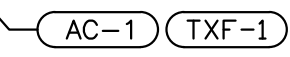
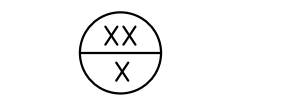

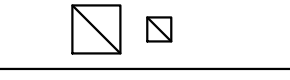
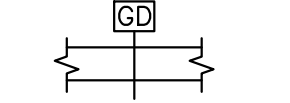
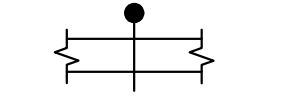
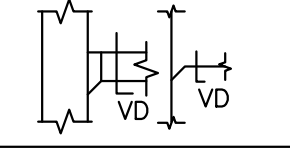
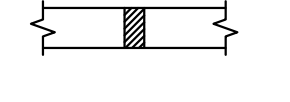
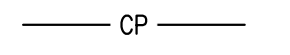
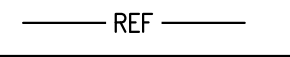
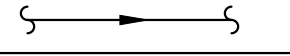
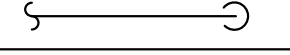
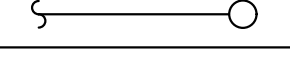

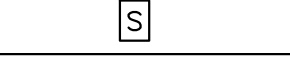
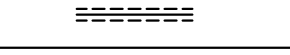
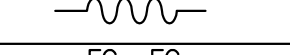

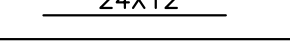
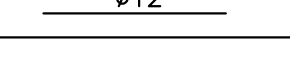

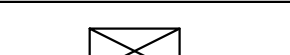
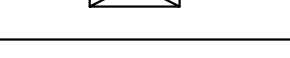


MECHANICAL SYMBOLS LIST		
	EQUIPMENT SYMBOL	MECHANICAL ABBREVIATIONS
	RISER SYMBOL	AC AIR CONDITIONING UNIT
AIR DEVICES		
	CEILING DIFFUSER SUPPLY	ACCU AIR COOLED CONDENSER UNIT
	CEILING DIFFUSER RETURN	AL ACOUSTIC LINING
DUCT ACCESSORIES		
	BACKDRAFT DAMPER	GD GRAVITY DAMPER
	FIRE DAMPER W/ ACCESS DOOR	BOD BOTTOM OF DUCT
HVAC PIPING		
	VOLUME DAMPER W/ ACCESS DOOR	BOE BOTTOM OF EQUIPMENT
	DUCT HEATER W/ ACCESS DOOR	CFM CUBIC FEET OF AIR PER MINUTE
	NEW CONDENSATE PIPING	COP COEFFICIENT OF PERFORMANCE
	NEW REFRIGERANT PIPING	CP CONDENSATE PUMP
	FLUID FLOW DIRECTION	CD CONDENSATE DRAIN PIPE
	PIPE TURNING DOWN	DN DOWN
	PIPE GOING UP	EDH ELECTRIC DUCT HEATER
CONTROLS AND SENSORS		
	THERMOSTAT	EER ENERGY EFFICIENCY RATIO
	MANUAL ON/OFF SWITCH	EUH ELECTRIC UNIT HEATER
DUCTWORK		
	AIR DUCT W/ 1.5" ACOUSTICAL LINING	EG EXHAUST GRILLE
	FLEXIBLE DUCT	FC FLEXIBLE CONNECTION
	FLEXIBLE CONNECTION	FD/AD FIRE DAMPER W/ACCESS DOOR
	RECTANGULAR DUCT (WIDTH X DEPTH)	FD FIRE DAMPER W/FUSIBLE LINK
	ROUND DUCT (DIAMETER)	FSD FIRE SMOKE DAMPER
	ROUND DUCT CROSS SECTION	HSPF HEATING SEASONAL PERFORMANCE FACTOR
	SUPPLY AIR RECTANGULAR DUCT CROSS SECTION	IEER INTEGRATED ENERGY EFFICIENCY RATIO
	RETURN AIR RECTANGULAR DUCT CROSS SECTION	OAI OUTSIDE AIR INTAKE RISER

MECHANICAL DRAWING LIST	
DWG. NO.	DRAWING NAME
M001	MECHANICAL SYMBOLS LIST, ABBREVIATIONS & GENERAL NOTES
M002	MECHANICAL NOTES & SPECIFICATIONS (01 OF 02)
M003	MECHANICAL NOTES & SPECIFICATIONS (02 OF 02)
M101	MECHANICAL FLOOR PLAN
M102	MECHANICAL ROOF PLAN
M200	MECHANICAL SCHEDULES
M300	MECHANICAL HOOD DETAILS & SECTIONS (01 OF 10)
M301	MECHANICAL HOOD DETAILS & SECTIONS (02 OF 10)
M302	MECHANICAL HOOD DETAILS & SECTIONS (03 OF 10)
M303	MECHANICAL HOOD DETAILS & SECTIONS (04 OF 10)
M304	MECHANICAL HOOD DETAILS & SECTIONS (05 OF 10)
M305	MECHANICAL HOOD DETAILS & SECTIONS (06 OF 10)
M306	MECHANICAL HOOD DETAILS & SECTIONS (07 OF 10)
M307	MECHANICAL HOOD DETAILS & SECTIONS (08 OF 10)
M308	MECHANICAL HOOD DETAILS & SECTIONS (09 OF 10)
M309	MECHANICAL HOOD DETAILS & SECTIONS (10 OF 10)
M400	MECHANICAL DETAILS (01 OF 02)
M401	MECHANICAL DETAILS (02 OF 02)

NYS BUILDING DEPARTMENT NOTES	
ALL WORK SHALL COMPLY WITH APPLICABLE SECTIONS OF THE 2020 MECHANICAL CODE OF NYS AND ALL AMENDMENTS AND RULES AND REGULATIONS OF THE DEPARTMENT OF BUILDINGS TO DATE.	
1. THE CONTRACTOR SHALL ENGAGE THE THE SERVICES OF A PROFESSIONAL ENGINEER TO PROVIDE THE REQUIRED SPECIAL INSPECTIONS AND TESTS.	
2. TESTS WILL BE CONDUCTED UNDER DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, ARCHITECT OR OTHER PERSON HAVING NOT LESS THAN FIVE (5) YEARS EXPERIENCE SUPERVISING THE INSTALLATION OF SUCH MECHANICAL SYSTEMS.	
3. THE LICENSED PROFESSIONAL ENGINEER, ARCHITECT OR OTHER PERSON HAVING NOT LESS THAN FIVE (5) YEARS EXPERIENCE SUPERVISING THE INSTALLATION OF SUCH MECHANICAL SYSTEMS AND CONDUCTING SUCH TESTS WILL FILE DOCUMENTATION AND REPORTS OF TESTS THAT THE SYSTEM COMPLIES WITH THE CONSTRUCTION DOCUMENTS AND APPLICABLE LAWS.	
4. TESTS OF MECHANICAL SYSTEMS SHALL BE PERFORMED IN ACCORDANCE WITH THE FOLLOWING SECTIONS OF THE 2020 NEW YORK STATE MECHANICAL CODE:	A. VENTILATION SYSTEM BALANCING MC 403.3.1.5 B. REFRIGERATION SYSTEM - MC 1110 C. GREASE FIGHT TEST - MC 306.3.2.5 D. COOMECIAL KITCHEN HOODS - MC 507.6
5. THE FOLLOWING WORK ITEMS, COMPONENTS, MATERIALS, CAPACITIES, ETC. SHALL COMPLY WITH THE REFERENCED CODE OR STANDARD:	A. STANDARDS OF HEATING - MC 309.1 B. DUCT CONSTRUCTION AND INSTALLATION- MC 603 C. SMOKE DETECTORS AND FIRE AND SMOKE DAMPERS - MC 606 & 607 RESPECTIVELY D. MANUAL AND AUTOMATIC FIRE AND SMOKE CONTROLS FOR AIR DISTRIBUTION SYSTEMS - MC 513
6. A STATEMENT SHALL BE FILED BY THE OWNER OR TENANT IN POSSESSION THAT THE VENTILATION SYSTEM WILL BE KEPT IN CONTINUOUS OPERATION AT ALL TIMES DURING THE NORMAL OCCUPANCY OF THE STRUCTURE AS REQUIRED BY MC 403.3	
7. ALL FIRE DAMPERS SHALL BE ACCEPTED FOR USE BY THE NEW YORK STATE DEPARTMENT OF BUILDINGS. FIRE DAMPERS SHALL BE MANUFACTURED AND INSTALLED IN ACCORDANCE WITH UL 555, STANDARDS FOR FIRE DAMPERS AND CEILING DAMPERS.	
8. COMBINATION FIRE/SMOKE DAMPERS AND SMOKE DAMPERS SHALL BE ACCEPTED FOR USE BY NEW YORK STATE DEPARTMENT OF BUILDINGS AND SHALL BE MANUFACTURED AND INSTALLED IN ACCORDANCE WITH UL 555S.	
9. SMOKE DETECTION SYSTEMS SHALL BE INSTALLED AND SEQUENCED TO FOLLOW CONTROLS OPERATIONS WITH THE REQUIREMENTS OF SECTION MC 606 TO CLOSE DAMPERS AND AUTOMATICALLY STOP THE FAN.	
10. FIRE DAMPERS, SMOKE DAMPERS, COMBINATION FIRE/SMOKE DAMPERS AND CEILING DAMPERS LOCATED WITHIN THE AIR DISTRIBUTION AND SMOKE CONTROL SYSTEMS SHALL BE INSTALLED IN ACCORDANCE WITH THE REQUIREMENTS OF SECTION MC 607.	
11. REFER TO ARCHITECTURAL DRAWINGS FOR REQUIRED FIRE-RATED WALL AND SMOKE WALL CONSTRUCTION AND LOCATION.	
12. THESE PLANS ARE APPROVED ONLY FOR THE WORK INDICATED ON THE APPLICATION SPECIFICATION SHEET. ALL OTHER MATTERS SHOWN ARE NOT TO BE BELIEVED UPON OR CONSIDERED AS EITHER BEING APPROVED OR IN ACCORDANCE WITH APPLICABLE CODES.	
13. SMOKE DETECTOR SHALL MEET UL268A	
14. ALL HEATING AND COOLING LOADS CALCULATED PER ASHRAE/ACCA 183.	
17. MECHANICAL SYSTEMS SHALL BE COMMISSIONED PER 2020 NYSECC C408.2.1, C408.2.5.2. FINAL COMMISSIONING REPORT SHALL BE DUE WITHIN 90 DAYS OF RECEIPT OF CERTIFICATE OF OCCUPANCY.	

SCOPE OF WORK	
1. EXISTING RTU TO BE REUSED TO CATER THE HEATING AND COOLING REQUIREMENT OF THE SPACE, EXTENT THE DUCTWORK AND BALANCE THE CFM AS SHOWN IN THE PLAN.	
2. ROOF MOUNTED KITCHEN EXHAUST FAN INTERLOCKED WITH KITCHEN HOOD TO BE USED FOR KITCHEN EXHAUST. ROOF MOUNTED MAKE -UP AIR UNIT TO BE USED FOR KITCHEN MAKE-UP AIR.	
3. ALL HVAC WORKS SHALL BE IN ACCORDANCE WITH THE DRAWINGS AND SPECIFICATION.	

NOTE TO CONTRACTOR	
1. THE WORK UNDER CONTRACT INCLUDES ALL LABOR, MATERIALS AND APPLIANCES NECESSARY FOR THE FURNISHING, INSTALLING AND TESTING, COMPLETE AND READY FOR SAFE OPERATION OF THE SYSTEMS AS DESCRIBED IN THE SPECIFICATIONS, FLOOR PLAN(S) DESIGN, DETAIL DRAWINGS, NOTES, RFIS, ETC. FOR THIS PROJECT. WORK SHALL BE INSTALLED IN A NEAT, WORKMANLIKE MANNER.	
2. THE CONTRACTOR SHALL GIVE NECESSARY NOTICE, FILE DRAWINGS AND SPECIFICATIONS WITH THE DEPARTMENT HAVING JURISDICTION, OBTAIN PERMITS OR LICENSES NECESSARY TO CARRY OUT THIS WORK AND PAY ALL FEES THEREFORE. THE CONTRACTOR SHALL ARRANGE FOR INSPECTION AND TESTS OF ANY OR ALL PARTS OF THE WORK IF SO REQUIRED BY AUTHORITIES AND PAY ALL CHARGES FOR SAME. THE CONTRACTOR SHALL PAY ALL COSTS FOR, AND FURNISH TO THE OWNER BEFORE FINAL BILLING, ALL CERTIFICATES NECESSARY AS EVIDENCE THAT THE WORK INSTALLED CONFORMS WITH ALL REGULATIONS WHERE THEY APPLY TO THIS WORK.	
3. THE CONTRACTOR SHALL FURNISH A WRITTEN GUARANTEE TO REPLACE OR REPAIR PROMPTLY AND ASSUME RESPONSIBILITY FOR ALL EXPENSES INCURRED FOR ANY WORKMANSHIP AND EQUIPMENT IN WHICH DEFECTS DEVELOP WITHIN ONE YEAR FROM THE DATE OF FINAL CERTIFICATE FOR PAYMENT AND/OR FROM DATE OR ACTUAL USE OF EQUIPMENT OR OCCUPANCY OF SPACES, BY OWNER, INCLUDED UNDER THE VARIOUS PARTS OF THE WORK, WHICHEVER DATE IS EARLIER. THIS WORK SHALL BE DONE AS DIRECTED BY THE OWNER. THIS GUARANTEE SHALL ALSO PROVIDE THAT WHERE DEFECTS OCCUR, THE CONTRACTOR WILL ASSUME RESPONSIBILITY FOR ALL EXPENSES INCURRED IN REPAIRING AND REPLACING WORK OF OTHER TRADES AFFECTED BY DEFECTS, REPAIRS OR REPLACEMENTS IN EQUIPMENT SUPPLIED BY THE CONTRACTOR.	

GENERAL NOTES	
1. CONTRACTOR SHALL SURVEY THE AREA OF THIS WORK BEFORE SUBMITTING A BID AND SHALL BE RESPONSIBLE FOR NOTIFYING THE ARCHITECT OF ANY CONDITIONS WHICH WOULD PREVENT THE INSTALLATION OF THE WORK AS SHOWN ON DRAWINGS.	
2. ALL APPLICABLE CODES, LAWS AND REGULATIONS GOVERNING OR RELATING TO ANY PORTION OF THIS WORK ARE HEREBY INCORPORATED INTO AND MADE A PART OF THESE SPECIFICATIONS, AND THEIR PROVISIONS SHALL BE CARRIED OUT BY THE CONTRACTOR WHO SHALL INFORM THE OWNER, PRIOR TO SUBMITTING A PROPOSAL, OF ANY WORK OR MATERIALS WHICH VIOLATE ANY OF THE ABOVE LAWS AND REGULATIONS. ANY WORK DONE BY THE CONTRACTOR CAUSING SUCH VIOLATION SHALL BE CORRECTED BY THE CONTRACTOR.	
3. BEFORE PROCEEDING WITH ANY WORK IN OCCUPIED OR USED AREAS, THE CONTRACTOR SHALL APPLY TO OWNER FOR PERMISSION TO ENTER SUCH AREAS. THE CONTRACTOR IS OBLIGED TO PERFORM HIS WORK ONLY AT THE TIMES DESIGNATED BY OWNER. THERE WILL BE NO ADDITIONAL COMPENSATION FOR THE WORK PERFORMED AFTER HOURS OR ON OFF-DAYS WITHOUT PRIOR WRITTEN APPROVAL.	
4. THE WORK IN THE BUILDING SHALL BE DONE WHEN AND AS DIRECTED, AND IN A MANNER SATISFACTORY TO THE OWNER. THE WORK SHALL BE PERFORMED SO AS TO CAUSE THE LEAST POSSIBLE INCONVENIENCE AND DISTURBANCE TO THE PRESENT OCCUPANTS.	
5. THE CONTRACTOR'S PROPOSAL FOR ALL WORK SHALL BE PREDICATED ON THE PERFORMANCE OF THE WORK DURING REGULAR WORKING HOURS, WHEN SO DIRECTED, HOWEVER, THE CONTRACTOR SHALL INSTALL WORK IN OVERTIME AND THE ADDITIONAL COST TO BE CHARGED THEREFORE SHALL BE ONLY THE "PREMIUM" PORTION OF THE WAGES PAID.	
6. CONTRACTOR SHALL ASCERTAIN THE APPROPRIATE METHOD FOR BRINGING THE UNITS INTO AND THROUGH THE BUILDING TO POSITION UNIT IN LOCATION SHOWN ON THE PLANS. WHERE NECESSARY, EQUIPMENT SHALL BE SHIPPED FROM MANUFACTURER IN SECTIONS OF SIZE SUITABLE FOR MOVING THROUGH RESTRICTIVE SPACES. COORDINATE WITH BUILDING OWNER APPROPRIATE TIMES OF THE DAY SUCH THAT EQUIPMENT MAY BE MOVED THROUGH AREAS.	
7. DUCTWORK AND PIPING IS SHOWN DIAGRAMMATICALLY AND DOES NOT SHOW ALL OFFSETS, DROPS AND RISES. RUNNING THE CONTRACTOR SHALL MAKE ALLOWANCE IN PRICING FOR ROUTING OF DUCTWORK AND PIPING TO AVOID OBSTRUCTIONS. EXACT LOCATIONS ARE SUBJECT TO APPROVAL OF ARCHITECT. COORDINATION WITH THE OTHER TRADES IS REQUIRED.	
8. SUPPORT ALL DUCTWORK AND PIPING FROM BUILDING STRUCTURE AND/OR FRAMING IN AN APPROVED MANNER. WHERE OVERHEAD CONSTRUCTION DOES NOT PERMIT FASTENING OR SUPPORTS FOR EQUIPMENT, FURNISH ADDITIONAL FRAMING. INSERTS SHALL BE STEEL, SLOTTED TYPE AND FACTORY PAINTED. SINGLE ROD SHALL BE SIMILAR TO GRINNELL FIG. 281. MULTI-ROD SHALL BE SIMILAR TO FEE & MASON SERIES 9000 WITH END CAPS AND CLOSURE STRIPS. MAXIMUM LOADING INCLUDING PIPES, DUCTWORK CONTENTS AND COVERINGS SHALL NOT EXCEED 75% OF THE RATED CAPABILITY, WHEN SUPPORTING FROM BUILDING USE BEAM CLAMPS IN APPROVED MANNER.	
9. PROVIDE ALL NECESSARY FLASHING AND COUNTER FLASHING TO MAINTAIN THE WATERPROOFING INTEGRITY OF THIS BUILDING AS REQUIRED BY THE INSTALLATION OR REMOVAL OF PIPES, DUCTS, LOUVERS, CONDUIT, AND EQUIPMENT. PROVIDE EQUIPMENT CURBS AND DUNNAGE STEEL AS REQUIRED.	
10. SEAL OPENINGS AROUND DUCTS AND PIPING THROUGH PARTITIONS, WALLS AND FLOORS (NOT IN SHAFTS) WITH MINERAL WOOL OR OTHER NONCOMBUSTIBLE MATERIAL (FIBERGLASS INSULATION IS NOT ACCEPTABLE).	
11. WHERE PENETRATIONS THROUGH FIRE RATED WALLS ARE NOT FIRESSTOPPED THIS CONTRACTOR SHALL BE RESPONSIBLE TO SEAL SAME TO MAINTAIN THE RATED INTEGRITY. INSTALL WORK SO AS TO BE READILY ACCESSIBLE FOR OPERATION, MAINTENANCE AND REPAIR. MINOR DEVIATIONS FROM DRAWINGS MAY BE MADE TO ACCOMPLISH THIS, BUT CHANGES WHICH INVOLVE EXTRA COST SHALL NOT BE MADE WITHOUT APPROVAL.	
12. ACCESS DOORS ARE REQUIRED FOR ALL BUILDING SERVICE VALVES THAT RUN THROUGH THE SPACE, AND ACCESS DOOR SHALL HAVE THE EQUAL RATED CAPACITY (1HR, 2HR, ETC.) AS WALL OR CEILING. COORDINATE ALL LOCATIONS OF ACCESS DOORS WITH THE ARCHITECT.	
13. REMOVABLE ACCESS TILE AND/OR ACCESS DOOR ARE REQUIRED IN HUNG CEILINGS, SHAFTS AND WALLS FOR ALL VOLUME AND FIRE DAMPERS, AUTOMATIC DAMPERS AND ALL OTHER MECHANICAL EQUIPMENT AND DEVICES. HVAC CONTRACTOR TO FURNISH ACCESS LOCATION REQUIREMENTS TO GENERAL CONTRACTOR. ACCESS TILE IDENTIFICATION: PROVIDE BUTTONS, TABS, AND MARKERS TO IDENTIFY LOCATION OF CONCEALED VALVES, DAMPERS AND EQUIPMENT.	
14. THE CONTRACTOR SHALL KEEP ALL EQUIPMENT AND MATERIALS, AND ALL PARTS OF THE BUILDING, EXTERIOR SPACES AND ADJACENT STREETS, SIDEWALKS AND PAVEMENTS, FREE FROM MATERIAL AND DEBRIS RESULTING FROM THE EXECUTION OF THIS WORK. EXCESS MATERIALS WILL NOT BE PERMITTED TO ACCUMULATE EITHER ON THE INTERIOR OR THE EXTERIOR.	
15. MATERIALS AND WORKMANSHIP, UNLESS OTHERWISE NOTED, SHALL BE IN ACCORDANCE WITH BUILDING STANDARDS.	
16. ALL EQUIPMENT SHALL BE PROVIDED WITH ONE YEAR WARRANTY. PARTS AND LABOR AND FIVE YEARS ON COMPRESSORS. WARRANTY PERIOD BEGINS UPON PROJECT ACCEPTANCE	
17. ALL MATERIAL AND EQUIPMENT TO BE NEW UNLESS OTHERWISE NOTED AND SHALL BE IN ACCORDANCE WITH BUILDING STANDARDS.	
18. THE CONTRACTOR SHALL BE RESPONSIBLE FOR HIS WORK WITH ITS COMPLETION AND FINAL ACCEPTANCE. THE CONTRACTOR SHALL REPLACE ITEMS/MATERIAL WHICH WERE DAMAGED, LOST, OR STOLEN, WITHOUT ADDITIONAL COST TO THE OWNER.	

GENERAL HVAC NOTES	
GENERAL:	HVAC DUCTWORK - SHEET METAL
1. PROVIDE ALL MATERIAL AND EQUIPMENT AND PERFORM ALL LABOR REQUIRED TO INSTALL COMPLETE AND OPERABLE MECHANICAL SYSTEMS AS INDICATED ON THE DRAWINGS, AS SPECIFIED AND AS REQUIRED BY CODE.	1. CERTAIN ITEMS SUCH AS RISES AND DROPS IN DUCTWORK, ACCESS DOORS, VOLUME DAMPERS, ETC., ARE INDICATED ON THE CONTRACT DOCUMENT DRAWINGS FOR CLARITY FOR A SPECIFIC LOCATION REQUIREMENT AND SHALL NOT BE INTERPRETED AS THE EXTENT OF THE REQUIREMENTS FOR THESE ITEMS.
2. CONTRACT DOCUMENT DRAWINGS FOR MECHANICAL WORK (HVAC, PLUMBING, AND FIRE PROTECTION) ARE DIAGRAMMATIC AND ARE INTENDED TO CONVEY SCOPE AND GENERAL ARRANGEMENT ONLY.	2. CONTRACTOR TO CHECK AND CORRECT ANY AND ALL DEFICIENCIES IN EXISTING DUCTS. ALL NEW DUCTWORK WILL COMPLY WITH THE LATEST SMACNA GUIDELINES AND CONFORM WITH REQUIREMENTS OF THE LATEST HANDBOOKS PUBLISHED BY ASHRAE.
3. THE LOCATIONS OF ALL ITEMS SHOWN ON THE DRAWINGS OR CALLED FOR IN THE SPECIFICATIONS THAT ARE NOT FIXED BY DIMENSIONS ARE APPROXIMATE ONLY. THE EXACT LOCATIONS NECESSARY TO SECURE THE BEST CONDITIONS AND RESULTS MUST BE DETERMINED BY THE PROJECT SITE CONDITIONS AND SHALL HAVE THE APPROVAL OF THE ENGINEER BEFORE BEING INSTALLED. DO NOT SCALE DRAWINGS.	3. PROVIDE VOLUME DAMPER AT EACH TAP TO MAIN DUCT AND WHERE NECESSARY TO PROPERLY BALANCE SYSTEM.
4. WHEN MECHANICAL WORK (HVAC, PLUMBING, SHEET METAL, FIRE PROTECTION, ETC.) IS SUBCONTRACTED, IT SHALL BE THE MECHANICAL CONTRACTOR'S RESPONSIBILITY TO COORDINATE SUBCONTRACTORS AND THE ASSOCIATED CONTRACTS. WHEN DISCREPANCIES ARISE PERTAINING TO WHICH CONTRACTOR PROVIDES A PARTICULAR ITEM OF THE MECHANICAL CONTRACT OR WHICH CONTRACTOR PROVIDES FINAL CONNECTIONS, FOR A PARTICULAR ITEM OF THE MECHANICAL CONTRACT, IT SHALL BE BROUGHT TO THE ATTENTION OF THE MECHANICAL CONTRACTOR, WHOSE DECISION SHALL BE FINAL.	4. SUPPLY AND RETURN DUCTWORK 20' FROM ALL AC UNITS SHALL BE LINED WITH 1.5" ACOUSTICAL LINING.
5. COORDINATE CONSTRUCTION OF ALL MECHANICAL WORK WITH ARCHITECTURAL, STRUCTURAL, CIVIL, ELECTRICAL WORK, ETC., SHOWN ON OTHER CONTRACT DOCUMENT DRAWINGS.	5. RE-INSULATE ALL DUCTWORK IN WHICH INSULATION HAS BEEN REMOVED OR DAMAGED WITH INSULATION EQUAL TO THE EXISTING INSULATION.
6. INSTALL ALL MECHANICAL EQUIPMENT AND APPURTENANCES IN ACCORDANCE WITH MANUFACTURERS' RECOMMENDATIONS, CONTRACT DOCUMENTS, AND APPLICABLE CODES AND REGULATIONS.	6. CONTRACTOR SHALL SUPPLY AND INSTALL ALL NECESSARY SUPPLY DIFFUSERS AND RETURN AIR REGISTERS WHERE INDICATED ON THE DRAWING. COORDINATE LOCATION OF DIFFUSERS AND REGISTERS WITH REFLECTED CEILING PLAN.
7. WHERE TWO OR MORE ITEMS OF THE SAME TYPE OF EQUIPMENT ARE REQUIRED, THE PRODUCT OF ONE MANUFACTURER SHALL BE USED.	7. IN CORRIDORS WHERE CEILING SPEAKERS AND AIR DIFFUSERS ARE INDICATED BETWEEN THE SAME LIGHT FIXTURES, INSTALL BOTH DEVICES AT THE QUARTER POINTS BETWEEN THE FIXTURES.
8. COORDINATE ALL EQUIPMENT CONNECTIONS WITH MANUFACTURERS' CERTIFIED DRAWINGS. COORDINATE AND PROVIDE ALL DUCT TRANSITIONS REQUIRED FOR FINAL EQUIPMENT CONNECTIONS TO FURNISHED EQUIPMENT. FIELD VERIFY AND COORDINATE ALL DUCT DIMENSIONS BEFORE FABRICATION.	8. UNLESS OTHERWISE SHOWN, LOCATE ALL ROOM THERMOSTATS AND HUMIDISTAT 4'-0" (CENTER LINE) ABOVE THE FINISHED FLOOR. NOTIFY THE ENGINEER OF ANY ROOMS WHERE THE PRECEDING LOCATION CANNOT BE MAINTAINED OR WHERE THERE IS A QUESTION ON LOCATION.
9. ALL CONTROL WIRE AND CONDUIT SHALL COMPLY WITH THE NATIONAL ELECTRIC CODE AND ELECTRICAL DIVISION OF THE SPECIFICATION.	9. ALL DUCTWORK SHALL CLEAR DOORS AND WINDOWS.
10. PROVIDE VIBRATION ISOLATION FOR ALL MECHANICAL EQUIPMENT TO PREVENT TRANSMISSION OF VIBRATION TO BUILDING STRUCTURE.	10. ALL DUCTWORK DIMENSIONS, AS SHOWN ON THE DRAWINGS, ARE INTERNAL CLEAR DIMENSIONS AND DUCT SIZE SHALL BE INCREASED TO COMPENSATE FOR DUCT LINING THICKNESS.
11. LOCATE ALL TEMPERATURE, PRESSURE, AND FLOW MEASURING DEVICES IN ACCESSIBLE LOCATIONS WITH THE STRAIGHT SECTION OF DUCT UP- AND DOWNSTREAM AS RECOMMENDED BY THE MANUFACTURER FOR GOOD ACCURACY.	11. PROVIDE ALL 90-DEGREE SQUARE ELBOWS WITH DOUBLE RADIUS TURNING VANES UNLESS OTHERWISE INDICATED. ELBOWS IN DISHWASHER, KITCHEN, AND LAUNDRY EXHAUSTS SHALL BE OF UN-VANED SMOOTH RADIUS CONSTRUCTION WITH A RADIUS EQUAL TO 1-1/2 TIMES THE WIDTH OF THE DUCT. PROVIDE ACCESS DOORS UPSTREAM OF ALL ELBOWS WITH TURNING VANES.
12. ALL MISCELLANEOUS STEEL REQUIRED TO ENSURE PROPER INSTALLATION AND AS SHOWN IN THE DETAILS FOR DUCTWORK, AND EQUIPMENT (UNLESS OTHERWISE NOTED) SHALL BE FURNISHED AND INSTALLED BY THE MECHANICAL CONTRACTOR.	12. COORDINATE DIFFUSER, REGISTER, AND GRILL LOCATIONS WITH ARCHITECTURAL REFLECTED CEILING PLANS, LIGHTING, AND OTHER CEILING ITEMS AND MAKE MINOR DUCT MODIFICATIONS TO SUIT.
13. PROVIDE ACCESS PANELS FOR INSTALLATION IN WALLS AND CEILINGS, WHERE REQUIRED, TO SERVICE DAMPERS, VALVES, SMOKE DETECTORS, AND OTHER CONCEALED MECHANICAL EQUIPMENT. ACCESS PANELS SHALL BE TURNED OVER TO THE GENERAL CONTRACTOR FOR INSTALLATION. ACCESS PANELS SHALL HAVE THE EQUAL RATED CAPACITY (1HR, 2HR, ETC.) AS WALL.	13. FIELD-ERECTED AND FACTORY-ASSEMBLED AIR HANDLING UNIT COILS SHALL BE ARRANGED FOR REMOVAL FROM THE UPSTREAM SIDE WITHOUT DISMANTLING SUPPORTS. PROVIDE GALVANIZED STRUCTURAL STEEL SUPPORTS FOR ALL COILS (EXCEPT THE LOWEST COIL) IN BANKS OVER TWO COILS HIGH TO PERMIT THE INDEPENDENT REMOVAL OF ANY COIL.
14. MECHANICAL EQUIPMENT, DUCTWORK, SHALL NOT BE SUPPORTED FROM A METAL DECK.	14. ALL AIR HANDLING UNITS SHALL OPERATE WITHOUT MOISTURE CARRYOVER.
15. ALL EQUIPMENT, DUCTWORK, ETC., SHALL BE SUPPORTED AS DETAILED, SPECIFIED AND REQUIRED TO PROVIDE A VIBRATION-FREE INSTALLATION.	15. LOCATE ALL MECHANICAL EQUIPMENT (SINGLE DUCT, DUAL DUCT, VARIABLE VOLUME, CONSTANT VOLUME, AND FAN-POWERED BOXES, FAN COIL UNITS, CABINET HEATERS, UNIT HEATERS, UNIT VENTILATORS, COILS, STEAM HUMIDIFIERS, ETC.) FOR UNOBSTRUCTED ACCESS TO UNIT ACCESS PANELS, CONTROLS, AND VALVING.
16. ALL DUCTWORK, AND EQUIPMENT SUPPORTED FROM STRUCTURAL STEEL SHALL BE COORDINATED WITH THE GENERAL CONTRACTOR. ALL ATTACHMENTS TO STEEL BAR JOISTS, TRUSSES, OR JOIST GIRDERS SHALL BE AT PANEL POINTS. PROVIDE BEAM CLAMPS MEETING MSS STANDARDS. WELDING TO STRUCTURAL MEMBERS SHALL NOT BE PERMITTED. THE USE OF C-CLAMPS SHALL NOT BE PERMITTED.	16. PROVIDE FLEXIBLE CONNECTIONS IN ALL DUCTWORK SYSTEMS (SUPPLY, RETURN, AND EXHAUST) CONNECTED TO AIR HANDLING UNITS, FANS, AND OTHER EQUIPMENT THAT REQUIRE VIBRATION ISOLATION. FLEXIBLE CONNECTIONS SHALL BE PROVIDED AT THE POINT OF CONNECTION TO THE EQUIPMENT UNLESS OTHERWISE INDICATED.
17. ALL ROOF-MOUNTED EQUIPMENT CURBS FOR EQUIPMENT PROVIDED BY THE MECHANICAL CONTRACTOR SHALL BE FURNISHED BY THE MECHANICAL CONTRACTOR AND INSTALLED BY THE GENERAL CONTRACTOR.	17. UNLESS OTHERWISE NOTED, ALL DUCTWORK IS OVERHEAD, TIGHT TO THE UNDERSIDE OF THE STRUCTURE, WITH SPACE FOR INSULATION IF NEEDED.
18. LOCATIONS AND SIZES OF ALL FLOOR, WALL, AND ROOF OPENINGS SHALL BE COORDINATED WITH ALL OTHER TRADES INVOLVED.	18. RUNS OF FLEXIBLE DUCT SHALL NOT EXCEED 5 FT.
19. ALL OPENINGS IN FIRE WALLS DUE TO DUCTWORK, CONDUIT, ETC., SHALL BE FIRE STOPPED WITH A PRODUCT SIMILAR TO 3M OR APPROVED EQUAL.	19. ALL DUCTWORK SHALL BE COORDINATED WITH ALL TRADES INVOLVED. OFFSETS IN DUCTS, INCLUDING DIVIDED DUCTS AND TRANSITIONS AROUND OBSTRUCTIONS, SHALL BE PROVIDED AT NO ADDITIONAL COST TO THE OWNER.
20. ALL AIR CONDITIONING CONDENSATE DRAIN LINES FROM EACH AIR HANDLING UNIT AND ROOFTOP UNIT SHALL BE FULL SIZE OF THE UNIT DRAIN OUTLET, WITH "P" TRAP, AND PIPED TO THE NEAREST DRAIN. SEE THE DETAILS SHOWN IN THE DRAWINGS OR THE CONTRACT SPECIFICATIONS FOR THE DEPTH OF THE AIR CONDITIONING CONDENSATE TRAP.	20. PROVIDE ACCESS DOORS IN DUCTWORK TO PROVIDE ACCESS FOR ALL SMOKE DETECTORS, FIRE DAMPERS, SMOKE DAMPERS, VOLUME DAMPERS, HUMIDIFIERS, COILS, AND OTHER ITEMS LOCATED IN THE DUCTWORK THAT REQUIRE SERVICE AND/OR INSPECTION.
21. REFER TO TYPICAL DETAILS FOR DUCTWORK, AND EQUIPMENT INSTALLATION.	21. PROVIDE ACCESS DOORS IN DUCTWORK FOR THE OPERATION, ADJUSTMENT, AND MAINTENANCE OF ALL FANS, VALVES, AND MECHANICAL EQUIPMENT.
22. REINFORCEMENT, DETAILING, AND PLACEMENT OF CONCRETE SHALL CONFORM TO ASTM 315 AND ACI 318. CONCRETE SHALL CONFORM TO ASTM C94. CONCRETE WORK SHALL CONFORM TO ACI 318 PART ENTITLED "CONSTRUCTION REQUIREMENTS." COMPRESSIVE STRENGTH IN 28 DAYS SHALL BE 3,000 PSI. TOTAL AIR CONTENT OR EXTERIOR CONCRETE SHALL BE BETWEEN 5 AND 7 PERCENT BY VOLUME. SLUMP SHALL BE BETWEEN 3 AND 4 IN. CONCRETE SHALL BE CURED FOR 7 DAY AFTER PLACEMENT.	22. ALL DUCTS SHALL BE GROUNDED ACROSS FLEXIBLE CONNECTIONS WITH FLEXIBLE COPPER GROUNDING STRAPS. GROUNDING STRAPS SHALL BE BOLTED OR SOLDERED TO BOTH THE EQUIPMENT AND THE DUCT.
23. ALL TESTS SHALL BE COMPLETED BEFORE ANY MECHANICAL EQUIPMENT INSULATION IS APPLIED.	23. SMOKE DETECTORS SHALL BE FURNISHED AND WIRED BY THE ELECTRICAL CONTRACTOR. THE MECHANICAL CONTRACTOR SHALL BE RESPONSIBLE FOR MOUNTING THE SMOKE DETECTOR IN DUCTWORK AS SHOWN ON THE DRAWINGS AND IN ACCORDANCE WITH THE MANUFACTURER'S PRINTED INSTRUCTIONS.
24. TESTING, ADJUSTING, AND BALANCING AGENCY SHALL BE A MEMBER OF THE ASSOCIATED AIR BALANCE COUNCIL (AABC) OR THE NATIONAL ENVIRONMENTAL BALANCING BUREAU (NEBB). TESTING, ADJUSTING, AND BALANCING SHALL BE PERFORMED IN ACCORDANCE WITH THE AABC STANDARDS.	24. SEE SPECIFICATIONS FOR DUCTWORK GAUGES, BRACING, HANGERS, AND OTHER REQUIREMENTS.

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REVISIONS

NUMBER	REMARKS	DATE
1	REVIEW SET	05/22/2024
2	PERMIT SET	09/06/2024

ISSUED FOR:

REVIEW

PROJECT TITLE:

DATE ISSUED:

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DRAWING TITLE:

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05/09/2024

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PROJECT NUMBER:

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DRAWING NUMBER:

M001

SPECIFICATIONS

SECTION 0001 - NOTICE TO BIDDERS

- 1.1 BIDDERS REPRESENTATIONS
- A. THE BIDDER BY MAKING A BID REPRESENTS THAT:
- THE BIDDER HAS READ AND UNDERSTANDS THE BIDDING DOCUMENTS, TO THE EXTENT THAT SUCH DOCUMENTATION RELATES TO THE WORK FOR WHICH THE BID IS SUBMITTED, AND FOR OTHER PORTIONS OF THE PROJECT, IF ANY, BEING BID CONCURRENTLY OR PRESENTLY UNDER CONSTRUCTION.
- B. THE BID IS MADE IN COMPLIANCE WITH THE BIDDING DOCUMENTS.
- C. THE SPECIFICATIONS AND DRAWINGS ARE INTENDED TO SERVE JOINTLY AS A BASIS FOR THE BIDDER TO SUBMIT A CONTRACT PRICE FOR THE MATERIAL AND LABOR.
- D. SHOULD CONFLICTS OR DISCREPANCIES OCCUR WITHIN THE BIDDING DOCUMENTS, THE ITEM OR ITEMS IN DISPUTE THAT REPRESENT THE GREATER COST SHALL PREVAIL IN THE FINAL BID.
- E. THE BID IS BASED UPON THE MATERIALS, EQUIPMENT AND SYSTEMS REQUIRED BY THE BIDDING DOCUMENTS WITHOUT EXCEPTION.
- 1.2 EXISTING CONDITIONS AND COORDINATION
- A. THE BIDDER HAS VISITED THE SITE, BECOME FAMILIAR WITH LOCAL CONDITIONS UNDER WHICH THE WORK IS TO BE PERFORMED AND HAS CORRELATED THE BIDDER'S PERSONAL OBSERVATIONS WITH THE REQUIREMENTS OF THE PROPOSED BIDDING DOCUMENTS.
- B. THE BIDDER SHALL PROPOSE COORDINATION OF WORK SUCH THAT CONFLICTS WITH OTHER TRADES AND SPACE ALLOCATIONS ARE AVOIDED.
- 1.3 RESPONSIBILITIES
- A. THE BIDDER UNDERSTANDS THAT ANY CONTRACTOR SHALL BE FULLY RESPONSIBLE FOR THE TIMELY COMPLETION AND ACCEPTANCE OF THEIR WORK AND THAT ANY ITEMS DAMAGED, LOST OR STOLEN DURING TIME OF CONSTRUCTION SHALL BE REPAIRED OR REPLACED WITHOUT ANY ADDITIONAL COST TO THE OWNER.
- B. THE BIDDER UNDERSTANDS THAT ANY PROPOSED WORK IN OCCUPIED TENANT SPACES SHALL BE PERFORMED DURING TIMES OF NON-TENANT OCCUPANCY OR AS SCHEDULED OR DIRECTED BY THE BUILDING MANAGER.
- C. THE BIDDER UNDERSTANDS THAT ANY PROPOSED SHUT-DOWN OF EXISTING SYSTEMS DURING CONSTRUCTION SHALL BE PRE-ARRANGED WITH THE BUILDING MANAGER AND THAT SUCH SHUT-DOWNS ARE TO BE KEPT TO A MINIMUM.
- END OF SECTION 0001

SECTION 0101 - QUALITY OF WORK

- 1.1 WORKMANSHIP
- A. ALL WORK SHALL BE FREE FROM DEFECTS IN MATERIALS AND WORKMANSHIP FOR A PERIOD OF ONE YEAR FROM DATE OF FINAL ACCEPTANCE.
- B. ALL DEFECTS WHICH DEVELOP OR ARE DISCOVERED WITHIN THIS PERIOD SHALL BE REPAIRED BY THE CONTRACTOR TO THE SATISFACTION OF THE ARCHITECT OR BUILDING MANAGER AT NO ADDITIONAL COST TO THE OWNER.
- C. UPON COMPLETION OF THE WORK THE CONTRACTOR SHALL REMOVE FROM THE SITE, ALL TOOLS, DEMOLISHED APPLIANCES AND ANY SURPLUS MATERIAL.

