURE DROP
RA	RETURN AIR
RG	RETURN GRILLE
RH	RELATIVE HUMIDITY
RHG	REFRIGERANT HOT GAS LINE
RL	REFRIGERANT LIQUID LINE
RPM	ROTATIONS PER MINUTE
RR	RETURN REGISTER
SA	SUPPLY AIR
SD	SUPPLY DIFFUSER
SG	SUPPLY GRILLE
SPS	STATIC PRESSURE SENSOR
SR	SAFETY RELAY
SS	START/STOP
ST	STATUS
TSP	TOTAL STATIC PRESSURE
TYP.	TYPICAL
WB	WET BULB
W.C.	WATER COLUMN
WG	WATER GAUGE

NOTE: NOT ALL ABBREVIATIONS USED IN DRAWINGS.

BUILDING DEPARTMENT NOTES

- ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE 2018 CODE OF NORTH CAROLINA BUILDING CODE (BC), AND MECHANICAL CODE (MC). WORK SHALL BE EXECUTED IN FULL COMPLIANCE WITH THE APPLICABLE PROVISIONS OF ALL LOCAL LAWS, BY LAWS, STATUTES, ORDINANCES, CODES, RULES REGULATIONS AND LAWFUL ORDERS OF PUBLIC AUTHORITIES BEARING ON THE PERFORMANCE AND EXECUTION OF THE WORK. ALL WORK SHALL COMPLY WITH THE ENERGY CONSERVATION CODE.
 - FORM TR-1 SHALL BE FILED PRIOR TO INSTALLATION. FORM TR-1 SHALL AGAIN BE FILED UPON COMPLETION OF INSTALLATION.
 - THEY SHALL HAVE BEEN ACCEPTABLE PRIOR TO THE EFFECTIVE DATE OF THE CODE BY THE BOARD OF STANDARDS AND APPEALS.
 - THEY SHALL HAVE BEEN ACCEPTED FOR USE UNDER THE PRESCRIBED TEST METHODS BY THE COMMISSIONER (OR), D. PREVIOUSLY APPROVED BY THE BOARD OF STANDARDS AND APPEALS (AS PER CC SECTION 28-113)
- ALL MATERIALS AND EQUIPMENT DELIVERED TO THE SITE SHALL BE RECOGNIZED BY THE OFFICE OF TECHNICAL CERTIFICATION AND RESEARCH (OTCR). PRODUCTS ARE NOT CODE-PRESCRIBED OR APPROVED ALTERNATIVE AND SHALL BE REJECTED UNTIL SUCH CERTIFICATES ARE OBTAINED.
- ALL EQUIPMENT USE PERMITS SHALL BE OBTAINED BY THE CONTRACTOR AS REQUIRED IN NORTH CAROLINA CONSTRUCTION CODES.

NOTE:

- ALL BIDDERS ARE REQUIRED TO VISIT THE SITE TO VIEW THE EXISTING CONDITION PRIOR TO SUBMITTING ANY PROPOSALS
- Substitutions Allowed **ONLY** Prior to Bid Delivery

HVAC SYMBOL LIST

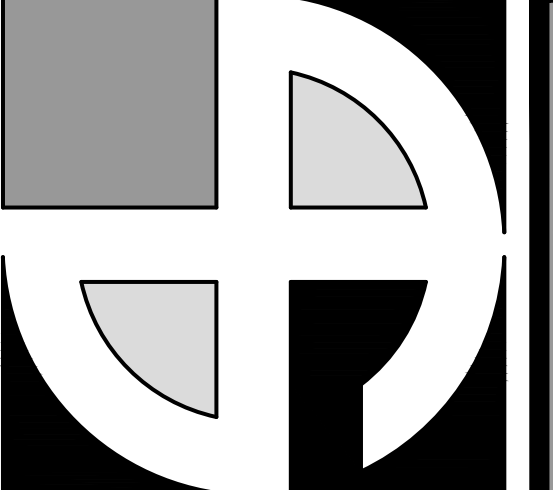
IDENTIFIER	DESCRIPTION	IDENTIFIER	DESCRIPTION	SINGLE LINE	DOUBLE LINE
(Symbol)	SPIRAL DUCTWORK WITH 1" ACOUSTICAL LINING HARD DUCT CONNECTION TO ROUND DIFFUSER DUCTWORK TO BE PAINTED TO COLOR SPECIFIED BY ARCHITECT	(Symbol)	FLAT, PLEATED FILTER	(Symbol)	(Symbol)
(Symbol)	AIR VENT	(Symbol)	CARTRIDGE FILTER	(Symbol)	(Symbol)
(Symbol)	PRESSURE GAUGE WITH PETCOCK	(Symbol)	HUMIDIFIER	(Symbol)	(Symbol)
(Symbol)	THERMOMETER	(Symbol)	COIL - PREHEAT	(Symbol)	(Symbol)
(Symbol)	PIPE RUNOUT UP THROUGH FINISHED FLOOR ABOVE	(Symbol)	COIL - COOLING	(Symbol)	(Symbol)
(Symbol)	PIPE DROP OR DIRECTION OF FLOW	(Symbol)	COIL - HEATING	(Symbol)	(Symbol)
(Symbol)	PIPE RISER	(Symbol)	ELECTRIC HEATER	(Symbol)	(Symbol)
(Symbol)	PIPE TEE DOWN	(Symbol)	PUMP	(Symbol)	(Symbol)
(Symbol)	PIPE TEE UP	(Symbol)	VARIABLE FREQUENCY DRIVE	(Symbol)	(Symbol)
(Symbol)	TWO WAY AND THREE WAY CONTROL VALVE	(Symbol)	SPLIT-CASE PUMP	(Symbol)	(Symbol)
(Symbol)	BALL-ISOLATION VALVE	(Symbol)	END-SUCTION PUMP	(Symbol)	(Symbol)
(Symbol)	GLOBE VALVE	(Symbol)	INLINE PUMP	(Symbol)	(Symbol)
(Symbol)	EXPANSION/RELIEF VALVE	(Symbol)	EQUIPMENT TAG XX - DEVICE TYPE YY - SIGNAL TYPE	(Symbol)	(Symbol)
(Symbol)	BALANCING VALVE	(Symbol)	DETAIL TAG/CALL OUT TAG MECHANICAL SHEET NUMBER	(Symbol)	(Symbol)
(Symbol)	CHECK VALVE	(Symbol)	TAG - BMS DEVICE XX - DEVICE TYPE YY - SIGNAL TYPE	(Symbol)	(Symbol)
(Symbol)	DRAIN VALVE	(Symbol)	ELECTRIC PNEUMATIC RELAY XX - TAG NUMBER YYY - SYSTEM	(Symbol)	(Symbol)
(Symbol)	FLEXIBLE CONNECTION	(Symbol)	FIELD CONNECT NEW TO EXISTING	(Symbol)	(Symbol)
(Symbol)	UNION	(Symbol)	FIELD DISCONNECT	(Symbol)	(Symbol)
(Symbol)	STRAINER WITH BLOW OFF VALVE	(Symbol)	DIFFERENTIAL PRESSURE SENSOR	(Symbol)	(Symbol)
(Symbol)	TRIPLE DUTY VALVE	(Symbol)	SUPPLY AIR FLOW	(Symbol)	(Symbol)
(Symbol)	THERMOSTATIC STEAM TRAP	(Symbol)	EXHAUST AIR	(Symbol)	(Symbol)
(Symbol)	CAPPED PIPE	(Symbol)	GAS SENSOR (INDICATE TYPE)	(Symbol)	(Symbol)
(Symbol)	FLOAT & THERMOSTATIC STEAM TRAP	(Symbol)	UNDERCUT DOOR	(Symbol)	(Symbol)
(Symbol)	PIPE ANCHOR	(Symbol)	THERMOSTAT	(Symbol)	(Symbol)
(Symbol)	PIPE SLEEVE	(Symbol)	DUCT SMOKE DETECTOR	(Symbol)	(Symbol)
(Symbol)	NEW DUCTWORK OR PIPING	(Symbol)	TEMPERATURE SENSOR	(Symbol)	(Symbol)
(Symbol)	EXISTING DUCTWORK OR PIPING TO BE REMOVED	(Symbol)	4 WAY CEILING DIFFUSER	(Symbol)	(Symbol)
(Symbol)	EXISTING DUCTWORK OR PIPING TO REMAIN	(Symbol)	3 WAY CEILING DIFFUSER	(Symbol)	(Symbol)
(Symbol)	HEAT TRACE PIPE	(Symbol)	2 WAY CEILING DIFFUSER	(Symbol)	(Symbol)
(Symbol)	DOUBLE-LINE AND SINGLE-LINE RECTANGULAR DUCT. FIRST NUMBER INDICATES SIDE IN VIEW IN INCHES, SECOND NUMBER INDICATES DEPTH IN INCHES	(Symbol)	EXHAUST FAN	(Symbol)	(Symbol)
(Symbol)	DOUBLE-LINE AND SINGLE-LINE ROUND DUCT. NUMBER INDICATES DIAMETER IN INCHES	(Symbol)	EXHAUST GRILLE	(Symbol)	(Symbol)
(Symbol)	FLEXIBLE DUCTWORK	(Symbol)	METER	(Symbol)	(Symbol)
(Symbol)	REGULAR SUPPLY AIR DUCT (UP AND DOWN)	(Symbol)	REGULATOR	(Symbol)	(Symbol)
(Symbol)	REGULAR RETURN AIR DUCT (UP AND DOWN)	(Symbol)	RETURN GRILLE/REGISTER	(Symbol)	(Symbol)
(Symbol)	REGULAR EXHAUST AIR DUCT (UP AND DOWN)	(Symbol)	SUPPLY DIFFUSER - ROUND	(Symbol)	(Symbol)
(Symbol)	REGULAR OUTSIDE AIR DUCT (UP AND DOWN)	(Symbol)	RETURN DIFFUSER - ROUND	(Symbol)	(Symbol)
(Symbol)	INSULATED FLEXIBLE DUCT	(Symbol)	EXHAUST DIFFUSER - ROUND	(Symbol)	(Symbol)
(Symbol)	VOLUME DAMPER	(Symbol)	SIDEWALL GRILLE	(Symbol)	(Symbol)
(Symbol)	BACKDRAFT DAMPER	(Symbol)	ELECTRONIC TIMECLOCK	(Symbol)	(Symbol)
(Symbol)	FIRE DAMPER AND ACCESS DOOR	(Symbol)	REFER TO SUPPLEMENTAL FIGURE INDICATED BY NUMBER (I.E. F2 REFERS TO FIGURE 2)	(Symbol)	(Symbol)
(Symbol)	SMOKE DAMPER AND ACCESS DOOR	(Symbol)		(Symbol)	(Symbol)
(Symbol)	MOTOR OPERATED DAMPER	(Symbol)		(Symbol)	(Symbol)
(Symbol)	CONTROL DAMPER	(Symbol)		(Symbol)	(Symbol)
(Symbol)	FAN - CENTRIFUGAL	(Symbol)		(Symbol)	(Symbol)
(Symbol)	AIRFLOW MEASURING STATION	(Symbol)		(Symbol)	(Symbol)

NOTE: NOT ALL SYMBOLS USED IN DRAWINGS.

HVAC SYMBOL LIST

IDENTIFIER	DESCRIPTION	SINGLE LINE	DOUBLE LINE
(Symbol)	ELBOW MAY TRANSITION IN "W" DIMENSION ONLY	(Symbol)	(Symbol)
(Symbol)	SUPPLY, RETURN OR EXHAUST ROUND ELBOW	(Symbol)	(Symbol)
(Symbol)	SUPPLY, RETURN OR EXHAUST SQUARE ELBOW	(Symbol)	(Symbol)
(Symbol)	SUPPLY, RETURN OR EXHAUST DUCT BRANCH	(Symbol)	(Symbol)
(Symbol)	SUPPLY DUCT SPLIT	(Symbol)	(Symbol)
(Symbol)	SUPPLY DUCT SPLIT	(Symbol)	(Symbol)
(Symbol)	SUPPLY REGISTER CONNECTION	(Symbol)	(Symbol)
(Symbol)	SUPPLY DIFFUSER CONNECTION	(Symbol)	(Symbol)
(Symbol)	SUPPLY DIFFUSER AT END OF DUCT RUN	(Symbol)	(Symbol)
(Symbol)	RETURN REGISTER AT END OF DUCT RUN	(Symbol)	(Symbol)

NOTES:
1. DIFFUSERS, REGISTERS, GRILLES AND DUCT SIZES ARE SHOWN ON FLOOR PLANS OR IN SCHEDULES.
2. DUCT SIZES ARE GIVEN AS INTERNAL DIMENSIONS. INTERNALLY LINED DUCTS SHALL BE INCREASED IN SIZE TO MAINTAIN THE SAME INTERNAL SIZE.



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 Mechanical Engineer
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22-238

STORE SPACE

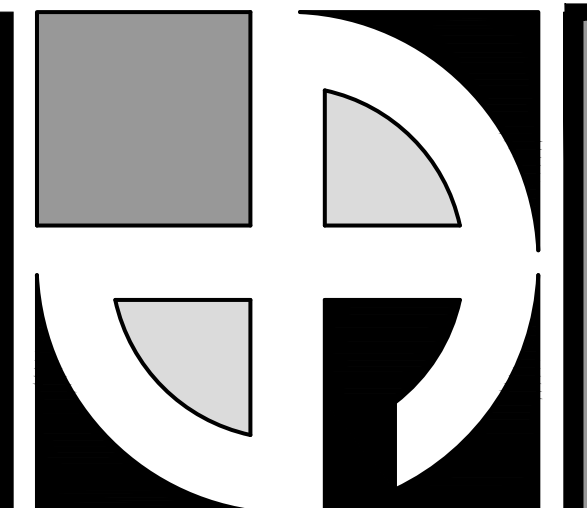
937 E. Haggard Ave.
 Elon, NC

No.	Description	Date	By
1	ISSUED FOR BID	2-3-23	AB

DATE:
 9-3-22
 DRAWN BY: A. Barraclough
 CHECKED BY: M. Dean
 SCALE:
 1/16" = 1'-0"

MECHANICAL SYMBOLS ABBREVIATIONS & NOTES
M1.0

Note:
 Contractor Shall Provide
 Minimum Standard Labor &
 Material Warranties



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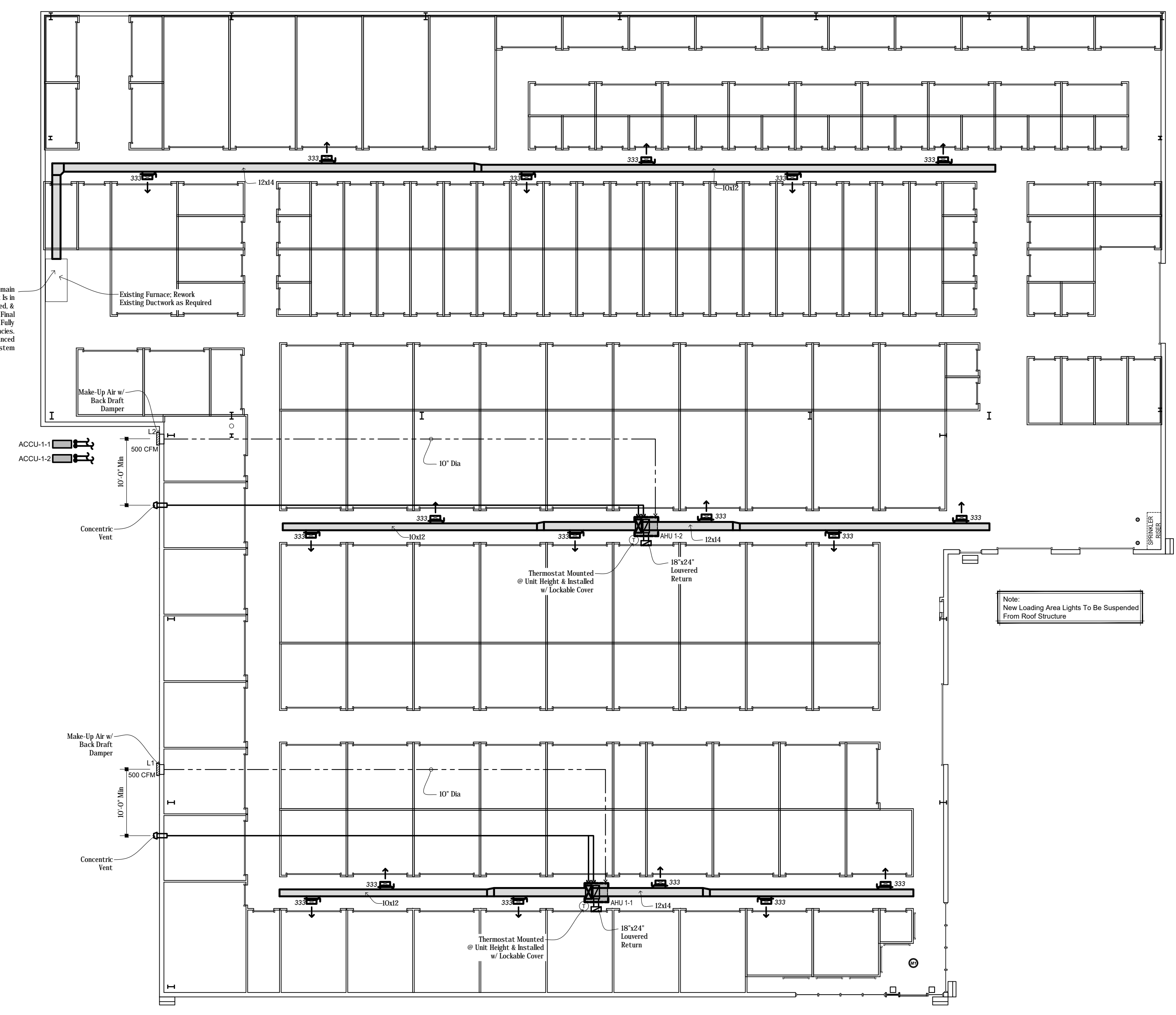
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STORE SPACE

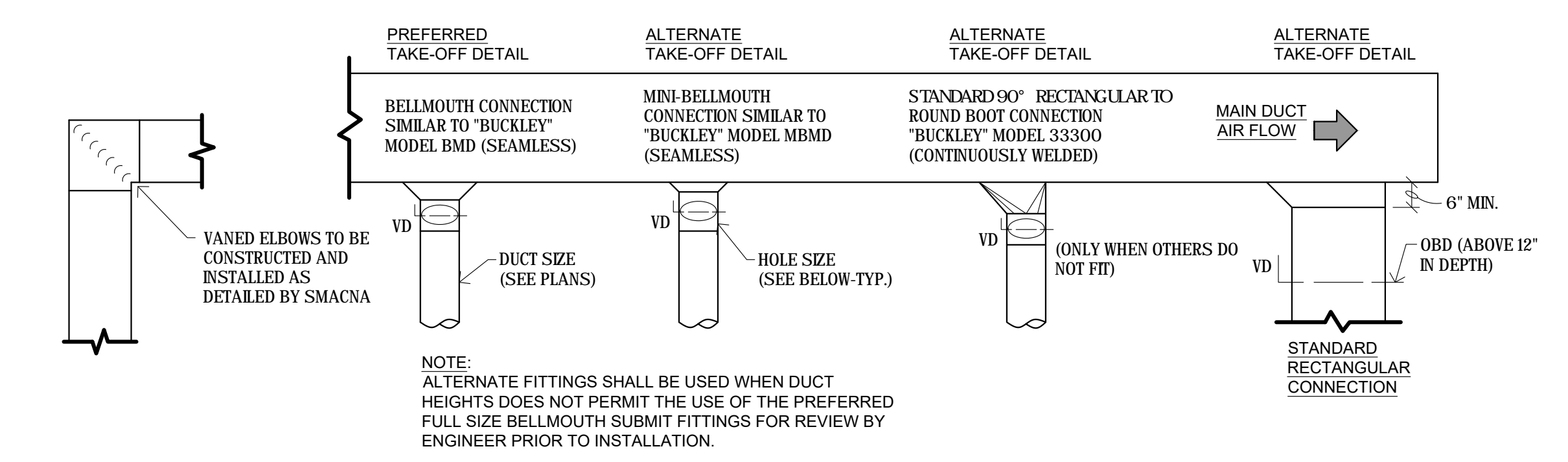
937 E. Haggard Ave.
 Elon, NC

BUILDING 1

BUILDING 2



1 HVAC PLAN
 3/32"=1'-0"



2 DUCT TAKEOFFS AND ELBOW DETAIL
 NTS

Outdoor Air Requirements	
The HVAC System Outdoor Air Quantities Meets The Requirements for the Ventilation Rate Procedure Of Ashrae Standard 62.1-2022 (Ventilation for Acceptable Indoor Air Quality)	
Warehouse: 0.06 CFM/SF	
14,875 SF * 0.06 CFM/SF= 893 CFM	
Outside Air To Be Provided: 500 CFM Per Furnace	

GENERAL NOTES:
 INSTALL ALL ACCU'S PER MANUFACTURER'S INSTALLATION INSTRUCTIONS WITH PROPER CLEARANCES BETWEEN UNITS.

MECHANICAL NOTES:
 ① INSTALL HORIZONTAL COMBINATION VENT TERMINAL & COMBUSTION AIR INLET PER MANUFACTURER'S INSTRUCTIONS.
 ② REFRIGERANT LIQUID AND REFRIGERANT GAS LINES UP TO CONDENSING UNIT ON ROOF ABOVE. SIZES PER MANUFACTURER'S INSTALLATION REQUIREMENTS.

No.	Description	Date	By
1	ISSUED FOR BID	2-3-23	AB

DATE: 9-3-22
 DRAWN BY: A. Barraclough
 CHECKED BY: M. Dean
 SCALE: 3/32"= 1'-0"

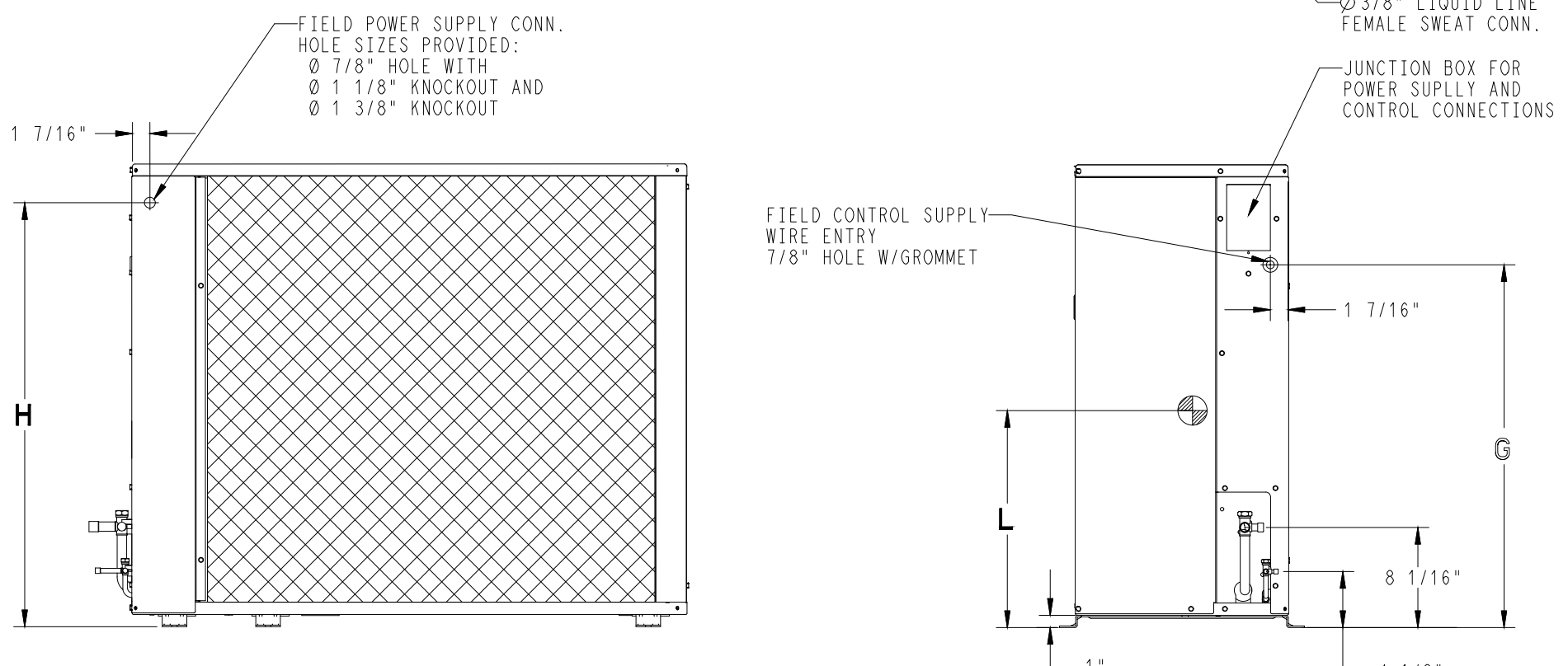
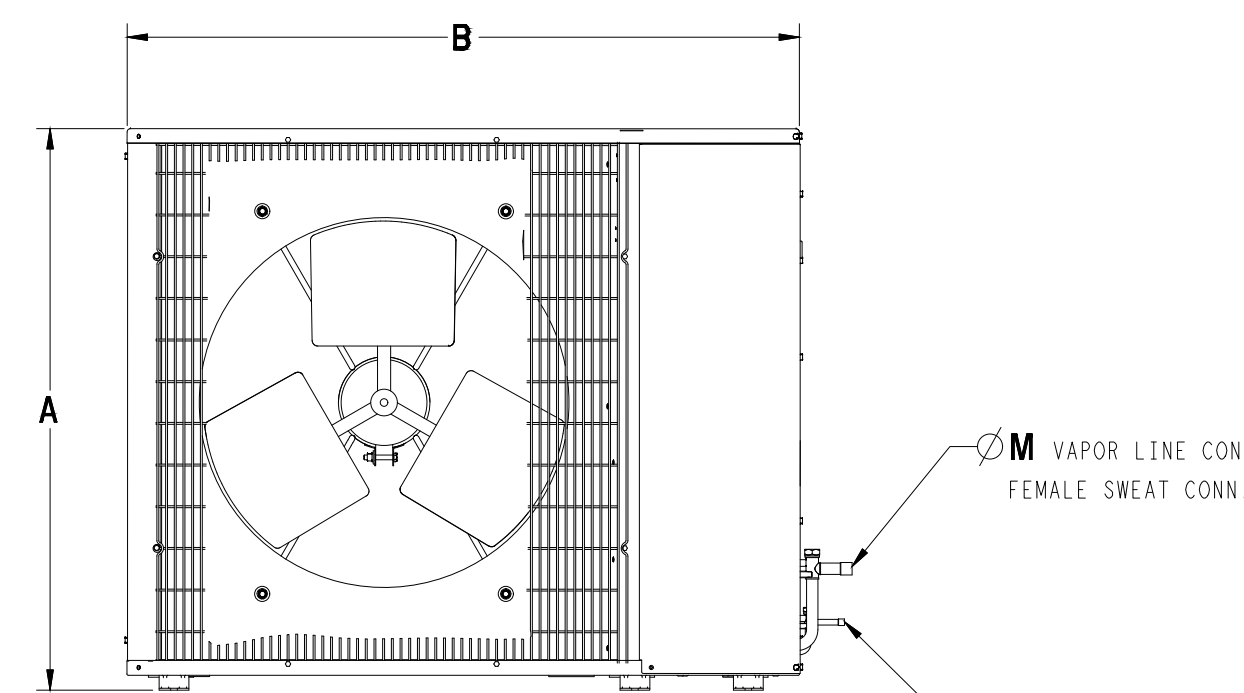
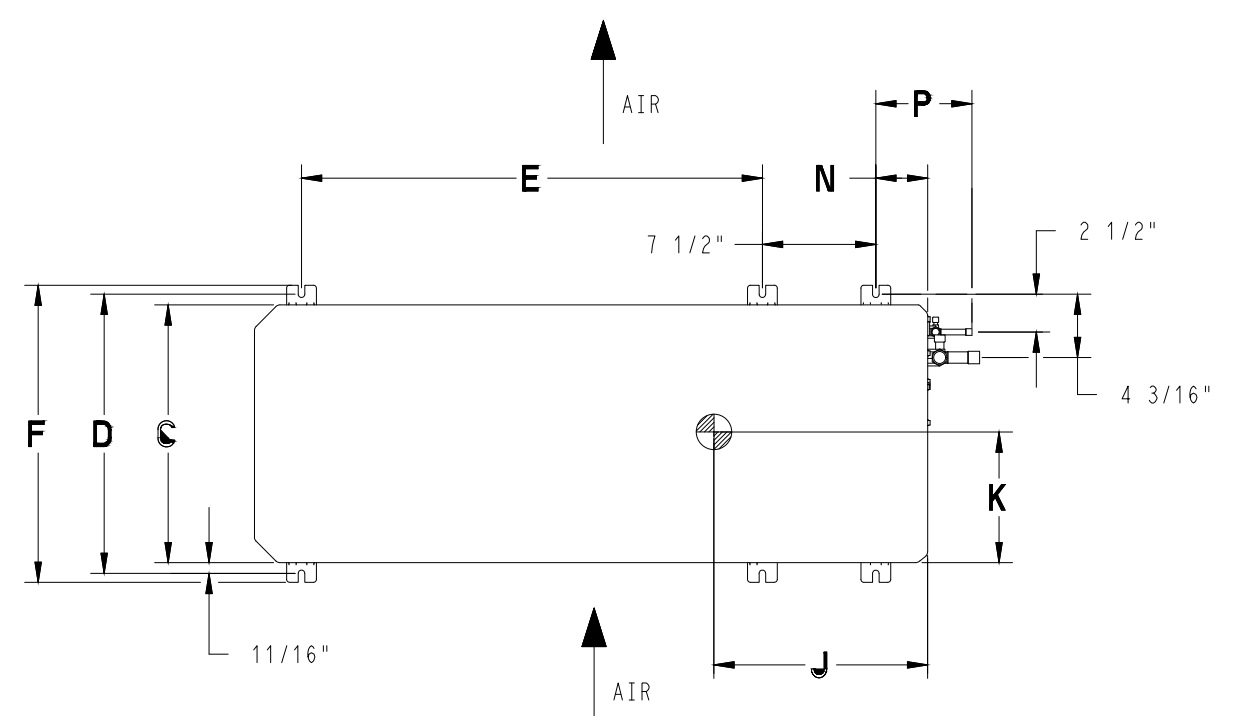
HVAC PLAN
M1.1

GAS FIRED FURNACE SCHEDULE																									
TAG	MANUFACTURER	MODEL	LOCATION	SERVICE	NOM. CAP. (TONS)	MIN. OA (CFM)	SUPPLY FAN			DX COOLING					GAS HEAT		ELECTRICAL			OPERATING WEIGHT (±LBS)	DIMENSIONS LxWxH (IN)	NOTES			
							AIR FLOW (CFM)	ESP (IN)	MOTOR HP	REFRIG. TYPE	COIL MODEL	TOTAL CAP. (MBH)	SENSIBLE CAP. (MBH)	EAT DB (°F)	EAT WB (°F)	LAT DB (°F)	LAT WB (°F)	INPUT MAX HEAT (MBH)	OUTPUT MAX HEAT (MBH)				MCA	MOCP	V-PH-HZ
1st Floor Units																									
AHU-1	CARRIER	59SP5A080E14-20	CORRIDOR	STORAGE	5		2000	0.50		PURON	CSPH	45.8	35.6	80.0	67.0	59.4	58.1	80.00	78.00	13	20	115-1-60	160	35x21x30	
AHU-2	CARRIER	59SP5A080E14-20	CORRIDOR	STORAGE	5		2000	0.50		PURON	CSPH	45.8	35.6	80.0	67.0	59.4	58.1	80.00	78.00	13	20	115-1-60	160	35x21x30	

NOTES:

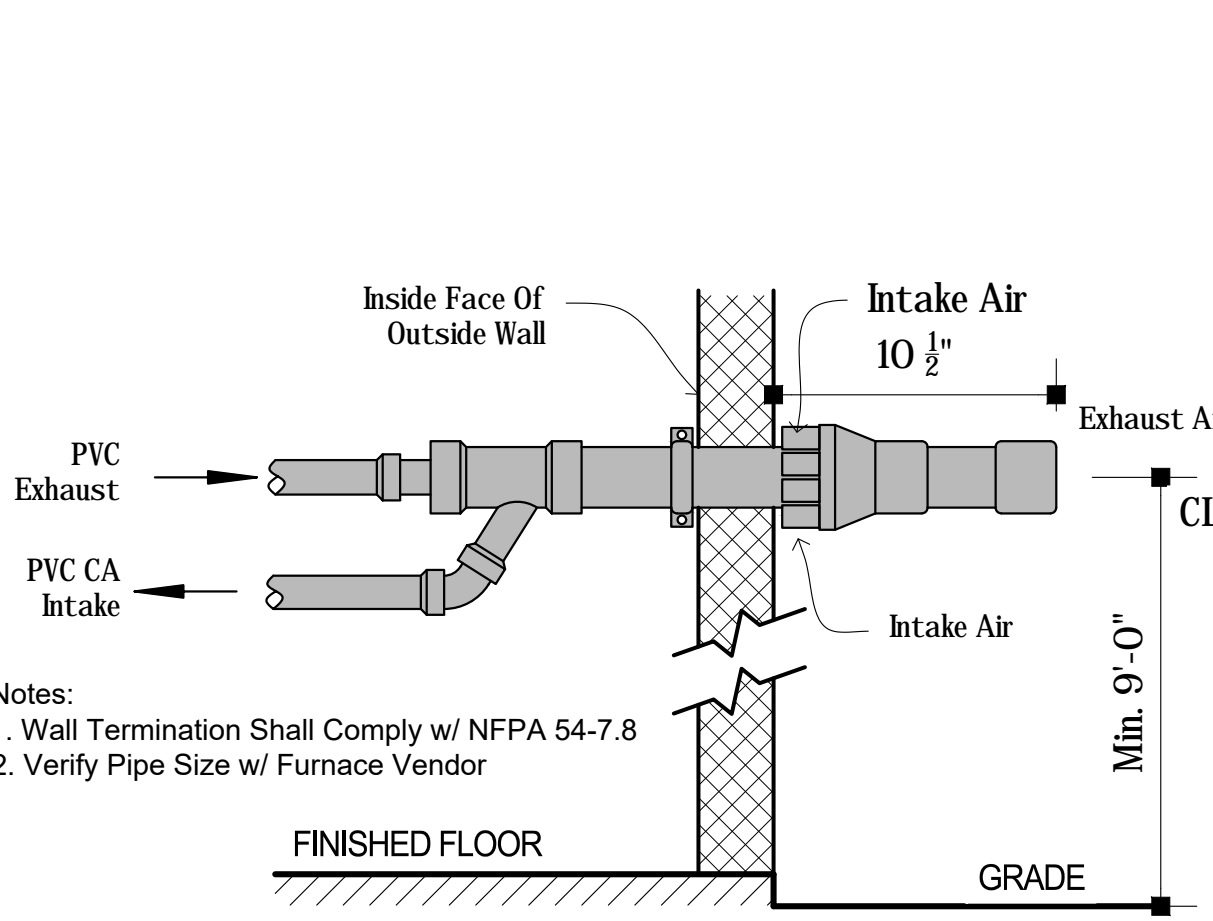
Thermostat
Honeywell T7300 Commercial Micro-Electronic
7 Day Programmable w/ Lockable Cover

