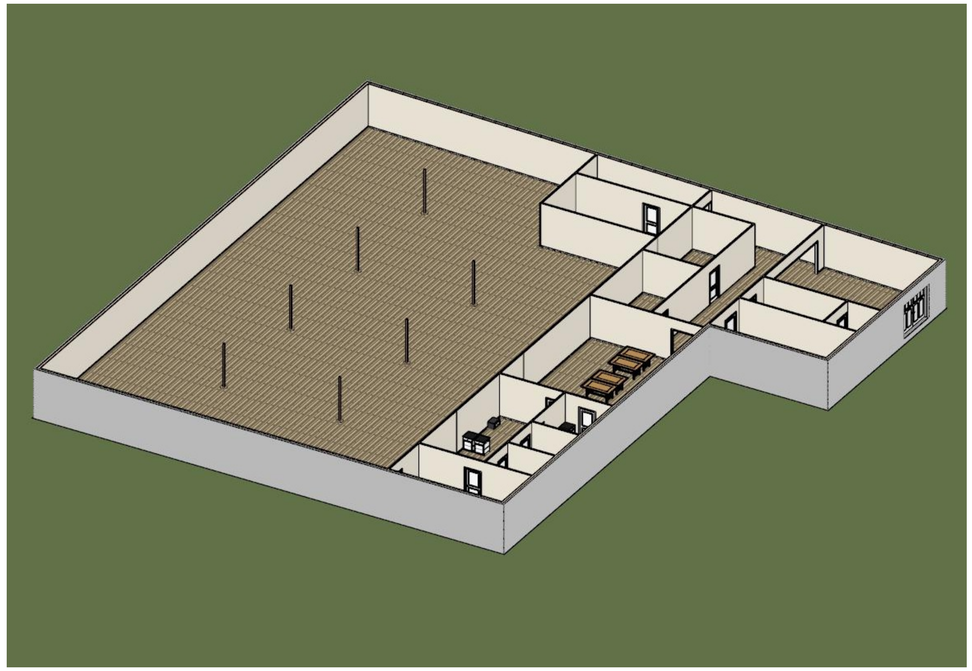
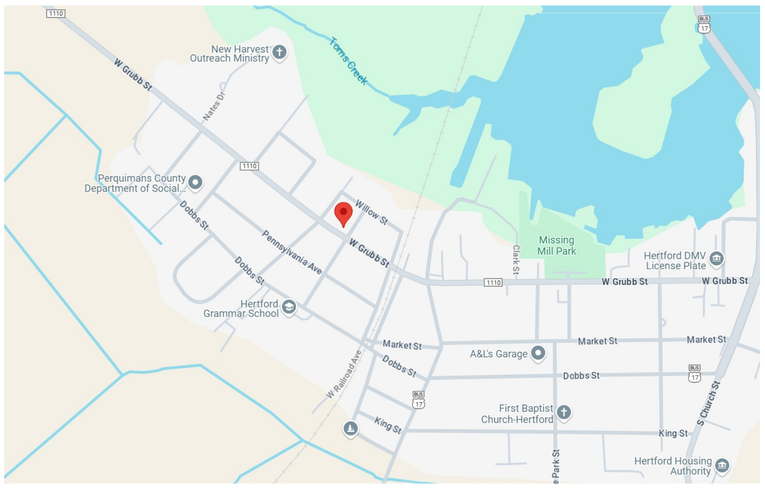
Commercial Bakery

600W Grubb St, Hertford, NC 27944

COMMERCIAL BAKERY



3D COMMERCIAL BAKERY



GOOGLE MAP-1

GOOGLE MAP-2

REVISION TABLE

NUMBER	DATE	REVISED BY	DESCRIPTION

Project Overview

DRAWINGS PROVIDED BY:
ENGINEER'S TEAM LTD
430 E 8TH ST STE 8017 1-800-824-4933
HOLLAND, MI 49423
SUPPORT@ENGRTEAM.COM ENGRTEAM.COM

DATE:
4/30/2025

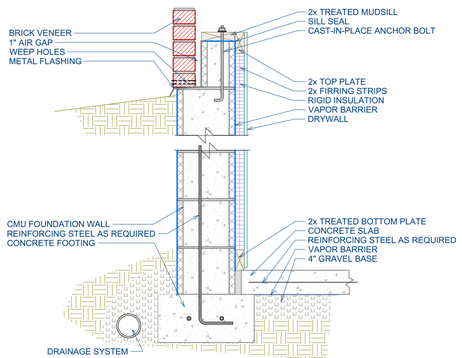
SCALE:

SHEET:
P-1

WALL SCHEDULE	
2D SYMBOL	WALL TYPE
	BRICK-6
	INTERIOR-4

DOOR SCHEDULE

NUMBER	LABEL	QTY	SIZE	TYPE	CASING SIZE, EXTERIOR	CASING SIZE, INTERIOR	COMMENTS
D01	3068	6	3068 L IN	HINGED	5/8"X3 1/4"	5/8"X3 1/4"	
D02	3068	6	3068 R IN	HINGED	5/8"X3 1/4"	5/8"X3 1/4"	
D03	3668	1	3668 L IN	HINGED	5/8"X3 1/4"	5/8"X3 1/4"	
D04	3668	1	3668 L/R EX	DOUBLE HINGED	3/4"X3 1/2"	5/8"X3 1/4"	



CMU Basement Foundation w/ Brick Ledge: Finished 2" Walls

(print at 1"=1')

FLOOR PLAN VIEW DIMENSIONED

1/6 IN = 1 FT

REVISION TABLE

NUMBER	DATE	REVISED BY	DESCRIPTION

PROPOSED FLOOR PLAN

DRAWINGS PROVIDED BY:
ENGINEER'S TEAM LTD
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DATE:

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SCALE:

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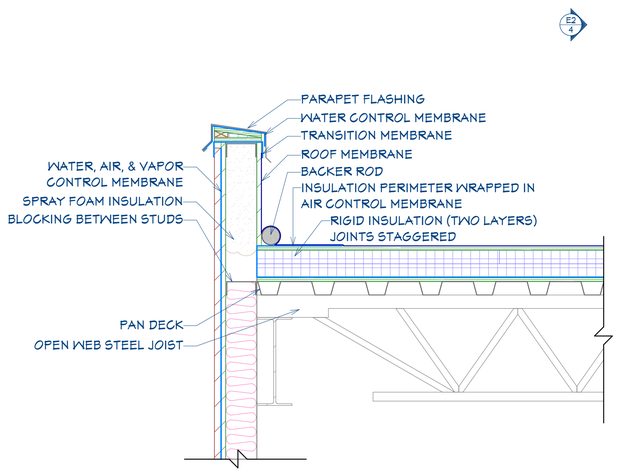
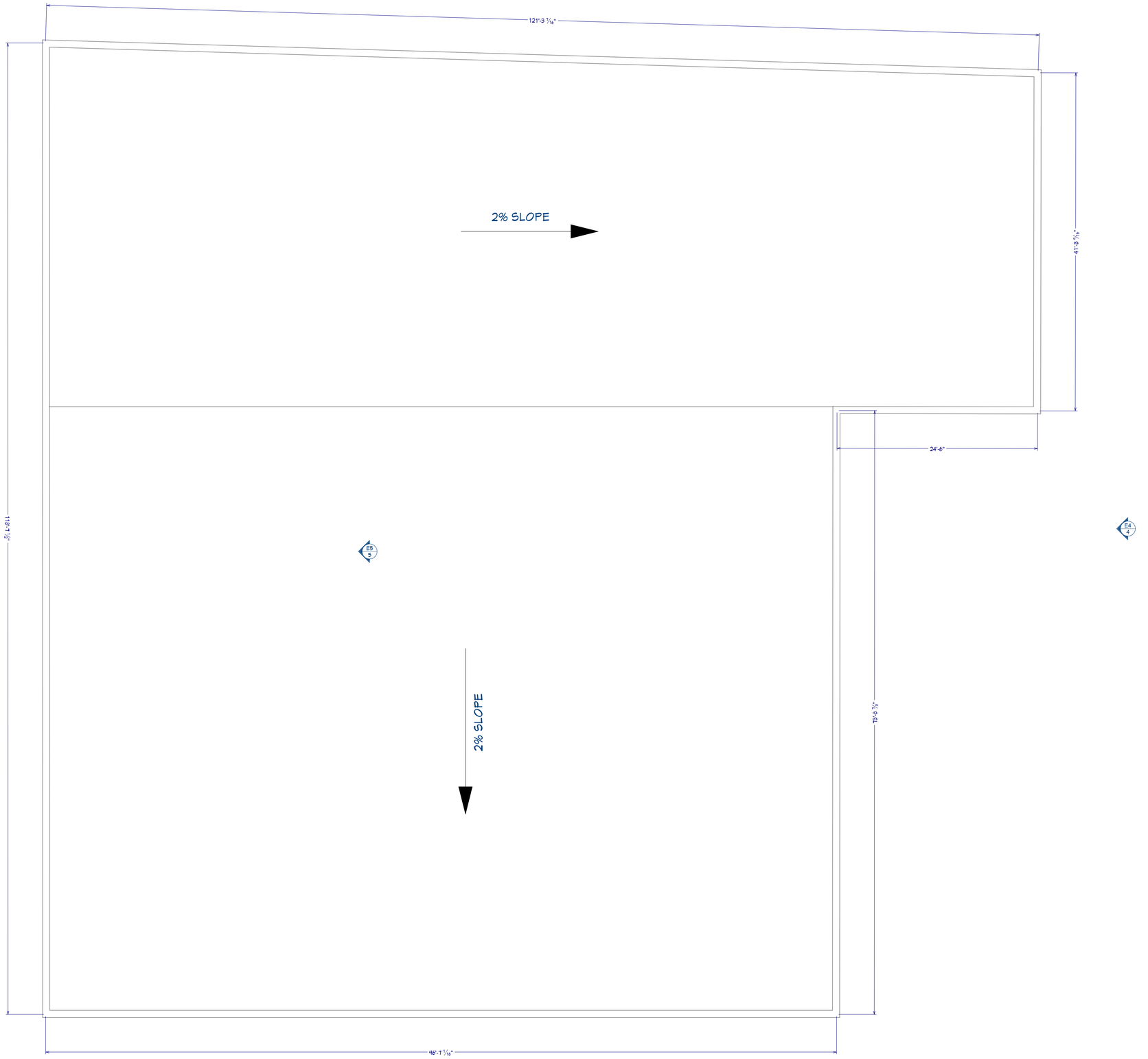


PARAPET ROOF

1"=1'



ROOF PLAN VIEW

1/6 IN = 1 FT

REVISION TABLE

NUMBER	DATE	REVISED BY	DESCRIPTION

PROPOSED ROOF PLAN

DRAWINGS PROVIDED BY:
ENGINEER'S TEAM LTD
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HOLLAND, MI 49423
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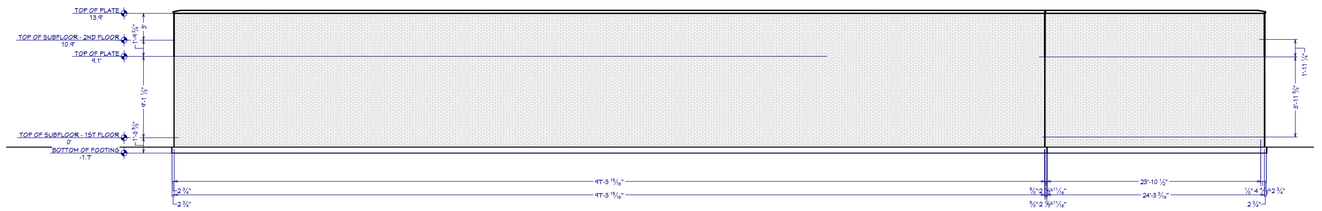
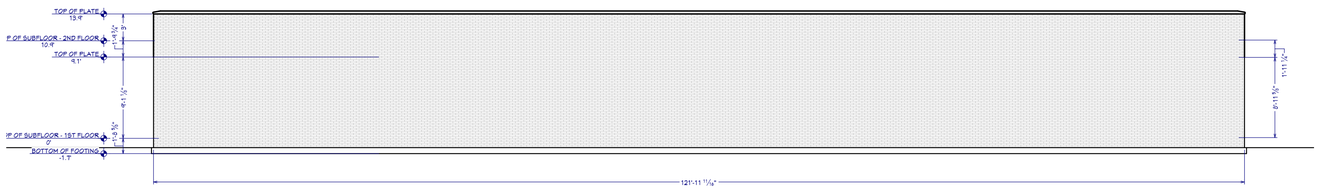
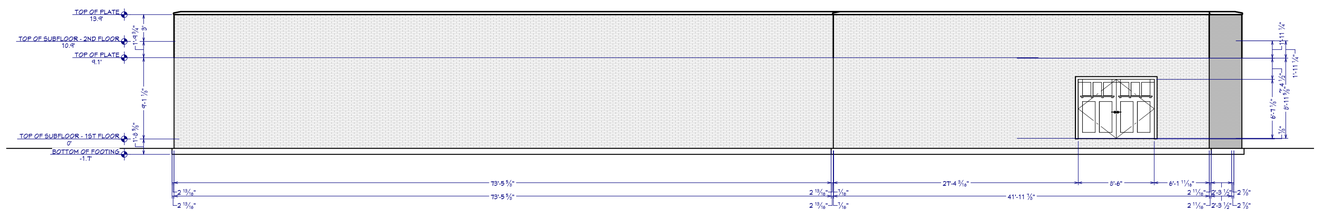


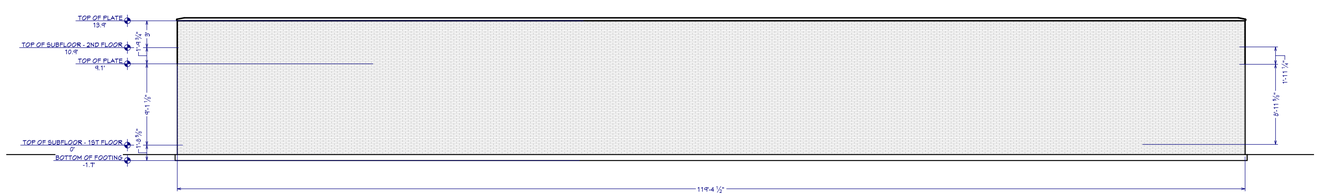
E1 EXTERIOR ELEVATION FRONT
1/8 IN = 1 FT



E3 EXTERIOR ELEVATION BACK
1/8 IN = 1 FT



E4 EXTERIOR ELEVATION RIGHT
1/8 IN = 1 FT



E2 EXTERIOR ELEVATION LEFT
1/8 IN = 1 FT

REVISION TABLE

NUMBER	DATE	REVISED BY	DESCRIPTION

PROPOSED ELEVATION PLAN

DRAWINGS PROVIDED BY:
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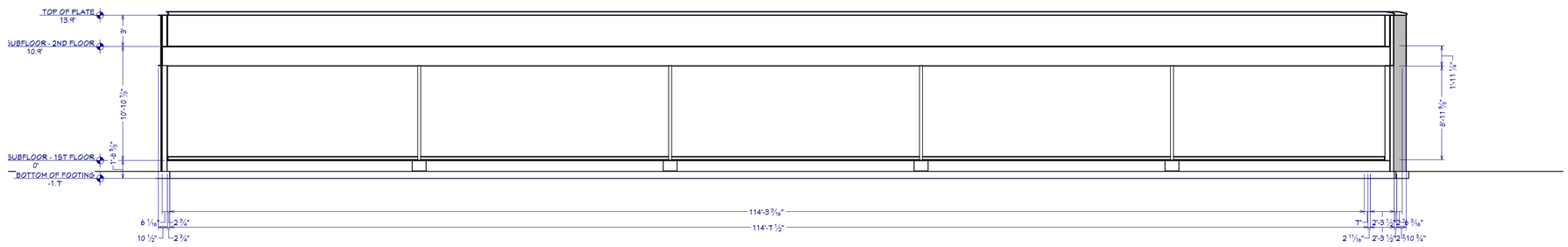
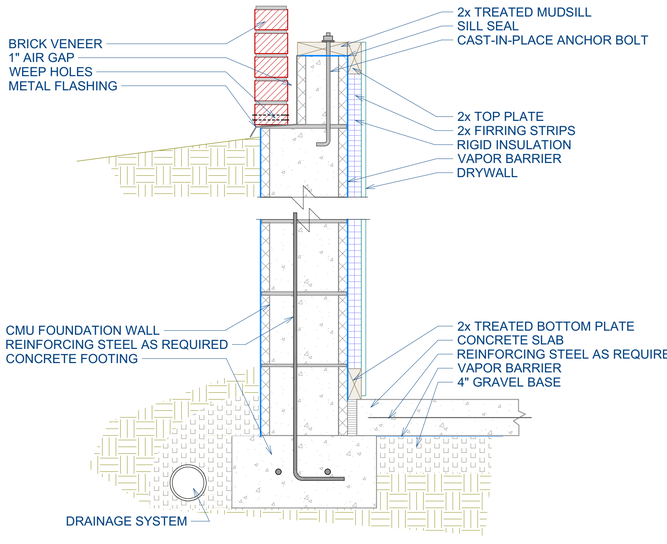
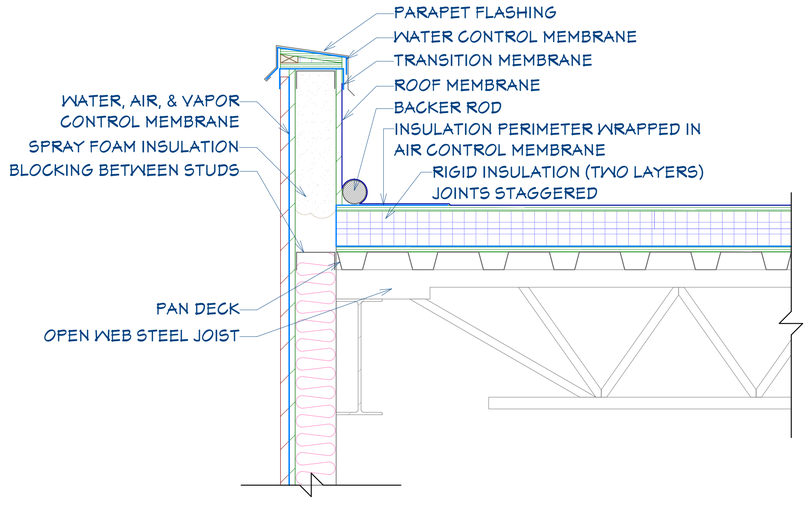


CROSS SECTION PLAN



CMU Basement Foundation w/ Brick Ledge: Finished 2" Wal

(print at 1"=1')



PARAPET ROOF

1"=1'

REVISION TABLE

NUMBER	DATE	REVISED BY	DESCRIPTION

PROPOSED
CROSS SECTION PLAN

DRAWINGS PROVIDED BY:
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SUPPORT@ENGRTEAM.COM ENGRTEAM.COM

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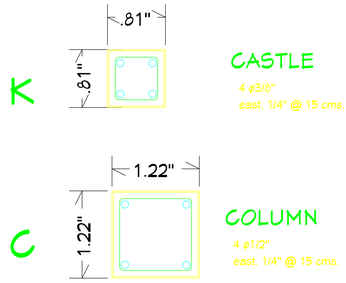


K

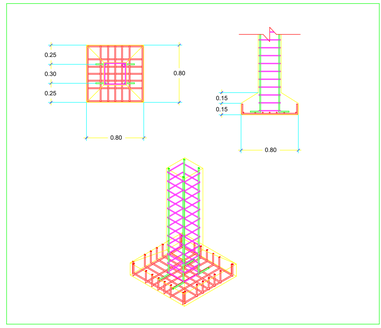
CASTLE

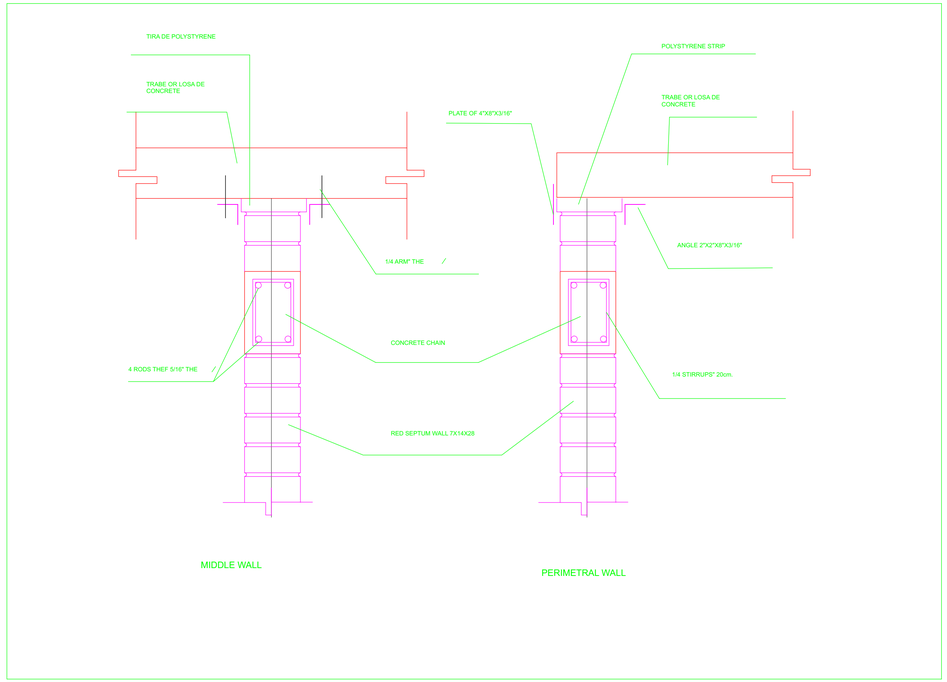
4 ϕ3/8"
east. 1/4" @ 15 cms.

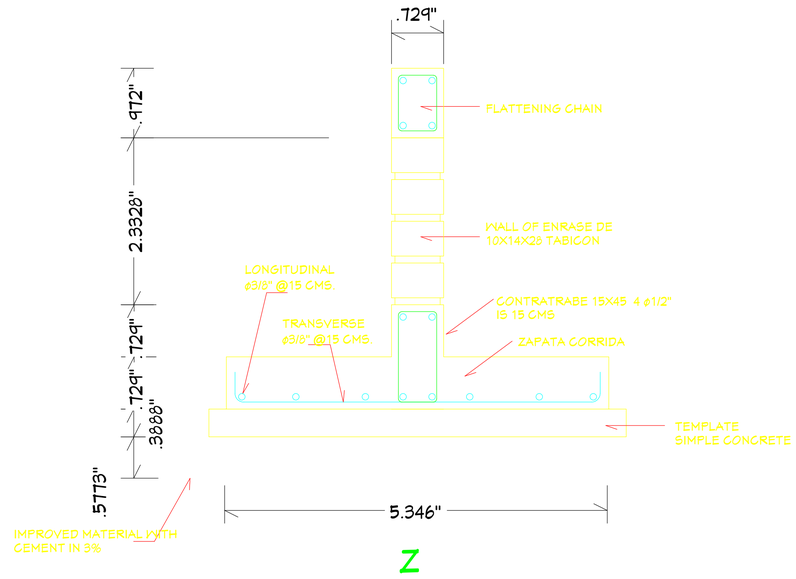
C

COLUMN

4 ø1/2"
east. 1/4" @ 15 cms.