- 1.2 CODE COMPLIANCE
- A. ALL WORK SHALL MEET ALL STATE AND LOCAL CODES HAVING JURISDICTION.

END OF SECTION 0101

SECTION 0102 -REQUIRED DOCUMENTS

- 1.1 SHOP DRAWINGS
- A. A SET OF PRINTS FOR ANY MECHANICAL WORK INCLUDING BUT NOT LIMITED TO, DUCTWORK LAYOUT SHALL BE SUBMITTED FOR APPROVAL TO THE ENGINEER PRIOR TO CONSTRUCTION OR PURCHASE OF MATERIALS.
- 1.2 SUBMITTALS
- A. EQUIPMENT SUBMITTALS OF ALL PROPOSED MECHANICAL AND ANCILLARY EQUIPMENT INCLUDING ALL ACCESSORIES SHALL BE SUBMITTED TO THE ENGINEER FOR REVIEW. ALL PERTINENT MODELS, SIZES, ACCESSORIES AND CHOICES SHALL BE CLEARLY CHECKED, PRINTED OR OTHERWISE INDICATED ON THE SUBMITTALS.
- 1.3 RECORD DRAWINGS
- A. UPON COMPLETION OF THE WORK, A RECORD DRAWING SHALL BE SUBMITTED TO THE OWNER DEPICTING ALL SUBSEQUENT CHANGES, ADDITIONS AND OR CORRECTIONS TO THE CONTRACT DRAWINGS AND OR CONTRACT SCOPE MADE DURING CONSTRUCTION. THIS DRAWING SHALL REPRESENT A COMPLETE RECORD OF THE WORK INSTALLED.
- 1.4 EQUIPMENT OPERATING INSTRUCTIONS
- A. ON COMPLETION AND ACCEPTANCE OF WORK, THIS CONTRACTOR SHALL FURNISH WRITTEN INSTRUCTIONS,EQUIPMENT MANUALS AND DEMONSTRATE TO THE OWNER THE PROPER OPERATION AND MAINTENANCE OF ALL EQUIPMENT AND APPARATUS FURNISHED UNDER THIS CONTRACT.

B. THESE INSTRUCTIONS SHALL BE TYPED ON 8-1/2 IN. X 11 IN. PAPER AND BOUND IN THREE-RING BINDERS WITH CLEAR ACETATE COVERS. THE CONTRACTOR SHALL GIVE THREE COPIES OF THE INSTRUCTIONS TO THE OWNER AND ONE ELECTRONIC COPY TO THE ENGINEER.

C. THE INSTRUCTION BOOKLET SHALL BE ORGANIZED IN SECTIONS, WITH ONE SECTION PER SYSTEM. THE COVER OF THE INSTRUCTION BOOKLET SHALL BEAR THE NAME, ADDRESS AND PHONE NUMBER OF THE PROJECT, ARCHITECT, ENGINEER, MECHANICAL CONTRACTOR AND SUBCONTRACTORS.

END OF SECTION 0102

SECTION 078413-PENETRATION FIRE-STOPPING

- 1.1 QUALITY ASSURANCE
- A. INSTALLER QUALIFICATIONS: AN FM GLOBAL-APPROVED FIRE-STOP CONTRACTOR OR A UL-QUALIFIED FIRE-STOP CONTRACTOR.
- B. FIRE-TEST-RESPONSE CHARACTERISTICS: UL, INTERTEK ETL SEMKO OR FM GLOBAL
- 1.2 PENETRATION FIRESTOPPING
- A. PENETRATIONS IN FIRE-RESISTANCE-RATED WALLS: F-RATINGS PER ASTM E 814 OR UL 1479.
- B. PENETRATIONS IN HORIZONTAL ASSEMBLIES: F- AND T-RATINGS PER ASTM E 814 OR UL 1479.
- C. PENETRATIONS IN SMOKE BARRIERS: L-RATINGS PER UL 1479.
- D. W-RATINGS: PER UL 1479.
- 1.3 INSTALLATION
- A. IDENTIFICATION: PREPRINTED METAL OR PLASTIC LABELS.
- 1.4 FIELD QUALITY CONTROL
- A. INSPECTION OF INSTALLED FIRE-STOPPING: BY OWNER-ENGAGED AGENCY ACCORDING TO ASTM E 2174.
- 1.5 THROUGH-PENETRATION FIRESTOP SYSTEM SCHEDULE
- WHERE UL-CLASSIFIED SYSTEMS ARE INDICATED, THEY REFER TO SYSTEM NUMBERS IN UL'S "FIRE RESISTANCE DIRECTORY" UNDER PRODUCT CATEGORY XHEZ.

FOR THE FOLLOWING SYSTEMS:

- METALLIC AND NON-METALLIC CONDUIT, OR TUBING, ELECTRICAL CABLES, CABLE TRAYS WITH ELECTRIC CABLES, MISCELLANEOUS ELECTRICAL PENETRANTS, INSULATED GROUPINGS OF PENETRANTS, USE ONE OR MORE THE FOLLOWING MATERIALS:
- a. LATEX SEALANT
- b. SILICONE SEALANT
- c. INTUMESCENT PUTTY
- d. MORTAR
- h. SILICONE FOAM
- i. PILLOWS/BAGS
- j. INTUMESCENT WRAP STRIPS
- k. INTUMESCENT COMPOSITE SHEET

- 1.6 MANUFACTURERS
1. HILTI CONSTRUCTION CHEMICAL, INC
2. TREMCO INC.
3. 3M FIRE PROTECTION PRODUCTS

END OF SECTION 078413

SECTION 230529 - HANGERS AND SUPPORTS FOR HVAC EQUIPMENT

- 1.1 PERFORMANCE REQUIREMENTS
- A. DELEGATED DESIGN: DESIGN EQUIPMENT SUPPORTS, INCLUDING COMPREHENSIVE ENGINEERING ANALYSIS BY A QUALIFIED PROFESSIONAL ENGINEER, USING PERFORMANCE REQUIREMENTS AND DESIGN CRITERIA INDICATED.
- B. STRUCTURAL PERFORMANCE: HANGERS AND SUPPORTS FOR HVAC EQUIPMENT SHALL WITHSTAND THE EFFECTS OF GRAVITY LOADS AND STRESSES WITHIN LIMITS AND UNDER CONDITIONS INDICATED ACCORDING TO ASCE/SEI 7.
1. DESIGN EQUIPMENT SUPPORTS CAPABLE OF SUPPORTING COMBINED OPERATING WEIGHT OF SUPPORTED EQUIPMENT AND CONNECTED SYSTEMS AND COMPONENTS.
2. DESIGN SEISMIC-RESTRAINT HANGERS AND SUPPORTS FOR EQUIPMENT AND OBTAIN APPROVAL FROM AUTHORITIES HAVING JURISDICTION.

- 1.2 SUBMITTALS
- A. SHOP DRAWINGS: SIGNED AND SEALED BY A PROFESSIONAL ENGINEER
- 1.3 QUALITY ASSURANCE
- A. AWS D1.1/D1.1M, "STRUCTURAL WELDING CODE - STEEL"
- 1.4 COMPONENTS
- A. METAL FRAMING SYSTEMS: MFMA MANUFACTURER
- B. FIBERGLASS STRUT SYSTEMS: COOPER B-LINE
- C. THERMAL-HANGER SHIELD INSERTS:
- D. FASTENER SYSTEMS: POWDER-ACTUATED FASTENERS OR MECHANICAL-EXPANSION ANCHORS
- E. EQUIPMENT SUPPORTS.

END OF SECTION 230529

SECTION 230548 - VIBRATION AND SEISMIC CONTROLS FOR HVAC EQUIPMENT

PART 1- GENERAL

- 1.1 PERFORMANCE REQUIREMENTS
- A. SEISMIC-RESTRAINT LOADING:
1. SITE CLASS AS DEFINED IN THE IBC: A, B
2. ASSIGNED SEISMIC USE GROUP OR BUILDING CATEGORY AS DEFINED IN THE IBC: I II III
- a. COMPONENT IMPORTANCE FACTOR: 1.0
- b. COMPONENT RESPONSE MODIFICATION FACTOR: 2.5
- c. COMPONENT AMPLIFICATION FACTOR: 2.5.
3. DESIGN SPECTRAL RESPONSE ACCELERATION AT SHORT PERIODS (0.2 SECOND) 18%
4. DESIGN SPECTRAL RESPONSE ACCELERATION AT 1-SECOND PERIOD: 8%

1.2 COMPONENTS

- A. VIBRATION ISOLATORS:
1. ISOLATOR PADS: NEOPRENE, RUBBER, HERMETICALLY AND/OR SEALED COMPRESSED FIBERGLASS
2. MOUNTS: DOUBLE-DEFLECTION TYPE.
3. RESTRAINED MOUNTS: ALL DIRECTIONAL MOUNTINGS WITH SEISMIC RESTRAINT; CAST-DUCTILE-IRON HOUSING.
4. SPRING ISOLATORS: FREESTANDING, LATERALLY STABLE, OPEN-SPRING TYPE.
5. RESTRAINED SPRING ISOLATORS: FREESTANDING, STEEL, OPEN-SPRING TYPE WITH SEISMIC RESTRAINT.
6. HOUSED SPRING MOUNTS: DUCTILE-IRON OR STEEL HOUSING, WITH INTEGRAL, VERTICALLY ADJUSTABLE SEISMIC SNUBBERS.
7. ELASTOMERIC HANGERS: DOUBLE-DEFLECTION TYPE.
8. SPRING HANGERS: COMBINATION COIL-SPRING AND ELASTOMERIC-INSERT HANGERS WITH SPRING AND INSERT IN COMPRESSION.
9. SPRING HANGERS WITH VERTICAL-LIMIT STOP: COMBINATION COIL-SPRING AND ELASTOMERIC-INSERT HANGERS WITH SPRING AND INSERT IN COMPRESSION AND WITH VERTICAL-LIMIT STOP.
- B. AIR-MOUNTING SYSTEMS:
1. AIR MOUNTS: FREESTANDING, SINGLE OR MULTIPLE, COMPRESSED-AIR BELLOW.
2. RESTRAINED AIR MOUNTS: HOUSED COMPRESSED-AIR BELLOW.
- C. RESTRAINED VIBRATION ISOLATION ROOF-CURB RAILS: FACTORY-ASSEMBLED, FULLY ENCLOSED, INSULATED, AIR- AND WATERTIGHT CURB RAIL; WITH SPRING ISOLATORS MOUNTED ON ELASTOMERIC ISOLATION PADS, AND SNUBBER BUSHINGS.
- D. VIBRATION ISOLATION EQUIPMENT BASES:
1. STEEL BASE: FACTORY-FABRICATED, WELDED, STRUCTURAL-STEEL BASES AND RAILS.
2. INERTIA BASE: FACTORY-FABRICATED, WELDED, STRUCTURAL-STEEL BASES AND RAILS READY FOR FIELD-APPLIED, CAST-IN-PLACE CONCRETE.

- E. SEISMIC-RESTRAINT DEVICES:
1. SNUBBERS: WELDED STRUCTURAL-STEEL SHAPES AND REPLACEABLE RESILIENT ISOLATION WASHERS AND BUSHINGS.
2. CHANNEL SUPPORT SYSTEM: MFMA-3 SLOTTED STEEL CHANNELS.
3. RESTRAINT CABLES: GALVANIZED OR STAINLESS STEEL CABLES.
4. ANCHOR BOLTS: MECHANICAL OR ADHESIVE TYPE, SEISMIC RATED.
5. RESILIENT ISOLATION WASHERS AND BUSHINGS: MOLDED NEOPRENE.
- 1.3 FIELD QUALITY CONTROL
- A. TESTING: BY EITHER: OWNER-ENGAGED AGENCY, CONTRACTOR-ENGAGED AGENCY, OR CONTRACTOR.

PART-2 PRODUCTS

- 1.4 VIBRATION ISOLATORS & SEISMIC-RESTRAINT DEVICES
- A. AVAILABLE MANUFACTURERS: SUBJECT TO COMPLIANCE WITH REQUIREMENTS, MANUFACTURERS OFFERING PRODUCTS THAT MAY BE INCORPORATED INTO THE WORK INCLUDE, BUT ARE NOT LIMITED TO, THE FOLLOWING:
- B. MANUFACTURERS: SUBJECT TO COMPLIANCE WITH REQUIREMENTS, PROVIDE PRODUCTS BY ONE OF THE FOLLOWING:
1. ACE MOUNTINGS CO., INC.
2. AMBER/BOOTH COMPANY, INC.
3. CALIFORNIA DYNAMICS CORPORATION.
4. COOPER B-LINE, INC.; A DIVISION OF COOPER INDUSTRIES.
5. HILTI, INC.
6. ISOLATION TECHNOLOGY, INC.
7. KINETICS NOISE CONTROL.
8. LOOS & CO.; CABLEWARE DIVISION.
9. MASON INDUSTRIES.
10. TOLCO INCORPORATED; A BRAND OF NIBCO INC.
11. UNISTRUT; TYCO INTERNATIONAL, LTD.
12. VIBRATION ELIMINATOR CO., INC.
13. VIBRATION ISOLATION.
14. VIBRATION MOUNTINGS & CONTROLS, INC.

END OF SECTION 230548

SECTION 230593 - TESTING, ADJUSTING, AND BALANCING FOR HVAC

1.1 SUMMARY

- A. TESTING, ADJUSTING, AND BALANCING FOR THE FOLLOWING:
1. AIR SYSTEMS: CONSTANT-VOLUME, DUAL-DUCT, VARIABLE-AIR-VOLUME, MULTI-ZONE AND INDUCTION-UNIT SYSTEMS.
2. EXISTING SYSTEMS.

1.2 QUALITY ASSURANCE

- A. THE CONTRACTOR SHALL PROCURE THE SERVICES OF A TESTING, ADJUSTING AND BALANCING (TAB) SPECIALIST WHO SPECIALIZES IN HEATING, VENTILATION AND AIR CONDITIONING SYSTEMS. THE TAB AGENT SHALL HAVE THE FOLLOWING QUALIFICATIONS: AABC, NEBB OR TABB CERTIFIED.

1.3 EXECUTION

- A. THE TAB SPECIALIST SHALL PERFORM FLOW MEASUREMENTS OF ALL EXISTING AIR SYSTEMS THAT ARE TO REMAIN OR TO BE INCORPORATED INTO NEW WORK PRIOR TO THE STARTING OF WORK IN THE PROJECT SCOPE. A REPORT OF THESE MEASUREMENTS, INDICATING ANY AND ALL DEFICIENCIES SHALL BE SUBMITTED FOR OWNER REVIEW.
- B. THE TAB SPECIALIST SHALL PERFORM FLOW MEASUREMENTS OF ALL NEW AIR SYSTEMS AS LISTED ABOVE IN THE PROJECT SCOPE. A REPORT OF THESE MEASUREMENTS, INDICATING ANY AND ALL DEFICIENCIES SHALL BE SUBMITTED FOR OWNER REVIEW.
- C. THE REPORT SHALL INDICATE A SCHEMATIC DIAGRAM INDICATING LOCATIONS OF ALL EQUIPMENT TESTED AND MEASUREMENT LOCATIONS.
- D. PRIOR TO FINAL INSPECTION OF THE WORK, THE TAB SPECIALIST SHALL BALANCE ALL SYSTEMS AS INDICATED ABOVE TO THE REQUIREMENTS OF THE DESIGN.
- E. THE CONTRACTOR SHALL FURNISH AND INSTALL ALL ADDITIONAL BALANCING EQUIPMENT, PRESSURE TAPS, GAUGES AND OTHER EQUIPMENT AS REQUIRED FOR A PROPERLY BALANCED SYSTEM AT NO ADDITIONAL COST TO THE OWNER. SUCH ADDITIONAL EQUIPMENT SHALL ADHERE IN STRICT ACCORDANCE WITH THE RESPECTIVE EQUIPMENT MANUFACTURER'S RECOMMENDATIONS.
- F. THE CONTRACTOR SHALL HAVE THE TESTING AND BALANCING SPECIALIST COORDINATE ALL WORK OF THIS SECTION WITH THE BUILDING MANAGER. BALANCING WORK SHALL NOT CONFLICT WITH OTHER WORK SO AS TO MAINTAIN COMPLETION WITHIN THE SPECIFIED TIME.
- G. ALL INSTRUMENTS USED FOR TAB SHALL BE MAINTAINED IN GOOD WORKING CONDITION AND ACCURATELY CALIBRATED.
- H. TOLERANCES: PLUS OR MINUS 5 PERCENT OF DESIGN VALUES.
- I. INSPECTIONS: RANDOM CHECKS BY OWNER OR ARCHITECT TO VERIFY FINAL TESTING, ADJUSTING, AND BALANCING REPORT.
- J. ADDITIONAL TESTS: RANDOM TESTS WITHIN 90 DAYS OF COMPLETING TAB TO VERIFY BALANCE CONDITIONS AND SEASONAL TESTS.

END OF SECTION 230593

E. SEISMIC-RESTRAINT DEVICES:

1. SNUBBERS: WELDED STRUCTURAL-STEEL SHAPES AND REPLACEABLE RESILIENT ISOLATION WASHERS AND BUSHINGS.
2. CHANNEL SUPPORT SYSTEM: MFMA-3 SLOTTED STEEL CHANNELS.
3. RESTRAINT CABLES: GALVANIZED OR STAINLESS STEEL CABLES.
4. ANCHOR BOLTS: MECHANICAL OR ADHESIVE TYPE, SEISMIC RATED.
5. RESILIENT ISOLATION WASHERS AND BUSHINGS: MOLDED NEOPRENE.

- 1.3 FIELD QUALITY CONTROL
- A. TESTING: BY EITHER: OWNER-ENGAGED AGENCY, CONTRACTOR-ENGAGED AGENCY, OR CONTRACTOR.

PART-2 PRODUCTS

- 1.4 VIBRATION ISOLATORS & SEISMIC-RESTRAINT DEVICES
- A. AVAILABLE MANUFACTURERS: SUBJECT TO COMPLIANCE WITH REQUIREMENTS, MANUFACTURERS OFFERING PRODUCTS THAT MAY BE INCORPORATED INTO THE WORK INCLUDE, BUT ARE NOT LIMITED TO, THE FOLLOWING:
- B. MANUFACTURERS: SUBJECT TO COMPLIANCE WITH REQUIREMENTS, PROVIDE PRODUCTS BY ONE OF THE FOLLOWING:
1. ACE MOUNTINGS CO., INC.
2. AMBER/BOOTH COMPANY, INC.
3. CALIFORNIA DYNAMICS CORPORATION.
4. COOPER B-LINE, INC.; A DIVISION OF COOPER INDUSTRIES.
5. HILTI, INC.
6. ISOLATION TECHNOLOGY, INC.
7. KINETICS NOISE CONTROL.
8. LOOS & CO.; CABLEWARE DIVISION.
9. MASON INDUSTRIES.
10. TOLCO INCORPORATED; A BRAND OF NIBCO INC.
11. UNISTRUT; TYCO INTERNATIONAL, LTD.
12. VIBRATION ELIMINATOR CO., INC.
13. VIBRATION ISOLATION.
14. VIBRATION MOUNTINGS & CONTROLS, INC.

END OF SECTION 230548

SECTION 230593 - TESTING, ADJUSTING, AND BALANCING FOR HVAC

1.1 SUMMARY

- A. TESTING, ADJUSTING, AND BALANCING FOR THE FOLLOWING:
1. AIR SYSTEMS: CONSTANT-VOLUME, DUAL-DUCT, VARIABLE-AIR-VOLUME, MULTI-ZONE AND INDUCTION-UNIT SYSTEMS.
2. EXISTING SYSTEMS.

1.2 QUALITY ASSURANCE

- A. THE CONTRACTOR SHALL PROCURE THE SERVICES OF A TESTING, ADJUSTING AND BALANCING (TAB) SPECIALIST WHO SPECIALIZES IN HEATING, VENTILATION AND AIR CONDITIONING SYSTEMS. THE TAB AGENT SHALL HAVE THE FOLLOWING QUALIFICATIONS: AABC, NEBB OR TABB CERTIFIED.

1.3 EXECUTION

- A. THE TAB SPECIALIST SHALL PERFORM FLOW MEASUREMENTS OF ALL EXISTING AIR SYSTEMS THAT ARE TO REMAIN OR TO BE INCORPORATED INTO NEW WORK PRIOR TO THE STARTING OF WORK IN THE PROJECT SCOPE. A REPORT OF THESE MEASUREMENTS, INDICATING ANY AND ALL DEFICIENCIES SHALL BE SUBMITTED FOR OWNER REVIEW.
- B. THE TAB SPECIALIST SHALL PERFORM FLOW MEASUREMENTS OF ALL NEW AIR SYSTEMS AS LISTED ABOVE IN THE PROJECT SCOPE. A REPORT OF THESE MEASUREMENTS, INDICATING ANY AND ALL DEFICIENCIES SHALL BE SUBMITTED FOR OWNER REVIEW.
- C. THE REPORT SHALL INDICATE A SCHEMATIC DIAGRAM INDICATING LOCATIONS OF ALL EQUIPMENT TESTED AND MEASUREMENT LOCATIONS.
- D. PRIOR TO FINAL INSPECTION OF THE WORK, THE TAB SPECIALIST SHALL BALANCE ALL SYSTEMS AS INDICATED ABOVE TO THE REQUIREMENTS OF THE DESIGN.
- E. THE CONTRACTOR SHALL FURNISH AND INSTALL ALL ADDITIONAL BALANCING EQUIPMENT, PRESSURE TAPS, GAUGES AND OTHER EQUIPMENT AS REQUIRED FOR A PROPERLY BALANCED SYSTEM AT NO ADDITIONAL COST TO THE OWNER. SUCH ADDITIONAL EQUIPMENT SHALL ADHERE IN STRICT ACCORDANCE WITH THE RESPECTIVE EQUIPMENT MANUFACTURER'S RECOMMENDATIONS.
- F. THE CONTRACTOR SHALL HAVE THE TESTING AND BALANCING SPECIALIST COORDINATE ALL WORK OF THIS SECTION WITH THE BUILDING MANAGER. BALANCING WORK SHALL NOT CONFLICT WITH OTHER WORK SO AS TO MAINTAIN COMPLETION WITHIN THE SPECIFIED TIME.
- G. ALL INSTRUMENTS USED FOR TAB SHALL BE MAINTAINED IN GOOD WORKING CONDITION AND ACCURATELY CALIBRATED.
- H. TOLERANCES: PLUS OR MINUS 5 PERCENT OF DESIGN VALUES.
- I. INSPECTIONS: RANDOM CHECKS BY OWNER OR ARCHITECT TO VERIFY FINAL TESTING, ADJUSTING, AND BALANCING REPORT.
- J. ADDITIONAL TESTS: RANDOM TESTS WITHIN 90 DAYS OF COMPLETING TAB TO VERIFY BALANCE CONDITIONS AND SEASONAL TESTS.

END OF SECTION 230593

SECTION 230713 - DUCT INSULATION

1.1 QUALITY ASSURANCE

SURFACE-BURNING CHARACTERISTICS: ALL INSULATION SHALL HAVE COMPOSITE (INSULATION JACKET OR FACING AND ADHESIVE USED TO ADHERE THE FACING OR JACKET TO THE INSULATION) A FLAME-SPREAD INDEX OF 25, AND SMOKE-DEVELOPED INDEX OF 50 FOR INSULATION INSTALLED INDOOR, 75, AND SMOKE-DEVELOPED INDEX OF 150 FOR INSULATION INSTALLED OUTDOORS, ACCORDING TO ASTM E 84.

1.2 FIELD QUALITY CONTROL

A. FIELD INSPECTIONS: BY OWNER-ENGAGED AGENCY.

1.3 INDOOR DUCT AND PLENUM INSULATION SCHEDULE:

- A. CONCEALED, RECTANGULAR, ROUND AND FLAT-OVAL, SUPPLY-RETURN, OUTDOOR-AND EXHAUST-AIR DUCT AND AIR PLENUM INSULATION:
- B. FLEXIBLE ELASTOMERIC, MINERAL-FIBER BLANKET, MINERAL-FIBER BOARD OR POLYOLEFIN WITH MINIMUM INSTALLED THERMAL RESISTANCE AS FOLLOWS:
- UNCONDITIONED SPACES WITHIN BUILDING: R-6
- WITHIN BUILDING ENVELOPE ASSEMBLY: R-12
- OUTSIDE OF BUILDING: R-12

1.4 ITEMS NOT INSULATED:

1. FIBROUS-GLASS DUCTS.
2. METAL DUCTS WITH DUCT LINER OR SUFFICIENT THICKNESS TO COMPLY WITH ENERGY CODE ANDASHRAE/IESNA 90.1.
3. FACTORY-INSULATED FLEXIBLE DUCTS.
4. FACTORY-INSULATED PLENUMS AND CASINGS.
5. FLEXIBLE CONNECTORS.
6. VIBRATION-CONTROL DEVICES.
7. FACTORY-INSULATED ACCESS PANELS AND DOORS.
8. DUCTS THAT HAVE INTERNAL ACOUSTICAL LINING.

1.5 PRODUCTS

THE FOLLOWING INSULATION MANUFACTURERS WILL BE ACCEPTABLE:

1. JOHNS-MANVILLE
2. OWENS-CORNING

1.6 ACOUSTICAL TREATMENT

1. WHERE SHOWN ON THE DRAWINGS, LOW PRESSURE DUCTWORK SHALL BE LINED WITH 1.5" THICK R-6 AS MANUFACTURED BY DUCTMATE, 1-1/2 POUND MINIMUM DENSITY, NEOPRENE COATED, FLEXIBLE FIBERGLASS DUCT LINER. LINING SHALL COMPLY WITH NFPA 90A AND SHALL HAVE A FLAME SPREAD CLASSIFICATION OF NOT MORE THAN 25 AND A SMOKE DEVELOPED RATING NOT MORE THAN 50. DUCT SIZES WHERE LINING IS INDICATED ON PLANS ARE MINIMUM INSIDE CLEAR DIMENSIONS REQUIRED.

END OF SECTION 230713

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REVISIONS

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SECTION 233113 - METAL DUCTS

1.1 CONSTRUCTION

- A. EACH DUCT SYSTEM SHALL BE CONSTRUCTED FOR THE SPECIFIC SMACNA DUCT PRESSURE CLASSIFICATIONS SHOWN ON THE CONTRACT DRAWINGS. WHERE NO PRESSURE CLASSES ARE SPECIFIED BY THE DESIGNER, THE SMACNA 2-1/2 INCH WG PRESSURE CLASS IS THE BASIS OF COMPLIANCE WITH THESE STANDARDS, REGARDLESS OF THE VELOCITY IN THE DUCT.
- B. ALL DUCTWORK SHALL BE CONSTRUCTED TO SMACNA 2" WG DESIGN AND NOT LESS THAN THE FOLLOWING STANDARDS:

- DUCTWORK SHALL BE TRANSVERSELY JOINTED BY CONNECTING SEAMS OF COMPANION ANGLES, FORMED FROM 1-1/2"x1-1/2"x1/8" GALVANIZED ANGLES, TACK-WELDED OR RIVETED TO THE DUCT. THE ANGLE FRAME SHALL BE CONTINUOUSLY FLANGED UP INTO UPRIGHT OF ANGLE AND EACH CORNER SHALL BE FILLED IN AND GROUND SMOOTH. JOINTS SHALL BE GASKETED WITH 1/8" THICK REINFORCED GASKET, OVERLAPPED AT CORNERS, GASKET SIMILAR TO 3M-1202 OR APPROVED EQUAL.
- RECTANGULAR FITTINGS AND ALL TRANSITION PIECES FROM RECTANGULAR TO ROUND SHALL BE NO. 16 GAUGE ALL WELDED CONSTRUCTION.
- HORIZONTAL DUCTS SHALL BE SUPPORTED ON NOT MORE THAN 6 CENTERS. VERTICAL RISERS SHALL BE SUPPORTED AT EACH FLOOR.
- LONGITUDINAL SEAMS FOR RECTANGULAR DUCTWORK SHALL BE PITTSBURGH LOCK SEAMS WITH SEALING COMPOUND, EQUAL TO BENJAMIN FOSTER NO. 30-03 INSERTED INTO SEAM. ALL SEAMS SHALL BE BRUSHED WITH NO. 30-02 AND COVERED WITH APPROVED SEALING TAPE.
- RECTANGULAR DUCTWORK 18 GAUGE AND HEAVIER, FILLER RODS SHALL BE IN ACCORDANCE WITH SPECIFICATIONS FOR IRON AND STEEL GAS WELDING RODS, ASTM 215; AWG A5.2.
- ALL FITTINGS SUCH AS ELBOWS, TEES, ETC., SHALL BE NO. 20 GAUGE ZINC COATED STEEL. ELBOWS SHALL BE OF FIVE (5) PIECE WELDED AIRTIGHT CONSTRUCTION.

- C. WHERE LATEST EDITION OF SMACNA DOES NOT CLEARLY STATE GAUGES AND/OR STIFFENERS TO BE USED OR, WHERE SMACNA STANDARDS REQUIRE INTERPRETATION, THE FOLLOWING MINIMUM METAL GAUGES AND BRACING SHALL BE USED:

USG	MAX. SIDE INCHES	TRANSVERSE BRACING	JOINTS AND
22	UP TO 12	5 SLIP, DRIVE SLIP, ONE INCH POCKET LOCK ON 8 FOOT CENTERS	
22	13 TO 24	1"x1"x1/8" ANGLES ON 4 FOOT CENTERS	
20	25 TO 35	1"x1"x1/8" ANGLES ON 2 FOOT CENTERS	

- D. PROVIDE TAPPING IN DUCTS FOR THERMOMETERS WHERE SPECIFIED. IN ADDITION, PROVIDE AN AIRTIGHT PLUGGED TAPPING LOCATED AS FOLLOWS:
- UPSTREAM OF EACH REHEAT COIL AND VAV BOX.
 - DOWNSTREAM OF EACH REHEAT COIL AND VAV BOX.

- E. FLAT OVAL OR ROUND DUCTWORK MAY BE PROVIDED IN LIEU OF RECTANGULAR DUCTWORK WITH THE REINFORCEMENT FOR FLAT SIDES SAME AS SPECIFIED FOR THE RECTANGULAR DUCTWORK, AND AS PER SMACNA FLAT OVAL DUCT CONSTRUCTION STANDARDS SHOWN IN FIG. 3-6 AND AS SHOWN IN FIG. 3-1 AND 3-2 FOR ROUND DUCTWORK.

1.2 MATERIALS

- A. SINGLE-WALL RECTANGULAR DUCTS AND FITTINGS.
- B. DOUBLE-WALL RECTANGULAR DUCTS AND FITTINGS.

- FIBROUS-GLASS OR FLEXIBLE ELASTOMERIC DUCT LINER FOR INTERSTITIAL INSULATION.

- PERFORATED INNER DUCT.

- C. SINGLE-WALL ROUND AND FLAT-OVAL DUCTS AND FITTINGS.
- D. DOUBLE-WALL ROUND AND FLAT-OVAL DUCTS AND FITTINGS.

- FIBROUS-GLASS OR FLEXIBLE ELASTOMERIC DUCT LINER FOR INTERSTITIAL INSULATION.

- PERFORATED INNER DUCT.

E. SHEET METAL MATERIALS:

- GALVANIZED SHEET STEEL.
- PVC-COATED, GALVANIZED SHEET STEEL.
- CARBON-STEEL SHEETS.
- STAINLESS-STEEL SHEETS.
- ALUMINUM SHEETS.
- FACTORY-APPLIED ANTI-MICROBIAL COATING.

F. DUCT LINER:

- FIBROUS GLASS, TYPE I, FLEXIBLE.
 - WITH ANTI-MICROBIAL EROSION-RESISTANT COATING.
- FLEXIBLE ELASTOMERIC.

- NATURAL FIBER.

G. SEALANT MATERIALS:

- TWO-PART TAPE SEALING SYSTEM.
- WATER-BASED JOINT AND SEAM SEALANT.
- SOLVENT-BASED JOINT AND SEAM SEALANT.
- FLANGED JOINT SEALANT.
- FLANGE GASKETS.
- ROUND DUCT JOINT O-RING SEALS.

1.3 SEISMIC-RESTRAINT DEVICES

- A. CHANNEL SUPPORT SYSTEM.
- B. STAINLESS-STEEL RESTRAINT CABLES.
- C. HANGER ROD STIFFENER: STEEL TUBE OR STEEL SLOTTED-SUPPORT-SYSTEM SLEEVE WITH INTERNALLY BOLTED CONNECTIONS OR REINFORCING STEEL ANGLE CLAMPED TO HANGER ROD.

1.4 DUCT CLEANING

- A. CLEAN EXISTING DUCT SYSTEM(S) BEFORE TESTING, ADJUSTING, AND BALANCING.
- B. CLEAN THE FOLLOWING ITEMS:
- AIR OUTLETS AND INLETS.
 - SUPPLY, RETURN, AND EXHAUST FANS.
 - AIR-HANDLING UNITS.
 - COILS AND RELATED COMPONENTS.
 - RETURN-AIR DUCTS, DAMPERS, ACTUATORS, AND TURNING VANES.
 - SUPPLY-AIR DUCTS, DAMPERS, ACTUATORS, AND TURNING VANES.
 - DEDICATED EXHAUST AND VENTILATION COMPONENTS AND MAKEUP AIR SYSTEMS.

1.5 DUCT SCHEDULE

- A. ALL DUCTS SHALL BE GALVANIZED STEEL EXCEPT AS FOLLOWS:

MOIST ENVIRONMENT DUCT MATERIAL: ALUMINUM.
END OF SECTION 233113

THEMOSTATIC CONTROLS:

A. THERMOSTATIC CONTROLS (MANDATORY)

THE SUPPLY OF HEATING AND COOLING ENERGY TO EACH ZONE SHALL BE CONTROLLED BY INDIVIDUAL THERMOSTATIC CONTROLS CAPABLE OF RESPONDING TO TEMPERATURES WITHIN THE ZONE WHERE HUMIDIFICATION OR DEHUMIDIFICATION OR BOTH IS PROVIDED, NOT FEWER THAN ONE HUMIDITY CONTROL DEVICE SHALL BE PROVIDED FOR EACH HUMIDITY CONTROL SYSTEM.

EXCEPTION:

- INDEPENDENT PERIMETER SYSTEMS THAT ARE DESIGNED TO OFFSET ONLY BUILDING ENVELOPE HEAT LOSSES, GAINS OR BOTH SERVING ONE OR MORE PERIMETER ZONES ALSO SERVED BY AN INTERIOR SYSTEM PROVIDED THAT BOTH OF THE FOLLOWING CONDITIONS ARE MET:
- THE PERIMETER SYSTEM INCLUDES NOT FEWER THAN ONE THERMOSTATIC CONTROL ZONE FOR EACH BUILDING EXPOSURE HAVING EXTERIOR WALLS FACING ONLY ONE ORIENTATION (WITHIN ± 45 DEGREES) (0.8 RAD) FOR MORE THAN 50 CONTIGUOUS FEET (15 240 MM).
- THE PERIMETER SYSTEM HEATING AND COOLING SUPPLY IS CONTROLLED BY THERMOSTATS LOCATED WITHIN THE ZONES SERVED BY THE SYSTEM.

C. DEADBAND (MANDATORY)

WHERE USED TO CONTROL BOTH HEATING AND COOLING, ZONE THERMOSTATIC CONTROLS SHALL BE CONFIGURED TO PROVIDE A TEMPERATURE RANGE OR DEADBAND OF NOT LESS THAN 5°F (2.8°C) WITHIN WHICH THE SUPPLY OF HEATING AND COOLING ENERGY TO THE ZONE IS SHUT OFF OR REDUCED TO A MINIMUM.

EXCEPTIONS:

- THERMOSTATS REQUIRING MANUAL CHANGEOVER BETWEEN HEATING AND COOLING MODES.
- OCCUPANCIES OR APPLICATIONS REQUIRING PRECISION IN INDOOR TEMPERATURE CONTROL AS APPROVED BY THE CODE OFFICIAL.

D. SETPOINT OVERLAP RESTRICTION (MANDATORY)

WHERE A ZONE HAS A SEPARATE HEATING AND A SEPARATE COOLING THERMOSTATIC CONTROL LOCATED WITHIN THE ZONE, A LIMIT SWITCH, MECHANICAL STOP OR DIRECT DIGITAL CONTROL SYSTEM WITH SOFTWARE PROGRAMMING SHALL BE CONFIGURED TO PREVENT THE HEATING SETPOINT FROM EXCEEDING THE COOLING SETPOINT AND TO MAINTAIN A DEADBAND IN ACCORDANCE WITH SECTION DEADBAND.

G. OFF-HOUR CONTROLS (MANDATORY)

EACH ZONE SHALL BE PROVIDED WITH THERMOSTATIC SETBACK CONTROLS THAT ARE CONTROLLED BY EITHER AN AUTOMATIC TIME CLOCK OR PROGRAMMABLE CONTROL SYSTEM.

EXCEPTIONS:

- ZONES THAT WILL BE OPERATED CONTINUOUSLY.
- ZONES WITH A FULL HVAC LOAD DEMAND NOT EXCEEDING 6,800 BTU/H (2 KW) AND HAVING A MANUAL SHUTOFF SWITCH LOCATED WITH READY ACCESS.

H. THERMOSTATIC SETBACK (MANDATORY)

THERMOSTATIC SETBACK CONTROLS SHALL BE CONFIGURED TO SET BACK OR TEMPORARILY OPERATE THE SYSTEM TO MAINTAIN ZONE TEMPERATURES DOWN TO 55°F (13°C) OR UP TO 85°F (29°C).

I. AUTOMATIC SETBACK AND SHUTDOWN (MANDATORY)

AUTOMATIC TIME CLOCK OR PROGRAMMABLE CONTROLS SHALL BE CAPABLE OF STARTING AND STOPPING THE SYSTEM FOR SEVEN DIFFERENT DAILY SCHEDULES PER WEEK AND RETAINING THEIR PROGRAMMING AND TIME SETTING DURING A LOSS OF POWER FOR NOT FEWER THAN 10 HOURS. ADDITIONALLY, THE CONTROLS SHALL HAVE A MANUAL OVERRIDE THAT ALLOWS TEMPORARY OPERATION OF THE SYSTEM FOR UP TO 2 HOURS. A MANUALLY OPERATED TIMER CONFIGURED TO OPERATE THE SYSTEM FOR UP TO 2 HOURS, OR AN OCCUPANCY SENSOR.