AIR COOLED CONDENSING UNIT SCHEDULE															
TAG	MANUFACTURER	MODEL	SERVICE	LOCATION	NOMINAL CAPACITY (TONS)	SEER	COMPRESSOR TYPE	REFRIGERANT	ELECTRICAL			OPERATING WEIGHT (LB)	DIMENSIONS WxLxH (IN)	NOTES	
									V-PH-HZ	MCA	MOCP				
1st Floor Units															
ACCU-1	CARRIER	24AH460A003	AHU-1-1	GRADE-PAD	5	14.0	SCROLL	PURON	208-1-60	31.1	50	245	17x45x43		
ACCU-2	CARRIER	24AH460A003	AHU-1-2	GRADE-PAD	5	14.0	SCROLL	PURON	208-1-60	31.1	50	245	17x45x43		



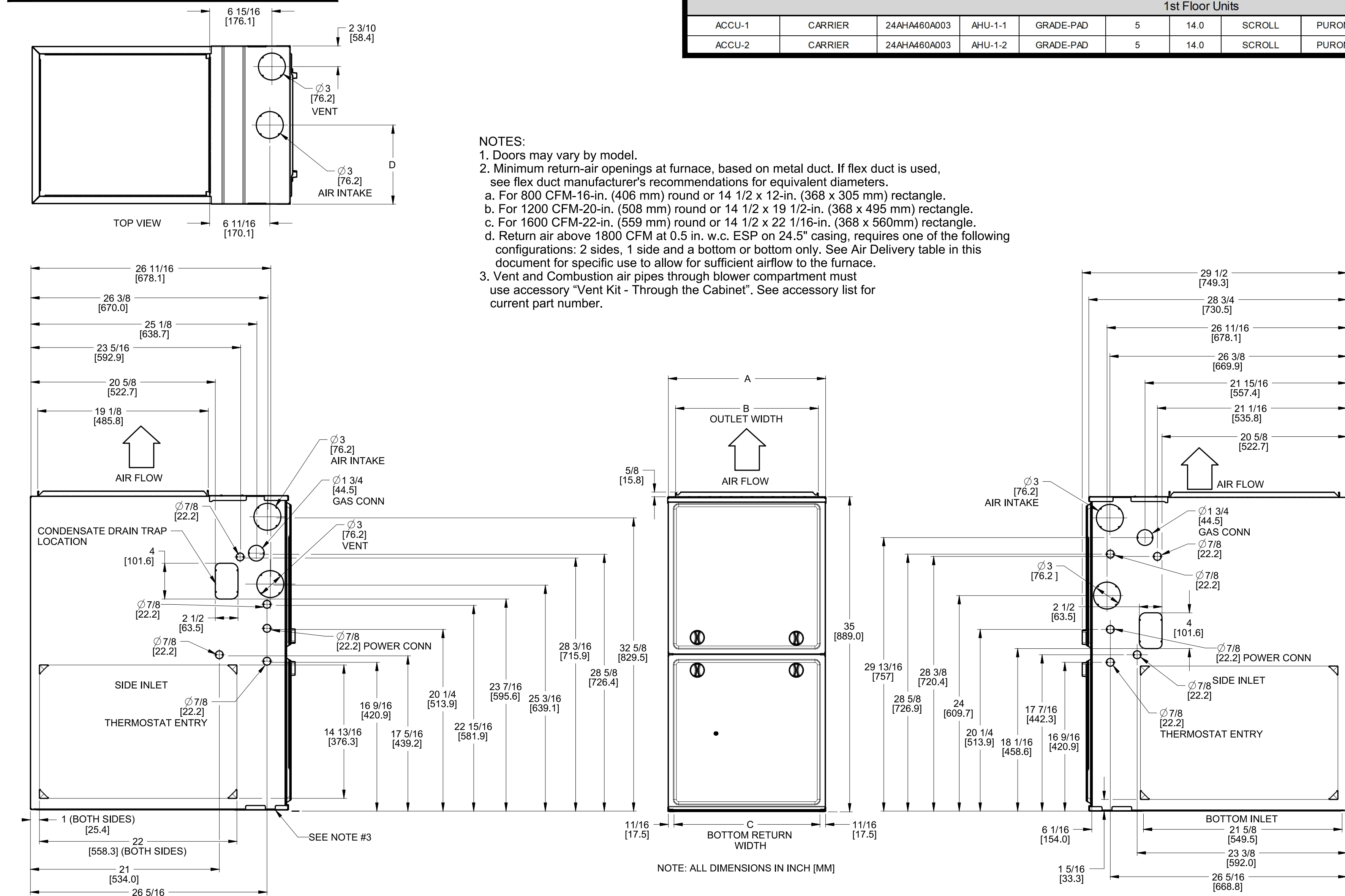
- CLEARANCE REQUIREMENTS: SINGLE UNIT APPLICATIONS: WITH COIL FACING WALL: ALLOW 6 IN. MINIMUM CLEARANCE ON COIL SIDE AND COIL END AND 20 IN. MINIMUM CLEARANCE ON FAN SIDE. WITH FAN FACING WALL: ALLOW 8 IN. MINIMUM CLEARANCE ON FAN SIDE AND 6 IN. ON COIL END AND 20 IN. MINIMUM CLEARANCE ON COIL SIDE. MULTI-UNIT APPLICATIONS: ALLOW 24 IN. MINIMUM CLEARANCE BETWEEN FAN AND COIL SIDES OF MULTIPLE UNITS. ARRANGE UNITS SO DISCHARGE OF ONE DOES NOT ENTER INLET OF ANOTHER WHEN TWO UNITS ARE INSTALLED END TO END WITH THE COIL ENDS FACING EACH OTHER ALLOW 12 IN. MINIMUM CLEARANCE BETWEEN UNITS. COMPRESSOR END SERVICE CLEARANCE: ALLOW 24 IN. MINIMUM CLEARANCE ON COMPRESSOR END WHEN UNITS ARE STACKED OR THERE IS LESS THAN 40 IN. OF CLEARANCE ABOVE THE TOP OF THE UNIT. IF THERE IS 40 IN. CLEARANCE ABOVE UNIT AND THE TOP PANEL IS ACCESSIBLE FOR REMOVAL ALLOW 8 IN. MINIMUM CLEARANCE ON COMPRESSOR END FOR SERVICE.
- IMPORTANT: WHEN INSTALLING SINGLE OR MULTIPLE UNITS IN AN ALCOVE, ROOF WELL, OR PARTIALLY ENCLOSED AREA, ENSURE THERE IS ADEQUATE VENTILATION TO PREVENT RECIRCULATION OF DISCHARGE AIR.
- MINIMUM OUTDOOR OPERATING AMBIENT IN COOLING MODE IS 55°F, MAX. 125°F.
- SERIES DESIGNATION IS THE 13TH POSITION OF THE UNIT MODEL NUMBER.
- CENTER OF GRAVITY
- ALL DIMENSIONS ARE IN "INCHES" UNLESS NOTED.

6 AIR COOLED CONDENSING UNIT DETAILS (GROUND MOUNTED)



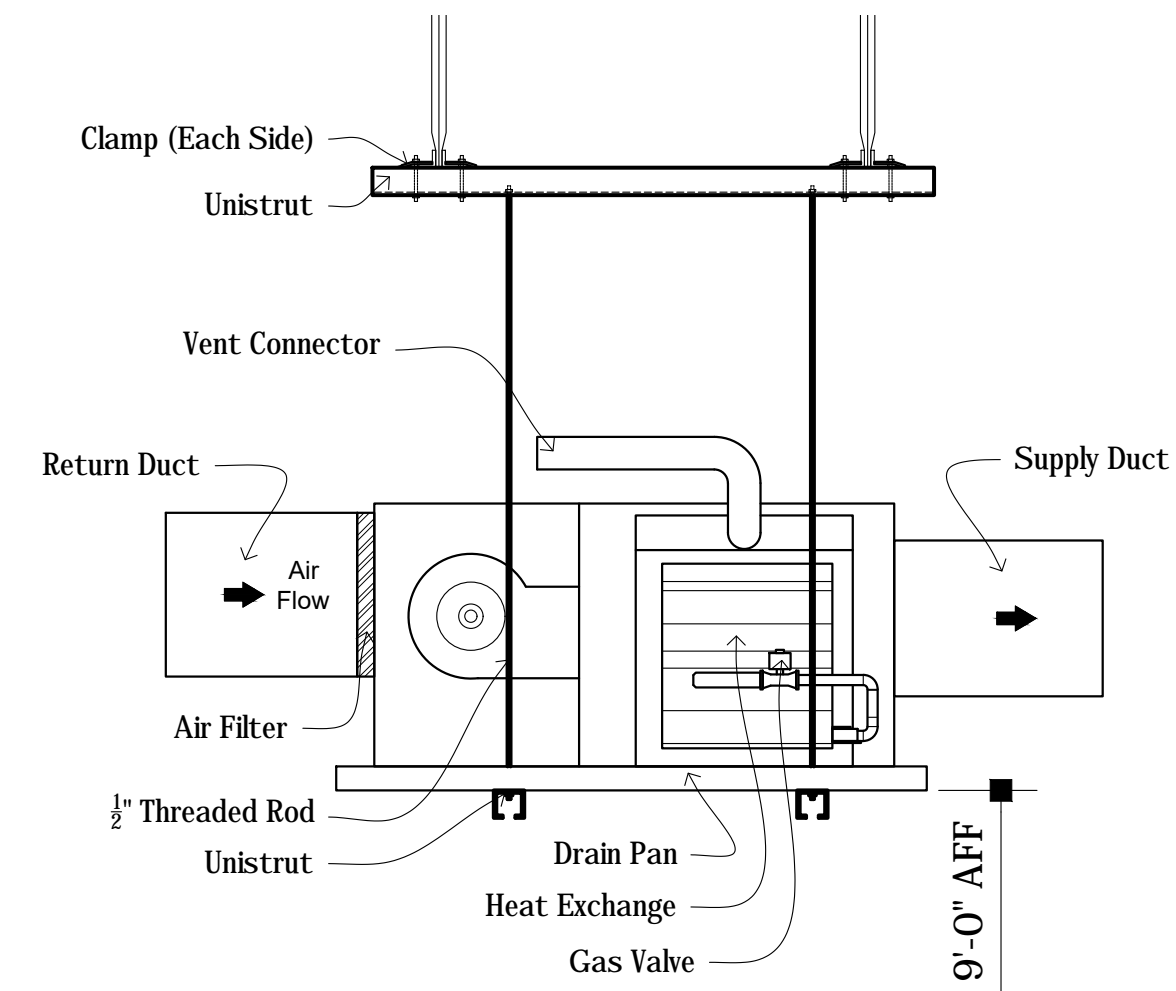
- Notes:
1. Wall Termination Shall Comply w/ NFPA 54-7.8
2. Verify Pipe Size w/ Furnace Vendor

- NOTES:
1. Doors may vary by model.
2. Minimum return-air openings at furnace, based on metal duct. If flex duct is used, see flex duct manufacturer's recommendations for equivalent diameters.
a. For 800 CFM-16-in. (406 mm) round or 14 1/2 x 12-in. (368 x 305 mm) rectangle.
b. For 1200 CFM-20-in. (508 mm) round or 14 1/2 x 19 1/2-in. (368 x 495 mm) rectangle.
c. For 1600 CFM-22-in. (559 mm) round or 14 1/2 x 22 1/16-in. (368 x 560mm) rectangle.
d. Return air above 1800 CFM at 0.5 in. w.c. ESP on 24.5" casing, requires one of the following configurations: 2 sides, 1 side and a bottom or bottom only. See Air Delivery table in this document for specific use to allow for sufficient airflow to the furnace.
3. Vent and Combustion air pipes through blower compartment must use accessory "Vent Kit - Through the Cabinet". See accessory list for current part number.

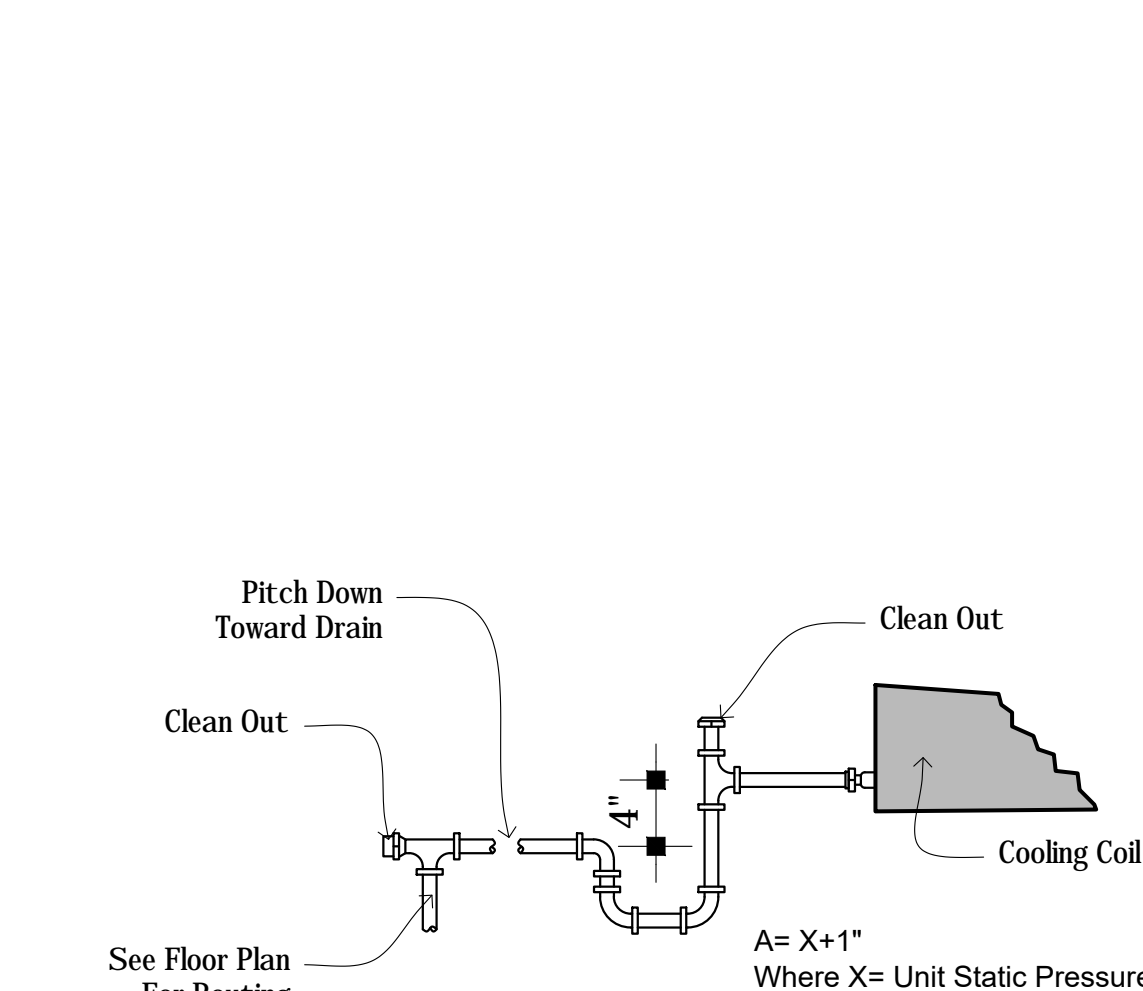


NOTE: ALL DIMENSIONS IN INCH [MM]

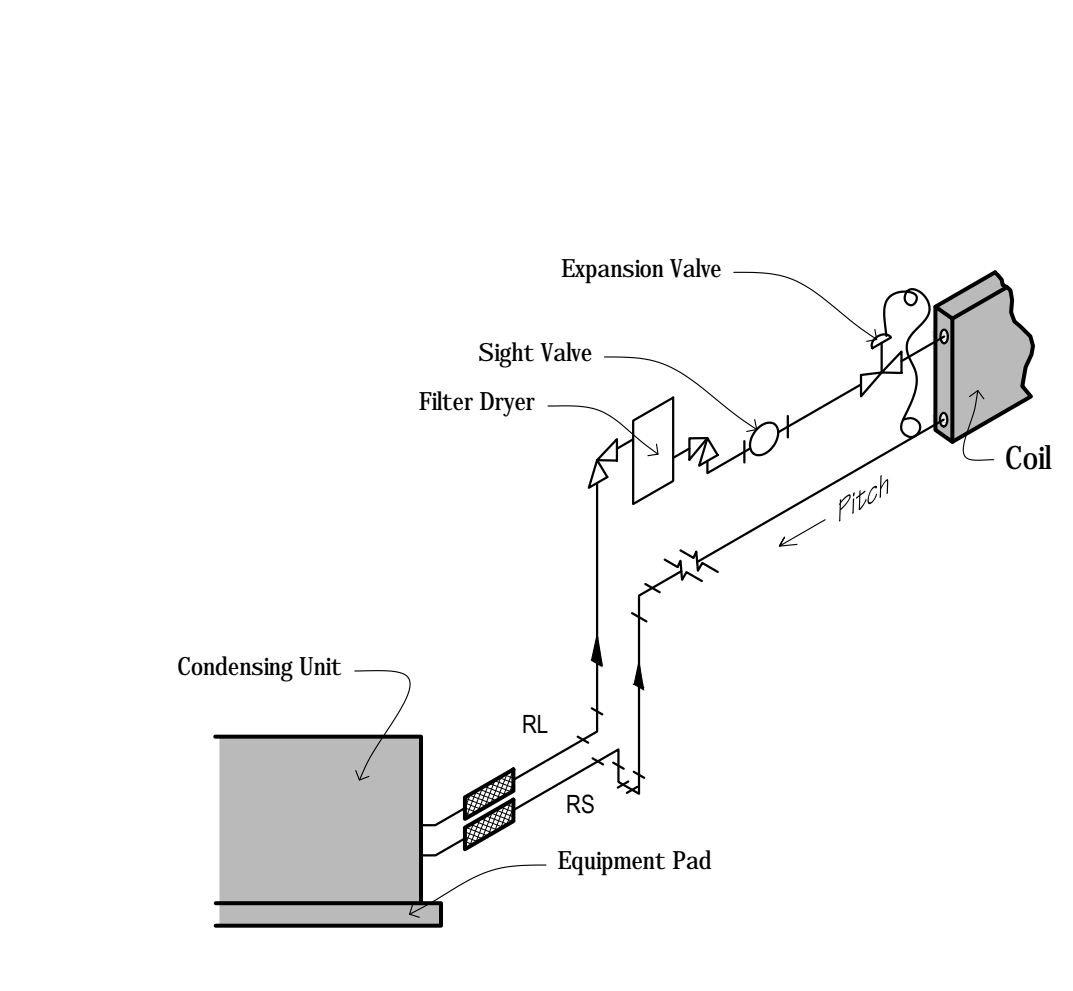
1 GAS FIRED FURNACE DETAILS



2 FURNACE SUPPORT DETAIL



3 CONDENSATE DRAIN TRAP



4 REFRIGERANT PIPING SCHEMATIC

5 CONCENTRIC WALL TERMINATION

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PROFESSIONAL SEAL
052180
MECHANICAL ENGINEER
NORTH CAROLINA

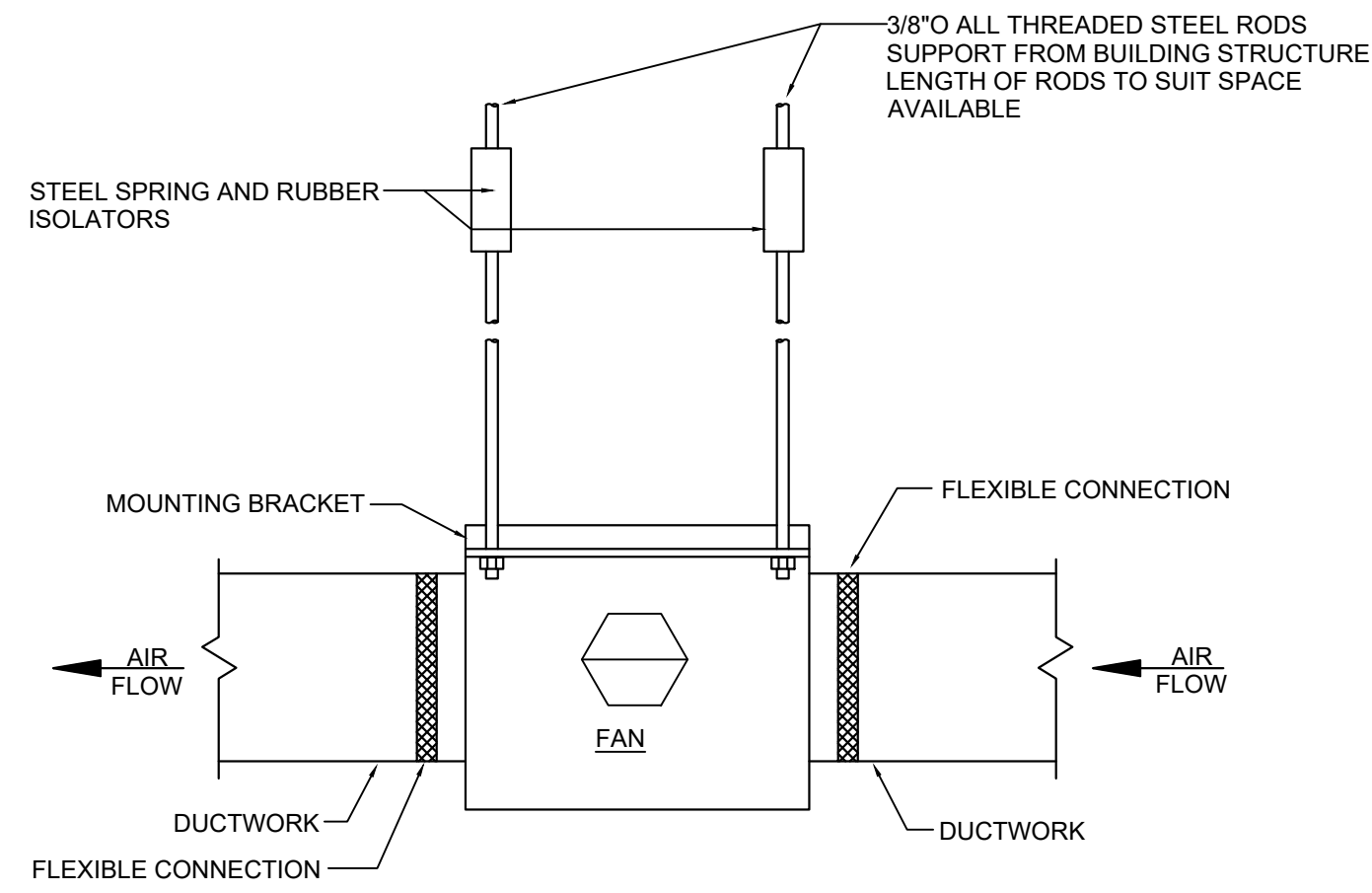
22-238

STORE SPACE
937 E. Haggard Ave.
Eflon, NC

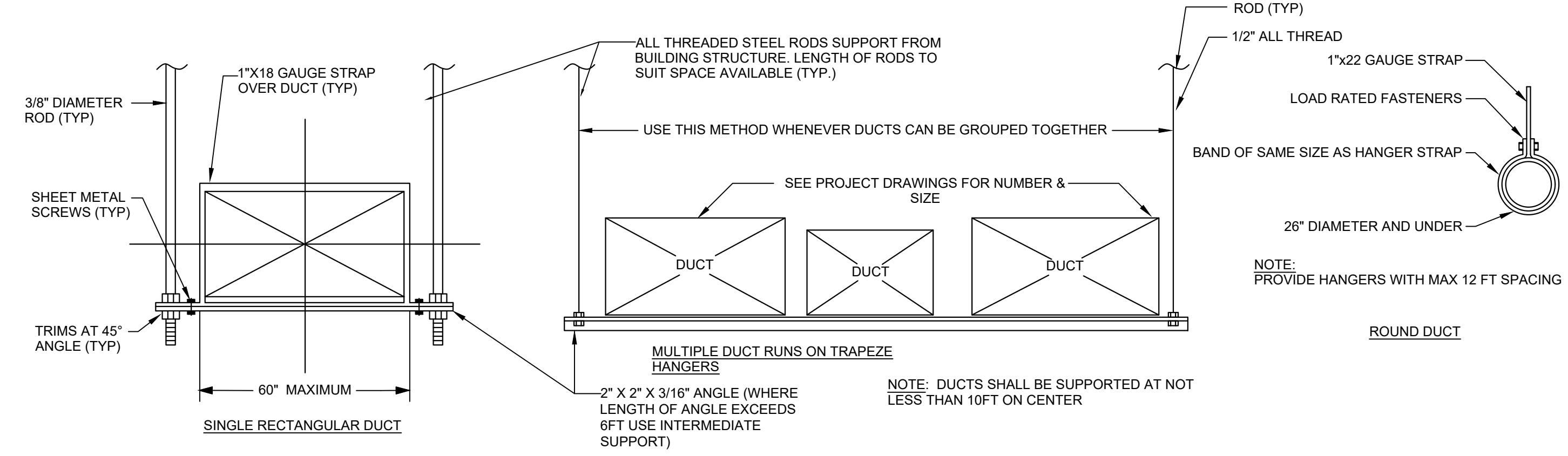
No.	Description	Date	By
1	ISSUED FOR BID	2-3-23	AB

DATE: 9-3-22
DRAWN BY: A. Barraclough
CHECKED BY: M. Dean
SCALE: NTS

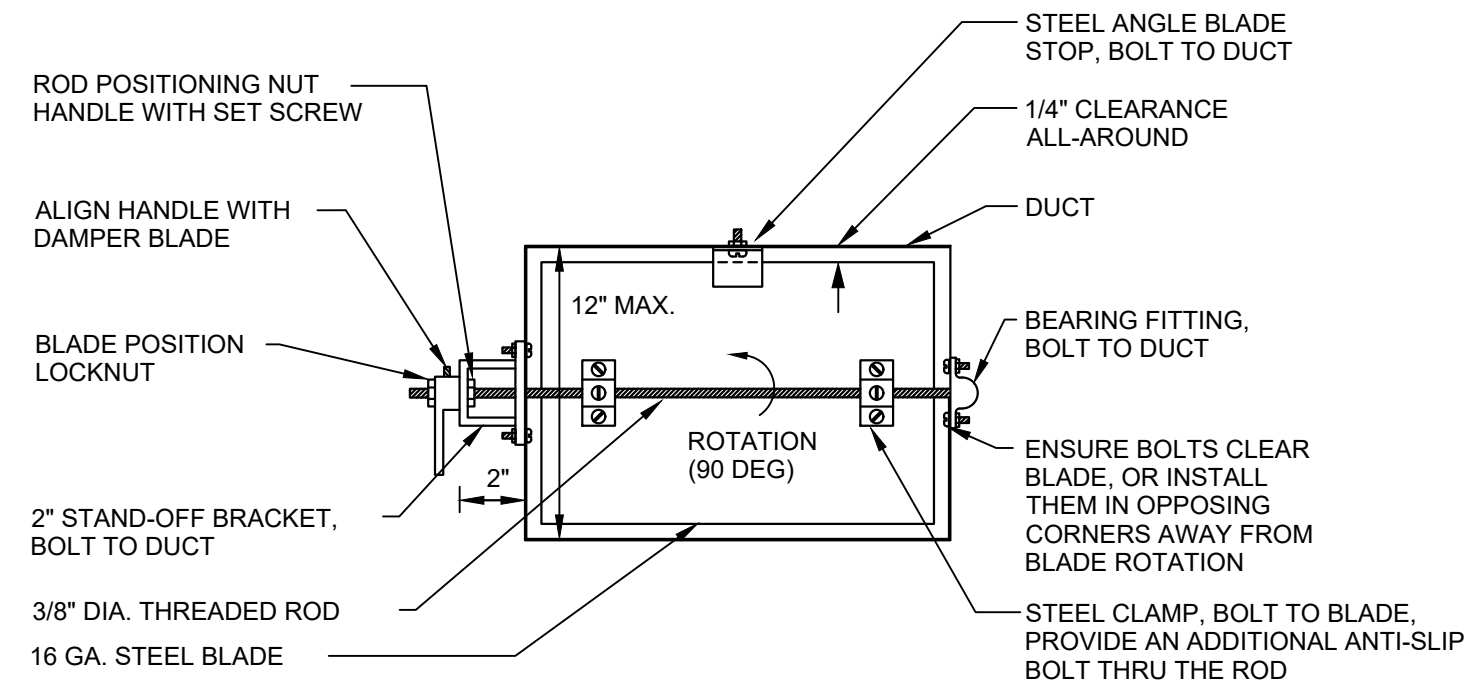
HVAC SCHEDULE
M1.2



2 | IN-LINE EXHAUST FAN DETAIL
N.T.S.

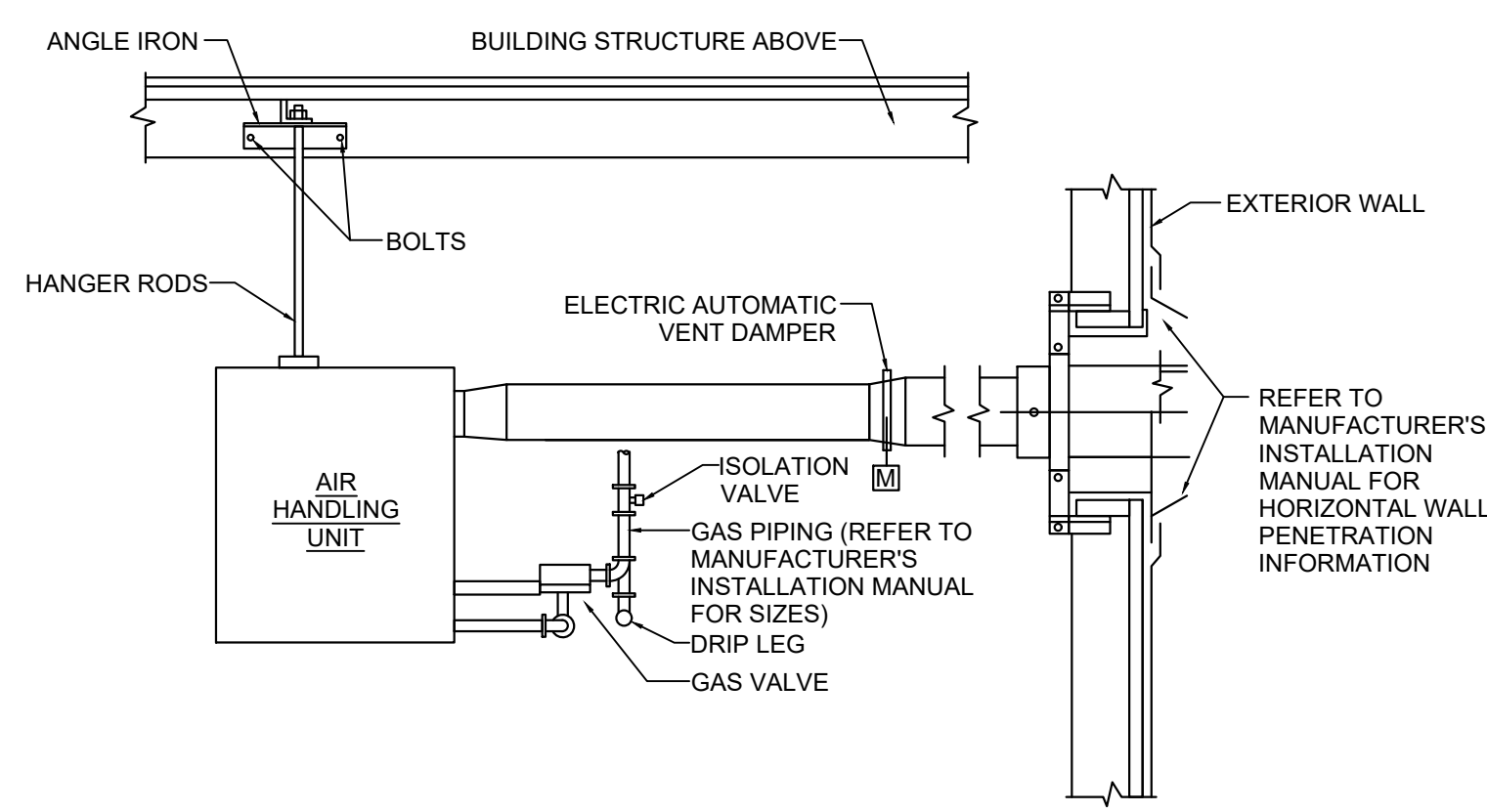


3 | DUCT HANGER DETAIL
N.T.S.