Z

REVISION TABLE

NUMBER	DATE	REVISED BY	DESCRIPTION

PROPOSED STRUCTURAL PLAN

DRAWINGS PROVIDED BY:
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430 E 8TH ST STE 8017 1-800-221-4193
HOLLAND, MI 49423
SUPPORT@ENGRTEAM.COM ENGRTEAM.COM

DATE:
4/30/2025

SCALE:

SHEET:

GENERAL SPECIFICATIONS

1. GENERAL:
   - A. WORK INDICATED ON THESE DRAWINGS IS DIAGRAMMATIC AND SHOULD NOT BE SCALED TO ESTABLISH LOCATION OF WORK. THE DRAWINGS ARE INTENDED TO CONVEY THE SCOPE OF WORK AND INDICATE GENERAL ARRANGEMENTS OF ENGINEERED SYSTEMS. THE CONTRACTOR SHALL VERIFY ALL EXISTING CONDITIONS IN THE FIELD AND MAKE ADJUSTMENTS AS NECESSARY TO COMPLETE THE WORK.
   - B. FURNISH ALL LABOR, MATERIALS, TOOLS, EQUIPMENT AND SERVICES FOR ALL WORK, IN ACCORDANCE WITH PROVISIONS OF THE CONTRACT DOCUMENTS. ALTHOUGH SUCH WORK IS NOT SPECIFICALLY INDICATED, FURNISH AND INSTALL ALL SUPPLEMENTARY OR MISCELLANEOUS ITEMS, APPURTENANCES AND DEVICES INCIDENTAL TO OR NECESSARY FOR A SOUND, SECURE AND COMPLETE INSTALLATION, AT NO ADDITIONAL COST TO THE OWNER.
   - C. ALL EQUIPMENT UNDER THIS CONTRACT SHALL BE TESTED, AT COMPLETION, TO THE SATISFACTION OF THE OWNER. IT IS THE INTENTION OF THESE DRAWINGS TO CALL FOR FINISHED WORK, TESTED, AND READY FOR OPERATION. WHEREVER THE WORD "PROVIDE" IS USED, IT SHALL MEAN FURNISH AND INSTALL COMPLETE AND READY FOR USE.
   - D. ALL MATERIALS AND EQUIPMENT SHALL BE NEW, OF FIRST QUALITY AND COMPATIBLE WITH EXISTING SYSTEMS OR MATERIAL WHERE THEY INTERFACE. INSTALL AS RECOMMENDED BY MANUFACTURER AND BEST ENGINEERING PRACTICE.
   - E. SHOULD THE CONTRACTOR ENCOUNTER ANY EXISTING PIPING, DUCTWORK, CONDUITS, OR OTHER OBSTRUCTIONS IN THE WAY OF NEW WORK, CONTRACTOR SHALL REMOVE, REARRANGE AND/OR RELOCATE SAME TO THE SATISFACTION OF THE ARCHITECT AND AT NO ADDITIONAL COST TO THE OWNER.
   - F. CONTRACTOR SHALL OBTAIN OWNER'S APPROVAL IN WRITING PRIOR TO CUTTING OF ANY SLAB, WALLS, CEILING, ROOF AND SHAFTS FOR PENETRATION OF DUCTWORK AND PIPING. THE CONTRACTOR SHALL REPAIR ALL WALLS, CEILING, FLOORS, ETC., THAT ARE REQUIRED TO BE PENETRATED, OR OTHERWISE DISTURBED. THE REPAIRS SHALL BE WITH MATERIALS AND FINISHES TO MATCH EXISTING. ALL FIRE WALL PENETRATIONS SHALL BE SEALED WITH SUITABLE MATERIALS TO PRESERVE FIRE WALL INTEGRITY.
   - G. CLEAN UP ALL WASTE AND DEBRIS AT THE END OF EACH WORKING DAY AND AS REQUIRED TO KEEP ALL BUILDING AREAS CLEAN, CLEAR AND UNOBSTRUCTED. AT THE COMPLETION OF THE PROJECT, THE CONTRACTOR SHALL REMOVE ALL TOOLS, APPLIANCES, SURPLUS MATERIAL AND SCRAP FROM THE JOB SITE AND CLEAN THE ENTIRE JOB SITE TO BE READY FOR OCCUPANCY.
2. COORDINATION AND SCHEDULING:
   - A. COMPLETELY COORDINATE AND SCHEDULE WORK OF ALL TRADES. CONTRACTOR SHALL VERIFY ALL EXISTING CONDITIONS SO THAT CONFLICTS IN SCHEDULING AND LOCATION WILL NOT OCCUR.
   - B. CONTRACTOR IS RESPONSIBLE FOR COMPLETE COORDINATION BETWEEN ALL SUB-CONTRACTORS, SUPPLIERS, GOVERNMENT AUTHORITIES HAVING JURISDICTION, BUILDING PERSONNEL, CODE ENFORCEMENT OFFICIALS, ARCHITECT/ENGINEER AND BUILDING OWNER.
   - C. CONTRACTOR SHALL REVIEW AND COORDINATE THE INSTALLATION OF NEW SYSTEM(S) AND EQUIPMENT. NO WORK SHALL BE PERFORMED PRIOR TO THE CONTRACTOR OBTAINING EXACT FIELD DIMENSIONS OF EXISTING BUILDINGS, EXISTING CEILINGS, STRUCTURAL OBSTRUCTIONS, EXISTING BUILDING SYSTEMS TO REMAIN, EXISTING FURNITURE TO REMAIN, ETC., WHICH, MAY AFFECT INSTALLATION OF NEW EQUIPMENT OR SYSTEMS.
   - D. CONTRACTOR SHALL SCHEDULE AND PHASE WORK IN A FASHION SO AS TO CAUSE MINIMUM DISTURBANCE TO ACTIVITIES IN OTHER AREAS OF THE BUILDING, WHICH MAY REMAIN OCCUPIED THROUGHOUT THE DURATION OF THE CONTRACT. CONTRACTOR'S WORK SCHEDULE SHALL BE SUBMITTED TO AND APPROVED BY THE OWNER. PROVIDE BARRIERS (PLASTIC, GYPBOARD, ETC) BETWEEN PROJECT AREA AND ADJACENT SPACES AS NECESSARY.
   - E. NOTIFY THE OWNER, IN WRITING, AT LEAST FOURTEEN DAYS IN ADVANCE OF ANY REQUIRED SHUTDOWN OF ANY UTILITY, OBTAIN OWNER'S WRITTEN APPROVAL PRIOR TO SHUTDOWN.
   - F. CONTRACTOR SHALL THOROUGHLY EXAMINE PREMISES AND OBSERVE ALL CONDITIONS AND CIRCUMSTANCES UNDER WHICH THE WORK SHALL BE PERFORMED. NO ALLOWANCES WILL BE MADE FOR ERRORS OR NEGLIGENCE IN THIS RESPECT.
3. CODE, PERMITS AND INSPECTIONS:
   - A. ALL WORK SHALL BE DONE IN ACCORDANCE WITH LATEST APPLICABLE CODES, REGULATIONS AND STANDARDS. CONTRACTOR SHALL OBTAIN AND PAY FOR ALL NECESSARY PERMITS AND SHALL ARRANGE FOR ALL INSPECTIONS BY AUTHORITIES HAVING JURISDICTION.
   - B. APPROVAL AND SIGN-OFF BY ALL AUTHORITIES HAVING JURISDICTION AND THE SECURING OF AN APPROVED OCCUPANCY PERMIT IS REQUIRED AT THE COMPLETION OF PROJECT. SECURE PERMIT AND INSPECTION CERTIFICATES AND TRANSMIT SAME TO THE OWNER AT THE COMPLETION OF THE PROJECT.
   - C. PERFORM ALL WORK IN ACCORDANCE WITH THE CURRENT EDITIONS OF APPLICABLE CODES AND STANDARDS ENFORCED IN THE PROJECT JURISDICTION.
   - D. CODES AND STANDARDS LISTED ARE MINIMUM STANDARDS. WHERE CONTRACT DOCUMENTS CALL FOR A HIGHER STANDARD, CONTRACT DOCUMENTS WILL TAKE PRECEDENCE OVER ALL REFERENCED CODES AND STANDARDS. IF CONTRACT DOCUMENTS CONFLICT WITH CODES OR STANDARDS, CONTRACTOR SHALL INFORM ARCHITECT/ENGINEER, IN WRITING, PRIOR TO QUOTE.
   - E. CONTRACTOR SHALL COMPLY WITH ALL OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA) AND ENVIRONMENTAL PROTECTION AGENCY (EPA) REQUIREMENTS.
   - F. CONTRACTOR SHALL COMPLY WITH RULES AND REGULATIONS OF ALL AFFECTED UTILITY COMPANIES.
4. WARRANTY:
   - A. ALL WORK SHALL BE FREE OF DEFECTS IN WORKMANSHIP AND MATERIALS FOR A PERIOD OF ONE YEAR FROM DATE OF FINAL ACCEPTANCE. ALL DEFECTS THAT DEVELOP OR ARE DISCOVERED WITHIN THIS PERIOD SHALL BE REPAIRED BY THE CONTRACTOR, TO THE SATISFACTION OF THE ARCHITECT/ENGINEER AND AT NO ADDITIONAL COST TO THE OWNER.
5. SHOP DRAWINGS:
   - A. SHOP DRAWINGS AND PRODUCT DATA: SUBMIT TO ENGINEER, OWNER AND ARCHITECT ELECTRONIC COPIES OF SHOP DRAWINGS AND MANUFACTURER'S CERTIFIED CAPACITY DATA FOR ALL NEW EQUIPMENT.
6. RECORD DRAWINGS/ASBUILTS:
   - A. THE CONTRACTOR SHALL MAINTAIN AT THE SITE, FOR THE OWNER, ONE COPY OF ALL DRAWINGS, ADDENDA, APPROVED SHOP DRAWINGS, REVISIONS, AND OTHER MODIFICATIONS, IN GOOD ORDER AND MARKED TO RECORD ALL CHANGES MADE DURING CONSTRUCTION. THE SET OF DRAWINGS AND OTHER INFORMATION SHALL BE DELIVERED TO THE OWNER UPON COMPLETION OF WORK, AS REQUESTED.

WIRE & CABLE

1. FEEDERS: FEEDER SHALL BE COPPER. INSULATION SHALL BE THW OR THHN/THWN.
2. COLOR CODE: ALL WIRING SHALL BE COLOR CODED THROUGHOUT AS PER N.E.C. REQUIREMENTS.
3. ALL CONDUCTORS SHALL BE COPPER, MINIMUM #12 AWG.
4. ALL RECEPTACLES, LIGHTING FIXTURES, MOTORS, ETC., SHALL BE GROUNDED PER N.E.C. ALL RECEPTACLE CIRCUITS SHALL CONTAIN A #12 INSULATED GROUND CONDUCTORS.
5. RUN MULTIPLE HOME RUNS TO ALTERNATELY NUMBERED PANELBOARD CIRCUITS (I.E., 1,3,5) SERVING LIGHTING, GENERAL RECEPTACLES, AND MOTORS. ANY CIRCUITS SERVING, ISOLATED GROUND RECEPTACLES OR RECEPTACLES SERVING COMPUTER EQUIPMENT, WHEN THE CONTRACTOR RUN CIRCUITRY IN MULTIPLE HOME RUNS, CONTRACTOR SHALL OVERSIZE THE NEUTRAL CONDUCTOR TO A MINIMUM 200% OF THE CAPACITY OF PHASE CONDUCTORS SIZE THE EMT/CONDUIT ACCORDINGLY WHERE NECESSARY.
6. ALL EMPTY RACEWAYS SHALL CONTAIN A DRAG WIRE. EMPTY RACEWAYS 2" OR LARGER IN SIZE SHALL HAVE A MAXIMUM OR 2 - 90 DEGREES BENDS PER RUN. WHERE REQUIRED, PROVIDE PULL BOXES PER N.E.C. REQUIREMENTS.
7. FINAL CONNECTION TO ALL MOTORS OR VIBRATING EQUIPMENT SHALL BE WITH FLEXIBLE CONDUIT OR LIQUID-TIGHT FLEXIBLE CONDUIT FOR OUTDOOR.
8. ALL 120 VOLT CIRCUIT HOME RUNS WHICH ARE OVER 100 LINEAR FEET SHALL BE A MINIMUM OF #10 CONDUCTORS OR AS SHOWN ON THE PLANS.
9. EXPOSED AND CONCEALED CIRCUITRY SHALL BE RUN TIGHT TO CEILING SLAB IN A NEAT WORKMANLIKE MANNER: ALL RUNS SHALL BE PARALLEL OR PERPENDICULAR TO BUILDING WALL.

BRANCH CIRCUITRY AND FEEDER

1. USE OF ALUMINUM CONDUIT SHALL NOT BE PERMITTED.
2. ALL BRANCH CIRCUITRY AND FEEDERS SHALL BE RUN CONCEALED.
3. ALL CIRCUITRY RUNS ARE DIAGRAMMATIC. THE CONTRACTOR SHALL DETERMINE IN FIELD THE MOST SUITABLE ROUTES.
4. MINIMUM SIZE EMT OR CONDUIT SHALL BE 3/4". UNLESS MULTIPLE HOMERUN CIRCUITS REQUIRES LARGER SIZE CONDUIT.
5. NO NONMETALLIC CONDUIT SHALL BE USED FOR BRANCH CIRCUIT WORK ABOVE GRADE.
6. BRANCH CIRCUITRY AND FEEDER
   - 6.1. ALL CONDUCTORS SHALL BE COPPER.
   - 6.2. ALL BRANCH CIRCUITRY AND FEEDER SHALL COMPLY WITH THE LATEST NATIONAL ELECTRICAL CODE (N.E.C. 2002) LOCAL JURISDICTION AND LOCAL STATE CODE REQUIREMENTS. THE FOLLOWING ARE SOME ACCEPTABLE WIRING METHOD REQUIREMENTS.
7. INDOOR USE BRANCH CIRCUITRY
   - 7.1. METAL CLAD CABLE (MC CABLE) IS PERMITTED TO SERVE RECEPTACLES/LIGHTING AND OTHER EQUIPMENT LOAD. IN THE GENERAL AREA PER SYMBOLS LIST, METAL CLAD CABLE (MC) IS PERMITTED TO RUN CONCEALED AREA SUCH AS CEILING SPACE AND FINISHED WALL AREA ONLY. ALL HOMERUN BRANCH CIRCUITRY FOR THE INDOOR EQUIPMENT SHALL BE INSTALLED IN EMT.
   - 7.2. HCF CABLE HOSPITAL GRADE IS CONTAINING A SEPARATE GREEN GROUND CONDUCTOR IS PERMITTED TO SERVE ISOLATED GROUND RECEPTACLES AND OTHER EQUIPMENT LOAD WHERE PERMITTED BY CODE. HCF CABLE (HOSPITAL GRADE) IS PERMITTED TO RUN IN CONCEALED AREA SUCH AS CEILING SPACE AND FINISHED WALL AREA ONLY. ALL HOMERUN BRANCH CIRCUITRY FOR THE INDOOR EQUIPMENT SHALL BE INSTALLED IN EMT.
8. INDOOR FEEDER
   - 8.1. FEEDER CONDUIT INSTALLED INDOORS MAY BE GALVANIZED EMT, HEAVY WALL GALVANIZED RIGID STEEL.
9. OUTDOOR USE BRANCH CIRCUITRY
   - 9.1. ALL LIGHTING, RECEPTACLES, EQUIPMENT LOCATED ON THE EXTERIOR OF THE BUILDING SHALL BE SERVED IN HEAVY WALL GALVANIZED RIGID STEEL CONDUIT.
10. OUTDOOR USE FEEDER CONDUIT
    - 10.1. FEEDER CONDUIT INSTALLED OUTDOORS MAY BE WALL GALVANIZED RIGID STEEL.
    - 10.2. FEEDER FOR THE UNDERGROUND INCOMING ELECTRICAL, TELEPHONE MAY BE PVC SCHEDULE 40.

MISCELLANEOUS ELECTRICAL

1. GROUNDING
   - 1.1. PROVIDE EQUIPMENT GROUND CONDUCTORS SIZE PER NEC REQUIREMENTS.
   - 1.2. PROVIDE GROUND TO ALL DEVICES PER N.E.C. REQUIREMENTS.
   - 1.3. PROVIDE SERVICE GROUND CONDUCTORS SIZE PER NEC REQUIREMENTS.
2. FIRE SEALANT MATERIALS
   - 2.1. ANY PENETRATION TO THE FIRE WALLS. CONTRACTOR SHALL PROVIDE FIRE SEALANT MATERIALS AT EVERY POINT WHERE OCCURRED. FIRE SEALANT MATERIALS MANUFACTURER SHALL BE SUBMITTED TO THE ARCHITECT FOR APPROVAL PRIOR TO APPLICATION.
   - 2.2. WHERE PORTIONS OF A CABLE, RACEWAY, OR SLEEVE ARE KNOWN TO BE SUBJECT TO DIFFERENT TEMPERATURES AND WHERE CONDENSATION IS KNOW TO BE A PROBLEM AS IN COLD STORAGE AREAS OF BUILDINGS, OR WHERE PASSING FROM INTERIOR TO THE EXTERIOR OF A BUILDING, THE RACEWAY OR SLEEVE SHALL BE FILLED WITH AN APPROVED MATERIAL TO PREVENT THE CIRCULATION OF WARM AIR TO A COLDER SECTION OF THE RACEWAY OR SLEEVE. SHALL BE SEALED IN ACCORDANCE WITH 300.5(G). SEALANTS SHALL BE IDENTIFIED FOR USE WITH THE CABLE INSULATION, SHIELD, OR OTHER COMPONENTS AND SHOULD NOT PROMOTE CORROSION OR DETERIORATION OF THE INSULATION PROPERTIES. ELECTRICAL DUCT SEAL CAN SERVE FOR MOST PROJECTS THE MANUFACTURER SHOULD STATE IN WRITING THAT IT IS SUITABLE FOR ELECTRICAL INSTALLATIONS.
3. FINAL TESTING
   - 3.1. AT THE TIME OF FINAL INSPECTION AND TEST, ALL CONNECTIONS AND TERMINATIONS AT PANELBOARDS, DEVICES, EQUIPMENT, AS WELL AS ALL SPLICES, MUST BE ALL COMPLETED. EACH BRANCH CIRCUIT AND ITS RESPECTIVE CONNECTED EQUIPMENT MUST TEST FREE OF SHORT CIRCUITS. UPON COMPLETION OF THE WORK, CLEAN AND POLISH ALL EXPOSED SURFACES IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.
4. RACEWAYS AND JUNCTION BOXES LABELING REQUIREMENTS
   - 4.1. ALL FEEDER RACEWAYS SHALL BE CLEARLY LABELED AS TO ITEM SERVED WITH MINIMUM 3/4" HIGH LETTERS.
   - 4.2. ALL JUNCTION BOXES FOR BRANCH CIRCUITRY SHALL BE CLEARLY LABELED WITH PANEL DESIGNATION AND CIRCUIT NUMBERS.

ELECTRICAL CODE NOTES

1. ALL NEW RECEPTACLES SHALL BE TAMPER-RESISTANT TYPE.
2. EXTERIOR RECEPTACLES SHALL BE "WEATHER RESISTANT" TYPE.

GENERAL NOTES ELECTRICAL

1. ALL WIRING SHALL BE INSTALLED IN CONDUIT. CONDUCTORS SHALL BE TYPE THHN OR XHHW. MINIMUM WIRE SIZE SHALL BE #12 AWG. MINIMUM CONDUIT SIZE SHALL BE 3/4". THE USE OF TYPE AC CABLE IS PERMISSIBLE, ONLY IN CONCEALED INSTALLATION.
2. ALL WIRE SIZES ARE BASED ON COPPER CONDUCTORS.
3. CONDUCTOR SIZES ARE BASE ON 75°C TEMPERATURE RATING. CONTRACTOR TO VERIFY THE TERMINAL RATING OF CIRCUIT BREAKER AND THE LOAD TERMINATION POINT, ADJUST AMPACITY OF THE CONDUCTOR ACCORDINGLY.
4. PROVIDE SINGLE COVERPLATE IN ALL AREAS WHERE DEVICES ARE GANGED
5. ALL DEVICES SHALL BE MOUNTED TO COMPLY WITH AMERICAN DISABILITIES ACT.
6. ALL ELECTRICAL WORK SHALL BE IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE 2014 AND ALL LOCAL CODES HAVING JURISDICTION.
7. WHERE THE LENGTH OF A HOMERUN FROM PANEL TO FIRST ELECTRICAL DEVICE EXCEEDS 75 FEET FOR A 120 VOLT CIRCUIT OR 175 FEET FOR A 277 VOLT CIRCUIT. THE CONDUCTOR SIZE SHALL BE INCREASED ONE SIZE LARGER THAN INDICATED FOR EVERY 75 FEET FOR 120 VOLT CIRCUIT AND FOR EVERY 175 FEET FOR 277 VOLT CIRCUIT TO COMPENSATE FOR VOLTAGE DROP.
8. ALL WIRING DEVICES SHALL BE SPECIFICATION GRADE.
   - 8.1. LIGHT SWITCH SHALL BE 20A 120-277V.
   - 8.2. DUPLEX RECEPTACLES SHALL BE 20A, 125V, 2P, 3W, NEMA 5-20R UNLESS NOTED OTHERWISE ON THE DRAWINGS.
   - 8.3. DEVICE AND COVERPLATE FINISHES FOR NEW DEVICES SHALL BE SELECTED BY ARCHITECT UNLESS OTHERWISE NOTED. MOUNTING HEIGHTS OF NEW DEVICES SHALL BE AS INDICATED ON DRAWING. WHERE EXISTING DEVICES ARE INDICATED TO REMAIN CONTRACTOR SHALL MATCH THE COLOR AND MOUNTING HEIGHT TO NEW STANDARD UNLESS OTHERWISE NOTED.
9. ALL EQUIPMENT, SUCH AS STARTERS, RELAYS, CONTACTORS, SWITCHES, PANELS AND OTHER ELECTRICAL EQUIPMENT SHALL HAVE IDENTIFICATION PLATES OF BLACK LAMINATED PLASTIC WITH 1/4" WHITE LETTERS IDENTIFYING EQUIPMENT. EQUIPMENT IN FINISHED AREAS SHALL HAVE PLATES MOUNTED ON INSIDE OF DOOR; OTHERWISE PLATES SHALL BE MOUNTED ON FRONT OF EQUIPMENT. SECURE PLATES WITH FOUR SCREWS.
10. CONTRACTOR SHALL PROVIDE NEWLY TYPED DIRECTORIES FOR ALL MODIFIED PANEL BOARDS.
11. MOTOR HORSEPOWER RATINGS ARE APPROXIMATE AND MAY VARY BY MANUFACTURERS. CONTRACTOR SHALL VERIFY EXACT SIZE OF EQUIPMENT WITH APPROVED SHOP DRAWINGS. ADJUSTMENTS SHALL BE MADE IN SIZE OF BREAKERS, SWITCHES, WIRE AND MOTOR CONTROLS INCLUDING HEATERS BASED UPON THE MOTOR INSTALLED.
12. PROVIDE DISCONNECT SWITCHES/STARTERS IF NOT FURNISHED INTEGRAL WITH THE MECHANICAL EQUIPMENT. SIZE DISCONNECT SWITCH/STARTER AS RECOMMENDED BY EQUIPMENT MANUFACTURER.
13. FIRE ALARM SYSTEM EQUIPMENT IS SHOWN ON THE PLAN, HOWEVER, CONDUIT AND WIRING IS NOT SHOWN. WIRING VARIES BETWEEN MANUFACTURERS, THE WIRING AND CONDUIT SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURERS' RECOMMENDATIONS. CONDUIT AND WIRING SHALL BE SUBMITTED WITH FIRE ALARM SUBMITTAL FOR APPROVAL PRIOR TO INSTALLATION.
14. FIELD VERIFY EXISTING FIRE ALARM CONTROL PANEL. IF REQUIRED PROVIDE ACCESSORIES TO ACCOMMODATE NEW DEVICES.
15. WHERE EXISTING FIRE ALARM DEVICES ARE INDICATED TO BE REMOVED OR RELOCATED THE EXISTING BACK BOX SHALL BE REMOVED AND WALLS SHALL BE PATCHED.
16. ALL FIRE ALARM DEVICES SHALL BE OF SAME MANUFACTURER AS EXISTING FIRE ALARM SYSTEM IN THE BUILDING.
17. THE ELECTRICAL CONTRACTOR SHALL VERIFY THE TYPE OF CEILING SYSTEM WITH THE GENERAL CONTRACTOR OR CEILING CONTRACTOR TO INSURE THAT ALL RECESSED LIGHTING FIXTURES ARE COMPATIBLE WITH THE CEILING SYSTEM BEING INSTALLED. LIGHTING FIXTURES SHOULD NOT BE ORDERED UNTIL TYPE OF CEILING HAS BEEN VERIFIED.
18. EMERGENCY EXITS, DIRECTIONAL AND EGRESS LIGHTS SHALL BE CIRCUITED WITH MINIMUM NUMBER OF 10 AWG CONDUCTORS IN 3/4" CONDUIT. THE MAXIMUM LOAD PER CIRCUIT SHALL BE 1500 WATTS ON 120 VOLT CIRCUITS AND 3500 ON 277 VOLT CIRCUIT.
19. LUMINAIRES SHALL BE SECURELY FASTENED TO THE CEILING FRAMING MEMBER BY MECHANICAL MEANS SUCH AS BOLTS, SCREWS, OR LISTED CLIPS IDENTIFIED FOR USE WITH THE TYPE OF CEILING FRAMING MEMBERS AND LUMINAIRES, PROVIDED THAT THE FRAMING MEMBERS OF THE SUSPENDED CEILING SYSTEM USED TO SUPPORT THE LUMINAIRES ARE SECURELY FASTENED TO EACH OTHER AND SECURELY FASTENED TO THE BUILDING STRUCTURE AT APPROPRIATE INTERVALS IN ACCORDANCE WITH NEC SECTION 410.30(A) OR 410.36(B) FOR CEILING GRID.
20. CONTRACTOR SHALL VERIFY ALL EQUIPMENT REQUIREMENTS BEFORE INSTALLING CONDUIT OR CONDUCTORS FROM POWER SOURCE TO EQUIPMENT TERMINATION.
21. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CORRECTLY PHASING THE CIRCUITS IN THE PANELBOARDS. THREE SINGLE PHASE CIRCUITS MAY BE COMBINED WITH A COMMON NEUTRAL, PROVIDED EACH CIRCUIT IS ON A DIFFERENT PHASE. THIS CAN BE DONE EITHER BY PROVIDING DISCONNECT MEANS TO SIMULTANEOUSLY DISCONNECT ALL UNGROUNDED CONDUCTORS OR WITH IDENTIFIED HANDLE TIES AS ADVICE UNDER NEC240.15(B).
22. THE CORRECT NUMBER OF WIRES MAY NOT BE INDICATED FOR ALL CIRCUITS. THE ELECTRICAL CONTRACTOR SHALL PROVIDE ALL WIRES NECESSARY FOR THE PROPER FUNCTION OF THE SYSTEM WHETHER INDICATED ON DRAWING OR NOT.
23. ALL EMPTY RACEWAYS FOR USE BY OTHER TRADES SHALL BE PROVIDED WITH NYLON PULL STRING.
24. ITEMS TO BE REMOVED: UNLESS OTHERWISE NOTED, CONTRACTOR SHALL PERFORM THE FOLLOWING:
   - 24.1. IF THE CONDUIT SERVING THE ITEM IS CONCEALED, THE CONTRACTOR SHALL REMOVE ALL CONDUCTORS, CUT CONDUIT BACK TO BELOW GRADE, FLOOR, OR ABOVE CEILING, AND PATCH TO MATCH EXISTING.
   - 24.2. IF THE CONDUIT SERVING THE ITEM IS EXPOSED, THE CONTRACTOR SHALL REMOVE CONDUIT AND CONDUCTORS BACK TO SOURCE.
25. WHERE EXISTING WALLS ARE REMOVED, RECEPTACLES AND TELEPHONE OUTLETS SHALL BE REMOVED. EXISTING RECEPTACLES AND TELEPHONE OUTLETS ON WALL THAT REMAIN SHALL BE RECONNECTED AND REMAIN IN SERVICE. SEE ARCHITECTURAL DRAWINGS FOR WALLS TO BE REMOVED.
26. ALL THE CONDUITS ARE TO BE BURIED AT 2'-6" BELOW FINISHED GRADE MINIMUM UNLESS NOTED OTHERWISE.
27. ALL THE CONDUITS FOR THE TELEPHONE SERVICES SHALL BE BURIED TO A MINIMUM DEPTH OF 2'-6" BELOW GRADE.
28. CONTRACTOR SHALL X-RAY SLAB IN AREA OF PENETRATION PRIOR TO CORE DRILLING AND COORDINATE WITH EQUIPMENT IN CEILING SPACE BELOW TO CHECK FOR OBSTRUCTIONS.
29. ALL MATERIAL AND EQUIPMENT USED ON THIS PROJECT SHALL BE LISTED AND LABELED BY U.L.
30. PROVIDE PROPER WORKING CLEARANCES REQUIRED BY NEC SECTION 110.26-A.
31. ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR ALL ELECTRICAL PERMIT AND INSPECTIONS. ALL WORK IS SUBJECT TO FIELD INSPECTION.
32. SEE OUTLINE SPECIFICATIONS, DIVISION 26 FOR ADDITIONAL ELECTRICAL REQUIREMENTS. BRING DISCREPANCIES TO THE ATTENTION OF THE ARCHITECT PRIOR TO COMMENCEMENT OF WORK.
33. FIRE ALARM WIRING SHALL BE RUN BACK TO MAIN TERMINATION CABINET. FINAL TERMINATIONS WILL BE DONE BY BASE BUILDING FIRE ALARM CONTRACTOR.
34. ALL WORK OUTSIDE CONSTRUCTION BOUNDARY OR BELOW FLOOR SLAB. SHALL BE COORDINATED WITH THE MANAGEMENT OFFICE, PRIOR TO THE COMMENCEMENT OF WORK.
35. LANDLORD IS NOT RESPONSIBLE FOR ANY REQUIREMENTS MADE DURING THE PERMIT APPLICATION OR INSPECTION PROCESS. ITS THE TENANT'S RESPONSIBILITY FOR ALL ELECTRICAL WORK.
36. PROVIDED CAD, HARD COPY DRAWINGS AND PDF COPIES OF AS-BUILTS, TO LANDLORD UPON COMPLETION OF PROJECT.
37. EXCEPT IN CONCEALED LOCATIONS, ALL WIRING AND WIRE WAYS ARE TO BE INSTALLED IN GROUPINGS THAT ARE PARALLEL OR PERPENDICULAR TO ADJACENT WALLS AND BULKHEADS. THE ELECTRICAL SUB-CONTRACTOR SHALL VERIFY PROPOSED ROUTING OF CONDUIT OR CABLES WITH THE ARCHITECT PRIOR TO INSTALLATION.