J. AUTOMATIC START (MANDATORY)

AUTOMATIC START CONTROLS SHALL BE PROVIDED FOR EACH HVAC SYSTEM. THE CONTROLS SHALL BE CONFIGURED TO AUTOMATICALLY ADJUST THE DAILY START TIME OF THE HVAC SYSTEM IN ORDER TO BRING EACH SPACE TO THE DESIRED OCCUPIED TEMPERATURE IMMEDIATELY PRIOR TO SCHEDULED OCCUPANCY.

SHEET METAL WORK

- A. EXCEPT AS OTHERWISE SHOWN OR NOTED, ALL DUCTWORK AND OTHER SHEET METAL WORK SHALL BE GALVANIZED SHEET STEEL AND SHALL BE INSTALLED IN ACCORDANCE WITH THE LATEST EDITION OF SHEET METAL AND AIR CONDITIONING CONTRACTORS NATIONAL ASSOCIATION, INC. DUCT CONSTRUCTION STANDARDS, PRESSURE CLASSIFICATION 2 IN. W.G.

- B. DUCTWORK STATIC PRESSURE CLASSIFICATION:
- 2 IN OF W.G. UP TO 2 IN OF W.G.
 - 6 IN OF W.G. ABOVE 2 IN & UP TO 6 IN WG

- C. SEALING OF DUCTWORK SHALL COMPLY WITH SECTION 603.9 OF THE MECHANICAL CODE OF MASSACHUSETTS STATE OR IN MASSACHUSETTS STATE, THE MASSACHUSETTS STATE CONSTRUCTION CODES.

- D. VOLUME DAMPERS: GALVANIZED STEEL, PER SMACNA "LOW VELOCITY MANUAL." EXCEPT PROVIDE BEARING AT ONE END OF DAMPER ROD AND QUADRANT, WITH LEVER AND LOCKSCREW AT OTHER END. FOR INSULATED DUCTS, QUADRANTS MOUNTED ON COLLAR TO CLEAR INSULATION. INSTALL WITH LEVERS ACCESSIBLE.

- E. ACCESS DOORS: INSULATED OR UNINSULATED, SAME AS DUCT.

- PROVIDE MINIMUM 20 IN. X 20 IN. (OR EQUIVALENT) ON ALL DUCTS, UNLESS OTHERWISE APPROVED, AT FIRE DAMPERS, AND AT ALL DUCT ACCESSORIES SUCH AS HUMIDIFIERS, DUCT SMOKE DETECTORS, AUTO DAMPERS, AND LOUVERS.

- ACCESS DOORS SHALL BE LOCATED AT THE BOTTOM OF THE DUCT OR ON THE SIDE, AND NOT MORE THAN 16 INCHES FROM THE DUCT ACCESSORY THAT IT SERVES (FIRE DAMPER, FSD, ETC.)
- WHERE DUCT SIZE DOES NOT PERMIT A 20 IN. X 20 IN. (OR EQUIVALENT AREA) ACCESS DOOR, THE ACCESS DOOR SHALL BE FABRICATED OF AN AREA EQUIVALENT TO A 20 IN. X 20 IN. WITH THE SMALLER DIMENSION BEING 2 INCHES SMALLER THAN THE DUCT SIZE WHERE IT WILL BE LOCATED, AND LOCATED NOT LESS THAN 1" FROM ANY DUCT EDGE.

- FOR DUCTS WHICH LARGEST DIMENSION IS 12 INCHES (WIDTH AND OR HEIGHT), IT IS PERMISSIBLE TO PROVIDE A 10 IN. X 10 IN. (OR EQUIVALENT AREA) ACCESS DOOR LOCATED AT THE BOTTOM OR THE SIDE OF THE DUCT. THAN

- ALL ACCESS DOORS TO BE HINGED, WITH LATCH SIMILAR TO VENTLOCK NO. 100.

- A. KITCHEN RANGE HOOD EXHAUST DUCT INCLUDING FAN DISCHARGE TO ATMOSPHERE SHALL BE PROVIDED AS FOLLOWS:

- NOTE: IF ALL DUCTWORK IS INSIDE BUILDING.

- NO. 10 USSG BLACK STEEL.
NOTE: MASSACHUSETTS STATE CODE REQUIRES THAT ALL DUCTWORK MUST BE WELDED AND THICKER BLACK STEEL IF SOME DUCTWORK IS OUTDOORS. CHECK LOCAL CODE FOR OTHER AREAS.

- BLACK STEEL OF FOLLOWING GAUGES AND THICKNESSES. INSIDE BUILDING SHALL BE NO. 10 USSG. OUTDOOR DUCTWORK TO 7 SQ FT SHALL BE 1/8 INCH, ABOVE 7 SQ FT TO 12.5 SQ FT SHALL BE 3/16 INCH, AND OVER 12.5 SQ FT SHALL BE 1/4 INCH.

- ALL SEAMS, JOINTS AND PENETRATIONS SHALL BE LIQUIDTIGHT CONTINUOUS EXTERNAL ARC WELDED EXCEPT WHERE THE DUCT STUB COLLAR OF THE HOOD IS CONNECTED TO THE EXHAUST DUCT. CONNECTION TO THE HOOD SHALL BE CONTINUOUS LIQUIDTIGHT EXTERNAL ARC WELDED OR IN ACCORDANCE WITH NFPA 96, 1984.

- ANGLE REINFORCING SHALL BE MINIMUM 1-1/2 INCH X 1-1/2 INCH X 3/16 INCH AT MAXIMUM 4 FT ON CENTERS AND IN ACCORDANCE WITH SMACNA RECTANGULAR INDUSTRIAL DUCT CONSTRUCTION STANDARDS SHALL BE MOUNTED.

- CLEANOUT DOORS ON HORIZONTAL DUCTS SHALL BE MOUNTED MAXIMUM 12 FT APART AND IN CHANGE OF DIRECTION. CLEANOUT DOORS ON HORIZONTAL DUCT SHALL BE MOUNTED ON SIDE OF DUCT. BOTTOM EDGE SHALL BE NOT LESS THAN 2 INCH ABOVE THE BOTTOM OF DUCT. CLEANOUT DOORS AT VERTICAL DUCTS SHALL BE MOUNTED AT BASE. DOOR AND FRAME SHALL BE SAME GAUGE AS DUCT. HINGES SHALL BE VENTLOCK NO. 260, EXTRA HEAVY ZINC PLATED. LATCHES SHALL BE VENTLOCK NO. 140, CAST ZINC. GASKETS SHALL BE BETWEEN DOOR AND FRAME. GASKETS SHALL BE 1/8 INCH DOUBLE THICKNESS RATED FOR 20000F. CLEANOUT DOOR SIZE SHALL BE MAXIMUM 24 INCH X 24 INCH AND MINIMUM SHALL BE 24 INCH ONE SIDE AND OTHER SIDE SHALL BE 2 INCH LESS THAN DUCT HEIGHT.

- G. FLEXIBLE CONNECTIONS: NEOPRENE-COATED GLASS FABRIC, 30 OZ PER SQ YD WITH SEWED AND CEMENTED SEAMS, SIMILAR TO VENT FABRICS. PROVIDE WITH METAL COLLARS. ALLOW MINIMUM MOVEMENT OF 1 IN.

- H. TURNING VANES: GALVANIZED STEEL SMALL DOUBLE-THICKNESS VANES WITH 2 IN. INSIDE RADIUS.

- I. FIRE DAMPERS: UL LISTED, GALVANIZED STEEL CONSTRUCTION, MULTIBLADED TYPE, SPRING LOADED, EQUIPPED WITH FUSIBLE LINK, CONFORMING TO NFPA STANDARD 90A AND APPROVED BY MASSACHUSETTS STATE BOARD OF STANDARDS AND APPEALS FOR MASSACHUSETTS STATE CAL-100-65-5M. SIMILAR TO AIR BALANCE MODEL 319-P, RATED AS REQUIRED. SEE INSTALLATION ON DRAWING.

- J. DUCTWORK FOR AREAS WITH HIGH HUMIDITY SHALL BE ALUMINUM FABRICATED ONE GAGE LARGER THAN GALVANIZED FOR THE SAME PRESSURE CLASSIFICATION. THESE DUCTS INCLUDE SHOWERS, OUTDOOR AIR INTAKE, HUMIDIFIERS, ETC.

- K. ALL DUCT DIMENSIONS INDICATED ON PLANS ARE INSIDE CLEAR DIMENSIONS.

- L. AUTOMATIC DAMPERS: COMPLETE WITH LINKAGE AND ELECTRIC OPERATOR. OPPOSED BLADE DAMPER OR GALVANIZED STEEL MIN. 4 IN. MAX. 8 IN WIDE WITH COMPRESSIBLE EDGE SEALS TO PREVENT LEAKAGE. FACTORY-ASSEMBLE STEEL LINKAGE AND SHAFT WITH NYLON OR OIL-IMPREGNATED BRONZE BEARINGS. MOTOR WITH SUFFICIENT POWER TO LIMIT LEAKAGE TO 10 CFM PER SQ FT. LINKAGE TO WITHSTAND LOAD EQUAL TO TWICE MAXIMUM OPERATING FORCE WITHOUT DEFLECTION. DAMPER MOUNTED IN WELDED STEEL CHANNEL FRAME.

- M. WIRE MESH SCREEN (WMS): NO. 16 USSG, 3/4 SQUARE MESH, 1 IN. WIDE GALVANIZED STEEL ENCLOSING FRAME. FLANGED DUCT OPENING TO RECEIVE FRAME.

- N. COMBINATION FIRE AND SMOKE DAMPERS: UL LISTED, GALVANIZED STEEL CONSTRUCTION MULTI-BLADED TYPE. BLADES SHALL BE AIRFOIL SHAPED, DOUBLE SKIN, SINGLE PIECE CONSTRUCTION. EQUIPPED WITH FUSIBLE LINK CONFORMING TO NFPA STANDARD 90A, 92A & 92B, AND COMPLY WITH LATEST STANDARD UL555 AND UL555S WITH LEAKAGE CLASS I SMOKE DAMPERS, BLADE SEALS, SIMILAR TO RUSKIN MODEL FSD 60, MASSACHUSETTS STATE BSA LISTING# 176-82-SM. ACTUATOR SHALL BE ELECTRICALLY POWERED, 120 V/1 PH, AND MOUNTED IN THE FACTORY AT THE TIME OF FABRICATION.
3. NOISE CONTROL

- ALL ROOM NC LEVELS SHALL BE 35 OR LESS.

- PROVIDE SOUND LINING FOR THE FOLLOWING DUCTWORK:

- ALL DUCTWORK WITHIN MECHANICAL ROOMS AND NOT LESS THAN 20 FT ON EACH SIDE OF ALL FANS AND AC UNITS.

- AIR TRANSFER DUCTS.

- DOWNSTREAM OF ALL VARIABLE AIR VOLUME AND CONSTANT VOLUME BOXES FOR A MINIMUM OF 15 FT.

- ALL MIXED AIR PLENUMS, EXCEPT WHERE MOISTURE CARRYOVER FROM OUTDOOR AIR LOUVER WILL OCCUR.

- FULL EXTENT OF SUPPLY DUCTS SERVING CONFERENCE ROOMS.

- ALL EXPOSED INTERIOR SUPPLY DUCTWORK.

- ALSO WHERE NOTED ON A DRAWING.

- C. SOUND LINING IN DUCTWORK: FIBROUS GLASS, MINIMUM 3 LB DENSITY, 1 IN. THICKNESS, MAXIMUM 0.25 K FACTOR AT 75 DEG F MEAN TEMPERATURE WITH ACRYLIC COATED FINISH FACTORY-APPLIED, EDGE COATING AND STENOILED IN ACCORDANCE WITH NFPA 90. FLAMESPREAD SHALL BE A MAXIMUM OF 25. LINING SHALL NOT SUPPORT MICROBIAL GROWTH AND SHALL BE TESTED IN ACCORDANCE WITH ASTM C 1071 AND ASTM G21/G22. SIMILAR TO MANVILLE PERMACOTE LINA COUSTIC.

- D. ALL SOUND LINING, ADHESIVES, FACES AND ACCESSORIES TO BE APPLIED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS, EXCEPT AS OTHERWISE NOTED.

GREASE DUCT SPECIFICATIONS.

- GREASE DUCTS SHALL BE CONSTRUCTED OF STEEL HAVING A MINIMUM THICKNESS OF 0.0575 INCH (NO. 16 GAGE) OR STAINLESS STEEL NOT LESS THAN 0.0450 INCH (NO. 18 GAGE) IN THICKNESS.
- JOINTS, SEAMS AND PENETRATIONS OF GREASE DUCTS SHALL BE MADE WITH A CONTINUOUS LIQUID TIGHT WELD OR BRAZE MADE ON THE EXTERNAL SURFACE OF THE DUCT SYSTEM.
- DUCT JOINTS SHALL BE BUTT JOINTS, WELDED FLANGE JOINTS WITH A MAXIMUM FLANGE DEPTH OF 1/2 INCH OR OVERLAPPING DUCT JOINTS OF EITHER THE TELESCOPING OR BELL TYPE. OVERLAPPING JOINTS SHALL BE INSTALLED TO PREVENT LEDGES AND OBSTRUCTIONS FROM COLLECTING GREASE OR INTERFERING WITH GRAVITY DRAINAGE TO THE INTENDED COLLECTION POINT. THE DIFFERENCE BETWEEN THE INSIDE CROSS-SECTIONAL DIMENSIONS OF OVERLAPPING SECTIONS OF DUCT SHALL NOT EXCEED 1/4 INCH. THE LENGTH OF OVERLAP FOR OVERLAPPING DUCT JOINTS SHALL NOT EXCEED 2 INCHES.
- DUCT-TO-HOOD JOINTS SHALL BE MADE WITH CONTINUOUS INTERNAL OR EXTERNAL LIQUID-TIGHT WELDED OR BRAZED JOINTS. SUCH JOINTS SHALL BE SMOOTH, ACCESSIBLE FOR INSPECTION, AND WITHOUT GREASE TRAPS.
- DUCT-TO-EXHAUST FAN CONNECTIONS SHALL BE FLANGED AND GASKETED AT THE BASE OF THE FAN FOR VERTICAL DISCHARGE FANS; SHALL BE FLANGED, GASKETED AND BOLTED TO THE INLET OF THE FAN FOR SIDE-INLET UTILITY FANS; AND SHALL BE FLANGED, GASKETED AND BOLTED TO THE INLET AND OUTLET OF THE FAN FOR IN-LINE FANS. GASKET AND SEALING MATERIALS SHALL BE RATED FOR CONTINUOUS DUTY AT A TEMPERATURE OF NOT LESS THAN 1,500°F.
- PRIOR TO THE USE OR CONCEALMENT OF ANY PORTION OF A GREASE DUCT SYSTEM, A LEAKAGE TEST SHALL BE PERFORMED. DUCTS SHALL BE CONSIDERED TO BE CONCEALED WHERE INSTALLED IN SHAFTS OR COVERED BY COATINGS OR WRAPS THAT PREVENT THE DUCTWORK FROM BEING VISUALLY INSPECTED ON ALL SIDES. THE PERMIT HOLDER SHALL BE RESPONSIBLE TO PROVIDE THE NECESSARY EQUIPMENT AND PERFORM THE GREASE DUCT LEAKAGE TEST. A LIGHT TEST SHALL BE PERFORMED TO DETERMINE THAT ALL WELDED AND BRAZED JOINTS ARE LIQUID TIGHT. A LIGHT TEST SHALL BE PERFORMED BY PASSING A LAMP HAVING A POWER RATING OF NOT LESS THAN 100 WATTS THROUGH THE ENTIRE SECTION OF DUCTWORK TO BE TESTED. THE LAMP SHALL BE OPEN SO AS TO EMIT LIGHT EQUALLY IN ALL DIRECTIONS PERPENDICULAR TO THE DUCT WALLS. A TEST SHALL BE PERFORMED FOR THE ENTIRE DUCT SYSTEM, INCLUDING THE HOOD-TO-DUCT CONNECTION. THE DUCT WORK SHALL BE PERMITTED TO BE TESTED IN SECTIONS, PROVIDED THAT EVERY JOINT IS TESTED. FOR LISTED FACTORY-BUILT GREASE DUCTS, THIS TEST SHALL BE LIMITED TO DUCT JOINTS ASSEMBLED IN THE FIELD AND SHALL EXCLUDE FACTORY WELDS.

- GREASE DUCT BRACING AND SUPPORTS SHALL BE OF NONCOMBUSTIBLE MATERIAL SECURELY ATTACHED TO THE STRUCTURE AND DESIGNED TO CARRY GRAVITY AND SEISMIC LOADS WITHIN THE STRESS LIMITATIONS OF THE INTERNATIONAL BUILDING CODE. BOLTS, SCREWS, RIVETS AND OTHER MECHANICAL FASTENERS SHALL NOT PENETRATE DUCT WALLS.

- DUCT SYSTEMS SERVING A TYPE I HOOD SHALL BE CONSTRUCTED AND INSTALLED SO THAT GREASE CANNOT COLLECT IN ANY PORTION THEREOF, AND THE SYSTEM SHALL SLOPE NOT LESS THAN ONE-FOURTH UNIT VERTICAL IN 12 UNITS HORIZONTAL (2% SLOPE) TOWARD THE HOOD OR TOWARD A GREASE RESERVOIR DESIGNED AND INSTALLED IN ACCORDANCE WITH SECTION 506.3.11.1 WHERE HORIZONTAL DUCTS EXCEED 75 FEET IN LENGTH, THE SLOPE SHALL BE NOT LESS THAN ONE UNIT VERTICAL IN 12 UNITS HORIZONTAL (8.3% SLOPE).

- GREASE DUCT CLEAN-OUTS AND OPENINGS SHALL COMPLY WITH ALL OF THE FOLLOWINGS: GREASE DUCTS SHALL NOT HAVE OPENINGS EXCEPT WHERE REQUIRED FOR THE OPERATION AND MAINTENANCE OF THE SYSTEM. SECTIONS OF GREASE DUCTS THAT ARE INACCESSIBLE FROM THE HOOD OR DISCHARGE OPENINGS SHALL BE PROVIDED WITH CLEAN-OUT OPENINGS SPACED NOT MORE THAN 20 FEET APART AND NOT MORE THAN 10 FEET FROM CHANGES IN DIRECTION GREATER THAN 45 DEGREES. CLEAN-OUTS AND OPENINGS SHALL BE EQUIPPED WITH TIGHT-FITTING DOORS CONSTRUCTED OF STEEL HAVING A THICKNESS NOT LESS THAN THAT REQUIRED FOR THE DUCT. CLEAN-OUT DOORS SHALL BE INSTALLED LIQUID TIGHT. DOOR ASSEMBLIES INCLUDING ANY FRAMES AND GASKETS SHALL BE APPROVED FOR THE APPLICATION AND SHALL NOT HAVE FASTENERS THAT PENETRATE THE DUCT. GASKET AND SEALING MATERIALS SHALL BE RATED FOR NOT LESS THAN 1,500°F. LISTED DOOR ASSEMBLIES SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS.

- CLEAN-OUTS SERVING HORIZONTAL SECTIONS OF GREASE DUCTS SHALL BE SPACED NOT MORE THAN 20 FEET APART. BE LOCATED NOT MORE THAN 10 FEET FROM CHANGES IN DIRECTION THAT ARE GREATER THAN 45 DEGREES. BE LOCATED ON THE BOTTOM ONLY WHERE OTHER LOCATIONS ARE NOT AVAILABLE AND SHALL BE PROVIDED WITH INTERNAL DAMMING OF THE OPENING SUCH THAT GREASE WILL FLOW PAST THE OPENING WITHOUT POOLING. BOTTOM CLEAN-OUTS AND OPENINGS SHALL BE APPROVED FOR THE APPLICATION AND INSTALLED LIQUID TIGHT. NOT BE CLOSER THAN 1 INCH FROM THE EDGES OF THE DUCT. HAVE OPENING DIMENSIONS OF NOT LESS THAN 12 INCHES BY 12 INCHES, WHERE SUCH DIMENSIONS PRECLUDE INSTALLATION. THE OPENING SHALL BE NOT LESS THAN 12 INCHES ON ONE SIDE AND SHALL BE LARGE ENOUGH TO PROVIDE ACCESS FOR CLEANING AND MAINTENANCE. BE LOCATED AT GREASE RESERVOIRS, BE LOCATED WITHIN 3 FEET OF HORIZONTAL DISCHARGE FANS.

- A COMMERCIAL KITCHEN GREASE DUCT SERVING A TYPE I HOOD THAT PENETRATES A CEILING, WALL, FLOOR OR ANY CONCEALED SPACE SHALL BE ENCLOSED FROM THE POINT OF PENETRATION TO THE OUTLET TERMINAL. IN-LINE EXHAUST FANS NOT LOCATED OUTDOORS SHALL BE ENCLOSED AS REQUIRED FOR GREASE. DUCTS A DUCT SHALL PENETRATE EXTERIOR WALLS ONLY AT LOCATIONS WHERE UNPROTECTED OPENINGS ARE PERMITTED BY THE INTERNATIONAL BUILDING CODE. THE DUCT ENCLOSURE SHALL SERVE A SINGLE GREASE DUCT AND SHALL NOT CONTAIN OTHER DUCTS, PIPING OR WIRING SYSTEMS. DUCT ENCLOSURES SHALL BE A SHAFT ENCLOSURE IN ACCORDANCE WITH SECTION 506.3.11.1, A FIELD-APPLIED ENCLOSURE ASSEMBLY IN

- ACCORDANCE WITH SECTION 506.3.11.2 OR A FACTORY-BUILT ENCLOSURE ASSEMBLY IN ACCORDANCE WITH SECTION 506.3.11.3, DUCT ENCLOSURES SHALL HAVE A FIRE-RESISTANCE RATING OF NOT LESS THAN THAT OF THE ASSEMBLY PENETRATED AND NOT LESS THAN 1 HOUR. FIRE DAMPERS AND SMOKE DAMPERS SHALL NOT BE INSTALLED IN GREASE DUCTS.

- GREASE DUCTS CONSTRUCTED IN ACCORDANCE WITH SECTION 506.3.11 SHALL BE ENCLOSED BY A LISTED AND LABELED FIELD-APPLIED GREASE DUCT ENCLOSURE MATERIAL, SYSTEMS, PRODUCT, OR METHOD OF CONSTRUCTION SPECIFICALLY EVALUATED FOR SUCH PURPOSE IN ACCORDANCE WITH ASTM E2336. THE SURFACE OF THE DUCT SHALL BE CONTINUOUSLY COVERED ON ALL SIDES FROM THE POINT AT WHICH THE DUCT ORIGINATES TO THE OUTLET TERMINAL. DUCT PENETRATIONS SHALL BE PROTECTED WITH A THROUGH-PENETRATION FIRESTOP SYSTEM TESTED AND LISTED IN ACCORDANCE WITH ASTM E814 OR UL 1479 AND HAVING A "F" AND "T" RATING EQUAL TO THE FIRE-RESISTANCE RATING OF THE ASSEMBLY BEING PENETRATED. THE GREASE DUCT ENCLOSURE AND FIRESTOP SYSTEM SHALL BE INSTALLED IN ACCORDANCE WITH THE LISTING AND THE MANUFACTURER'S INSTRUCTIONS. PARTIAL APPLICATION OF A FIELD-APPLIED GREASE DUCT ENCLOSURE SHALL NOT BE INSTALLED FOR THE SOLE PURPOSE OF REDUCING CLEARANCES TO COMBUSTIBLES AT ISOLATED SECTIONS OF GREASE DUCT. EXPOSED DUCT-WRAP SYSTEMS SHALL BE PROTECTED WHERE SUBJECT TO PHYSICAL DAMAGE.

- WHERE CLEAN-OUT OPENINGS ARE LOCATED IN DUCTS WITHIN A FIRE-RESISTANCE-RATED ENCLOSURE, ACCESS OPENINGS SHALL BE PROVIDED IN THE ENCLOSURE AT EACH CLEANOUT POINT. ACCESS OPENINGS SHALL BE EQUIPPED WITH TIGHT-FITTING SLIDING OR HINGED DOORS THAT ARE EQUAL IN FIRE-RESISTIVE PROTECTION TO THAT OF THE SHAFT OR ENCLOSURE. AN APPROVED SIGN SHALL BE PLACED ON ACCESS OPENING PANELS WITH WORDING AS FOLLOWS: "ACCESS PANEL. DO NOT OBSTRUCT."

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PROJECT TITLE:



DRAWING TITLE:

MECHANICAL NOTES &
SPECIFICATIONS (02 OF 02)

PERMIT DWG DATE: 05/09/2024	PROJECT NUMBER: 24-09-002
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DRAWN BY: NYE	CHECKED BY: NYE
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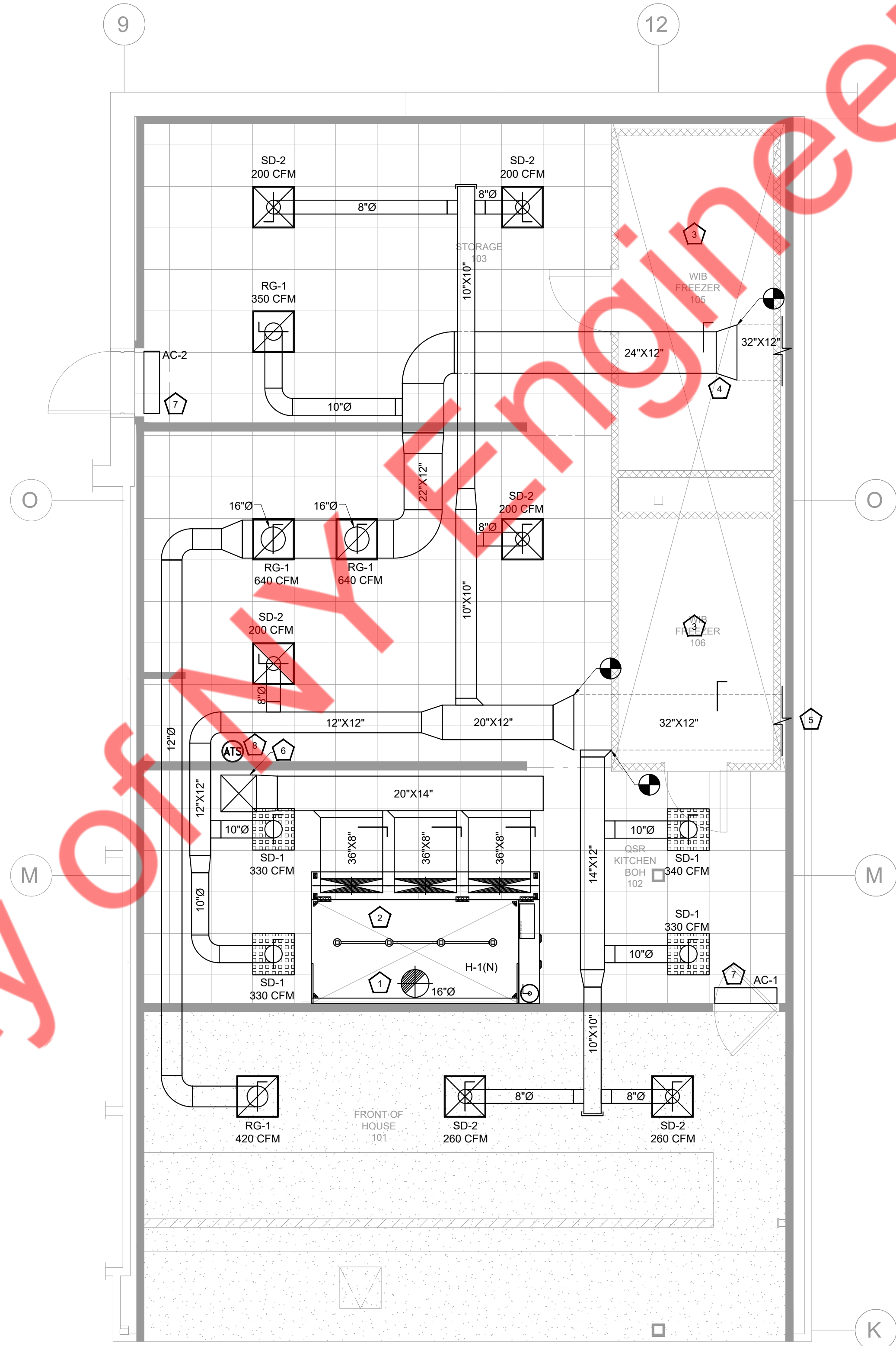
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M003

- MECHANICAL GENERAL NOTES:
- CONTRACTOR SHALL COORDINATE EQUIPMENT/ DUCT LOCATIONS WITH STRUCTURAL DRAWING.
 - PROVIDE FIRE OR FIRE+SMOKE DAMPER WHEREVER DUCTS ARE CROSSING FIRE/SMOKE RATED WALLS/BARRIERS. COORDINATE WITH ARCHITECTURAL DRAWINGS FOR FIRE RATINGS OF THE WALLS COORDINATE WITH ELECTRICAL ENGINEER FOR POWER REQUIREMENT FOR FSD.
 - THE SUSPENSION OF ANY ITEMS FROM BASE BUILDING STRUCTURE BY MEANS OF DRILLING, WELDING, SHOOTING ARE PROHIBITED. CONTRACTOR TO MAKE SURE ALL THE EQUIPMENTS, DUCTS TO BE SUPPORTED BY MEANS OF THE BEAM CLAMPS.
 - CONTRACTOR SHALL INSTALL AN INDICATOR PILOT LAMP 12" ABOVE THERMOSTAT FOR THE PURPOSE OF VERIFYING EXHAUST FAN OPERATION.
 - ODOR EXHAUST AND MAKEUP AIR FAN OPERATION SHALL BE CONTINUOUS DURING OCCUPIED HOURS.
 - INTERIOR MAKE-UP AIR DUCTWORK SHALL BE WRAPPED WITH 1-1/2" THICK, FOIL-FACED, FIBERGLASS INSULATION.

- KEY NOTES MECHANICAL PLAN
- EXHAUST DUCT DOWN AND TRANSITION TO FIELD CUT EXHAUST CONNECTION AT HOOD.
 - SEE HOOD , MAKEUP AIR UNIT AND KITCHEN EXHAUST FAN DETAILS ON SHEET M-300 TO M-309.
 - EVAPORATOR AND CONDENSER FOR FREEZER AND COOLER TO BE PROVIDED BY OTHERS.
 - CONNECT 24"x12" DUCT TO EXISTING 32"x12" DUCT PROVIDE VOLUME CONTROL DAMPER AND BALANCE THE CFM TO 2650 FOR RETURN. CONTRACTOR TO COORDINATE AT SITE FOR THE DUCT CONNECTION.
 - EXTENT THE EXISTING DUCT AS PER THE SIZE SHOWN. PROVIDE VOLUME CONTROL DAMPER AND BALANCE THE CFM TO 2650 FOR SUPPLY. CONTRACTOR TO COORDINATE AT SITE FOR THE DUCT CONNECTION.
 - 22" X 22" DUCT CONNECTED TO THE MAU-1 ON ROOF.
 - MOUNT AIR CURTAIN TIGHT TO CEILING.
 - CONTRACTOR TO PROVIDE NEW AVERAGING TEMPERATURE SENSOR AND WIRE BACK TO THE EXISTING THERMOSTAT OF RTU-5(E)

- KITCHEN EXHAUST NOTES:
- PROVIDE CLEAN OUT AT ALL ELBOWS AND BOTTOM OF RISER AND EVERY 20 FEET HORIZONTAL KITCHEN EXHAUST DUCT AND SHALL COMPLY ALL THE REQUIREMENTS PER 2020 NYS MECHANICAL CODE 506.3.8 & 506.3.9.
 - COMMERCIAL KITCHEN GREASE DUCTS SHALL BE DESIGNED FOR THE TYPE OF COOKING APPLIANCE AND HOOD SERVED. COMMERCIAL KITCHEN GREASE DUCTS SHALL BE OF 16 GAUGE MINIMUM STEEL OR FACTORY FABRICATED GREASE DUCT WITH LISTED AND LABELED IN ACCORDANCE WITH UL 1978.
 - JOINTS, SEAMS AND PENETRATIONS OF GREASE DUCTS SHALL BE MADE WITH A CONTINUOUS LIQUID TIGHT WELD OR BRAZE MADE ON THE EXTERNAL SURFACE IF THE DUCT SYSTEMS.
 - A VIBRATION ISOLATION CONNECTOR FOR CONNECTING A DUCT TO A FAN SHALL CONSIST OF NON-COMBUSTIBLE PACKING IN A METAL SLEEVE JOINT OF APPROVED DESIGN OR SHALL BE A COATED-FABRIC FLEXIBLE DUCT CONNECTOR LISTED AND LABELED FOR THE APPLICATION. VIBRATION ISOLATION CONNECTORS SHALL BE INSTALLED ONLY AT THE CONNECTION OF A DUCT TO A FAN INLET OR OUTLET.
 - PRIOR TO THE USE OR CONCEALMENT OF ANY PORTION OF A GREASE DUCT SYSTEM, A LEAKAGE TEST SHALL BE PERFORMED AS PER NYS MC SECTION 506.3.2.5. DUCT SHALL BE CONSIDERED TO BE CONCEALED WHERE INSTALLED IN SHAFTS OR COVERED BY COATINGS OR WRAPS THAT PREVENT THE DUCTWORK FROM VISUALLY INSPECTED ON ALL SIDE. THE DUCT INSTALLER SHALL BE RESPONSIBLE FOR PROVIDING THE NECESSARY EQUIPMENT AND PERFORMING THE GREASE DUCT LEAKAGE TEST. THE DUCT LEAKAGE TEST SHALL BE PERFORMED FOR ALL THE DUCT SYSTEMS, INCLUDING THE DUCT-TO-DUCT CONNECTION. THE DUCTWORK SHALL BE PERMITTED TO BE TESTED IN SECTIONS, PROVIDED THAT EVERY JOINT IS TESTED (IF TEST IS FAILED, CONTRACTOR TO PROVIDE NEW KITCHEN EXHAUST DUCT).
 - PROVIDE SMOKE TEST TO PROOF TIGHTNESS OF THE GREASE DUCT.
 - GREASE DUCT BRACING AND SUPPORTS SHALL BE OF NON-COMBUSTIBLE MATERIAL SECURELY ATTACHED TO THE STRUCTURE AND DESIGNED TO CARRY GRAVITY AND SEISMIC LADS WITHIN THE STREET LIMITATIONS OF THE NYS MECHANICAL CODE. BOLTS, SCREWS, RIVETS AND OTHER MECHANICAL FASTENERS SHALL NOT PENETRATE DUCT WALLS.
 - A RESIDUE TRAP SHALL BE PROVIDED AT THE BASE OF EACH VERTICAL RISER WITH PROVISION FOR CLEANOUT IN ACCORDANCE WITH NFPA 96.
 - CLEANOUT OPENINGS SHALL BE PROVIDED AT EVERY CHANGE IN DIRECTION, WITHIN 3 FEET OF THE EXHAUST FAN.
 - CLEANOUT OPENINGS SHALL BE EQUIPPED WITH TIGHT-FITTING DOORS CONSTRUCTED OF STEEL HAVING A THICKNESS NOT LESS THAN THAT REQUIRED FOR THE DUCT. DOORS SHALL BE EQUIPPED WITH A SUBSTANTIAL METHOD OF LATCHING, SUFFICIENT TO HOLD THE DOOR TIGHTLY CLOSED. DOOR ASSEMBLIES SHALL HAVE A GASKET OR SEALANT THAT IS NONCOMBUSTIBLE AND LIQUID TIGHT AND SHALL NOT HAVE FASTENERS THAT PENETRATED THE DUCT
 - A GREASE DUCT SERVING THE TYPE-1 HOOD THAT PENETRATED A CEILING, WALL OR FLOOR SHALL BE ENCLOSED FROM THE FIRE POINT OF PENETRATION TO THE OUTLET TERMINAL. DUCT ENCLOSURES SHALL HAVE A FIRE-RESISTANCE RATING NOT LESS THAN THAT OF THE FIRE-RESISTANCE RATED ASSEMBLY PENETRATED BUT NEED NOT EXCEED 2 HOURS.
 - PROVIDE MINIMUM 2HR INSULATION COVERING OF 2 INCHES AND SUCH MATERIAL SHALL BE IN ACCORDANCE WITH ASTM E2236. FIELD APPLIED GREASE DUCT ENCLOSURE SHALL COMPLY ALL REQUIREMENTS PER 2020 NYS MECHANICAL CODE SECTION 506.3.11.2.



1 HVAC FLOOR PLAN
Scale: 1/4"=1'-0"

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DRAWING TITLE:
MECHANICAL FLOOR PLAN

PERMIT DWG DATE: 05/09/2024	PROJECT NUMBER: 24-09-002
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DRAWING NUMBER:

M101

MECHANICAL GENERAL NOTES:

1. CONTRACTOR SHALL COORDINATE EQUIPMENT LOCATIONS WITH EXISTING EQUIPMENT ON THE ROOF.

2. CONTRACTOR TO FIELD VERIFY THE EXISTING RTU IS CAPABLE OF DELIVERING THE REQUIRED CFM TO THE SPACE AS SHOWN IN THE FLOOR PLAN.

KEY NOTES MECHANICAL PLAN

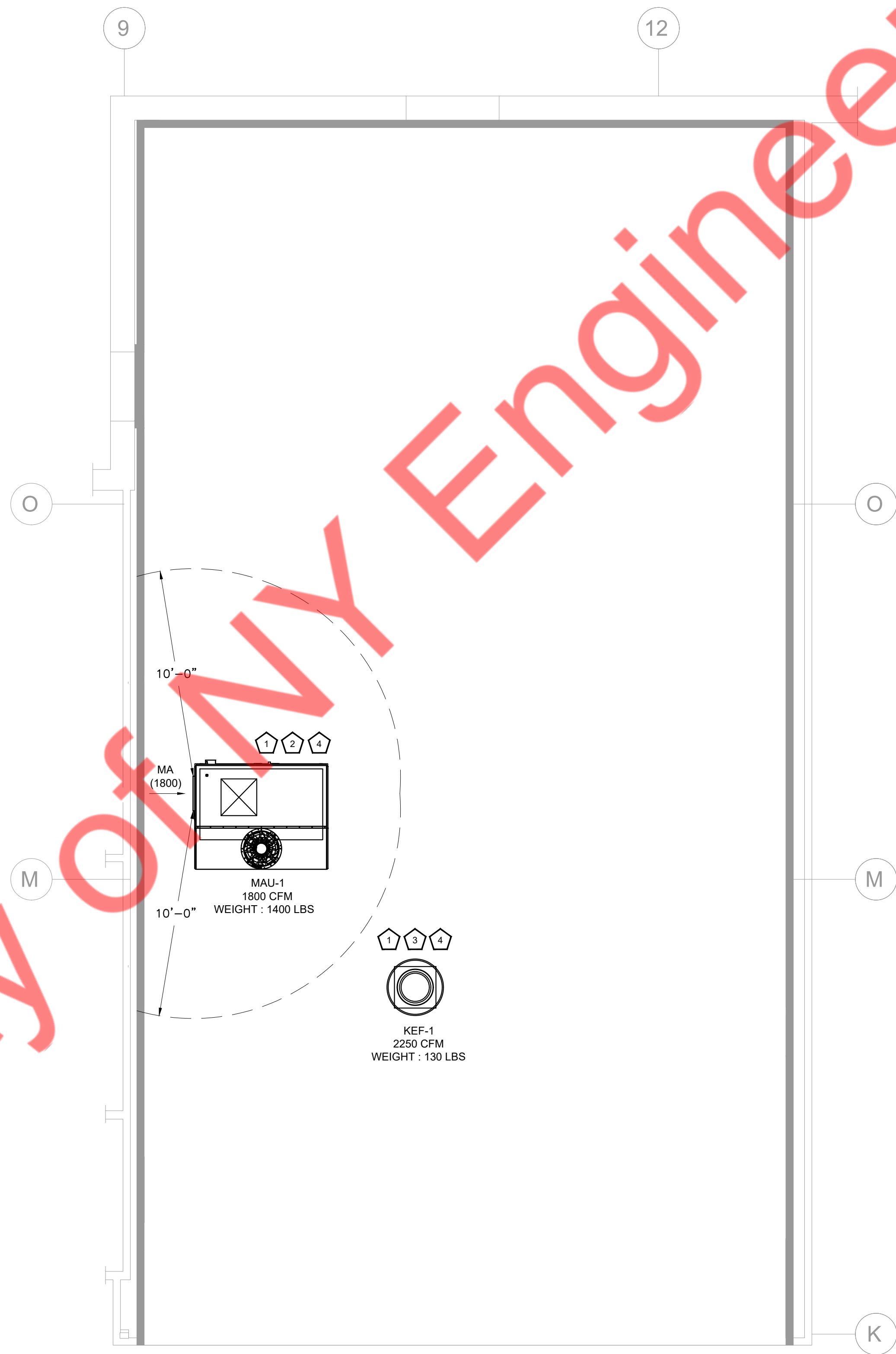
1. COORDINATE WITH ELECTRICAL CONTRACTOR FOR POWER CONNECTION TO ALL MECHANICAL EQUIPMENT.