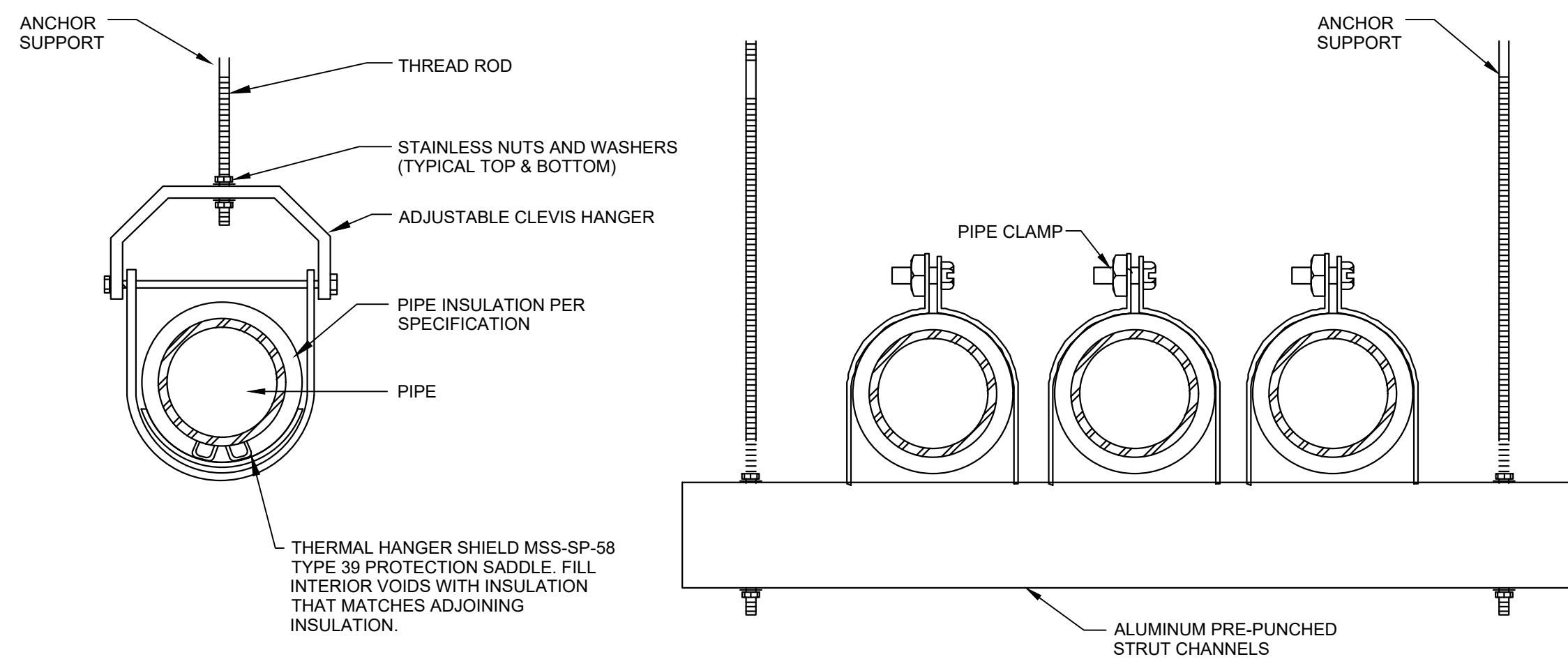


- NOTES:
 1. DAMPERS FOR ROUND DUCTS SHALL BE SIMILAR TO THE DAMPER SHOWN ABOVE.
 2. ENSURE THAT FULL 90 DAMPER BLADE MOVEMENT IS UNOBSTRUCTED.
 3. FOR DUCT HEIGHTS MORE THAN 12\", PROVIDE FACTORY-FABRICATED OPPOSED BLADE DAMPERS.

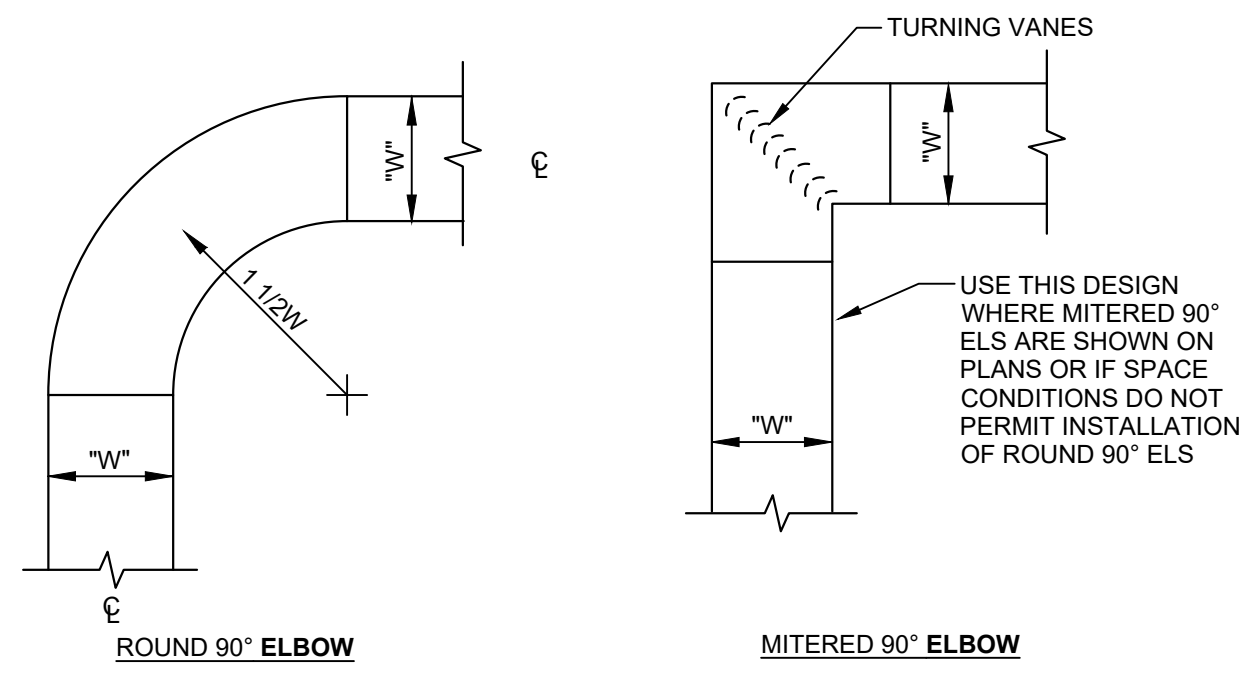
1 | SINGLE BLADE VOLUME DAMPER DETAIL
N.T.S.



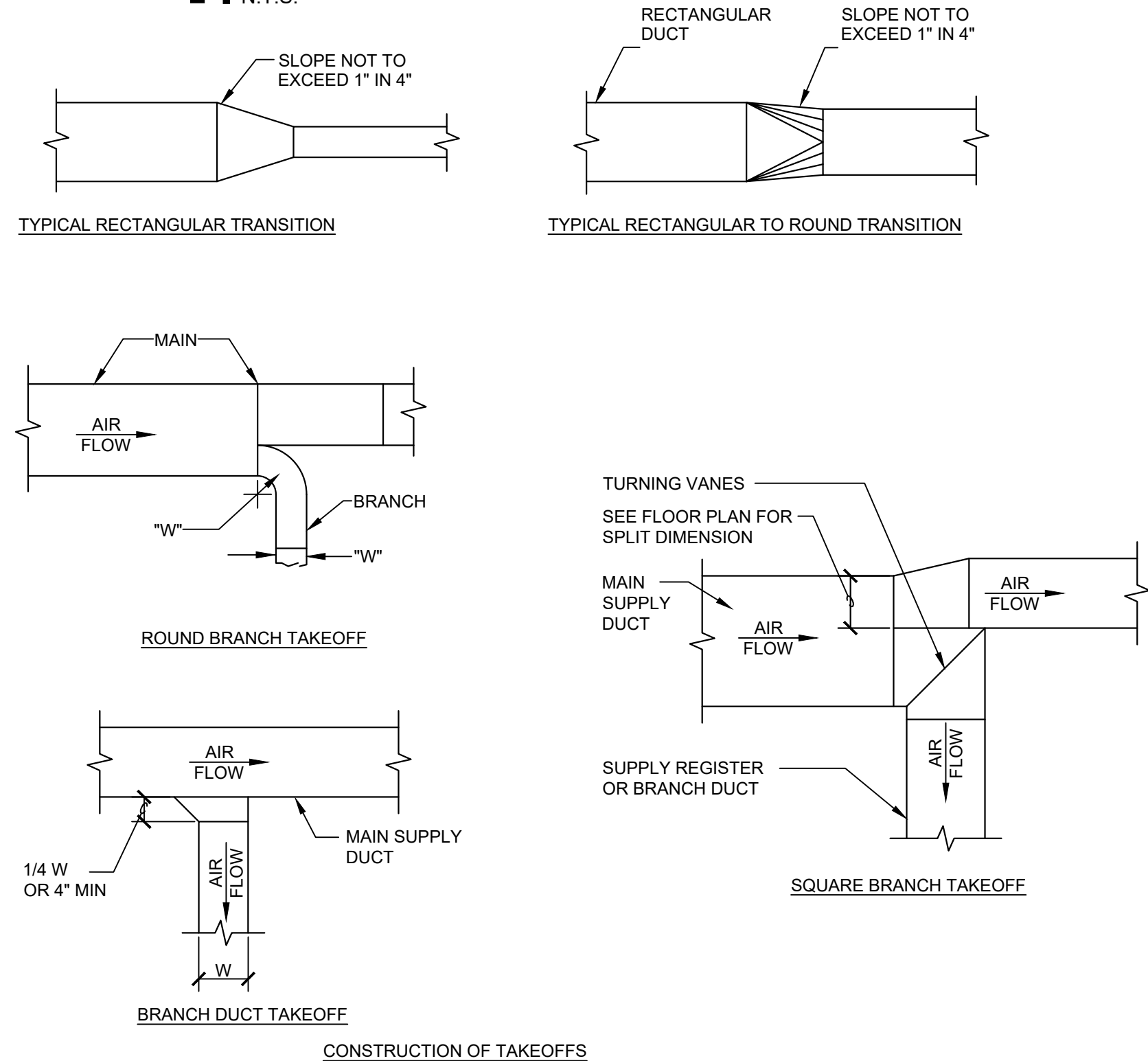
4 | TYPICAL GAS FIRED FURNACE DETAIL
N.T.S.



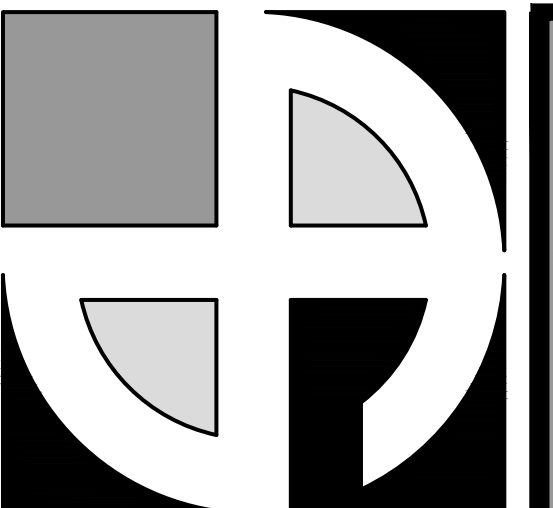
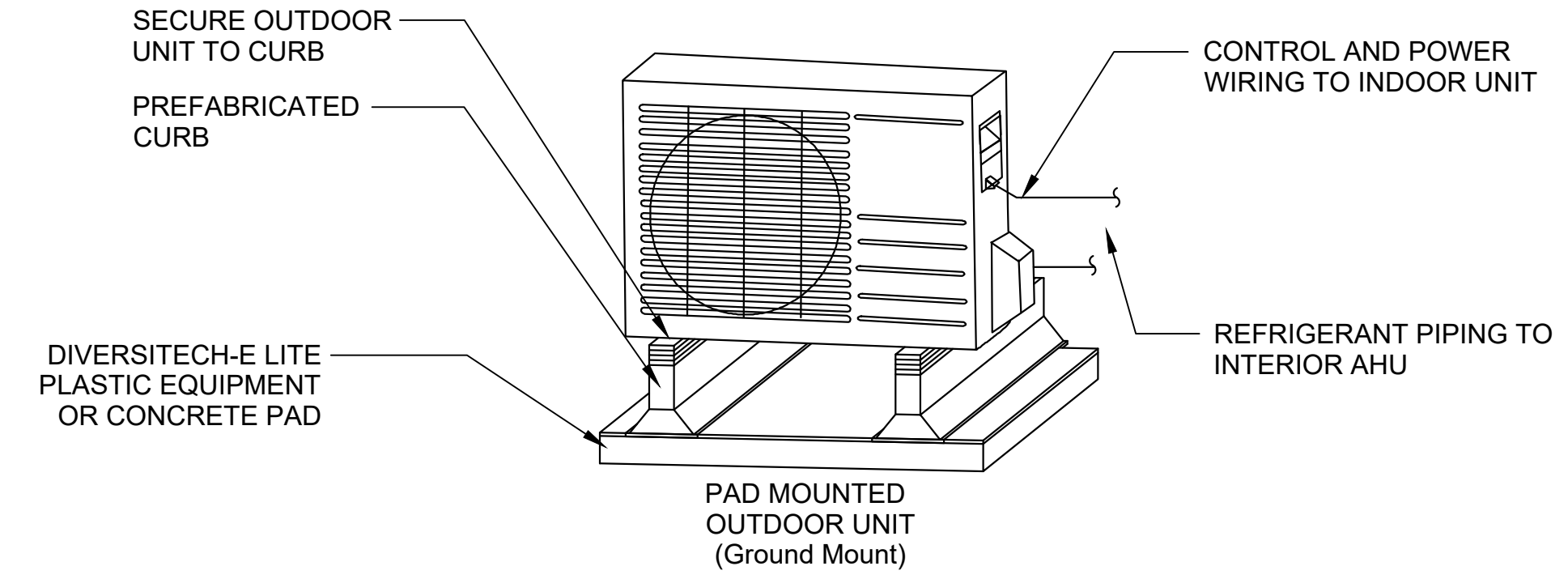
5 | PIPE SUPPORT DETAIL
N.T.S.



6 | LOW VELOCITY DUCT LAYOUT DETAIL
N.T.S.



7 | TYPICAL PAD MOUNTED ACCU DETAIL
N.T.S.



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22-238

STORE SPACE

937 E. Haggard Ave.
 Elon, NC

No.	Description	Date	By
1	ISSUED FOR BID	2-3-23	AB

DATE:
 9-3-22
 DRAWN BY:
 A. Barraclough
 CHECKED BY:
 M. Dean
 SCALE:
 NTS

HVAC DETAILS
M1.3

PLUMBING GENERAL NOTES:

- 1. ALL PLUMBING WORK UNDER THIS CONTRACT SHALL CONFORM TO THE LATEST EDITION OF THE PLUMBING CODE OF NORTH CAROLINA (2018 NORTH CAROLINA PLUMBING CODE), THE NORTH CAROLINA ENERGY CODE, AND THE REQUIREMENTS OF THE UTILITY AND THE LOCAL WATER COMPANY.
- 2. ALL MATERIALS SHALL BE NEW UNLESS NOTED OTHERWISE.
- 3. THE PLUMBING CONTRACTOR SHALL ASSUME RESPONSIBILITY FOR ALL LABOR AND MATERIALS SUPPLIED AND INSTALLED UNDER THIS CONTRACT AND SHALL GUARANTEE THE WORK PERFORMED UNDER THIS CONTRACT FOR A PERIOD OF ONE (1) YEAR FROM THE DATE OF ACCEPTANCE OF THIS WORK.
- 4. PLUMBING CONTRACTOR SHALL CONSULT WITH, COOPERATE AND COORDINATE WITH THE GENERAL CONTRACTOR, MECHANICAL CONTRACTOR, SPRINKLER CONTRACTOR, ELECTRICAL CONTRACTOR, ETC. IN ORDER TO MINIMIZE INTERFERENCES BETWEEN TRADES DURING PERFORMANCE OF THIS WORK.
- 5. THE PLUMBING CONTRACTOR SHALL PREPARE AND FILE ALL REQUIRED PLANS AND PERMITS WITH THE LOCAL AUTHORITIES. PC SHALL PAY THE FILING FEES AS REQUIRED. PC SHALL OBTAIN ALL APPROVALS AND SHALL PAY FOR ALL WORK PERMITS, INSPECTIONS AND SIGN-OFFS AS REQUIRED TO EXECUTE THIS WORK IN A MANNER IN CONFORMANCE WITH THE CODES AND AUTHORITIES HAVING JURISDICTION.
- 6. THE PLUMBING CONTRACTOR SHALL PERFORM ALL TESTS AND ARRANGE FOR ALL INSPECTIONS FOR WORK UNDER HIS CONTRACT AS REQUIRED BY LAW AND SHALL SUPPLY ALL CERTIFICATES OF INSURANCE AS REQUIRED BY THE LAW AND THE OWNER. REFER TO SECTION 106 (INSPECTIONS) OF THE 2018 NORTH CAROLINA BUILDING CODE.
- 7. THE PLUMBING CONTRACTOR SHALL MAKE ALL FINAL CONNECTIONS TO ALL PLUMBING EQUIPMENT REGARDLESS WHETHER ILLUSTRATED HEREIN WITHOUT ANY ADDITIONAL COSTS TO THE OWNER.
- 8. PLUMBING CONTRACTOR SHALL VISIT THE SITE & BECOME FAMILIAR WITH THE EXISTING CONDITIONS, INCLUDING THE SIZE OF CONNECTIONS, ROUGHING DIMENSIONS, ETC. BEFORE SUBMITTING A QUOTATION FOR THE WORK.
- 9. PLUMBING CONTRACTOR SHALL PERFORM ALL CUTTING, EXCAVATION, BACKFILLING, ROUGH & FINISH PATCHING AS PER THE SPECIFICATIONS AS REQUIRED FOR THE INSTALLATION OF THE WORK, UNLESS NOTED OTHERWISE.
- 10. ALL CONNECTIONS TO NEW AND/OR EXISTING EQUIPMENT SHALL BE SIZED AND INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS.
- 11. IT IS THE INTENT OF THIS CONTRACT THAT THE COMPLETED WORK BE FULLY OPERATIONAL.
- 12. ALL PIPE HANGERS AND SUPPORTS SHALL BE INSTALLED AT INTERVALS AND BE FABRICATED OF MATERIALS AS REQUIRED BY THE PCPA.
- 13. ALL NEW PLUMBING FIXTURES SHALL BE INSTALLED WITH ANGLE STOP VALVES IN THE SUPPLY LINES SERVING THE FIXTURE.
- 14. ALL NEW EXPOSED WATER AND WASTE PIPING SERVING THE FIXTURES SHALL BE CHROME PLATED AND SHALL HAVE CHROME PLATED ESCUTCHEONS RIGIDLY ATTACHED TO THE PIPING AT THE POINT OF WALL OR FLOOR PENETRATIONS.
- 15. PLUMBING CONTRACTOR SHALL SUBMIT SHOP DRAWINGS FOR ALL NEW PLUMBING FIXTURES AND EQUIPMENT TO BE SUPPLIED AND INSTALLED UNDER THIS CONTRACT FOR APPROVAL BEFORE INSTALLATION OF SAME.
- 16. WATERPROOF PIPE SLEEVES SHALL BE INSTALLED AT ALL PENETRATIONS THROUGH EXTERIOR WALLS. PIPE SLEEVES SHALL BE INSTALLED AT ALL WALL PENETRATIONS THROUGH INTERIOR WALLS AND FLOORS.
- 17. WATER HAMMER ELIMINATORS (APPROVED - FIELD FABRICATED OR MANUFACTURED) SHALL BE INSTALLED AT ALL RUN OUTS IN HOT AND/OR COLD WATER LINES SERVING TOILET ROOMS AND OTHER AREAS WHICH INCORPORATE 'RAPID - ACTION' VALVES SUCH AS FLUSHMETERS, SOLENOID VALVES, ETC.
- 18. ALL PIPING SHALL BE TESTED AT A MINIMUM PRESSURE OF 1-1/2 TIMES THE MAXIMUM OPERATING PRESSURE UNLESS OTHERWISE NOTED ON THE DOCUMENTS OR THE PLUMBING CODE AND IN ACCORDANCE WITH THE UTILITY REQUIREMENTS FOR GAS PIPING SYSTEMS.
- 19. ALL REMOVALS PERFORMED UNDER THIS CONTRACT SHALL INCLUDE REMOVAL OF ALL DEBRIS AND DISPOSAL AT AN APPROPRIATE SITE.
- 20. ALL LAVATORIES DESIGNED FOR USE BY PERSONS CONFINED TO WHEELCHAIRS SHALL HAVE THE HOT & COLD WATER SERVICES, AS WELL AS THE TRAP, RECESSED & INSULATED IN ACCORDANCE WITH ADA REQUIREMENTS.
- 21. REFER TO THE ARCHITECTURAL PLANS FOR ALL STRUCTURAL DIMENSIONS.
- 22. ALL WORK TO BE COORDINATED WITH OTHER TRADES.
- 23. ALL PIPING PENETRATIONS TO BE SEALED AROUND WITH "NELSON" FIRE SEAL.
- 24. ALL WATER SERVICE PIPING WITHIN THE BUILDING IS TO BE INSULATED IN ACCORDANCE WITH ALL 2018 NORTH CAROLINA BUILDING CODE.
- 25. ALL PLUMBING FIXTURES TO BE INSTALLED AS PER FACTORY RECOMMENDATIONS.
- 26. ALL PLUMBING FIXTURES TO BE TRAPPED, VENTED AND PROVIDED WITH AIR SHOCKS WHEN REQUIRED.
- 27. PLUMBING FIXTURES SHALL COMPLY WITH "WATER CONSERVATION" REQUIREMENT AS DETAILED IN THE 2018 NORTH CAROLINA BUILDING CODE.
- 28. GC IS RESPONSIBLE TO SUBMIT APPLICATION AND TAP FEES TO LOCAL WATER AUTHORITY AND HAVE OWNER FILL OUT APPLICATION UPON COMPLETION OF PLUMBING ROUGH-IN INSPECTION.
- 29. ALL WATER AND HORIZONTAL STORM DRAIN PIPING INCLUDING ROOF DRAIN BODY SHALL BE INSULATED.
- 30. FLOOR DRAINS AND FLOOR CLEAN-OUTS SHALL BE SET LEVEL WITH FINISHED FLOORS.
- 31. ALL PIPE DIMENSIONS ARE INSIDE CLEAR.
- 32. ALL PLUMBING FIXTURES TO HAVE ISOLATION VALVES.
- 33. P.C. IS RESPONSIBLE TO ADJUST HOT WATER HEATER (HWH) TEMPERATURE TO ENSURE A TEMPERATURE RANGE OF 110°F TO 120°F AT THE INDIVIDUAL FIXTURE OUTPUT. P.C. MUST ENSURE A TEMPERATURE OF 120°F MAXIMUM AT THE FIXTURES TO PREVENT SCALDING.
- 34. P.C. IS RESPONSIBLE TO MOUNT HOT WATER HEATER IN CEILING AS HIGH AS POSSIBLE TO AVOID ANY CONFLICT WITH OTHER TRADES, CEILING HEIGHT, AND ANY STRUCTURE (I.E. BEAMS, JOIST, ETC).
- 35. BUILDING DOMESTIC WTR DEMAND & SIZING IS CALCULATED FROM 2018 NORTH CAROLINA BUILDING CODE SECTION 603 & 604.
- 36. BUILDING SANITARY DEMAND & SIZING IS CALCULATED FROM PCNC SECTIONS 709 AND 710.
- 37. ALL DFCU CALCULATIONS ARE BASED OFF OF TABLE 709.1 OF THE PCNC.
- 38. ALL SANITARY AND STORM WATER PIPING SHALL BE PITCHED IN ACCORDANCE WITH PCNC SECTION 704 BASED ON TABLE 704.1 SLOPE OF HORIZONTAL DRAINAGE PIPE.
- 39. ALL STORM WATER PIPING IS SIZED FROM TABLE 1106.2 OF THE PCNC BASED OFF OF 3" RAINFALL RATE.
- 40. ALL VENT SIZING IS BASED OFF OF SECTION 916 OF THE PLUMBING CODE OF NC.
- 41. P.C. TO PROVIDE 1-1/2" FIBERGLASS INSULATION AROUND ALL HORIZONTAL STORM WATER PIPING IN THE PLENUM.
- 42. ALL GAS PIPE SIZING IS BASED OFF OF SECTIONS 402 TABLE 402.4(2) OF THE NORTH CAROLINA FUEL GAS CODES. ALL NATURAL GAS LINES TO BE CARBON STEEL OR WROUGHT IRON AND COMPLY WITH SECTION 403 FGNC.
- 43. ALL PLUMBING EQUIPMENT SHALL BE INSTALLED PER MANUFACTURER'S REQUIREMENTS/SPECIFICATIONS.
- 44. ALL PLUMBING EQUIPMENT SHALL BE MOUNTED ON MINIMUM 6" HIGH CONCRETE PAD UNLESS OTHERWISE NOTED (PAVER AND CINDER BLOCK IS NOT ACCEPTABLE).

SHOP DWGS & EQUIPMENT SUBMITTALS

- 1. THE CONTRACTOR MUST SUBMIT ANY EQUIPMENT ALTERNATES 2 WEEKS PRIOR TO BIDS DUE FOR REVIEW AND COMMENTS. ALTERNATES MUST BE ACCEPTED BY LIRO ENGINEERS, INC., THE ARCHITECT, AND THE OWNER PRIOR TO INCLUSION IN BID. THE CONTRACTOR IS RESPONSIBLE TO COORDINATE EQUIPMENT ALTERNATES WITH OTHER TRADES AND MAKE ADJUSTMENTS TO THE MECHANICAL SYSTEMS, AS REQUIRED, TO ACCOMMODATE THESE NEW ALTERNATES.
 - 2. PLUMBING CONTRACTOR TO PROVIDE X-RAY AND TEST CORE DRILLING TO DETERMINE EXACT LOCATION AND INVERT OF EXISTING SANITARY MAIN. SUBMIT FINDING VIA SHOP DRAWINGS TO ENGINEER FOR APPROVAL AND DIRECTION. COORDINATE LOCATION WITH SANITARY CONSTRUCTION PLANS TO DETERMINE ROUTING OF NEW PIPING AND POSSIBILITY OF RE-USING EXISTING PIPING.
 - 3. CHANGES WHICH DEEM TO EFFECT THE DESIGN SHALL BE SUBMITTED WITH A NORTH CAROLINA P.E. APPROVED DRAWING AT THE CONTRACTOR'S EXPENSE AND SHALL BE REVIEWED BY ENGINEER.
 - 4. THE CONTRACTOR IS RESPONSIBLE TO SUBMIT ALL OF THE FOLLOWING ITEMS FOR REVIEW/APPROVAL BY NO MORE THAN 3 WEEKS AFTER THE CONTRACTOR'S CONTRACT/BID HAS BEEN AWARDED. ALL SUBMITTALS MUST BE SENT TOGETHER AS A SINGLE PACKAGE WITH MANUFACTURER'S SPECIFIC MODELS AND SPECIFICATIONS OUTLINED TO MATCH THE SCHEDULED REQUIREMENTS. EACH SUBMITTAL MUST BE LABELED WITH THE UNIT DESIGNATION USED WITHIN THIS DRAWING SET. IF THE SUBMITTAL PACKAGE IS FOUND TO BE INCOMPLETE UPON RECEIPT, THE PACKAGE WILL BE HELD AND WILL NOT BE REVIEWED UNTIL THE REMAINDER OF THE PACKAGE IS RECEIVED. ALL SHOP DRAWINGS AND SUBMITTALS SHALL BE SUBMITTED ELECTRONICALLY TO THE ENGINEER FOR REVIEW. CONTRACTOR SHALL NOT PURCHASE OR INSTALL ANY EQUIPMENT UNTIL WRITTEN ACCEPTANCE IS OBTAINED FROM THE ENGINEER.
- CONTRACTOR IS RESPONSIBLE TO DEVELOP & SUBMIT TO THE ENGINEER FOR REVIEW & APPROVAL THE FOLLOWING SHOP DWGS:
 - A. GAS FIRED HOT WATER HEATER.
 - B. HOT WATER RETURN PUMP.
 - C. PLUMBING FIXTURES & ACCESSORIES.
 - D. ALL VALVES.
 - E. ALL PIPING, FITTINGS, & SUPPORT MATERIALS.
 - F. WALL CARRIERS.
 - G. RPZ ASSEMBLY, WATER METER
 - H. HOT WATER TEMPERATURE REPORT (REPORT MUST SHOW HOW LONG IT TAKES TO GET 120°F HOT WATER TO ALL FIXTURES THAT REQUIRE HOT WATER AFTER 6 K. HOURS OF STATIC SYSTEM.)

BUILDING DEPARTMENT NOTES

- ALL PLUMBING WORK SHALL MEET THE REQUIREMENTS OF 2014 PLUMBING CODE IN ACCORDANCE WITH THE REQUIREMENTS OF THE NORTH CAROLINA BUILDING CODE 2018, AND ALL AMENDMENTS.
- 1. PROTECTION OF PIPING AS OUTLINED IN CHAPTER 3, SECTION PC 305 SHALL BE PROVIDED AS REQUIRED.
- 2. ALL PIPING MATERIALS SHALL BE AS DIRECTED IN CHAPTER 3, SECTION 303.
- 3. PIPING JOINTS AND CONNECTIONS SHALL BE AS APPROVED IN THE PLUMBING CODE 2018 FOR EACH SPECIFIC TYPE OF SYSTEM.
- 4. CONSTRUCTION, QUANTITIES, DEVICES, FIXTURES, VALVES AND FACILITIES FOR DISABLED SHALL BE AS OUTLINED IN CHAPTER 4, SECTION PC 404.
- 5. CLEANOUTS SHALL BE AS PER CHAPTER 7, SECTION PC708.
- 6. TRAPS SHALL BE AS PER CHAPTER 10, SECTION PC1103.
- 7. CONSTRUCTION AND SPACING OF HANGERS AND SUPPORTS SHALL BE AS DIRECTED IN CHAPTER 3, SECTION PC308.
- 8. WATER SUPPLY SYSTEM, VALVES, AND TESTS SHALL BE AS DIRECTED IN CHAPTER 6.
- 9. SANITARY DRAINAGE PIPING, SIZING, GRADING AND OFFSETS SHALL BE AS OUTLINED IN CHAPTER 7.
- 10. VENT SIZING, GRADING, CONNECTIONS, LOCATIONS AND OFFSETS SHALL BE AS DIRECTED IN CHAPTER 9.
- 11. SPECIAL AND MISCELLANEOUS PIPING SHALL BE AS DIRECTED IN CHAPTER 12.
- 12. INDIRECT WASTE PIPING SHALL BE AS DIRECTED IN CHAPTER 8.
- 13. ALL PLUMBING SHALL COMPLY WITH CHAPTER 4.

PLUMBING SYMBOL LIST

IDENTIFIER	DESCRIPTION
--- CW ---	NEW DOMESTIC COLD WATER
--- HW ---	NEW DOMESTIC HOT WATER
--- HWR ---	NEW DOMESTIC HOT WATER RETURN
--- TW ---	NEW TEMPERED WATER
--- S ---	NEW SANITARY PIPING (ABOVE SLAB)
--- COND ---	NEW CONDENSATE DRAIN
--- G ---	NEW GAS LOW PRESSURE
--- CA ---	NEW COMPRESSED AIR
--- S ---	NEW SANITARY PIPING (UNDER SLAB)
--- V ---	NEW SANITARY VENT PIPING
○	FIELD CONNECT
⊙	FIELD DISCONNECT
(#)	REFER TO SUPPLEMENTAL FIGURE INDICATED BY NUMBER (I.E. F2 REFERS TO FIGURE 2)
XXX	EQUIPMENT TAG
XX	EQUIPMENT NUMBER
XXX	DETAIL TAG/CALL OUT TAG
X-XXX	PLUMBING SHEET NUMBER

PIPING ELEMENTS/VALVING

◇	AQUASTAT	OS	○	OPEN SITE DRAIN
ADR	AREA DRAIN	→	→	PIPE DROPPING DOWN
◇	AUTOMATIC AIR VENT	○	○	PIPE RISING UP
BBP	BACKFLOW PREVENTER	■	■	PLUG VALVE
↔↔↔	BACKFLOW PREVENTER (DOUBLE CHECK VALVE ASSEMBLY)	➔	➔	PRESSURE REDUCING VALVE (PRV)
↔↔↔	BACKFLOW PREVENTER (REDUCED ZONE)	PT/PS	□	PRESSURE TRANSMITTER OR PRESSURE SWITCH
○	BALL VALVE	↓	↓	RELIEF/SAFETY VALVE
○	BUTTERFLY VALVE	RD	□	ROOF DRAIN
⊥	CAP ON END OF PIPE	⊥	⊥	SOLENOID VALVE
CBV	CIRCUIT SETTING BALANCING VALVE	★	★	SPRINKLER HEAD
CO	CLEANOUT	↑	↑	STRAINER
FD	FLOOR DRAIN	↑	↑	STRAINER WITH BLOW OFF VALVE
JFS	FLOW SWITCH	↔	↔	SWING CHECK VALVE
☒	GAS COCK	○	○	TEE OUTLET DOWN
☒	GAS PRESSURE REGULATOR	○	○	TEE OUTLET UP
☒	GATE VALVE	⊕	⊕	TEMPERATURE AND PRESSURE RELIEF VALVE
☒	GATE VALVE, ANGLE	□TT	□	TEMPERATURE TRANSMITTER
PIGA	GAUGE WITH GAUGE COCK/PRESSURE INDICATOR	TH/TI		THERMOMETER/TEMPERATURE INDICATOR
○	GLOBE VALVE	⊕	⊕	THREE WAY CONTROL VALVE
○	GLOBE VALVE, ANGLE	⊕	⊕	TWO WAY CONTROL VALVE
HB	HOSE BIBB	↔	↔	UNION - SCREWED OR FLANGED
↑	LIFT CHECK VALVE	↘	↘	VALVE IN RISE OR DROP
⊥	MANUAL AIR VENT	W.C.O.	⊥	WALL CLEAN OUT
		WHA	■	WATER HAMMER ARRESTER

SCOPE OF WORK

PLUMBING SCOPE OF WORK INCLUDES, BUT IS NOT LIMITED TO:

1. THE INSTALLATION OF NEW PLUMBING FIXTURES AND ALL ASSOCIATED PIPING AND ACCESSORIES.
2. ALL PLUMBING EQUIPMENT SHALL BE INSTALLED PER MANUFACTURER'S REQUIREMENTS/SPECIFICATIONS.
3. ALL PLUMBING EQUIPMENT SHALL BE MOUNTED ON MINIMUM 6" HIGH CONCRETE PAD UNLESS OTHERWISE NOTED (PAVER AND CINDER BLOCK IS NOT ACCEPTABLE).