ELECTRICAL SYMBOLS

DESIGNATION	DESCRIPTION	MTG HGT TO CENTERLINE AFF (UON)
	INCANDESCENT, COMPACT FLUORESCENT OR LED LIGHTING FIXTURE "A" (IF SHOWN) INDICATES FIXTURE TYPE AND "a" (IF SHOWN) INDICATES SWITCH CTRL	-
	INCANDESCENT, COMPACT FLUORESCENT OR LED WALL WASHER TYPE LIGHTING FIXTURE "A" (IF SHOWN) INDICATES FIXTURE TYPE. "a" (IF SHOWN) INDICATES SWITCH CONTROL	-
S	SINGLE POLE TOGGLE SWITCH. MOUNTING HEIGHT +48" A.F.F., U.O.N. SUBSCRIPTS AT SWITCH SYMBOL INDICATE THE FOLLOWING: 0S - WALL MOUNTED OCCUPANCY SENSOR, SIMILAR TO WATTSTOPPER CAT. # DSW-100, DSW-200(FOR BI-LEVEL SWITCHING) OR EQUAL D - DIMMER, 1000W U.O.N. 3 - 3-WAY SWITCH a,b,c - IDENTIFICATION OF LIGHTS CONTROLLED K - LOCK TYPE	4' - 0"
	DUPLEX RECEPTACLE: 20A-125V-2P, 3W, MOUNTING HEIGHT +18" A.F.F. UNLESS OTHERWISE NOTED. SUBSCRIPTS ADJACENT TO RECEPTACLE SYMBOL INDICATE THE FOLLOWING: WP - WEATHERPROOF GFI - GROUND FAULT INTERRUPTING IG - ISOLATED GROUND DED - DEDICATED CIRCUIT FL - FLOOR MOUNTED - RECESSED.	18"
	DEDICATED DUPLEX RECEPTACLE - NEMA 5-20R - ON SEPARATE CIRCUIT	18"
G	DUPLEX RECEPTACLE - NEMA 5-20R WITH INTEGRAL GROUND FAULT CIRCUIT INTERRUPTER	18"
	SPECIAL PURPOSE SINGLE RECEPTACLE - SEE DRAWING FOR DESCRIPTION	18"
TV	TELEVISION - PROVIDE 4" SQUARE BOX AND STUB OUT 3/4" EC 6" INTO CEILING SPACE	REFER TO ARCH. UON
EP 1,3	HOMERUN TO PANELBOARD - NUMERALS & LETTERS ADJACENT TO ARROWHEADS INDICATE ASSIGNED PANEL & CKT #	-
	TELEPHONE OUTLET STUB OUT 1" EC 6" INTO CEILING SPACE WITH PLASTER RING AND PULL STRING TO ACCESSIBLE CEILING SPACE	REFER TO ARCH. UON
	GROUND	-
	PANELBOARD 120/240V SYSTEM	6'-0" TO TOP
M	MOTOR CONNECTION	-
30	NON-FUSED SAFETY DISCONNECT SWITCH - NUMERAL DENOTES SWITCH SIZE - 3 POLE UON	5'-0" TO TOP
60 / 40	FUSED SAFETY DISCONNECT SWITCH - UPPER NUMERAL DENOTES SWITCH SIZE, LOWER NUMERAL DENOTES FUSE SIZE - 3 POLE UON	5'-0" TO TOP
1	KEY NOTE, NEW WORK	
1	KEY NOTE, DEMOLITION	
	FACTORY CONNECTION - PROVIDE CIRCUITRY CONNECTION AS NOTED ON PLAN	
M	METER	-
	HALF SWITCHED RECEPTACLE, 18" A.F.F.	
J	JUNCTION BOX, WALL MOUNTED.	
M	UTILITY METERING.	
S	SMOKE DETECTOR W/ BATTERY. CONNECT AHEAD OF AN UNSWITCHED 120V CIRCUIT, DO NOT EXCEED 1500VA.	
CO	CARBON MONOXIDE SENSOR	

ABBREVIATIONS

A	AMP	N	NEUTRAL
AFF	ABOVE FINISHED FLOOR	(N)	NEW ITEMS
AIC	AMPERES INTERRUPTING CAPACITY(MIN)	NEC	NATIONAL ELECTRICAL CODE
CB	CIRCUIT BREAKER	NIC	NOT IN CONTRACT
C	CONDUIT	OEM	ORIGINAL EQUIPMENT MANUFACTURER
CKT	CIRCUIT	OFCI	OWNER FURNISHED CONTRACTOR INSTALLED
EC	EMPTY CONDUIT	P	POLE
(E)	EXISTING TO REMAIN. CONT. IN SERVICE	PNL	PANEL
FA	FIRE ALARM	PH,Ø	PHASE
FLA	FULL LOAD AMPS	(R)	REMOVE EXISTING AND RELOCATED
G	GROUND	(RE)	RELOCATED EQUP.
HP	HORSE POWER	RECPT	RECEPTACLE
KVA	KILO-VOLT AMPERE	TBD	TO BE DETERMINED
KW	KILOWATT	UON	UNLESS OTHERWISE NOTED
LTG	LIGHT	V	VOLT
MFR	MANUFACTURER	W	WIRE
MCB	MAIN CIRCUIT BREAKER	W/	WITH
MH	MOUNTING HEIGHT	WP	WEATHERPROOF
MLO	MAIN LUG ONLY	XFMR	TRANSFORMER

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Drawn by:

Date: 4/30/25

Sheet Name:
GENERAL
ELECTRICAL NOTE

Drawing Number:
E000

NOTE:
This Electrical Lighting Layout Plan for 600W Grubb St, Hertford, NC 27944, has been developed in full compliance with the following codes, standards, and regulations:

1. 2023 North Carolina Electrical Code

This plan adheres to the 2023 North Carolina Electrical Code, which incorporates the 2020 National Electrical Code (NEC) with state-specific amendments. This ensures that all electrical installations meet the latest safety and performance standards.

2. 2017 North Carolina Electrical Code for One- and Two-Family Dwellings

For residential structures classified as one- and two-family dwellings, this plan follows the 2017 North Carolina Electrical Code, which includes the 2017 NEC with state amendments. This code remains effective for such dwellings, ensuring appropriate safety measures are in place.

3. 2018 North Carolina Energy Conservation Code (NCECC)

This plan complies with the 2018 NCECC, which mandates energy-efficient lighting controls. Key provisions include:

- Automatic shut-off requirements for all commercial buildings, regardless of size.
- Occupancy sensor controls in multipurpose rooms, mechanical areas, lounges, and warehouses.
- Reduction of lighting by at least 50% in unoccupied warehouse aisles and open areas.
- Automatic lighting shut-off in hotel and motel guestrooms when unoccupied.

4. Illuminating Engineering Society (IES) Standards

Lighting levels and placements are designed in accordance with the latest IES Lighting Library Standards Collection. This ensures optimal illumination while minimizing glare and light trespass.

5. Outdoor Lighting Standards

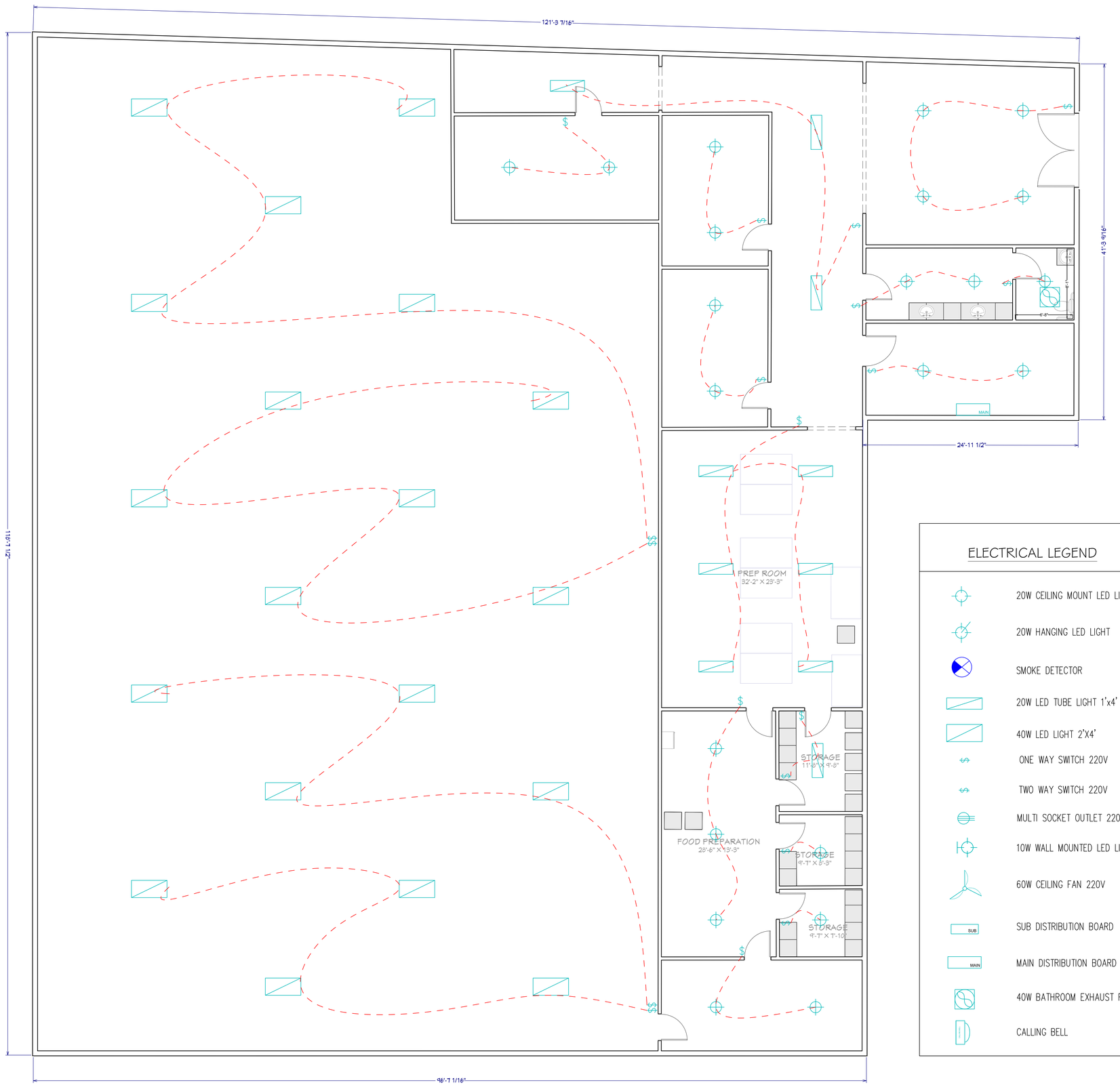
All outdoor lighting fixtures are full cutoff and shielded to prevent uplight and light trespass onto adjacent properties. Maximum light levels at the property line do not exceed 1.0 foot-candle, and 0.25 foot-candle adjacent to stream buffers, in compliance with local ordinances.

6. Product Approvals and Listings

All electrical components and fixtures specified in this plan are UL-listed and comply with North Carolina's product approval requirements, ensuring safety and reliability.

7. Permit and Inspection Compliance

All electrical work will be performed by licensed contractors in accordance with Title 21 NCAC 18B and G.S. 160D-1109. Necessary permits will be obtained, and all installations will be subject to inspections as required by state and local authorities.



ELECTRICAL LEGEND

- 20W CEILING MOUNT LED LIGHT
- 20W HANGING LED LIGHT
- SMOKE DETECTOR
- 20W LED TUBE LIGHT 1'x4'
- 40W LED LIGHT 2'X4'
- ONE WAY SWITCH 220V
- TWO WAY SWITCH 220V
- MULTI SOCKET OUTLET 220V
- 10W WALL MOUNTED LED LIGHT
- 60W CEILING FAN 220V
- SUB DISTRIBUTION BOARD
- MAIN DISTRIBUTION BOARD
- 40W BATHROOM EXHAUST FAN
- CALLING BELL

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Sheet Name:
PROPOSED ELECTRICAL LIGHTING PLAN

Drawing Number:
E001

NOTE:
This Electrical Power Layout Plan has been developed in strict compliance with the most current and applicable codes, regulations, and policies enforced in the State of North Carolina, USA, including all relevant amendments and interpretations.

1. 2023 North Carolina State Electrical Code (2023 NEC with NC Amendments)

This plan adheres to the 2023 North Carolina State Electrical Code, which incorporates the 2023 edition of the National Electrical Code (NEC) along with state-specific amendments. This code is applicable to all electrical systems, including those in single-family dwellings, multi-family residences, commercial, and industrial occupancies.

2. 2024 North Carolina State Building Code

The design complies with the 2024 North Carolina State Building Code, which encompasses the Building, Residential, Existing Building, Fire, Mechanical, Fuel Gas, and Plumbing Codes. These codes are effective for use starting January 1, 2025, and become mandatorily effective on July 1, 2025.

3. 2024 North Carolina Residential Code

For residential aspects of the project, the 2024 North Carolina Residential Code has been applied, ensuring compliance with the latest standards for one- and two-family dwellings.

4. 2024 North Carolina Administrative Code and Policies

Administrative procedures and policies relevant to this project are in accordance with the 2024 North Carolina Administrative Code and Policies, effective January 1, 2025.

5. 2020 Electrical Guidelines and Policies

The design also considers the 2020 Electrical Guidelines and Policies issued by the North Carolina Department of Administration, ensuring comprehensive compliance with state requirements.

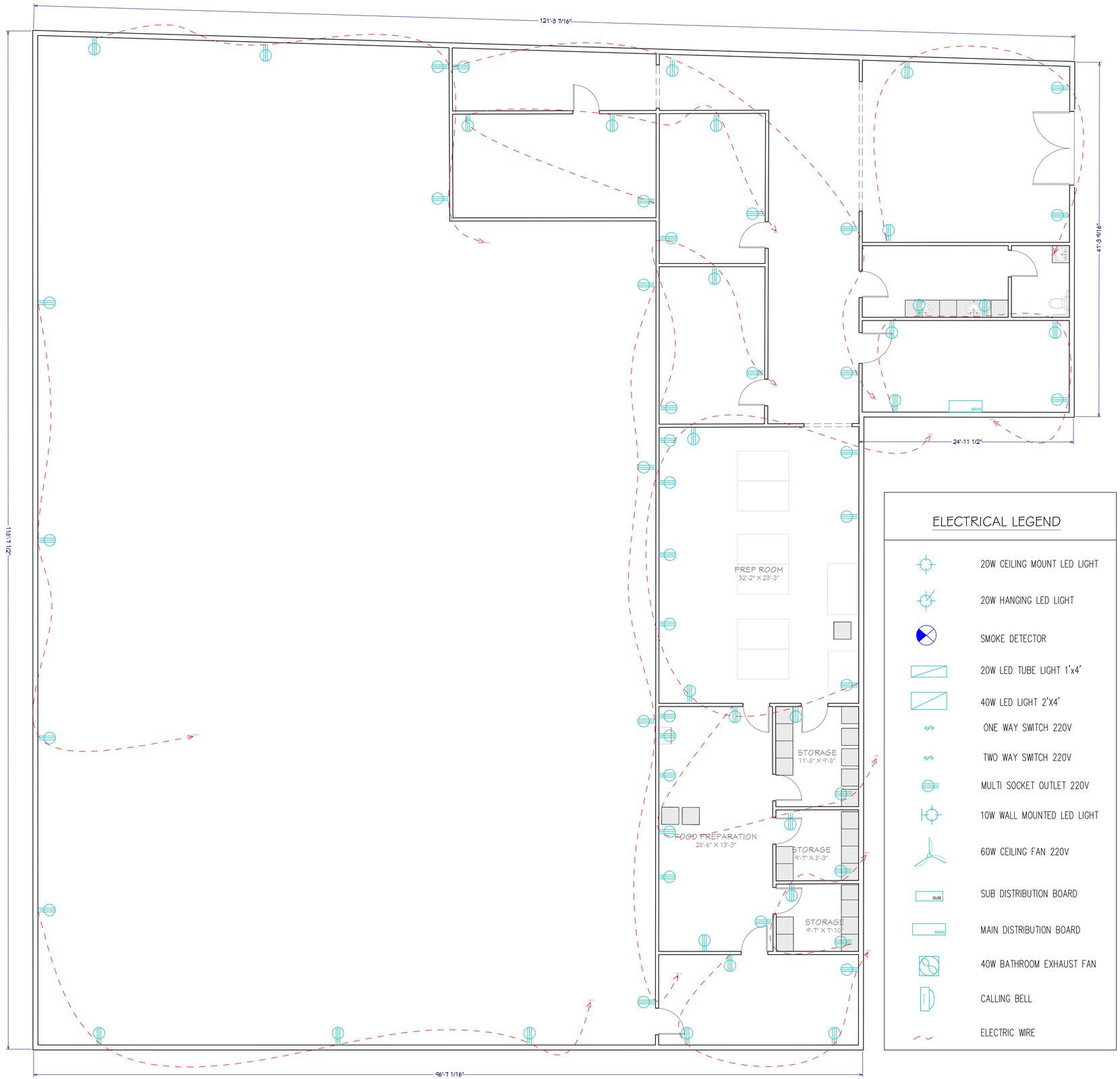
6. State Electrical Code Interpretations

All applicable interpretations provided by the North Carolina Office of State Fire Marshal have been reviewed and integrated into the design to ensure full compliance with state interpretations of the electrical code.

7. Product Approval and Compliance

All electrical products and materials specified in this plan are approved for use in North Carolina and comply with the relevant product approval codes and standards as mandated by the state.

This note serves to affirm that the Electrical Power Layout Plan for 600W Grubb St, Hertford, NC 27944, has been prepared with full adherence to the current codes and regulations as specified above, ensuring safety, reliability, and compliance with all state requirements.



ELECTRICAL LEGEND

- 20W CEILING MOUNT LED LIGHT
- 20W HANGING LED LIGHT
- SMOKE DETECTOR
- 20W LED TUBE LIGHT 1'x4'
- 40W LED LIGHT 2'X4'
- ONE WAY SWITCH 220V
- TWO WAY SWITCH 220V
- MULTI SOCKET OUTLET 220V
- 10W WALL MOUNTED LED LIGHT
- 60W CEILING FAN 220V
- SUB — SUB DISTRIBUTION BOARD
- MAIN — MAIN DISTRIBUTION BOARD
- 40W BATHROOM EXHAUST FAN
- CALLING BELL
- ELECTRIC WIRE

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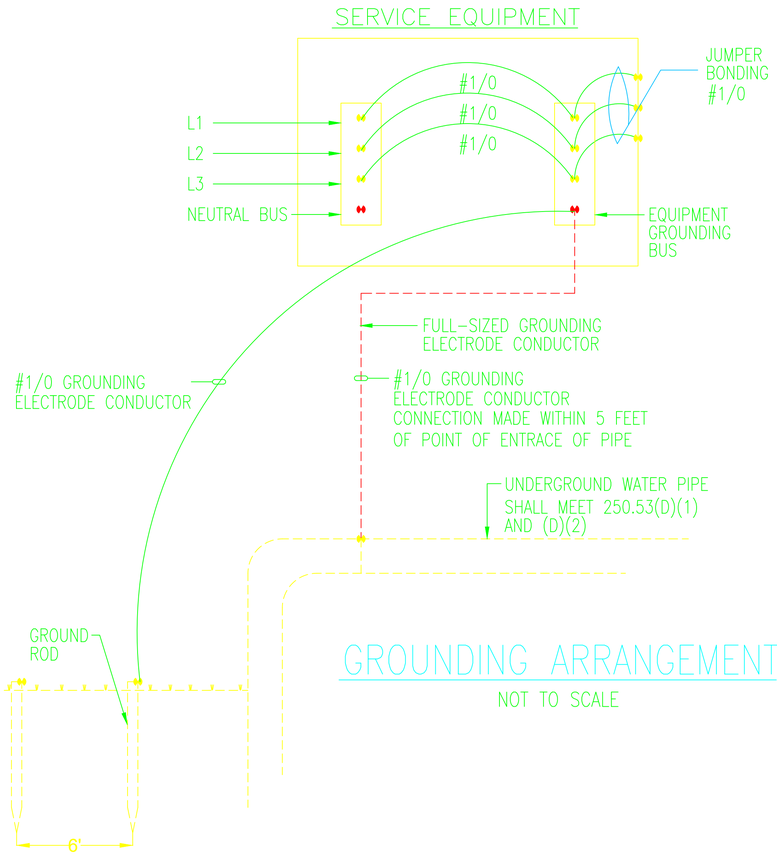
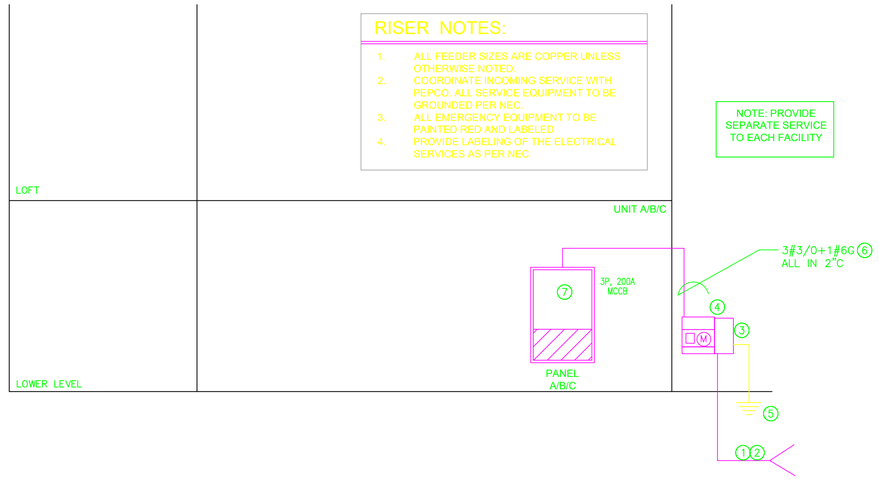
PROPOSED ELECTRICAL POWER PLAN

Drawing Number:
E002



GROUNDING ARRANGEMENT

NOT TO SCALE



ELECTRICAL RISER NOTES: (#)

1. SERVICE ENTRANCE FEEDERS FROM UTILITY COMPANY VAULT. FEEDERS TO BE PROVIDED BY UTILITY CO. SERVICE ENTRANCE CONDUCTORS SHALL BE 2 SETS OF 4#3/0 +1#3 GROUND ALL IN (2) 2-1/2" CONDUIT.
2. COORDINATE WITH UTILITY DWGS FOR EXACT LOCATION AND QUANTITY OF CONDUITS REQUIRED BY UTILITY COMPANY STANDARDS.
3. PROVIDE NEW 200A, 120/240V, 1ϕ, 3W, NEMA 3R, 65AIC, UTILITY COMPANY APPROVED CABINET .
4. PROVIDE COMBINED METER STACK 3R TYPE & CIRCUIT BREAKER 240/120V, 1PH, 3W. (1) 200A CIRCUIT BREAKER. INSTALL PER PEPCO REQUIREMENTS.
5. PROVIDE NEW GROUNDING PER NEC.
6. PROVIDE NEW FEEDER.
7. PROVIDE NEW TENANT UNIT PANEL "x" 200A, MCB, 120/240V, 1ϕ, 3W, – SEE PANEL SCHEDULE.

METER APARTMENT

BASIS OF DESIGN CUTLER HAMMER-3MM METERING STACKS:
COORDINATE WITH POWER CO. FOR RINGS/TINGLESS WITH 65,000 AIC RATING REQUIREMENT. PROVIDE CIRCUIT BREAKERS AS INDICATED ON METER STACK ELEVATION
MAIN SERVICE MODULE;
WITH 65000 AIC RATING.
PROVIDE 65000 AIR SERIES RATING FOR TENANT CIRCUIT BREAKERS. CUTLER HAMMER POWER LINE-2 WITH UTILITY COMPARTMENT SERVICE PROVIDED FOR PEPCO METERING. MAIN DEVICE TYPE SHALL BE ENTRANCE RATED, RATING AS INDICATED. DISTRIBUTION SECTION DEVICES SHALL BE CIRCUIT BREAKERS. PROVIDE PAD LOCKABLE COVER

ALL ELECTRICAL WIRING, BOXES, CONDUITS, RACEWAYS, CATV AND TELEPHONE WIRING PENETRATING FIRE RESISTANCE RATED MEMBRANCES MUST BE PROPERLY SEALED TO ASSURE THAT THE REQUIRED FIRE RATED RATING IS NOT REDUCE.
UL 263 FIRE TESTS OF BUILDING CONSTRUCTION AND MATERIAL. SIMILAR TO ASTM E119

UL 1479 FIRE TESTS OF THROUGH-PENETRATION FIRESTOPS. COMPLEMENTARY TO UL 263. SIMILAR TO ASTM E 814

714.3.2 MEMBRANE PENETRATIONS
SHALL COMPLY WITH SECTION 714.3.1. WHERE WALLS OR PARTITIONS ARE REQUIRED TO HAVE A FIRE RESISTANCE RATING, RECESSED FIXTURES SHALL BE INSTALLED THAT THE REQUIRED FIRE RESISTANCE WILL NOT BE REDUCED.