2. OA INTAKE SHALL BE 10' AWAY FROM ANY EXHAUST AND LOT LINE.

3. TERMINATE KITCHEN EXHAUST DUCT AT LEAST 40" ABOVE THE SURFACE. EXHAUST OUTLET SHALL BE LOCATED NOT LESS THAN 10' HORIZONTALLY FROM PARTS OF SAME OR CONTIGUOUS BUILDINGS. ADJACENT BUILDINGS AND ADJACENT PROPERTY LINES. EXHAUST OUTLETS SHALL BE LOCATED NOT LESS THAN 10' HORIZONTALLY AWAY FROM OR NOT LESS THAN 3' ABOVE AIR INTAKE OPENINGS INTO ANY BUILDING.

4. COORDINATE EXACT LOCATION IN FIELD AND MAINTAIN REQUIRED CLEARANCE FROM ADJACENT EQUIPMENT.

NOTE: CONTRACTOR TO COORDINATE WITH D&C ROOFING COMPANY FOR PENETRATIONS AND PATCHING WHEREVER REQUIRED. COORDINATE TO MAINTAIN ROOFING WARRANTY.



1 HVAC ROOF PLAN
Scale: 1/4"=1'-0"

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DRAWING TITLE:
MECHANICAL ROOF PLAN

PERMIT DWG DATE: 05/09/2024	PROJECT NUMBER: 24-09-002
DRAWN BY: NYE	CHECKED BY: NYE

DRAWING NUMBER:
M102

MECHANICAL FAN SCHEDULE										
TAG	FLOW RATE	STATIC PRESSURE	ELECTRIC DATA				WEIGHT	BASIS OF DESIGN		REMARKS
		EXTERNAL	SPEED	MOTOR SIZE		V/Hz/PH				
	CFM	IN W.G.	RPM	FLA	HP		LBS	MANUFACTURER	MODEL	
KEF-1	2250	1.0	1530	11.6	1	115/60/1	94	CAPTIVEAIRE	DU8SHFA	-

- NOTES:
1. PROVIDE FACTORY MOUNTED DISCONNECT.
 2. INSTALL AS PER MANUFACTURERS RECOMMENDATION.
 3. COORDINATE WITH ELECTRICAL CONTRACTOR.
 4. REFER TO CAPTIVEAIRE DRAWINGS FOR ADDITIONAL INFORMATION ON SHEET M-303.
 5. CONTRACTOR TO PROVIDE MOUNTING FRAMES AND VIBRATION ISOLATORS FOR FAN MOUNTING . ALSO PROVIDE FLEXIBLE CONNECTION AT DUCT CONNECTION TO FAN.
 6. ALL DIRECT DRIVE FANS TO HAVE ECM MOTORS.
 7. FAN SPEED SHALL BE FIELD ADJUSTIBLE.
 8. PROVIDE MOTOR STARTERS, DISCONNECTS WITH NEMA-3R (IF NOT FACTORY PROVIDED). ALL EQUIPMENT NORMAL POWER WIRING BY ELECTRICAL CONTRACTOR. COORDINATE REQUIREMENTS.
 9. INTERCONNECT KEF-1 WITH MAU-1

SCHEDULE OF AIR REGISTERS								
TAG	TYPE	CFM RANGE	NECK SIZE (IN)	FRAME SIZE (IN)	TYPE	MAX NC	MANUFACTURE	MODEL NO
SD-1	SUPPLY DIFFUSER	300-500	12X12	24X24	PERFORATED DROP FACE 4 WAY SQUARE DIFFUSER	25	TITUS	PAS
SD-2	SUPPLY DIFFUSER	200-300	8"	24X24	4 WAY SQUARE DIFFUSER	25	TITUS	OMNI
RG-1	RETURN GRILLE	350-1500	-	24X24	DUCT/CEILING MOUNTED GRILLE	25	TITUS	350 RL

- NOTES:
- 1.CONTRACTOR SHALL COORDINATE WITH LATEST ARCHITECTURAL REFLECTED CEILING PLANS PLANS TO ENSURE PROPER AIR DEVICE BORDER SELECTION.
 2. COORDINATE COLOR/FINISH WITH ARCHITECT.
 3. PROVIDE AIR SCOOP DAMPER TO DUCT MOUNTED GRILLES.

HOOD SCHEDULE											
UNIT ID	MANUFACTURER	LENGTH	MODEL	SERVICE	SUPPLY CFM	EXHAUST			CONSTRUCTION	HOOD TYPE	WEIGHT
		(INCHES)				AIR (CFM)	COLLAR WIDTHXLENGTH (INCH)	S.P (IN. W.G.)			(LBS)
H-1	CAPTIVEAIRE	120	6024 ND-2-PSP-F	SEE PLAN	1800	2250	36X8	0.737	430 SS	I	771

1. REFER TO CAPTIVEAIRE HOOD DRAWINGS FOR EXACT REQUIREMENTS & ACCESSORIES.
2. HOOD TO BE INSTALLED AS PER MANUFACTURER RECOMMENDATION.
3. COORDINATE WITH ELECTRICAL CONTRACTOR FOR POWER SUPPLY AND INTEGRATION.
4. CONNECT TO BUILDING MAIN FIRE ALARM PANEL FOR ALARM INITIATING SWITCH.
5. DRY CONTACT FOR HOOD FIRE SUPPRESSION SYSTEM TO BE PROVIDED AND ANSUL SYSTEM DESIGN & SUPPLY SHALL BE UNDER THIRD PARTY SCOPE.
6. INCLUDE HOOD CONTROLLER WITH CONTROL PANEL FOR CONTROL OF HOOD, EXHAUST FAN AND MAKE-UP AIR UNIT. THE CONTROLLER SHOULD INTEGRATE AND CONTROL KITCHEN EXHAUST FAN AND MAKEUP

AIR CURTAIN SCHEDULE											
MARK	COUNT	DESCRIPTION	AREA SERVED	MANUFACTURER	MODEL	V/PH/HZ	MCA	MOCP	CFM	BLOWER FPM	WEIGHT IN LBS
AC-1	SEE PLANS	AIR CURTAIN- 36 IN	FRONT-DOOR	BERNER	SHD07-1036A	120/1/60	7.5	15	1846	2110	50
AC-2	SEE PLANS	AIR CURTAIN- 36 IN	REAR-DOOR	BERNER	SHD07-1036A	120/1/60	7.5	15	1846	2110	50

- NOTE:
- 1.CONTRACTOR TO PROVIDE DOOR SWITCH, NSF LISTING & DELAY TIMER.
 - 2.SET DELAY TIMER TO 30 SECONDS.
 - 3.MAINTAIN 7" CLEARANCE FOR MOTOR ACCESS ON SIDE OF AIR CURTAIN.
 - 4.FINAL ELECTRIC REQUIREMENT NEED TO BE CONFIRMED WITH THE MANUFACTURER.

KITCHEN MAKEUP AIR UNIT																			
					HEATING						COOLING		ELECTRIC DETAILS					BASIS OF DESIGN	
UNIT TAG	SERVICE	AIR FLOW CFM	E.S.P. (IN. OF WG)	MOTOR (HP)	GAS TYPE	INPUT (MBH)	OUTPUT (MBH)	EFFICIENCY (%)	CONNECTION GAS (IN)	COOLING TYPE	TOTAL CAPACITY (MBH)	SENSIBLE CAPACITY (MBH)	ELECT. (V/HZ/PH)	MCA	MOCP	WEIGHT (LBS)	MANUFACTURER	MODEL NO.	
MAU-1	HOOD	1800	1.0	2	NATURAL	182	147.4	81	3/4	PACKAGED DX	66.00	27.9	208/60/3	29.4	35	1297	CAPTIVEAIRE	CAS-HVAC1-I.200-18-ST-MPU	

- NOTE:
1. UNIT TO BE PROVIDED WITH CLASS 1A LOW LEAKAGE MOTORIZED DAMPER, NEMA 3R DISCONNECT, FAN WITH VFD, VIBRATION ISOLATION SPRING SUPPORTED BLOWER, INTAKE HOOD, SCREEN INTAKE, AND MERV -13 FILTER.
 2. DOUBLE WALL CONSTRUCTION WITH WEATHER PROOF COATING WITH 1 INCH FIBERGLASS INSULATION ALL AROUND THE UNIT.
 3. PROVIDE 14 INCH HIGH CURB FOR UNIT.
 4. REFER TO CAPTIVEAIRE DRAWINGS FOR ADDITIONAL INFORMATION.

AIR BALANCE SCHEDULE					
UNIT	AREA SERVED	SUPPLY AIR	OUTSIDE AIR	RETURN AIR	EXHAUST AIR
RTU-5 (E)	SEE PLAN	2650	600	2050	
MAU-1	HOOD-1	-	1800	-	
KEF-1	HOOD-1	-	-	-	2250
TOTAL:		2650	2400	2050	2250
BUILDING PRESSURE:				150	POSITIVE

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MECHANICAL SCHEDULES

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M200

HOOD INFORMATION - JOB#6703617

HOOD NO	TAG	MODEL	MANUFACTURER	LENGTH	MAX COOKING TEMP	TYPE	APPLIANCE DUTY	DESIGN CFM/FT	TOTAL EXH CFM	EXHAUST PLENUM RISER(S)							TOTAL SUPPLY CFM	HOOD CONSTRUCTION	HOOD CONFIG	
										WIDTH	LENG	HEIGHT	DIA	CFM	VEL	SP			END TO END	ROW
1		6024 ND-2-PSP-F	CAPTIVEAIRE	10' 0"	450 DEG	I	MEDIUM	225	2250			4"	16"	2250	1611	-0.737"	1800	430 SS WHERE EXPOSED	ALONE	ALONE

HOOD INFORMATION

HOOD NO	TAG	TYPE	FILTER(S)			EFFICIENCY @ 7 MICRONS	QTY	LIGHT(S)			WIRE GUARD	LOCATION	SIZE	UTILITY CABINET(S)		ELECTRICAL	SWITCHES	FIRE SYSTEM PIPING	HOOD HANGING WEIGHT
			QTY	HEIGHT	LENGTH			TYPE						TYPE	SIZE	MODEL #	QUANTITY		
1		CAPTRATE SOLO FILTER	7	20"	16"	85% SEE FILTER SPEC	4	RECESSED ROUND			NO	LEFT	12"x60"x24"	TANK FS	4.0	DCV-1111	1 LIGHT 1 FAN	YES	771 LBS

HOOD OPTIONS

HOOD NO	TAG	OPTION
1		BACKSPLASH 122.00" HIGH X 168.00" LONG 430 SS VERTICAL. RIGHT QUARTER END PANEL 23" TOP WIDTH, 0" BOTTOM WIDTH, 23" HIGH 430 SS. LEFT QUARTER END PANEL 23" TOP WIDTH, 0" BOTTOM WIDTH, 23" HIGH 430 SS. RISER SENSOR INSTALL 6IN PLEN.

PERFORATED SUPPLY PLENUM(S)

HOOD NO	TAG	POS	LENGTH	WIDTH	HEIGHT	TYPE	RISER(S)				
							MUA	8"	36"	600	0.162"
1		Front	132"	16"	6"		MUA	8"	36"	600	0.162"

CLEARANCE TO COMBUSTIBLES

HOODS #	SURFACE	*CLEARANCE
1	TOP	18"
	FRONT	0"
	BACK	18"
	LEFT	0"
	RIGHT	18"

- 10" CLEARANCE TO COMBUSTIBLES CONFORMS TO UL710 STANDARD.
- HOOD MOUNTED UTILITY CABINETS REQUIRE 36" SERVICE CLEARANCE.

SPECIFICATION: CAPTRATE GREASE-STOP SOLO FILTER

THE CAPTRATE GREASE-STOP SOLO FILTER IS A SINGLE-STAGE FILTER FEATURING A UNIQUE S-BAFFLE DESIGN IN CONJUNCTION WITH A SLOTTED REAR BAFFLE DESIGN, TO DELIVER EXCEPTIONAL FILTRATION EFFICIENCY.

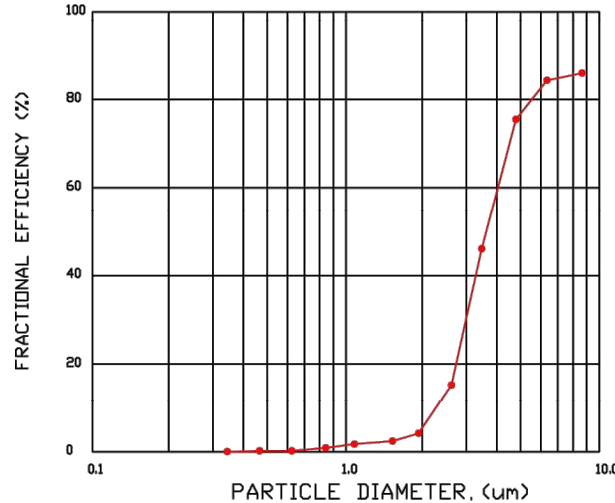
FILTER IS STAINLESS STEEL CONSTRUCTION, AND SIZED TO FIT INTO STANDARD 2-INCH DEEP HOOD CHANNEL(S).

UNITS SHALL INCLUDE STAINLESS STEEL HANDLES AND A FASTENING DEVICE TO SECURE THE TWO COMPONENTS WHEN ASSEMBLED.

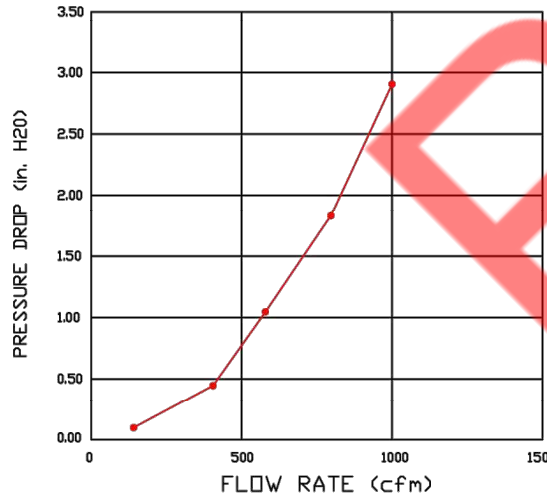
GREASE EXTRACTION EFFICIENCY PERFORMANCE SHALL REMOVE AT LEAST 75% OF GREASE PARTICLES FIVE MICRONS IN SIZE, AND 85% GREASE PARTICLES NINE MICRONS IN SIZE AND LARGER, WITH A CORRESPONDING PRESSURE DROP NOT TO EXCEED 1.0 INCHES OF WATER GAUGE.

THE CAPTRATE GREASE-STOP SOLO WAS TESTED TO ASTM STANDARD ASTM F2519-05.

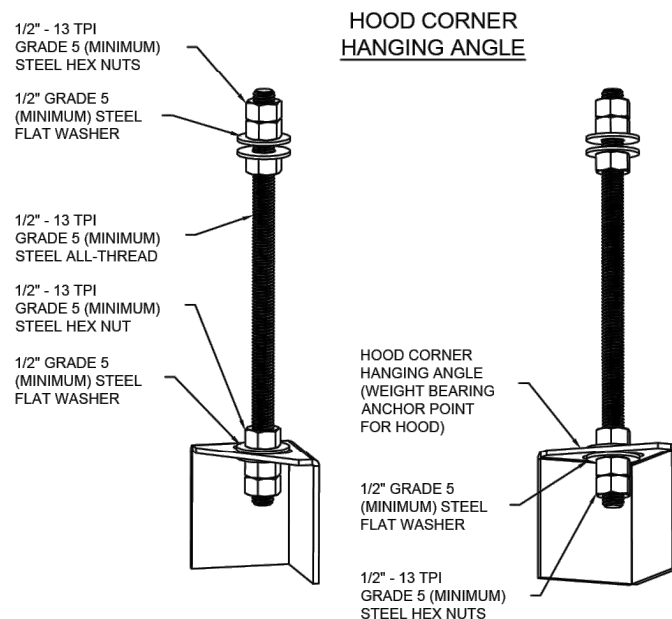
EFFICIENCY VS. PARTICLE DIAMETER



PRESSURE DROP VS. FLOW RATE

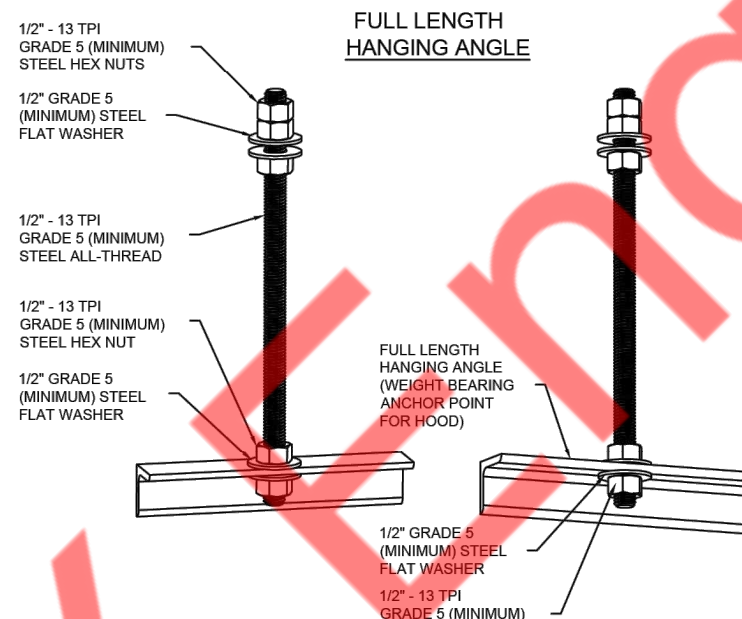


CAPTRATE FILTERS ARE BUILT IN COMPLIANCE WITH:
NFPA #96
NSF STANDARD #2
UL STANDARD #1046
INT. MECH. CODE (IMC)
ULC-S649



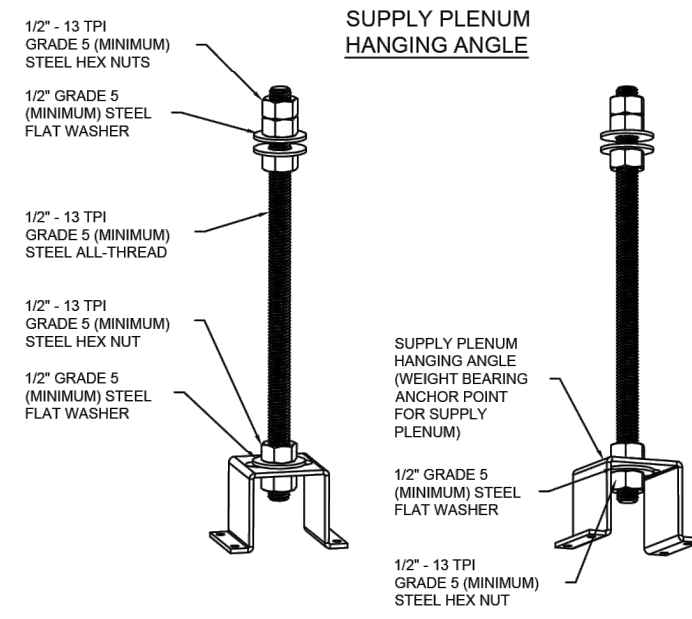
ASSEMBLY INSTRUCTIONS

HANGING ANGLE MUST BE SUPPORTED WITH 1/2" - 13 TPI GRADE 5 (MINIMUM) ALL-THREAD. SANDWICH HANGING ANGLES AND CEILING ANCHOR POINTS WITH 1/2" GRADE 5 (MINIMUM) STEEL FLAT WASHERS AND 1/2" - 13 TPI GRADE 5 (MINIMUM) HEX NUTS AS SHOWN. MUST USE DOUBLED HEX NUT CONFIGURATION BENEATH HOOD HANGING ANGLES AND ABOVE CEILING ANCHORS. MAINTAIN 1/4" OF EXPOSED THREADS BENEATH BOTTOM HEX NUT. TORQUE ALL HEX NUTS TO 57 FT-LBS.



ASSEMBLY INSTRUCTIONS

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FOR QUESTIONS, CALL THE

Philadelphia
REGION 33
PHONE: (215) 293-9665
EMAIL: reg33@captiveaire.com

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DRAWING TITLE:

HOOD DETAILS & SECTIONS
(01 OF 10)

PERMIT DWG DATE: 05/09/2024	PROJECT NUMBER: 24-09-002
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DRAWN BY: NYE	CHECKED BY: NYE
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DRAWING NUMBER:

M300



GREASE DUCT SPECIFICATIONS:

PROVIDE GREASE DUCT EQUAL TO CAPTIVEAIRE SYSTEMS MODEL "DW" ROUND 20 GAUGE 430 STAINLESS STEEL DUCTWORK. MODEL "DW" IS LISTED TO UL-1978 AND IS INSTALLED USING "V" CLAMP LOCKING CONNECTIONS SEALED WITH 3M FIRE BARRIER 2000 PLUS. MODEL "DW" DOES NOT REQUIRE WELDING PROVIDING IT HAS BEEN INSTALLED PER THE MANUFACTURES INSTALLATION GUIDE. PROVIDE RATED ACCESS DOORS AT EVERY CHANGE IN DIRECTION AND EVERY 12' ON CENTER. PER MANUFACTURES LISTING MODEL "DW" HORIZONTAL RUNS LESS THAN 75 FT. CAN BE SLOPED 1/16" PER 12", HORIZONTAL RUNS MORE THAN 75 FT. CAN BE SLOPED 3/16" PER 12". DUCT SHOULD BE SLOPED AS MUCH AS POSSIBLE TO REDUCE THE CHANCE OF GREASE ACCUMULATION IN HORIZONTAL RUNS.

IF THE DUCT IS WITHIN 18 INCHES OF COMBUSTIBLE MATERIAL, PROVIDE UL-2221 LISTED DOUBLE WALL GREASE DUCT EQUAL TO CAPTIVEAIRE SYSTEMS MODEL "DW- 2R, 3R, OR 3Z" ROUND 20 GAUGE 430 STAINLESS INNER DUCT INSULATED WITH A 24 GAUGE 430 STAINLESS OUTER SHELL.

CAPTIVEAIRE SYSTEMS RECOMMENDS THE USE OF LISTED, PRE-FABRICATED ROUND GREASE EXHAUST DUCT TO REDUCE STATIC PRESSURE IN THE SYSTEM, MINIMIZE INSTALLATION AND INSPECTION TIMES, AND ENSURE DUCT IS LIQUID TIGHT

HVAC DISTRIBUTION NOTE

IT IS RECOMMENDED NOT TO INSTALL HIGH VELOCITY DIFFUSERS OR HVAC RETURNS WITHIN TEN (10) FEET OF THE EXHAUST HOOD. PERFORATED DIFFUSERS ARE RECOMMENDED.

VERIFY CEILING HEIGHT

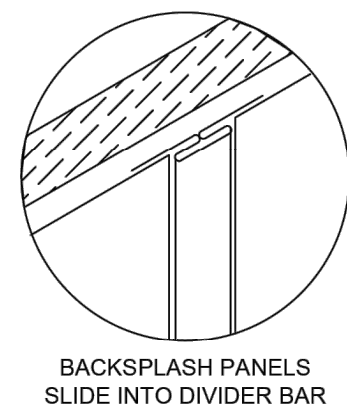
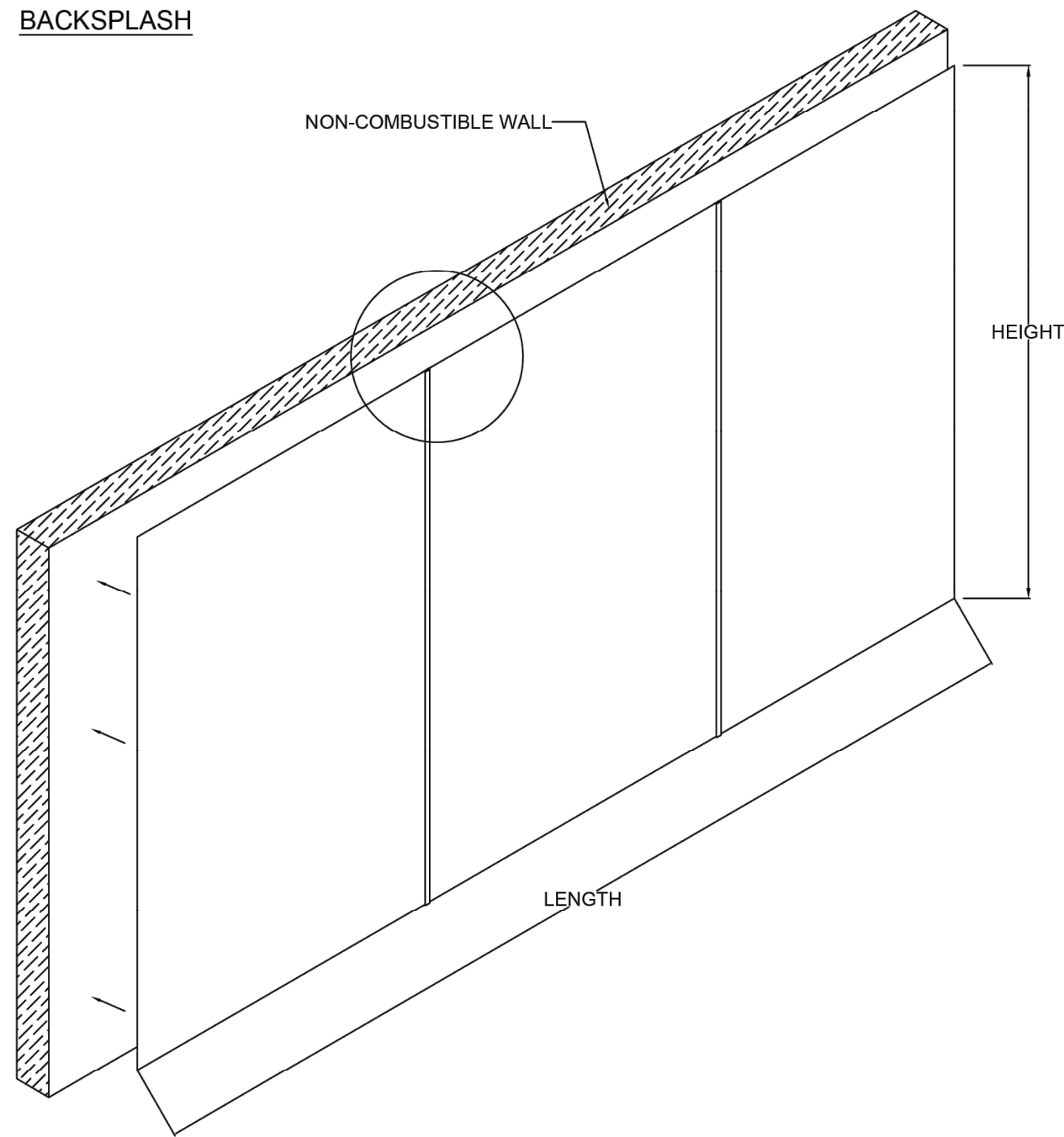
____' - ____"

HEIGHT REQUIRED TO VERIFY THAT HOOD FITS SPACE AND TO SIZE THE ENCLOSURE PANELS

CUSTOMER APPROVAL TO MANUFACTURE:

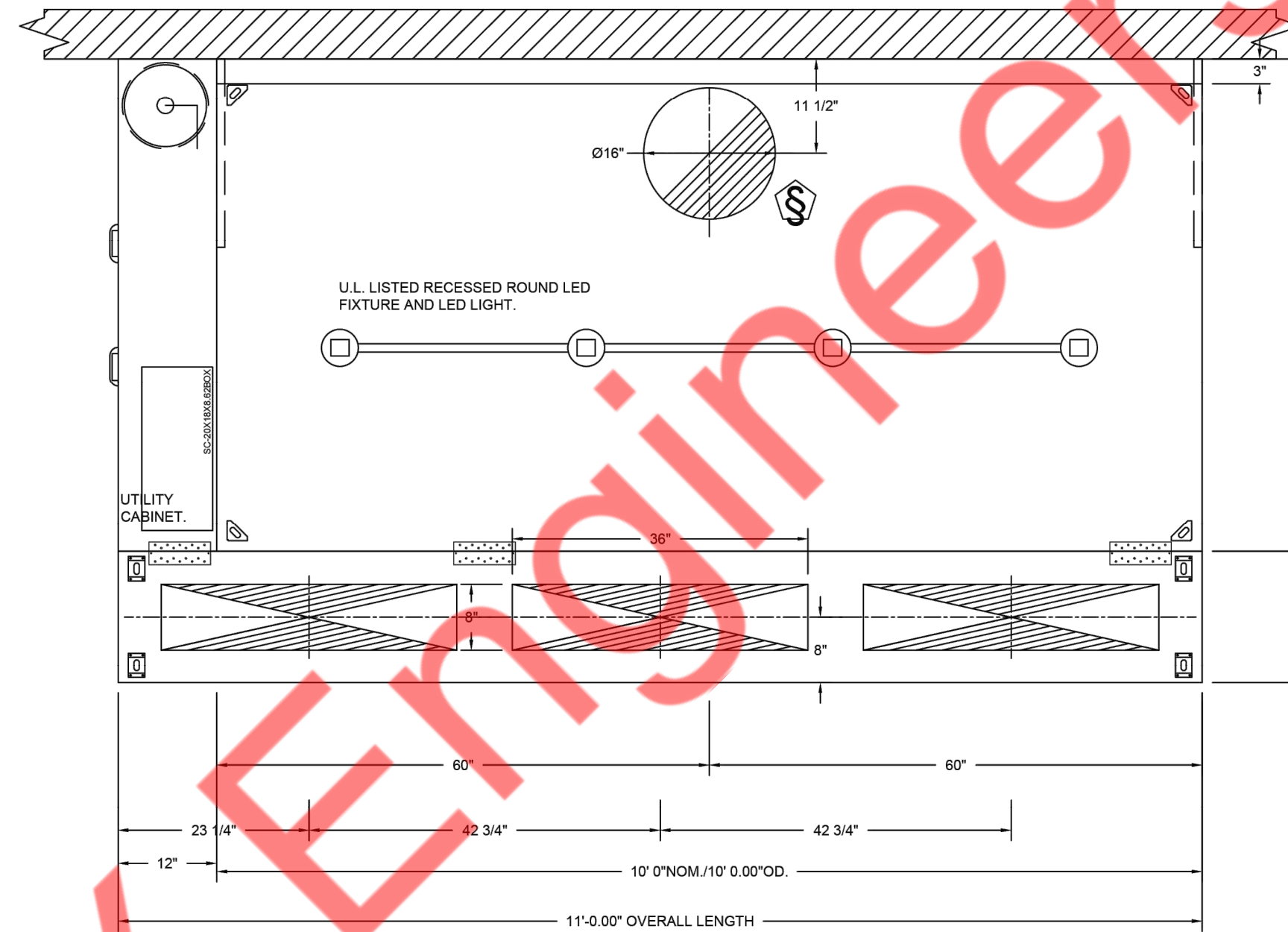
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BACKSPLASH

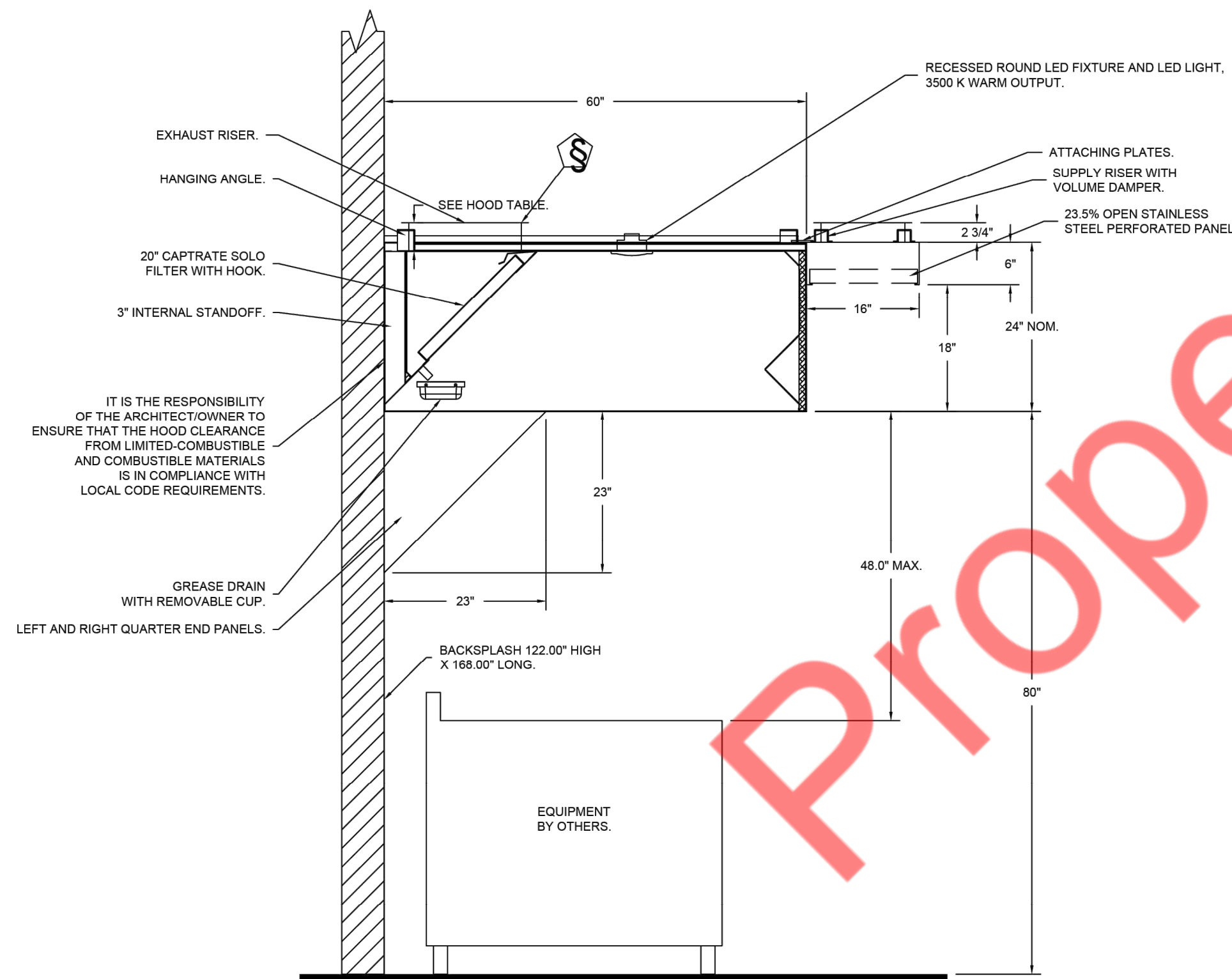


BACKSPLASH PANELS
SLIDE INTO DIVIDER BAR

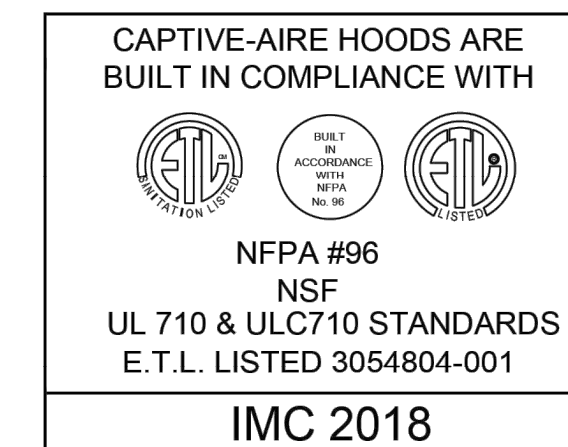
- BACKSPLASH IS NOT INSULATED AND
IS UNSUITABLE FOR INSTALL AGAINST
COMBUSTIBLE WALLS



PLAN VIEW - HOOD #1
10' 0.00" LONG 6024ND-2-PSP-F



SECTION VIEW - MODEL 6024ND-2-PSP-F
HOOD - #1



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HOOD DETAILS & SECTIONS
(02 OF 10)

PERMIT DWG DATE: 05/09/2024	PROJECT NUMBER: 24-09-002
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DRAWING NUMBER:

M301

FIRE SYSTEM INFORMATION - JOB#6703617

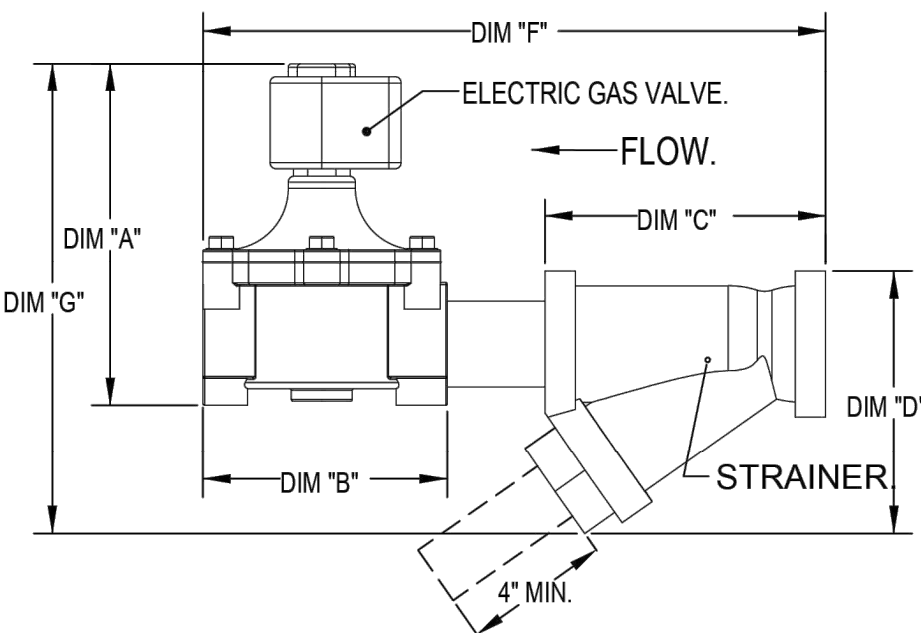
FIRE SYSTEM NO	TAG	TYPE	SIZE	MAX FP	DESIGN FP	INSTALLATION	
						SYSTEM	LOCATION ON HOOD
1		TANK FS	4.0	20	18	FIRE CABINET LEFT	LEFT, HOOD 1

GAS VALVE(S)