NOTE: THIS SCOPE OF WORK DESCRIPTION IS PROVIDED TO GIVE AN OVERALL "MACRO" DESCRIPTION OF THIS PROJECT. P.C. IS RESPONSIBLE TO REVIEW ALL ENGINEERING & ARCHITECTURAL DRAWINGS & VISIT THE SITE IF NEEDED, PRIOR TO SUBMISSION OF BID.

CODE REFERENCE

2018 NORTH CAROLINA PLUMBING CODE	2018 NORTH CAROLINA BUILDING CODE
2018 NORTH CAROLINA MECHANICAL CODE	MOST CURRENT NFPA 13 & LIFE SAFETY CODE
2020 NORTH CAROLINA ELECTRICAL CODE	

DOB DISCLAIMER NOTE:

*THIS PLAN APPROVED ONLY FOR WORK INDICATED ON THE APPLICATION SPECIFICATION SHEET. ALL OTHER MATTERS SHOWN ARE NOT TO BE RELIED UPON, OR TO BE CONSIDERED AS EITHER BEING APPROVED OR IN ACCORDANCE WITH APPLICABLE CODES.

SECTION 704 DRAINAGE PIPING INSTALLATION

704.1 SLOPE OF HORIZONTAL DRAINAGE PIPING.

HORIZONTAL DRAINAGE PIPING SHALL BE INSTALLED IN UNIFORM ALIGNMENT AT UNIFORM SLOPES. THE MINIMUM SLOPE OF HORIZONTAL DRAINAGE PIPE SHALL BE IN ACCORDANCE WITH TABLE 704.1.

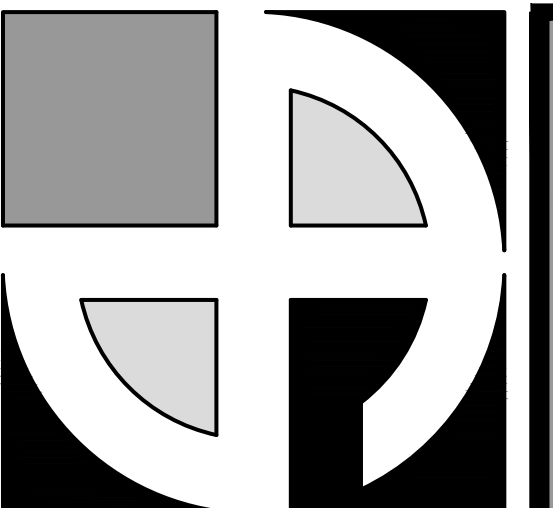
SIZE (INCHES)	MINIMUM SLOPE (INCH PER FOOT)
2 1/2 OR LESS	1/4
3 TO 6	1/8
8 OR LARGER	1/16

Note:
Contractor Shall Provide Minimum Standard Labor & Material Warranties

ABBREVIATIONS:

AD	ACCESS DOOR
BFP	BACKFLOW PREVENTER
CO	CLEAN OUT
CW	COLD WATER
DCV	DOUBLE CHECK VALVE
DFU	DRAINAGE FIXTURE UNIT
DPCC	DECK PLATE CLEAN OUT
FC	FIELD CONNECT
FD	FLOOR DRAIN
FFD	FUNNEL FLOOR DRAIN
FU	FIXTURE UNIT
HW	HOT WATER
HWR	HOT WATER RETURN
IAW	IN ACCORDANCE WITH
IWF	INDIRECT WASTE FUNNEL DRAIN
LAV	LAVATORY
JS	JANITOR'S SINK
NC	NORMALLY CLOSED
NO	NORMALLY OPEN
NCPC	NORTH CAROLINA PLUMBING CODE
RD	ROOF DRAIN
	SANITARY
SD	STORM DRAIN
TMV	THERMOSTATIC MIXING VALVE
U.O.N.	UNLESS OTHERWISE NOTED
UR	URINAL
	VENT
WC	WATER CLOSET
PC	PLUMBING CONTRACTOR
MC	MECHANICAL CONTRACTOR
TYP.	TYPICAL
VIF	VERIFY IN FIELD
WCO	WALL CLEAN OUT
WFU	WATER FIXTURE UNITS

THE ABBREVIATIONS ARE SHOWN FOR GENERAL REFERENCE ONLY. THE PRESENCE OF AN ABBREVIATION ON THIS LIST DOES NOT IMPLY ITS USE ON THIS PROJECT. REFER TO DRAWINGS FOR SPECIFIC ABBREVIATIONS USED.



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22-238

STORE SPACE

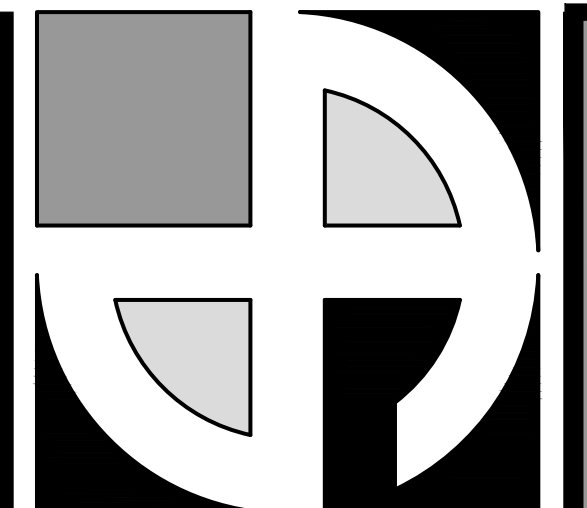
937 E. Haggard Ave.
Eton, NC

No.	Description	Date	By
1	ISSUED FOR BID	2-3-23	AB

DATE: 9-3-22
DRAWN BY: A. Barraclough
CHECKED BY: M. Dean
SCALE: NTS

PLUMBING NOTES

P1.0



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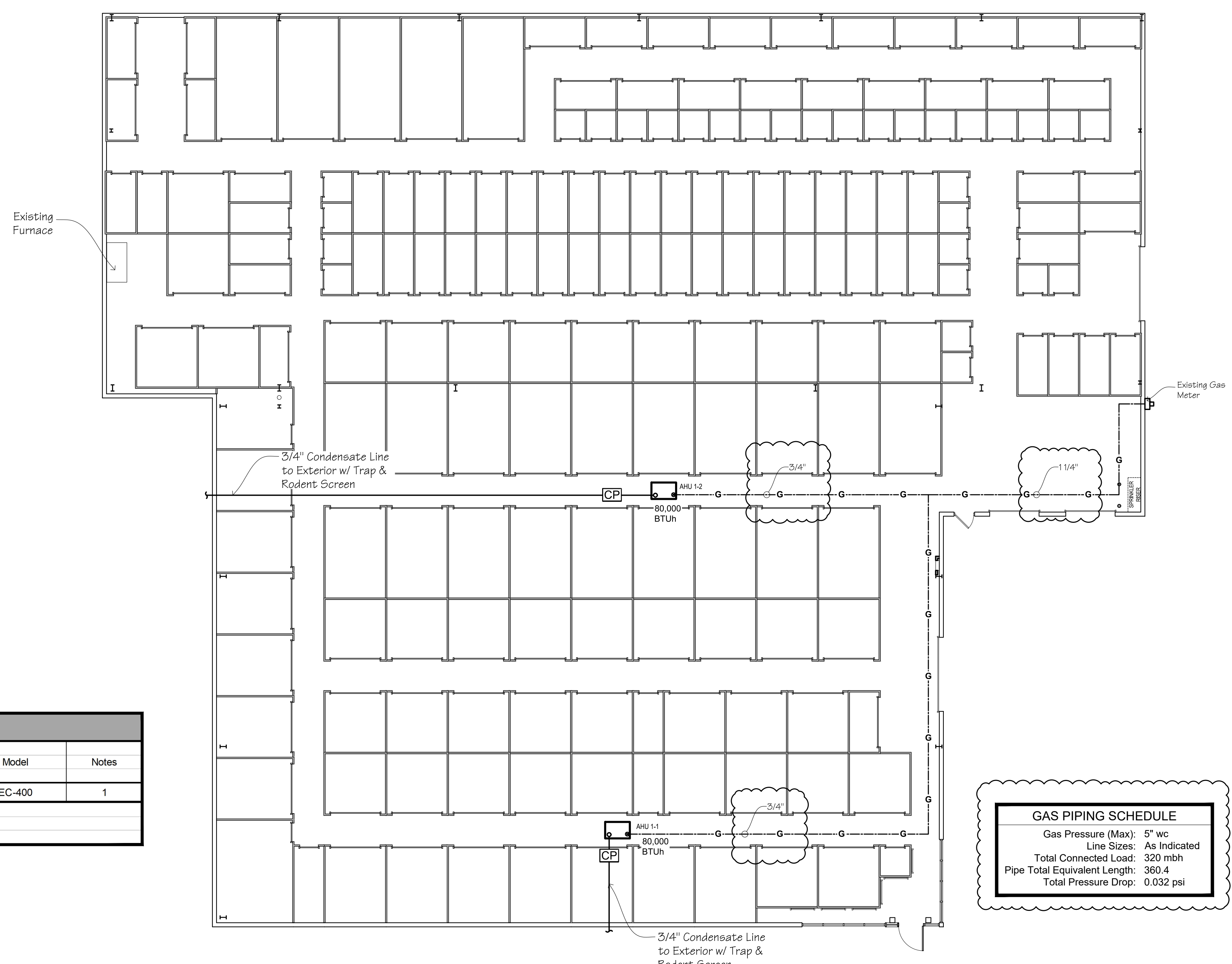
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STORE SPACE

937 E. Haggard Ave.
 Elon, NC

BUILDING 1

BUILDING 2

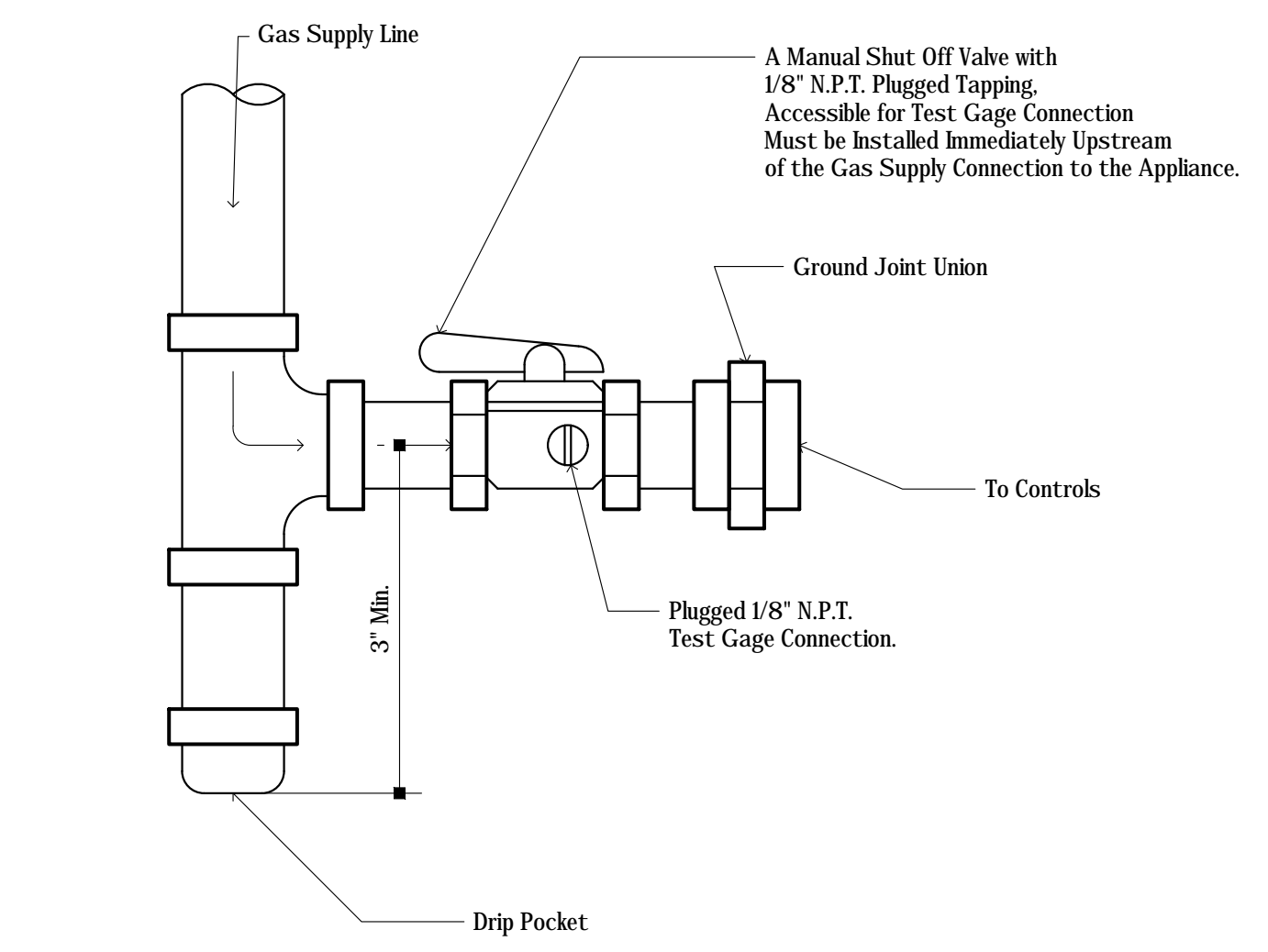


Condensate Pump Schedule							
Mark	GPH	Total Head (FT)	HP	Volts/PH/HZ	FLA	Model	Notes
CP	0.5	15	19 WATTS	115/1/60	0.24	EC-400	1

Notes:
 1. Provide w/ Suction, Vent & Drain Tubing, Tubing Adapter & Safety Switch
 SELECTIONS ARE BASED ON PRODUCTS BY: LITTLE GIANT

GAS PIPING SCHEDULE	
Gas Pressure (Max):	5" wc
Line Sizes:	As Indicated
Total Connected Load:	320 mbh
Pipe Total Equivalent Length:	360.4
Total Pressure Drop:	0.032 psi

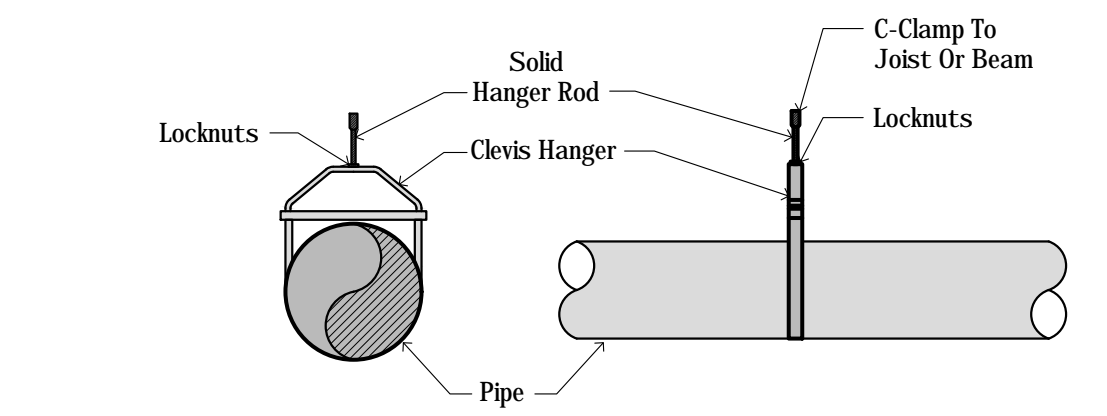
1 GAS PIPING PLAN
 3/32"=1'-0"



2 GAS PIPING INSTALLATION
 NTS



GAS LEGEND



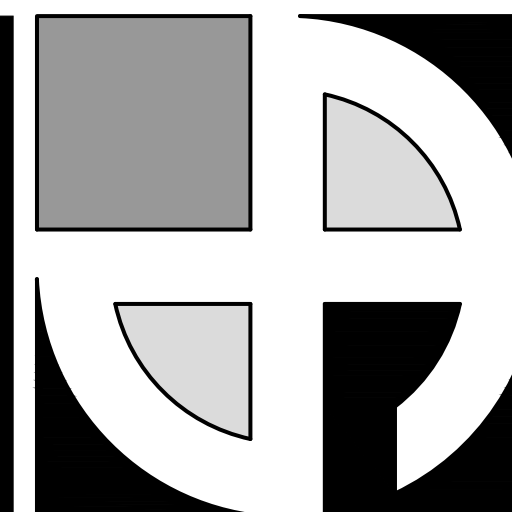
3 PIPE HANGER DETAIL
 NTS

Note:
 REMOVE EXISTING ABANDONED GAS LINES BACK TO METER. PROVIDE GAS LINES FOR NEW AIR HANDLING UNITS AS SHOWN. VERIFY EXISTING SERVICE IS MIN 2"

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 9-3-22
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 SCALE:
 3/32"= 1'-0"

GAS PIPING & CONDENSATE PLAN
P2.0



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BUILDING 1

BUILDING 2

FIRE PROTECTION SAFETY NOTES:

1. SPECIAL PRECAUTION SHALL BE TAKEN BY THE CONTRACTOR SO THAT EQUIPMENT OF THIS APPLICATION AND ITS INSTALLATION WILL NOT AFFECT THE FOLLOWING: EGRESS TO AND FROM THE BUILDING, FIRE SAFETY OR CREATE A FIRE HAZARD, STRUCTURAL SAFETY OF THE BUILDING, ACCUMULATION OF DUST AND DEBRIS. (THE CONTRACTOR SHALL LEAVE THE SITE BROOM CLEANED EACH DAY.)

FIRE PROTECTION SPECIAL INSPECTIONS:

SPECIAL INSPECTIONS REQUIRED IN ACCORDANCE WITH CHAPTER 17 AND THE APPLICABLE SECTION OF BUILDING CODE 2018 OF NORTH CAROLINA ARE LISTED IN THE FOLLOWING TABLES. THE "AUTHORITY" SHALL BE RESPONSIBLE FOR THE FOLLOWING SPECIAL INSPECTIONS:

SPRINKLER SYSTEM	BC 1704.23
FIRE-RESISTANT PENETRATIONS AND JOINTS	BC 1704.27
STANDPIPE AND POST INSTALLED ANCHORS	BC 1704.24

FIRE PROTECTION GENERAL NOTES:

- DIMENSIONS, LOCATIONS AND SIZES INDICATED ON THE PLANS AND THE ELEVATION ARE APPROXIMATE AND SHALL BE VERIFIED BY FIELD INSPECTION BY THE CONTRACTOR AND A SAFETY PLAN IS SUBMITTED AND IS APPROVED.
- NO WORK SHALL BE INITIATED UNTIL A WORK PERMIT IS OBTAINED BY THE CONTRACTOR AND A SAFETY PLAN IS SUBMITTED AND IS APPROVED.
- CONTRACTOR IS RESPONSIBLE FOR OBTAINING ALL PERMITS, EQUIPMENT USE PERMITS, ALL INSPECTION APPROVALS, AND LETTER OF COMPLETION FROM BUILDING DEPARTMENT FOR WORK UNDER THIS CONTRACT AS APPLICABLE.
- CONTRACTOR MAY PROPOSE ALTERNATE ROUTING IN DIFFICULT AREAS WHERE REPLACEMENT IN KIND IS NOT PRACTICAL. ANY AND ALL ALTERNATE ROUTING IS SUBJECT TO PRIOR REVIEW AND APPROVAL BY THE ENGINEER.
- A FIRE WATCH SHALL BE USED IF REQUIRED.

FIRE PROTECTION SYMBOL LIST

FS	NEW WET SPRINKLER PIPING
FS DRY	NEW DRY SPRINKLER PIPING
▲	NEW DRY SPRINKLER PIPING
○	NEW SIDEWALL SPRINKLER HEAD
•	NEW UPRIGHT SPRINKLER HEAD
⊙	NEW CONCEALED PENDENT SPRINKLER HEAD-ORDINARY TEMPERATURE
(H)	SMOKE DETECTOR
⊕	HEAT DETECTOR
□	SPRINKLER DRY PIPE VALVE
▭	FIRE HOSE CABINET
◊	FIRE HOSE RACK
○	FIRE HOSE RACK / SPRINKLER
○	SIAMESE CONNECTION
○	SIAMESE CONNECTION FREESTAND
○	CHECK VALVE
○	CHECK VALVE W/ ALARM
○	PIPE DROP
○	PIPE UP
○	DRY PIPE VALVE
○	SPRINKLER PLUG
○	FLOOR CONTROL VALVE ASSEMBLY
○	FIRE EXTINGUISHER
○	PREACTION TROUBLE HORN
○	PREACTION 6" BELL FOR SUPERVISION
○	PREACTION 10" BELL STROBE ALARM
○	SOLENOID VALVE
○	OS & Y VALVE
○	BACKFLOW PREVENTER DOUBLE CHECK TYPE
○	BACKFLOW PREVENTER REDUCED PRESSURE ZONE (RPZ) TYPE
○	REVISION SYMBOL
○	REFER TO SUPPLEMENTAL FIGURE INDICATED BY NUMBER (I.E. F2 REFERS TO FIGURE 2)
○	EQUIPMENT TAG
○	EQUIPMENT NUMBER
○	DETAIL TAG CALL OUT TAG
○	FIRE PROTECTION SHEET NUMBER

ABBREVIATIONS

ACV	ALARM CHECK VALVE	NC	NORTH CAROLINA
B.O.P.	BOTTOM OF PIPE	P.C	PLUMBING CONTRACTOR
F.S.C.	FIRE SPRINKLER CONTRACTOR	W/	WITH

FIRE PROTECTION NOTES

- THE DRAWINGS SHOW THE LAYOUT OF THE SYSTEM AND INDICATE THE APPROXIMATE LOCATIONS OF EQUIPMENT AND PIPING. CONTRACTOR IS CAUTIONED NOT TO SCALE THE DRAWINGS. THE PIPING SHALL BE RUN APPROXIMATELY IN THE AREAS AS INDICATED ON THE DRAWINGS. (HOWEVER, THE ARRANGEMENT OF THE PIPING SYSTEMS AS MAY BE REFERENCED WITH WORK OF OTHER TRADES). CONTRACTOR SHALL REVIEW AND COORDINATE WITH STRUCTURAL, ELECTRICAL AND MECHANICAL DRAWINGS, PARTITIONS, STRUCTURAL MEMBERS, ETC. ARE DESIGNED TO BE FURRED OR CLOSED IN AND TO INCLUDE ROUGH-IN PIPING. CONTRACTOR SHALL FURNISH ALL OFFSETS, ADDITIONAL FITTINGS, ETC. WHETHER SHOWN ON DRAWINGS OR NOT, AS REQUIRED TO MEET INSTALLATION CONDITIONS.
- CONTRACTOR IS TO COMPLY WITH LATEST NFPA AND NORTH CAROLINA CODES, AND COORDINATE HIS WORK WITH OTHER TRADES AND MAKE NECESSARY ADJUSTMENTS.
- CONTRACTOR IS TO PREPARE SHOP DRAWINGS FOR ENGINEERS REVIEW AFTER MAKING A COMPLETE FIELD SURVEY.
- CONTRACTOR IS TO REPORT ANY CONDITION REQUIRING CHANGES FROM PLANS TO ENGINEER PRIOR TO STARTING WORK.
- BRANCH LINES AND MAINS (1 1/2" OR LESS) - SCHEDULE 40 FM APPROVED
- BRANCH LINES AND MAINS (2" OR LARGER) - THINWALL (THICKNESS LESS THEN SCHEDULE 40 MORE THEN SCHEDULE 10 & FM APPROVED)
- HEAT BY OWNER THROUGHOUT INCLUDING CONCEALED SPACE, EXCEPT AS INDICATED.
- SYSTEM TO BE TURNED ON AT END OF EACH WORK DAY.
- CONTRACTOR IS TO PERFORM A HYDROSTATIC TEST FOR 2 HRS. @ 200 PSI WITH NO LEAKAGE AND PROVIDE A TEST CERTIFICATE TO ENGINEER
- CONTRACTOR IS TO EMPLOY EXPERIENCED WORKMEN WHO ARE TO FAMILIARIZE THEMSELVES WITH THE BUILDING AND OBSERVE SAFETY REQUIREMENTS.
- CONTRACTOR TO ADJUST HEAD LOCATION TO COORDINATE WITH LIGHTS, DUCTS, ETC.
- PENDENT DEFLECTORS MIN 2' BELOW CEILING
- PERMIT FROM LOCAL AUTHORITY, TO BE OBTAINED BY CONTRACTOR.
- ALL WORK TO BE APPROVED BY OWNERS ENGINEER, STATE AUTHORITIES HAVING JURISDICTION AND MUNICIPAL FIRE, PLUMBING, BUILDING AND WATER DEPARTMENTS.
- U.L. AND/OR FM APPROVED EQUIPMENT TO BE USED.
- WORK TO BE IN ACCORDANCE WITH MUNICIPAL WATER DEPT. RULES.
- SYSTEM IS TO BE MAINTAINED AND TESTED BY THE OWNER OR HIS AGENT IN ACCORDANCE WITH APPLICABLE LOCAL AND STATE CODES AND IN CONFORMANCE WITH NFPA 13A, LATEST EDITION.
- IF BUILDING OCCUPANCY OR CONSTRUCTION CHANGES, THE SPRINKLER SYSTEM IS TO BE UPDATED ACCORDINGLY BY THE OWNER OR HIS AGENT.
- CONTRACTOR IS TO NEATLY CUT AND PATCH IN A FIRST CLASS WORKMANLIKE MANNER, ALL HOLES AND PENETRATIONS IN WALLS, CEILINGS, FLOORS, PARTITIONS, ETC.
- THE ENGINEER IS NOT RETAINED FOR SUPERVISION.
- THE INSTALLATION OF THIS SYSTEM WILL REQUIRE THE CLOSING OF ONE OR MORE FIRE PROTECTION CONTROL VALVES. THESE VALVE CLOSURES SHOULD BE CLOSELY COORDINATED WITH THE OWNERS WHO SHOULD CONTACT THE LOCAL FIRE DEPARTMENT, INSURANCE INTERESTS, ETC. PRIOR TO VALVE CLOSURES.
- ACTUAL DESIGN DENSITY MAY EXCEED STANDARDS, HOWEVER, IT IS A MINIMUM TO BE USED BY THE CONTRACTOR.
- ALL ALARMS RELATING TO THE SPRINKLER SYSTEM SHOULD BE ACTIVATED UPON PLACING THE SPRINKLER SYSTEM IN SERVICE.
- THE INSTALLATION COMPONENTS, SIZING, SPACING, MATERIALS LOCATION CLEARANCES, POSITION AND TYPE OF SYSTEM SHALL CONFORM TO NFPA 13 AND NORTH CAROLINA UNIFORM FIRE PREVENTION BUILDING CODE LATEST EDITION.
- SPRINKLERS SHALL BE PROTECTED AGAINST FREEZING AND INJURY AS PER NFPA CODE.
- INSPECTION AND TESTS OF SPRINKLER SYSTEM SHALL BE CONDUCTED AS SPECIFIED IN NFPA CODE.
- WATER SUPPLY TEST PIPES AND GAUGES SHALL BE PROVIDED AS SPECIFIED IN CHAPTER 2-9 OF NFPA 13.
- PIPING SPECIFICATIONS, PIPE SCHEDULES, SYSTEM TEST PIPES, PROTECTION AGAINST CORROSION, DAMAGE FITTINGS, VALVES, HANGERS, SPRINKLERS, GUARDS AND SHIELDS SHALL BE IN ACCORDANCE WITH CHAPTER 3 OF NFPA 13, LATEST EDITION.
- STOCK OF EXTRA SPRINKLERS WILL BE FURNISHED AS PER CHAPTER 3 OF NFPA 13 (REQUIRED FOR EACH TEMPERATURE RATING).
- SPRINKLER ALARMS WILL BE IN ACCORDANCE WITH NFPA 13.
- SPACING, LOCATION AND POSITION OF SPRINKLERS SHALL BE IN ACCORDANCE WITH CHAPTER 4 OF NFPA 13.
- ALL BLIND SPACES EXCEEDING 6 INCHES IN WIDTH OR DEPTH WHICH CONTAIN COMBUSTIBLE MATERIAL SHALL BE SPRINKLERED.
- ALL PIPING PASSING THROUGH WALLS SHALL COMPLY WITH NFPA FOR FIRE PROOFING.
- DISTANCE OF SPRINKLERS FROM HEAT SOURCES SHALL BE IN ACCORDANCE WITH TABLE 3-16.6.3 OF NFPA 13.
- AUTOMATIC INTERLOCK CUTOFF SWITCH FOR VENTILATION SHALL BE BY HVAC FAN SHUTDOWN.
- PROVIDE WATER SUPPLY LETTER WITH FLOW TEST DATA.
- ALL PIPES PASSING THROUGH FOUNDATION WALLS TO BE PROTECTED.
- ALL VALVES SHALL BE IDENTIFIED AS REQUIRED BY NFPA 13.
- DRAINAGE TO CONFORM TO CHAPTER 3-11 OF NFPA 13.
- A ONE PIECE REDUCING FITTING OF GOOD DESIGN SHOULD BE USED WHEREVER A CHANGE IS MADE IN THE SIZE OF PIPE AS PER SECTION 3-12.7.2 OF NFPA 13.
- ALL VALVES ON CONNECTIONS TO WATER SUPPLIES AND IN SUPPLY TO SPRINKLERS SHALL BE APPROVED O.S. & Y. OR APPROVED INDICATOR TYPE WITH TAMPER SWITCHES.
- DRAIN VALVES AND TEST VALVES SHALL BE APPROVED TYPE AS PER SECTION 3-14.1.2 OF NFPA 13.
- HANGERS SHALL BE OF A TYPE APPROVED FOR USE WITH THE PIPE OR TUBE INVOLVED, SPRINKLER PIPING SHOULD BE SUPPORTED BY ADJUSTABLE HANGERS PER NFPA 13, SECTION 3-15.
- PROVISIONS SHOULD BE MADE TO FACILITATE FLUSHING SYSTEM PIPING BY PROVIDING FLUSHING CONNECTIONS CONSISTING OF A CAPPED NIPPLE 4" LONG ON THE END OF THE CROSS MAIN, AS PER SECTION 3-8.2 OF NFPA 13.
- SPRINKLER SHALL BE AN APPROVED TYPE AS PER SECTION 3-16 OF NFPA 13.
- TEMPERATURE RATING SHALL COMPLY WITH SEC. 3-16.6 OF NFPA 13.
- CLEARANCES BETWEEN SPRINKLERS AND STORAGE OR PARTITIONS AS PER NFPA 13, SECTION 4-2.5.
- SPACING AND LOCATION OF SPRINKLER SHALL COMPLY WITH CHAPTER 4 NFPA 13. OF
- CONTRACTOR TO COORDINATE HIS WORK WITH OTHER TRADES.
- HEAT IS TO BE PROVIDED THROUGHOUT THE ENTIRE AREA THAT PIPING, EQUIPMENT AND HEADS ARE INSTALLED.
- ONLY EXPERIENCED SPRINKLER MECHANICS TO WORK ON THE SYSTEM.
- ALL PIPING TO BE A MINIMUM OF 1" UNLESS OTHERWISE NOTED.
- PROVIDE WATER SHIELDS OVER ALL / SURFACE MOUNTED ELECTRIC PANELS AND EQUIPMENT IN ELECTRICAL ROOMS PER NFPA & LOCAL FIRE MARSHALL REQUIREMENTS.