PENETRATIONS OF MEMBRANES THAT ARE PART HO A HORIZONTAL ASSEMBLY SHALL COMPLY WITH SECTION 714.4.1.1 OR 714.4.1.2 WHERE FLOOR/CEILING ARE REQUIRED TO HAVE A FIRE RESISTANCE RATING.

MEMBRANE PENETRATION BY LISTED ELECTRICAL BOXES OF ANY MATERIAL, PROVIDED THAT SUCH BOXES HAVE BEEN TESTED FOR USE IN FIRE RESISTANCE RATED ASSEMBLIES AND ARE INSTALLED PER INSTRUCTIONS.

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PROPOSED ELECTRICAL SLD AND RISER DIAGRAM

Drawing Number:
E003

MAIN PANEL

Panel Location-																			
Voltage (Phase-Ground/Phase-Phase)	120	208	Source of Supply-From Service Disconnect/Meter																
Phase-	3		Wire-	5															
Rated Amps-	101		AIC-	10k															
MCCB	3-Phase 200 Amps MCCB		Mounting-	Wall Surface															

Circuit	Description	New/ Existing	Load Type	Breaker Size	Poles	Wire Size	A		B		C		Wire Size	Poles	Breaker Size	Load Type	New/ Existing	Description	Circuit
1	LIGHTING LOAD	N		15	1	#14	1500	405					#12	2	20		N	Tilt Skillet	2
3	WATER HEATER	N		20	1	#12			2000	405									4
5	Donut Fryer	N		20	2	#12					325	87.5	#12	2	20		N	80 qt Hobart Floor Mixer	6
7							325	87.5											8
9	Divider/Rounder	N		20	2	#12			385	350			#12	2	20		N	Steam Kettle	10
11											385	350							12
13	Convection Oven	N		20	2	#12	115	332					#12	3	20		N	Phebus Mixer	14
15									115	332									16
17	Picard Oven	N		25	1	#10					3000	332							18
19	CB-1	N		20	1	#12	400	1600					#12	1	20		N	Brick Oven	20
21	CB-2	N		20	1	#12			400	400			#12	1	20		N	CB-8	22
23	CB-3	N		20	1	#12					500	400	#12	1	20		N	CB-9	24
25	CB-4	N		20	1	#12	400	800					#12	1	20		N	CB-10	26
27	CB-5	N		20	1	#12			500	800			#12	1	20		N	CB-11	28
29	CB-6	N		20	1	#12					600	600	#12	1	20		N	CB-12	30
31	CB-7	N		20	1	#12	400	800					#12	1	20		N	CB-13	32
33	HVAC-1	N		20	1	#12			1000	1000			#12	1	20		N	HVAC-7	34
35	HVAC-2	N		20	1	#12					1000	3000	#10	1	25		N	HVAC-8	36
37	HVAC-3	N		20	1	#12	1000	1000					#12	1	20		N	HVAC-9	38
39	HVAC-4	N		20	1	#12			1000	3000			#10	1	25		N	HVAC-10	40
41	HVAC-5	N		20	1	#12					1000	3000	#10	1	25		N	HVAC-11	42
43	HVAC-6	N		20	1	#12	1000	0					--	--	--		--	SPARE	44

	A	B	C	Total
Connected Load (W)	10164.5	11687	14579.5	36431
Divided by 3-phase multiplayer (1.732) and line to line voltage 208 V	101			
Connected Amps	101			
Main Type and Amps Rating	3-Phase 200 Amps MCCB			

Demand Load Calcultion

Load Classification	Connected Load	Demand Factor	Estimated Demand
Lighting - Dwelling Unit	1500	125%	1875
Water Heater - Dwelling Unit	2000	100%	2000
Receptacle	11079.5	65%	7201.675
Cooling	17000	100%	17000
Pump	0	125%	0
Other	0	100%	0
Demand Load	31579.5		28076.675
Demand Amps			78

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PROPOSED ELECTRICAL LOAD SCHEDULE

Drawing Number:
E004

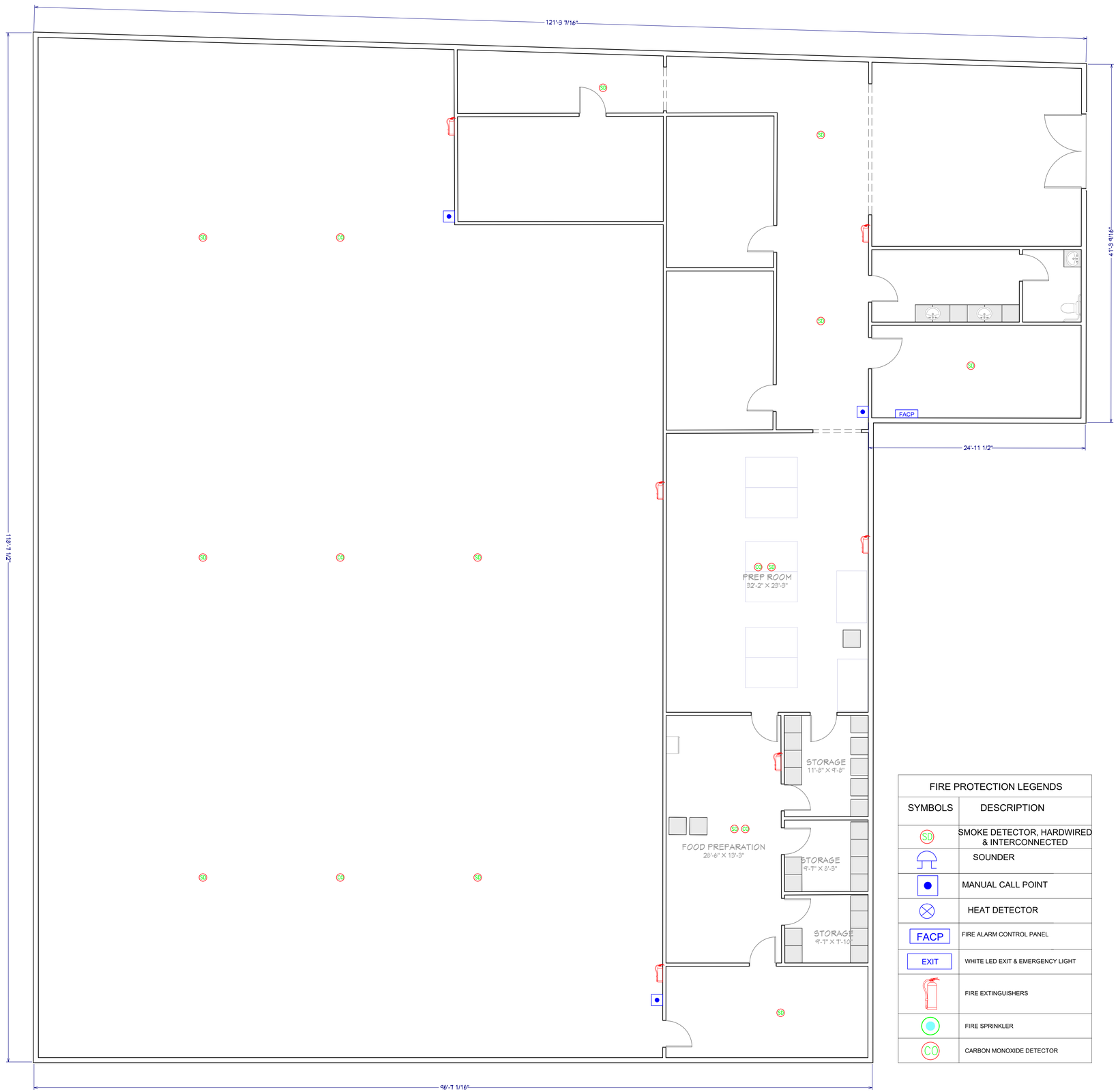
Note
Project Address: 600 W Grubb St, Hertford, NC 27944
This Fire Safety Layout Plan has been meticulously developed in strict adherence to all current fire safety codes, regulations, and standards applicable in Hertford, North Carolina, USA.

Compliance and Code References:

1. 2018 North Carolina Fire Prevention Code (NCFPC): This plan complies with the 2018 NCFPC, which incorporates the 2015 International Fire Code (IFC) with North Carolina-specific amendments. This code is currently enforced statewide and governs fire safety standards for all commercial occupancies, excluding one- and two-family dwellings.
2. North Carolina State Building Code (NCSBC): All structural and fire protection elements are designed in accordance with the NCSBC, as adopted and amended by the North Carolina Building Code Council. This ensures compliance with state-mandated construction and safety requirements.
3. North Carolina Administrative Code and Policies (2024 Proposed Edition): The plan reflects considerations from the proposed 2024 edition, particularly regarding the application of fire prevention provisions to existing buildings, as outlined in Section 101.3.2.6.
4. Hertford County Fire Prevention Code Enforcement: Local enforcement aligns with state codes, ensuring uniform application of fire safety standards across all occupancies within the county.
5. 2023 NFPA 70 (2023 NC Electrical Code): Electrical systems within the plan are designed to meet the requirements of the 2023 NFPA 70, which will be mandatorily effective from January 1, 2025.

Note: The implementation of the 2024 North Carolina State Building Code has been delayed. The 2018 NCSBC remains in effect until the new code is officially adopted.

This Fire Safety Layout Plan is intended to meet or exceed all applicable fire safety requirements, ensuring the safety and well-being of occupants and compliance with all relevant codes and regulations.



FIRE PROTECTION LEGENDS	
SYMBOLS	DESCRIPTION
SD	SMOKE DETECTOR, HARDWIRED & INTERCONNECTED
	SOUNDER
	MANUAL CALL POINT
	HEAT DETECTOR
FACP	FIRE ALARM CONTROL PANEL
EXIT	WHITE LED EXIT & EMERGENCY LIGHT
	FIRE EXTINGUISHERS
	FIRE SPRINKLER
CO	CARBON MONOXIDE DETECTOR

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For City Stamps:

Project No:
Drawn by:
Date: 4/30/25
Sheet Name:
PROPOSED FIRE SAFETY PLAN

Drawing Number:
F001

GENERAL SPECIFICATIONS

1. GENERAL (ALL SPECIFICATIONS ON THIS SHEET AS APPLICABLE)
   - A. WORK INDICATED ON THESE DRAWINGS IS DIAGRAMMATIC AND SHOULD NOT BE SCALED TO ESTABLISH LOCATION OF WORK . THE DRAWINGS ARE INTENDED TO CONVEY THE SCOPE OF WORK AND INDICATE GENERAL ARRANGEMENTS OF ENGINEERED SYSTEMS. THE CONTRACTOR SHALL VERIFY ALL EXISTING CONDITIONS IN THE FIELD AND MAKE ADJUSTMENTS AS NECESSARY TO COMPLETE THE WORK.
   - B. FURNISH ALL LABOR, MATERIALS, TOOLS, EQUIPMENT AND SERVICES FOR ALL WORK, IN ACCORDANCE WITH PROVISIONS OF THE CONTRACT DOCUMENTS. ALTHOUGH SUCH WORK IS NOT SPECIFICALLY INDICATED, FURNISH AND INSTALL ALL SUPPLEMENTARY OR MISCELLANEOUS ITEMS, APPURTENANCES AND DEVICES INCIDENTAL TO OR NECESSARY FOR A SOUND, SECURE AND COMPLETE INSTALLATION, AT NO ADDITIONAL COST TO THE OWNER.
   - C. ALL EQUIPMENT UNDER THIS CONTRACT SHALL BE TESTED, AT COMPLETION, TO THE SATISFACTION OF THE OWNER. IT IS THE INTENTION OF THESE DRAWINGS TO CALL FOR FINISHED WORK, TESTED, AND READY FOR OPERATION. WHEREVER THE WORD "PROVIDE" IS USED, IT SHALL MEAN FURNISH AND INSTALL COMPLETE AND READY FOR USE.
   - D. ALL MATERIALS AND EQUIPMENT SHALL BE NEW, OF FIRST QUALITY AND COMPATIBLE WITH EXISTING SYSTEMS OR MATERIAL WHERE THEY INTERFACE. INSTALL AS RECOMMENDED BY MANUFACTURER AND BEST ENGINEERING PRACTICE.
   - E. SHOULD THE CONTRACTOR ENCOUNTER ANY EXISTING PIPING, DUCTWORK, CONDUITS, OR OTHER OBSTRUCTIONS IN THE WAY OF NEW WORK, CONTRACTOR SHALL REMOVE, REARRANGE AND/OR RELOCATE SAME TO THE SATISFACTION OF THE ARCHITECT AND AT NO ADDITIONAL COST TO THE OWNER.
   - F. CONTRACTOR SHALL OBTAIN OWNER'S APPROVAL IN WRITING PRIOR TO CUTTING OF ANY SLAB, WALLS, CEILING, ROOF AND SHAFTS FOR PENETRATION OF DUCTWORK AND PIPING. THE CONTRACTOR SHALL REPAIR ALL WALLS, CEILING, FLOORS, ETC., THAT ARE REQUIRED TO BE PENETRATED, OR OTHERWISE DISTURBED. THE REPAIRS SHALL BE WITH MATERIALS AND FINISHES TO MATCH EXISTING. ALL FIRE WALL PENETRATIONS SHALL BE SEALED WITH SUITABLE MATERIALS TO PRESERVE FIRE WALL INTEGRITY.
   - G. CLEAN UP ALL WASTE AND DEBRIS AT THE END OF EACH WORKING DAY AND AS REQUIRED TO KEEP ALL BUILDING AREAS CLEAN, CLEAR AND UNOBSTRUCTED. AT THE COMPLETION OF THE PROJECT, THE CONTRACTOR SHALL REMOVE ALL TOOLS, APPLIANCES, SURPLUS MATERIAL AND SCRAP FROM THE JOB SITE AND CLEAN THE ENTIRE JOB SITE TO BE READY FOR OCCUPANCY.
2. COORDINATION AND SCHEDULING:
   - A. COMPLETELY COORDINATE AND SCHEDULE WORK OF ALL TRADES. CONTRACTOR SHALL VERIFY ALL EXISTING CONDITIONS SO THAT CONFLICTS IN SCHEDULING AND LOCATION WILL NOT OCCUR.
   - B. CONTRACTOR IS RESPONSIBLE FOR COMPLETE COORDINATION BETWEEN ALL SUB-CONTRACTORS, SUPPLIERS, GOVERNMENT AUTHORITIES HAVING JURISDICTION, BUILDING PERSONNEL, CODE ENFORCEMENT OFFICIALS, ARCHITECT/ENGINEER AND BUILDING OWNER.
   - C. CONTRACTOR SHALL REVIEW AND COORDINATE THE INSTALLATION OF NEW SYSTEM(S) AND EQUIPMENT. NO WORK SHALL BE PERFORMED PRIOR TO THE CONTRACTOR OBTAINING EXACT FIELD DIMENSIONS OF EXISTING BUILDINGS, EXISTING CEILINGS, STRUCTURAL OBSTRUCTIONS, EXISTING BUILDING SYSTEMS TO REMAIN, EXISTING FURNITURE TO REMAIN, ETC., WHICH, MAY AFFECT INSTALLATION OF NEW EQUIPMENT OR SYSTEMS.
   - D. CONTRACTOR SHALL SCHEDULE AND PHASE WORK IN A FASHION SO AS TO CAUSE MINIMUM DISTURBANCE TO ACTIVITIES IN OTHER AREAS OF THE BUILDING, WHICH MAY REMAIN OCCUPIED THROUGHOUT THE DURATION OF THE CONTRACT. CONTRACTOR'S WORK SCHEDULE SHALL BE SUBMITTED TO AND APPROVED BY THE OWNER. PROVIDE BARRIERS (PLASTIC, GYPBOARD, ETC) BETWEEN PROJECT AREA AND ADJACENT SPACES AS NECESSARY.
   - E. NOTIFY THE OWNER, IN WRITING, AT LEAST FOURTEEN DAYS IN ADVANCE OF ANY REQUIRED SHUTDOWN OF ANY UTILITY. OBTAIN OWNER'S WRITTEN APPROVAL PRIOR TO SHUTDOWN.
   - F. CONTRACTOR SHALL THOROUGHLY EXAMINE PREMISES AND OBSERVE ALL CONDITIONS AND CIRCUMSTANCES UNDER WHICH THE WORK SHALL BE PERFORMED. NO ALLOWANCES WILL BE MADE FOR ERRORS OR NEGLIGENCE IN THIS RESPECT.
3. CODE, PERMITS AND INSPECTIONS:
   - A. ALL WORK SHALL BE DONE IN ACCORDANCE WITH LATEST APPLICABLE CODES, REGULATIONS AND STANDARDS. CONTRACTOR SHALL OBTAIN AND PAY FOR ALL NECESSARY PERMITS AND SHALL ARRANGE FOR ALL INSPECTIONS BY AUTHORITIES HAVING JURISDICTION.
   - B. APPROVAL AND SIGN-OFF BY ALL AUTHORITIES HAVING JURISDICTION AND THE SECURING OF AN APPROVED OCCUPANCY PERMIT IS REQUIRED AT THE COMPLETION OF PROJECT. SECURE PERMIT AND INSPECTION CERTIFICATES AND TRANSMIT SAME TO THE OWNER AT THE COMPLETION OF THE PROJECT.
   - C. PERFORM ALL WORK IN ACCORDANCE WITH THE CURRENT EDITIONS OF APPLICABLE CODES AND STANDARDS ENFORCED IN THE PROJECT JURISDICTION.
   - D. CODES AND STANDARDS LISTED ARE MINIMUM STANDARDS. WHERE CONTRACT DOCUMENTS CALL FOR A HIGHER STANDARD, CONTRACT DOCUMENTS WILL TAKE PRECEDENCE OVER ALL REFERENCED CODES AND STANDARDS. IF CONTRACT DOCUMENTS CONFLICT WITH CODES OR STANDARDS, CONTRACTOR SHALL INFORM ARCHITECT/ENGINEER, IN WRITING, PRIOR TO QUOTE.
   - E. CONTRACTOR SHALL COMPLY WITH ALL OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA) AND ENVIRONMENTAL PROTECTION AGENCY (EPA) REQUIREMENTS.
   - F. CONTRACTOR SHALL COMPLY WITH RULES AND REGULATIONS OF ALL AFFECTED UTILITY COMPANIES.
4. WARRANTY:
   - A. ALL WORK SHALL BE FREE OF DEFECTS IN WORKMANSHIP AND MATERIALS FOR A PERIOD OF ONE YEAR FROM DATE OF FINAL ACCEPTANCE. ALL DEFECTS THAT DEVELOP OR ARE DISCOVERED WITHIN THIS PERIOD SHALL BE REPAIRED BY THE CONTRACTOR, TO THE SATISFACTION OF THE ARCHITECT/ENGINEER AND AT NO ADDITIONAL COST TO THE OWNER.
5. SHOP DRAWINGS:
   - A. SHOP DRAWINGS AND PRODUCT DATA: SUBMIT TO ENGINEER, OWNER AND ARCHITECT ELECTRONIC COPIES OF SHOP DRAWINGS AND MANUFACTURER'S CERTIFIED CAPACITY DATA FOR ALL NEW EQUIPMENT.
6. RECORD DRAWINGS/ASBUILTS:
   - A. THE CONTRACTOR SHALL MAINTAIN AT THE SITE, FOR THE OWNER, ONE COPY OF ALL DRAWINGS, ADDENDA, APPROVED SHOP DRAWINGS, REVISIONS, AND OTHER MODIFICATIONS, IN GOOD ORDER AND MARKED TO RECORD ALL CHANGES MADE DURING CONSTRUCTION. THE SET OF DRAWINGS AND OTHER INFORMATION SHALL BE DELIVERED TO THE OWNER UPON COMPLETION OF WORK, AS REQUESTED.

PLUMBING CODE NOTES

1. CONDENSATE DRAIN SHALL NOT TIE TO SANITARY OR DISCHARGE TO MOP SINK.
2. PROVIDE WATER HAMMER ARRESTOR FOR QUICK CLOSING VALVES.
3. PROVIDE TRAP PRIMERS FOR FLOOR DRAIN OR BARRIER TYPE TRAP SEAL PROTECTION PER ASSE 1072. INSTALL PER MANUFACTURER'S RECOMMENDATION.
4. PROVIDE WATER HAMMER ARRESTOR FOR QUICK CLOSING VALVES CONFORMING TO ASSE1010. (WATER CLOSET, DISHWASHER, WASHER, AS APPLICABLE).

PLUMBING GENERAL NOTES & SPECIFICATIONS

- A. ALL WATER PIPING AND VENT PIPING SHALL BE RUN AS HIGH AS POSSIBLE, CONCEALED ABOVE CEILINGS, UNLESS OTHERWISE NOTED. ALL SANITARY WASTE PIPING SHALL BE RUN AS HIGH AS POSSIBLE BELOW FLOOR SLAB, UNLESS OTHERWISE NOTED.
- B. ALL SANITARY WASTE PIPING SHALL BE SLOPED AT APPROPRIATE SLOPE BASED ON PIPE SIZE AND APPLICABLE CODE(S). ALL SLOPES AND INVERT ELEVATIONS SHALL BE CHECKED BEFORE ANY PIPING IS INSTALLED IN ORDER THAT PROPER SLOPES WILL BE MAINTAINED. CONTRACTOR SHALL VERIFY PIPING CAN BE ROUTED AS SHOWN ON DRAWINGS AND CONNECTIONS CAN BE PERFORMED PRIOR TO STARTING WORK.
- C. MAKE PROPER WASTE, VENT, HOT, AND COLD WATER CONNECTIONS TO ALL FIXTURES AND EQUIPMENT, EVEN THOUGH ALL BRANCH MAINS, ELBOWS, AND CONNECTIONS ARE NOT SHOWN. FOR ALL SIZES OF WASTE, VENT, HOT, AND COLD WATER PIPING TO FIXTURES AND EQUIPMENT, SEE SANITARY WASTE AND WATER RISER DIAGRAMS.
- D. PLUMBING CONTRACTOR SHALL DISINFECT POTABLE WATER SYSTEM PER CODE.
- E. PLUMBING CONTRACTOR SHALL INFORM SUBCONTRACTOR OF QUANTITY AND LOCATION OF ACCESS PANELS WHERE REQUIRED FOR ACCESS TO VALVES IN CEILINGS AND WALLS. ACCESS PANELS SHALL BE INSTALLED BY THE APPROPRIATE SUBCONTRACTOR.
- F. CONTRACTOR SHALL PROVIDE ADDITIONAL WATER LINE DROPS IN WALL WHEN HORIZONTAL RUN IN WALL CONFLICTS WITH VENT PIPE IN WALL.
- G. ALL PIPE PENETRATIONS BELOW SINKS SHALL BE SEALED. ALL PIPE PENETRATIONS THROUGH FLOOR SLAB SHALL BE SEALED WITH FIRE STOPPING MATERIAL.
- H. PROVIDE INDIVIDUAL SHUT-OFF VALVES AT ALL PLUMBING FIXTURES AND APPLIANCES. ALL SHUT-OFF VALVES SHALL BE 125 PSI FULL PORT, TWO PIECE, BRONZE BALL VALVES WITH THREADED OR SOLDERED ENDS.
- I. CONTRACTOR SHALL FIELD VERIFY EXACT LOCATION AND DIRECTION OF FLOW FOR EXISTING SEWER LINES WITHIN THE BUILDING AND BELOW FLOOR/GRADE PRIOR TO STARTING WORK.
- J. SUPPORT ALL PIPING FROM EXISTING OR NEW STRUCTURE AS APPLICABLE ON THIS PROJECT WITH UNITED LABORATORIES (U.L.) LISTED HANGERS AND SUPPORTS SUITABLE FOR THE INTENDED INSTALLATION, DESIGN, SELECTION, SPACING, AND APPLICATION OF HANGERS AND SUPPORTS IN COMPLIANCE WITH ANSI B31.1 AND MSS SP-69.
- K. SLAB PENETRATIONS: FOR ALL SLAB PENETRATIONS REQUIRED FOR NEW WORK, GROUND-PENETRATING RADAR OR X-RAY EQUIPMENT SHALL BE USED TO LOCATE REINFORCING BARS, POST-TENSION CABLES, PIPING, CONDUITS, ETC. PRIOR TO ANY PENETRATION OF THE SLAB. THE CONTRACTOR MUST RECEIVE THE APPROVAL OF THE LANDLORD'S STRUCTURAL ENGINEER BEFORE PROCEEDING WITH ANY CUTTING OF THE SLAB.
- L. CONTRACTOR SHALL PATCH AND REPAIR ALL EXISTING ITEMS TO REMAIN DAMAGED DURING CONSTRUCTION TO MATCH EXISTING UNLESS INDICATED OR NOTED OTHERWISE.
- M. PROVIDE AND INSTALL UNIONS AT CONNECTIONS TO DISSIMILAR METALS; DIELECTRIC TYPE AS REQUIRED.
- N. THE CONTRACTOR SHALL NOT INSTALL ANY NEW PIPING ABOVE ANY NEW OR EXISTING SWITCHBOARDS, PANELBOARDS, AND/OR MOTOR CONTROL CENTERS
- O. PROVIDE ESCUTCHEON PLATES WHEREVER PIPES PASS THROUGH WALLS, FLOORS OR CEILINGS, OUTSIDE DIAMETER TO COVER COMPLETELY PIPE PENETRATION HOLE OR PIPING SLEEVE, NICKEL OR CHROME FINISH FOR EXPOSED AREAS, PRIME PAINT FINISH FOR CONCEALED AREAS.

PLUMBING PIPING & INSULATION

DOMESTIC WATER PIPING:

1. ABOVE GRADE - TYPE "L" HARD-DRAWN TEMPER, WROUGHT COPPER FITTINGS, NON-LEAD SOLDERED JOINTS WITH NON-CORROSIVE FLUX, ANSI B-88.
2. PROVIDE BALL VALVES: 2-PIECE, BRONZE BODY, BLOW-OUT PROOF STEM, METAL BALL, TEFLON SEAL RING, SCREWED OR SOLDERED ENDS. NIBCO OR STOCKHAM.