FIRE SYSTEM NO	TAG	TYPE	SIZE	SUPPLIED BY
1		SC ELECTRICAL	2.000	CAPTIVEAIRE SYSTEMS

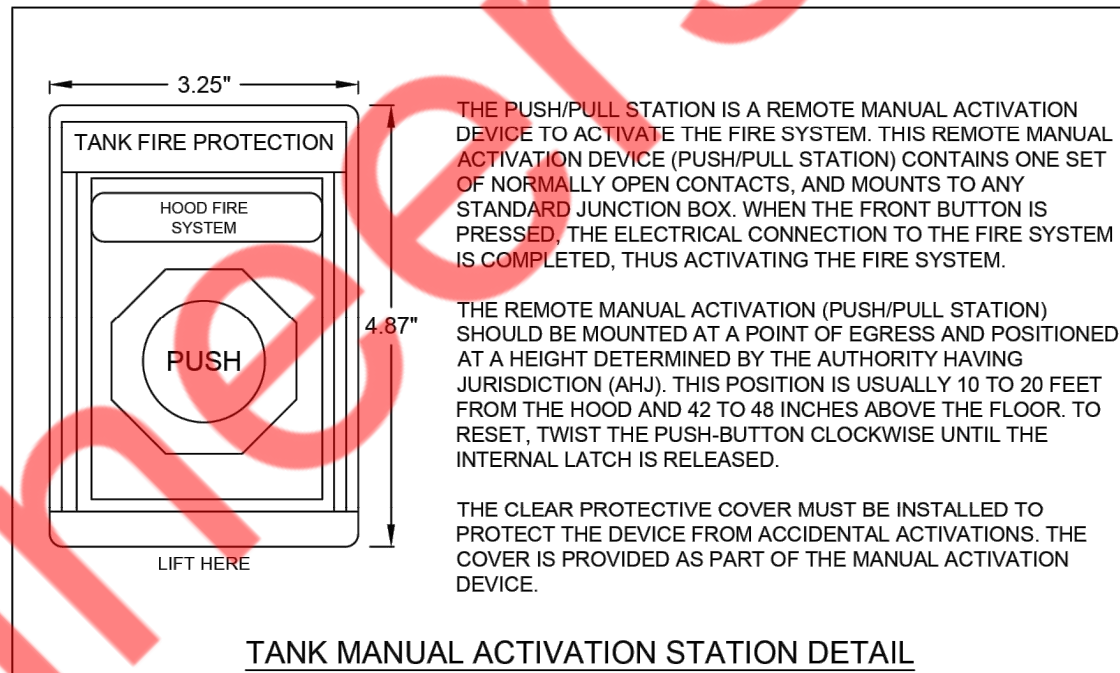
GAS VALVES AND STRAINERS																
GAS VALVE SIZING							GAS VALVE DIMENSIONS					INSTALLATION		PART NUMBERS		
TYPE	SIZE	VOLTAGE	MIN. INLET PRESSURE	MAX. INLET PRESSURE	FLOW AT 1 IN. W.C. DROP NATURAL GAS	FLOW AT 1 IN. W.C. DROP PROPANE	DIM "A"	DIM "B"	DIM "C"	DIM "D"	DIM "E"	DIM "F"	MOUNTING ORIENTATION	GAS VALVE PART NUMBER	STRAINER PART NUMBER	GAS VALVE/STRAINER KIT
ELECTRICAL	2"	120 VAC	0 PSI (0 IN. W.C.)	5 PSI (138 IN. W.C.)	2,340,500 BTU/HR	1,908,048 BTU/HR	7-5/8"	6-3/8"	7-1/4"	7-13-1/8"	15-5/8"	13-15/16"	HORIZONTAL/VERTICAL	8214280	4417688	(SC)EVA2

GAS VALVE FOR FS#1



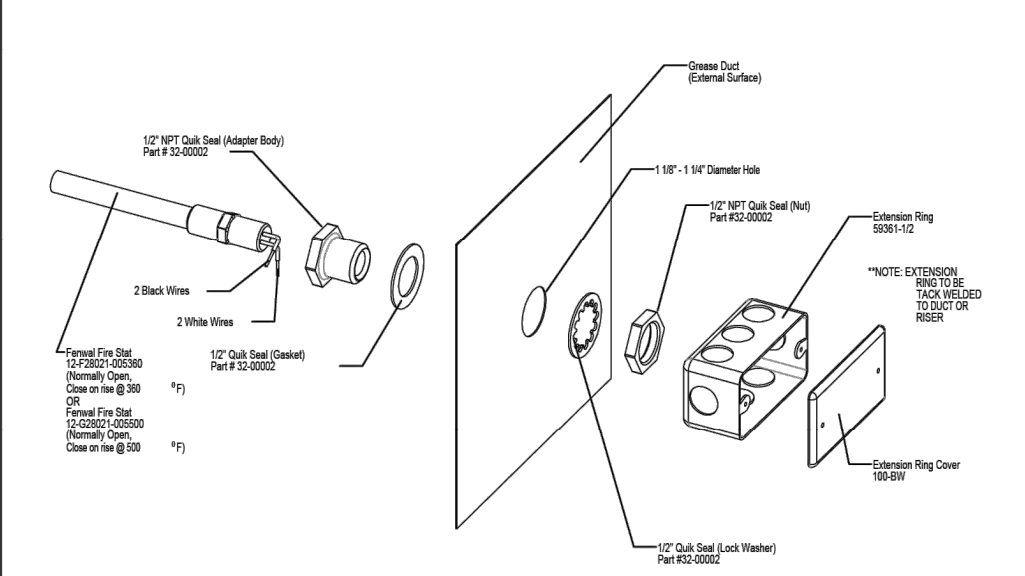
ALL GAS VALVES/STRAINERS
PROPER CLEARANCE MUST BE PROVIDED IN ORDER TO SERVICE THE STRAINERS A MINIMUM OF 4\"/>

CALCULATIONS
TO CALCULATE GAS FLOW FOR OTHER THAN 1 IN. W.C. PRESSURE DROP
NEW BTU/HR = (BTU/HR AT 1 IN. W.C. PRESSURE DROP) X NEW PRESSURE DROP³
TO CALCULATE GAS FLOW FOR OTHER THAN 0.64 SPECIFIC GRAVITY
NEW BTU/HR = (BTU/HR AT 0.64 X 0.64) X NEW SPECIFIC GRAVITY¹

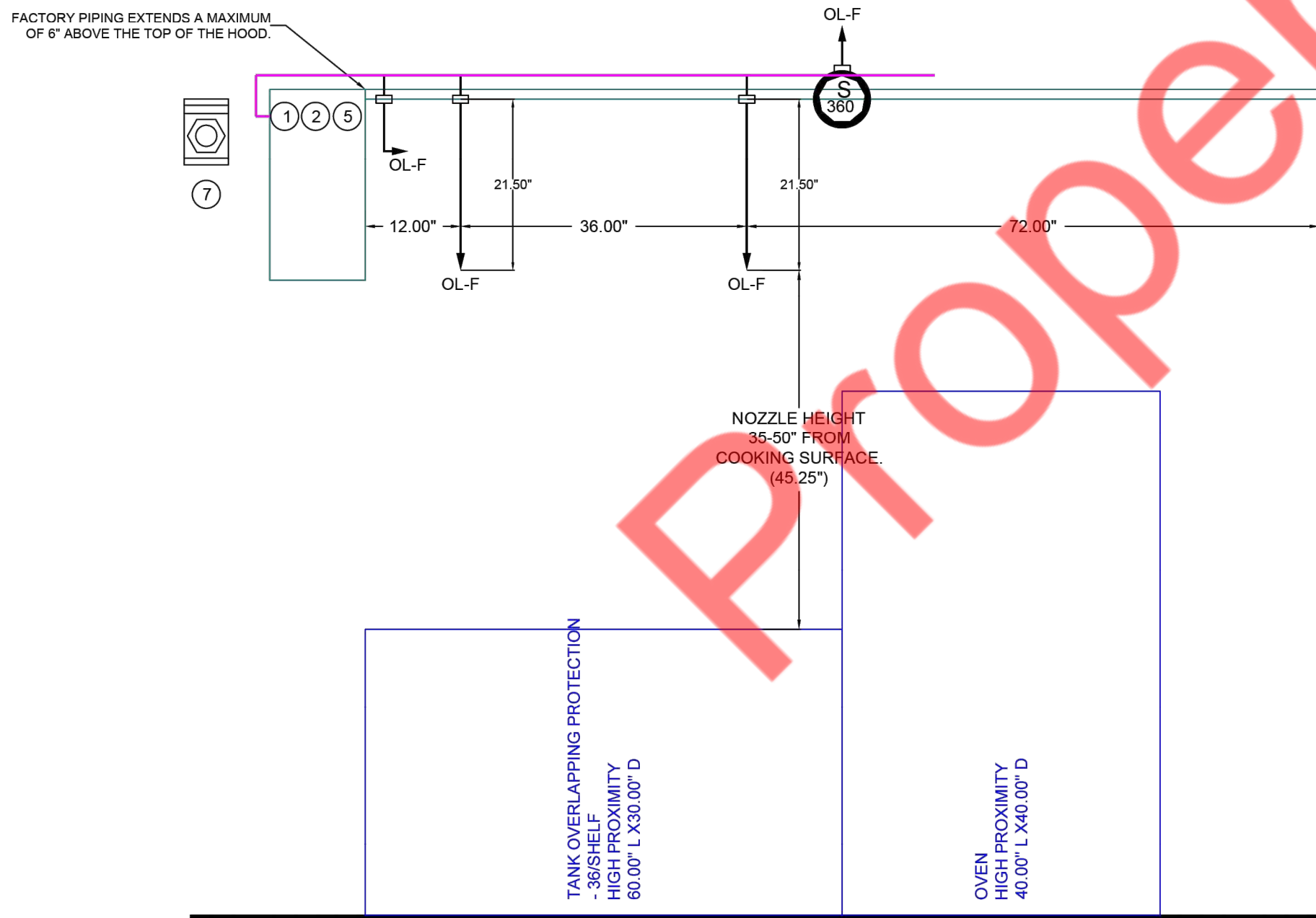
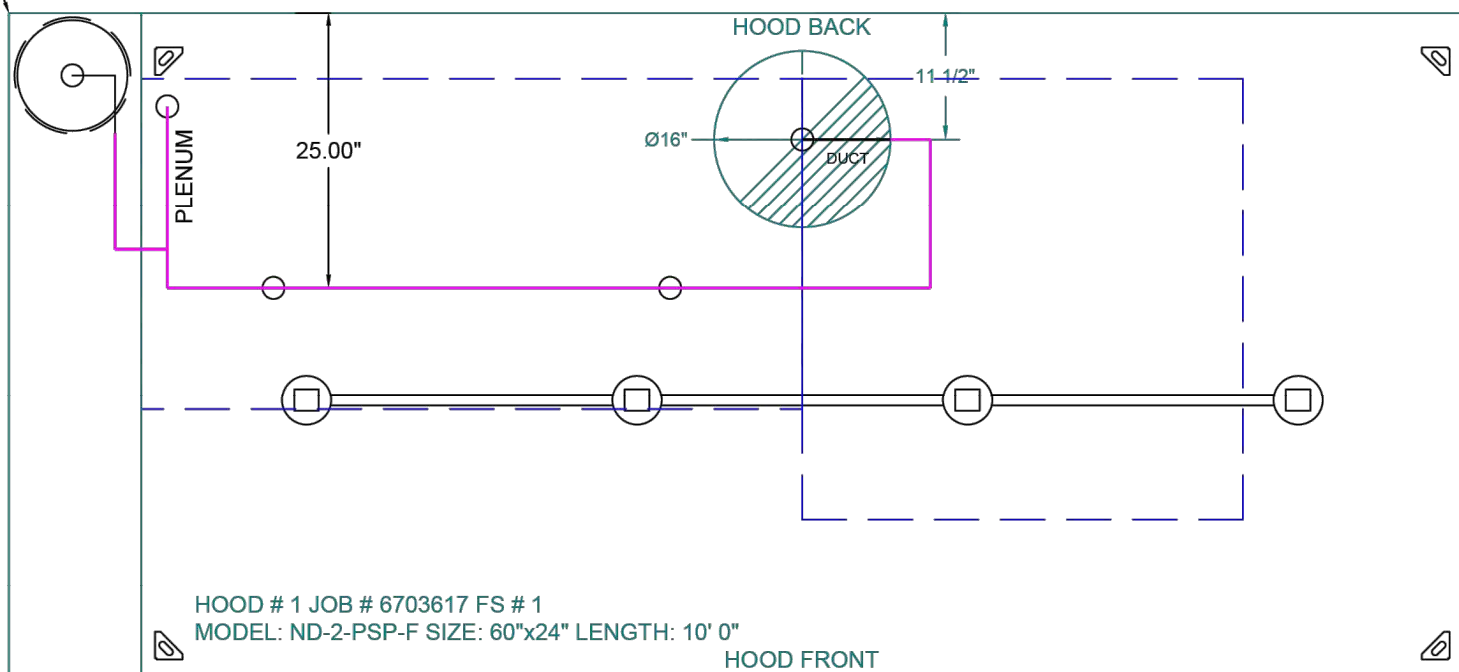


CORE PROTECTION SENSOR - FACTORY INSTALLED

NOTES: One Sensor per Floor.
Multiple Sensors Wired in Parallel.
When Both Black Wires to One Lead, Each White Wire to Second Lead.
Sensor may be installed on inside or outside of glass wall. When installed in door, install as shown for sensor access from hood.
When installed in duct, install on opposite side of quick seal, or as shown with access door for cleanability.



- SYSTEM REQUIRES A MINIMUM OF 7 FT OF EQUIVALENT PIPE LENGTH BETWEEN TANK AND NEAREST APPLIANCE NOZZLE FOR MOST APPLIANCES. EACH 90 DEGREE ELBOW ADDS 1.3 FT OF EQUIVALENT LENGTH. SEE MANUAL FOR DETAILS



NOTES

- FIELD PIPE DROPS AS SHOWN
- PIPING, ELBOWS, TEES, AND NOZZLES SUPPLIED BY CAS.
- FIELD INSTALLED DROP: FACTORY WILL PROVIDE QTY 2 60IN LONG PIECES OF CHROME PLATED PIPING SHIPPED LOOSE TO BE FIELD-INSTALLED.
- SHIP LOOSE DROP: FACTORY WILL PROVIDE THE EXACT CHROME PIPE LENGTH NEEDED SHIPPED LOOSE TO BE FIELD-INSTALLED.
- RELOCATE NOZZLES IF FLOW PATTERN IS BLOCKED BY SHELVING, SALAMANDERS, ETC.
- OVERLAPPING COVERAGE SHALL NOT BE USED ON ANY APPLIANCE WITH AN OBSTRUCTION.
- IF APPLICABLE, EXTENDED PRE-PIPED DROPS ARE SHIPPED LOOSE.
- FACTORY PIPING EXTENDS A MAXIMUM OF 6\"/>

- APPLIANCE DIMENSIONS LISTED REPRESENT THE COOKING SURFACE SIZE, NOT THE OVERALL APPLIANCE SIZE.

- THIS FIRE SYSTEM COMPLIES WITH U.L. 300 REQUIREMENTS.

- OL-F NOZZLE PART NUMBER REPLACES 3070-3/8H-10-SS

JOB #: 6703617.

JOB NAME: NYSTA: SBARRO ONTARIO TRAVEL PLAZA.

SYSTEM SIZE: TANK-SP-1 DESIGN FP: 18. MAXIMUM FP: 20.

HOOD # 1 10' 0.00\"/>

RISER # 1 SIZE: 16\"/>

HOOD # 1 METAL BLOW-OFF CAPS INCLUDED.

- HEAVY-DUTY APPLIANCES (RATED 600°F) WILL REQUIRE AN ADDITIONAL DOWNSTREAM FIRESTAT IN THE EVENT THAT THE DUCTWORK CONTAINS ANY HORIZONTAL RUNS OVER 25 FT IN LENGTH.

- MEDIUM TO LIGHT-DUTY APPLIANCES (RATED 450°F) WILL NOT REQUIRE ANY ADDITIONAL DOWNSTREAM DETECTION.

LEGEND - FIRE CABINET TANK SYSTEM

- 4 GALLON TANK.
- PRIMARY ACTUATOR RELEASE.
- SECONDARY ACTUATOR RELEASE.
- PRESSURE SUPERVISION SWITCH.
- PRIMARY HOSE ASSEMBLY.
- SECONDARY HOSE ASSEMBLY.
- REMOTE MANUAL ACTUATION DEVICE.

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(03 OF 10)

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24-09-002

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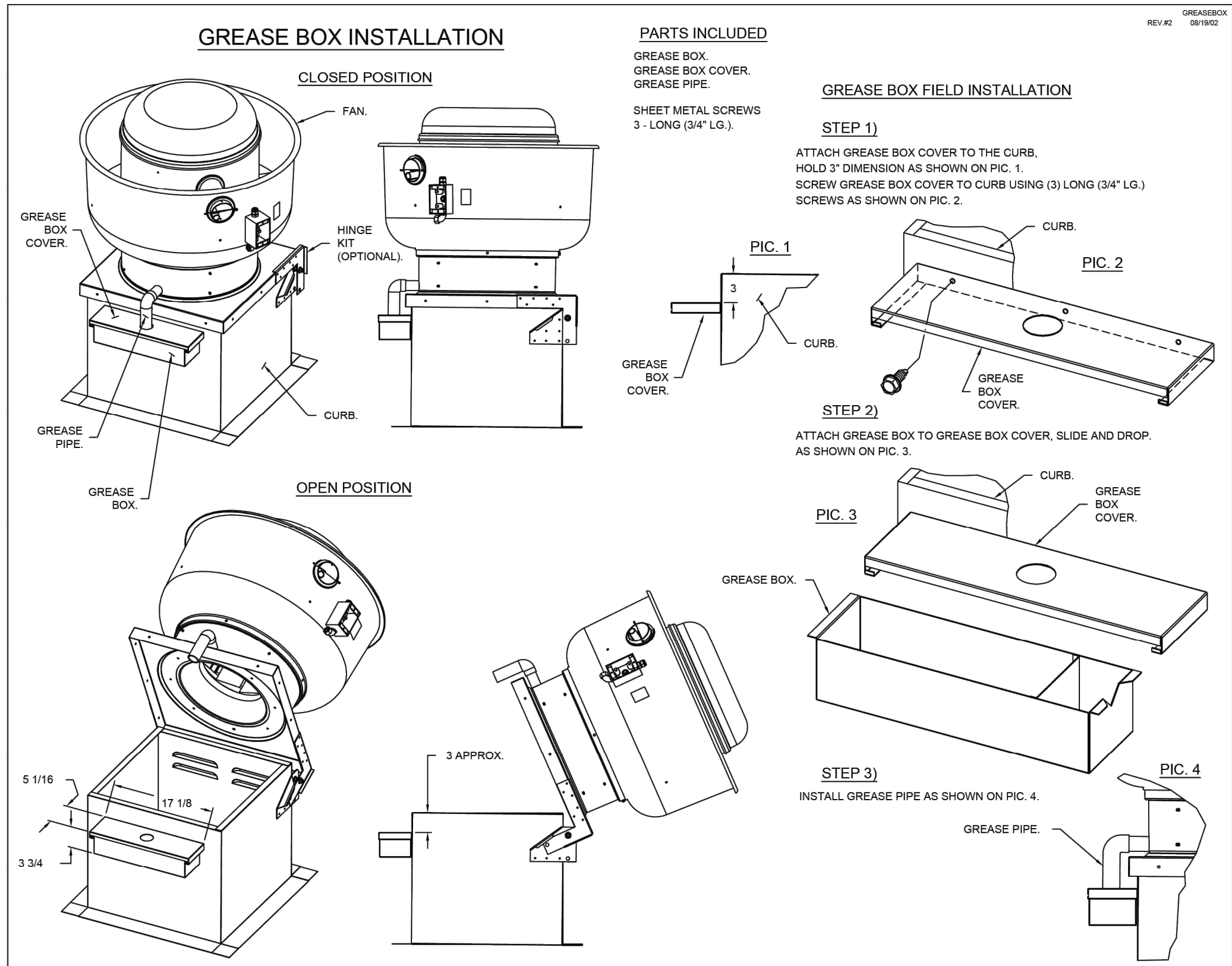
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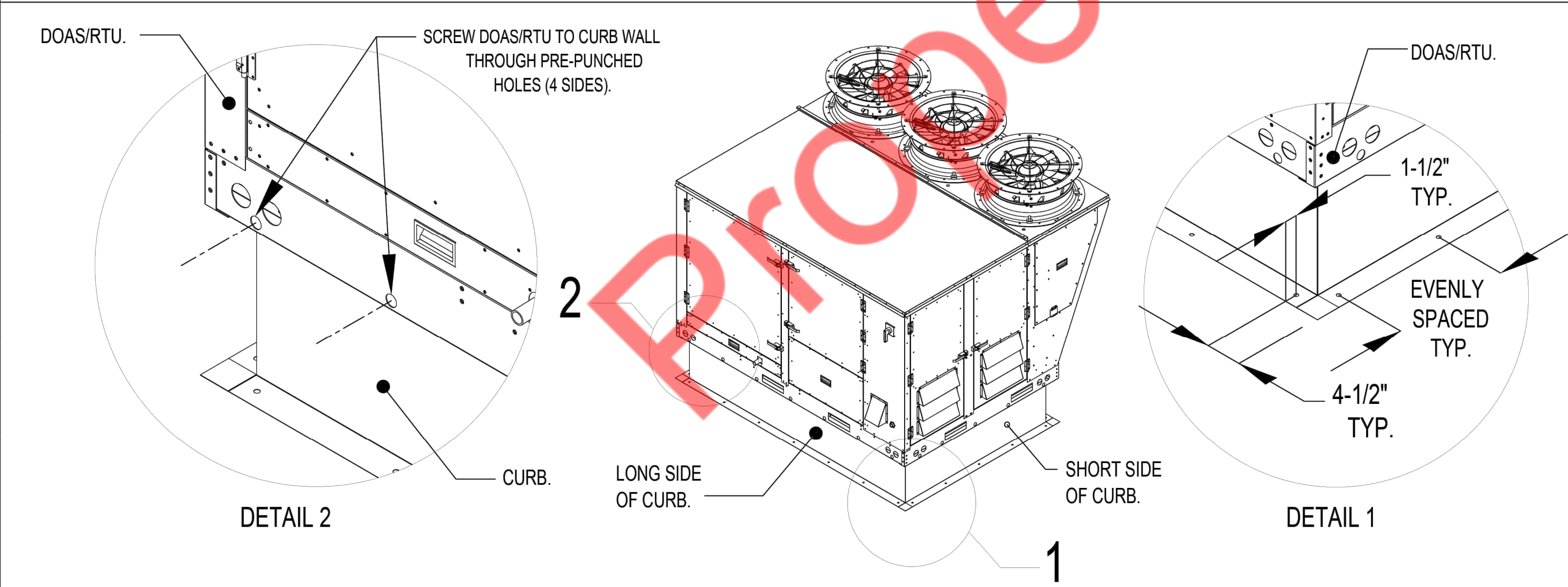
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M302



TYPICAL DOAS/RTU ROOF MOUNTING INSTALLATION INSTRUCTIONS

1. SECURE THE CURB TO THE ROOF FRAMING MEMBERS BY DRILLING 1/4" PILOT HOLES IN THE CURB FLANGES AT LOCATIONS SHOWN IN THE DIAGRAM BELOW. USING 3/8" X 2" ZINC PLATED STEEL LAG BOLTS, AND ZINC PLATED WASHERS, SCREW THROUGH THE CURB FLANGES AND INTO THE ROOF FRAMING MEMBERS. A MINIMUM OF (5) LAG BOLTS ON EACH SHORT SIDE, AND (7) LAG BOLTS ON EACH LONG SIDE IS REQUIRED.
2. SECURE THE UNIT BASE TO THE SIDE WALLS OF THE CURB USING (24) 1/4"-14 X 2" SELF-DRILLING, STEEL ZINC PLATED SCREWS. PRE-PUNCHED HOLES HAVE BEEN PROVIDED FOR EACH SCREW LOCATION.



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(05 OF 10)

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M304

NO	TAG	PACKAGE #	LOCATION	SWITCHES		OPTION	FANS CONTROLLED				
				LOCATION	QUANTITY		TYPE	?	HP	VOLT	FLA
				UTILITY CABINET LEFT	1 LIGHT						
1	DCV-1111	UTILITY CABINET LEFT	HOOD # 1	1 FAN	SMART CONTROLS DCV	SUPPLY	3	2,000	208	11.6	
			EXHAUST	1		1,000	115	6.1			

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JOB NO 6703617	MODEL NUMBER DCV-1111	JOB NAME NYSTA: Steam Drive Travel	ISSUED BY DATE: 6/15/2024	SUBMITTER INSTALL: ECP #1-3	DESCRIPTION OF OPERATION Fire Hydrant #1008719 - 6.0
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TANK PROTECTION ELECTRICAL DETAIL

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05/09/2

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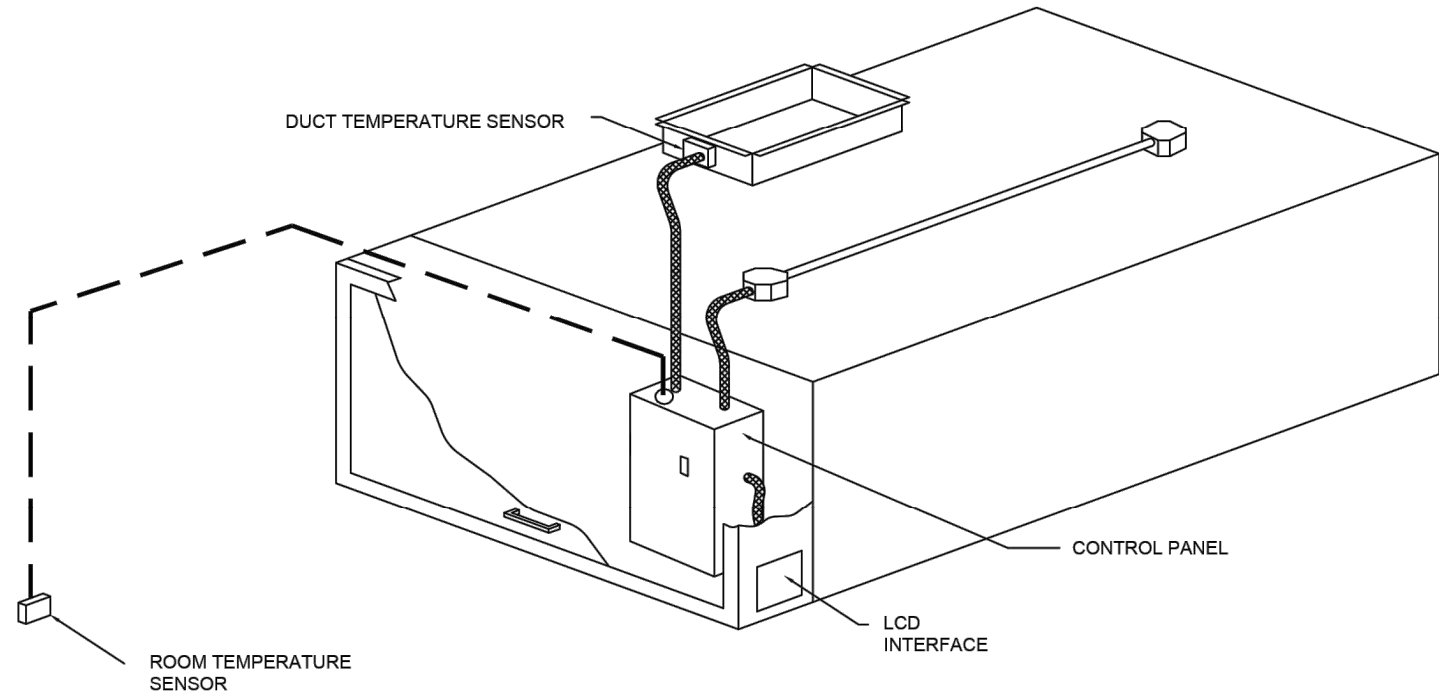
NYE

DRAWING NUMBER

M306

Demand Control Ventilation Hood Control Panel Specifications:

- Controls shall be listed by ETL (UL 508A) and shall comply with demand ventilation system turndown requirements outlined in IECC 403.2.8 (2015).
- The control enclosure shall be NEMA 1 rated and listed for installation inside of the exhaust hood utility cabinet. The control enclosure may be constructed of stainless steel or painted steel.
- Temperature probe(s) located in the exhaust duct riser(s) shall be constructed of stainless steel.
- A digital controller shall be provided to activate the hood exhaust fans dynamically based on a fixed differential between the ambient and duct temperatures sensors. This function shall meet the requirements of IMC 507.2.1.1
- A digital controller shall provide adjustable hysteresis settings to prevent cycling of the fans after the cooking appliances have been turned off and/or the heat in the exhaust system is reduced.
- A digital controller shall provide an adjustable minimum fan run-time setting to prevent fan cycling.
- Variable Frequency Drives (VFDs) shall be provided for fans as required. The digital controller shall modulate the VFDs between a minimum setpoint and a maximum setpoint on demand. The duct temperature sensor input(s) to the digital controller shall be used to calculate the speed reference signal.
- The VFD speed range of operation shall be from 0% to 100% for the system, with the actual minimum speed set as required to meet minimum ventilation requirements.
- An internal algorithm to the digital controller shall modulate supply fan VFD speed proportional to all exhaust fans that are located in the same fan group as the supply fan.
- The system shall operate in PREP MODE during light cooking load or COOL DOWN MODE when sufficient heat remains underneath the hood system after cooking operations have completed. Operation during either of these periods will disable the supply fans and provide an exhaust fan speed that is equal to the minimum ventilation requirement.
- A digital controller shall disable the supply fan(s), activate the exhaust fan(s), activate the appliance shunt trip, and disable an electric gas valve automatically when fire condition is detected on a covered hood.
- A digital controller shall allow for external BMS fan control via Dry Contact (external control shall not override fan operation logic as required by code).
- An LCD interface shall be provided with the following features:
 - a. On/Off push button fan & light switch activation
 - b. Integrated gas valve reset for electronic gas valves (no reset relay required)
 - c. VFD Fault display with audible & visual alarm notification
 - d. Duct temperature sensor failure detection with audible & visual alarm notification
 - e. Mis-wired duct temperature sensor detection with audible & visual alarm notification
 - f. A single low voltage Cat-5 RJ45 wiring connection
 - g. An energy savings indicator that utilizes measured kWh from the VFDs

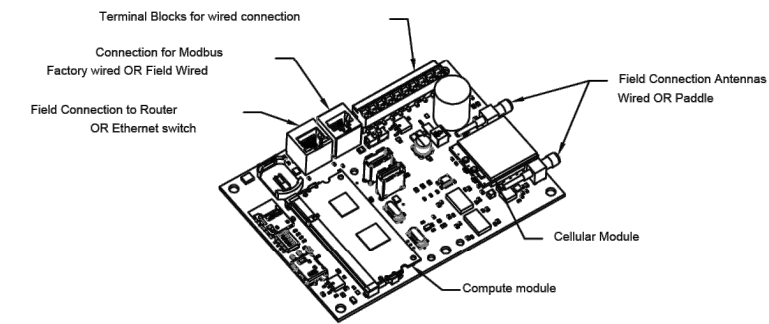
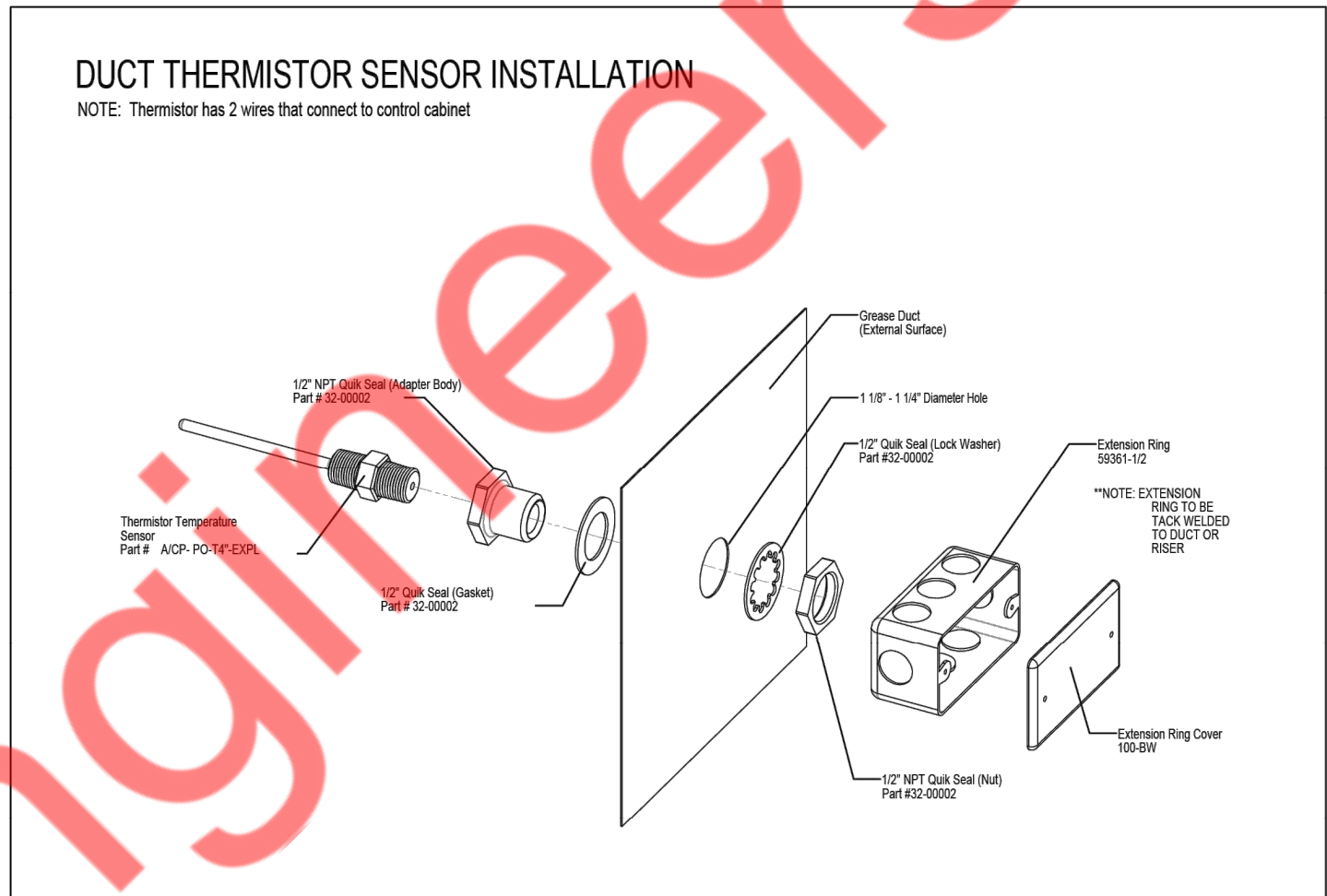


TYPICAL HOOD CONTROL PANEL INSTALLATION

Sequence of Operations:

The hood control panel is capable of operating in one or more of the following states at any given time:

- **Automatic:** The system operates based on the differential between room temperature and the temperature at the hood cavity or exhaust duct collar. Fans activate at a configurable temperature differential threshold. Depending on the job configuration each fan zone can be configured as static or dynamic. These terms refer to whether a variable motor (such as EC Motors or VFD driven motors) modulate with temperature. If the panel is equipped with variable speed fans and the zone is defined as "dynamic", these will modulate within a user-defined range based on the temperature differential. Panels equipped with variable speed fans and a fan zone defined as "static", fans will run at a set speed calculated for the drive. Demand control ventilation systems are capable of modulating exhaust and make up air fan speeds per the requirements outlined in IECC 403.2.8.
- **Manual:** The system operates based on human input from an HMI.
- **Schedule:** A weekly schedule can be set to run fans for a specified period throughout the day. There are three occupied times per day to allow for the user to set up a time that is suitable to their needs. Any time that is within the defined occupied time, the system will run at modulation mode and follow the fan procedure algorithm based on temperature during this time. During unoccupied time, the system will have an extra offset to prevent unintended activation of the system during a time where the system is not being occupied.
- **Other:** The system operates based on the input from an external source (DDC, BMS or hard-wired interlock)

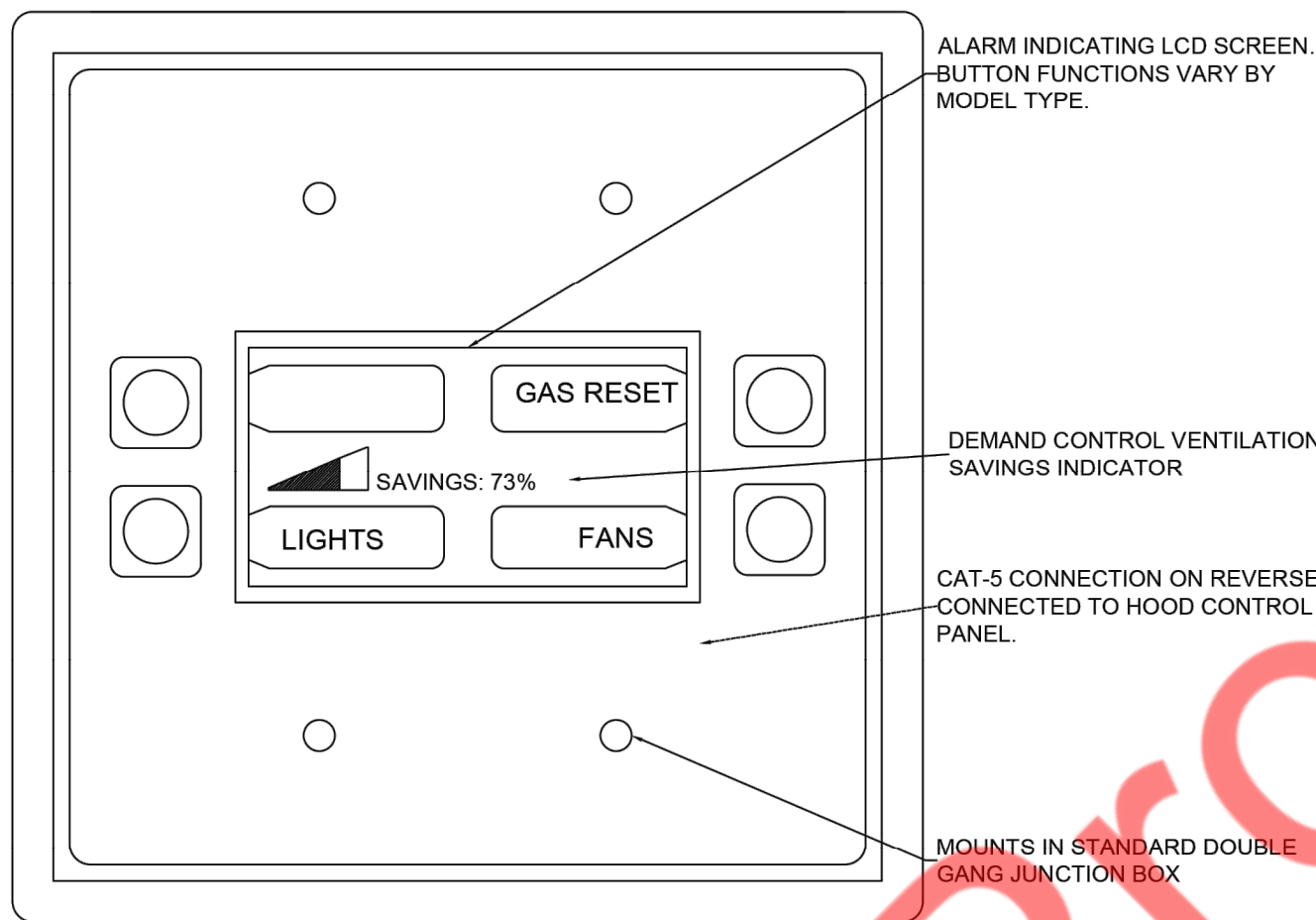


CASink Monitor and Control

- Hood control panel to support communications to cloud-based Building Management System.
- Hood Control Panel to allow cloud-based Building Management System to monitor real time parameters outlined as MONITOR in the points list.
- Hood Control Panel to allow cloud-based Building Management System to control parameters outlined as CONTROL in the points list.
- Hood Control Panel to allow cloud-based Building Management System to implement SYSTEM ECONOMIZER control strategies for fully integrated Building Management.