NORTH CAROLINA SPRINKLER NOTES:

- AUTOMATIC SPRINKLER SYSTEM SHALL COMPLY WITH MOST CURRENT NFPA 13.
- CONSTRUCTION DOCUMENTS FOR STANDPIPE SYSTEM SHALL CONTAIN PLANS THAT INCLUDE THE INFORMATION AND DATA LISTED IN MOST CURRENT NFPA 13.
- APPROVED AUTOMATIC SPRINKLER SYSTEM IN NEW BUILDINGS AND STRUCTURES SHALL BE PROVIDED IN THE LOCATIONS DESCRIBED IN MOST CURRENT NFPA 13.
- AUTOMATIC SPRINKLER SYSTEM SHALL BE DESIGNED AND INSTALLED IN ACCORDANCE WITH THE MOST CURRENT NFPA 13.
- WHERE THE PROVISIONS OF BUILDING CODE REQUIRE THAT A BUILDING OR PORTION THERE OF BE EQUIPPED THROUGHOUT WITH AN AUTOMATIC SPRINKLER SYSTEM IN ACCORDANCE WITH MOST CURRENT NFPA 13, SPRINKLERS SHALL BE INSTALLED THROUGHOUT IN ACCORDANCE WITH NFPA 13 AS MODIFIED IN APPENDIX G EXCEPT AS PROVIDED IN THE MOST CURRENT NFPA 13.
- AUTOMATIC SPRINKLERS SHALL NOT BE REQUIRED IN THE ROOMS OR AREAS WHICH ARE LISTED IN THE MOST CURRENT NFPA 13, AS LONG AS AN APPROVED AUTOMATIC FIRE DETECTION SYSTEM IN ACCORDANCE WITH NFPA 13 AND AN ALTERNATIVE EXTINGUISHING SYSTEM INSTALLED IN ACCORDANCE WITH NFPA 13.
- SPRINKLERS SHALL NOT BE OMITTED FROM ANY ROOM MERELY BECAUSE IT IS DAMP, OF FIRE-RESISTANCE-RATED CONSTRUCTION OR CONTAINS ELECTRICAL EQUIPMENT. AS PER NFPA 13.
- WHERE ALLOWED IN BUILDINGS OF GROUP R, UP TO & INCLUDING SIX STORIES IN HEIGHT, AUTOMATIC SPRINKLER SYSTEM SHALL BE INSTALLED THROUGHOUT IN ACCORDANCE WITH NFPA 13 R AND THE MOST CURRENT NFPA 13.
- WHERE AUTOMATIC SPRINKLER SYSTEMS ARE REQUIRED BY BUILDING CODE 2018 NORTH CAROLINA FIRE SAFETY CODE, QUICK-RESPONSE OR RESIDENTIAL AUTOMATIC SPRINKLERS SHALL BE INSTALLED IN THE AREAS LISTED IN THE MOST CURRENT NFPA 13.
- AUTOMATIC SPRINKLERS SHALL BE INSTALLED WITH DUE REGARD TO OBSTRUCTIONS THAT WILL DELAY ACTIVATION OR OBSTRUCT THE WATER DISTRIBUTION PATTERN. AUTOMATIC SPRINKLERS SHALL BE INSTALLED IN OR UNDER COVERED KIOSKS, DISPLAYS, BOOTH, CONCESSION STANDS, OR EQUIPMENT THAT EXCEEDS 4 FEET IN WIDTH, NOT LESS THAN 3 FOOT CLEARANCE SHALL BE MAINTAINED BETWEEN AUTOMATIC SPRINKLERS & TOP OF PILES OF COMBUSTIBLE FIBERS MOST CURRENT NFPA 13.
- WATER SUPPLIES FOR AUTOMATIC SPRINKLER SYSTEM SHALL COMPLY WITH SEC. 903.35 OF NC BUILDING CODE AND SEC. 903.3.1 THE POTABLE WATER SUPPLY SHALL BE PROTECTED AGAINST BACK FLOW IN ACCORDANCE WITH THE REQUIREMENTS OF THE MOST CURRENT NFPA 13.
- A SECONDARY ON-SITE WATER SUPPLY EQUAL TO THE HYDRAULICALLY CALCULATED SPRINKLER DEMAND, INCLUDING THE HOSE STREAM REQUIREMENT, SHALL BE PROVIDED FOR HIGH-RISE BUILDINGS IN SEISMIC DESIGN CATEGORY "C" OR "D" AS DETERMINED BY THIS CODE, AND IN ANY HIGH-RISE BUILDING GREATER THAN 300 FEET IN HEIGHT, THE SECONDARY WATER SUPPLY SHALL HAVE A DURATION NOT LESS THAN 30 MINUTES AS DETERMINED BY THE OCCUPANCY HAZARD CLASSIFICATION IN ACCORDANCE WITH NFPA 13-2002. AS PER THE MOST CURRENT NFPA 13.
- FIRE HOSE THREADS USED IN CONNECTION WITH AUTOMATIC SPRINKLER SYSTEMS SHALL BE APPROVED AND COMPATIBLE WITH FIRE DEPARTMENT HOSE THREADS, AS PER THE MOST CURRENT NFPA 13.
- ALL VALVES CONTROLLING THE WATER SUPPLY FOR AUTOMATIC SPRINKLER SYSTEM, PUMPS, TANKS, WATER LEVELS AND TEMPERATURES, CRITICAL AIR PRESSURES AND WATER-FLOW SWITCHES ON ALL SPRINKLER SYSTEMS SHALL BE ELECTRICALLY SUPERVISED BY THE FIRE ALARM SYSTEM, AS PER THE MOST CURRENT NFPA 13.
- APPROVED SUPERVISED INDICATING CONTROL VALVES SHALL BE PROVIDED AT THE POINT OF CONNECTION TO THE RISER ON EACH FLOOR IN HIGH-RISE BUILDINGS, AS PER THE MOST CURRENT NFPA 13.
- THE DOCUMENTS OR PORTIONS THERE OF LISTED IN CHAPTER 2 OF NFPA 13 ARE REFERENCED WITHIN NFPA-13 AND SHALL BE CONSIDERED PART OF THE REQUIREMENTS OF THIS DOCUMENT.
- OCCUPANCY CLASSIFICATION SHALL COMPLY WITH CHAPTER 5 OF NFPA 13.
- PROTECTION REQUIREMENTS FOR MIXED COMMODITIES SHALL BE IN ACCORDANCE WITH SEC. 5-6.1.2 OF NFPA 13.
- REQUIREMENTS FOR CORRECT USE OF SPRINKLER SYSTEM COMPONENTS SHALL COMPLY WITH CHAPTER 6 OF NFPA 13.
- THE K-FACTOR, RELATIVE DISCHARGE, AND MARKING IDENTIFICATION FOR SPRINKLERS HAVING DIFFERENT ORIFICE SIZES SHALL BE IN ACCORDANCE WITH TABLE 6.2.3.1 OF NFPA 13.
- LARGE DROP & ESFR SPRINKLERS SHALL HAVE A MINIMUM NOMINAL K-FACTOR OF 11.2 PER SECTION 6.2.3.5. OF NFPA 13.
- AUTOMATIC SPRINKLERS SHALL HAVE THEIR FRAME ARMS, DEFLECTOR, COATING MATERIAL, OR LIQUID BULB COLORED IN ACCORDANCE WITH THE REQUIREMENTS OF TABLE 6.2.5.1 OF NFPA 13.
- LISTED CORROSION RESISTANT SPRINKLER SHALL BE INSTALLED IN LOCATIONS WHERE CHEMICALS, MOISTURE, OR OTHER CORROSIVE VAPORS SUFFICIENT TO CAUSE CORROSION OF SUCH DEVICES EXIST WITH SECTION 6.2.6.1. OF NFPA 13.
- ALL CONTROL, DRAIN, AND TEST CONNECTION VALVES SHALL BE PROVIDED WITH PERMANENTLY MARKED WEATHERPROOF METAL OR RIGID PLASTIC IDENTIFICATION SIGNS. SEC. 6.7.4.1 OF NFPA 13.
- FIRE DEPARTMENT CONNECTIONS SHALL BE EQUIPPED WITH LISTED PLUGS OR CAPS, PROPERLY SECURED AND ARRANGED FOR EASY REMOVAL BY THE FIRE DEPARTMENT. SEC. 6.8.4 OF NFPA 13.
- REQUIREMENTS OF DRY PIPE SYSTEM INSTALLATION SHALL COMPLY WITH SEC. 7.2 OF NFPA 13.
- REQUIREMENTS OF PREACTION & DELUGE SYSTEM INSTALLATION SHALL COMPLY WITH SEC. 7.3 OF NFPA 13.
- REQUIREMENTS FOR PROTECTION AGAINST EXPOSURE FIRE SHALL COMPLY WITH SEC. 7.7 OF NFPA 13.
- THE MAXIMUM FLOOR AREA OR ANY ONE FLOOR TO BE PROTECTED BY A SINGLE RISER FROM A CONTROL VALVE AND ALARM DEVICE SHALL COMPLY WITH SEC. 8.2.1 OF NFPA 13.
- WHERE CIRCUMSTANCES REQUIRE THE USE OF OTHER THAN ORDINARY TEMPERATURE-RATED SPRINKLERS, STANDARD RESPONSE SPRINKLERS SHALL BE PERMITTED TO BE USED SEC. 8.3.3. OF NFPA 13.
- WHEN EXISTING LIGHT HAZARD SYSTEMS ARE CONVERTED TO USE QUICK-RESPONSE OR RESIDENTIAL SPRINKLERS, ALL SPRINKLERS IN A COMPARTMENTED SPACE SHALL BE CHANGED. SEC. 8.3.3.4 OF NFPA 13.
- SPRINKLERS OF INTERMEDIATE AND HIGH TEMPERATURE RATINGS SHALL BE INSTALLED IN SPECIFIC LOCATIONS AS REQUIRED BY SEC. 8.3.2 OF NFPA 13.
- SPRINKLERS SHALL BE LOCATED, SPACED AND POSITIONED IN ACCORDANCE WITH THE REQUIREMENTS OF SECTION 8.5. OF NFPA 13.
- PROTECTION AREAS AND MAXIMUM SPACING FOR EACH HAZARD SHALL COMPLY WITH TABLE 8.6.2.2.1 (a) (b) (c) (d) OF NFPA 14.
- REQUIREMENTS OF DWELLING UNITS PROTECTION SHALL COMPLY WITH SEC. 8.14.8 OF NFPA 13.
- REQUIREMENTS OF STAGES AREA PROTECTION SHALL COMPLY WITH SEC. 8.14.15 OF NFPA 13.

SHOP DWGS/EQUIPMENT SUBMITTALS

THE CONTRACTOR IS RESPONSIBLE TO SUBMIT ALL ITEMS FOR REVIEW/APPROVAL BY NO MORE THAN 3 WEEKS AFTER THE CONTRACTOR'S CONTRACT/BID HAS BEEN AWARDED. ALL SUBMITTALS MUST BE SENT TOGETHER AS A SINGLE PACKAGE WITH MANUFACTURER'S SPECIFIC MODELS AND SPECIFICATIONS OBTAINED TO MATCH THE SCHEDULED REQUIREMENTS. EACH SUBMITTAL MUST BE LABELED WITH THE UNIT DESIGNATION USED WITHIN THIS DRAWING SET. IF THE SUBMITTAL PACKAGE IS FOUND TO BE INCOMPLETE UPON RECEIPT, THE PACKAGE WILL BE HELD AND WILL NOT BE REVIEWED UNTIL THE REMAINDER OF THE PACKAGE IS RECEIVED. ALL SHOP DRAWINGS AND SUBMITTALS SHALL BE SUBMITTED ELECTRONICALLY TO THE ENGINEER FOR REVIEW. CONTRACTOR SHALL NOT PURCHASE OR INSTALL ANY EQUIPMENT UNTIL WRITTEN ACCEPTANCE IS OBTAINED FROM THE ENGINEER.

NOTE: REFER TO SPECIFICATIONS FOR FURTHER SHOW DRAWING REQUIREMENTS. IF CONFLICTS ARISE, CONTACT DESIGN ENGINEER BEFORE FABRICATION.

SCOPE OF WORK:

- THE MODIFICATION OF AN EXISTING WET FS SYSTEM.
- PROPOSED FIRE SPRINKLER HEAD LOCATIONS AND PIPING ARE AS NOTED ON PLANS. EXACT PIPING FROM THE FIRE SPRINKLER MAIN TO ALL HEADS IS TO BE COORDINATED AND HYDRAULICALLY CALCULATED BY THE F.S.C. & SUBMITTED TO THE ENGINEER FOR APPROVAL.

NOTE: THIS SCOPE OF WORK DESCRIPTION IS PROVIDED TO GIVE AN OVERALL "MACRO" DESCRIPTION OF THIS PROJECT. F.S.C. IS RESPONSIBLE TO REVIEW ALL ENGINEERING AND ARCHITECTURAL DRAWINGS AND VISIT THE SITE IF NEEDED, PRIOR TO SUBMISSION OF BID.

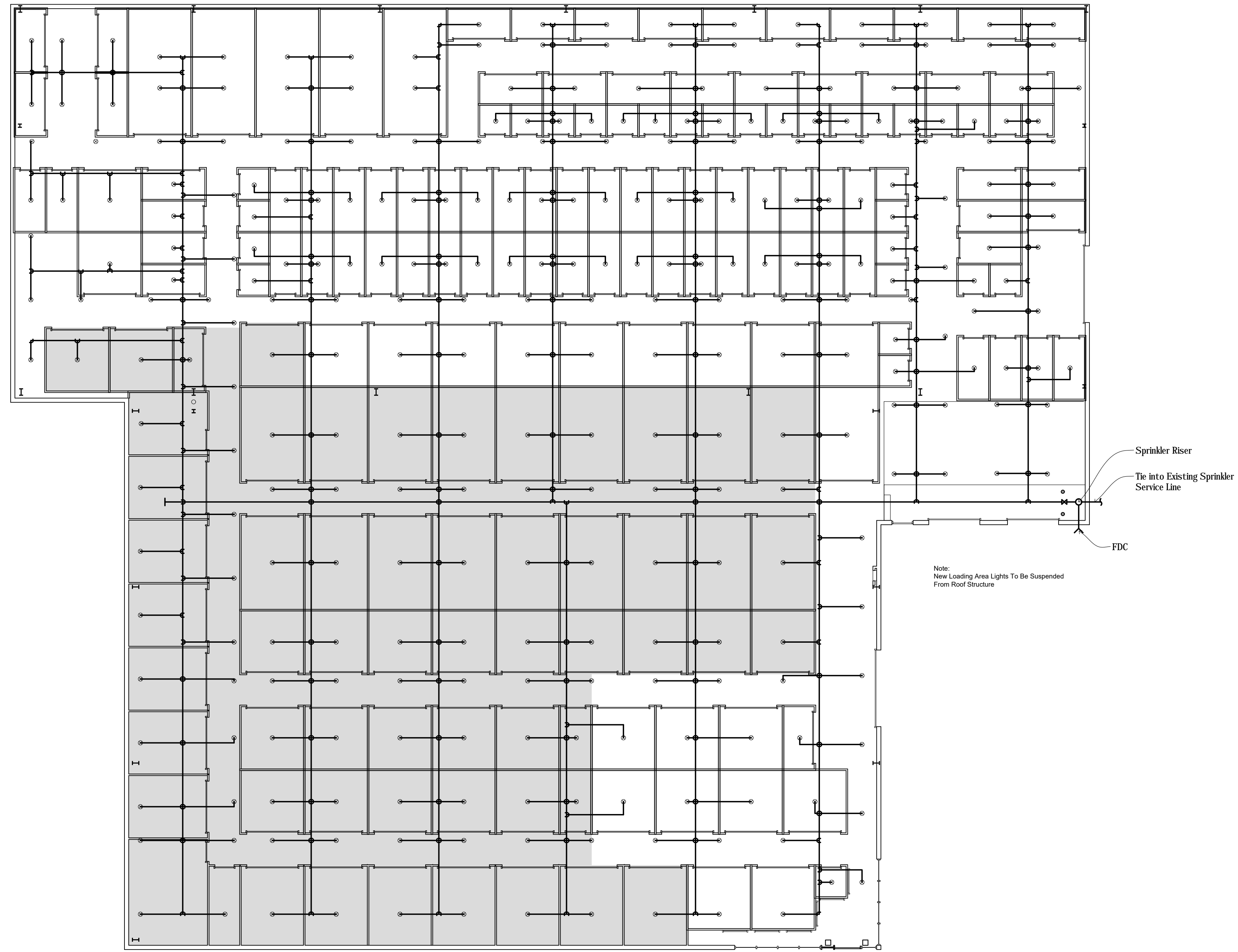
DOB DISCLAIMER NOTE:

"THIS PLAN APPROVED ONLY FOR WORK INDICATED ON THE APPLICATION SPECIFICATION SHEET. ALL OTHER MATTERS SHOWN ARE NOT TO BE RELIED UPON, OR TO BE CONSIDERED AS EITHER BEING APPROVED OR IN ACCORDANCE WITH APPLICABLE CODES."

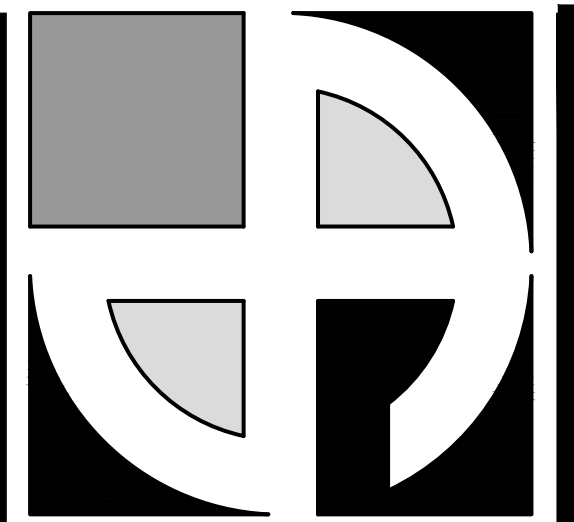
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SPRINKLER
NOTES
FP1.0



1 SPRINKLER PLAN
3/32"=1'-0"



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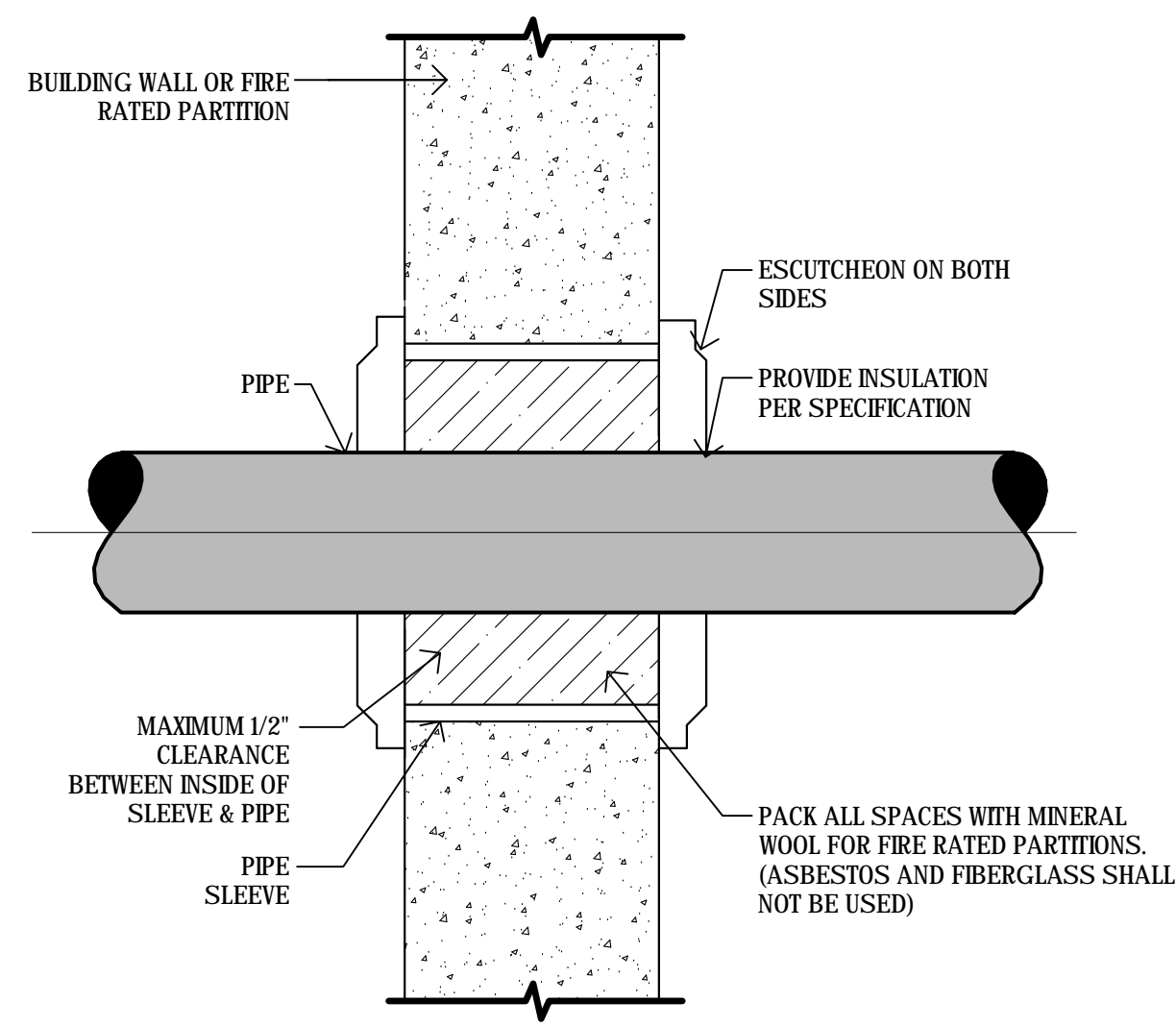
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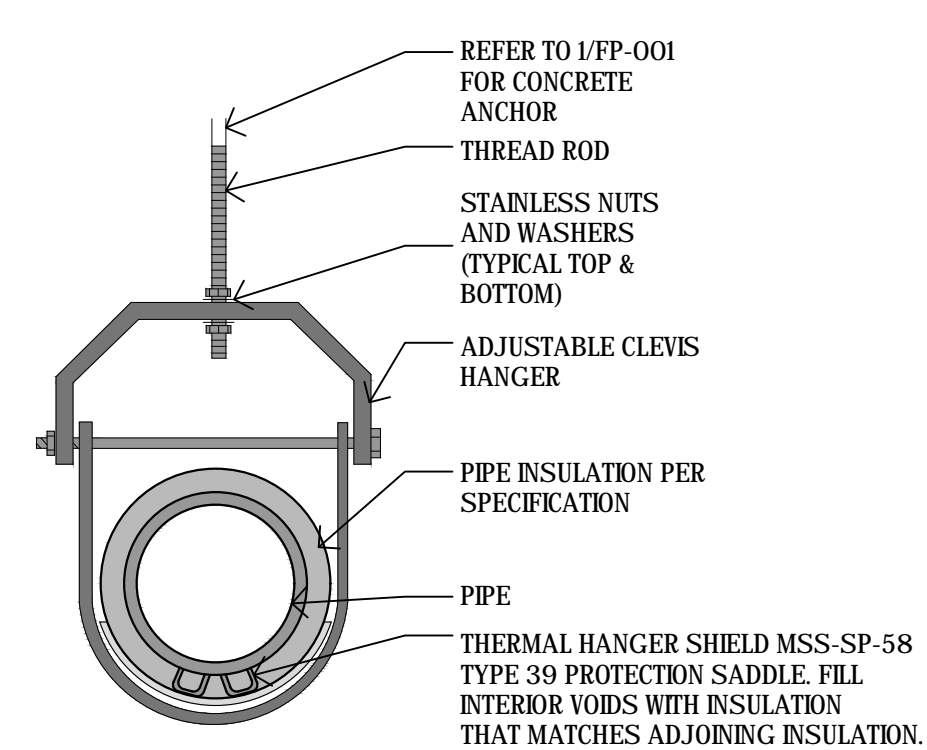
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SPRINKLER PLAN

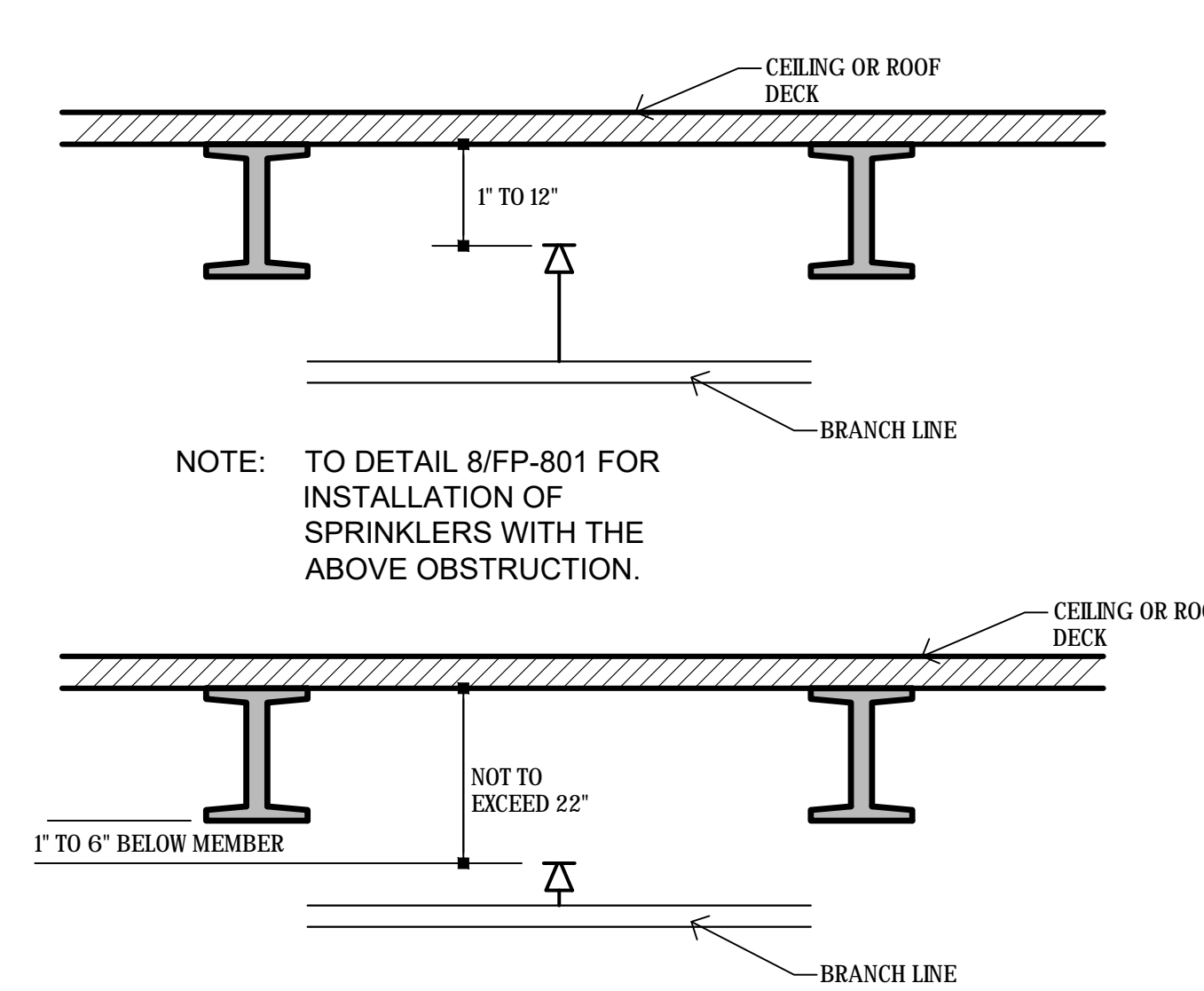
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FP1.1



1 PIPE PENETRATION DETAIL
N.T.S.



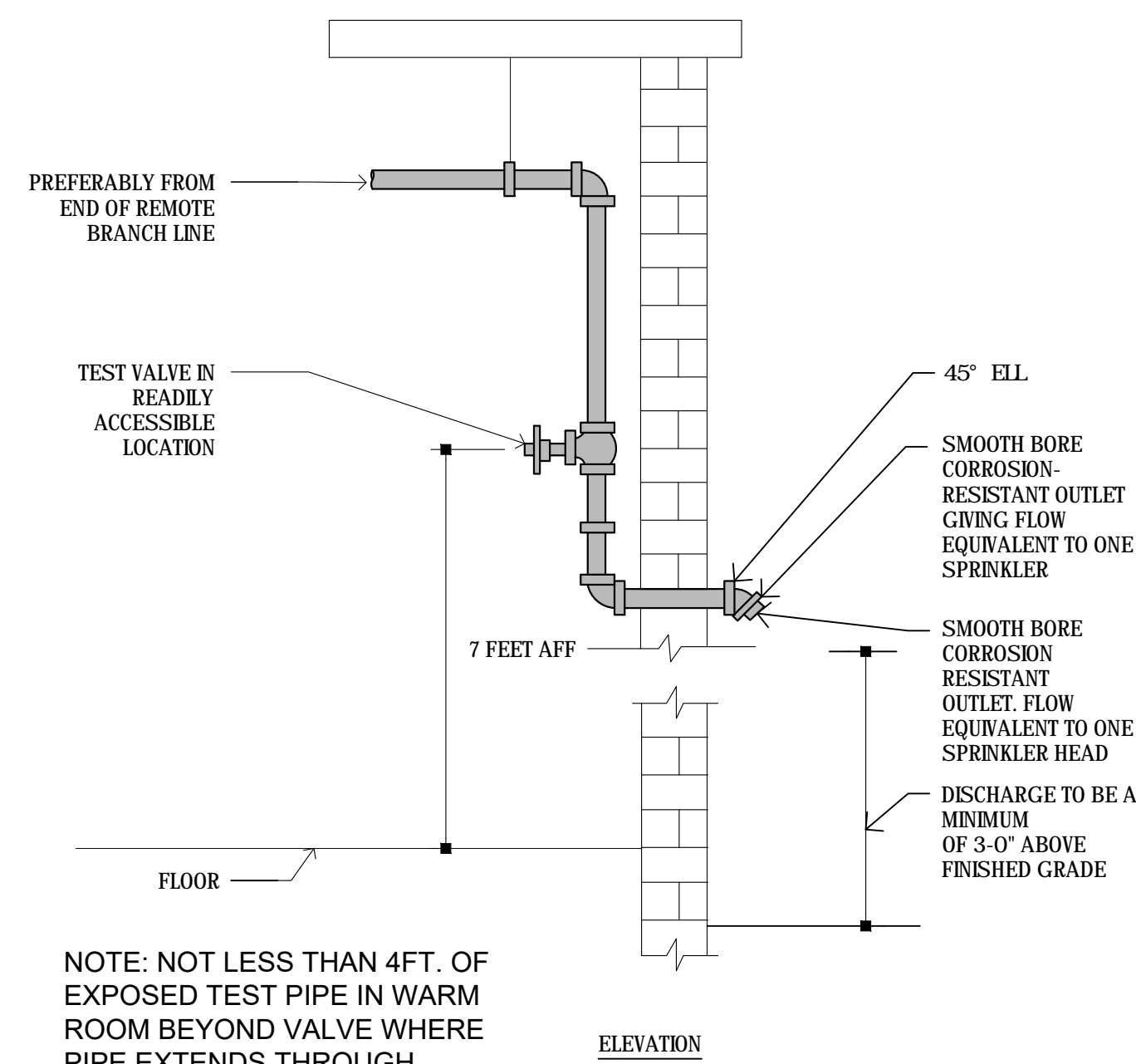
2 PIPE HANGAR DETAIL
N.T.S.



NOTE: TO DETAIL 8/FP-801 FOR INSTALLATION OF SPRINKLERS WITH THE ABOVE OBSTRUCTION.