WASTE AND VENT PIPING

1. WASTE AND VENT PIPING SHALL BE SERVICE WEIGHT NO-HUB CAST IRON PIPE AND FITTINGS CISPI 301, HUB & SPIGOT SOIL PIPE AND FITTINGS ASTM A-74, GALVANIZED STEEL PIPE WITH DRAINAGE PATTERN SCREWED GALVANIZED CAST IRON FITTINGS ANSI/ASTM A-74 OR DWV COPPER WITH WROUGHT COPPER FITTINGS, ASTM B306.
2. PVC AND CPVC PIPING FOR CW/HW/SAN/VENT SHALL BE USED AS ALLOWED BY LOCAL JURISDICTION. IF ROOF IS USED BY OCCUPANTS, VENT SHALL EXTEND 7 FT ABOVE ROOF LEVEL.

INSULATION:

1. PROVIDE INSULATION FOR PIPING AND EQUIPMENT OF TYPES AND THICKNESS SPECIFIED HEREIN. INSULATION SHALL HAVE A FLAME SPREAD RATING NOT EXCEEDING 25 AND A SMOKE DEVELOPED RATING NOT EXCEEDING 50. INSTALL INSULATION IN STRICT CONFORMANCE WITH THE MANUFACTURER'S RECOMMENDATIONS. A CONTINUOUS VAPOR BARRIER SHALL BE PROVIDED ON ALL COLD WATER PIPING. INSULATION SHALL BE ARMSTRONG, CERTAINTEED, OWENS-CORNING OR JOHNS-MANVILLE. RIGID MOLDED GLASS FIBER PIPE INSULATION WITH ALL SERVICE JACKET AND PRESSURE SENSITIVE SELF SEALING LAP. 25ASJ/SSJ-II, 500 SNAP-ON OR EQUAL. INSULATION LOCATED OUTDOORS SHALL BE PROTECTED WITH A WEATHER PROTECTION JACKET AS RECOMMENDED BY THE MANUFACTURER. FOR THE SERVICES INDICATED USE INSULATION THICKNESSES AND TYPES AS FOLLOWS:

1.1.	DOMESTIC COLD WATER PIPE - 1/2"
1.2.	DOMESTIC HOT WATER PIPE - 1"
1.3.	DOMESTIC CIRCULATING HOT WATER PIPE - 1"

SPRINKLER SYSTEM SPECIFICATIONS

- A. THE BUILDING IS PRESENTLY FULLY SPRINKLERED. MODIFY EXISTING SYSTEM AND EXTEND PER NEW LAYOUT AS SHOWN ON ARCHITECTURAL PLANS.
- B. THE WORK SHALL BE PERFORMED BY AN ACCREDITED AUTOMATIC SPRINKLER CONTRACTOR, REGULARLY ENGAGED IN BUSINESS IN THE WASHINGTON, DC METROPOLITAN AREA FOR AT LEAST THE PAST FIVE YEARS AND FAMILIAR WITH THIS TYPE OF WORK.
- C. CONTRACTOR SHALL FAMILIARIZE HIMSELF WITH THE EXISTING SPRINKLER PIPING LAYOUT. THE CEILING SPACE IS EXTREMELY LIMITED AND MUST BE COORDINATED FOR ALL UTILITIES TO FIT WITHIN THE LIMITED SPACE PROVIDED. SPRINKLER MAINS AND BRANCH PIPING SHALL BE RELOCATED AS REQUIRED TO AVOID CONFLICTS WITH LIGHTING, DUCTWORK, DIFFUSERS, PIPING, EQUIPMENT, CEILING HEIGHT CHANGES, ETC. REQUESTS FOR CHANGE ORDERS DUE TO A LACK OF COORDINATION SHALL BE REJECTED.
- D. ALL WORK SHALL BE APPLICABLE HAZARD COVERAGE IN ACCORDANCE WITH NFPA-13 AND THE LOCAL FIRE MARSHAL'S OFFICE. WITHIN THIRTY (30) DAYS OF CONTRACT AWARD, SUBMIT TO THE ENGINEER FOR APPROVAL ALL DEVICES TO BE USED IN THE WORK. SUBMITTALS SHALL INCLUDE PIPE, HANGERS AND SPRINKLER HEADS. INCLUDE ANY DRAWINGS OF ADDITIONAL DATA PROVIDED TO AUTHORITIES HAVING JURISDICTION.
- E. BEFORE COMMENCING ANY OF THIS WORK, VERIFY ALL GOVERNING DIMENSIONS AT THE SITE AND EXAMINE ADJOINING WORK ON WHICH THIS WORK WILL BE DEPENDENT. REPORT ANY CONFLICTS OR DISCREPANCIES TO THE OWNER.
- F. PROVIDE ALL PIPING, FITTINGS, ETC. REQUIRED TO CONNECT TO EXISTING SYSTEMS.
- G. COORDINATE SHUTDOWN OF EXISTING SYSTEMS WITH THE OWNER. SHUTDOWN TIME SHALL BE KEPT TO MINIMUM, AND PERFORMED WHEN CONVENIENT TO THE OWNER.
- H. OPEN PLENUM SPACES (CEILING POCKETS) EXCEEDING 36" IN DEPTH SHALL BE SPRINKLERED PER NFPA 13.
- I. PROVIDE ONE YEAR WARRANTY FOR ALL MATERIAL AND INSTALLATION UNDER THIS PROJECT.
- J. CONTRACTOR SHALL OBTAIN AND PAY FOR ALL PERMITS.
- K. CONTRACTOR SHALL OBTAIN ALL NECESSARY FLOW DATA TO PERFORM HYDRAULIC CALCULATIONS.
- L. FOR EXISTING SYSTEM MATCH PIPING, FITTINGS AND SPRINKLER HEAD TYPES WITH EXISTING.
- M. PROVIDE SUBMITTALS AND CALCULATIONS TO FIRE MARSHAL'S OFFICE FOR APPROVAL. UPON RECEIPT OF SAID APPROVALS, CONTRACTOR SHALL FURNISH THE OWNER ONE (1) SET BEARING STAMP OF APPROVAL PRIOR TO CONSTRUCTION AND TWO (2) SETS OF "AS-BUILTS" AT COMPLETION OF PROJECT.
- N. ALL PIPING SHALL BE INSTALLED ABOVE CEILINGS, INSIDE WALLS OR IN CONCEALED SPACES WITHIN THE AREA. PROVIDE ALL CUTTING AND PATCHING REQUIRED FOR THE FIRE SPRINKLER INSTALLATION.
- O. ALL SYSTEMS SHALL BE SUBJECTED TO HYDROSTATIC TEST OF 200 PSI FOR TWO HOURS, WITHOUT LEAKS OR LOSS OF PRESSURE. TESTING SHALL BE IN ACCORDANCE WITH LOCAL REQUIREMENTS. GIVE THREE (3) DAYS NOTICE TO THE OWNER'S REPRESENTATIVE PRIOR TO TESTING. SUBMIT COMPLETED "CONTRACTOR'S MATERIALS AND TEST CERTIFICATE" TO THE OWNER'S REPRESENTATIVE AFTER SUCCESSFUL COMPLETION OF TESTING.

NATURAL GAS PIPING

1. GAS PIPING: CONFORM TO THE REQUIREMENTS OF NFPA 54 - NATIONAL FUEL GAS CODE.
2. PIPING:
   - A. STEEL PIPE 2 INCH AND SMALLER: ASTM A53, SCHEDULE 40, SEAMLESS, BLACK STEEL PIPE, BEVELED ENDS, THREADED JOINTS. MALLEABLE-IRON THREADED FITTINGS: ANSI B16.3, CLASS 150, STANDARD PATTERN. THREADS SHALL CONFORM TO ANSI B1.20.1.
   - B. STEEL PIPE 2-1/2 INCH AND LARGER: ASTM A53, SCHEDULE 40, SEAMLESS, BLACK STEEL PIPE, BEVELED ENDS, WELDED JOINTS. STEEL FITTINGS: ASTM A 234, SEAMLESS OR WELDED.
3. VALVES SHALL NOT BE LOCATED IN AIR PLENUMS.
4. CONCEALED PIPING:
   - A. CONCEALED LOCATIONS: PIPING IN CONCEALED LOCATIONS SHALL ONLY HAVE APPROVED FITTINGS. NO PROHIBITED FITTINGS SUCH AS UNIONS, GASKETED JOINTS, COUPLINGS, BUSHINGS, SWING JOINTS, COMPRESSION COUPLINGS, TUBING FITTINGS, RUNNING THREADS ETC. ARE ALLOWED.
   - B. PIPING IN PARTITIONS: CONCEALED PIPING SHALL NOT BE LOCATED IN SOLID PARTITIONS, CONCRETE OR MASONRY WALLS. TUBING SHALL NOT BE RUN INSIDE HOLLOW WALLS OR PARTITIONS UNLESS PROTECTED AGAINST PHYSICAL DAMAGE. THIS DOES NOT APPLY TO TUBING PASSING THROUGH WALLS OR PARTITIONS.
5. UNIONS: ANSI B16.39, CLASS 150, BLACK MALLEABLE IRON; FEMALE PATTERN; BRASS TO IRON SEAT; GROUND JOINT.
6. DIELECTRIC UNIONS: ANSI B16.39, CLASS 250; MALLEABLE IRON AND CAST BRONZE; WITH THREADED OR SOLDERED END CONNECTIONS SUITABLE FOR PIPE TO BE JOINED; DESIGNED TO ISOLATE GALVANIC AND STRAY CURRENT CORROSION.
7. PROTECTIVE COATING: WHEN PIPING WILL BE IN CONTACT WITH MATERIAL OR ATMOSPHERE EXERTING A CORROSIVE ACTION, PIPE AND FITTINGS SHALL BE FACTORY-COATED WITH POLYETHYLENE TAPE. OVERALL THICKNESS .20 MILS, SYNTHETIC ADHESIVE, WATER VAPOR TRANSMISSION RATE, GALLONS PER 100 SQUARE INCH: 0.10 OR LESS. WATER ABSORPTION, PERCENT: 0.02 OR LESS. PRIME PIPE AND FITTINGS WITH A COMPATIBLE PRIMER PRIOR TO APPLICATION OF TAPE.
8. PLUG VALVES: 2-½ INCHES & LARGER ASME B16.38 AND MSS SP-78 CAST IRON LUBRICATED PLUG VALVES WITH 125 PSIG PRESSURE RATING, 3 TURN TYPE. GAS VALVES ARE PROHIBITED ABOVE CEILINGS.
9. COCKS: 2 INCHES & SMALLER - AGA CERTIFIED BRONZE BODY, PLUG TYPE WITH BRONZE PLUG, BALL TYPE WITH CHROME PLATED BRASS BALL, FOR 5 PSIG OR LESS GAS. INCLUDE AGA STAMP, FLAT OR SQUARE HEAD OR LEVER HANDLE, AND THREADED ENDS CONFORMING TO ASME B1.20.1
10. BALL VALVES: FULL FLOW, DOUBLE SEAL, BALL TYPE WITH BRONZE BODY, BUNA-N SEALS AND O-RING PACKING, CHROME PLATED BRASS BALL AND DESIGNED FOR WORKING PRESSURES UP TO 175 PSIG. VALVES SHALL BE 3 TURN TYPE. MSS SP-78, CLASS 175 WOG.
11. GAS LINE PRESSURE REGULATORS: SINGLE STAGE, STEEL JACKETED, CORROSION-RESISTANT GAS PRESSURE REGULATORS; WITH ATMOSPHERIC VENT, ELEVATION COMPENSATOR; WITH THREADED ENDS FOR 2 INCH AND SMALLER, FLANGED ENDS FOR 2-1/2 INCH AND LARGER; FOR INLET AND OUTLET GAS PRESSURES, SPECIFIC GRAVITY, AND VOLUME FLOW INDICATED. PRESSURE REGULATORS SHALL BE INSTALLED IN A WELL VENTILATED LOCATION. PRESSURE REGULATORS SHALL BE VENTED TO THE OUTSIDE AS REQUIRED BY THE GAS CO. AND BY THE REGULATOR MANUFACTURER. INSTALL VENT PIPING FOR GAS PRESSURE REGULATORS AND GAS TRAINS, EXTEND OUTSIDE BUILDING TO A NON-HAZARDOUS LOCATION AWAY FROM ANY POTENTIAL SOURCE OF IGNITION, AND VENT TO ATMOSPHERE. PIPE MATERIAL SHALL BE IDENTICAL TO GAS PIPING HERE-IN BEFORE SPECIFIED. TERMINATE VENTS WITH TURNED DOWN, REDUCING ELBOW FITTINGS WITH CORROSION-RESISTANT INSECT SCREEN IN LARGE END.
12. TESTING: TESTING OF GAS PIPING SYSTEM SHALL BE PERFORMED IN ACCORDANCE WITH NFPA 54 AND ALL LOCAL CODES AND REGULATIONS.

PLUMBING SYMBOLS

SYMBOL	ABBREVIATION	DESCRIPTION
		EXISTING PIPING OR EQUIPMENT TO REMAIN
		EXISTING PIPING OR EQUIPMENT TO BE REMOVED
	CW	DOMESTIC COLD WATER
	HW	DOMESTIC HOT WATER
	HWC	DOMESTIC HOT WATER RECIRCULATION
	WP	SANITARY SOIL AND WASTE
	VP	SANITARY VENT
D	D	DRAIN LINE
PD	PD	PUMPED DISCHARGE
G	G	NATURAL GAS
ST	ST	STORM WATER
		PIPE TURNING UP
		PIPE TURNING DOWN
		VALVE IN VERTICAL
		PIPE BRANCH BOTTOM TAKEOFF
		PIPE BRANCH TOP TAKEOFF
		CAPPED PIPE
		BALL VALVE
		CHECK VALVE
		UNION
		GATE VALVE
	PRV	PRESSURE REDUCING VALVE
		GAS COCK
M		GAS METER
		COMBINATION BALANCING AND SHUT-OFF VALVE
	FDC	FIRE DEPARTMENT CONNECTION
		PIPE DIRECTION OF FLOW
	FD	FLOOR DRAIN
		POINT OF REMOVAL
		POINT OF CONNECTION TO EXISTING
1		KEYED NOTE, DEMOLITION
1		KEYED NOTE, NEW WORK

ABBREVIATIONS

(E)	EXISTING TO REMAIN	INV	INVERT ELEVATION
(R)	EXISTING TO BE REMOVED AND RELOCATED	KW	KILOWATTS
(RE)	RELOCATED EQUIPMENT	L	LAVATORY
(X)	DEMOLISHED EQUIPMENT	LBS	POUNDS
ABV	ABOVE	MAX	MAXIMUM
ADA	AMERICANS WITH DISABILITIES ACT	MECH	MECHANICAL
AFF	ABOVE FINISHED FLOOR	MBH	THOUSANDS OF BTU'S PER HOUR
BFP	BACKFLOW PREVENTER	MIN	MINIMUM
BTU	BRITISH THERMAL UNITS	MS	MOP SINK
CISPI	CAST IRON SOIL PIPE INSTITUTE	NSF	NATIONAL SANITARY FOUNDATION
CLG	CEILING	OD	OVERFLOW DRAIN
CO	CLEANOUT	OSD	OPEN SITE DRAIN
CONT	CONTINUATION	PH	PHASE
CM	COFFEE MAKER	PSI	POUNDS PER SQUARE INCH
DF	DRINKING FOUNTAIN	RD	ROOF DRAIN
DFU	DRAINAGE FIXTURE UNITS	REF	REFRIGERATOR
DN	DOWN	RL	RAIN LEADER
DW	DISHWASHER	SH	SHOWER
DWG	DRAWING	SK	SINK
EA	EACH	SQ.FT	SQUARE FOOT, FEET
ELEC	ELECTRIC, ELECTRICAL	SS	SERVICE SINK
ELEV	ELEVATION	TPV	TRAP PRIMER VALVE
EWC	ELECTRIC WATER COOLER	TS	TAMPER SWITCH
°F	DEGREES FAHRENHEIT	TYP	TYPICAL
FCO	FLOOR CLEANOUT	U	URINAL
FD	FLOOR DRAIN	V	VOLT, VOLTS
GAL	GALLON, GALLONS	VS	VENT STACK
GD	GARBAGE DISPOSAL	VTR	VENT THROUGH ROOF
GPH	GALLONS PER HOUR	W/	WITH
GPM	GALLONS PER MINUTE	WC	WATER CLOSET
HB	HOSE BIB	WH	WATER HEATER
HD	HUB DRAIN	WHA	WATER HAMMER ARRESTOR
IM	ICE MAKER	WS	WASTE STACK

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For City Stamps:

Project No:

Drawn by:

Date: 4/30/25

Sheet Name:
GENERAL
PLUMBING NOTE

Drawing Number:
P000

NOTE:
This Plumbing Layout Plan for the property located at 600W Grubb St, Hertford, NC 27944 has been developed in strict accordance with the following codes, standards, and regulations currently in effect in the State of North Carolina, USA:

1. 2024 North Carolina State Building Code: Plumbing Code

This code is a fully integrated document based on the 2021 International Plumbing Code (IPC). It became effective for use on January 1, 2025, and is mandatorily effective on July 1, 2025.

2. 2024 North Carolina State Building Code Suite

This suite encompasses a comprehensive set of 10 codes, including plumbing, mechanical, and energy conservation codes. The suite is expected to become effective on July 1, 2025.

3. 2023 North Carolina Electrical Code (NFPA 70)

Also known as the 2023 NC Electrical Code, this code became mandatorily effective on January 1, 2025.

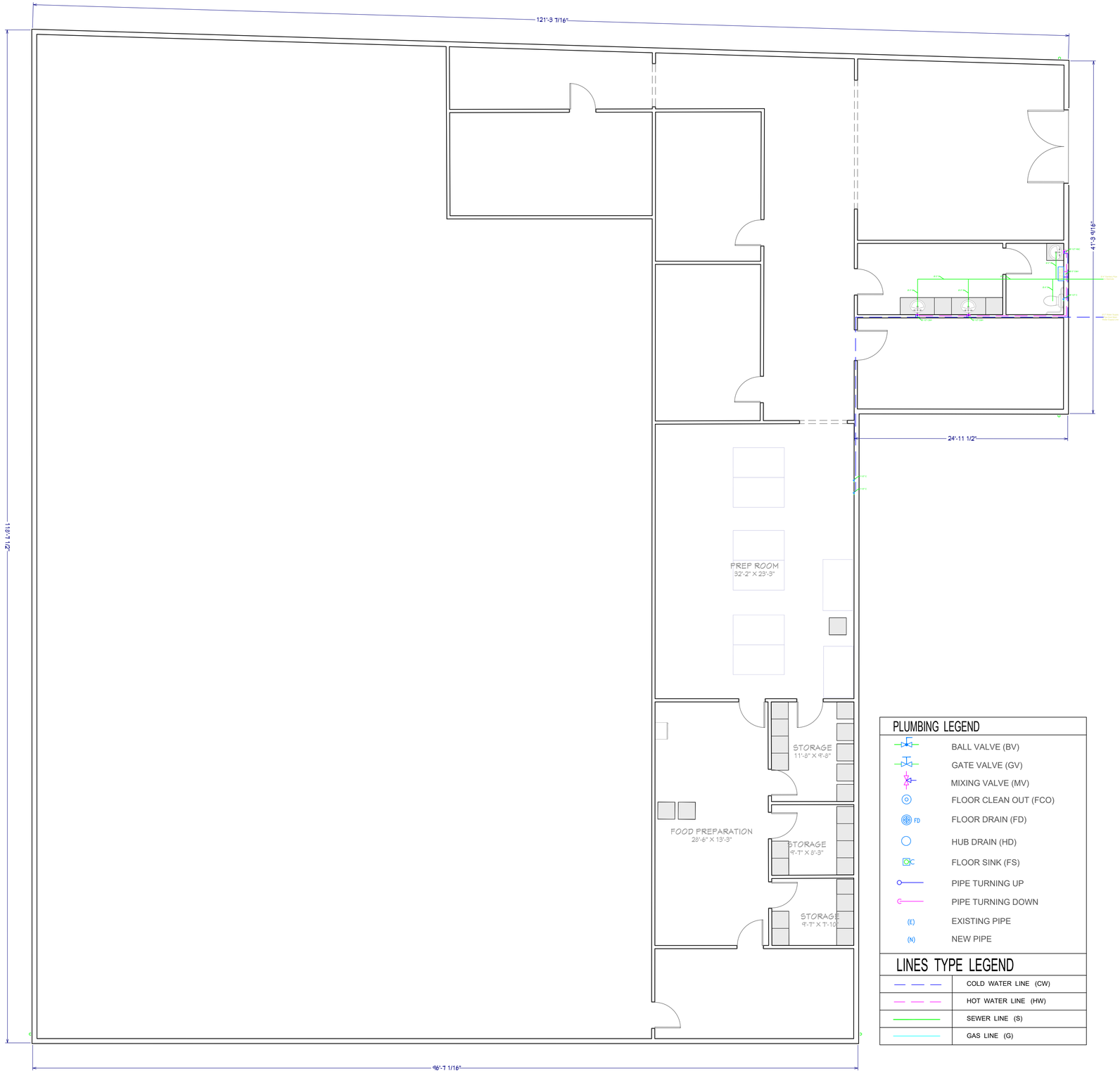
4. FEMA Flood Hazard Area Construction Standards

Perquimans County, where the property is located, continues to enforce FEMA Construction Standards in all identified Flood Hazard Areas. This ensures compliance with national flood insurance program requirements.

5. Perquimans County Land Use Plan

The county enforces the North Carolina Building Code and the County Minimum Housing Code as a means to reduce the frequency of substandard housing.

All plumbing system designs, materials, and installation methods specified in this plan comply with the above-mentioned codes and standards. This ensures the safety, functionality, and regulatory compliance of the plumbing infrastructure for the specified property.



PLUMBING LEGEND

	BALL VALVE (BV)
	GATE VALVE (GV)
	MIXING VALVE (MV)
	FLOOR CLEAN OUT (FCO)
FD	FLOOR DRAIN (FD)
	HUB DRAIN (HD)
FS	FLOOR SINK (FS)
	PIPE TURNING UP
	PIPE TURNING DOWN
(E)	EXISTING PIPE
(N)	NEW PIPE

LINES TYPE LEGEND

	COLD WATER LINE (CW)
	HOT WATER LINE (HW)
	SEWER LINE (S)
	GAS LINE (G)

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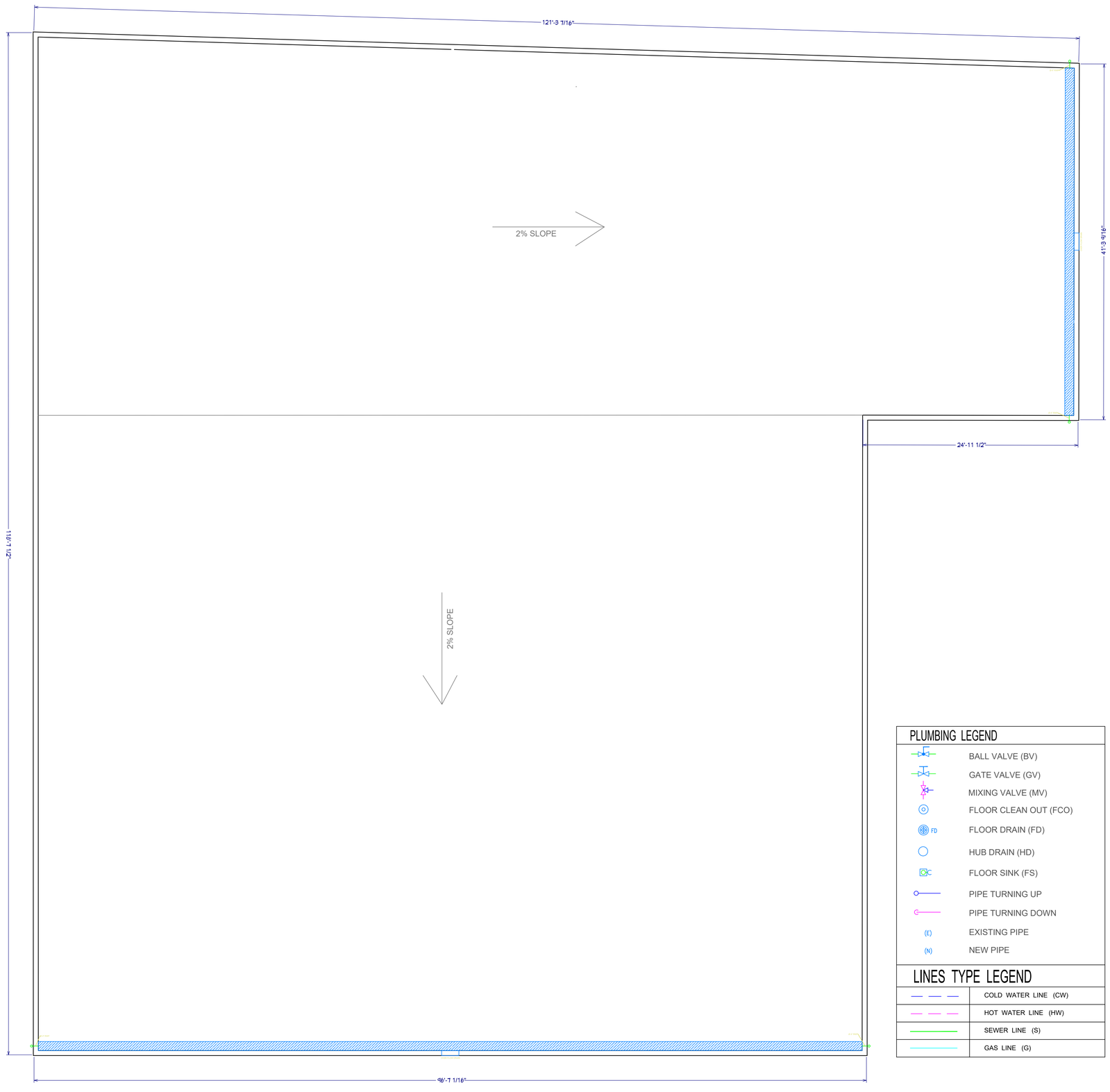
Drawn by:

Date: 4/30/25

Sheet Name:
PROPOSED PLUMBING PLAN

Drawing Number:
P001



PLUMBING LEGEND

	BALL VALVE (BV)
	GATE VALVE (GV)
	MIXING VALVE (MV)
	FLOOR CLEAN OUT (FCO)
FD	FLOOR DRAIN (FD)
	HUB DRAIN (HD)
FSC	FLOOR SINK (FS)
	PIPE TURNING UP
	PIPE TURNING DOWN
(E)	EXISTING PIPE
(N)	NEW PIPE

LINES TYPE LEGEND

	COLD WATER LINE (CW)
	HOT WATER LINE (HW)
	SEWER LINE (S)
	GAS LINE (G)

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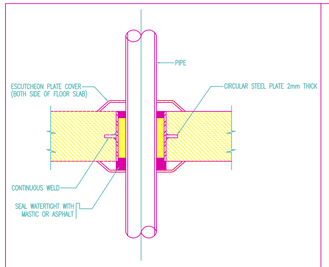
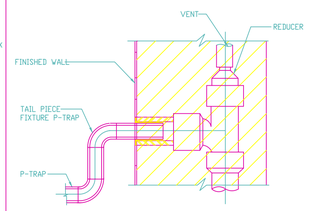
Date: 4/30/25

Sheet Name:
PROPOSED PLUMBING ROOF PLAN

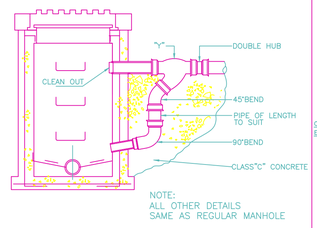
Drawing Number:
P002



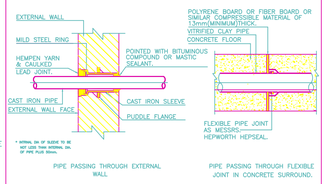
1 PIPE SLEEVE THRU FLOOR SLAB



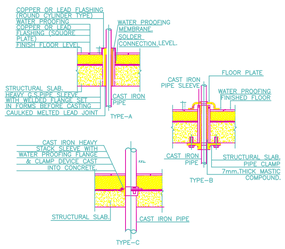
1 TYP FIXTURE CONNECTION DETIL THRU WALL



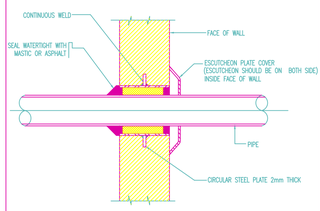
1 DROP MANHOLE



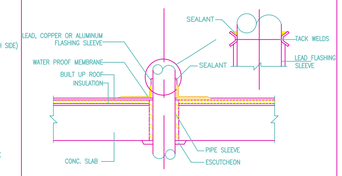
1 PIPES PASSING THROUGH WALL & CONCRETE



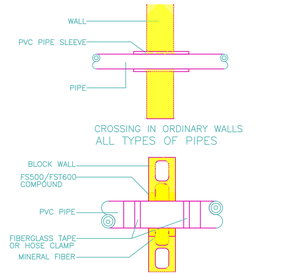
1 PIPE RISERS PENETRATING FLOOR OR ROOF SLAB



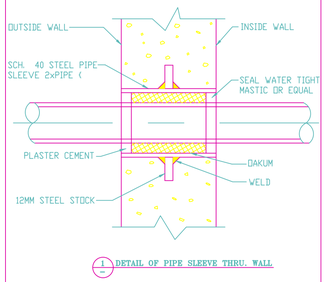
1 PIPE SLEEVE THRU WALL



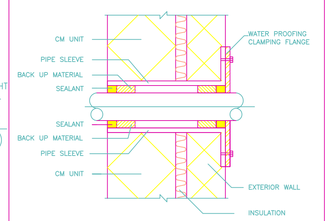
1 PIPE SLEEVE IN ROOF



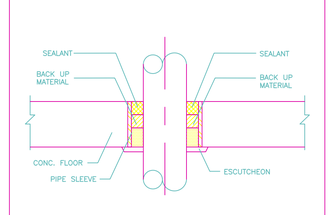
1 FOR PVC PIPE CROSSING THRU BLOCK WALL



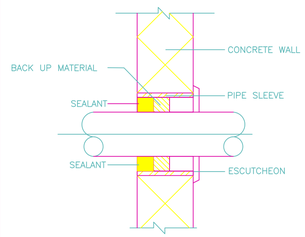
1 DETAIL OF PIPE SLEEVE THRU. WALL



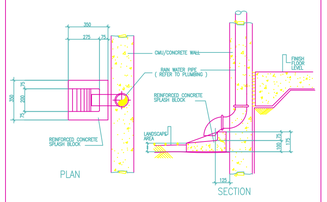
1 PIPE SLEEVE THRU EXTERIOR WALL OR FOUNDATION WALL (BELOW GRADE)



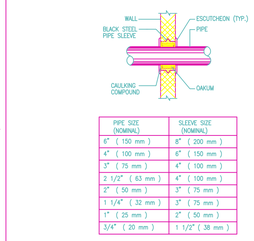
1 PIPE SLEEVE THRU FLOOR



1 PIPE SLEEVE THRU INTERIOR WALL (ABOVE GRADE)

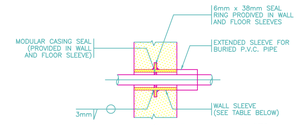


1 DETAIL OF CONCRETE SPLASH BLOCK



PIPE SIZE (NOMINAL)	SLEEVE SIZE (NOMINAL)
6" (150 mm)	8" (200 mm)
4" (100 mm)	6" (150 mm)
3" (75 mm)	4" (100 mm)
2 1/2" (63 mm)	4" (100 mm)
2" (50 mm)	3" (75 mm)
1 1/4" (32 mm)	3" (75 mm)
1" (25 mm)	2" (50 mm)
3/4" (20 mm)	1 1/2" (38 mm)

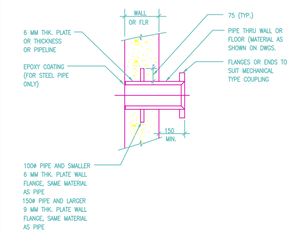
1 DETAIL OF PIPE SLEEVE



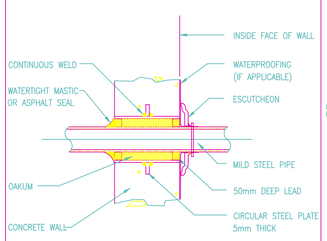
PIPE SIZE (SIZE REFERENCED ON DRAWINGS)	SLEEVE SIZE (STANDARD PIPE) *
20	63
25 and 32	90
50	90
63 and 75	110
90	160
110	160
160	200

* SCHEDULE 40 STEEL PIPE

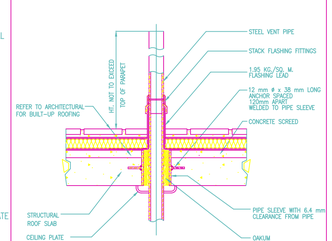
1 WALL, FLOOR AND BEAM SLEEVE DETAIL



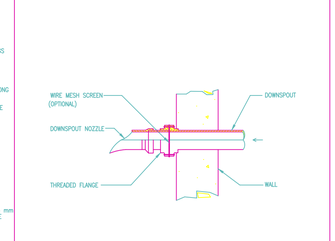
1 PIPE THIMBLE-TYPE II



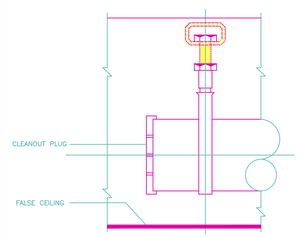
1 WATER RESISTANT PIPE SLEEVE



1 PIPE PENETRATION THRU ROOF DETAIL



1 DOWNSPOUT NOZZLE DETAIL



1 DETAIL OF CLEANOUT AT HIGH LEVEL

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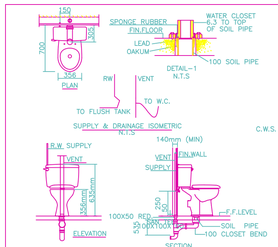
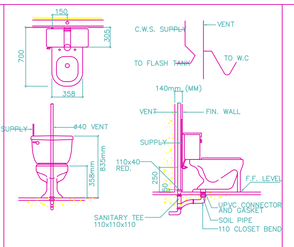
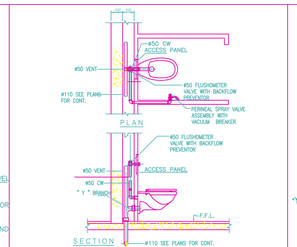


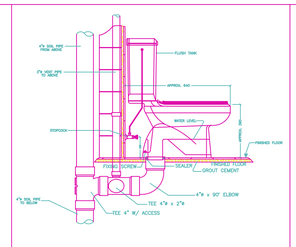
1 WESTERN WATER CLOSET DETAIL



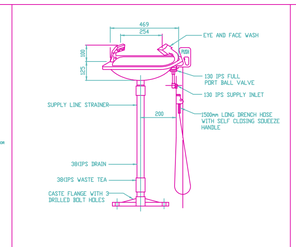
1 WESTERN WATER CLOSET DETAIL



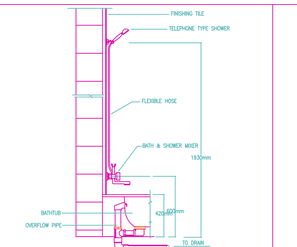
1 WESTERN WATER CLOSET DETAIL



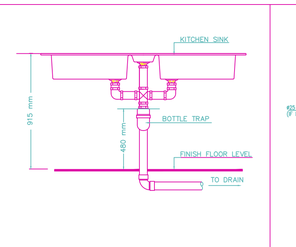
1 WATER CLOSET INSTALLATION DETAIL



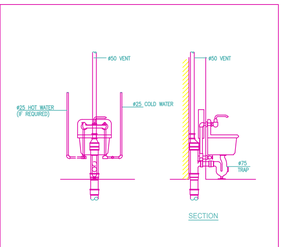
EMERGENCY EYE/FACE WASH W/DRENCH HOSE DETAIL N.T.S DRAIN



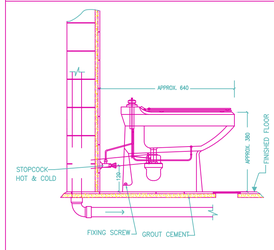
1 BATHTUB INSTALLATION DETAIL



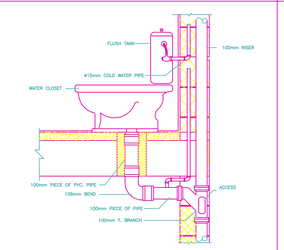
1 KITCHEN SINK INSTALLATION DETAIL



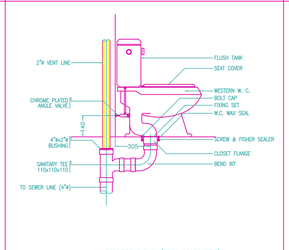
1 JANITOR SINK



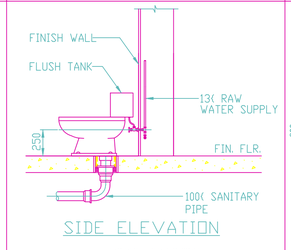
1 BIDET INSTALLATION DETAIL



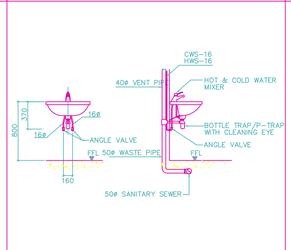
1 WESTERN WATER CLOSET DETAILS



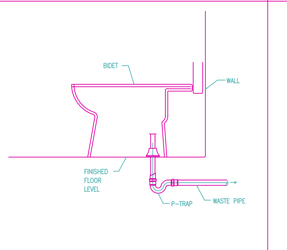
1 WESTERN W.C (FLR. MOUNTED) DRAINAGE INSTALLATION DETAILS



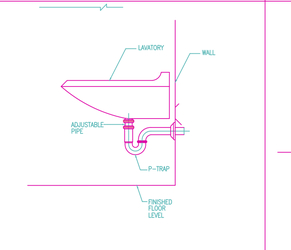
1 WESTERN WATER CLOSET INSTALLATION DETAIL



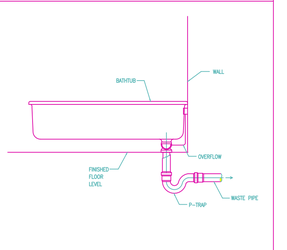
1 WASH BASIN



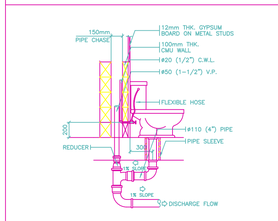
1 BIDET CONNECTION DETAIL



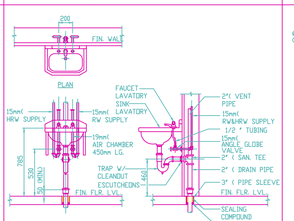
1 LAVATORY CINNECTION DETAIL



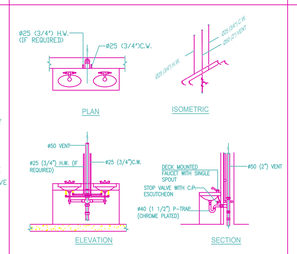
1 BATH TYB CONNECTION DETAIL



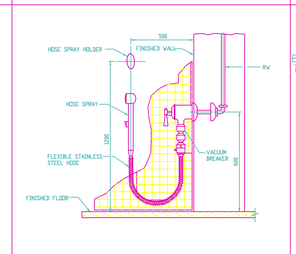
WATER CLOSET PIPING INSTALLATION DETAIL



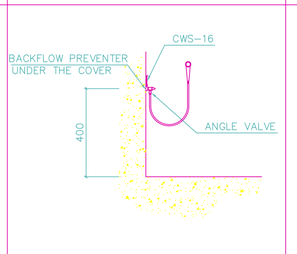
1 LAVATORY INSTALLATION DETAIL



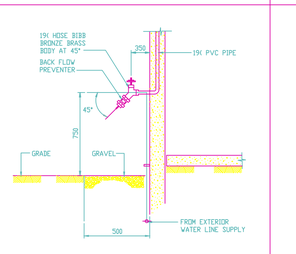
1 STAFF LAVATORY (L-1)



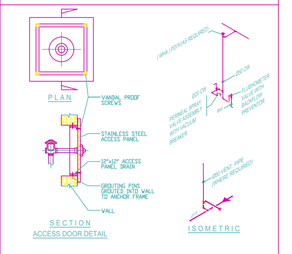
1 PERENNIAL HOSE SPRAY INSTALLATION DETAIL



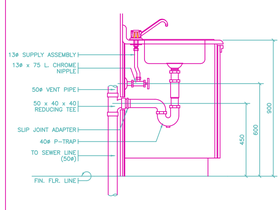
1 HAND SHOWER FOR ABLUTION



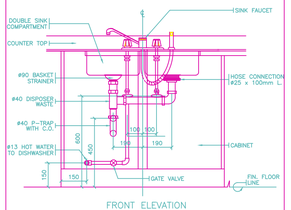
1 HOSE BIBB INSTALLATION DETAIL



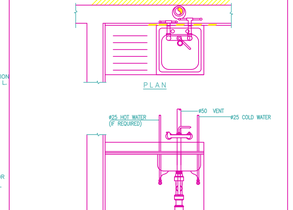
1 WESTERN TOILET (T-2)



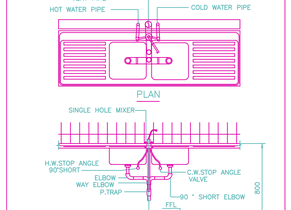
1 KITCHEN SINK INSTALLATION DETAIL



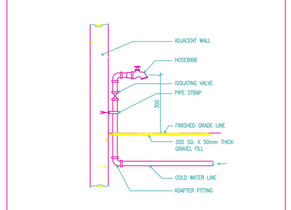
1 KITCHEN SINK INSTALLATION DETAIL



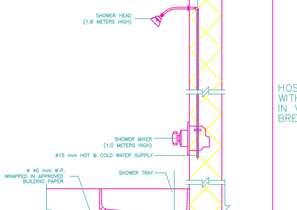
1 KICTHEN SINK



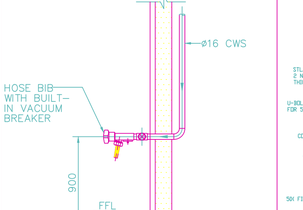
1 TWO COMPARTMENT SINK DETAIL



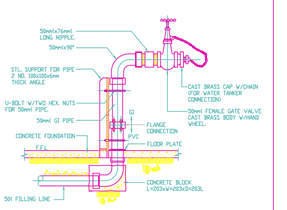
1 HOSEB IBB DETAIL



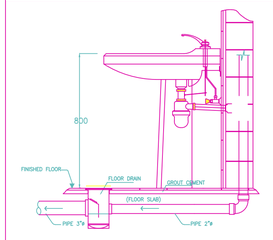
1 TYPICAL DETAIL OF SHOWER TRAY



1 HOSE BIB INSTALLATION (HB)



1 FILL TRUCK COUPLING INSTALLATION DETAIL



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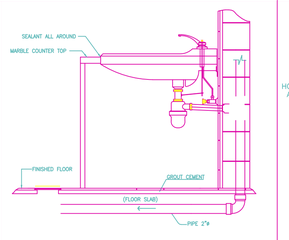

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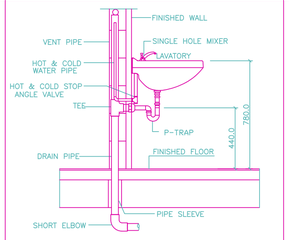

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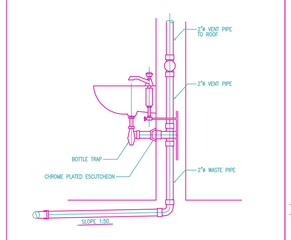
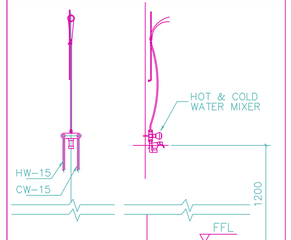
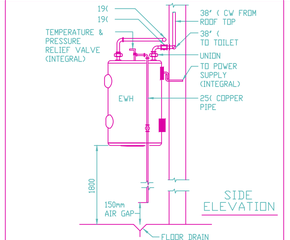


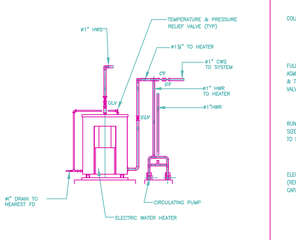
1 LAVATORY DRAIN PIPING DETAILS



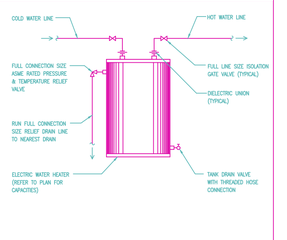
1 SHOWER



1 EWH INSTALLATION DETAIL (WALL MOUNTED)



1 CENTRAL ELECTRIC WATER HEATER



1 EWH INSTALLATION DIAGRAM

ENGINEER'S TEAM LTD
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HOLLAND MI 49423
SUPPORT@ENGRTEAM.COM
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For City Stamps:

Project No:

Drawn by:

Date: 4/30/25

Sheet Name:
PROPOSED PLUMBING INSTALLATION AND RISER DIAGRAM

Drawing Number:

P004

GENERAL SPECIFICATIONS

1. GENERAL (ALL SPECIFICATIONS ON THIS SHEET AS APPLICABLE)

   A. WORK INDICATED ON THESE DRAWINGS IS DIAGRAMMATIC AND SHOULD NOT BE SCALED TO ESTABLISH LOCATION OF WORK. THE DRAWINGS ARE INTENDED TO CONVEY THE SCOPE OF WORK AND INDICATE GENERAL ARRANGEMENTS OF ENGINEERED SYSTEMS. THE CONTRACTOR SHALL VERIFY ALL EXISTING CONDITIONS IN THE FIELD AND MAKE ADJUSTMENTS AS NECESSARY TO COMPLETE THE WORK.
   B. FURNISH ALL LABOR, MATERIALS, TOOLS, EQUIPMENT AND SERVICES FOR ALL WORK, IN ACCORDANCE WITH PROVISIONS OF THE CONTRACT DOCUMENTS. ALTHOUGH SUCH WORK IS NOT SPECIFICALLY INDICATED, FURNISH AND INSTALL ALL SUPPLEMENTARY OR MISCELLANEOUS ITEMS, APPURTENANCES AND DEVICES INCIDENTAL TO OR NECESSARY FOR A SOUND, SECURE AND COMPLETE INSTALLATION, AT NO ADDITIONAL COST TO THE OWNER.
   C. ALL EQUIPMENT UNDER THIS CONTRACT SHALL BE TESTED, AT COMPLETION, TO THE SATISFACTION OF THE OWNER. IT IS THE INTENTION OF THESE DRAWINGS TO CALL FOR FINISHED WORK, TESTED, AND READY FOR OPERATION. WHEREVER THE WORD "PROVIDE" IS USED, IT SHALL MEAN FURNISH AND INSTALL COMPLETE AND READY FOR USE.
   D. ALL MATERIALS AND EQUIPMENT SHALL BE NEW, OF FIRST QUALITY AND COMPATIBLE WITH EXISTING SYSTEMS OR MATERIAL WHERE THEY INTERFACE. INSTALL AS RECOMMENDED BY MANUFACTURER AND BEST ENGINEERING PRACTICE.
   E. SHOULD THE CONTRACTOR ENCOUNTER ANY EXISTING PIPING, DUCTWORK, CONDUITS, OR OTHER OBSTRUCTIONS IN THE WAY OF NEW WORK, CONTRACTOR SHALL REMOVE, REARRANGE AND/OR RELOCATE SAME TO THE SATISFACTION OF THE ARCHITECT AND AT NO ADDITIONAL COST TO THE OWNER.
   F. CONTRACTOR SHALL OBTAIN OWNER'S APPROVAL IN WRITING PRIOR TO CUTTING OF ANY SLAB, WALLS, CEILING, ROOF AND SHAFTS FOR PENETRATION OF DUCTWORK AND PIPING. THE CONTRACTOR SHALL REPAIR ALL WALLS, CEILING, FLOORS, ETC., THAT ARE REQUIRED TO BE PENETRATED, OR OTHERWISE DISTURBED. THE REPAIRS SHALL BE WITH MATERIALS AND FINISHES TO MATCH EXISTING. ALL FIRE WALL PENETRATIONS SHALL BE SEALED WITH SUITABLE MATERIALS TO PRESERVE FIRE WALL INTEGRITY.
   G. CLEAN UP ALL WASTE AND DEBRIS AT THE END OF EACH WORKING DAY AND AS REQUIRED TO KEEP ALL BUILDING AREAS CLEAN, CLEAR AND UNOBSTRUCTED. AT THE COMPLETION OF THE PROJECT, THE CONTRACTOR SHALL REMOVE ALL TOOLS, APPLIANCES, SURPLUS MATERIAL AND SCRAP FROM THE JOB SITE AND CLEAN THE ENTIRE JOB SITE TO BE READY FOR OCCUPANCY.

2. COORDINATION AND SCHEDULING:

   A. COMPLETELY COORDINATE AND SCHEDULE WORK OF ALL TRADES. CONTRACTOR SHALL VERIFY ALL EXISTING CONDITIONS SO THAT CONFLICTS IN SCHEDULING AND LOCATION WILL NOT OCCUR.
   B. CONTRACTOR IS RESPONSIBLE FOR COMPLETE COORDINATION BETWEEN ALL SUB-CONTRACTORS, SUPPLIERS, GOVERNMENT AUTHORITIES HAVING JURISDICTION, BUILDING PERSONNEL, CODE ENFORCEMENT OFFICIALS, ARCHITECT/ENGINEER AND BUILDING OWNER.
   C. CONTRACTOR SHALL REVIEW AND COORDINATE THE INSTALLATION OF NEW SYSTEM(S) AND EQUIPMENT. NO WORK SHALL BE PERFORMED PRIOR TO THE CONTRACTOR OBTAINING EXACT FIELD DIMENSIONS OF EXISTING BUILDINGS, EXISTING CEILINGS, STRUCTURAL OBSTRUCTIONS, EXISTING BUILDING SYSTEMS TO REMAIN, EXISTING FURNITURE TO REMAIN, ETC., WHICH, MAY AFFECT INSTALLATION OF NEW EQUIPMENT OR SYSTEMS.
   D. CONTRACTOR SHALL SCHEDULE AND PHASE WORK IN A FASHION SO AS TO CAUSE MINIMUM DISTURBANCE TO ACTIVITIES IN OTHER AREAS OF THE BUILDING, WHICH MAY REMAIN OCCUPIED THROUGHOUT THE DURATION OF THE CONTRACT. CONTRACTOR'S WORK SCHEDULE SHALL BE SUBMITTED TO AND APPROVED BY THE OWNER. PROVIDE BARRIERS (PLASTIC, GYPBOARD, ETC) BETWEEN PROJECT AREA AND ADJACENT SPACES AS NECESSARY.
   E. NOTIFY THE OWNER, IN WRITING, AT LEAST FOURTEEN DAYS IN ADVANCE OF ANY REQUIRED SHUTDOWN OF ANY UTILITY. OBTAIN OWNER'S WRITTEN APPROVAL PRIOR TO SHUTDOWN.
   F. CONTRACTOR SHALL THOROUGHLY EXAMINE PREMISES AND OBSERVE ALL CONDITIONS AND CIRCUMSTANCES UNDER WHICH THE WORK SHALL BE PERFORMED. NO ALLOWANCES WILL BE MADE FOR ERRORS OR NEGLIGENCE IN THIS RESPECT.