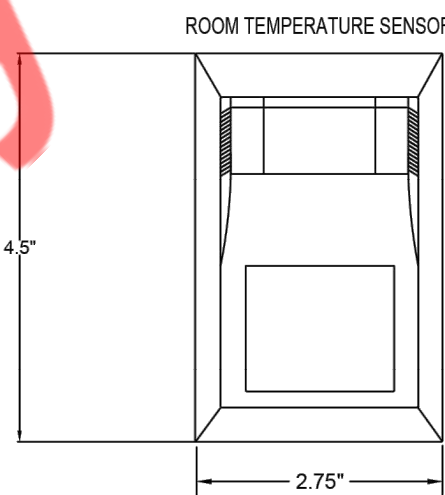
MONITORING AND CONTROL POINTS LIST

DDV Packages	Function	SG Packages	Function
Room Temperature	MONITOR	Room Temperature(s)	MONITOR
Duct Temperature	MONITOR	Duct Temperature(s)	MONITOR
MUA Discharge Temperature	MONITOR	MUA Discharge Temperature	MONITOR
Kitchen RTU Discharge Temperature	MONITOR	Kitchen RTU Discharge Temperature	MONITOR
Fan Speed	MONITOR	Controller Faults	MONITOR
Fan Ampage	MONITOR	Fan Faults	MONITOR
Fan Power	MONITOR	Fan Status	MONITOR
VFD Faults	MONITOR	PCU Faults	MONITOR
Controller Faults	MONITOR	PCU Filter Plug Percentage	MONITOR
Fan Faults	MONITOR	Fan Condition	MONITOR
Fan Status	MONITOR	COMP Fire System	MONITOR
PCU Faults	MONITOR	Building Pressures	MONITOR
PCU Filter Plug Percentage	MONITOR	Fans Button(s)	MONITOR & CONTROL
Fire Condition	MONITOR	Light Buttons	MONITOR & CONTROL
COMP Fire System	MONITOR	Wash Button	MONITOR & CONTROL
Building Pressures	MONITOR		
Prep Time Button	MONITOR & CONTROL		
Fans Button	MONITOR & CONTROL		
Light Button	MONITOR & CONTROL		
Wash Button	MONITOR & CONTROL		



ROOM TEMPERATURE SENSOR DETAIL

NOTE: This 2 wires that connect to control cabinet



Room temperature sensor used to automatically activate fans when temperature in the exhaust duct exceeds 15 deg F of room temperature. Mounting and wiring of room temperature sensor to control panel by others. Two strand 18 AWG thermostat wire provided by CaptiveAire. Room temperature sensor to be field installed in a safe location free of influence from external heat sources. Do not install room temperature sensor on an external wall.

CUSTOMER APPROVAL TO MANUFACTURE:

Approved as Noted	<input type="checkbox"/>
Approved with NO Exception Taken	<input type="checkbox"/>
Revise and Resubmit	<input type="checkbox"/>
SIGNATURE	_____
Your Title	_____ Date _____

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1	REVIEW SET	05/22/2024
2	PERMIT SET	09/06/2024

ISSUED FOR:

DATE ISSUED:

REVIEW 05/22/2024

PROJECT TITLE:



DRAWING TITLE:

HOOD DETAILS & SECTIONS
(09 OF 10)

PERMIT DWG DATE:
05/09/2024

PROJECT NUMBER:
24-09-002

DRAWN BY:

NYE

CHECKED BY:

NYE

DRAWING NUMBER:

M308

DUCTWORK #1 PARTS - JOB#8703617 DOUBLE WALL PRELIM											
TAG	PART #	CFM	GPM	ZON E	COVEREDBY	SP	WEIGHT	VELOCITY	QTY	DESCRIPTION	
H1-E1	DW20DWRISER-2R-S	2250				-0.7365	8.36	0.00	1	DOUBLE WALL RISER COVER - USED ON 16" INNER RISER, 4" LONG - 2 LAYERS REDUCED CLEARANCE - 20" STAINLESS STEEL OUTER RISER SHELL ASSEMBLY. INCLUDES INSULATION & SINGLE V CLAMPS FOR INNER & OUTER CONNECTIONS.	
P1	DW164SDWASY-2R-S	2250				-0.042	22.06	1611.44	1	DOUBLE WALL DUCT - 16" INNER 45 DUCT - 2 LAYERS REDUCED CLEARANCE - 20" STAINLESS STEEL OUTER SHELL.	
P2	DW164SDWASY-2R-S	2250				-0.06	22.06	1611.44	1	DOUBLE WALL DUCT - 16" INNER 45 DUCT - 2 LAYERS REDUCED CLEARANCE - 20" STAINLESS STEEL OUTER SHELL.	
P3	DW1647DWAJD-2R-S	2250				-0.012	103.34	1611.44	1	DOUBLE WALL ADJUSTABLE DUCT - 16" INNER DUCT - 2 LAYERS REDUCED CLEARANCE - 20" STAINLESS STEEL OUTER SHELL. MIN LENGTH = 11" / MAX LENGTH = 48.5" / ADJUSTMENT = 30.5" / ADJUSTABLE SECTION MAY NEED TO BE CUT. INCLUDES SINGLE AND DOUBLE WALL "V" CLAMPS.	
P4 ASSEMBLED WP5	DW164550DWLTPP-2R-S	2250				-0.015	66.55	1611.44	1	DOUBLE WALL DUCT - 16" INNER DUCT, 45.5" LONG - 2 LAYERS REDUCED CLEARANCE - 20" STAINLESS STEEL OUTER SHELL - USED WITH TRANSITION PLATE.	
P5 ASSEMBLED WP4 O=B SYSTEM AT P5	DW2616TP	2250					11.62	1611.44	1	DUCT TO CURB TRANSITION, 26-1/2" CURB TO 16" DUCT, 16 GA ALUMINIZED. USED ON BDUI8.	
RC1	DW20DWRISER-2R-S					-0.8655	0.00			DOUBLE WALL RISER COVER - USED ON 16" INNER RISER, 4" LONG - 2 LAYERS REDUCED CLEARANCE - 20" STAINLESS STEEL OUTER RISER SHELL ASSEMBLY. INCLUDES INSULATION & SINGLE V CLAMPS FOR INNER & OUTER CONNECTIONS.	
	3M-2000PLUS						0.80		2	DUCT - 3M FIRE BARRIER 2000 PLUS SILICONE - USED AS SEALANT TO SEAL DUCT JOINTS.	
	DW16DWCLASY-2R-S						7.96		1	DUCT - 16" DUCT - 20" DOUBLE "V" CLAMP - 2R INSULATION & SINGLE "V" CLAMP INCLUDED - REDUCED CLEARANCE.	
TOTAL WEIGHT							253.91				

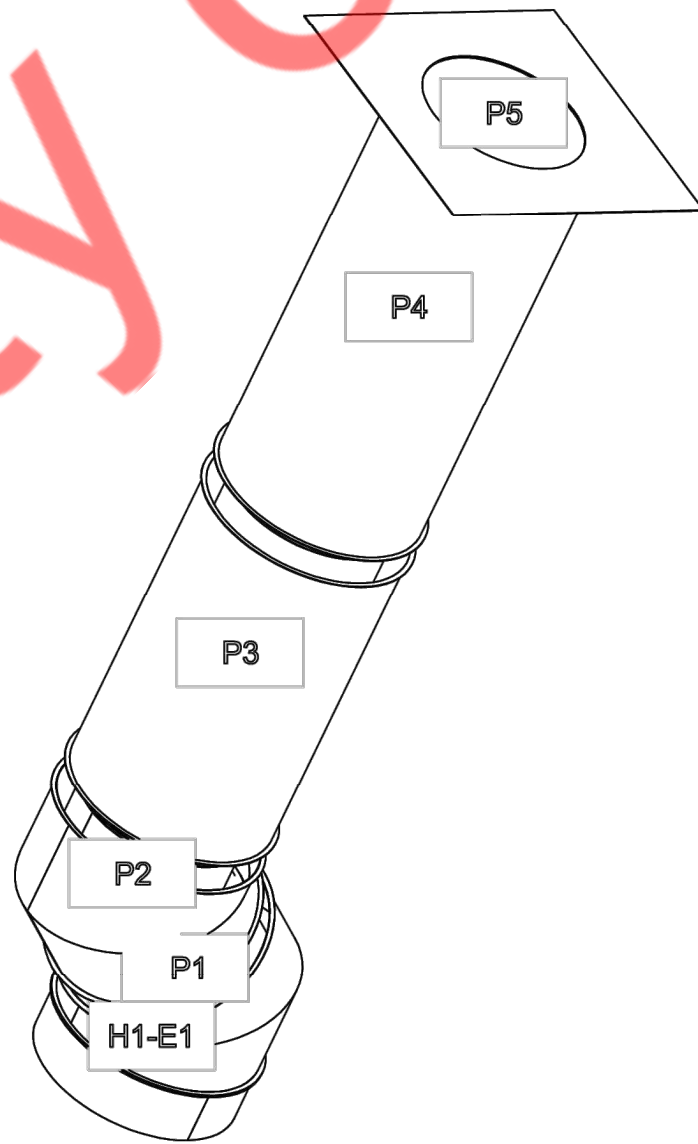
DOUBLE WALL FACTORY BUILT DUCTWORK

- ALL DUCTWORK IS REQUIRED TO BE INSTALLED WITH THE MAXIMUM SUPPORT SPACING LISTED BELOW.
- FOR A COMPLETE LIST OF APPROVED SUPPORT METHODS, SEE THE ENTIRE INSTALLATION AND OPERATION MANUAL.
- DUCTWORK SHALL SLOPE NOT LESS THAN 1/16" PER LINEAR FOOT TOWARDS THE HOOD OR AN APPROVED GREASE COLLECTION RESERVOIR.
- WHERE HORIZONTAL DUCTS EXCEED 75 FEET IN LENGTH, THE SLOPE SHALL NOT BE LESS THAN 3/16" PER LINEAR FOOT.

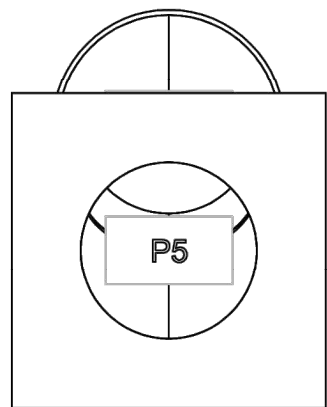
HORIZONTAL	
DUCT DIAMETER	SUPPORT SPACING (FT)
5"	7'
6"	7'
7"	7'
8"	7'
10"	7'
12"	7'
14"	7'
16"	7'
18"	5'
20"	5'
22"	5'
24"	5'
26"	5'
28"	5'
30"	5'
32"	5'
34"	5'
36"	5'

VERTICAL			
TYPE	WALL SUPPORT (FT)	CURB SUPPORT (FT)	FLOOR SUPPORT (FT)
2R & 2R HT (5"-16")	20'	24'	24'
2R (18")	18'	24'	24'
3R & 3Z (5"-24")	10'	24'	24'
3Z (26"-36")	10'	20'	20'

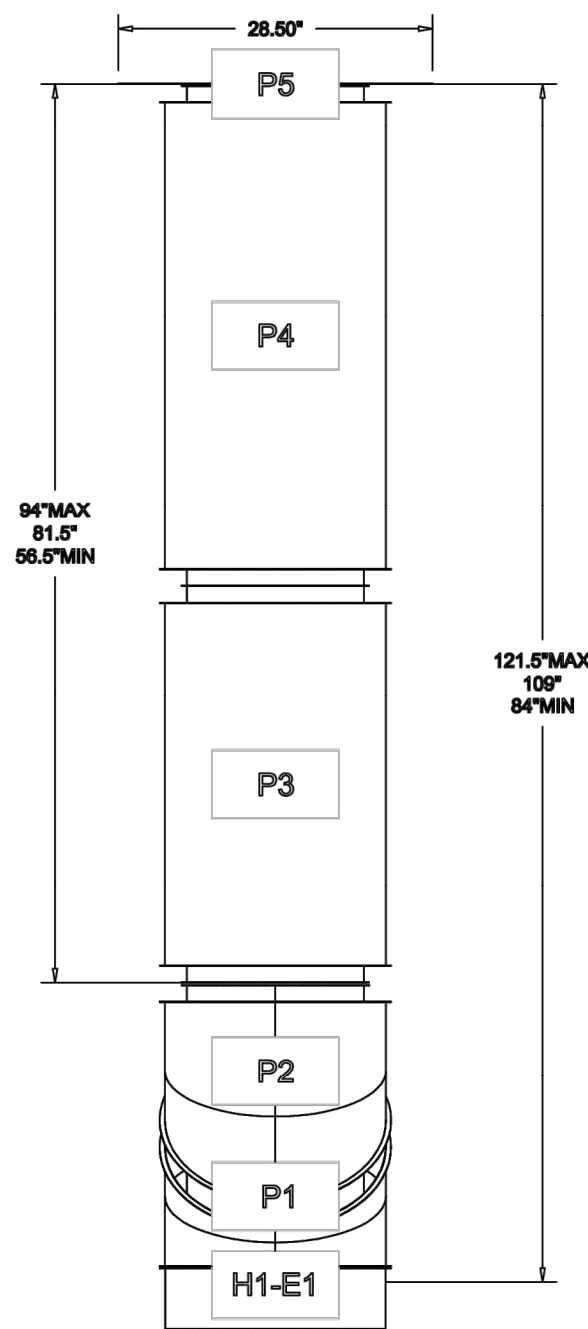
DUCTWORK #1 SE VIEW
PRELIM



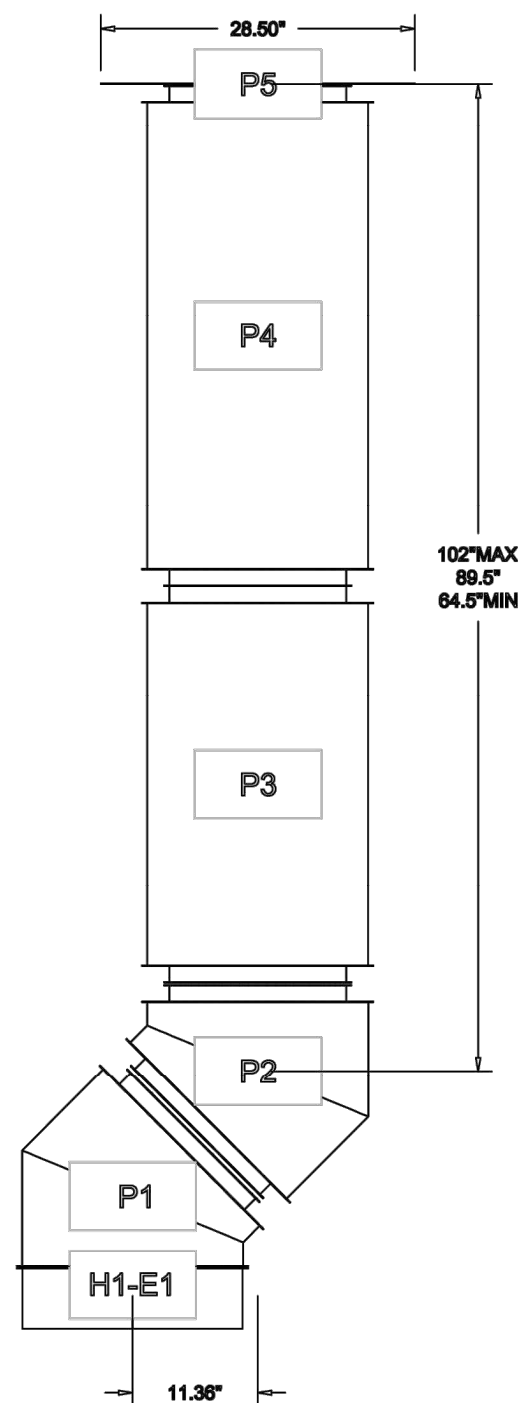
DUCTWORK #1 TOP VIEW
PRELIM



DUCTWORK #1 FRONT VIEW
PRELIM



DUCTWORK #1 SIDE VIEW
PRELIM



DO NOT LEAK TEST USING SMOKE BOMBS CONTAINING
CHLORINES/CHLORIDES. CONSULT WITH CAPTIVEAIRE
FOR PROPER LEAK TESTING METHODS.

CUSTOMER APPROVAL TO MANUFACTURE:	
Approved as Noted	<input type="checkbox"/>
Approved with NO Exception Taken	<input type="checkbox"/>
Revise and Resubmit	<input type="checkbox"/>
SIGNATURE _____	_____
Your Title _____	Date _____

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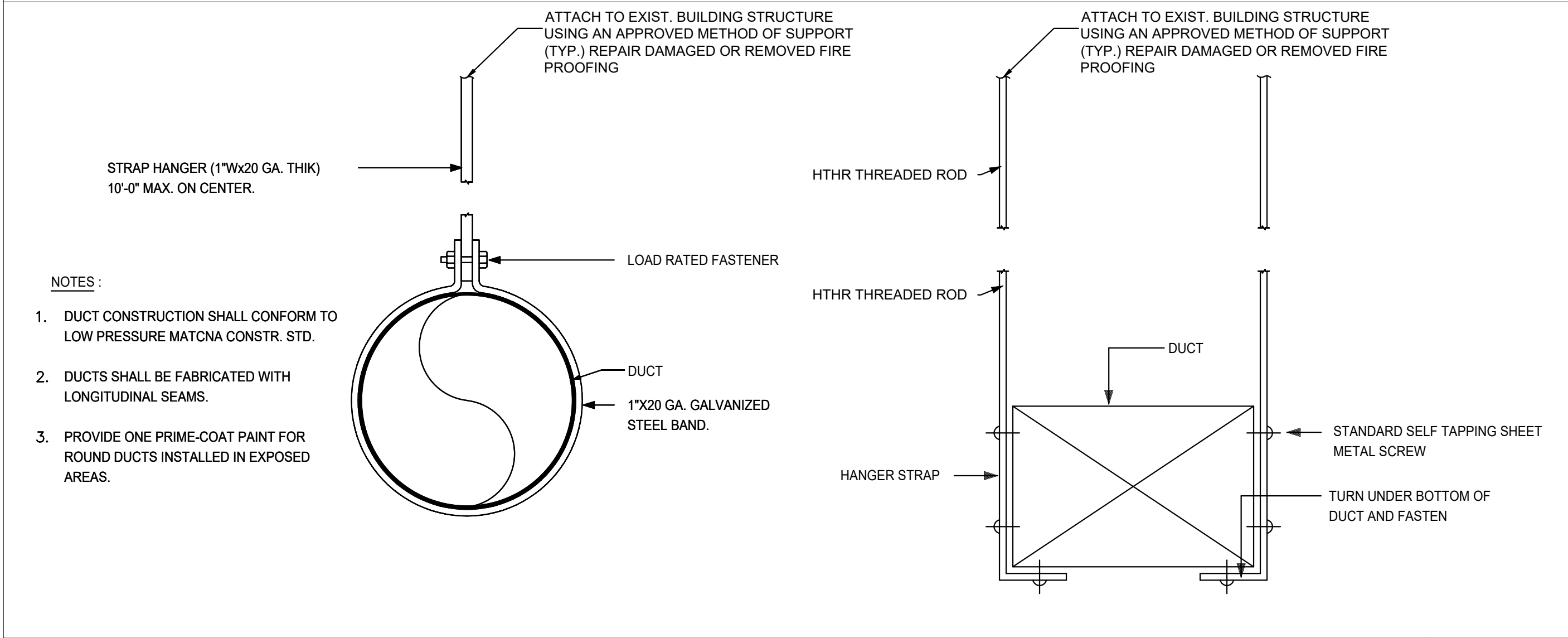
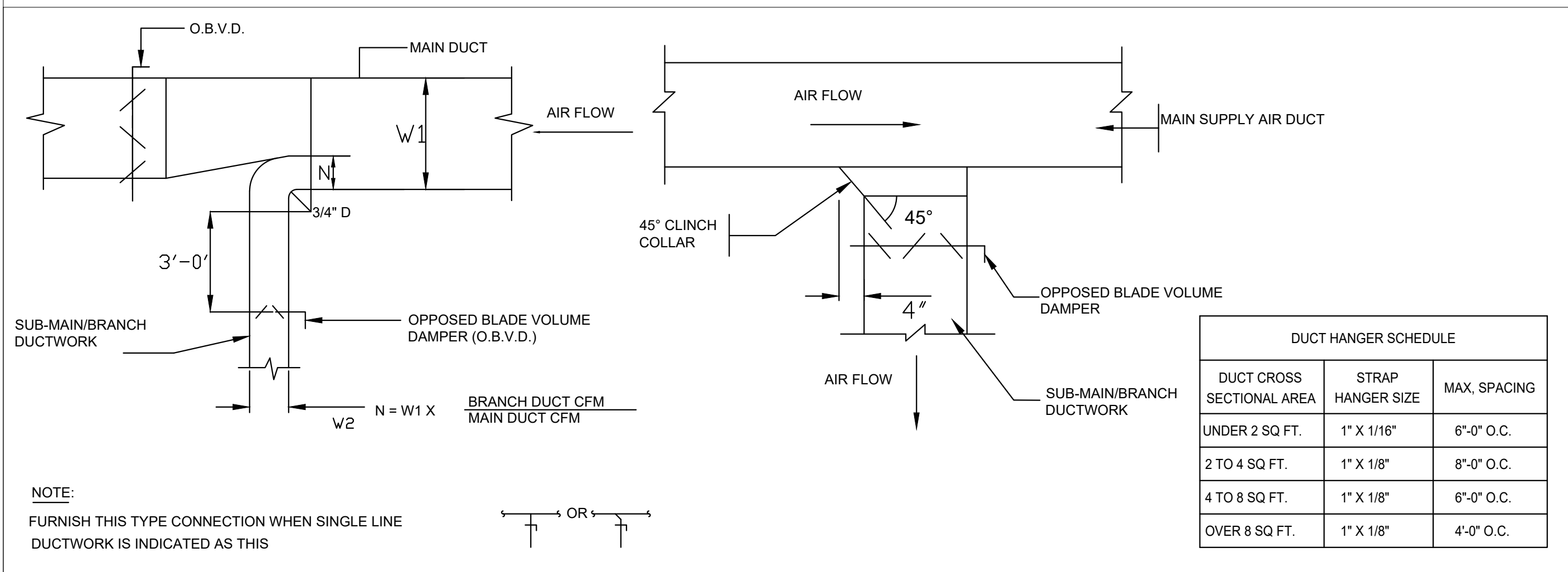
DRAWING TITLE:
HOOD DETAILS & SECTIONS
(10 OF 10)

PERMIT DWG DATE: 05/09/2024 PROJECT NUMBER: 24-09-002

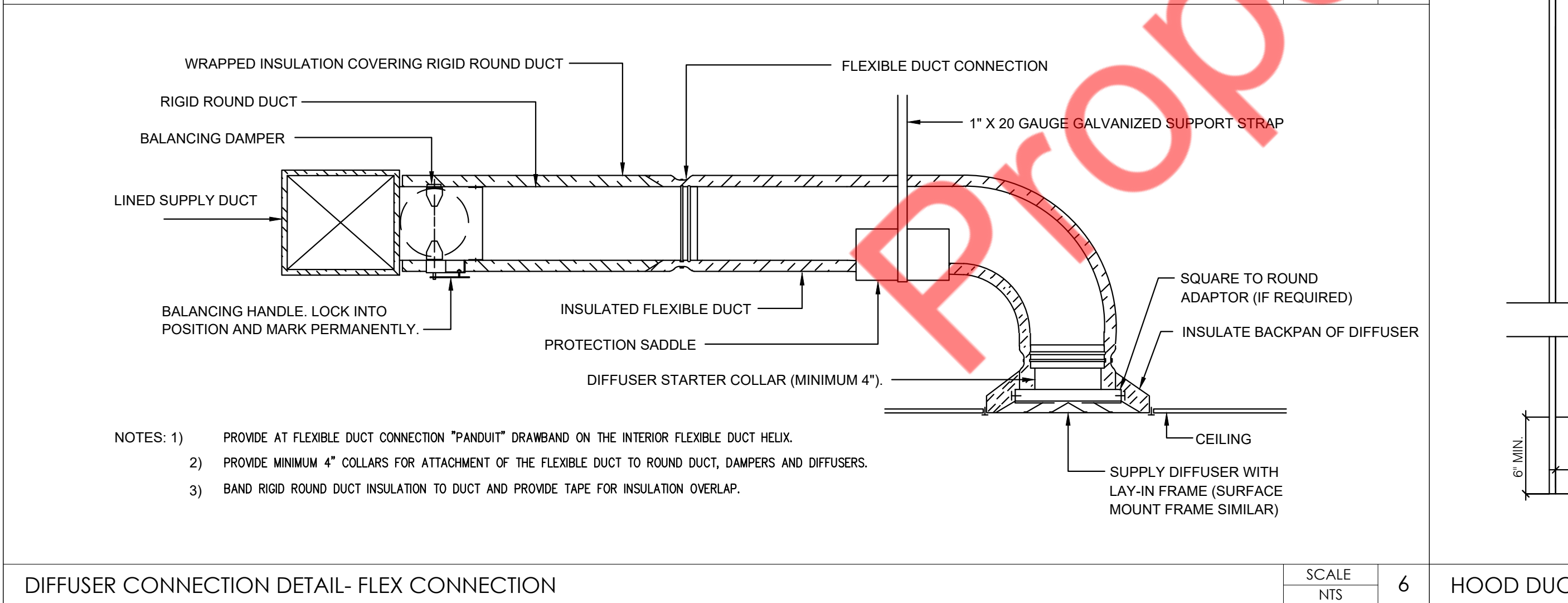
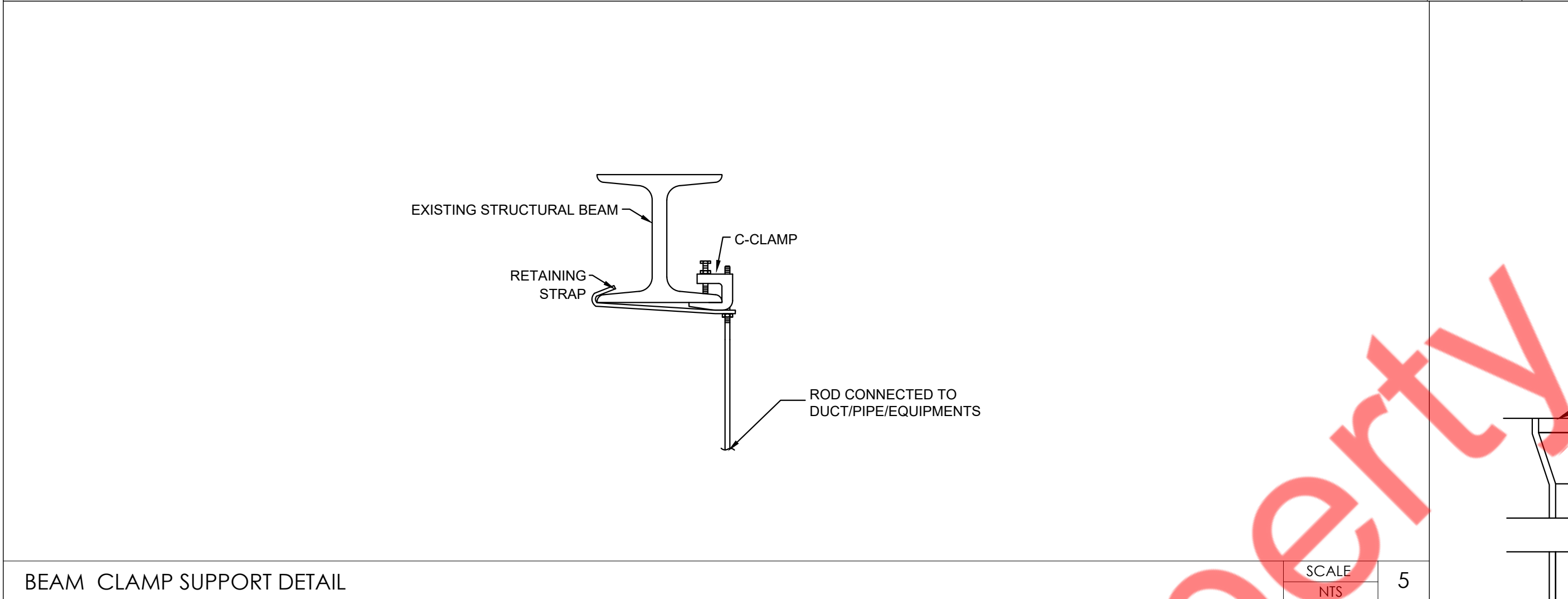
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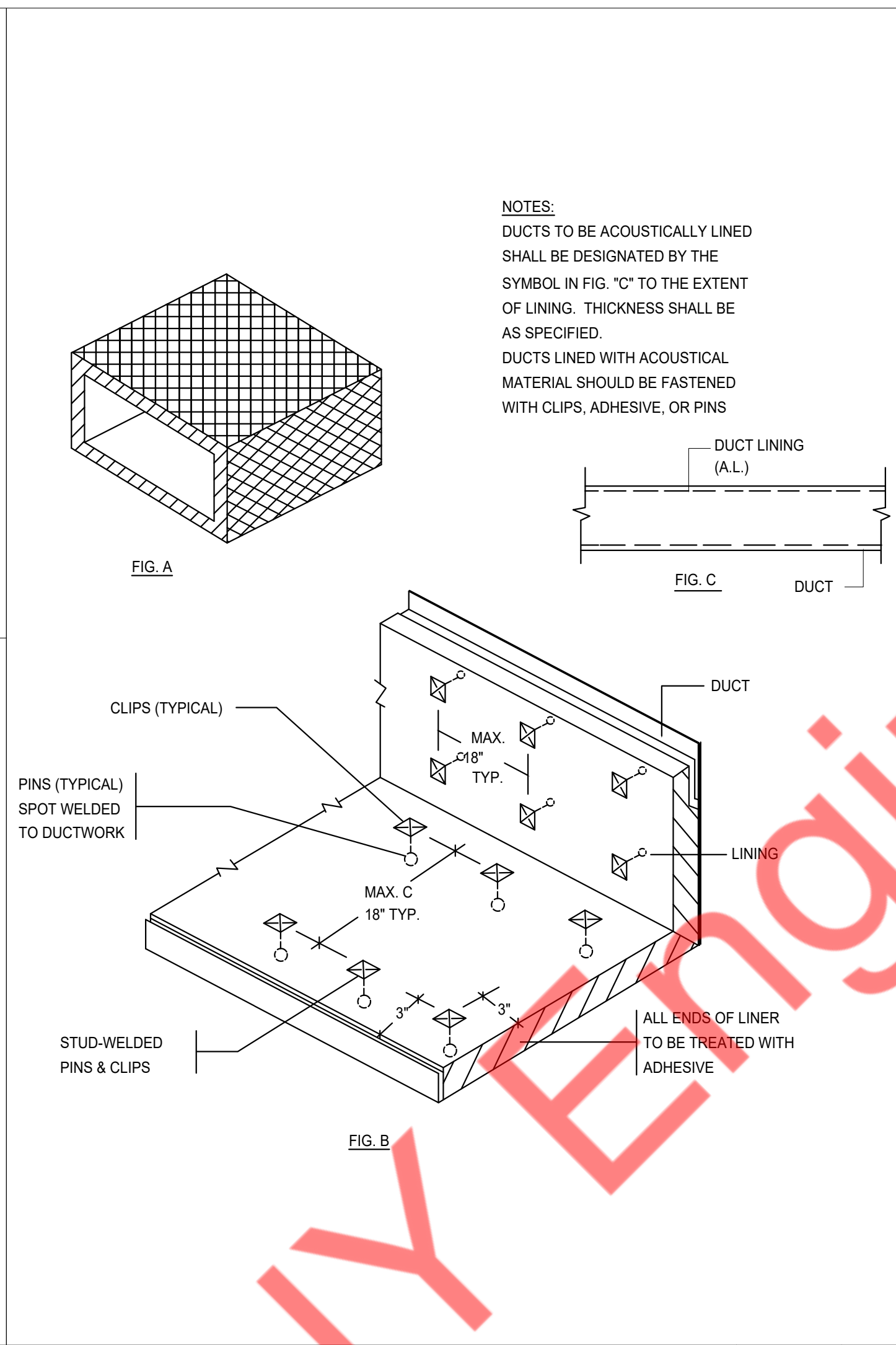
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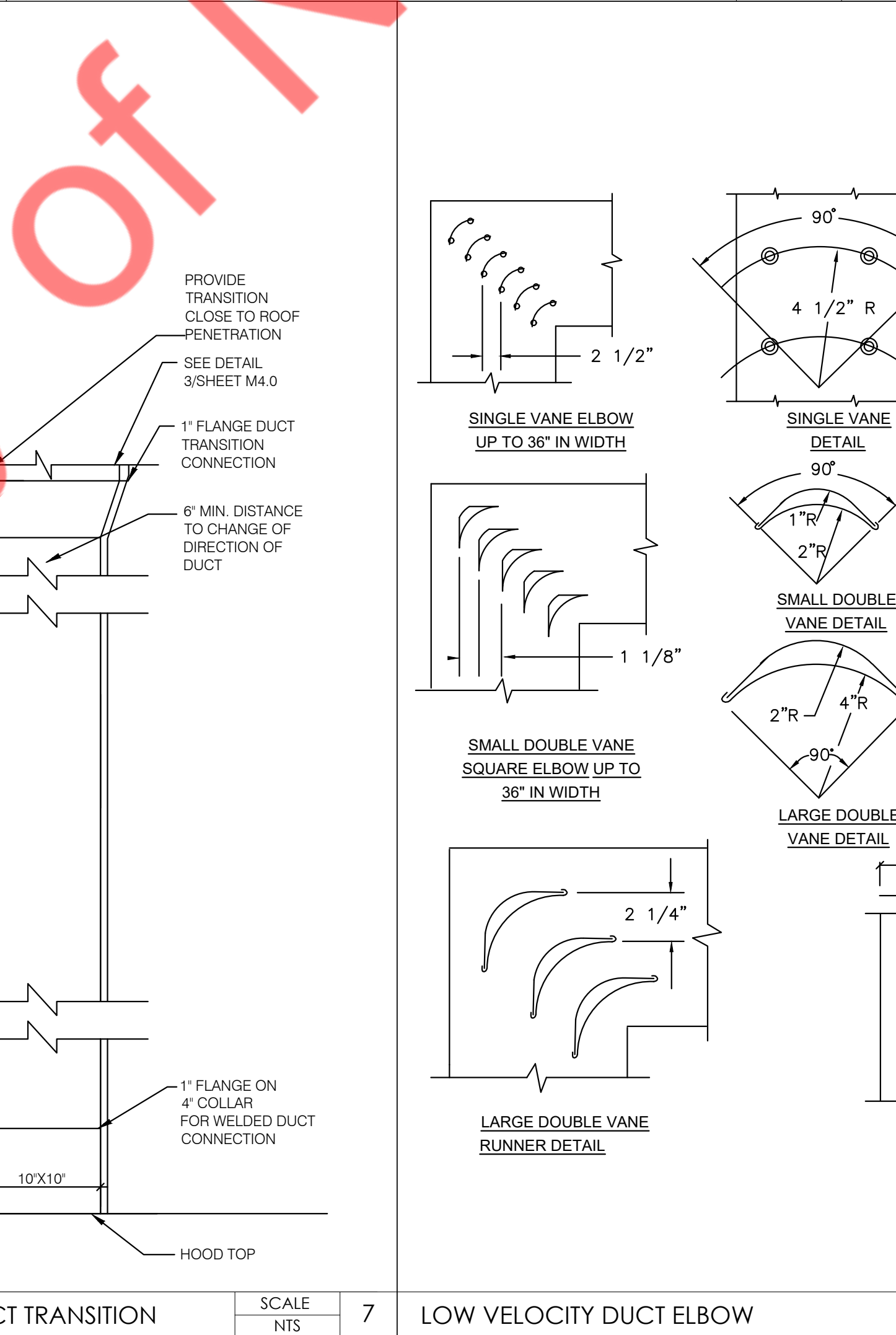
DUCT HANGING AND SUB-MAIN/BRANCH DUCT DETAILS



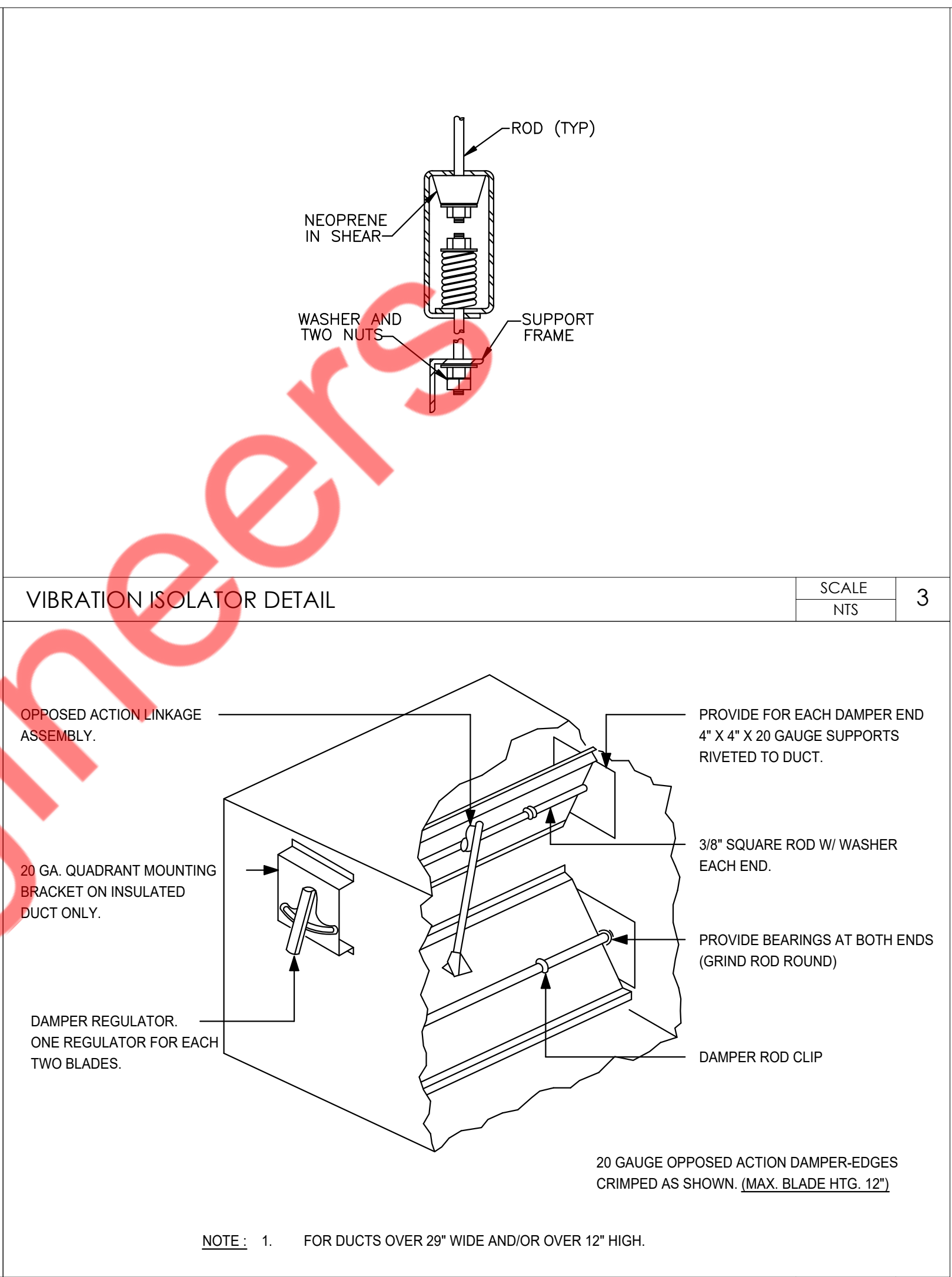
DIFFUSER CONNECTION DETAIL- FLEX CONNECTION