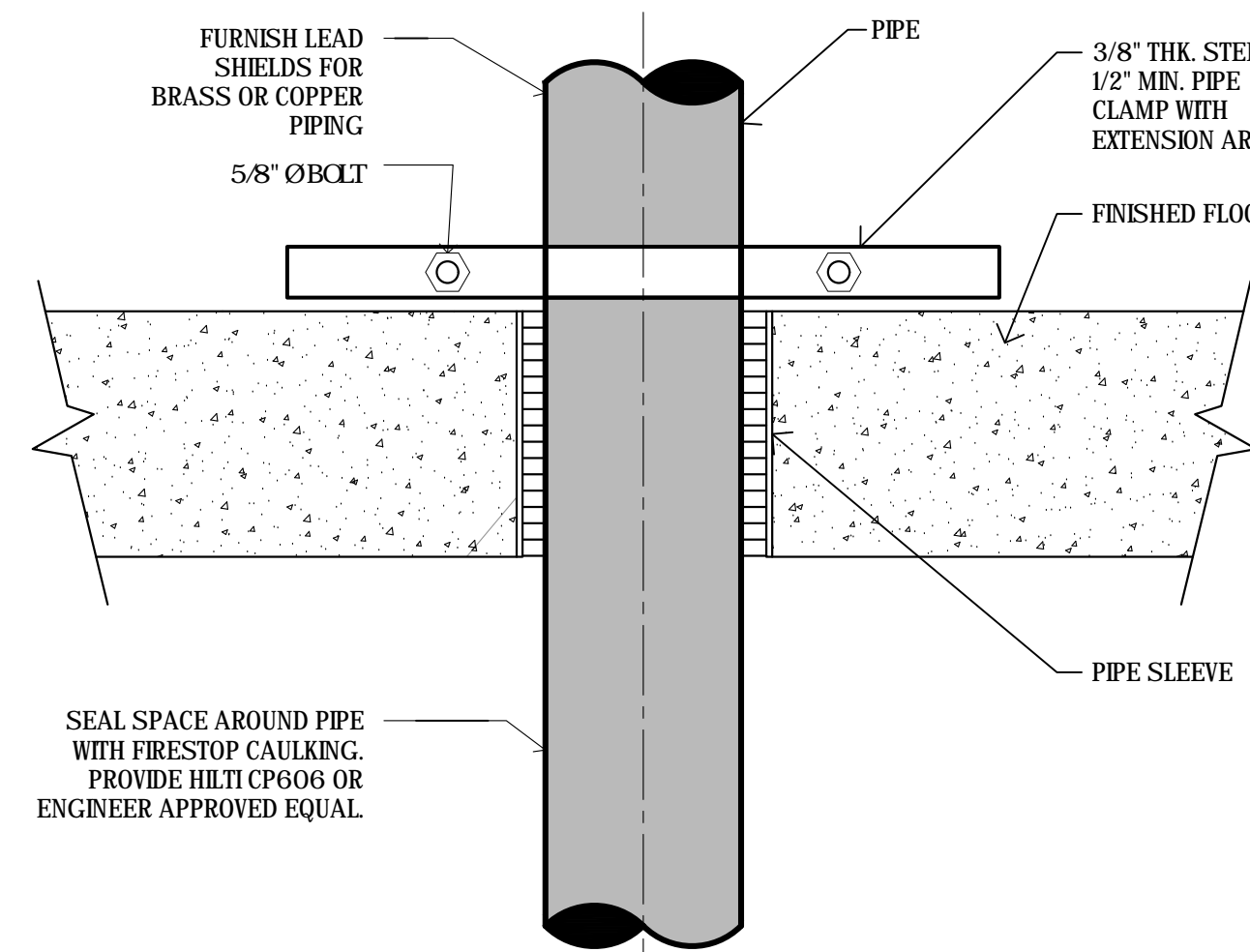
NOTE: INSTALL SPRINKLER WITH THE DEFLECTORS WITHIN THE HORIZONTAL PLANES OF 1\"/>

3 STRUCTURAL MEMBER OBSTRUCTED DETAIL
N.T.S.

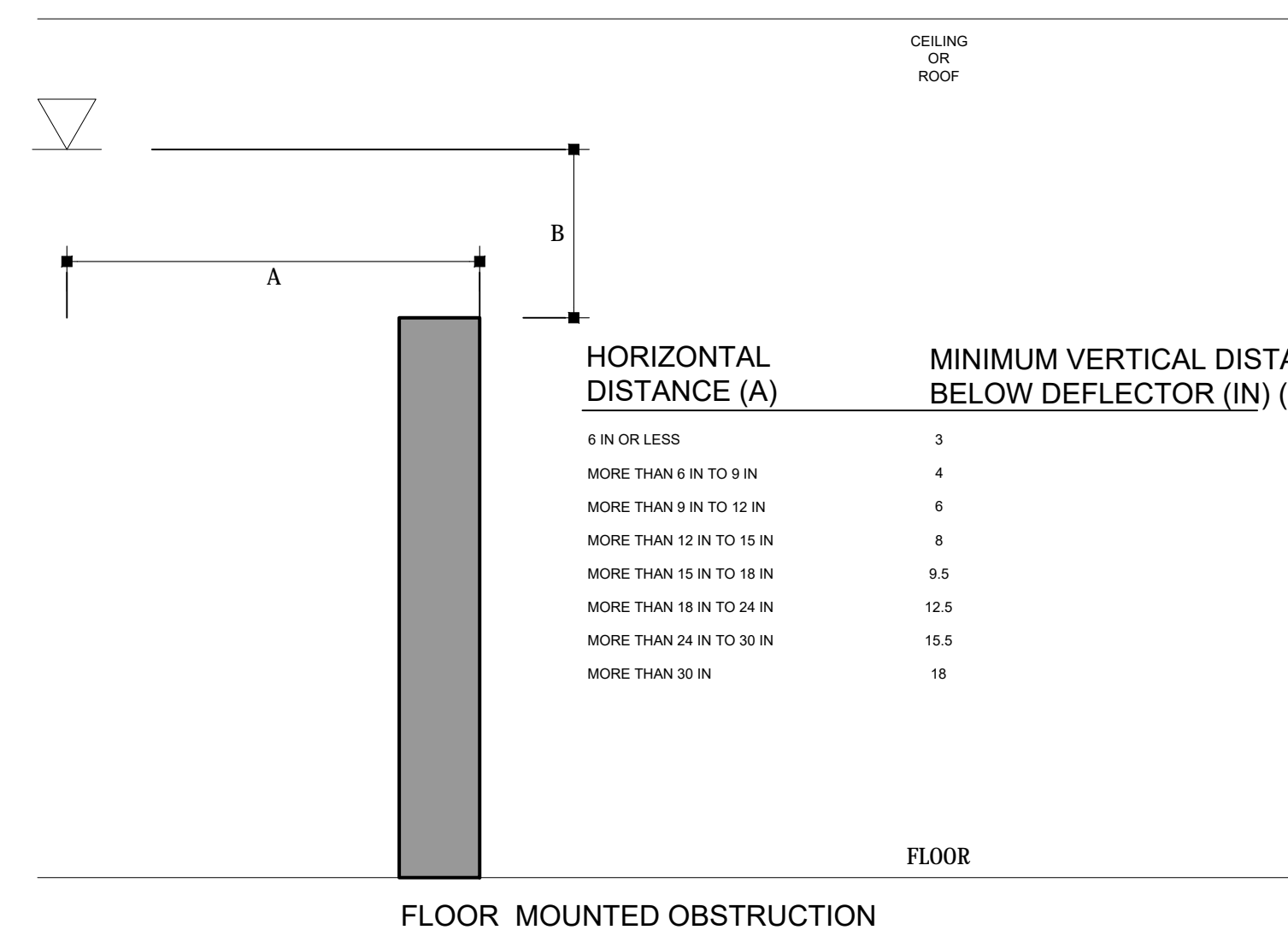


NOTE: NOT LESS THAN 4FT. OF EXPOSED TEST PIPE IN WARM ROOM BEYOND VALVE WHERE PIPE EXTENDS THROUGH WALL TO OUTSIDE.

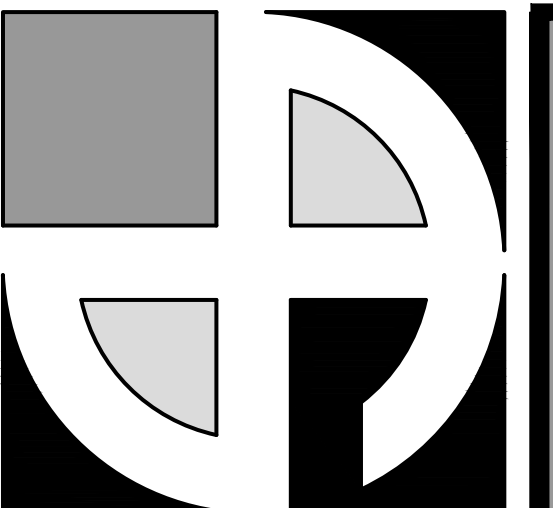
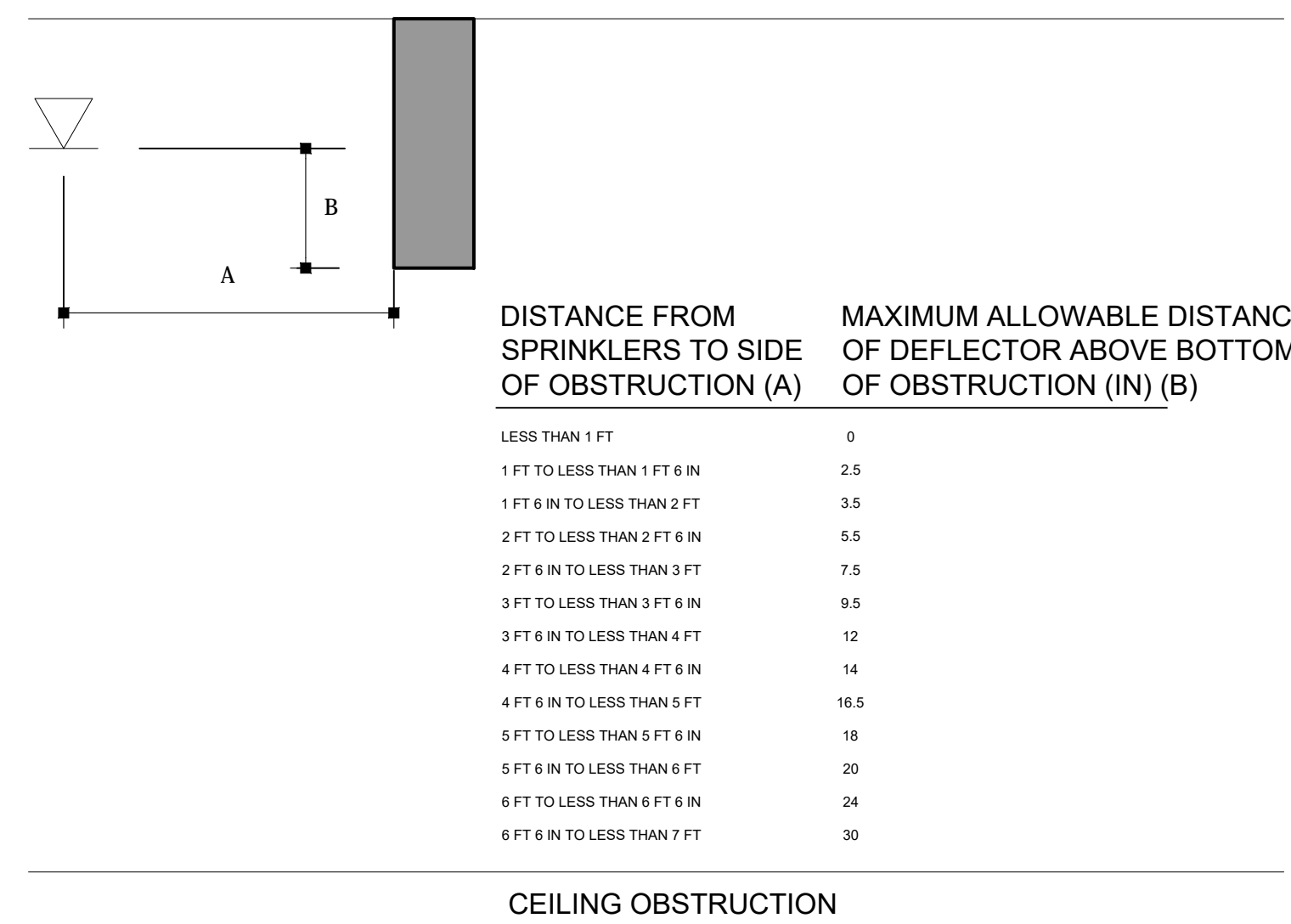
4 TEST CONNECTION DETAIL
N.T.S.



5 PIPE RISER DETAIL
N.T.S.



6 OBSTRUCTION AND CLEARANCE
N.T.S.



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22-238

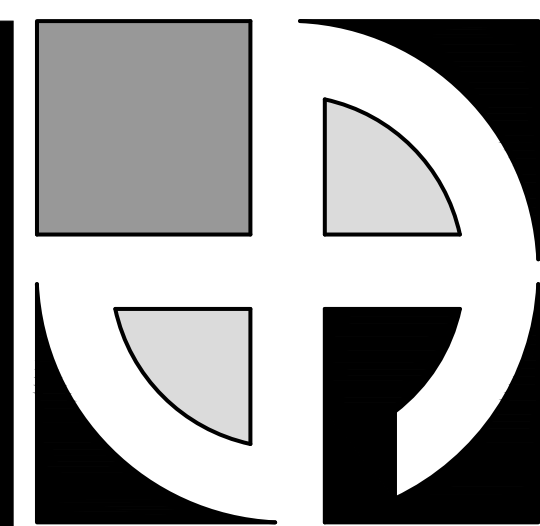
STORE SPACE

937 E. Haggard Ave.
Eion, NC

No.	Description	Date	By
1	ISSUED FOR BID	2-3-23	AB

DATE: 9-3-22
DRAWN BY: A. Barraclough
CHECKED BY: M. Dean
SCALE: NTS

SPRINKLER DETAILS
FP2.0



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22-238

STORE SPACE

937 E. Haggard Ave.
Elon, NC

BUILDING 1

BUILDING 2

No.	Description	Date	By
1	ISSUED FOR BID	2-3-23	AB

DATE: 9-3-22
DRAWN BY: A. Barraclough
CHECKED BY: M. Dean
SCALE: NTS

SYMBOLS & NOTES
E1.0

ELECTRICAL NOTES

All material shall be installed in compliance with all code requirements, manufacturer's instructions and practices unless noted otherwise on the drawings. The installation and design shall comply with the following:

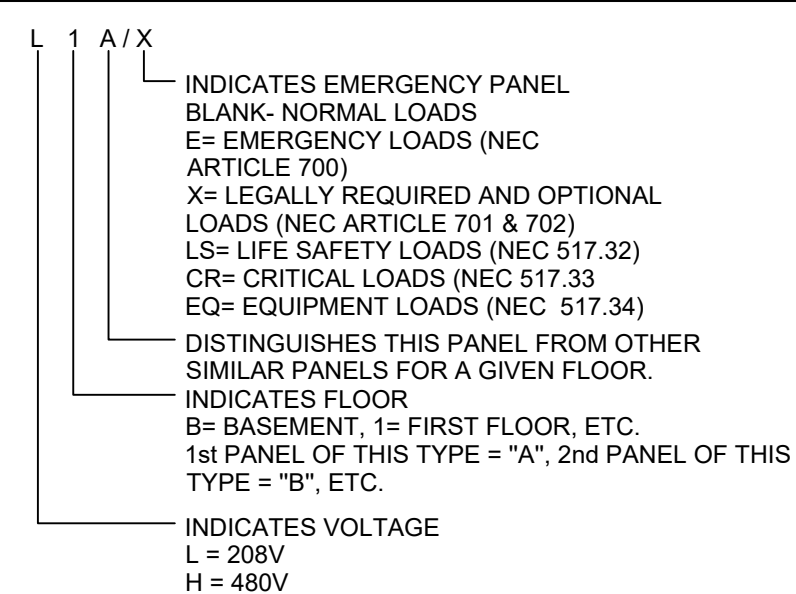
- 2018 NORTH CAROLINA BUILDING CODE
- 2020 NFPA 70
- Conservation Code 2018 OF NORTH CAROLINA
- All other applicable local codes

- The contractor shall check the location, number and size of all chases provided on the construction plans and arrange for any others required.
- The contractor shall coordinate with the HVAC, P&D and structural trades for exact locations of equipment in order to avoid interference.
- All penetrations of rated walls and floors shall receive fire safing in conformance with rated value of floor or wall being penetrated by all components. See project manual section 07270.
- All ductwork and piping shall not be installed above electrical equipment per national electrical code. If these systems are installed above electrical equipment, notify the general contractor immediately.
- Provide fire proofing for any corridor wall mounted devices outlet box where located within 24" horizontally of wall mounted device in the resident units.
- In unfinished portions of the building, such as mechanical and electrical rooms, pipe spaces, etc., locations of conduit and outlets are approximate and shall clear piping and all other construction. Conduits in these portions of the building may be run exposed or run concealed. All outlets and pull boxes must be extended to clear any interference with fixtures.
- No conduit shall be run in any floor in contact with the Earth unless otherwise directed in the plan. Conduit for motors and starters shall be run overhead and supported as required.
- Conduit penetrations through floor slabs and fire stopped to the same rating as the rated partition or slab.
- Where recessed fixtures are indicated on these plans, lighting fixture trim shall be provided to suit ceiling construction.
- Light fixtures shall be located in the centerline of corridors. Light location shall be coordinated with the architectural reflected ceiling plans. Coordinate with the mechanical and fire sprinkler contractors for placement and alignment of fixtures.
- Verify the type of ceiling system with general contractor to ensure that all recessed lighting fixture are compatible with the ceiling system being installed. Lighting fixtures shall not be ordered until ceiling type has been verified.
- All duplex receptacles connected to emergency power shall be "red" in color with an "ivory" cover plate.

- Unless otherwise noted on floor plans or in floor plan notes, switches shall be installed at 4'-0" above finished floor. Where switch heights are given on these drawings for areas in which there are tile wainscots such as toilets, locker rooms, etc., the contractor shall adjust switch heights, if necessary to avoid interference with the wainscot.
- Pull and junction boxes shall be surface type in unfinished areas and flush type in finished areas, unless otherwise noted. The junction and pull boxes shall be located approximately where indicated on the plan to suit conduit entrance, but shall, in all cases, be located to avoid interference with equipment from other trades and shall be located so that covers are readily accessible.
- The electrical contractor is responsible to balance loads for phases in panelboards.
- Within the area of new work, all low voltage cabling shall be run exposed above the suspended ceiling in cable tray UON. Install all wall and floor branch outs in EMT conduit. Conduits must stub-up 6" into the cable tray from the location of each low voltage device. Extend stub-ups as required into the cable tray from the location of each low voltage device. Extend stub-ups as required into cable tray in areas with accessible ceilings. Refer to low voltage cable details. At no time shall any low voltage cabling be exposed except in the telecom rooms.
- Where equipment, lighting fixtures and wiring devices are shown with circuit numbers only, the minimum branch circuiting requirements shall be as follows:
 - Lighting fixtures, exit signs & receptacles - 2#12 & 1#12GND-3/4"
 - Branch circuit breakers (120 volt) - 1P, 20A as shown.
 - Home runs to panelboards shall contain no more than (3) three circuits.
- Wire sizes shall be increased to compensate for voltage drop as follows:
 - Feeder circuit voltage drop shall not exceed 2%
 - Branch circuit voltage drop shall not exceed 3%
- Minimum raceway size shall be 3/4" raceways shall be run parallel to building structural lines. All empty raceways shall be furnished with a 200 LB test nylon dragline. Conduit fill not to exceed 40%.
- Install telecommunications and video surveillance cables so that no run exceeds 90 meters (295').
- All low voltage cabling in riser shafts that are not in conduit shall be supported with split mesh kelleem grips.
- Devices in CMU walls shall be centered on joint walls. See architectural drawings.
- Provide expansions/deflection couplings for all conduits that cross building expansion joints. Coordinate these locations with the GC.
- Provide a multipole breaker for all multi-wire branch circuits utilizing common neutral.
- All conductors smaller than #8AWG shall be solid wire.
- Provide certification that the emergency lighting and exit lighting is in compliance with the emergency power requirements of local law. This written certification shall be signed and sealed by the contractors licensed electrician.

- Provide documents to the owners certifying that the installed lighting controls meet documents performance criteria of Section C405 of the Energy Conservation Code 2018 OF NORTH CAROLINA. Documents shall be provided within 90 days from the date of receipt of the Certificate of Occupancy.
- It is the intent of these drawing and other related documents to produce a complete and functioning electrical system. Provide all labor, materials and other services necessary to achieve this product. Notify the architect of any discrepancies in the plans and specifications that will affect the work prior to submission of the bid price.
- Contractor shall review all project drawings and contract documents and provide power wiring to all required motors and appliances, whether or not the power wiring is specifically shown on the drawings.
- Electrical plans are diagrammatic and indicate general arrangement of systems and work. Check drawings of other trades to verify space conditions, door swings, room finishes, etc. Maintain headroom and working clearances.
- If, during the course of the work, the contractor experiences a problem relative to the plans and specifications, the National Electrical Code of other applicable codes and governing documents, he shall notify the architect and/ or the engineer for direction prior to execution of this work. Any work installed in violation of the contract documents of applicable codes which could have been avoided by contacting the architect or engineer shall be rectified at NO additional cost.
- Circuit numbers are for identification purposes only. The contractor is responsible for correctly phasing the circuits in the panel and shall balance the load on the phases under normal operating conditions. Provide typewritten panelboard directories including all circuits. Identify all circuits with room numbers served by circuit (comply with NEC 408.4).
- The number of wires is indicated only where clarification is necessary. The electrical contractor shall provide all wires necessary for the proper function of the system.
- Increase all branch circuit conductors to the next larger size from the panel to the first outlet where the length of the homerun exceeds 100FT on 120/208V circuits.
- Contractor shall note UL labels on packaged type mechanical equipment. If UL label on mechanical equipment calls for the overcurrent protective device to be fuses, provide a fused switch with proper size fuses at the switch location indicated on the drawings.
- Verify wire sizes, circuit breaker and fuse ratings for all equipment, and notify the architect/ engineer of any discrepancies affecting the work prior to proceeding.
- Gang all multiple switches at the same location under one common cover plate. Provide multi-gang outlet box of adequate size.
- Contractor shall furnish O&M manuals for the system and equipment to the building owner or designated representative within 90 days of acceptance.
- Contractor shall furnish as-built drawings for electrical power system within 90 days of system acceptance.
- Contractor shall arrange for the lighting system to be tested to ensure proper calibration, adjustment, programming, and operation.

STANDARD PANEL DESIGNATIONS



	208V ONLY		208V & 480V	
	A, B, C, ETC.	LA, LB, LC, ETC.	HA, HB, HC, ETC.	H2B, ETC.
SINGLE STORY BUILDING NORMAL PANELS	A, B, C, ETC.	LA, LB, LC, ETC.	HA, HB, HC, ETC.	H2B, ETC.
MULTIPLE STORY BUILDING NORMAL PANELS	1A, 1B, 2A, 2B, ETC.	L1A, L1B, BBA, BBB, ETC.	H1A, H1B, H2A, H2B, ETC.	
SINGLE STORY BUILDING EMERGENCY PANELS	A/E, B/E, O/E, A/X, B/X, ETC.	L1A/E, L1B/E, BBA/E, BBA/X, ETC.	H1A/E, H1B/E, H2A/E, H2A/X, ETC.	
MULTIPLE STORY BUILDING EMERGENCY PANELS	1A/E, 1B/E, 1A/X, 2A/X	L1A/E, L1B/E, BBA/E, BBA/X, ETC.	H1A/E, H1B/E, H2A/E, H2A/X, ETC.	

STANDARD SWITCHBOARD DESIGNATIONS

208V ONLY M/SB / A
"MAIN SWITCHBOARD" 1st SWITCHBOARD OF THIS TYPE = "A" 480V & 208V IN SAME BUILDING. 2nd SWITCHBOARD OF THIS TYPE = "B", ETC.

480V = MSB/HA
208V = MSB/LA

I-LINE PANELS ARE SIMILAR EXCEPT USE MDP/IA.
MDP = MAIN DISTRIBUTION PANEL OR USE MP/IA WHERE MP = MECHANICAL PANEL.

ABBREVIATIONS

A	AMP-AMPERE	KW	KILOWATT
AD	ACCESS DOOR	KWH	KILOWATT HOUR
AFB	ABOVE FINISHED FLOOR	LP	LIGHTING PANEL
ALT	ALTERNATE	LTG	LIGHTING
AWG	AMERICAN WIRE GAUGE	MANUF	MANUFACTURER
BKR	BREAKER	MC	MAIN CIRCUIT BREAKER
C	CONDUIT/CONDUCTOR	MLO	MAIN LUGS ONLY
CB	CIRCUIT BREAKER	N	NEUTRAL
CKT	CIRCUIT	NEC	NATIONAL ELECTRICAL CODE
CU	COPPER	NEMA	NATIONAL ELECTRICAL
DWG	DRAWING	MANUFACTURERS ASSOCIATION	
EC	ELECTRICAL CONTRACTOR	NIC	NOT IN CONTRACT
ELEC	ELECTRICAL	PNL	PANEL
ETR	EXISTING TO REMAIN	RTU	ROOF TOP UNIT
FACP	FIRE ALARM CONTROL PANEL	TYP	TYPICAL
FD	FIRE DAMPER	UON	UNLESS OTHERWISE NOTED
GND	GROUND	V	VOLTS
GFI	GROUND FAULT INTERRUPTER	WP	WEATHERPROOF
HD	HAND DRYER	WT	WEIGHT
HP	HORSE POWER	XFMR	TRANSFORMER
JC	JANITORS CLOSET	Y	WYE (STAR)
KV	KILOVOLT		
KVA	KILOVOLT AMPERE		

Note:
Contractor Shall Provide Minimum Standard Labor & Material Warranties

GENERAL NOTES

- ALL ELECTRICAL WORK SHALL BE FURNISHED AND INSTALLED IN ACCORDANCE WITH THE 2018 EDITION OF THE NATIONAL ELECTRICAL CODE (N.E.C.), 2018 NORTH CAROLINA BUILDING CODE AND ALL LOCAL AND MUNICIPAL CODES HAVING JURISDICTION.
- ELECTRICAL CONTRACTOR (E.C.) TO VISIT SITE, ACQUAINT HIMSELF WITH EXISTING CONDITIONS AND INCLUDE ALL NECESSARY COSTS TO COMPLETE THE INSTALLATION.
- E.C. TO FURNISH AND PAY FOR ALL PERMITS AS REQUIRED AND OBTAIN FINAL CERTIFICATE OF INSPECTION.
- CATALOG NUMBERS ARE MEANT TO INDICATE TYPE DESIRED AND MAY BE SUBSTITUTED WITH AN APPROVED EQUAL DEVICE. "APPROVED EQUAL" MUST BE SUBMITTED TO THE ENGINEER FOR WRITTEN APPROVAL PRIOR TO INSTALLATION IN THE FIELD.
- WORK MUST BE COORDINATED WITH ALL OTHER TRADES TO ELIMINATE CONFLICTS AND INTERFERENCES.
- E.C. SHALL BALANCE LOADS ON PARALLEL FEEDER AND ALL PANELS.
- E.C. MUST PROVIDE PROPER "FIRE STOPPING" AT ALL PENETRATIONS THROUGH FIRE RATED ASSEMBLIES (EACH SIDE). SUBMIT EXACT MATERIALS AND METHODS TO THE ENGINEER FOR REVIEW AND APPROVAL PRIOR TO INSTALLATION. NO EXCEPTIONS TAKEN.
- CONTROL WIRING FOR HVAC UNITS (OTHER THAN LOW VOLTAGE POWER SUPPLY WIRING) SHALL BE DONE BY HVAC CONTRACTOR.
- ALL FUSES SHALL BE CURRENT LIMITING CLASS RK1.
- ALL UNDERGROUND CONDUIT SHALL BE RIGID PVC COATED, HOT DIPPED GALVANIZED STEEL WITH WARNING TAPE ABOVE IT.
- CONDUIT AND WIRE ON POWER AND LIGHTING PLANTS IS NOT SHOWN EXCEPT FOR HOMERUNS. CONTRACTOR SHALL PROVIDE ALL NECESSARY CONDUIT, BOXES, PULL BOXES, WIRING, SWITCHES AND ACCESSORIES TO INTERCONNECT THE ELECTRICAL ITEM FOR CIRCUITING AND HOMERUNS INDICATED SYMBOLICALLY ON THE DRAWINGS. SEE LEGEND-HOMERUNS DESIGNATION FOR SYMBOLOGY APPLICABLE TO ALL SYMBOLS SHOWN.
- U.O.N. ON PLANS AND SECTIONS; ALL HEAVY LINES ARE NEW EQUIPMENT CONDUIT, WIRING, ETC. ALL LIGHT LINES ARE EQUIPMENT, CONDUIT, WIRING, ETC. BY OTHERS.
- E.C. MUST INCLUDE IN HIS PRICE COORDINATION OF POWER POLE (FOR POWER AND VOICE/DATA) AND WALL "IN-FEED" BOXES AND "WHIPS" (SEAL TITE OR EQUAL). E.C. TO PROVIDE ALL WALL BOXES FOR POWER & VOICE/DATA. E.C. MUST PROVIDE POWER WHIP, EMPTY VOICE/DATA RACEWAYS WITH DRAG LINES, AND FINAL POWER CONNECTIONS TO FURNITURE SYSTEMS. FINAL COORDINATION WITH FURNITURE VENDOR IS THE RESPONSIBILITY OF THE E.C.
- E.C. MUST INCLUDE IN HIS PRICE ALL MATERIAL AND LABOR FOR TEMPORARY POWER AND LIGHTING FOR ALL TRADES DURING DEMOLITION (IF APPLICABLE) & CONSTRUCTION.
- POWER DISTRIBUTION NOTE: CONDUITS TO BE AS FOLLOWS. WHERE RUN WITHIN THE BUILDING IN DRY LOCATIONS NOT SUBJECT TO PHYSICAL DAMAGE PROVIDE E.M.T. WHERE RUN IN BUILDING WHERE SUBJECT TO PHYSICAL DAMAGE, WET OR DAMP LOCATIONS, THRU ROOFS OR CONCRETE PROVIDE THICK WALLED RIGID STEEL CONDUIT. WHERE RUN UNDERGROUND PROVIDE SCHEDULE 40 P.V.C. EXCEPT THAT ALL ELBOWS ON P.V.C. CONDUIT SYSTEM SHALL BE THICK WALLED RIGID STEEL AND SHALL BE GROUNDED IN ACCORDANCE WITH N.E.C. 300-5(D) WHERE REQUIRED.

SHOP DWGS/EQUIPMENT SUBMITTALS:

THE CONTRACTOR IS RESPONSIBLE TO SUBMIT ALL OF THE FOLLOWING ITEMS FOR REVIEW/APPROVAL BY NO MORE THAN 3 WEEKS AFTER THE CONTRACTOR'S CONTRACT/BID HAS BEEN AWARDED. ALL SUBMITTALS MUST BE SENT TOGETHER AS A SINGLE PACKAGE WITH MANUFACTURER'S SPECIFIC MODELS AND SPECIFICATIONS OUTLINED TO MATCH THE SCHEDULED REQUIREMENTS. EACH SUBMITTAL MUST BE LABELED WITH THE UNIT DESIGNATION USED WITHIN THIS DRAWING SET. IF THE SUBMITTAL PACKAGE IS FOUND TO BE INCOMPLETE UPON RECEIPT, THE PACKAGE WILL BE HELD AND WILL NOT BE REVIEWED UNTIL THE REMAINDER OF THE PACKAGE IS RECEIVED. ALL SHOP DRAWINGS AND SUBMITTALS SHALL BE SUBMITTED ELECTRONICALLY TO THE ENGINEER FOR REVIEW. CONTRACTOR SHALL NOT PURCHASE OR INSTALL ANY EQUIPMENT UNTIL WRITTEN ACCEPTANCE IS OBTAINED FROM THE ENGINEER.

- CONTRACTOR IS RESPONSIBLE TO DEVELOP & SUBMIT TO THE ENGINEER FOR REVIEW & APPROVAL THE FOLLOWING SHOP DWGS:

- ALL LIGHTING FIXTURES.
- ALL PANELS.
- ALL CONDUITS AND WIRES.
- ALL SPLICE/PULL BOXES.
- ALL JUNCTION BOXES.
- ALL DISCONNECT SWITCHES.
- ALL TRANSFORMERS.

NOTE: REFER TO SPECIFICATIONS FOR FURTHER SHOW DRAWING REQUIREMENTS. IF CONFLICTS ARISE, CONTACT DESIGN ENGINEER BEFORE FABRICATION.

TYPICAL DEVICE MOUNTING HEIGHT

RECEPTACLES (OFFICE AREA)	18" AFF
LIGHT SWITCHES	48" AFF
DISCONNECT SWITCHES	NEC 404.8(A)
TELEPHONE OUTLETS	18" AFF
TELEPHONE OUTLET (WALL MTD)	48" AFF
COMPUTER OUTLETS	18" AFF
CLOCK OUTLETS	7'-6" AFF
FIRE ALARM PULL STATION	48" AFF
FIRE ALARM AUDIO/VISUAL ALARM	80" AFF
EXIT LIGHTS (WALL MTD)	1' ABOVE DOOR
EMERGENCY LIGHTS (WALL MTD)	7'-6" AFF
TV OUTLETS	18" AFF
AUDIO/VIDEO OUTLETS	18" AFF
MICROPHONE OUTLETS	18" AFF
PA ANNUNCIATOR PANEL	48" AFF
WELDING OUTLETS	36" AFF

NOTE: DIMENSIONS ARE TO DEVICE CENTERLINE UNLESS NOTED OTHERWISE

ELECTRICAL SYMBOL LEGEND

THIS SYMBOL LEGEND IS SHOWN FOR GENERAL REFERENCE ONLY. THE PRESENCE OF A SYMBOL ON THIS LEGEND DOES NOT IMPLY ITS USE ON THIS PROJECT. REFER TO DRAWINGS FOR SPECIFIC SYMBOLS USED.

BRANCH CIRCUIT HOMERUN. SHORT LINES INDICATE PHASE CONDUCTORS. LONG LINES INDICATE NEUTRAL CONDUCTOR. ONE SEPARATE GREEN GROUNDING CONDUCTOR SHALL BE PROVIDED FOR EACH HOMERUN; NOT SHOWN.

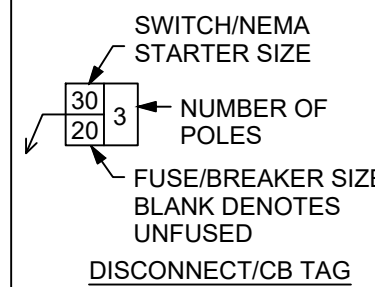
JUNCTION BOX

PANELBOARD, SURFACE MOUNTED
PANELBOARD, RECESSED

RECEPTACLE, DUPLEX
EM = EMERGENCY
GFI = GROUND FAULT INTERRUPTER
WP = WEATHERPROF. NEMA 3R
RECEPTACLE, QUADRUPLX
RECEPTACLE, SINGLE

RECEPTACLE, SPECIAL PURPOSE
A = 120V, 20A, 1 PHASE, 2-POLE, 3W, NEMA 5-20R.
B = 208V, 20A, 1 PHASE, 2-POLE, 3W, NEMA 6-20R.
C = 120V, 30A, 1 PHASE, 2-POLE, 3W, NEMA 5-30R.
D = 208V, 30A, 1 PHASE, 2-POLE, 3W, NEMA 6-30R.
E = 208V, 60A, 1 PHASE, 3-POLE, 4W, NEMA 14-60R.
F = 208V, 30A, 3 PHASE, 3-POLE, 4W, NEMA 15-30R.
G = 208V, 50A, 3 PHASE, 3-POLE, 4W, NEMA 15-30R.
H = 208V, 60A, 3 PHASE, 3-POLE, 4W, NEMA 15-60R.