3. CODE, PERMITS AND INSPECTIONS:

   A. ALL WORK SHALL BE DONE IN ACCORDANCE WITH LATEST APPLICABLE CODES, REGULATIONS AND STANDARDS. CONTRACTOR SHALL OBTAIN AND PAY FOR ALL NECESSARY PERMITS AND SHALL ARRANGE FOR ALL INSPECTIONS BY AUTHORITIES HAVING JURISDICTION.
   B. APPROVAL AND SIGN-OFF BY ALL AUTHORITIES HAVING JURISDICTION AND THE SECURING OF AN APPROVED OCCUPANCY PERMIT IS REQUIRED AT THE COMPLETION OF PROJECT. SECURE PERMIT AND INSPECTION CERTIFICATES AND TRANSMIT SAME TO THE OWNER AT THE COMPLETION OF THE PROJECT.
   C. PERFORM ALL WORK IN ACCORDANCE WITH THE CURRENT EDITIONS OF APPLICABLE CODES AND STANDARDS ENFORCED IN THE PROJECT JURISDICTION.
   D. CODES AND STANDARDS LISTED ARE MINIMUM STANDARDS. WHERE CONTRACT DOCUMENTS CALL FOR A HIGHER STANDARD, CONTRACT DOCUMENTS WILL TAKE PRECEDENCE OVER ALL REFERENCED CODES AND STANDARDS. IF CONTRACT DOCUMENTS CONFLICT WITH CODES OR STANDARDS, CONTRACTOR SHALL INFORM ARCHITECT/ENGINEER, IN WRITING, PRIOR TO QUOTE.
   E. CONTRACTOR SHALL COMPLY WITH ALL OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA) AND ENVIRONMENTAL PROTECTION AGENCY (EPA) REQUIREMENTS.
   F. CONTRACTOR SHALL COMPLY WITH RULES AND REGULATIONS OF ALL AFFECTED UTILITY COMPANIES.

4. WARRANTY:

   A. ALL WORK SHALL BE FREE OF DEFECTS IN WORKMANSHIP AND MATERIALS FOR A PERIOD OF ONE YEAR FROM DATE OF FINAL ACCEPTANCE. ALL DEFECTS THAT DEVELOP OR ARE DISCOVERED WITHIN THIS PERIOD SHALL BE REPAIRED BY THE CONTRACTOR, TO THE SATISFACTION OF THE ARCHITECT/ENGINEER AND AT NO ADDITIONAL COST TO THE OWNER.

5. SHOP DRAWINGS:

   A. SHOP DRAWINGS AND PRODUCT DATA: SUBMIT TO ENGINEER, OWNER AND ARCHITECT ELECTRONIC COPIES OF SHOP DRAWINGS AND MANUFACTURER'S CERTIFIED CAPACITY DATA FOR ALL NEW EQUIPMENT.

6. RECORD DRAWINGS/ASBUILTS:

   A. THE CONTRACTOR SHALL MAINTAIN AT THE SITE, FOR THE OWNER, ONE COPY OF ALL DRAWINGS, ADDENDA, APPROVED SHOP DRAWINGS, REVISIONS, AND OTHER MODIFICATIONS, IN GOOD ORDER AND MARKED TO RECORD ALL CHANGES MADE DURING CONSTRUCTION. THE SET OF DRAWINGS AND OTHER INFORMATION SHALL BE DELIVERED TO THE OWNER UPON COMPLETION OF WORK, AS REQUESTED.

MECHANICAL CODE NOTES

1. THE CONTRACTOR SHALL NOT INSTALL ANY NEW DUCTWORK AND/OR PIPING ABOVE ANY NEW OR EXISTING SWITCHBOARDS, PANELBOARDS, AND/OR MOTOR CONTROLCENTERS.
2. ALL OF THE MATERIALS WITHIN THE RETURN AIR PLENUMS SHALL BE NONCOMBUSTIBLE OR SHALL HAVE A FLAME SPREAD INDEX OF NOT MORE THAN 25 AND A SMOKE-DEVELOPMENT INDEX OF NOT MORE THAN 50 WHEN TESTED IN ACCORDANCE WITH ASTM E 84 OR UL 723. ALSO ANY EQUIPMENT INSTALLED IN A PLENUM SHALL BE PLENUM RATED. CONTRACTOR SHALL VERIFY IF EXISTING EQUIPMENT IN PLENUM (IF APPLICABLE) IS PLENUM RATED. IF ANY EQUIPMENT IS FOUND TO BE NON-PLENUM RATED, REPORT TO MEP ENGINEER.
3. CONTRACTOR SHALL VERIFY WITH OWNER IF THE ROOF IS CURRENTLY UNDER WARRANTY. ALL WORK RELATED TO THE ROOFING CONTRACTOR APPROVED BY THE OWNER.
4. ALL DUCTWORK AND HORIZONTAL PIPING SHALL BE RUN AS HIGH AS POSSIBLE AND ABOVE FINISHED CEILING UNLESS NOTED OTHERWISE. PROVIDE OFFSETS TO AVOID ALL OBSTRUCTIONS.
5. CONTRACTOR SHALL INSTALL EQUIPMENT SO ACCESS AROUND EQUIPMENT IS PROVIDED FOR ELECTRICAL SERVICE, FILTER REPLACEMENT AND FOR VALVE/DISCONNECTS AND OTHER ACCESSORIES. PROVIDE ACCESS DOORS IN WALLS/CEILINGS AS NECESSARY AND AS RECOMMENDED BY THE MANUFACTURER.
6. FOR ALL EQUIPMENT GREATER THAN 350 LBS, CONTRACTOR SHALL OBTAIN APPROVAL OF REGISTERED PROFESSIONAL ENGINEER PRIOR TO INSTALLATION.
7. PROVIDE MOTORIZED DAMPERS IN ALL OA AND EA DUCTS. BACKDRAFT DAMPERS MAY BE USED IN EA DUCTS IF ALLOWED BY CODE.
8. PROVIDE VOLUME DAMPERS IN ALL MAIN AND BRANCH DUCTS AS NECESSARY TO BALANCE THE AIR SYSTEM. IF ANY VOLUME DAMPERS ARE NECESSARY AND NOT SOWN ON PLANS, REPORT TO MEP ENGINEER, PRIOR TO INSTALLATION.
9. IF ANY NEW DUCTWORK IS CONNECTED TO EXISTING DUCTWORK IN FIRE RATED SHAFTS, PROVIDE FIRE DAMPER. PROVIDE ACCESS IN DUCTWORK AND IN CEILING TO SERVICE FIRE DAMPER.
10. PROVIDE ACCESS DOORS IN DUCTWORK FOR SERVICE OF CONTROL/FIRE/FIRE-SMOKE DAMPERS.
11. PROVIDE ACCESS DOORS IN CEILING IF ANY VALVE/EQUIPMENT/DAMPER IS INSTALLED ABOVE GYP BOARD CEILING.
12. PROVIDE REMOTE VOLUME ADJUSTERS FOR VOLUME DAMPERS LOCATED ABOVE GYPSUM BOARD. MANUFACTURER/MODEL TO BE APPROVED BY OWNER.
13. ALL VENTS (DRYER, OA INTAKE, BATH EA AND DRYER EA) SHALL BE OF CORROSION RESISTANT MATERIAL.

DUCTWORK & INSULATION

SHEET-METAL DUCTWORK:

A. ALL NEW DUCTWORK SHALL BE CONSTRUCTED OF GALVANIZED SHEET METAL (UNLESS OTHERWISE INDICATED) AND INSTALLED IN ACCORDANCE WITH SMACNA DUCT CONSTRUCTION STANDARDS, 2005 EDITION AND NFPA 90A. DUCTWORK SHALL BE MINIMUM 24 GAUGE AND HAVE A G60 GALVANIZED COATING.
B. ALL NEW DUCTWORK MUST BE FIELD VERIFIED PRIOR TO FABRICATION, PURCHASE, OR INSTALLATION. NO ALLOWANCE WILL BE MADE FOR DUCTWORK THAT IS NOT USED.
C. MEDIUM PRESSURE DUCTWORK UPSTREAM OF VAV BOXES SHALL BE UP TO 4" W.G. AND SEAL CLASS A. ALL LOW PRESSURE DUCTWORK SHALL BE UP TO 2" W.G. AND SEAL CLASS B. DUCTWORK GREATER THAN 3" W.G. AND LOCATED OUTDOORS SHALL BE LEAK TESTED PER LATEST EDITION OF SMACNA.
D. PROVIDE SINGLE THICKNESS TURNING VANES IN ALL DUCTWORK ELBOWS (45° & 90°). TURNING VANES SHALL COMPLY WITH SMACNA STANDARD.
E. FLEXIBLE CONNECTIONS SHALL BE PROVIDED BETWEEN DUCTWORK AND HVAC EQUIPMENT (VAV BOXES, AC UNITS, AHU'S, ETC.). FLEXIBLE DUCTWORK SHALL BE WIRE HELIX SUPPORTING A BLANKET OF FIBERGLASS INSULATION OVER A FIBERGLASS SCRIM AND POLYETHYLENE VAPOR BARRIER. DUCTWORK SHALL BE U.L. LISTED AS A CLASS 1 AIR DUCT CONNECTOR, AND COMPLYING WITH NFPA STANDARDS 90A AND 90B. FLEXIBLE DUCTWORK SHALL BE THERMAFLEX MODEL G-KM. PROVIDE SPIN-ON COLLAR WITH BUTTERFLY VOLUME DAMPER AT EACH FLEXIBLE DUCTWORK TAP. FLEXIBLE DUCT LENGTH SHALL NOT EXCEED 6'-0".
F. ALL EXPOSED ROUND DUCTWORK SHALL BE SINGLE WALL, GALVANIZED METAL HAVING A LONGITUDINAL OR SPIRAL SEAM AS INDICATED ON THE PLANS.

DUCTWORK INSULATION & SOUNDLINING:

1. R-VALUE:
   ALL SUPPLY AIR DUCTWORK SHALL BE INSULATED TO R-6 MINIMUM.
   ALL OUTSIDE AIR DUCTWORK SHALL BE INSULATED TO R-8 MINIMUM.
   ALL SUPPLY/RETURN/OUTSIDE AIR DUCTWORK LOCATED IN UNCONDITIONED/UNHEATED SPACE OR OUTDOOR SHALL BE INSULATED TO R-8 MINIMUM.

   ALL EXPOSED DUCTWORK REQUIRED TO BE INSULATED SHALL BE LINED INTERNALLY AND PAINTED, UNLESS OTHERWISE DIRECTED BY THE OWNER/ARCHITECT. COLOR TO BE SELECTED BY ARCHITECT.
   OUTDOOR SUPPLY AND RETURN DUCTS SHALL HAVE ONE LAYER OF WEATHERPROOF COVERING OVER INSULATION. COVERING SHALL BE VENTURECLAD 1577CW WEATHERPROOF COATING, ALUMINUM FINISH.

2. DUCT INSULATION BASIS OF DESIGN:
   DUCT INSULATION SHALL BE A FLEXIBLE, FIBERGLASS BLANKET WITH A FOIL-REINCORCED KRAFT (FRK) OR A FOIL-SCRIM KRAFT (FSK) JACKET AND A 2" OVERLAPPING FLAP. THE JACKET SHALL SERVE AS A VAPOR BARRIER AND FINAL FINISH FOR INSULATION COVERING ALL BUILDING SERVICES INDICATED HEREIN.
   ALL INSULATION AND ACCESSORIES SHALL HAVE A COMPOSITE FIRE HAZARD RATING AS TESTED BY ASTM E-84, NFPA 255, OR U.L. 723 NOT TO EXCEED A FLAME SPREAD RATING OF 25 AND A SMOKE DEVELOPED RATING OF 50. ALL INSULATION SHALL BE BY ONE MANUFACTURER. INSULATION SHALL HAVE A MINIMUM DENSITY OF 1 POUND PER CUBIC FOOT, 1-1/2" THICKNESS AND SHALL HAVE K FACTOR NO GREATER THAN 0.27 AT 75° F MEAN TEMPERATURE.

3. SOUNDLINING BASIS OF DESIGN:
   SOUNDLINING SHALL BE COATED ON ONE SIDE. LINING SHALL BE ONE INCH THICK, 2 POUND PER CUBIC FOOT DENSITY. FIRE HAZARD CLASSIFICATION SHALL NOT EXCEED 25 FOR FLAME SPREAD AND 50 FOR SMOKE DEVELOPED. SOUND LINING SHALL BE CERTAINTEED TOUGHGUARD-R OR APPROVED EQUAL. THE LINER SURFACE SHALL BE TREATED WITH AN EPA REGISTERED ANTI-MICROBIAL AGENT TO PREVENT THE GROWTH OF MOLD, FUNGUS AND BACTERIA.

PIPING & INSULATION

REFRIGERANT AND CONDENSATE DRAIN PIPING

1. REFRIGERANT PIPING: TYPE ACR HARD COPPER WITH STREAMLINE FITTINGS JOINTED WITH SPECIAL REFRIGERATION SOLDER SUCH AS SIL-FOS. RUN, SIZE, AND TRAP REFRIGERANT LINES PER MANUFACTURER'S RECOMMENDATIONS. PIPE FITTINGS AND COMPONENTS SHALL BE CAPABLE OF WITHSTANDING THE PRESSURES AND TEMPERATURES OF THE SERVICE THEY ARE HANDLING. PRE-CHARGED OR PREFABRICATED LINES BY EQUIPMENT MANUFACTURER MAY BE USED. TUBING, USED FOR REFRIGERANT SERVICE SHALL BE CLEANED, SEALED, CAPPED OR PLUGGED PRIOR TO BEING SHIPPED FROM THE MANUFACTURER'S PLANT.
2. IDENTIFICATION: ALL PIPING SHALL BE IDENTIFIED BY NAME AND DIRECTIONAL FLOW ARROWS IN ACCORDANCE WITH ASME AND ANSI STANDARDS.
3. FINAL DRAIN AND REFRIGERANT LINES SHALL NOT BLOCK SERVICE ACCESS TO FAN OR AIR FILTER REMOVAL AT THE AHU.
4. CONDENSATE DRAIN PIPING: TYPE SCHEDULE 40 PVC PIPING WITH GLUE TYPE FITTINGS. SLOPE ALL CONDENSATE PIPING TOWARDS DRAIN AT 1/8" PER FOOT.
5. PROVIDE TRAPS FOR CONDENSATE DRAIN LINES AT ALL HVAC EQUIPMENT THAT IS NOT INTERNALLY TRAPPED.
6. DIELECTRIC UNIONS OR PLASTIC FITTINGS: SHALL BE USED TO CONNECT NON-FERROUS PIPE AND EQUIPMENT TO FERROUS PIPE AND EQUIPMENT. FITTINGS SHALL BE BY EPCO SALES, INC. DIELECTRIC BREAKS ARE ALSO REQUIERED AT ALL SCIF PENETRATIONS.

INSULATION

1. ALL PIPE INSULATION AND COVERINGS SHALL HAVE A FIRE AND SMOKE HAZARD RATING AS TESTED UNDER PROCEDURE ASTM-E-84, NFPA 255 AND UL 723 NOT EXCEEDING A FLAME SPREAD RATING OF 25 AND A SMOKE DEVELOPED RATING OF 50. INSULATE ALL HEATING AND COOLING SYSTEM PIPING WITH R-3 INSULATION.
2. REFRIGERANT SUCTION: (OUTSIDE BUILDING) FOR PIPING SIZES 1-1/2" OR LESS, INSULATE WITH 1" THICKARMAFLEX FIRE RATED INSULATION OR APPROVED ON EQUAL, WITH ALL JOINTS SEALED WITH ARMAFLEX ADHESIVE FOR PIPING SIZES GREATER THAN 1-1/2", INSULATION SHALL BE 1-1/2" THICK. WHERE POSSIBLE, INSULATION SHALL BE SLIPPED OVER THE TUBING AS FULL CYLINDER. INSULATION OF PIPING SHALL BE VAPOR TIGHT AND CONTINUOUS THROUGH HANGERS, WALLS, ETC. PROVIDE GALVANIZED SHEET METAL SADDLES AT HANGERS. OUTDOOR INSULATION SHALL BE COVERED WITH CONTINUOUS ALUMINUM JACKET CLAMPED AND SEALED TO WITH STAND ALL WEATHER CONDITIONS.
3. REFRIGERANT LIQUID AND HOT GAS PIPING WITHIN THE BUILDING: INSULATE WITH 1/2" THICK ARMAFLEX FIRE RATED INSULATION OR APPROVED EQUAL.
4. INSULATION ON PIPING PASSING THROUGH NON-RATED WALLS SHALL BE CONTINUOUS THROUGH THE WALL PENETRATION.
5. WHEREVER PIPES, DUCTWORK OR OTHER ITEMS PASS THROUGH FIRE RATED WALLS AND FLOORS, THE CONTRACTOR SHALL ADEQUATELY FIRE STOP THE SPACE BETWEEN THE ITEMS AND THE MASONRY OR THE SPACE BETWEEN THE ITEM AND SLEEVE. FIRE STOP SHALL BE A NON-COMBUSTIBLE, NON-MELTING, APPROVED MATERIAL.

CONTROLS

CONTROLS

1. INSTALLER QUALIFICATIONS: ALL CONTROLS TIE-INS, PROGRAMMING AND RELATED WORK SHALL BE PERFORMED BY A CONTRACTOR APPROVED BY THE OWNER.
2. CONTRACTOR TO PROVIDE INSULATED BASE PLATE FOR ALL THERMOSTATS MOUNTED ON PERIMETER WALLS OR COLUMNS.
3. CONTRACTOR SHALL LOCATE THERMOSTATS 4'-0" AFF. CONTRACTOR SHALL COORDINATE FINAL LOCATIONS OF ALL THERMOSTATS AND ELECTRICAL DEVICES WITH ARCHITECT AND ENGINEER.
4. PROVIDE ALL NECESSARY INTERFACE DEVICES FOR COMMUNICATION WITH ALL HVAC EQUIPMENT.
5. TEST ALL EQUIPMENT AND DEMONSTRATE OPERATION TO THE OWNER, PRIOR TO COMPLETION OF THE PROJECT.

TESTING & BALANCING

TEST AND BALANCING

1. SCOPE:
   A. AN INDEPENDENT CONTRACTOR WITH NEBB OR AABC CERTIFICATION SHALL PROVIDE ALL LABOR, MATERIALS, EQUIPMENT, SERVICES AND PERFORM ALL OPERATIONS REQUIRED FOR COMPLETE BALANCING OF THE MECHANICAL SYSTEMS AND RELATED WORK AS INDICATED ON THE DRAWINGS AND SPECIFIED HEREIN.
   B. BALANCING SHALL NOT BE PERFORMED UNTIL ALL MECHANICAL EQUIPMENT IS PROPERLY INSTALLED AND IS 100% OPERATIONAL. ALL TEMPERATURE CONTROLS ARE INSTALLED AND CALIBRATED AND ALL SYSTEMS ARE CLEANED, PIPING AND STRAINERS FLUSHED, AND CLEAN FILTERS INSTALLED.
   C. IT IS THE INTENT OF THIS SPECIFICATION TO ENSURE THAT THE ENTIRE PROJECT IS SUBSTANTIALLY COMPLETE SO THAT ALL COMPONENTS OF ALL MECHANICAL SYSTEMS CAN BE PUT INTO NORMAL OPERATION WITH ALL WINDOWS AND DOORS CLOSED AND BALANCED IN THAT CONDITION, IN NO CASE IS THE CONTRACTOR TO PERFORM HIS WORK IN PIECEMEAL FASHION.
2. QUALITY ASSURANCE: SUBMIT TO OWNER THREE (3) COPIES OF BALANCING AND TESTING RECORDS SPECIFIED HEREIN SHOWING THE MECHANICAL SYSTEMS HAVE BEEN BALANCED AND ARE DELIVERING SPECIFIED QUANTITIES.
3. EACH PIECE OF EQUIPMENT SHALL BE IDENTIFIED AS TO LOCATION, SERVICE, MANUFACTURER AND MODEL NUMBER. THIS INFORMATION SHALL BE RECORDED AND INCLUDED IN THE FINAL BALANCE REPORT.
4. AFTER ADJUSTMENTS ARE COMPLETED, THE MECHANICAL SYSTEMS SHALL BE TESTED, AND THE FOLLOWING INFORMATION RECORDED AND INCLUDED IN THE FINAL BALANCE REPORT: ALL SCHEDULED AIRFLOWS, HEATING/COOLING CAPACITIES, VOLTAGES, ETC. FOR ALL HVAC EQUIPMENT. DESIGN AND TEST AIRFLOW AND LOCATION OF ALL AIR DEVICES.
5. AFTER THE SYSTEMS HAVE BEEN BALANCED AND ALL ADJUSTMENTS COMPLETED, RUN EACH SYSTEM THROUGH A COMPLETE HEATING AND COOLING CYCLE BY ADJUSTING SET POINTS TO DETERMINE IF SYSTEM IS RESPONDING TO TEMPERATURE CONTROLS. RECORD THE SET POINTS USED, AND TIME FOR THE SPACE TO REACH SET POINTS FOR EACH MODE OF OPERATION. INCLUDE THERMOSTAT TEMPERATURE READING AND AN INDEPENDENT TEMPERATURE MEASUREMENT AT EACH THERMOSTAT WHILE TESTING EACH MODE OF OPERATION. PROVIDE RESULTS IN TESTING AND BALANCING REPORT.

HVAC SYMBOLS

SYMBOL	DESCRIPTION
12x6(E)	EXISTING DUCTWORK, EQUIPMENT OR PIPING TO REMAIN
12x6	EXISTING DUCTWORK, EQUIPMENT OR PIPING TO BE REMOVED OR RELOCATED
12x6	NEW OR RELOCATED DUCTWORK, EQUIPMENT OR PIPING
	DUCTWORK WITH SOUNDLINING
	SUPPLY DUCT TURNING UP
	RETURN/EXHAUST DUCT TURNING UP
	SUPPLY DUCT TURNING DOWN
	RETURN/EXHAUST DUCT TURNING DOWN
	TRANSITION IN DUCT, SQUARE TO SQUARE
	TRANSITION IN DUCT, SQUARE TO ROUND
	SQUARE THROAT DUCT ELBOW WITHOUT TURNING VANES
	SQUARE THROAT DUCT ELBOW WITH TURNING VANES
	RADIUS ELBOW
	45 DEGREE TAP
	SPIN-IN RUNOUT FITTING WITH BALANCING DAMPER AND FLEXIBLE DUCT
	CONICAL TAP
	FLEXIBLE DUCT
	FLEXIBLE DUCT CONNECTION
	RECTANGULAR SUPPLY AIR DIFFUSER
	RETURN AIR GRILLE
H T C	HUMIDISTAT, THERMOSTAT, CO2 SENSOR
	EXHAUST FAN
	SIDE WALL/DUCT REGISTER
125	CFM DESIGNATION SYMBOL & QUANTITY
1	KEYED NOTE, DEMOLITION
1	KEYED NOTE, NEW WORK
	POINT OF REMOVAL
	POINT OF CONNECTION TO EXISTING
A	DIFFUSER OR GRILLE DESIGNATION SYMBOL
	ACCESS DOOR, SIZE ON FLOOR PLANS
	RECTANGULAR SUPPLY AIR DIFFUSER
VD	VOLUME DAMPER
XX	FD: FIRE DAMPER SD: SMOKE DAMPER MD: MOTORIZED DAMPER F/SD: COMBINATION FIRE/SMOKE DAMPER BDD: BACKDRAFT DAMPER
A-11 1600-10 VAV TAG: TYPE, BOX NUMBER AIRFLOW AND KW	VAV BOX TYPE V-SHUT-OFF TYPE VAV BOX S-SERIES FAN POWERED BOX P-PARALLEL FAN POWERED BOX

ABBREVIATIONS

(E)	EXISTING TO REMAIN
(R)	EXISTING TO BE REMOVED AND RELOCATED
(RE)	RELOCATED EQUIPMENT
ACU	AIR CONDITIONING UNIT
AFF	ABOVE FINISHED FLOOR
AHU	AIR HANDLING UNIT
BAS	BUILDING AUTOMATION SYSTEM
BTUH	BRITISH THERMAL UNITS PER HOUR
CFM	CUBIC FEET PER MINUTE
CLG	CEILING
DB	DRY BULB TEMPERATURE
DN	DOWN
EAT	ENTERING AIR TEMPERATURE
EF	EXHAUST FAN
EFF	EFFICIENCY
ESP	EXTERNAL STATIC PRESSURE
EWB	ENTERING WET BULB TEMPERATURE
EWT	ENTERING WATER TEMPERATURE
°F	DEGREES FAHRENHEIT
FLA	FULL LOAD AMPS
FPB	FAN POWERED BOX
FT	FOOT, FEET
GPM	GALLONS PER MINUTE
HP	HORSEPOWER
HZ	HERTZ (CYCLES PER SECOND)
IN	INCH, INCHES
IN WG	INCHES OF WATER GAUGE
KW	KILOWATTS
LAT	LEAVING AIR TEMPERATURE
LBS	POUNDS
LRA	LOCKED ROTOR AMPS
LWT	LEAVING WATER TEMPERATURE
MBH	THOUSAND BRITISH THERMAL UNITS PER HOUR
MCA	MINIMUM CIRCUIT AMPACITY
MIN	MINIMUM
MOCP	MAX OVER-CURRENT PROTECTION
OA	OUTSIDE AIR
PD	PRESSURE DROP
PH	PHASE
PSI	POUNDS PER SQUARE INCH
RA	RETURN AIR
RH	RELATIVE HUMIDITY
RLA	RUNNING LOAD AMPS
RPM	REVOLUTIONS PER MINUTE
SA	SUPPLY AIR
SL	SOUND LINING
TYP	TYPICAL
TF	TRANSFER FAN
V	VOLT, VOLTS
VAV	VARIABLE AIR VOLUME
W/	WITH
WB	WET BULB TEMPERATURE
WG	WATER GAUGE

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Sheet Name:
GENERAL MECHANICAL NOTE

Drawing Number:
H000

NOTE:
System Type: Mini Split (Ductless/Concealed Ducted)
This HVAC Layout Plan has been designed and documented in compliance with all applicable and updated codes, standards, and approval regulations for the state of North Carolina (NC), USA, as of 2025.

1. Governing Codes & Standards

The design complies with the following codes enforced in Hertford, NC, under the North Carolina State Building Code Council:

- 2024 North Carolina Mechanical Code
- 2024 North Carolina Fuel Gas Code
- 2024 North Carolina Plumbing Code (for condensate drainage)
- 2023 North Carolina Electrical Code (based on NFPA 70 – NEC 2023)
- 2024 North Carolina State Building Code
- 2018 North Carolina Energy Conservation Code (applicable to system efficiency)
- 2024 North Carolina Existing Building Code (if applicable)

2. Equipment Type & Efficiency Compliance

The mini split units specified in this plan meet the U.S. DOE's 2023 minimum regional energy efficiency standards for the Southeast, including:

- Cooling Systems <45,000 BTU: Minimum 15.0 SEER2
- Heat Pumps: Minimum 14.3 SEER2 and 7.5 HSPF2
- Units use inverter-driven compressors for enhanced part-load performance
- Confirmed ENERGY STAR compliance, where applicable

3. Refrigerant Transition Compliance

Per North Carolina refrigerant regulations and the federal AIM Act (American Innovation and Manufacturing Act), this mini split system uses a low-GWP A2L refrigerant such as R-32 or R-454B.