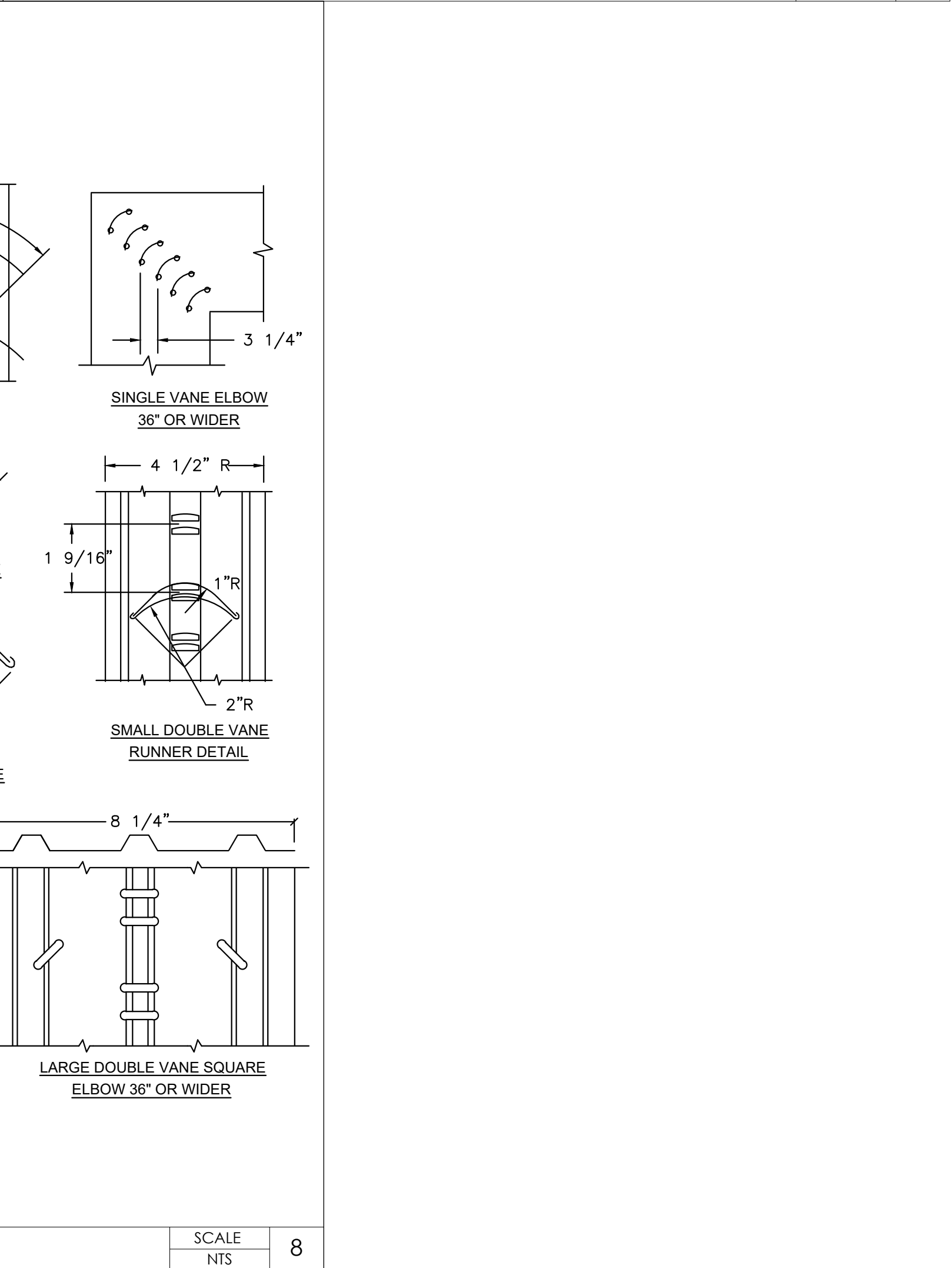
ACCOUSTICAL TREATMENT DUCT LINING



HOOD DUCT TRANSITION



LOW PRESSURE BALANCING DAMPER



LOW VELOCITY DUCT ELBOW

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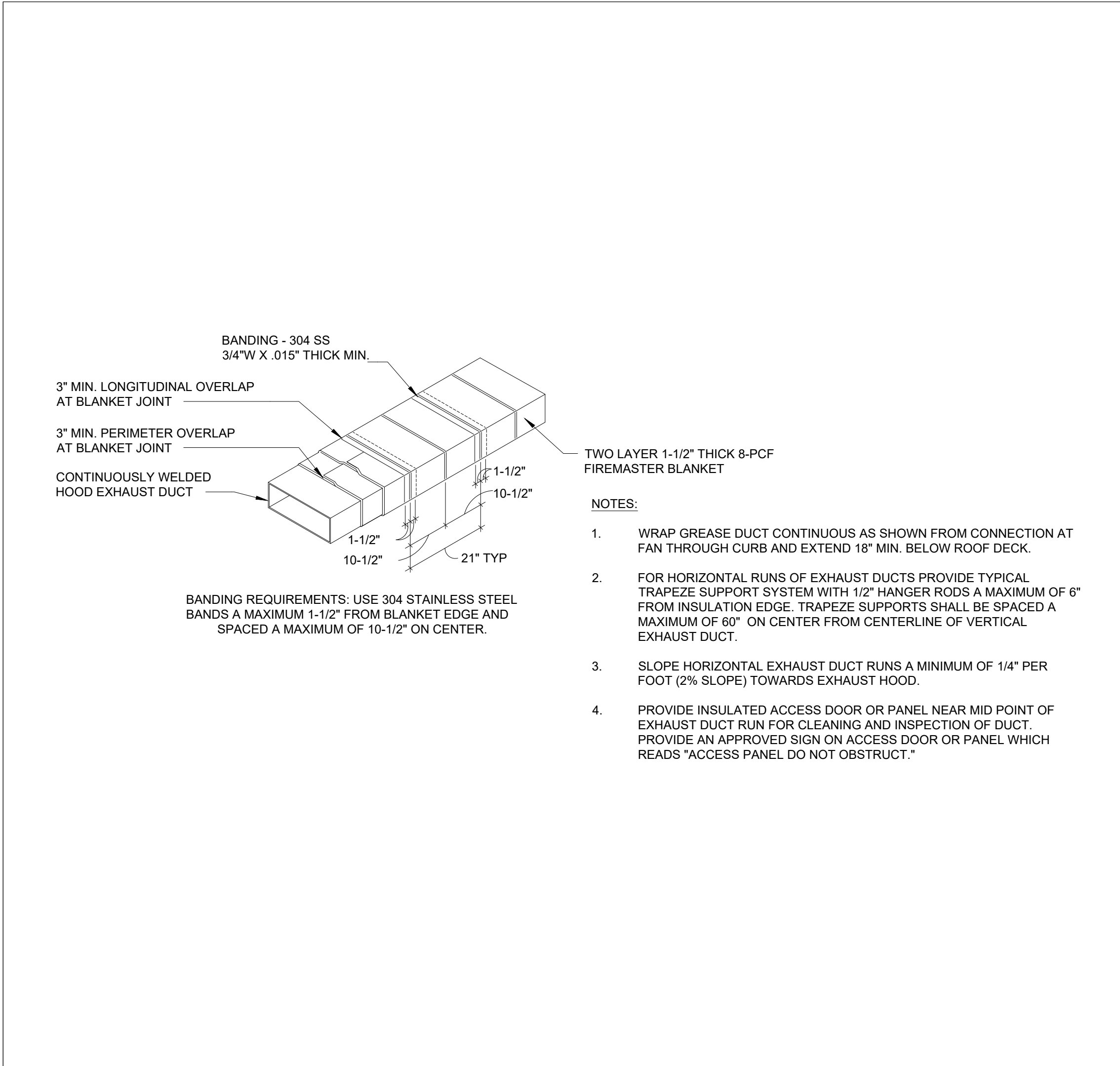
DRAWING TITLE:
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(01 OF 02)

PERMIT DWG DATE: 05/09/2024

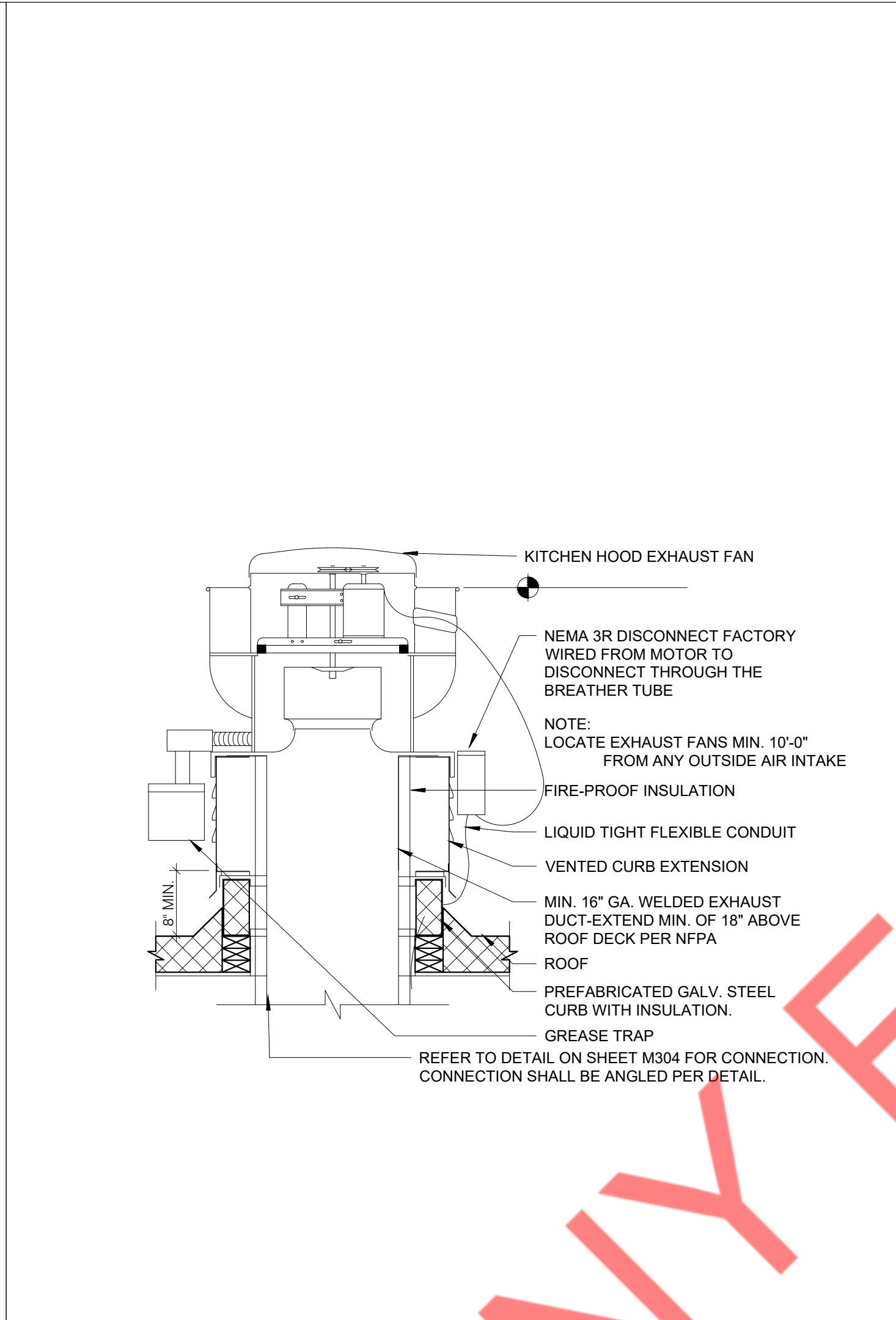
DRAWN BY: NYE

DRAWING NUMBER:

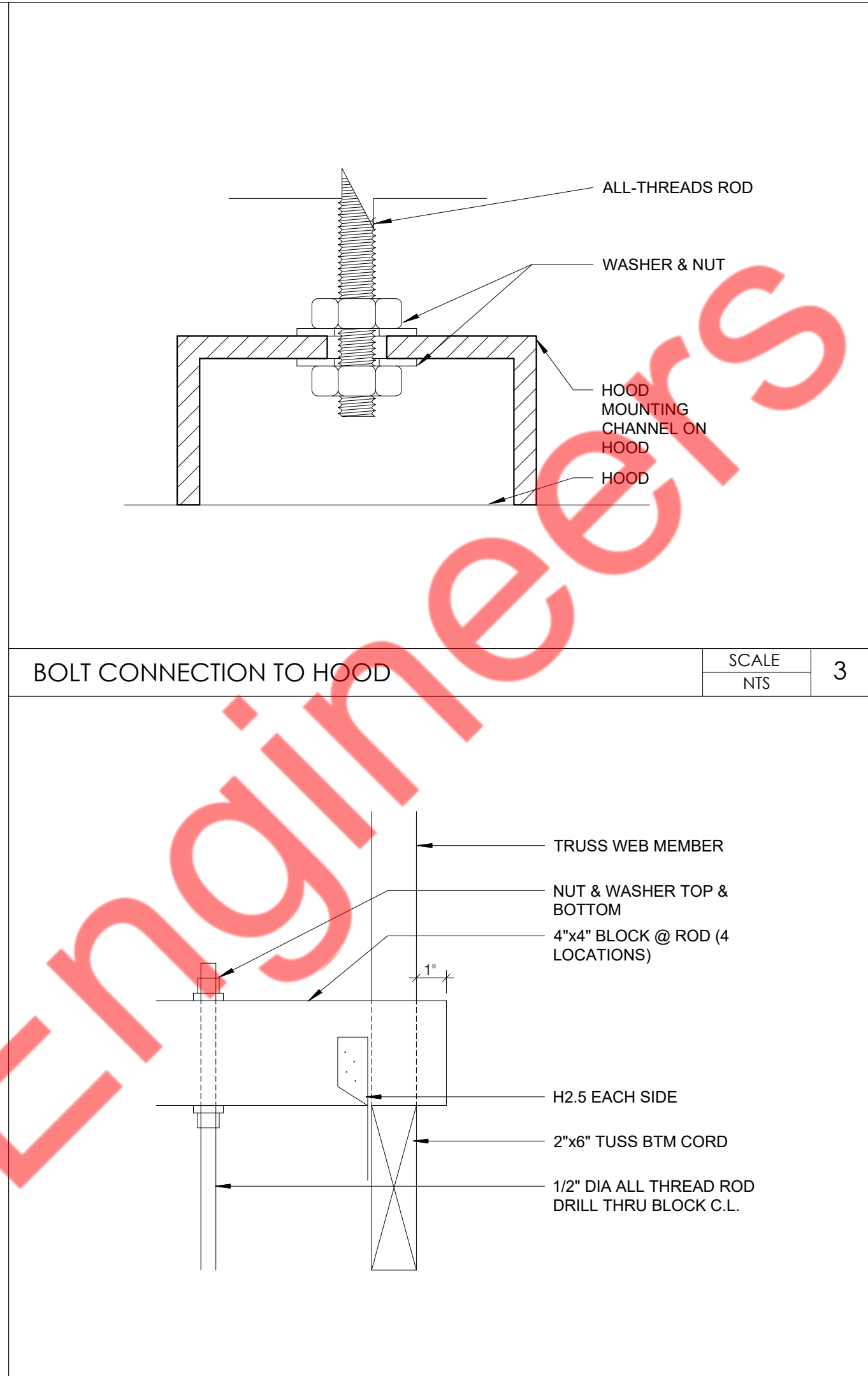
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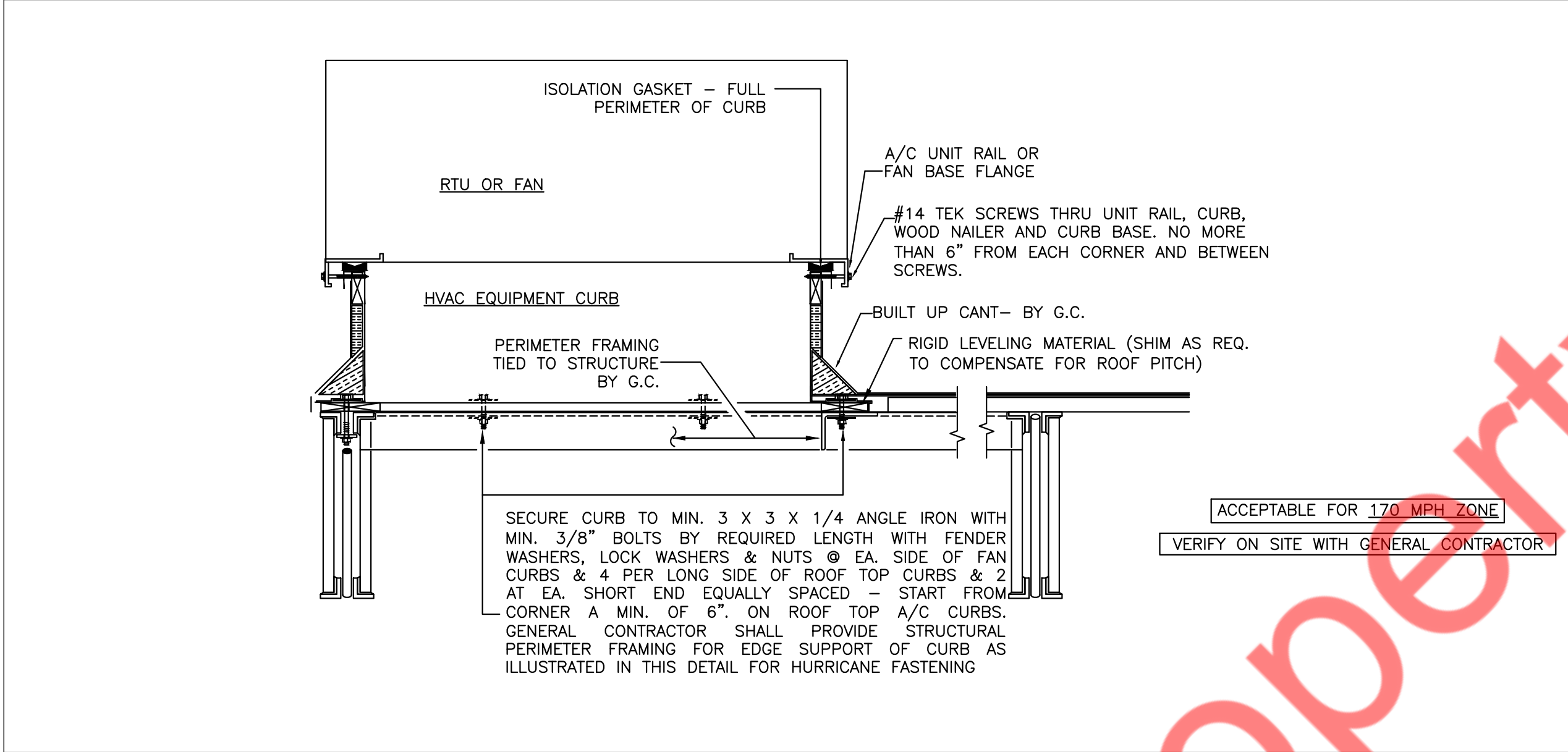
KITCHEN HOOD EXHAUST DUCT SYSTEM DETAIL



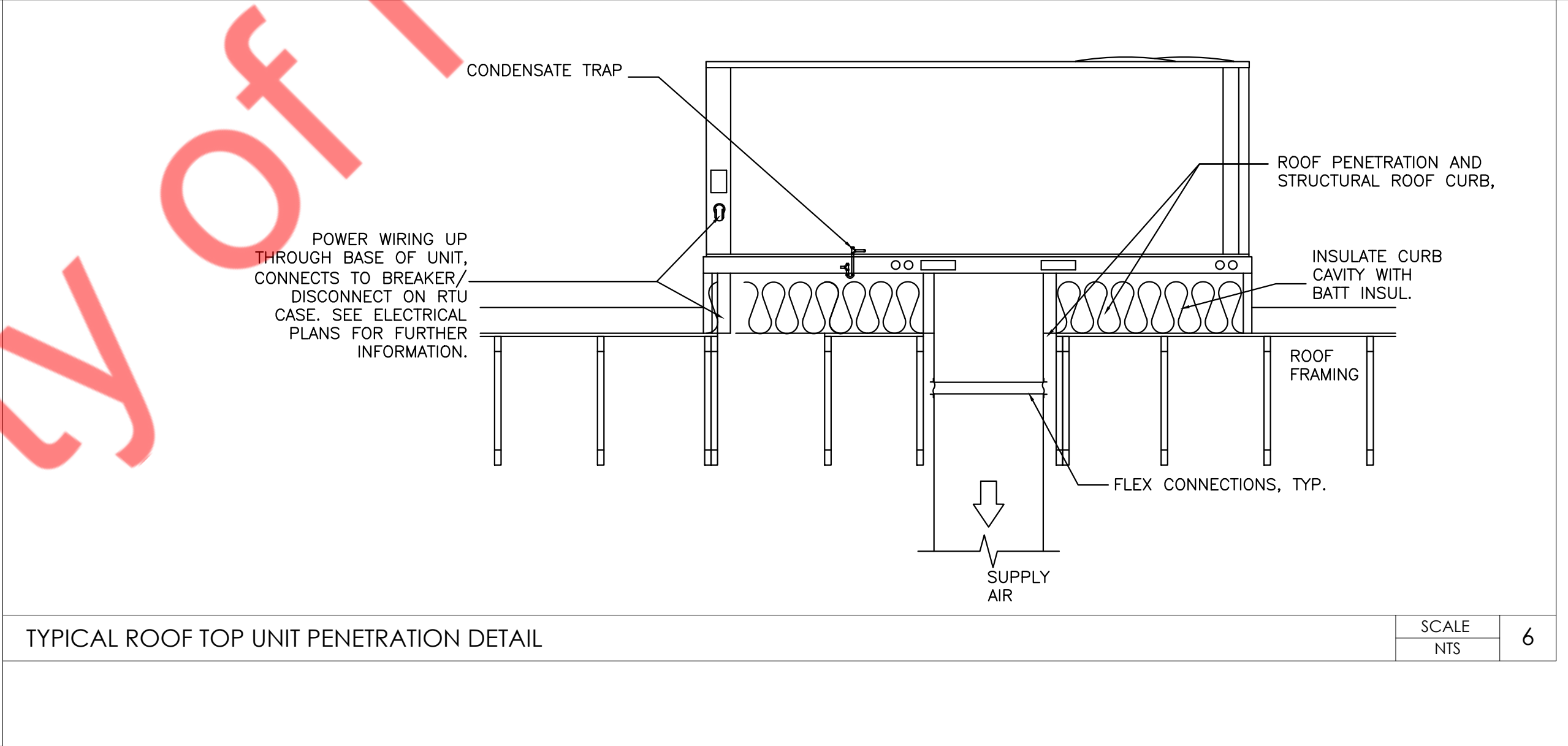
KITCHEN EXHAUST FAN



ROD ATTACHMENT



TYPICAL ROOF INSTALLATION DETAIL



TYPICAL ROOF TOP UNIT PENETRATION DETAIL

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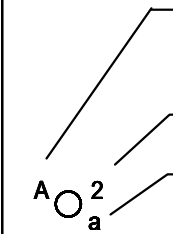

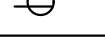
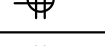







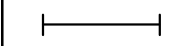

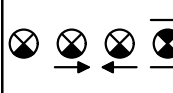

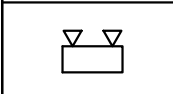

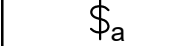

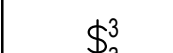

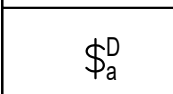

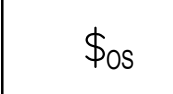




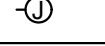
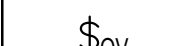
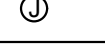
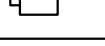
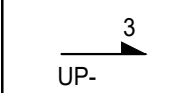

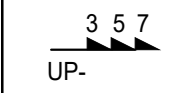
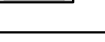
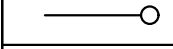

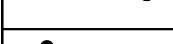

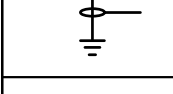

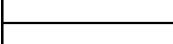
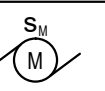
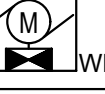
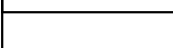
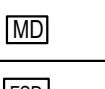

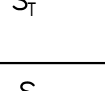
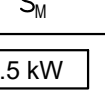

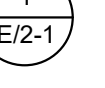
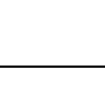
DRAWING TITLE:
MECHANICAL DETAILS
(02 OF 02)

PERMIT DWG DATE: 05/09/2024	PROJECT NUMBER: 24-09-002
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DRAWN BY: NYE	CHECKED BY: NYE
------------------	--------------------

DRAWING NUMBER:

M401

ELECTRICAL SYMBOLS LIST (NOTE: NOT ALL SYMBOLS MAY APPEAR ON DRAWINGS.)				GENERAL NOTES (APPLY TO ALL "E" DRAWINGS)			
LIGHTING		POWER AND TELECOMMUNICATION		ELECTRICAL ABBREVIATIONS			
	FLUORESCENT LIGHTING FIXTURE AND OUTLET BOX. HALF SHADED FIXTURE OR "EM" INDICATES FIXTURES WITH INTEGRAL BATTERY PACK FOR EMERGENCY SERVICE, U.O.N.		20A, 125V, DUPLEX RECEPTACLE	A	AMPERES	EA	EACH
	LUMINAIRE TYPE : INDICATE BY UPPERCASE LETTER SEE LIGHTING FIXTURE SCHEDULE.		20A, 125V, DUPLEX RECEPTACLE, WALL MTD ISOLATED GROUND	A/C, AC	AIR CONDITIONING UNIT	EC	EMPTY CONDUIT/ ELECTRICAL CONTRACTOR
	CIRCUIT NUMBER : INDICATED BY NUMBER		20A, 125V, GFCI DUPLEX RECEPTACLE, WALL MTD	AF	AMPERE FRAME/AMP FUSE	EF	EXHAUST FAN
	SWITCHING INDICATED BY LOWER CASE LETTERS.		20A, 125V, SPLIT WIRED DUPLEX RECEPTACLE, WALL MTD	AFF	ABOVE FINISHED FLOOR	EM	EMERGENCY
			20A, 125V, QUADRUPLUX RECEPTACLE, WALL MTD	AS	AMP SWITCH	EMT	ELECTRICAL METALLIC TUBING
	DENOTES LUMINAIRE ON EMERGENCY CIRCUIT.		20A, 125V, GFCI QUADRUPLUX RECEPTACLE, WALL MTD	AIC	AMPS INTERRUPTING CAPACITY	EQUIP	EQUIPMENT
	DENOTES FIXTURES DESIGNATED AS NIGHTLIGHT, WIRED TO 24 HOURS UNSWITCHED CIRCUIT.		20A, 125V, SPLIT WIRED QUADRUPLUX RECEPTACLE, WALL MTD	AT	AMP TRIP	ER	EXISTING TO BE RELOCATED
	RECESSED		20A, 125V, SIMPLEX RECEPTACLE (NEMA 5-20R), WALL MTD	ATS	AUTOMATIC TRANSFER SWITCH	ETR	EXISTING TO REMAIN
	SAME AS ABOVE, EXCEPT WALLWASHER.		20A, 125V, SIMPLEX RECEPTACLE (NEMA 5-20R), WALL MTD ISOLATED GROUND	AUTO	AUTOMATIC	EWF	ELECTRIFIED WORKSTATION FURNITURE
	FLUORESCENT STRIP LIGHTING FIXTURE AND OUTLET BOX.		POWER RECEPTACLE, FLOOR MTD (SEE SPECS OR NOTES)	AWG	AMERICAN WIRE GAUGE	EWH	ELECTRIC WATER HEATER
	CEILING/WALL MOUNTED SELF POWERED EXIT LIGHT FIXTURE WITH DIRECTIONAL ARROWS AS INDICATED. SHADED AREA DENOTES FACE(S). ISOLITE ELITE SERIES LED EXIT SIGN		20A, 125V, DUPLEX RECEPTACLE, FLOOR MTD	C	CONDUIT	FA	FIRE ALARM
	EMERGENCY BATTERY UNIT WITH ATTACHED EMERGENCY FIXTURES AND OUTLET BOX.		20A, 125V, QUADRUPLUX RECEPTACLE, FLOOR MTD	C/B,CB	CIRCUIT BREAKER	FBO	FURNISHED BY OTHERS, INSTALLED & WIRED BY EC
SWITCHES AND CONTROLS			SPECIAL PURPOSE RECEPTACLE, FLOOR MTD (SEE EQUIPMENT SCHEDULE OR NOTES)	CKT	CIRCUIT	FDR	FEEDER
	20A SPST LIGHTING SWITCH U.O.N. "a" DENOTES LIGHTING FIXTURE CONTROLLED.		20A, 125V, DUPLEX RECEPTACLE, CEILING MTD	CLG	CEILING	FIBO	FURNISHED & INSTALLED BY OTHERS, WIRED BY EC
	20A 3-WAY LIGHTING SWITCH U.N.O. "a" DENOTES LIGHTING FIXTURE CONTROLLED		20A, 125V, QUADRUPLUX RECEPTACLE, CEILING MTD	COMM	COMMUNICATION	FIXT	FIXTURE
	DIMMER SWITCH, LUTHRON MAESTRO SERIES. "a" DENOTES LIGHTING FIXTURE CONTROLLED.		SPECIAL PURPOSE RECEPTACLE, WALL MTD (SEE EQUIPMENT SCHEDULE OR NOTES)	CT	CURRENT TRANSFORMER	FL	FLOOR
	WALL MOUNTED OCCUPANCY SENSOR SWITCH		125 / 250V, RECEPTACLE (NEMA 14-30R / NEMA 14-50R), WALL MTD (SEE EQUIPMENT SCHEDULE OR NOTES)	CU	COPPER	FLUOR	FLUORESCENT
	CEILING OCCUPANCY SENSOR		DROP CORD (SEE SPECS OR NOTES)	°C	DEGREE CELSIUS	G	GROUND
	PHOTOCELL IN NAMA 3R ENCLOSURE.		POWER POLE (SEE SPECS OR NOTES)	°F	DEGREE FAHRENHEIT	GFI	GROUND FAULT INTERRUPTER
	TIME CLOCK		JUNCTION BOX, WALL MTD	DIA	DIAMETER	GP	GENERAL PURPOSE
	MANUAL OVERRIDE SWITCH FOR TIME CLOCK		JUNCTION BOX	DISC	DISCONNECT	HC	HUNG CEILING
WIRING SYSTEMS			DISCONNECT SWITCH NON-FUSED	DN	DOWN	HP	HORSEPOWER
	POWER OR LIGHTING CIRCUITRY HOMERUN WITH PANELBOARD DESIGNATION, NUMBER WHERE USED INDICATES CIRCUIT NUMBER. IT SHALL CONSISTS OF 1#12 Ø, 1#12 N. & 1#12 G. IN 3/4"C, UNLESS OTHERWISE NOTED.		DISCONNECT SWITCH FUSED	DP	DISTRIBUTION PANEL	HWH	HOW WATER HEATER
	POWER OR LIGHTING CIRCUITRY HOMERUN WITH PANELBOARD DESIGNATION, NUMBER WHERE USED INDICATES CIRCUIT NUMBER. IT SHALL CONSISTS OF 2#12 Ø, 2#12 N. & 2#12 G. IN 3/4"C, UNLESS OTHERWISE NOTED.		ELECTRICAL PANEL / ENCLOSURE AS NOTED ON PLAN DRAWINGS, SURFACE/RECESSED	DWH	DOMESTIC WATER HEATER	HZ	HERTZ
	POWER OR LIGHTING CIRCUITRY HOMERUN WITH PANELBOARD DESIGNATION, NUMBER WHERE USED INDICATES CIRCUIT NUMBER. IT SHALL CONSISTS OF 3#12 Ø, 3#12 N. & 3#12 G. IN 3/4"C, UNLESS OTHERWISE NOTED.		ELECTRIC UTILITY METER	DWG	DRAWING	IC	INTERRUPTING CAPACITY
	CONDUIT TURNING UP, SEE FLOOR PLANS FOR CONDITIONS.		TELEPHONE OUTLET, WALL MTD 1 TELE OUTLET, U.N.O. X = NUMBER OF TELEPHONE PORTS	JB	JUNCTION BOX	PP	POWER PANEL
	CONDUIT TURNING DOWN, SEE FLOOR PLANS FOR CONDITION.		DATA OUTLET, WALL MTD 1 DATA OUTLET, U.N.O. Y = NUMBER OF DATA PORTS	KCMIL	ONE THOUSAND CIRCULAR MILS	PVC	POLYVINYL CHLORIDE
	CONDUIT AND WIRE TO BUILDING GROUND.		COMBINATION TELE/ DATA OUTLET, WALL MTD 1 TELE / 2 DATA OUTLETS, U.N.O. X = NUMBER OF TELEPHONE PORTS Y = NUMBER OF DATA PORTS	KV	KILOVOLT	PWR	POWER
	UNDERGROUND		AC INDOOR UNIT MOTOR AS NOTED WITH LIQUID TIGHT FLEXIBLE CONNECTION WITH JUNCTION BOX AND MOTOR SWITCH.	KVA	KILOVOLT-AMPERES	R	REMOVE
	EXISTING		AC OUTDOOR UNIT MOTOR AS NOTED WITH CONTROLLER AND DISCONNECT SWITCH WITH WEATHER PROOF.	KW	KILOWATTS	RE	RELOCATED EXISTING
	NEW		MOTORIZED DAMPER.	LP	LIGHTING PANEL	REC	RECEPTACLE
ELECTRICAL DRAWING LIST			FIRE SMOKE DAMPER	LTG	LIGHTING	RGS	RIGID GALVANIZED STEEL
E001	ELECTRICAL SYMBOL LIST, ABBREVIATIONS & GENERAL NOTES		THERMAL OVERLOAD SWITCH AT MOTOR. PROVIDE THERMAL ELEMENTS AS PER MOTOR RATING.	MAX	MAXIMUM	RR	REMOVE & RELOCATE
E002	ELECTRICAL SPECIFICATIONS SHEET 1 OF 2		MANUAL MOTOR SWITCH	MC	MOTOR CONTROLLER	SECT	SECTION
E003	ELECTRICAL SPECIFICATIONS SHEET 2 OF 2		ELECTRICAL HEATER, NUMBER DENOTES HEATER RATING	MCB	MAIN CIRCUIT BREAKER	SPDT	SINGLE POLE DOUBLE THROW
E100	ELECTRICAL POWER PLAN		KEYED NOTE REFERENCE	MER	MECHANICAL EQUIPMENT ROOM	SPST	SINGLE POLE SINGLE THROW
E101	ELECTRICAL ROOF POWER PLAN		DETAIL REFERENCE; DETAIL NUMBER INDICATED ON TOP; DRAWING NUMBER INDICATED ON BOTTOM	MIN	MINIMUM	SPEC	SPECIFICATION
E102	ELECTRICAL EQUIPMENT SCHEDULE		CODE REFERENCE:	MLO	MAIN LUGS ONLY	SW	SWITCH
E200	ELECTRICAL LIGHTING PLAN	-	TYPE	MTD	MOUNTED	SWBD	SWITCHBOARD
E300	ELECTRICAL DETAILS	1	BUILDING CODE	MTS	MANUAL TRANSFER SWITCH	SYM	SYMMETRICAL
E500	ELECTRICAL RISER DIAGRAM AND PANEL SCHEDULES	2	EXISTING BUILDING CODE	N	NEUTRAL	SYS	SYSTEMS
		3	ACCESSIBILITY CODE	NE	NEW DEVICE TO REPLACE EXISTING	TELE	TELEPHONE
		4	PLUMBING CODE	NIC	NOT IN CONTRACT	TEMP	TEMPERATURE
		5	MECHANICAL CODE	NL	NIGHT LIGHT	TXF	TOILET EXHAUST FAN
		6	ELECTRICAL CODE	NTS	NOT TO SCALE	TYP	TYPICAL
		7	FIRE PROTECTION CODE	OC	ON CENTER	UON	UNLESS OTHERWISE NOTED
		8	ENERGY CODE	P	POLES	V	VOLT/VOLTAGE
				PB	PULLBOX	VA	VOLT AMPERE
				PC	PERSONAL COMPUTER	VAV	VARIABLE AIR VOLUME
				Ø	PHASE	VFD	VARIABLE FREQUENCY DRIVE
				PNL	PANEL	VP	VAPORPROOF
				W	WATT	WP	WEATHER PROOF
				W	WIRE	XFMR	TRANSFORMER
				WH	WALL HEATER	ZRT	ZONE REGISTER TERMINALS
				E	EXISTING	IG	ISOLATED GROUND

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REVISIONS		
NUMBER	REMARKS	DATE
1	REVIEW SET	05/22/2024
2	PERMIT SET	09/06/2024

ISSUED FOR:	DATE ISSUED:
REVIEW	05/22/2024

PROJECT TITLE:



DRAWING TITLE: ELECTRICAL SYMBOL LIST, ABBREVIATIONS & GENERAL NOTES	
PERMIT DWG DATE: 05/09/2024	PROJECT NUMBER: 24-09-002
DRAWN BY: NYE	CHECKED BY: NYE
DRAWING NUMBER:	

E001

ELECTRICAL SPECIFICATIONS:

1. GENERAL:
- A. THE "GENERAL CONDITIONS OF THE CONTRACT FOR CONSTRUCTION," AIA DOCUMENT A201, LATEST EDITION, AND THESE SPECIFICATIONS AS APPLICABLE ARE PART OF THIS CONTRACT.

B. DRAWING ARE DIAGRAMMATIC AND INDICATE GENERAL ARRANGEMENT OF SYSTEMS AND WORK. CONDUIT ROUTING IS SHOWN DIAGRAMMATICALLY AND DOES NOT SHOW ALL OFFSETS, DROPS AND RISES OF RUNS. THE CONTRACTOR SHALL ALLOW IN THEIR PRICE FOR ROUTING OF CONDUIT TO AVOID OBSTRUCTIONS. COORDINATION WITH EXISTING SERVICES, INCLUDING THOSE OF OTHER TRADES, IS REQUIRED, MAINTAIN HEADROOM AND SPACE CONDITIONS.

C. BIDDERS, BEFORE SUBMITTING PROPOSALS, SHALL VISIT AND CAREFULLY EXAMINE THE AREA AFFECTED BY THIS WORK TO FAMILIARIZE THEMSELVES WITH THE EXISTING CONDITIONS AND THE DIFFICULTIES THAT WILL ATTEND THE EXECUTION OF THIS WORK. SUBMISSION OF A PROPOSAL WILL BE CONSTRUED AS EVIDENCE THAT SUCH AN EXAMINATION HAS BEEN MADE, AND LATER CLAIMS WILL NOT BE RECOGNIZED FOR EXTRA LABOR, EQUIPMENT, OR MATERIALS, REQUIRED BECAUSE OF DIFFICULTIES ENCOUNTERED WHICH COULD HAVE BEEN FORESEEN HAD SUCH AN EXAMINATION BEEN MADE.

D. INSTALL WORK SO AS TO BE READILY ACCESSIBLE FOR OPERATION, MAINTENANCE AND REPAIR. MINOR DEVIATIONS FROM DRAWING MAY BE MADE TO ACCOMPLISH THIS, BUT CHANGES WHICH INVOLVE EXTRA COST SHALL NOT BE MADE WITHOUT APPROVAL.

E. REMOVAL AND RELOCATION OF CERTAIN EXISTING WORK MAY BE NECESSARY FOR THE PERFORMANCE OF THE GENERAL WORK. ALL EXISTING CONDITIONS CANNOT BE COMPLETELY DETAILED ON THE DRAWINGS. THE CONTRACTOR SHALL SURVEY THE SITE AND INCLUDE ALL CHANGES AND CHARGES IN MAKING UP THE WORK PROPOSAL.

F. CONNECTIONS TO EXISTING WORK: INSTALL NEW WORK AND CONNECT TO EXISTING WORK WITH MINIMUM INTERFERENCE TO EXISTING FACILITIES. TEMPORARY SHUTDOWNS OF EXISTING SERVICES SHALL BE PERFORMED AT NO ADDITIONAL CHARGES, AT TIMES NOT TO INTERFERE WITH NORMAL OPERATION OF EXISTING FACILITIES AND ONLY WITH WRITTEN CONSENT OF OWNER. ALARM AND EMERGENCY SYSTEMS SHALL NOT BE INTERRUPTED. MAINTAIN CONTINUOUS OPERATION OF EXISTING FACILITIES AS REQUIRED WITH NECESSARY TEMPORARY CONNECTIONS BETWEEN NEW AND EXISTING WORK. CONNECT NEW WORK TO EXISTING WORK IN NEAT AND ACCEPTABLE MANNER. RESTORE EXISTING DISTURBED WORK TO ORIGINAL CONDITION, INCLUDING MAINTENANCE OF WIRING CONTINUITY AS REQUIRED.

G. DISCONNECT, REMOVE AND/OR RELOCATE EXISTING MATERIAL, EQUIPMENT AND OTHER WORK AS NOTED OR REQUIRED FOR PROPER INSTALLATION OF NEW WORK.