ENCLOSED CIRCUIT BREAKER
DISCONNECT SWITCH, FUSED
DISCONNECT SWITCH, UNFUSED
STARTER, COMBINATION WITH DISCONNECT SWITCH
STARTER OR MOTOR CONTROLLER
VARIABLE FREQUENT DRIVE



SWITCH
BLANK = SINGLE POLE
2 = DOUBLE POLE
3 = THREE-WAY
4 = FOUR-WAY
D = DIMMER
F = FUSED
K = KEY OPERATED
LV = LOW VOLTAGE

L = LOCK
M = MOTOR
OS = OCCUPANCY SENSOR
P = WITH PILOT LIGHT
T = TIMER OPERATED
WP = WEATHER PROOF, NEMA 3R
X = EXPLOSION PROOF

GENERATOR

DRAW OUT CIRCUIT BREAKER (3P, U.O.N.)
AF = AMP FRAME
AT = AMP TRIP

CIRCUIT BREAKER (3P, U.O.N.)

SWITCH AND FUSE (3P, U.O.N.)
AS = AMP SWITCH
AF = AMP FUSE

AUTOMATIC TRANSFER SWITCH (ATS)
N = NORMAL (NON-GENERATOR) POWER
E = EMERGENCY (GENERATOR) POWER
L = LOAD (OUTPUT)
ATS-1 = DEVICE LABEL

LIGHT FIXTURES, VARIOUS. SEE LIGHTING FIXTURE SCHEDULE.
DARK BLACK HATCH INDICATES EMERGENCY BATTERY OR EMERGENCY (LIFE SAFETY) GENERATOR POWER.

EXIT SIGN, CEILING MOUNTED; EXIT SIGN, WALL MOUNTED. ARROWS INDICATE CHEVRON DIRECTION.

EMERGENCY WALL PACK

DATA; VOICE/DATA; VOICE OUTLET

MOTOR, # = HORSEPOWER

REFER TO SUPPLEMENTAL FIGURE INDICATED BY NUMBER (I.E. F2 REFERS TO FIGURE 2)

EQUIPMENT TAG
EQUIPMENT NUMBER

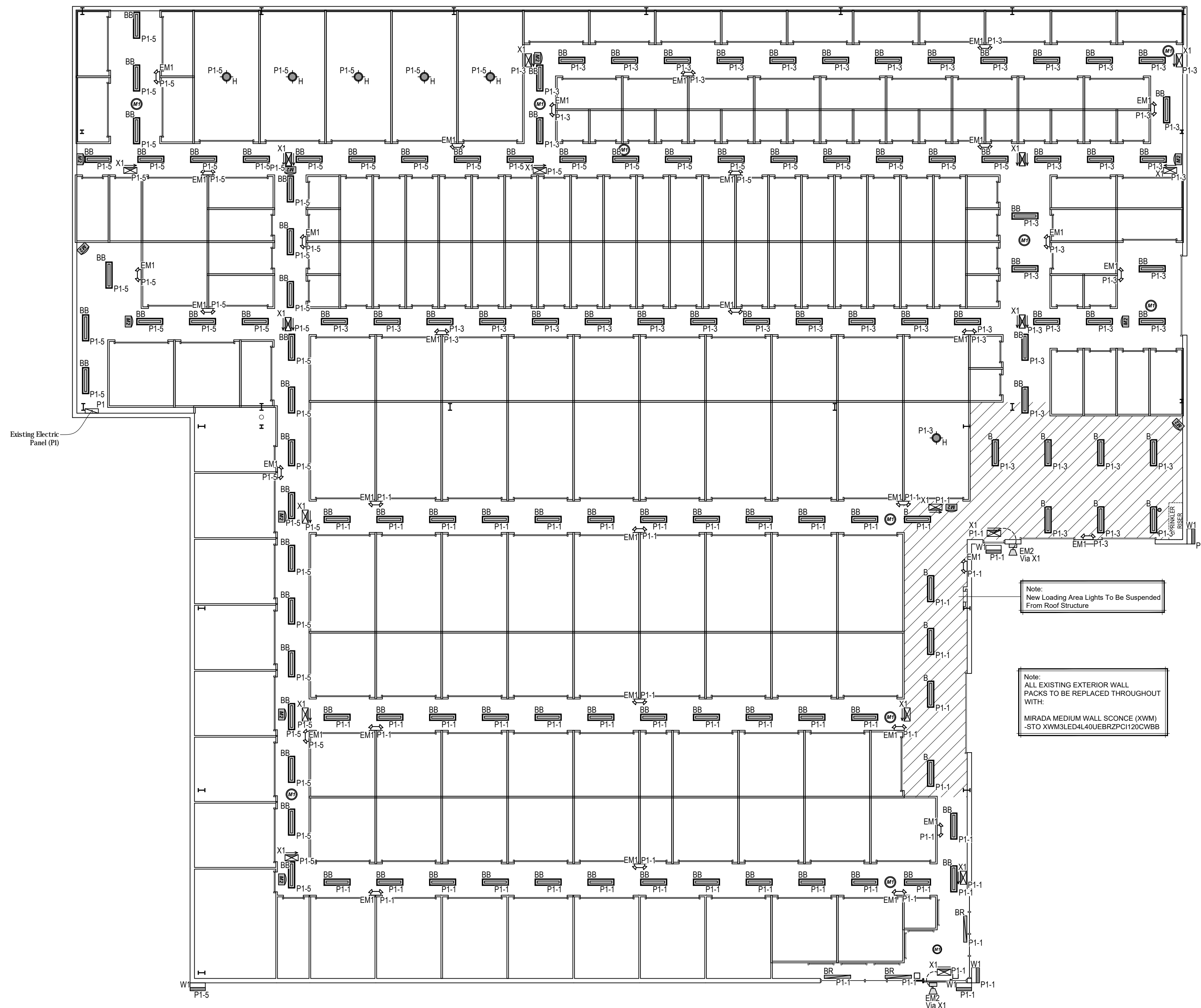
DETAIL TAG/CALL OUT TAG
ELECTRICAL SHEET NUMBER

SCOPE OF WORK

ELECTRICAL WORK CONSISTS OF:

- THE INSTALLATION OF POWER TO RECEPTACLES THROUGHOUT THE SPACE.
- THE INSTALLATION OF POWER TO LIGHT FIXTURES AND SWITCHES THROUGHOUT THE SPACE.
- THE INSTALLATION OF POWER TO NEW MECHANICAL ELECTRIC REHEAT COIL.

NOTE: THIS SCOPE OF WORK DESCRIPTION IS PROVIDED TO GIVE AN OVERALL "MACRO" DESCRIPTION OF THIS PROJECT. E.C. IS RESPONSIBLE TO REVIEW ALL ENGINEERING AND ARCHITECTURAL DRAWINGS AND VISIT THE SITE IF NEEDED, PRIOR TO SUBMISSION OF BID.



1 LIGHTING PLAN
3/32"=1'-0"

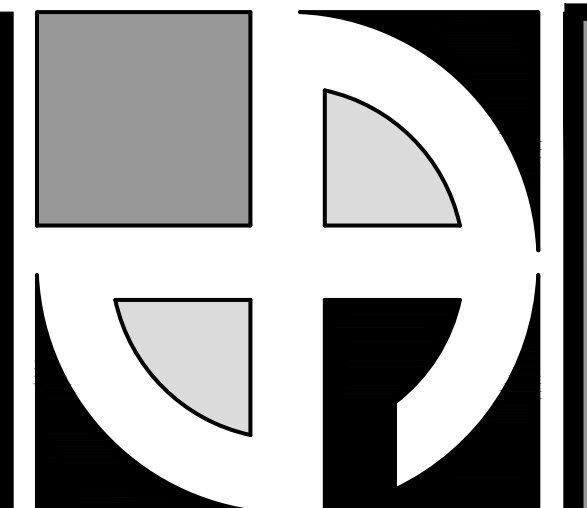
Luminaire Schedule (Issue: January 6th, 2023)		Store Space - Prototype					
Contact McCay Green with Commercial Lighting Industries, 772-485-0561, McCay@Commercial-Lighting.net for pricing							
Note: If Lighting is owner supplied, the subcontractor on site is responsible for receiving the material, notifying of any damages within 72 hours and signing for missing items as Incomplete if they did not arrive.							
B	4' Linear Lensed Strip	0-10V (10%)	CLI-AST44LSAUNV840M38258	Integral LED, 4000K, 4634Lm, 80CRI	UNV	34	3' Chain Mount Set. White Finish.
BB	4' Linear Lensed Strip	0-10V (10%)	CLI-AST44LSAUNV840	Integral LED, 4000K, 4634Lm, 80CRI	UNV	34	Surface Mounted. White Finish.
BR	4' Linear Lensed Strip @ Retail Display	0-10V (10%)	CLI-AST44LSAUNV840	Integral LED, 4000K, 4634Lm, 80CRI	UNV	34	Surface Mounted. White Finish.
H	LED Downlight w/ Occupancy Sensor	Integral Occ Sensor	CLI-001-9866-BOW	Integral LED, 4000K, 1440Lm	120V	18	Surface Mounted. White Finish.
W1	Wall Pack	0-10V (10%)	CLI-XWM3LED3L-12L40UEBRZ	Integral LED, 4000K, 12287Lm, Type 3, 70CRI	UNV	23 - 82	Surface Mounted. Dark Bronze Finish. Verify Voltage for Photocell.
SUBSTITUTIONS ARE NOT ALLOWED AND VALUE ENGINEERING WILL NOT BE CONSIDERED WITHOUT EXPRESSED WRITTEN APPROVAL FROM THE ARCHITECT OR OWNER. NO EXCEPTIONS.							

Luminaire Schedule (Issue: January 6th, 2023)		Store Space - Prototype					
Contact McCay Green with Commercial Lighting Industries, 772-485-0561, McCay@Commercial-Lighting.net for pricing							
Note: If Lighting is owner supplied, the subcontractor on site is responsible for receiving the material, notifying of any damages within 72 hours and signing for missing items as Incomplete if they did not arrive.							
CNTRL Controls Package - TBD							
<p>PURCHASING: All Lighting is supplied by _____. Consult with the above listed Mfgs for pricing at pre-established customer pricing. The complete package is approved and available at established discounted pricing from Commercial Lighting Industries, 81161 Indio Blvd, Indio, CA 92201, 800-755-0155. Contact _____@Commercial-Lighting.net, for purchase order placement, and coordinating delivery of the package.</p> <p>LTG SPEC VERIFICATION: Purchaser assumes responsibility for, and must verify with CLI the following prior to purchasing: Voltage, specific mounting details (including recessed downlight hanger bars if non-standard from the Mfg), NYC or Chicago codes, IC Rating, wind/gust pole factors, integral luminaire wiring gauge, custom reflector reflectances, Kelvin temperature, distribution, emergency use and dimming method. The above catalog #s may not be completely solidified at time of drawing issuance for construction.</p> <p>PHOTOMETRIC COMPLIANCE: A complete Photometric drawing for this project as currently drawn and specified, has been submitted to approving authorities a applicable. Any substitutions or changes nullify the report and compliance and are strictly forbid without written approval from the owner, architect or lighting designer - NO SUBSTITUTIONS ARE ALLOWED.</p> <p>ENERGY COMPLIANCE: The purchasing party is responsible for solidifying the lighting package in compliance with the State Energy Code, both with respect to Lighting Power Density (LPD) and the use of mandated controls (dimmers, photocells, occupancy sensors, etc.). Consult with Istvan Derzsi, Sr. Lighting Designer of Commercial Lighting Industries 323-905-2220 to ensure compliance prior to ordering.</p> <p>CONTROLS: The control system being implemented has been designed per meetings with the owner and architect, determining the complete requirements of the control system, and engineered to the exact specifications of the luminaires in this schedule, and in compliance with the State Energy Code. Any changes to the above would affect the Controls engineering and thus would require re-submission to all parties: Owner, Architect, Lighting Designer, Controls Manufacturer and the State Energy Compliance Department.</p> <p>DIMMING: The method of dimming each fixture type (generally either Non-Dim, ELV/MLV, 0-10v or DALI/Ecosystem) may not have been known at the time of preliminary specifications submission. Some luminaires may be available with different dimming than is indicated - see the catalog cuts. When requesting a quotation, and ordering, the purchaser must verify the dimming method desired (to match the wiring and type of dimming that will get installed) of each type and request the quotation accordingly. Once product is on site, the dimming installed will have to be compatible with the luminaires. Note: the default dimming specifications are: For CA, US - all 0-10V wherever possible if using central Control System - same. Otherwise, any luminaire that is not 0-10V or combo ELV/120V, is specified as ELV because it cannot be assumed that LV wiring will be run.</p> <p>WIRING: 120V Leading Edge dimmers (old technology for mostly incandescent fixtures) aka Triac/120V dimming, and 120V Trailing Edge dimmers aka ELV dimming (utilizing standard 3 wire White/Black/Green) are not interchangeable with 0-10V dimming which has two additional low voltage wires (Grey/Violet) for analog control signal, using one volt increments from 0 to 10, thus dimming the LED fixtures down to 10% or even 1%. Each fixture must be ordered with the appropriate 120V or the 0-10V driver depending on which will dim it, they are NOT interchangeable. Do Not assume a fixture with 0-10V is "standard" and will thus dim correctly if only 120V dimming is available.</p> <p>VOLTAGE: Voltage to be verified. See Volt column: DV means Dual-Volt - fixtures come compatible for either 120 or 277V. MV means Multi-Volt - fixtures come compatible for either 120/208/240/277/347 volts. TBD means the fixture comes in 120 or 277 but not both and thus the voltage for these fixtures must be verified prior to ordering.</p>							

Emergency Light Fixture Schedule								
Type	Fixture Symbol	Location	Description	Manufacturer/Model #	Lamp Type	Height	Input Watts	Remarks
EM1		All Areas Indicated On Plan	Emergency Lighting Unit w/ Two Heads	Lithonia ELM4-120VOLT	LED	8'-0"	1.4	
EM2		All Areas Indicated On Plan	LED Remote Head Exterior Emergency	Lithonia ELA T QWP L0309	LED	8'-0"	.75	
X1		All Areas Indicated On Plan	LED Exit Sign	Lithonia ECRG RD M6 120V	LED	8'-0" +/-	3.0	

LEGEND

- FIXTURE TYPE (See Schedule)
- CIRCUIT #
- PANEL DESIGNATION
- OCCUPANCY SENSOR
- OCCUPANCY SENSOR



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STORE SPACE

937 E. Haggard Ave.
Eion, NC

BUILDING 2

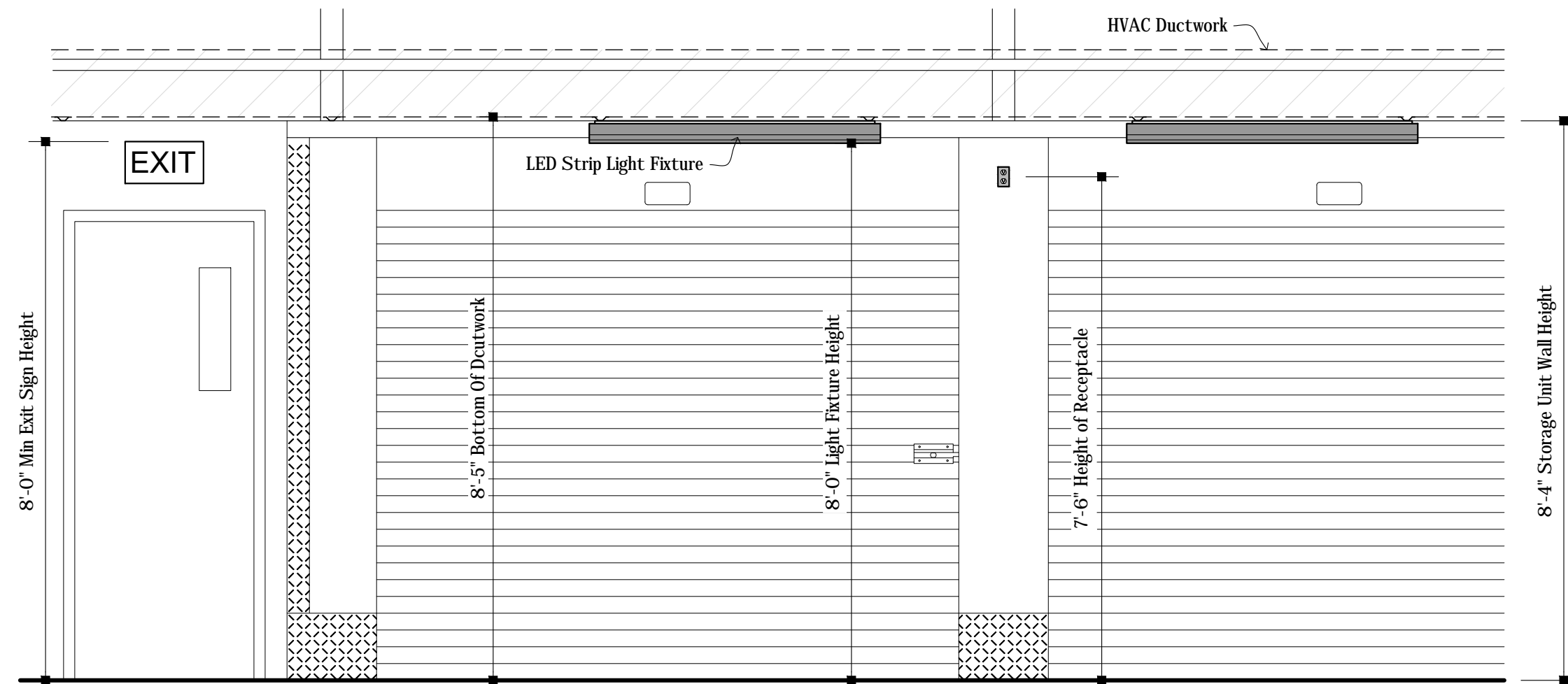
No.	Description	Date	By
1	ISSUED FOR BID	2-3-23	AB

DATE: 9-3-22
DRAWN BY: A. Barraclough
CHECKED BY: M. Dean
SCALE: 3/32"= 1'-0"

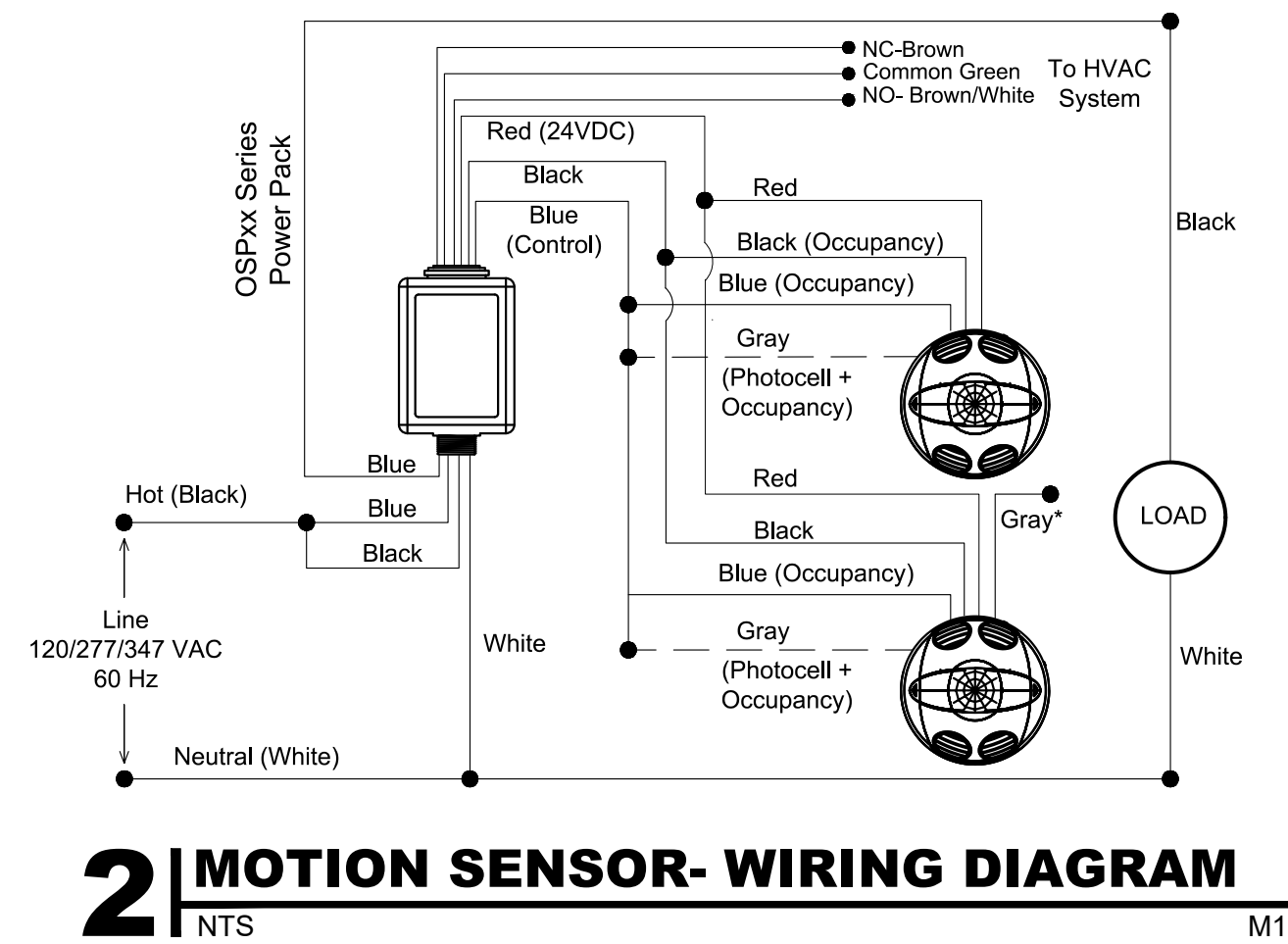
LIGHTING PLAN

1

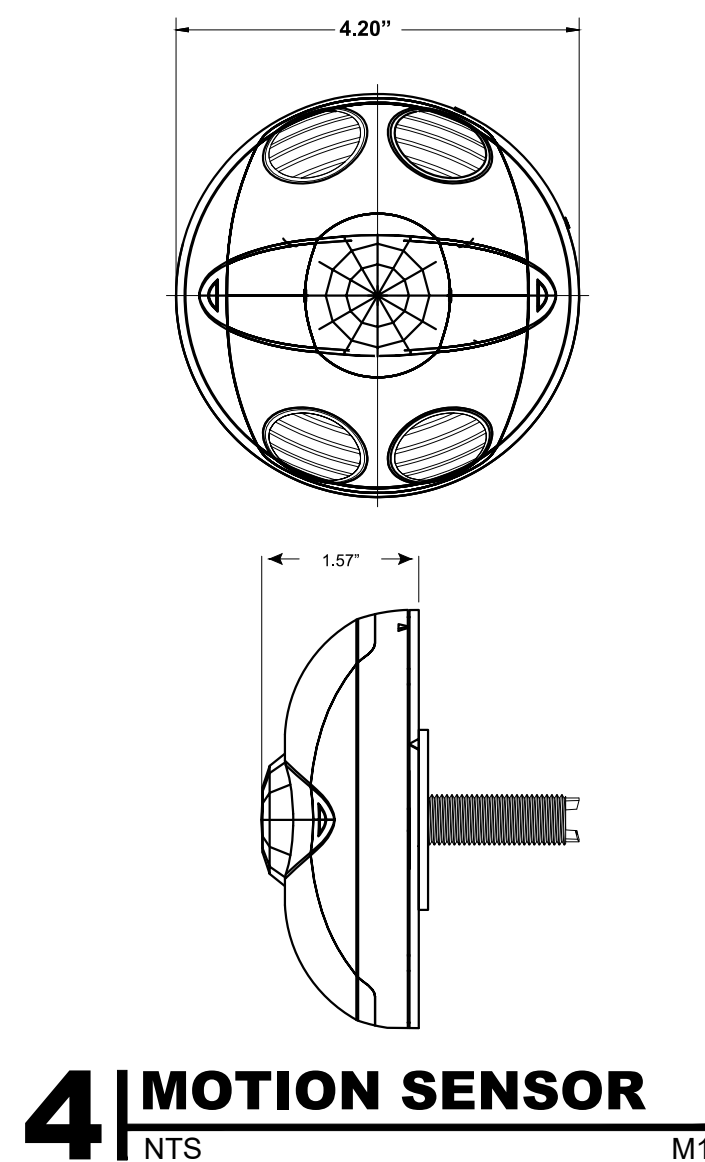
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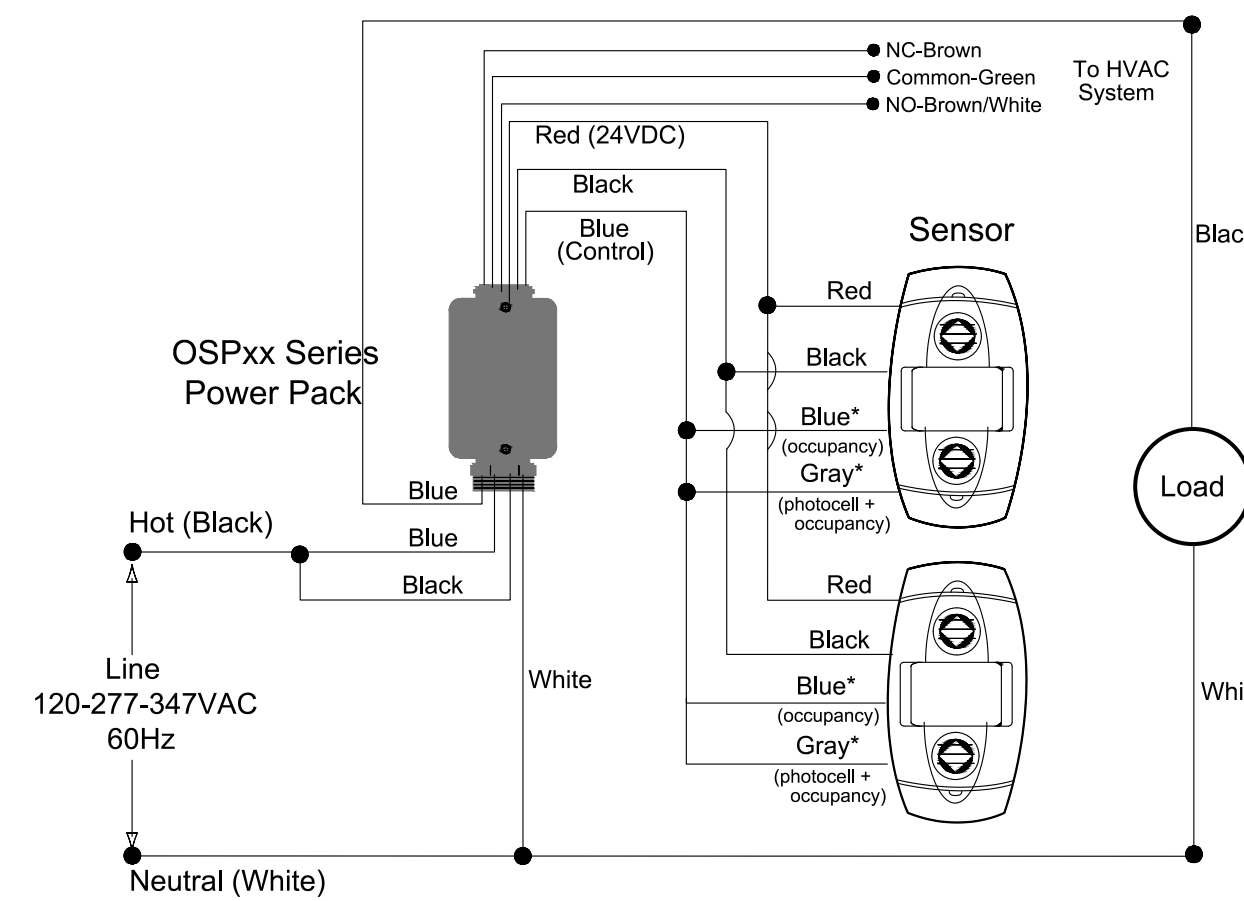
1 | FIXTURE MOUNTING DIAGRAM
1/2"=1'-0"



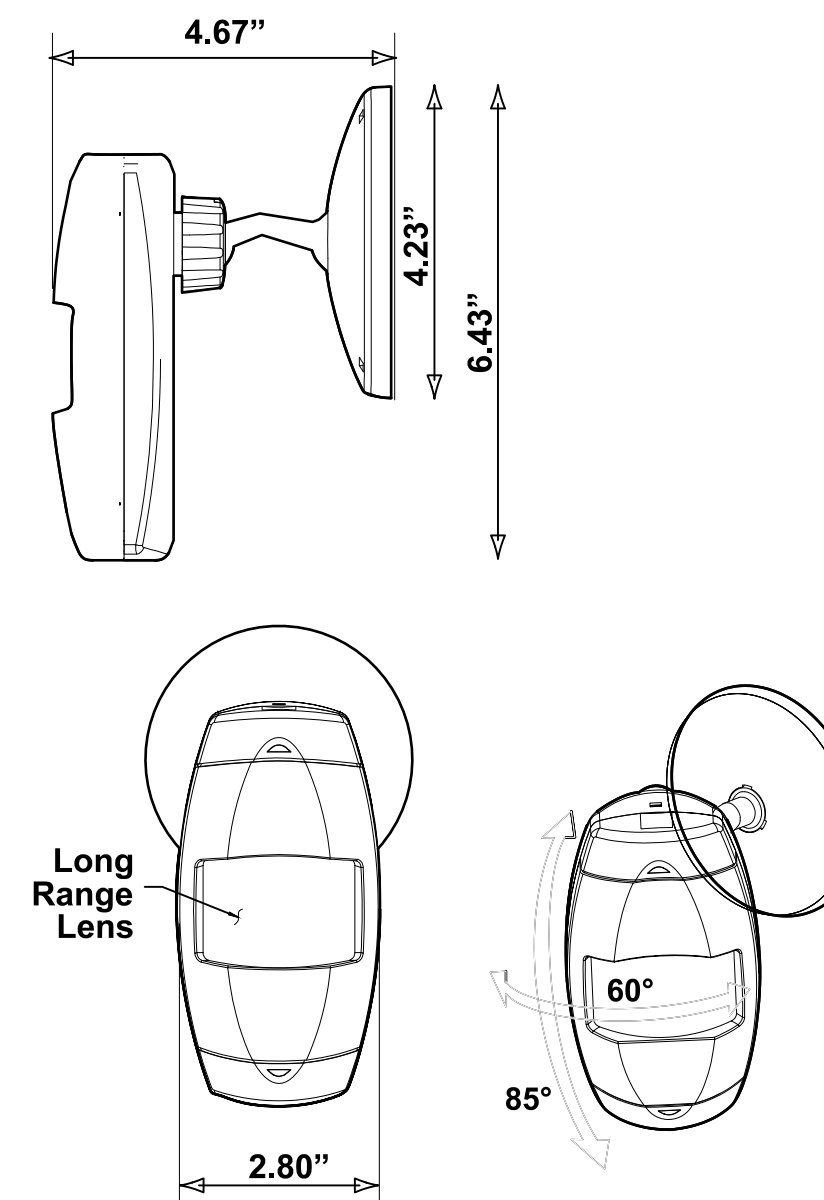
2 | MOTION SENSOR- WIRING DIAGRAM
NTS M1