The design includes:

- Refrigerant piping within limits specified by the manufacturer
- Appropriate placement of indoor and outdoor units to meet ventilation and safety requirements
- Leak detection and ventilation provisions per UL 60335-2-40 (for A2L use)

4. Installation & Permit Compliance

All equipment specified is approved under NC Product Approval guidelines and shall be installed per manufacturer instructions and:

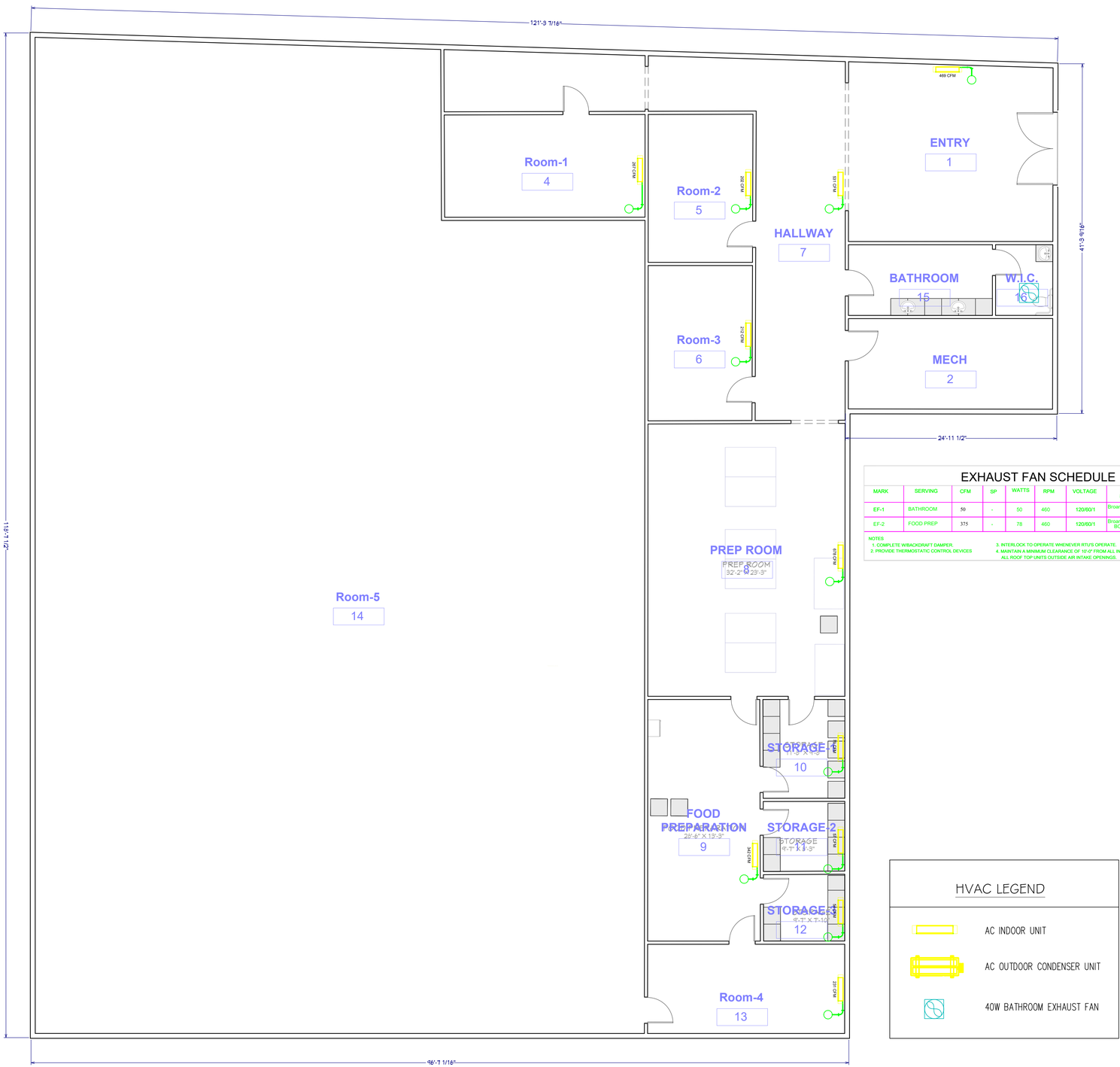
- NC General Statute §160D-1110
- Local Perquimans County permitting and inspection protocols
- NCDOI (North Carolina Department of Insurance) regulatory oversight

5. Safety and Environmental Measures

The system design incorporates the following safety measures:

- Electrical disconnects and overcurrent protection per NEC 2023
- Line set insulation, condensate disposal, and unit clearances per 2024 NCMC
- Flame propagation and concentration limits for A2L refrigerants considered in equipment placement

This HVAC layout plan is compliant with all current and upcoming mechanical and energy codes applicable to mini split systems in NC, USA.



EXHAUST FAN SCHEDULE

MARK	SERVING	CFM	SP	WATTS	RPM	VOLTAGE	MAKE MODEL	NOTES	FAN TYPE
EF-1	BATHROOM	50	-	50	460	120/60/1	Broan-NuTone 688		IN-LINE
EF-2	FOOD PREP	375	-	78	460	120/60/1	Broan-NuTone BCSQ130SS		IN-LINE

NOTES
1. COMPLETE W/BACKDRAFT DAMPER.
2. PROVIDE THERMOSTATIC CONTROL DEVICES
3. INTERLOCK TO OPERATE WHENEVER RTU'S OPERATE.
4. MAINTAIN A MINIMUM CLEARANCE OF 10'-0" FROM ALL INTAKE AIR FANS AND ALL ROOF TOP UNITS OUTSIDE AIR INTAKE OPENINGS.

HVAC LEGEND

- AC INDOOR UNIT
- AC OUTDOOR CONDENSER UNIT
- 40W BATHROOM EXHAUST FAN

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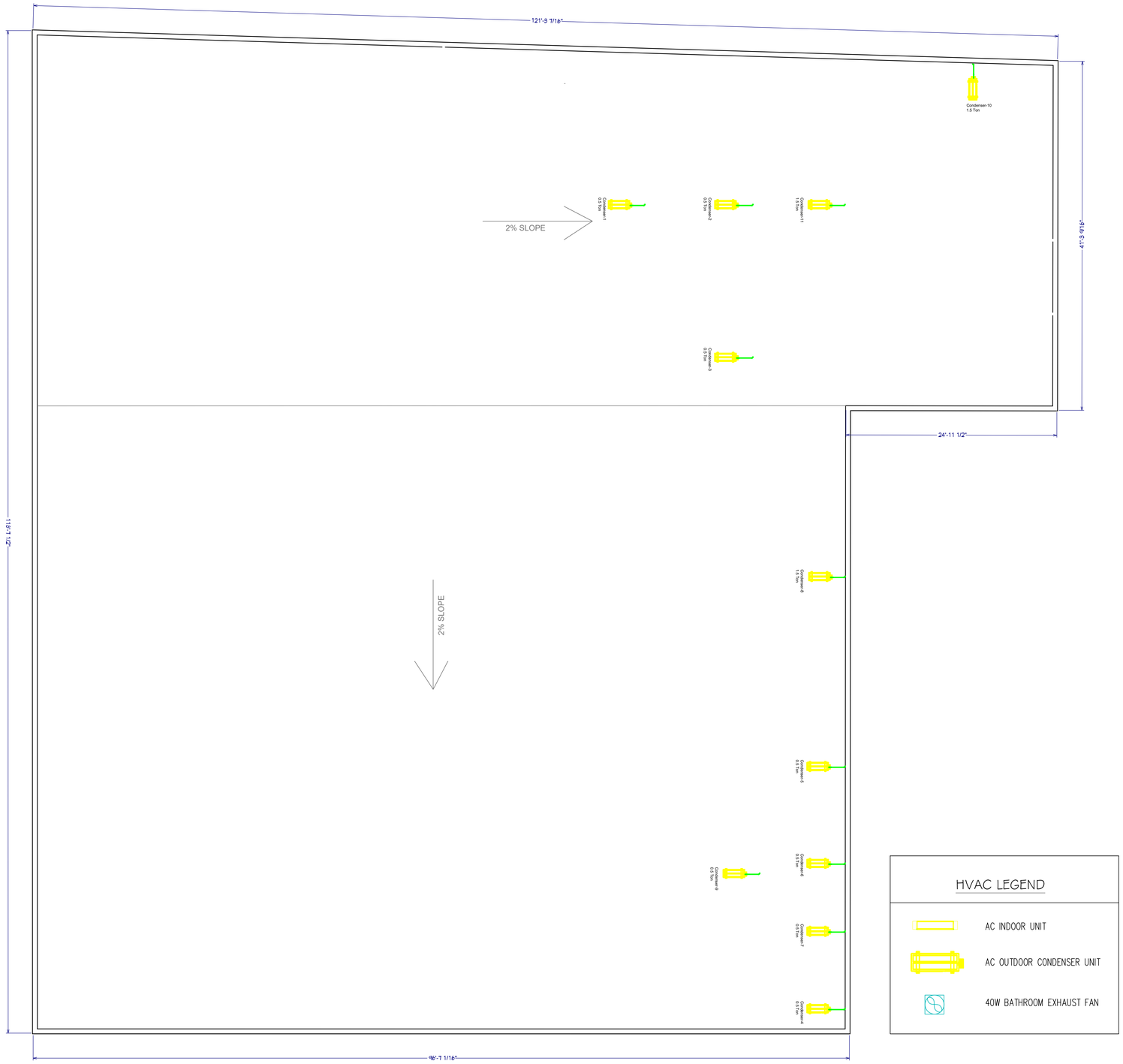

HVAC LEGEND

- AC INDOOR UNIT
- AC OUTDOOR CONDENSER UNIT
- 40W BATHROOM EXHAUST FAN

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PROPOSED
HVAC ROOF PLAN

Drawing Number:

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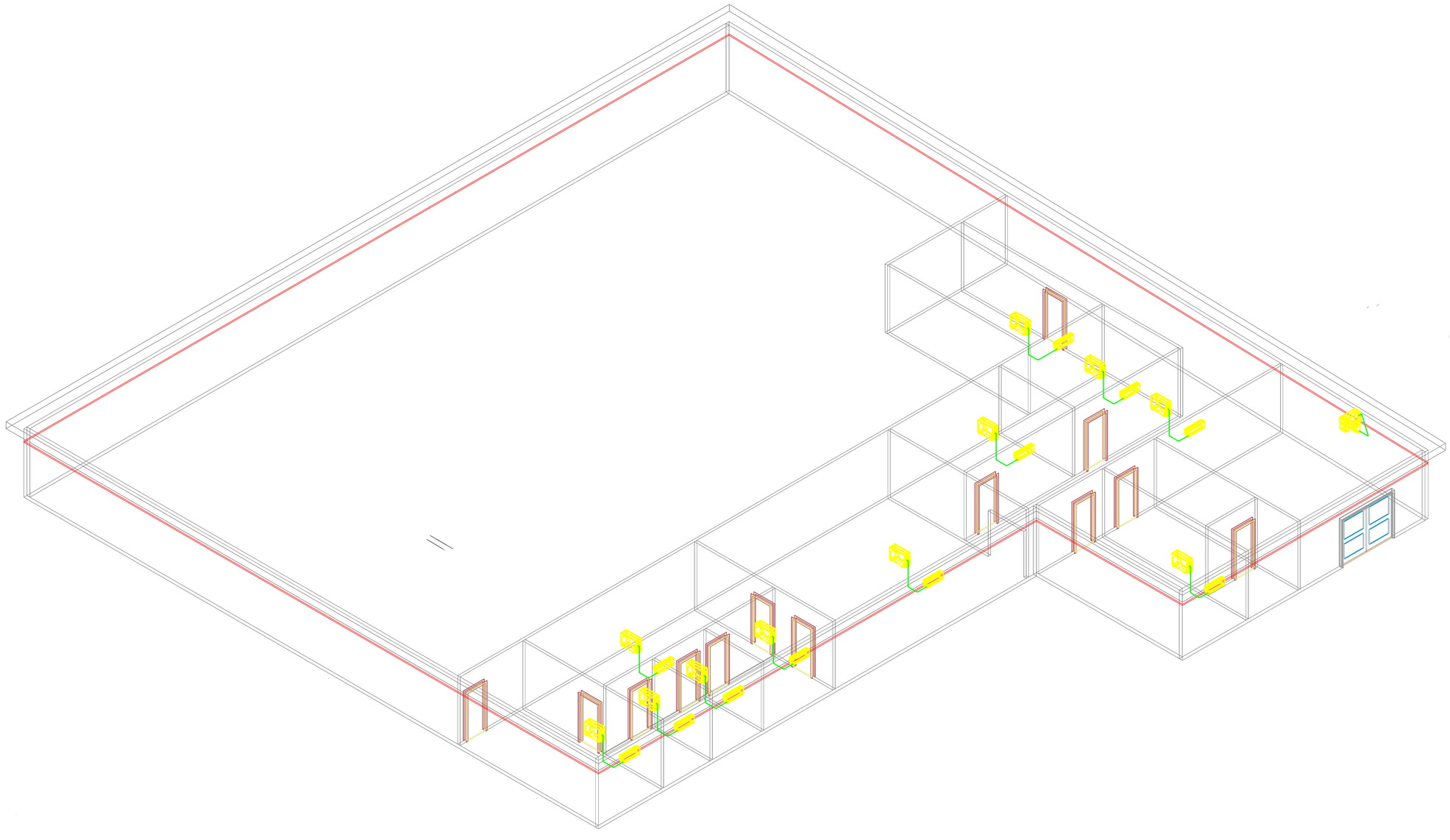

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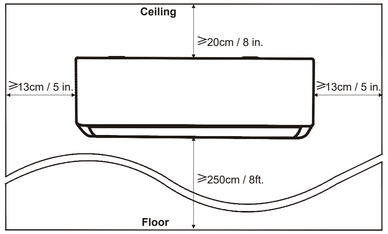
INDOOR UNIT INSTALLATION

Step1: Select Installation location

1.1 Ensure the installation complies with the installation minimum dimensions (defined below) and meets the minimum and maximum connecting piping length and maximum change in elevation as defined in the System Requirements section.
1.2 Air inlet and outlet will be clear of obstructions, ensuring proper airflow throughout the room.
1.3 Condensate can be easily and safely drained.
1.4 All connections can be easily made to outdoor unit.
1.5 Indoor unit is out of reach of children.
1.6 A mounting wall strong enough to withstand four times the full weight and vibration of the unit.
1.7 Filter can be easily accessed for cleaning.
1.8 Leave enough free space to allow access for routine maintenance.
1.9 Install at least 10 ft. (3 m) away from the antenna of TV set or radio. Operation of the air conditioner may interfere with radio or TV reception in areas where reception is weak. An amplifier may be required for the affected device.
1.10 Do not install in a laundry room or by a swimming pool due to the corrosive environment.
1.11 For ETL certification area, Caution: Mount with the lowest moving parts at least 8 ft. (2.4 m) above floor or grade level.

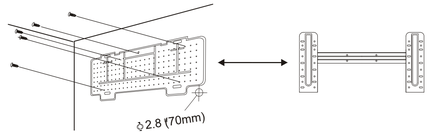
Minimum Indoor Clearances



INDOOR UNIT INSTALLATION

Step2: Install Mounting Plate

2.1 Take the mounting plate from the back of indoor unit.
2.2 Ensure to meet the minimum installation dimension requirements as step 1, according to the size of mounting plate, determine the position and stick the mounting plate close to the wall.
2.3 Adjust the mounting plate to a horizontal state with a spirit level, then mark out the screw hole positions on the wall.
2.4 Put down the mounting plate and drill holes in the marked positions with drill.
2.5 Insert expansion rubber plugs into the holes, then hang the mounting plate and fix it with screws.



Note:
(I) Make sure the mounting plate is firm enough and flat against the wall after installation.
(II) This figure shown may be different from the actual object, please take the latter as the standard.

Step3: Drill Wall Hole

A hole in the wall should be drilled for refrigerant piping ,the drainage pipe, and connecting cables.
3.1 Determine the location of wall hole base on the position of mounting plate.
3.2 The hole should be have a 70mm diameter at least and a small oblique angle to facilitate drainage.
3.3 Drill the wall hole with 70mm core drill and with small oblique angle lower than the indoor end about 5mm to 10mm.
3.4 Place the wall sleeve and wall sleeve cover(both are optional parts) to protect the connection parts.

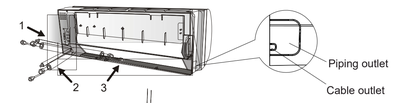
Caution:
When drill the wall hole, maker sure to avoid wires, plumbing and other sensitive components.

INDOOR UNIT INSTALLATION

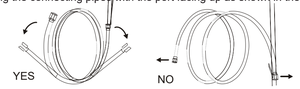
Step4: Connecting Refrigerant Pipe

4.1 According to the wall hole position, select the appropriate piping mode.
There are three optional piping modes for indoor units as shown in the figure below:
In Piping Mode 1 or Piping Mode 3, a notch should be made by using scissors to cut the plastic sheet of piping outlet and cable outlet on the corresponding side of the indoor unit.

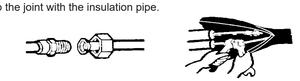
Note: When cutting off the plastic sheet at the outlet, the cut should be trimmed to smooth.



4.2 Bending the connecting pipes with the port facing up as shown in the figure.



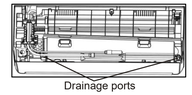
4.3 Take off the plastic cover in the pipe ports and take off the protective cover on the end of piping connectors.
4.4 Check whether there is any sundry on the port of the connecting pipe and make ensure the port is clean.
4.5 After align the center, rotate the nut of the connecting pipe to tighten the nut as tightly as possible by hand.
4.6 Use a torque wrench to tighten it according to the torque values in the torque requirements table; (Refer to the torque requirements table on section INSTALLATION PRECAUTIONS)
4.7 Wrap the joint with the insulation pipe.



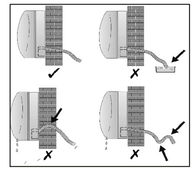
INDOOR UNIT INSTALLATION

Step5: Connect Drainage Hose

5.1 Adjust the drainage hose(if applicable)
In some model, both sides of the indoor unit are provided with drainage ports, you can choose one of them to attache the drainage hose. And plug the unused drain port with the rubber attached in one of the ports.

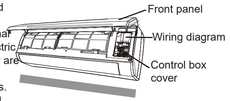


5.2 Connect the drainage hose to the drainage port, ensure the joint is firm and the sealing effect is good.
5.3 Wrap the joint firmly with teflon tape to ensure no leaks.
Note: Make sure there is no twists or dents, and the pipes should be placed obliquely downward to avoid blockage, to ensure proper drainage.



Step6: Connect Wiring

6.1 Choose the right cables size determined by the maximum operating current on the nameplate. (Check the cables size refer to section INSTALLATION PRECAUTIONS)
6.2 Open the front panel of indoor unit.
6.3 Use a screwdriver, open the electric control box cover, to reveal the terminal block.
6.4 Unscrew the cable clamp.
6.5 Insert one end of the cable into the position of control box from the back of the right end of the indoor unit.
6.6 Connect the wires to corresponding terminal according to the wiring diagram on the electric control box cover. And make sure that they are well connected.
6.7 Screw the cable clamp to fasten the cables.
6.8 Reinstall the electric control box cover and front panel.

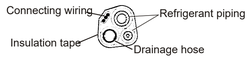


INDOOR UNIT INSTALLATION

Step7: Wrap Piping and Cable

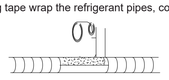
After the refrigerant pipes, connecting wires and drainage hose are all installed, in order to save space, protect and insulate them, it must be bundle with insulating tape before passing them through the wall hole.

7.1 Arrange the pipes ,cables and drainage hose well as the following picture.



Note: (I) Make sure the drainage hose is at the bottom.
(II) Avoid crossing and bending of parts.

7.2 Using the insulating tape wrap the refrigerant pipes, connecting wires and drainage hose together tightly.



Step8: Mount Indoor Unit

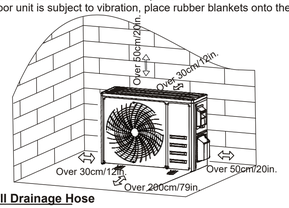
8.1 Slowly pass the refrigerant pipes, connecting wires and drainage hose wrapped bundle through the wall hole.
8.2 Hook the top of indoor unit on the mounting plate.
8.3 Apply slight pressure to the left and right sides of the indoor unit, make sure the indoor unit is hooked firmly.
8.4 Push down the bottom of indoor unit to let the snaps onto the hooks of the mounting plate, and make sure it is hooked firmly.

Sometimes, if the refrigerant pips were already embedded in the wall, or if you want to connecting the pips and wires on the wall, do as below:
(I) Hook the top of the indoor unit on the mounting plate without piping and wiring.
(II) Lift the indoor unit opposite the wall, unfold the bracket on the mounting plate, and use this bracket to prop up the indoor unit, there will be a big space for operation.
(III) Do the refrigerant piping, wiring, connect drainage hose, and wrap them as Step 4 to 7.

OUTDOOR UNIT INSTALLATION

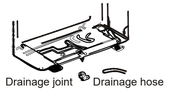
Step1: Select Installation Location

Select a site that allows for the following:
1.1 Do not install the outdoor unit near sources of heat, steam or flammable gas.
1.2 Do not install the unit in too windy or dusty places.
1.3 Do not install the unit where people often pass. Select a place where the air discharge and operating sound will not disturb the neighbors.
1.4 Avoid installing the unit where it will be exposed to direct sunlight (other wise use a protection, if necessary, that should not interfere with the air flow).
1.5 Reserve the spaces as shown in the picture for the air to circulate freely.
1.6 Install the outdoor unit in a safe and solid place.
1.7 If the outdoor unit is subject to vibration, place rubber blankets onto the feet of the unit.



Step2: Install Drainage Hose

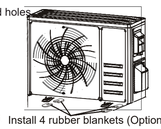
2.1 This step only for heating pump models.
2.2 Insert the drainage joint to the hole at the bottom of the outdoor unit.
2.3 Connect the drainage hose to the joint and make the connection well enough.



Step3: Fix Outdoor Unit

3.1 According to the outdoor unit installation dimensions to mark the installation position for expansion bolts .
3.2 Drill holes and clean the concrete dust and place the bolts .
3.3 If applicable install 4 rubber blankets on the hole before place the outdoor unit (Optional). This will reduce vibrations and noise.
3.4 Place the outdoor unit base on the bolts and pre-drilled holes.
3.5 Use wrench to fix the outdoor unit firmly with bolts.

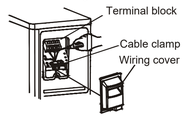
Note:
The outdoor unit can be fixed on a wall-mounting bracket. Follow the instruction of the wall-mounting bracketfix the wall-mounting bracketon the wall, and then fasten the outdoor unit on it and keep it horizontal.
Thewall-mounting bracket must be able to support at least 4 times of the weight of outdoor unit.



OUTDOOR UNIT INSTALLATION

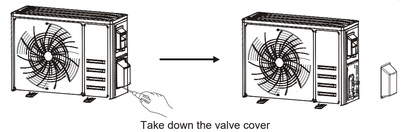
Step4: Install Wiring

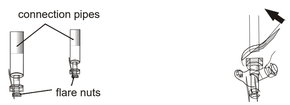
4.1 Use a phillips screwdriver to unscrew wiring cover, grasp and press it down gently to take it down.
4.2 Unscrew the cable clamp and take it down.
4.3 According to the wiring diagram pasted inside the wiring cover, connect the connecting wires to the corresponding terminals, and ensure all connections are firmly and securely.
4.4 Reinstall the cable clamp and wiring cover.
Note: When connecting the wires of indoor and outdoor units, the power should be cut off.



Step5: Connecting Refrigerant Pipe

5.1 Unscrews the valve cover, grasp and press it down gently to take it down(if the valve cover is applicable).
5.2 Remove the protective caps from the end of valves.
5.3 Take off the plastic cover in the pipe ports and c heck whether there is any sundry on the port of the connecting pipe and make ensure the port is clean.
5.4 After align the center, rotate the flare nut of the connecting pipe to tighten the nut as tightly as possible by hand.
5.5 Use a spanner hold the body of the valve and use a torque wrench to tighten the flare nut according to the torque values in the torque requirements table.
(Refer to the torque requirements table on section INSTALLATION PRECAUTIONS)

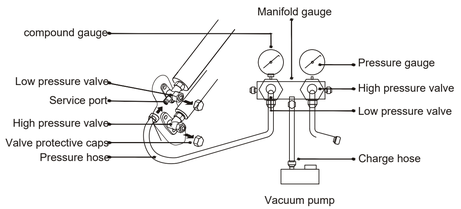




OUTDOOR UNIT INSTALLATION

Step6: Vacuum Pumping

6.1 Use a spanner to take down the protective caps from the service port, low pressure valve and high pressure valve of the outdoor unit.
6.2 Connect the pressure hose of manifold gauge to the service port on the outdoor unit low pressure valve.
6.3 Connect the charge hose from the manifold gauge to the vacuum pump.
6.4 Open the low pressure valve of the manifold gauge and close the high pressure valve.
6.5 Turn on the vacuum pump to vacuum the system.
6.6 The vacuum time should not be less than 15 minutes, or make sure the compound gauge indicates -0.1 MPa (-76 cmHg)
6.7 Close the low pressure valve of the manifold gauge and turn off the vacuum.
6.8 Hold the pressure for 5 minutes, make sure that the rebound of compound gauge pointer does not exceed 0.005 MPa.
6.9 Open the low pressure valve counterclockwise for 1/4 turn with hexagonal wrench to let a little refrigerant fill in the system, and close the low pressure valve after 5 seconds and quickly remove the pressure hose.
6.10 Check all indoor and outdoor joints for leakage with soapy water or leak detector.
6.11 Fully open the low pressure valve and high pressure valve of the outdoor unit with hexagonal wrench.
6.12 Reinstall the protective caps of the service port, low pressure valve and high pressure valve of the outdoor unit.
6.13 Reinstall the valve cover.



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