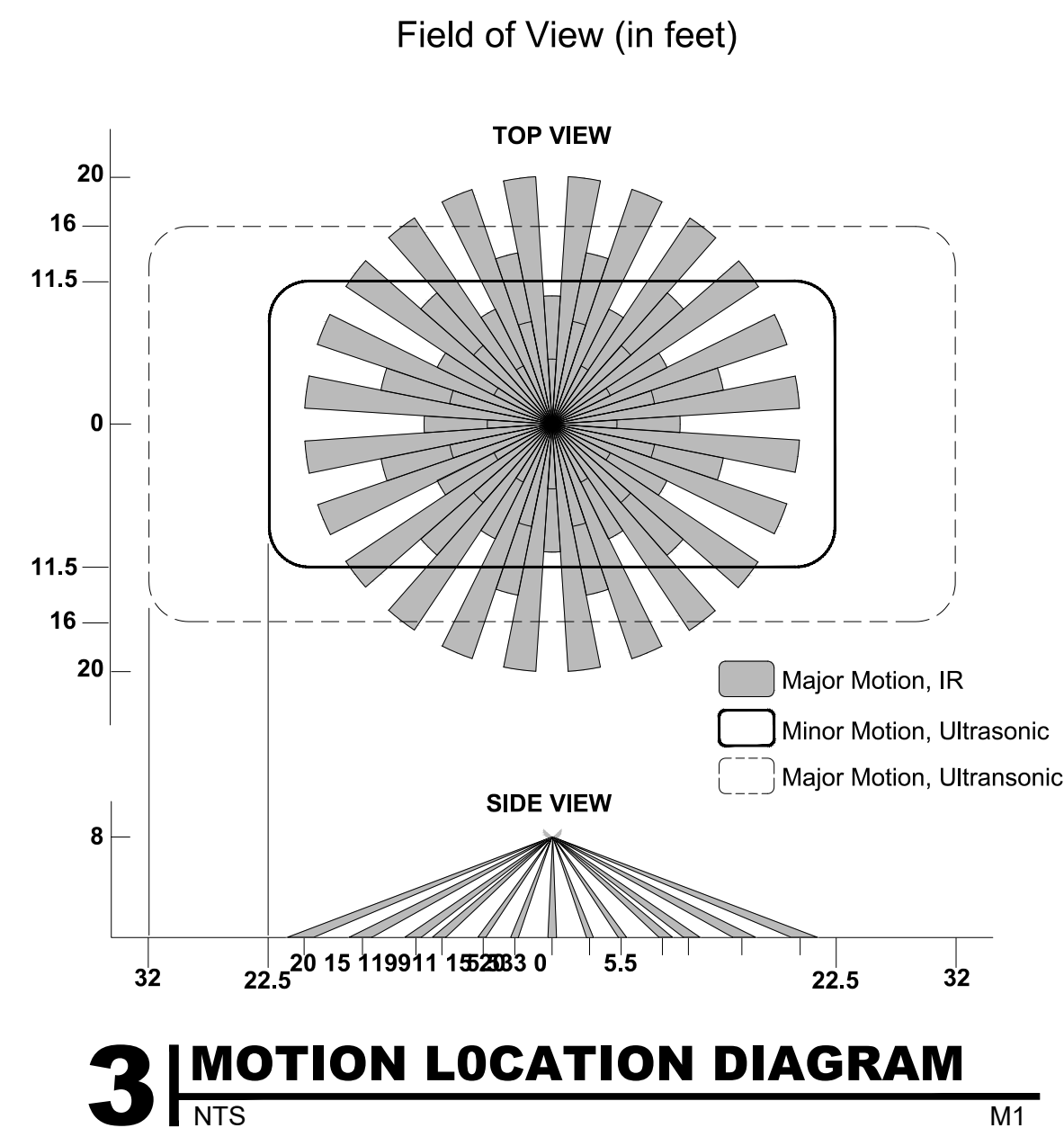
4 | MOTION SENSOR
NTS M1



5 | MOTION SENSOR- WIRING DIAGRAM
NTS M2



7 | MOTION SENSOR
NTS M2

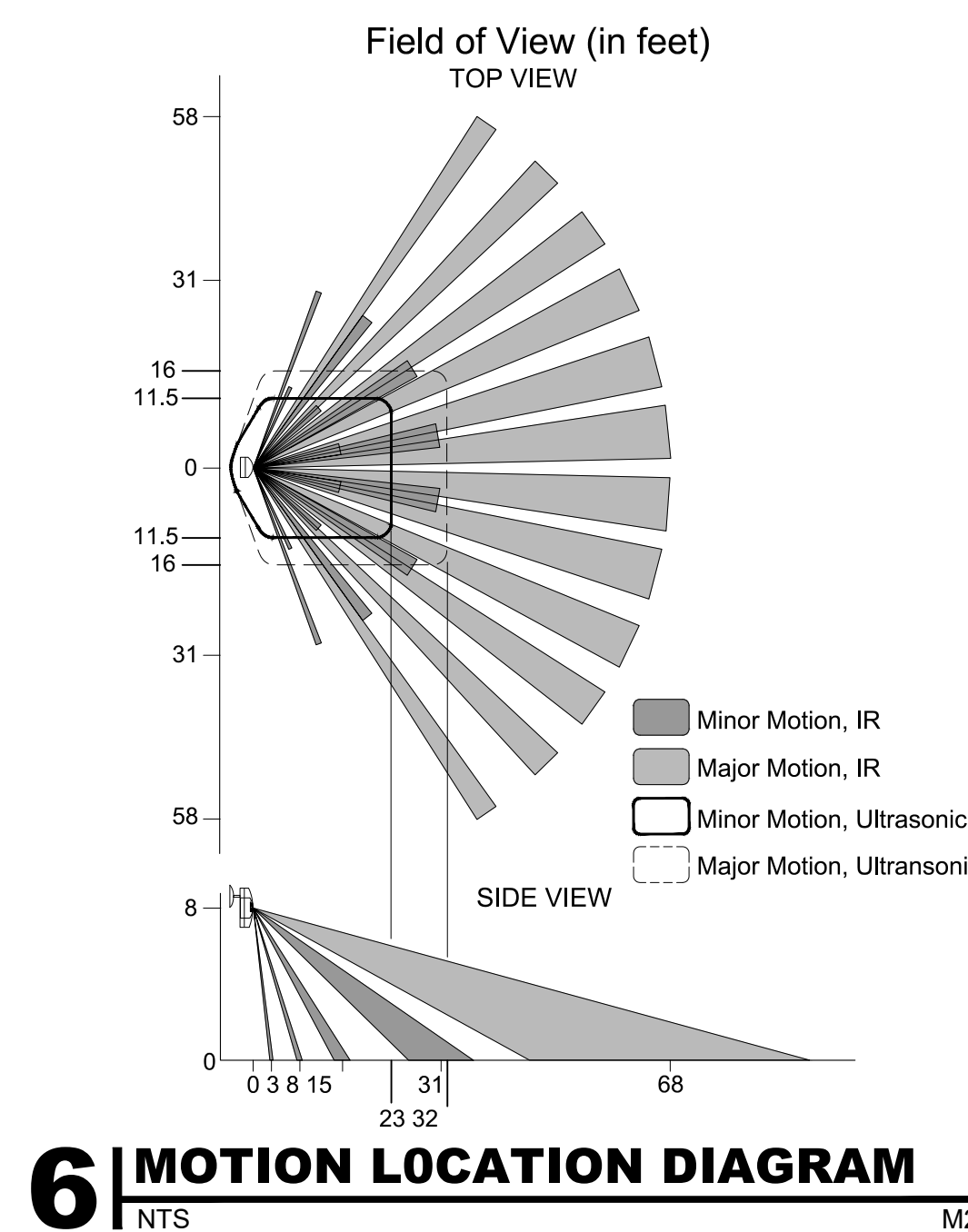


3 | MOTION LOCATION DIAGRAM
NTS M1

SPECIFICATIONS	
Frequency	OSC20-M0W, OSC10-M0W: 40kHz OSC20-M0W: 32kHz
Power Requirements	24 VDC, from OSPxx Power Pack or OPB15 Power Base
Power Consumption	OSC20: 25mA, OSC10: 35mA, OSC20: 30mA
Output	24 VDC active high logic control signal with short circuit protection
Ultrasonic Sensitivity	0-100%; green knob (factory setting: 50%)
Infrared Sensitivity	0-100%; red knob (factory setting: 75%)
Light Sensor	20 to 3,000 Lux; blue knob (factory set at 100%; 1 gray wire required)
Time Delay	30sec-30min; black knob (factory setting: 10min)
Green LED	UIS motion technology
Red LED	Infrared motion technology
Operating Temperature Range	32-104°F (0-40°C)
Relative Humidity	0-95% non-condensing, for indoor use only
Mounting Height	8-12 feet
Listings	CUUS Certified, can be used to comply with 2015 Title 24, Part 6 occupancy sensing requirements
Warranty	Limited Five-Year Warranty

ORDERING INFORMATION	
OSC20-M0W	Multi-Technology Ceiling Sensor, 2,000 sq. feet of coverage

LEVITON: OSC20-M0W
MULTI-TECHNOLOGY CEILING
OCCUPANCY SENSOR

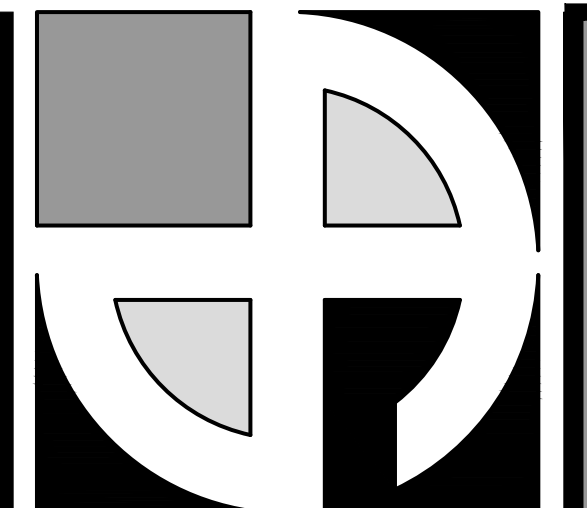


6 | MOTION LOCATION DIAGRAM
NTS M2

SPECIFICATIONS	
Power Requirements	24 VDC, 25 mA (.6W) from OSPxx Power Pack or OPB15 Power Base
Power Consumption	25mA stand-by
Output	24 VDC active high logic control signal with short circuit protection
Ultrasonic (US) Sensitivity	0 to 100%; red knob (factory setting: 75%)
Infrared Sensitivity	0 to 100%; green knob (factory setting: 50%)
Light Sensor	Blue knob 20 to 3,000 Lux, Factory set at 100% (Gray wire required)
Time Delay	30sec-30min; black knob (Factory setting: 10min)
Red LED	Infrared motion technology
Green LED	Ultrasonic (US) motion technology
Operating Temperature Range	32-104°F (0-40°C)
Relative Humidity	0-95% non-condensing, for indoor use only
Mounting Height	8-10 feet
Listings	CUUS Certified, can be used to comply with ASHRAE 90.1 and 2016 Title 24, Part 6 occupancy sensing requirements
Warranty	Limited Five-Year Warranty

ORDERING INFORMATION	
OSW12-M0W	Multi-Technology Wall/Corner Occupancy Sensor

LEVITON: OSC12-M0W
MULTI-TECHNOLOGY CEILING
OCCUPANCY SENSOR



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STORE SPACE

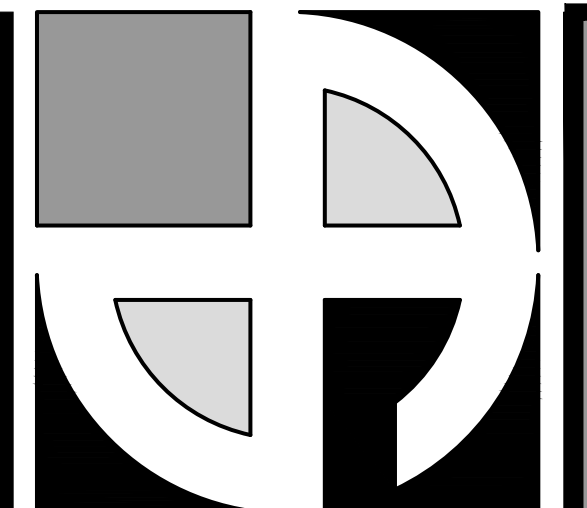
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Elon, NC

No.	Description	Date	By
1	ISSUED FOR BID	2-3-23	AB

DATE: 9-3-22
DRAWN BY: A. Barraclough
CHECKED BY: M. Dean
SCALE: 3/32"= 1'-0"

LIGHTING DETAILS

E1.2



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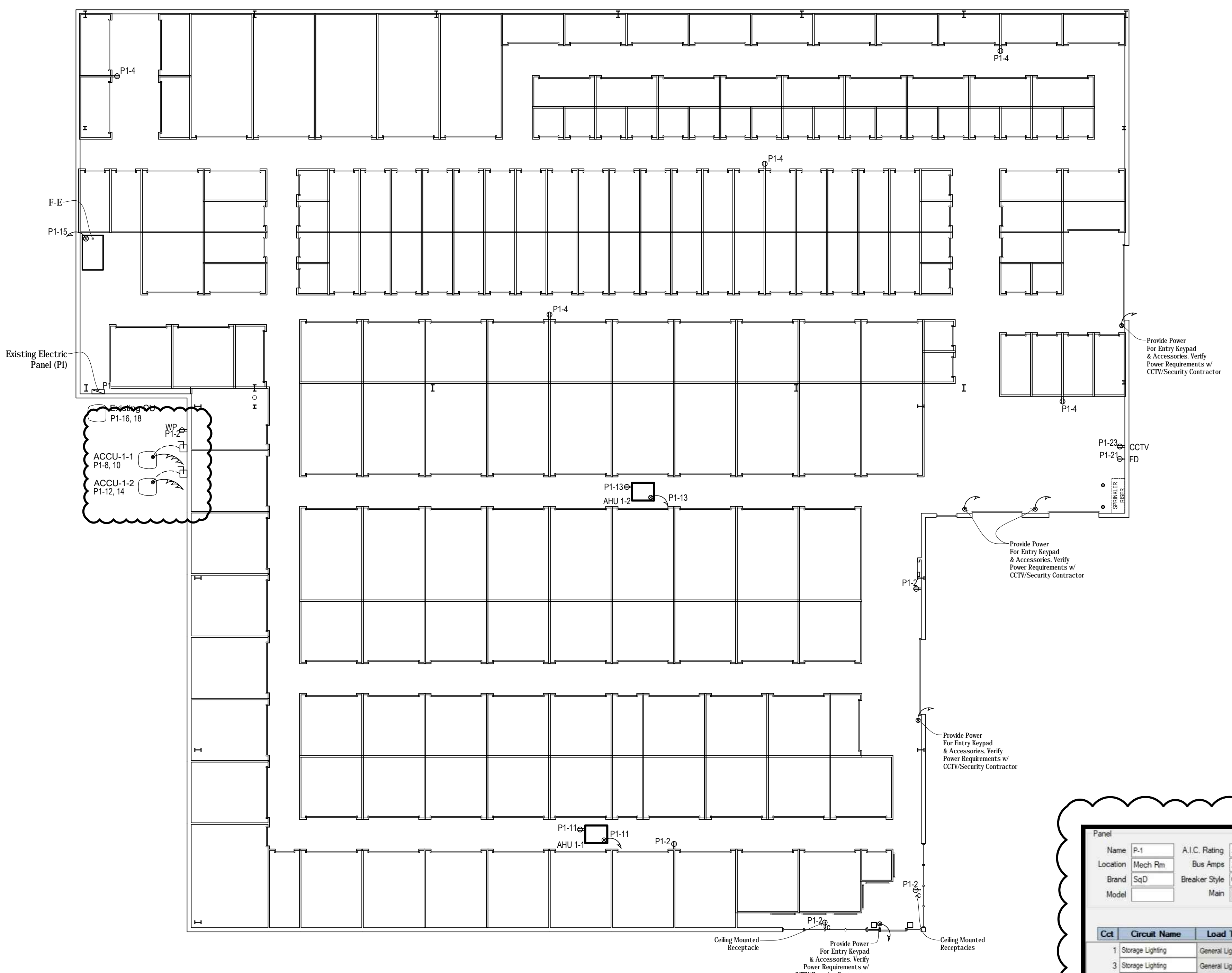
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937 E. Haggard Ave.
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BUILDING 2

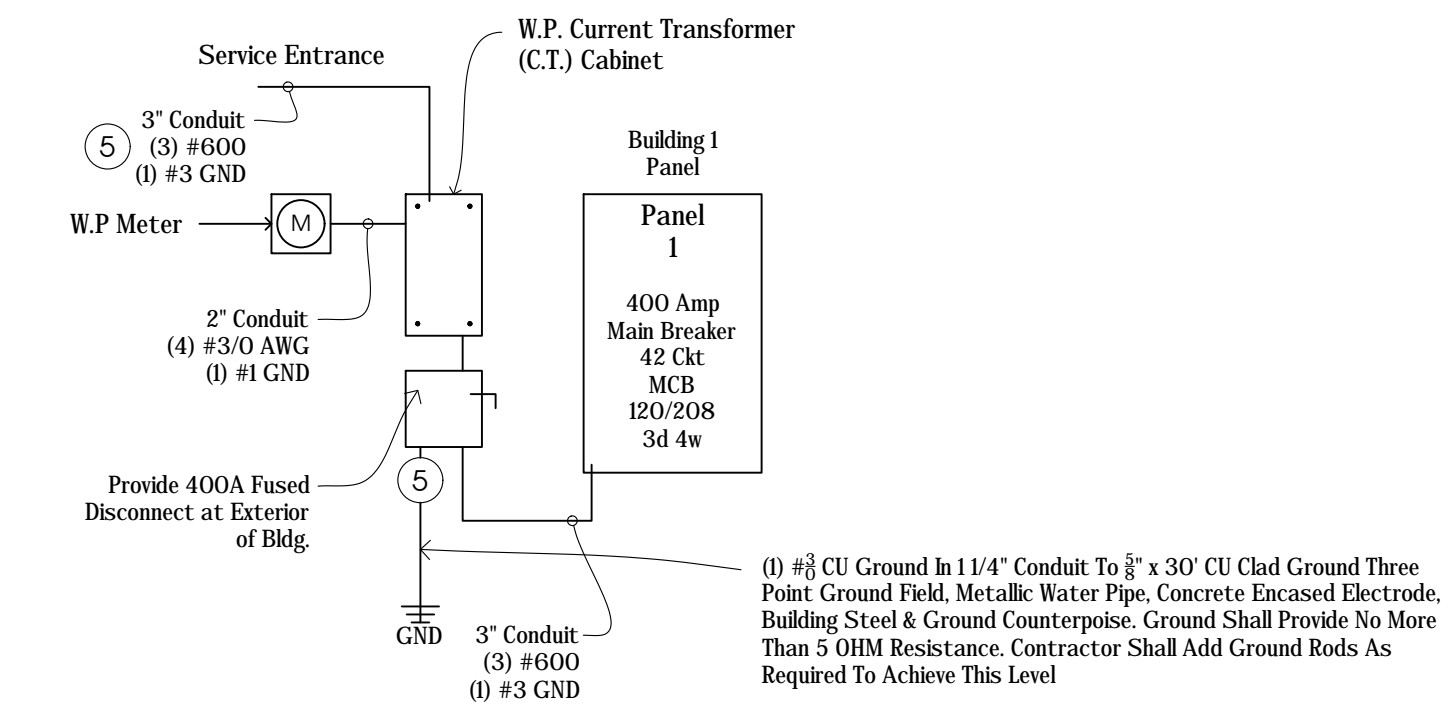
BUILDING 1



1 POWER PLAN
 1/32"=1'-0"

ALL DEVICES AND JUNCTION BOXES SHALL BE LOCATED WITH ACCESS FROM THE CORRIDOR WITHOUT ENTERING A STORAGE UNIT.
 NO RACEWAYS TO RUN ABOVE TENANT STORAGE UNITS

Tag	Service Size	CONDUCTORS			
		Per Phase	Neutral	Ground	Conduit
1	50A	#6	#6	#12	1"
2	100A	#3	#3	#8	1"
3	150A	#1/0	#1/0	#6	2"
4	200A	#3/0	#3/0	#3/0	2"
5	400A	#600 KCMIL	#600 KCMIL	2/0	2"
6	600A	#1500 KCMIL	#1500 KCMIL	#1 AWG	4"



2 SINGLE LINE DIAGRAM
 2NTS

LEGEND

- Ⓜ 20 Amp., 120 Volt Flush Mounted Duplex Receptacle At 18" A.F.F.
- Ⓜ C 20 Amp., 120 Volt Ceiling Mounted Duplex Receptacle At 18" A.F.F.
- Ⓜ 42" 20 Amp., 120 Volt Flush Mounted Duplex Receptacle- # Indicates Height A.F.F. W Indicates Weather Rated.
- X 120 Volt, 20 Amp Circuit Homerun w/ #12 AWG, 1/2" EMT u.n.o., Circuit Concealed In Ceiling Or Wall

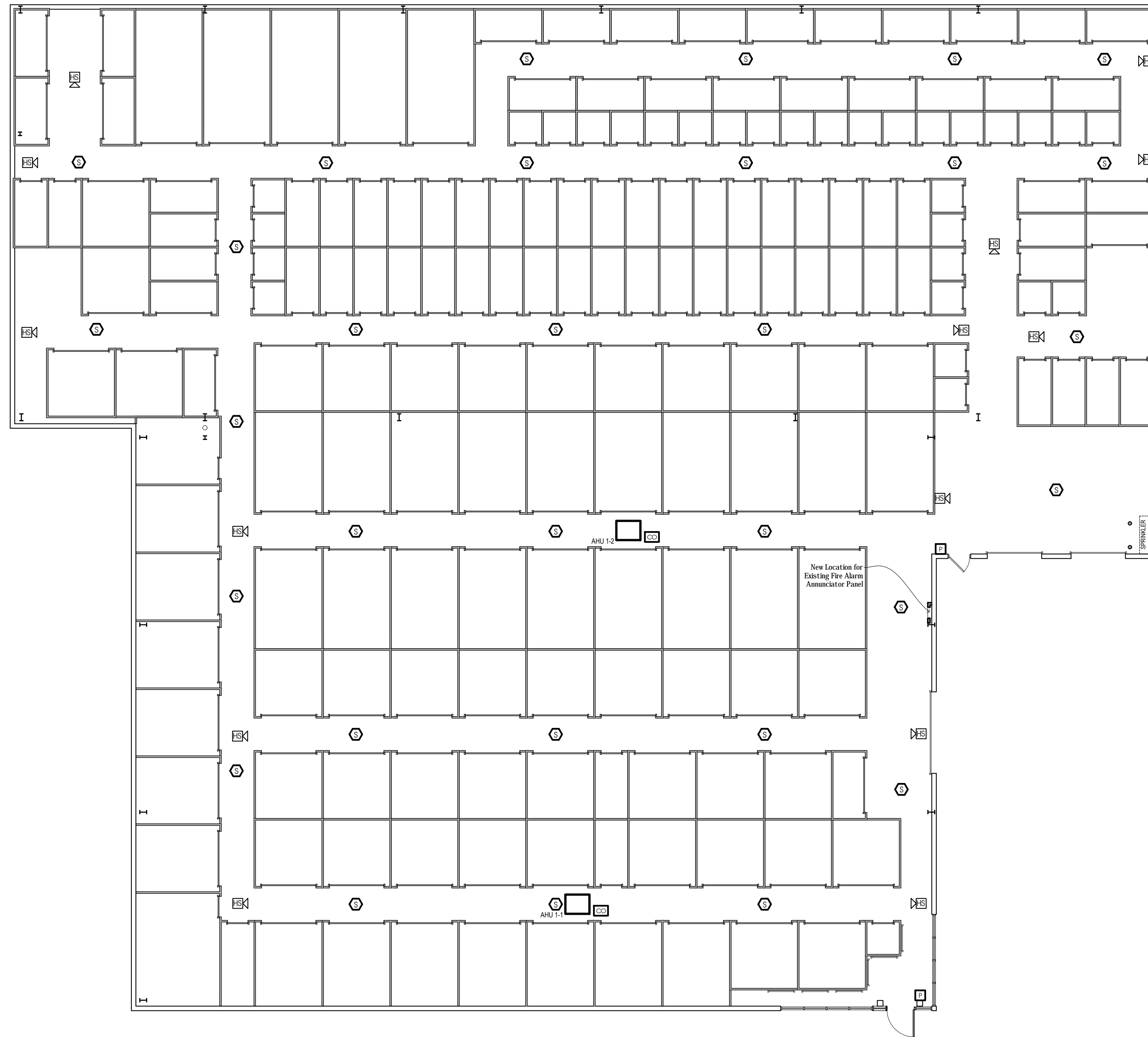
Cct	Circuit Name	Load Type	Load (Va)			Breaker	Breaker Amp	Load (Va)			Cct
			A	B	C			A	B	C	
1	Storage Lighting	General Lighting	1600			20	20	1600			2
3	Storage Lighting	General Lighting	1600			20	20	1600			4
5	Storage Lighting	General Lighting	1600			20	20	1600			6
7						40	4368				8
9											10
11	AHU 1-1	Cooling			1560	20	40			4368	12
13	AHU 1-2	Cooling			1560	20	40				14
15	Existing AHU	Cooling			1560	20	40			4368	16
17											18
19											20
21	Security	Gen. Receptacle	1680			20					22
23	CCTV	Gen. Receptacle	1680			20					24
25											26
27											28
29											30
31											32
33											34
35											36
37											38
39							20	1200			40
41							20	600			42

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POWER PLAN

1 E2.0



1 FIRE ALARM PLAN
3/32"=1'-0"

LEGEND

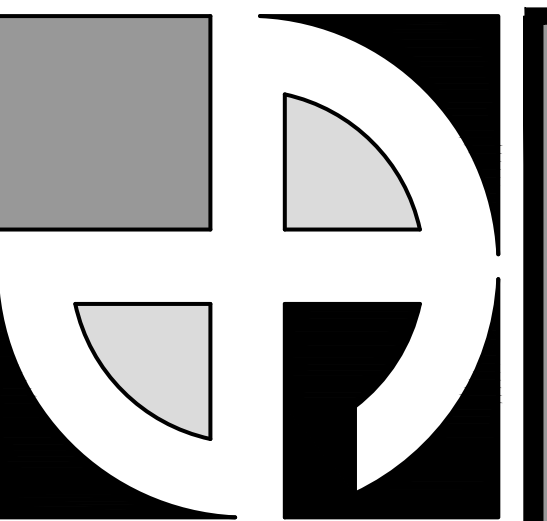
- Horn/ Strobe
- Smoke Detector
- Pull Station
- Carbon Monoxide Detector
- Fire Alarm Annunciator Panel
- Fire Alarm Control Panel

FIRE ALARM GENERAL NOTES

1. Fire alarm system shall be installed in accordance with the manufacturer's wiring diagrams, shop drawings and recommendations. The fire alarm system shall meet the requirements of the fire department.
2. All horns in thbuilding shall be used a temporal code 3 signal. All strobes shall be of the synchronized type. All strobe units shall be furnished to meet the required candela ratings for each space per NFPA 72-2008.
3. The fire alarm system is designed for general evacuation, therefore an alarm condition in any sector of the building will activate all A/V notification devices in the entire complex. Trouble alarm are supervisory only and will be a trouble alarm, no evacuation of the building.
4. The electrical contractor shall furnish and install reduced size CAD drawings with initiating device/ addresses in cabinet with Lexan shield at the main entrance showing the fire alarm system in the entire complex. Shop drawings and as built drawings shall be installed in a plan cabinet in the basement electric room. Plans cabinet furnished and installed by electrical contractor. Coordinate with architect and the fire department.
5. All wiring shall be class A. All addressable loop class A risers wiring shall be installed in sepa rate EMT conduit. Supply and return wiring shall be installed in separate conduits. All class A A/V notification circuit riser shall be installed in separate EMT conduit, supply and return wiring shall be installed in separate EMT conduits. All remoted power extender panels shall be installed in electric closets. All power extender panels shall be connected to power panels with the required conduit and wire.
6. Each addressable loop shall be furnished with 20% spare capacity for future detectors and manual pull stations. Contractor to install the required number of addressable loops required to provide 20% future capacity for detectors and manual pull stations.
7. Electrical contractor to furnish and install all required power extender panels to drive the A/V light units in the building. The drawings are diagrammatic to show intent. All A/V circuits shall be furnished with 20% spare capacity.
8. Furnish and install isolation modules every twenty devices on all addressable loops.
9. Everyinitiating device shall be installed with its own address.
10. Self-adhesive labels address numbers shall be installed in all initiating devices and modules with addresses.
11. The manufacturer or electrical contractor shall submit point-to-point riser diagram showing dlwiring and battery calculations with shop drawings. Final approval to the shop drawings will not be given without the calculations.

FIRE ALARM SYSTEM NOTES

1. Fire alarm system shall be noncoded, addressable system; multiplexed signal transmission dedicated to fire alarm service only. Fire alarm system to be fire -lite alarms by Honeywell. Fire alarm control panel to be MS9200UDLS (include XRM-24(E) transformer for additional NAC power). Note when SLC cable is installed in conduit, each SLC loop must be installed in separate conduit). Reference plan drawings for details.
2. Fire alarm system shall comply with NFPA 72 with class B, style 4 signaling line circuits and class B, style W notification - appliance circuits.
3. Install all fire alarm cabling in conduit.
4. Fire alarm system initiation devices to include:
 - a. Manual pull station - double action pull lever type Fire-Lite #BG12LX
 - b. Smoke detector - Photoelectric Fire -Lite #SD355
 - c. Duct smoke detector - Photoelectric Firbite #D355PL
 - d. Addressable relay module - Fire -Lite #CRF-300
 - e. Remote indicator/ test station - fire -Lite#RTS151
 - f. Heat detector- Verify heat detector rating with sprinkler vendor for elevator shaft installation
 - g. Addressable monitor module - fire-Lite #MMF 300
 - h. Addressable control module - Fire-Lite #CMF-300
5. Fire alarm notification appliances to include:
 - a. Horn/ strobe indicator (red) - System Sensor Spectralert Model #P2R
 - b. Strobanit only indicator (red) - Visual light output 15, 30, 60, 75, 110 cd system sensor #SR
6. Riser diagram does NOT attempt to depict actual quantities of devices for project.
7. Fire alarm vendor to run calculations for voltage drop and verify candela requirements and provide all NAC panels required to supply all notification appliances shown on plans. Quantity shown is minimum required.



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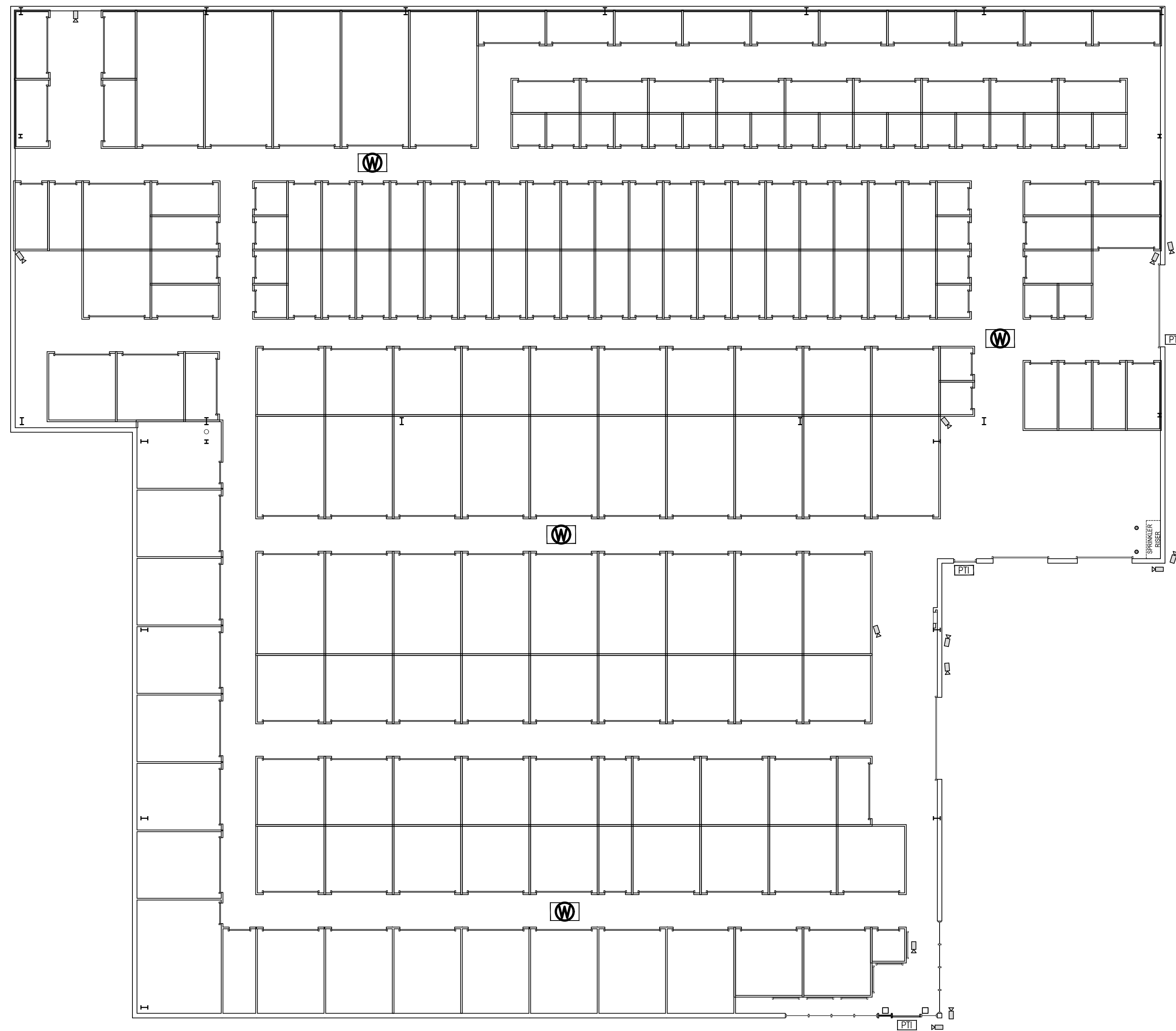
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SCALE:
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FIRE ALARM PLAN

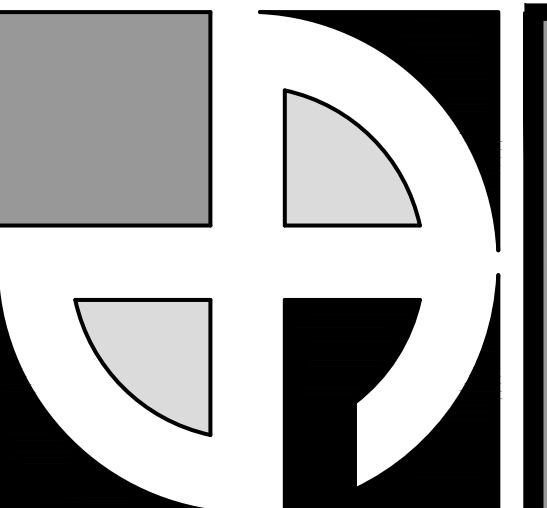
E3.0



1 | CCTV PLAN
3/32"=1'-0"

Note:
Coordinate Any Required
Door Hardware
ie: Electric Strike/Mag Locks
w/ Door Hardware Supplier
& Electrical Contractor

LEGEND:	QTY.
Camera	9
PTI	3
WAP - WIRELESS ACCESS POINT (IN)	4



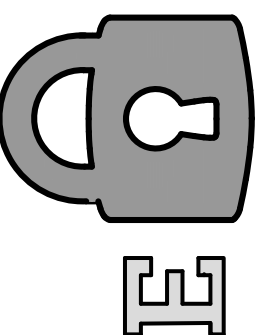
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CCTV PLAN

**1
E4.0**