H. THE CONTRACTOR SHALL KEEP ALL EQUIPMENT AND MATERIALS, AND ALL PARTS OF THE BUILDING EXTERIOR SPACES AND ADJACENT STREETS, SIDEWALKS AND PAVEMENTS, FREE FROM MATERIAL AND DEBRIS RESULTING FROM THE EXECUTION OF THIS WORK. EXCESS MATERIALS WILL NOT BE PERMITTED TO ACCUMULATE EITHER ON THE INTERIOR OR THE EXTERIOR.

I. SEAL OPENINGS THROUGH PARTITIONS, WALLS AND FLOORS WITH MINERAL WOOL OR OTHER NONCOMBUSTIBLE MATERIAL, UNLESS OTHERWISE NOTED.

J. PROVIDE ALL NECESSARY FLASHING AND COUNTER FLASHING TO MAINTAIN THE WATERPROOFING INTEGRITY OF THE BUILDING AS REQUIRED BY THE INSTALLATION OR REMOVAL OF CONDUIT AND EQUIPMENT, PROVIDE EQUIPMENT CURBS AS REQUIRED.

K. ALL EXISTING MATERIAL, EQUIPMENT AND CONSTRUCTION DEBRIS TO BE REMOVED UNDER THIS CONTRACT SHALL BECOME THE PROPERTY OF THE CONTRACTOR WITH THE EXCEPTION OF SPECIFIC EQUIPMENT OR APPARATUS REQUESTED BY THE BUILDING REPRESENTATIVE, ARCHITECT OR AS NOTED TO BE RELOCATED ON THE DRAWINGS. REMOVED EQUIPMENT SHALL BE PROPERLY DISPOSED OF BY THIS CONTRACTOR.

L. THE CONTRACTOR'S PROPOSAL FOR ALL WORK SHALL BE PREDICATED ON THE PERFORMANCE OF THE WORK DURING REGULAR WORKING HOURS. WHEN SO DIRECTED, HOWEVER, THE CONTRACTOR SHALL INSTALL WORK DURING OVERTIME HOURS AND THE ADDITIONAL COST TO BE CHARGED THEREFORE SHALL BE ONLY THE "PREMIUM" PORTION OF THE WAGES PAID.

M. UNLESS OTHERWISE SPECIFICALLY NOTED OR SPECIFIED, INCLUDE ALL CUTTING AND PATCHING OF EXISTING FLOORS, WALLS, PARTITIONS AND OTHER MATERIALS IN THE EXISTING BUILDING. THE CONTRACTOR SHALL RESTORE THESE AREAS TO ORIGINAL CONDITION.

N. ALL MATERIAL AND EQUIPMENT SHALL BE NEW UNLESS OTHERWISE NOTED AND SHALL BE IN ACCORDANCE WITH BUILDING STANDARDS.

O. INSURANCE: PROVIDE IN ACCORDANCE WITH OWNER/BUILDING REQUIREMENTS AND SHALL INCLUDE A HOLD HARMLESS CLAUSE FOR OWNER AND ENGINEER.

P. THE FINAL ACCEPTANCE SHALL BE MADE AFTER THE CONTRACTOR HAS ADJUSTED HIS EQUIPMENT, TESTED THE VARIOUS SYSTEMS, DEMONSTRATED THAT IT FULFILLS THE REQUIREMENTS OF THE DRAWINGS AND SPECIFICATIONS AND HAS FURNISHED ALL THE REQUIRED CERTIFICATED OF INSPECTION AND APPROVAL.
2. GENERAL PROVISIONS FOR ELECTRICAL WORK:
- A. DEFINITIONS:

• "PROVIDE": TO FURNISH, INSTALL AND CONNECT UP COMPLETE AND READY FOR SAFE AND REGULAR OPERATION THE PARTICULAR WORK REFERRED TO UNLESS SPECIFICALLY OTHERWISE NOTED.

• "INSTALL": TO ERECT, MOUNT AND CONNECT COMPLETE WITH RELATED ACCESSORIES.

• "FURNISH" OR "SUPPLY": TO PURCHASE, PROCURE, ACQUIRE, AND DELIVER COMPLETE WITH RELATED ACCESSORIES.

• "WORK": LABOR, MATERIALS, EQUIPMENT, APPARATUS, CONTROLS, ACCESSORIES AND OTHER ITEMS REQUIRED FOR PROPER AND COMPLETE INSTALLATION.

• "WIRING": RACEWAY, FITTINGS, WIRE, BOXES, AND RELATED ITEMS.

• "CONCEALED": EMBEDDED IN MASONRY OR OTHER CONSTRUCTION, INSTALLED IN FURRED SPACES, WITHIN DOUBLE PARTITIONS OR HUNG CEILINGS, IN TRENCHES, IN CRAWL SPACES, OR IN ENCLOSURES.

• "EXPPOSED": NOT INSTALLED UNDERGROUND OR "CONCEALED" AS DEFINED ABOVE.

• "SIMILAR" OR "EQUAL": EQUAL IN MATERIALS, WEIGHT, SIZE, DESIGN AND EFFICIENCY OF SPECIFIED PRODUCT.

B. TEMPORARY LIGHT AND POWER: PROVIDE TEMPORARY LIGHT AND POWER SYSTEMS AT EARLIEST POSSIBLE DATE WITHIN THE CONSTRUCTION AREAS FOR THE REQUIREMENTS OF ALL TRADES AS HEREIN DESCRIBED. EXTEND SYSTEMS TO NEW CONSTRUCTION AS SOON AS PHYSICALLY POSSIBLE. MAINTAIN SYSTEM DURING WORKING HOURS. PROVIDE ALL REQUIRED MAINTENANCE, INCLUDING LAMPS AND SOCKETS.

C. QUALITY ASSURANCE

1) QUALITY OF MATERIALS: ALL EQUIPMENT SHALL BE NEW SPECIFICATION GRADE, FREE FROM DEFECTS AND LISTED BY APPROVED TESTING AGENCY AND BEARING THEIR LABEL. MATERIALS AND EQUIPMENT OF SIMILAR APPLICATION SHALL BE OF SAME MANUFACTURER, EXCEPT AS NOTED.

2) GUARANTEE: ALL MATERIALS AND WORKMANSHIP SHALL BE GUARANTEED AS DEFINED IN PARAGRAPH 2.C.

- 3) HEIGHTS OF OUTLETS: REFER TO ARCHITECTURAL AND/OR INTERIOR DESIGNER'S PLANS FOR DEVICE HEIGHTS IN NON BOH SPACES.
- a. FROM FINISHED FLOOR TO CENTERLINE OF OUTLETS FOR:

- RECEPTACLES AND TELEPHONES: 1 FT-6 IN.

- WALL SWITCHES: 4 FT-0 IN.

- WALL FIXTURES: 7 FT-0 IN.

- MOTOR CONTROLLERS: 5 FT-0 IN.

- CLOCKS: 7 FT 6 IN

b. EXCEPTIONS: AT JUNCTION OF DIFFERENT WALL FINISH MATERIALS, ON MOLDING OR BREAK IN WALL SURFACE, IN VIOLATION OF CODE, OR AS NOTED OR DIRECTED.

c. REFER TO ARCHITECTURAL AND/OR INTERIOR DESIGNER'S PLANS FOR DEVICE HEIGHTS IN NON BOH SPACES
- D. PRODUCT DELIVERY, STORAGE AND HANDLING
- 1) MOVING OF EQUIPMENT: WHERE NECESSARY, SHIP IN CARTED SECTIONS OF SIZE TO PERMIT PASSING THROUGH AVAILABLE SPACES.

2) ACCESSIBILITY: FOR OPERATION, MAINTENANCE AND REPAIR, MINOR DEVIATIONS SHALL BE PERMITTED, CHANGES OF MAGNITUDE OR INVOLVING EXTRA COST ARE NOT PERMISSIBLE WITHOUT REVIEW. GROUP CONCEALED ELECTRICAL EQUIPMENT REQUIRING ACCESS WITH EQUIPMENT FREELY ACCESSIBLE THROUGH ACCESS DOORS.
- E. MATERIALS
- 1) NAMEPLATES: PROVIDE BLACK LAMACOID SHEET WITH 3/4 IN. WHITE LETTERING, FASTENED WITH EPOXY CEMENT FOR EACH DISCONNECT SWITCH, CIRCUIT BREAKER, PANEL, CABINET, TRANSFORMER, ENCLOSURE, MOTOR CONTROLLER AND THE LIKE. NAMEPLATES SHALL DESCRIBE THE NAME AND NUMBER OF EACH COMPONENT.

2) CABLE TAGS: TAG EACH CONDUCTOR PASSING THROUGH SPLICE OR PULL BOX WITH A WHITE LINEN TAG, INDICATING POINT OF ORIGIN AND TERMINATION OF THE CIRCUIT.

3) INSERTS AND SUPPORTS:

a. INSERTS: STEEL, SLOTTED TYPE, FACTORY PAINTED.

- SINGLE ROD: SIMILAR TO GRINNELL FIG. 281.

- MULTI-ROD: SIMILAR TO FEE AND MASON SERIES 9000 WITH END CAPS AND CLOSURE STRIPS.

- CLIP FORM NAILS FLUSH WITH INSERTS.

- MAXIMUM LOADING 75 PERCENT OF RATING.

b. SUPPORTS FROM BUILDING CONSTRUCTION: INSERTS, BEAM CLAMPS, STEEL FISHPLATES (IN CONCRETE FILL ONLY), CANTILEVER BRACKETS OR OTHER MEANS. SUBMIT FOR REVIEW.

c. GROUPED LINES AND SERVICES: TRAPEZE HANGERS OF BOLTED ANGLES OR CHANNELS.

d. WHERE BUILDING CONSTRUCTION IS INADEQUATE: PROVIDE ADDITIONAL FRAMING. SUBMIT FOR REVIEW.

F. SUBMIT ELECTRICAL POWER SYSTEM STUDIES INCLUDING SUPPORTING DATA AND RECOMMENDATIONS FOR THE FOLLOWING:

1) SHORT CIRCUIT CURRENT AND PROTECTIVE DEVICE COMBINATION.

2) ARC FLASH HAZARD ANALYSIS.

EQUIPMENT SHOP DRAWINGS SHALL NOT BE SUBMITTED UNTIL THESE STUDIES HAVE BEEN COMPLETED.

G. PAINT SHALL BE THE BEST GRADE FOR ITS PURPOSE, DELIVER IN ORIGINAL SEALED CONTAINERS AND APPLY IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS. COLORS SHALL BE AS SELECTED BY ARCHITECT OR ENGINEER. UTILIZE GALVANIZED IRON PRIMER ON PANEL AND PULL BOXES, AFTER FABRICATION. UTILIZE HOT DIPPED GALVANIZED OR DIPPED IN ZINC BASED PRIMER FOR: OUTLET BOXES; JUNCTION BOXES; CONDUIT HANGERS, RODS, INSERTS AND SUPPORTS. ZINC BASED PRIMER WITH FINISH TO MATCH SURROUNDINGS SHALL BE USED FOR MARRED SURFACES OF STEEL EQUIPMENT AND RACEWAYS. A FIELD-APPLIED ZINC BASED PRIME COAT SHALL BE UTILIZED FOR STEEL OR IRONWORK.

H. BRUSH AND CLEAN WORK PRIOR TO CONCEALING, PAINTING AND ACCEPTANCE. PAINTED EXPOSED WORK SOILED OR DAMAGED; CLEAN AND REPAIR TO MATCH ADJOINING WORK BEFORE FINAL ACCEPTANCE. REMOVE DEBRIS FROM INSIDE AND OUTSIDE OF MATERIAL AND EQUIPMENT.

I. FINAL LOCATIONS AND MOUNTING ORIENTATIONS OF ALL SWITCHES, RECEPTACLES AND LIGHT FIXTURES SHALL BE VERIFIED WITH ARCHITECT.

J. ALL ACCESS DOOR LOCATIONS SHALL BE REVIEWED BY ARCHITECT PRIOR TO INSTALLATION.

3. SCOPE OF WORK:

A. SCOPE OF WORK SHALL CONSIST OF PROVIDING LABOR, MATERIALS, EQUIPMENT, SERVICES AND FEES NECESSARY FOR COMPLETE AND SAFE INSTALLATION IN CONFORMING WITH THE NYS ELECTRICAL CODE 2017 (ADOPTS NFPA 70, 2017 WITHOUT AMENDMENTS), AND ALL OTHER APPLICABLE INDUSTRY, NATIONAL AND LOCAL CODES AND AUTHORITIES HAVING JURISDICTION, AS INDICATED ON DRAWINGS AND HEREIN SPECIFIED.

B. ALL DRAWINGS, PLANS, DETAILS, SPECIFICATIONS AND SPECIFICATION ADDENDA ARE MADE PART OF THIS CONTRACT AND SHALL APPLY TO ALL WORK UNDER THE CONTRACT UNLESS OTHERWISE AMENDED, MODIFIED, SUPPLIED OR SPECIFIED HEREIN.

C. THE CONTRACTOR SHALL FURNISH A WRITTEN GUARANTEE TO REPLACE OR REPAIR PROMPTLY AND ASSUME RESPONSIBILITY FOR ALL EXPENSES INCURRED FOR ANY WORKMANSHIP AND EQUIPMENT IN WHICH DEFECTS DEVELOP WITHIN ONE YEAR FROM THE DATE OF FINAL CERTIFICATE FOR PAYMENT AND/OR FROM DATE OR ACTUAL USE OF EQUIPMENT OR OCCUPANCY OF SPACES BY OWNER INCLUDED UNDER THE VARIOUS PARTS OF THE WORK, WHICHEVER, DATE IS EARLIER; THIS WORK SHALL BE DONE AS DIRECTED BY THE OWNER. THIS GUARANTEE SHALL ALSO PROVIDED THAT WHERE DEFECTS OCCUR, THE CONTRACTOR WILL ASSUME RESPONSIBILITY OF OTHER TRADES AFFECTED BY DEFECTS, REPAIRS OR REPLACEMENTS IN EQUIPMENT SUPPLIED BY THE CONTRACTOR

D. THE CONTRACTOR SHALL GIVE NECESSARY NOTICE, FILE DRAWINGS AND SPECIFICATIONS WITH ALL DEPARTMENTS HAVING JURISDICTION, WORK AND PAY ALL FEES THEREFORE. THE CONTRACTOR SHALL ARRANGE FOR INSPECTION AND TESTS OF ANY OR ALL PARTS OF THE WORK IF SO REQUIRED BY AUTHORITIES AND PAY ALL CHARGES FOR SAME. THE CONTRACTOR SHALL PAY ALL COSTS FOR, AND FURNISH TO THE OWNER BEFORE FINAL BILLING, ALL CERTIFICATES NECESSARY AS EVIDENCE THAT THE WORK INSTALLED CONFORMS WITH ALL REGULATIONS WHERE THEY APPLY TO THIS WORK.

E. CONTRACTOR SHALL PERFORM ALL CONTROLLED INSPECTIONS IN ACCORDANCE WITH THE NYC BUILDING CODE. SECURE ALL REQUIRED PERMITS AND APPROVALS AND TRANSMIT SAME TO OWNER. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL FEES.

F. AREAS WITH NO ELECTRICAL WORK SHALL REMAIN AS IS. CONTRACTOR SHALL MAINTAIN CONTINUITY OF ALL ELECTRICAL SYSTEMS TO ALL AREAS NOT COVERED BY THIS RENOVATION AND SHALL PROVIDE 48 HOUR NOTICE TO LANDLORD OF ANY PLANNED POWER INTERRUPTIONS OR SIGNAL SYSTEM
- OUTAGES.

4. SHOP DRAWINGS

A. PRIOR TO THE INSTALLATION OF ANY WORK AND PROCUREMENT OF EQUIPMENT, CONTRACTOR SHALL PROVIDE COMPLETE SETS OF COORDINATED SHOP DRAWINGS OF ALL NEW AND EXISTING EQUIPMENT, INDICATING CAPACITY, DIMENSIONS AND SEQUENCE OF OPERATION FOR WRITTEN APPROVAL BY THE ARCHITECT AND ENGINEER.

B. INDICATE ON EACH SHOP DRAWINGS SUBMITTED:

1) PROJECT NAME AND LOCATION

2) NAME OF ARCHITECT AND ENGINEER

3) ITEM IDENTIFICATION

4) APPROVAL STAMP OF PRIME CONTRACTOR

C. SUBMISSIONS:

1) SUBMISSIONS 11 IN. X 17 IN. OR SMALLER: IF THE SUBMISSION IS A CATALOG CUT, THEN THE CONTRACTOR SHALL SUBMIT ONE ORIGINAL AND TWO COPIES. OTHERWISE, HE SHALL SUBMIT THREE COPIES. THE ARCHITECT WILL FORWARD THE ORIGINAL AND ONE COPY (TWO COPIES WHEN NO ORIGINAL IS RECEIVED) TO THE ENGINEER. ALL CATALOG CUTS SHALL BE COMPLETE.

2) SUBMISSIONS LARGER THAN 11 IN. X 17 IN.: SUBMIT TWO PRINTS AND ONE PAPER SEPIA TO THE ARCHITECT. THE ARCHITECT WILL FORWARD ONE PRINT AND THE PAPER SEPIA TO THE ENGINEER.

D. SUBMIT SHOP DRAWINGS FOR THE FOLLOWING:

1) SAFETY/DISCONNECT SWITCHES

2) FUSES

3) CIRCUIT BREAKERS

4) DISTRIBUTION EQUIPMENT INCLUDING SWITCHBOARDS, TRANSFORMERS, PANELBOARDS AND LOAD CENTERS.

5) RACEWAYS

6) WIRE AND CABLE

7) LIGHTING CONTROL DEVICES

8) INSERTION RECEPTACLES

9) MOMENTARY CONTACT SWITCHES

10) TIME SWITCHES

11) LIGHTING FIXTURES, BALLASTS AND LAMPS.

12) FIRE ALARM EQUIPMENT AND DEVICES.

13) MOTOR STARTERS: SUBMIT ELECTRICAL POWER SYSTEM STUDIES INCLUDING SUPPORTING DATA AND RECOMMENDATIONS FOR THE FOLLOWING:

a. SHORT CIRCUIT CURRENT AND PROTECTIVE DEVICE COORDINATION ARC FLASH HAZARD ANALYSIS: EQUIPMENT SHOP DRAWINGS SHALL NOT BE SUBMITTED UNTIL THESE STUDIES HAS BEEN COMPLETED.

E. ASSIST AND PROVIDE ALL NECESSARY INFORMATION, DIAGRAMS, SKETCHES, ETC. TO THE HVAC CONTRACTOR, FOR THE PREPARATION OF COORDINATED SHOP DRAWINGS INDICATING ROUTING OF FEEDERS, CONTROL CONDUITS, RECESSED FIXTURES AND ADJACENT NEARBY PIPING AND DUCTWORK WHERE APPLICABLE, CERTIFIED BY ALL TRADES THAT COORDINATION HAS BEEN ESTABLISHED. SUBMIT FOUR(4) BOOKBOUND OPERATING AND SERVICE MANUALS WHICH SHALL INCLUDE COPIES OF ALL SHOP DRAWING, PROVIDE SHOP DRAWINGS FOR PANELS, FIXTURES, WIRING DEVICES, CONDUIT, CABLE, DISCONNECT SWITCH, RELAYS, CONTRACTORS, AND OTHER SYSTEMS AS DIRECTED BY THE ENGINEER.

5. AS-BUILT DRAWINGS AND EQUIPMENT OPERATIONAL INSTRUCTIONS

A. UPON COMPLETION AND ACCEPTANCE OF WORK, CONTRACTOR SHALL FURNISH WRITTEN INSTRUCTIONS AND EQUIPMENT MANUALS AND DEMONSTRATE TO THE OWNER THE PROPER OPERATION AND MAINTENANCE OF ALL EQUIPMENT AND APPARATUS FURNISHED UNDER THIS CONTRACT.

B. THESE INSTRUCTIONS SHALL BE TYPED ON 8-1/2 IN. X 11 IN. PAPER AND BOUND IN THREE RING BINDERS WITH CLEAR ACETATE COVERS. CONTRACTOR SHALL GIVE THREE COPIES OF THE INSTRUCTIONS TO THE OWNER AND ONE COPY TO THE ENGINEER.

C. THE INSTRUCTION BOOKLET SHALL BEAR THE NAME, ADDRESS AND TELEPHONE NUMBER OF THE PROJECT, ARCHITECT AND ENGINEER.

D. REPRODUCIBLE, "AS-BUILT" DRAWINGS SHALL BE PROVIDED INDICATING THE AS INSTALLED CONDITIONS OF THE WORK. "AS-BUILT" DRAWINGS SHALL BE PROVIDED TO THE ARCHITECT AFTER COMPLETION OF THE INSTALLATION.

6. LOW-VOLTAGE DISTRIBUTION EQUIPMENT:

A. PROVIDE COMPLETE EQUIPMENT INCLUDING: SWITCHES, FUSES, CIRCUIT BREAKERS, PANELS AND TRANSFORMERS.

B. ALL EQUIPMENT SHALL CONFORM TO NEMA, ANSI AND IEEE STANDARDS.

C. DISCONNECT SWITCHES SHALL BE FUSED OR NONFUSED AS NOTED. VOLTAGE SHALL BE AS REQUIRED. SWITCHES SHALL BE HEAVY DUTY, EXCEPT AS NOTED, AND HORSEPOWER RATED FOR MOTOR LOADS. TOGGLE TYPE SWITCHES SHALL BE NONFUSED, LOAD BREAK, HAVING MAXIMUM RATINGS OF 20 AMP AT 600 VOLTS AND 30 AMP AT 240 VOLTS. TWO-POLE SWITCHES SHALL BE SIMILAR TO HART AND HEGEMAN NO. 6808F. THREE-POLE SWITCHES SHALL BE SIMILAR TO HART AND HEGEMAN NO. 7810F. KNIFE-BLADE TYPE SWITCHES SHALL BE LOAD BREAK, QUICK-MAKE-QUICK-BREAK, UL CLASS R UP TO 600 AMP. MAXIMUM RATING EXCEPT AS NOTED SHALL BE 800AMP. ARC QUENCHER SHALL BE PROVIDED. SWITCHES SHALL BE SIMILAR TO GENERAL ELECTRIC QMR, ALL SWITCH ENCLOSURES SHALL BE DEAD FRONT, NEMA TYPE 1, EXCEPT AS NOTED.

7. FUSES:

A. OVERCURRENT AND SHORT CIRCUIT PROTECTION WITHIN FUSIBLE SWITCHES SHALL BE CLASS L CURRENT LIMITING TIME DELAY FUSES FOR SWITCHES RATED 800A AND LARGER AND CLASS RK-1 CURRENT LIMITING TIME DELAY FUSES FOR SWITCHES RATED 600A AND SMALLER. MANUFACTURER SHALL BE BUSSMAN.

B. INDIVIDUAL MOTOR STARTERS SHALL INCLUDE TWO SETSOF NORMALLY OPEN CONTACTS, ONE SET OF NORMALLY CLOSED CONTACTS, THREE OVERLOAD RELAYS, INDIVIDUALLY FUSED CONTROL TRANSFORMER, HAND OFF AUTO SELECTOR SWITCH FOR AUTOMATIC START AND PILOT LIGHT(S) AS REQUIRED. COMBINATION STARTER DISCONNECTS SHALL INCLUDE FUSIBLE SWITCHES. CONTACTORS SHALL BE NEMA TYPE WITH REPLACEABLE COIL AND CONTACT TIPS. MANUFACTURER SHALL BE EATON, SIEMENS OR SQUARE D.

C. ALL FUSES SHALL BE PROVIDED BY SAME MANUFACTURER.

D. PROVIDE 1 SPACE MATCHING FUSE FOR EACH SET OF 3.

E. CIRCUIT BREAKERS: MOLDED CASE BREAKERS SHALL BE THERMAL-MAGNETIC, QUICK-MAKE-QUICK-BREAK, BOLT-ON TYPE, MANUALLY OPERATED WITH INSULATED TRIP-FREE HANDLE. MULTI-POLE TYPE BREAKERS SHALL CONTAIN INTERNAL TRIP BAR. TERMINALS SHALL BE SUITABLE FOR COPPER OR ALUMINUM CABLE. FURNISH AUXILIARY DEVICES WHERE REQUIRED FOR SHUNT-TRIPPING, OPEN AND CLOSE MOTOR OPERATOR AND ALARM INDICATION. ENCLOSURES SHALL BE DEAD FRONT, NEMA TYPE 1, EXCEPT AS NOTED. FRAMES, IC AND INTERCHANGEABLE TRIPS SHALL BE AS FOLLOWS, UNLESS OTHERWISE NOTED:

1) 120 VOLTS, 100-AMP FRAME: 10,000 AMPS, 1 POLE.

2) 120/240 VOLTS, 225-AMP FRAME: 22,000 AMPS MINIMUM

8. DISTRIBUTION PANELBOARDS, CIRCUIT BREAKER TYPE:

A. DISTRIBUTION PANELBOARDS SHALL BE FULLY RATED WITH COPPER PHASE, NEUTRAL, AND GROUND BUS, BRACED AT 65000 AIC FOR 480/277 VOLT SYSTEM

AND 42000 AIC FOR 208Y/120 VOLT SYSTEM, OR MORE TO BE GREATER THAN THE AVAILABLE SHORT CIRCUIT CURRENT. ISOLATED GROUND BUS SHALL BE AS REQUIRED. MANUFACTURERS SHALL BE EATON, SIEMENS OR SQUARE D.

B. BRANCH PANELBOARDS SHALL BE FULLY RATED WITH COPPER PHASE, NEUTRAL AND GROUND BUS, BRACED AT 14000 AIC FOR 480/277 VOLT SYSTEM AND 10000 AIC FOR 208Y/120 VOLT SYSTEM, OR MORE TO BE GREATER THAN THE AVAILABLE SHORT CIRCUIT CURRENT. NEUTRAL BUS SHALL BE RATED AT 200 PERCENT WITHIN PANELS SERVING NON-LINEAR LOADS. ISOLATED GROUND BUS SHALL BE AS REQUIRED. MANUFACTURER SHALL BE EATON, SIEMENS, OR SQUARE D.

9. MATERIALS

1) RACEWAYS:

a. RIGID STEEL CONDUIT: FULL-WEIGHT PIPE, GALVANIZED, THREADED.

b. ELECTROMETALLIC TUBING (EMT): THIN WALL PIPE, GALVANIZED, THREADLESS.

c. FLEXIBLE STEEL CONDUIT: CONTINUOUS SINGLE STRIP, GALVANIZED.

d. WIREWAYS: STEEL WITH GROUND CONTINUITY. FINISH SHALL BE BAKED ENAMEL. COVERS SHALL BE SCREW-ON.

e. SURFACE METAL RACEWAY: SURFACE METAL RACEWAY INCLUDING POWER DEVICES, FITTINGS, CONNECTORS, FEEDS, ELBOWS, COUPLINGS, BLANKS, TEES, WIRE CLIPS, DEVICE BRACKETS, DEVICE COVERS AND OTHER ASSOCIATED APPARATUS SHALL BE SIZED TO FACILITATE PULLING THE QUANTITY AND SIZE OF WIRES AND CABLES, AND INSTALLING THE DEVICES CONTAINED. RACEWAY SHALL BE OF CODE GAUGE GALVANIZED STEEL, SHALL INCLUDE MOUNTING KNOCK-OUTS, AND SHALL BE FINISHED AS DIRECTED BY THE ARCHITECT. MANUFACTURER SHALL BE WIREMOLD.

2) FITTINGS AND ACCESSORIES:

a. RIGID STEEL: NONSPLIT, THREADED, STEEL OR MALLEABLE IRON. ZINC DIE CAST NOT PERMITTED.

b. ELECTROMETALLIC TUBING: COMPRESSION TYPE. GALVANIZED RIGID STEEL ELBOWS, 2 IN. OR LARGER.

c. FLEXIBLE METALLIC CONDUIT: ANGLE WEDGE TYPE WITH INSULATED THROAT.

d. BUSHINGS: METALLIC INSULATED TYPE.

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REVISIONS		
NUMBER	REMARKS	DATE
1	REVIEW SET	05/22/2024
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PROJECT TITLE:

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ELECTRICAL SPECIFICATIONS SHEET 1 OF 2	
PERMIT DWG DATE: 05/09/2024	PROJECT NUMBER: 24-09-002
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DRAWING NUMBER:

E002

ELECTRICAL SPECIFICATIONS (CONT.):

3) BOXES:

- A. OUTLET BOXES: EXCEPT AS OTHERWISE REQUIRED BY CONSTRUCTION, DEVICES OR WIRING, BOXES SHALL BE STAMPED STEEL, 4 IN. SQUARE OR OCTAGON FOR FIXTURES. BOXES ABOVE CEILING SHALL BE 1-1/2 IN. DEEP. BOXES IN CEILING OR SLAB SHALL BE 3 IN. DEEP. BOXES IN WALL FOR FIXTURES SHALL BE 2-3/4 IN. DEEP. BOXES IN WALL FOR RECEPTACLES AND SWITCHES SHALL BE 1-1/2 IN. DEEP. FURNISH WITH RAISED COVERS AND FIXTURE STUDS WHERE REQUIRED. WITHOUT FIXTURE OR DEVICE: FURNISH BLANK COVER, OFFSET BACK-TO-BACK OUTLETS WITH MINIMUM 6 IN. SEPARATION. MANUFACTURER SHALL BE APPLETON, RACO OR STEEL CITY.
- B. JUNCTION AND PULL BOXES: GALVANIZED SHEET STEEL WITH SCREW-ON COVERS, EXCEPT AS NOTED. FURNISH WITH INSULATED SUPPORTS FOR CABLES. LOCATIONS SHALL BE AS NOTED OR REQUIRED AND ACCESSIBLE. PROVIDE BARRIERS IN NEW AND RENOVATED BOXES BETWEEN 120/208 VOLT AND 208/460 VOLT WIRING AND BETWEEN EMERGENCY AND NORMAL WIRING. FLOOR BOXES SHALL BE ADJUSTABLE CONCRETE TIGHT PRESSED STEEL WITH BRASS FLANGE AND COVERS. FLUSH FLOOR BOXES SHALL INCLUDE BRASS TRIM AND HINGED OUTLET OPENING COVERS. FIRE RATED POKE-THROUGH FLOOR FITTINGS SHALL BE UL LISTED AND APPROVED FOR THE FLOOR SLAB FIRE RATING. FLOOR MOUNTED SERVICE FITTING FOR SERVICE FITTINGS FOR CONNECTION TO UNDER-FLOOR ELECTRIFIED METAL DECK SHALL BE COMPATIBLE WITH THE DECK MANUFACTURER. ACCESS FLOOR MOUNTED FITTINGS FOR USE WITH RAISED FLOOR SHALL BE FLUSH TYPE WITH SPACE FOR EQUIPMENT CORD PLUG DEVICES AND SUITABLE FLIP TYPE COVER. MANUFACTURER SHALL BE HUBBELL, WIREMOLD, OR STEEL CITY
- C. PROVIDE RACEWAYS ONLY AS HEREIN SPECIFIED, EXCEPT AS NOTED. RACEWAYS SHALL BE RUN CONCEALED, EXCEPT AS NOTED.

PROVIDE RACEWAY SUPPORT UTILIZING CEILING TRAPEZE, STRAP HANGERS, OR WALL BRACKETS. PROVIDE U-BOLTS AT EACH FLOOR LEVEL OF RISER RACEWAYS AND CONNECTED TO ACCEPTABLE SUPPORTS. PROVIDE RISER CLAMPS AT EACH FLOOR LEVEL OF RISER RACEWAYS AND RESTING ON SLAB. FOR THROUGH-THE-FLOOR SYSTEMS, UTILIZE AN ASSEMBLY SIMILAR TO HUBBELL FIRE RATED POKE-THROUGH-FLOOR BOX SYSTEM. FOR ABOVE FLOOR FITTINGS TELEPHONE SHALL BE BUSHED HOLE AND POWER SHALL BE DUPLEX RECEPTACLE OR OTHER AS NOTED. PROVIDE SEPARATION BARRIER BETWEEN POWER AND TELEPHONE COMPARTMENTS. PROVIDE JUNCTION BOX ON UNDERSIDE OF FLOOR. PACK FITTING TO RESTORE FIRE RATING OF FLOOR.

SECURE ALL RACEWAYS TO SUPPORTS WITH PIPE STRAPS OR U-BOLTS. SPACING OF SUPPORTS SHALL BE A MINIMUM OF 10 FT ON CENTER FOR METALLIC RACEWAY AND AS REQUIRED FOR NONMETALLIC RACEWAY. SPACING SHALL BE 5 FT ON CENTER FOR WIREWAYS AND PER CODE AND AS NOTED FOR OTHERS. MOUNT SUPPORTS TO STRUCTURE MASONRY WITH TOGGLE BOLTS ON HOLLOW MASONRY, EXPANSION SHIELDS OR INSERTS IN CONCRETE AND BRICK, MACHINE SCREWS ON METAL, BEAM CLAMPS ON FRAMEWORK, WOOD SCREWS ON WOOD, AND PAN THROUGH STRAPS IN METAL DECK, NAVAL, BAYLUS PLUGS OR WOOD PLUGS SHALL NOT BE PERMITTED, WHERE REQUIRED BY STRUCTURE, FURNISH THROUGH BOLTS AND FISHLATES.

EXPPOSED RACEWAYS SHALL BE RUN PARALLEL WITH OR AT RIGHT ANGLES TO WALLS. PROVIDE CLEARANCE WITH WATER, STEAM OR OTHER PIPING (MINIMUM 3 IN. SEPARATION FROM STEAM AND HOT WATER PIPES, EXCEPT 1 IN. FROM PIPE COVER AT CROSSINGS AND 18 IN. FOR PARALLEL RUNS), FOR HUNG CEILING OUTLETS, RUN IN HUNG CEILING AND CONNECT TO CEILING SUPPORT CHANNELS. IN MASONRY AND POURED CONCRETE, RUN VERTICALLY ONLY.

MAINTAIN GROUNDING CONTINUITY OF INTERRUPTED METALLIC RACEWAYS WITH GROUND CONDUCTOR, AND IN FLEXIBLE CONDUIT FOR FEEDERS AND MOTOR TERMINAL CONNECTIONS.

EMPTY RACEWAYS OVER 10 FT LONG: PROVIDE FISH OR PULL WIRE, GALVANIZED OR NYLON ROPE.

RIGID STEEL CONDUIT SHALL BE PERMITTED FOR FEEDERS AND BRANCH CIRCUITS. PAINT MALE THREADS OF FIELD-THREADED CONDUIT WITH GRAPHITE-BASE PIPE COMPOUND AND BUTT CONDUIT ENDS. TOUCH UP MARRED SURFACES AND FIELD-CUT THREADS. CRC-COLD GALVANIZED, EMT SHALL BE PERMITTED FOR BRANCH CIRCUITS ONLY. IN DRY LOCATIONS, DRY WALLS, HUNG CEILINGS, HOLLOW BLOCK WALLS AND FURRED SPACES, EMT SHALL NOT BE PERMITTED IN RAISED FLOORS. FLEXIBLE STEEL CONDUIT SHALL BE UTILIZED FOR SHORT CONNECTIONS WHERE RIGID CONDUIT IS IMPRACTICAL. FROM OUTLET BOX TO RECESSED LIGHTING FIXTURE: PROVIDE MINIMUM 4 FT AND MAXIMUM 6 FT LENGTHS. FOR FINAL CONNECTION TO MOTOR TERMINAL BOX, TRANSFORMER AND OTHER VIBRATING EQUIPMENT: PROVIDE WITH POLYVINYL SHEATHING AND GROUND CONDUCTOR. MINIMUM LENGTH: 18 IN. WITH SLACK. CONNECT GROUND CONDUCTOR TO ENCLOSURE OR RACEWAY AT EACH END. FOR EXPANSION JOINT CROSSINGS, CROSS AT RIGHT ANGLES AND ANCHOR ENDS.

CUT CONDUIT ENDS SQUARE. REAM SMOOTH. PAINT MALE THREADS OF FIELD THREADED RACEWAYS WITH GRAPHITE BASE PIPE COMPOUND. DRAW UP TIGHT WITH RACEWAY COUPLING.

ALL COUPLINGS SHALL BE COMPRESSION TYPE. NO SET SCREW FITTINGS.

EXPANSION FITTINGS SHALL BE INSTALLED AT RIGHT ANGLES WITH CLIP JOINT CENTERED IN EXPANSION JOINT. PROVIDE A LENGTH OF RUN IN ACCORDANCE MANUFACTURER'S RECOMMENDATIONS. PRESET FITTINGS SHALL ALLOW FOR TEMPERATURE VARIATION.

RACEWAYS PASSING THROUGH FIRE-RATED CONSTRUCTION: SEAL OPENING WITH FIRE SEALANT.

- D. PROVIDE CABLE SUPPORTS IN ACCORDANCE WITH NATIONAL ELECTRIC CODE ARTICLE 300.19. CABLE SUPPORTS SHALL UTILIZE A ONE-PIECE PLUG WITH POZI-GRIP WEDGING PLUG AS MANUFACTURED BY OZ-GEADNEY. TYPE SF SHALL BE USED FOR ARMORED CABLE.
- E. INSTALL CABLE SUPPORTS AT THE TOP OF A VERTICAL RISE AND PROVIDE INTERMEDIATE ADDITIONAL SUPPORTS AS REQUIRED TO LIMIT SUPPORTED CONDUCTOR LENGTHS TO NOT GREATER THAN THOSE SPECIFIED IN NEC TABLE 300.19(A).
- F. ERECT WALL AND SWITCH OUTLETS IN ADVANCE OF FURRING AND FIREPROOFING. OUTLET BOXES SHALL BE SET SQUARE AND TRUE WITH BUILDING FINISH. SECURE TO BUILDING STRUCTURE BY ADJUSTABLE STRAP IRON OR GROUT IN WITH MASONRY. VERIFY OUTLET LOCATIONS IN FINISHED SPACES WITH ARCHITECTURAL DRAWINGS OF INTERIOR DETAILS AND FINISHES. PROVIDE BARRIERS BETWEEN SWITCHES CONNECTED TO DIFFERENT PHASES FOR VOLTAGES EXCEEDING 150 VOLTS TO GROUND.
- F. PANEL, JUNCTION AND PULL BOXES SHALL BE LOCATED CLEAR OF OTHER TRADES. CONCEAL JUNCTION AND PULL BOXES IN FINISHED SPACES. WHERE NECESSARY, REROUTE RACEWAYS OR MAKE OTHER ARRANGEMENTS FOR CONCEALMENT. BOXES SHALL BE ACCESSIBLE. SUPPORT BOXES FROM BUILDING STRUCTURE. INDEPENDENT OF CONDUIT. PROVIDE FLOOR-TO-CEILING CHANNELS FOR MOUNTING ON DRYWALL AND LIGHTWEIGHT CONSTRUCTION. OUTLET BOXES FOR FIXTURES RECESSED IN HUNG CEILINGS SHALL BE ACCESSIBLE THROUGH OPENING CREATED BY REMOVAL OF FIXTURE. SECURE TO BLACK IRON SUPPORT. MOTOR TERMINAL BOXES: COORDINATE WITH MOTOR BRANCH CIRCUIT CONDUIT AND WIRING; ADD BOX VOLUME WHERE REQUIRED.
- G. FIRE SEALANTS: PROVIDE FOR RACEWAYS AND FIRE PASSING THROUGH FLOOR SLOTS, SLEEVES OR OPENINGS IN FIRE-PARTITIONS ROOMS.

- H. PERFORM CONTINUITY TESTS OF RESISTANCE OF FEEDER CONDUITS FROM SERVICE TO POINT OF FINAL DISTRIBUTION USING 1 CONDUCTOR RETURN. MAXIMUM RESISTANCE SHALL BE 25 OHMS.

11. WIRE AND CABLE:

- A. PROVIDE WIRE AND CABLE COMPLETE WITH ACCESSORIES. SIZE REFERENCE SHALL BE AWG EXCEPT AS NOTED.
- B. CONDUCTORS SHALL BE COPPER, ASTM STANDARD SOLID (NO. 10 AND SMALLER) OR STRANDED (NO. 8 AND LARGER). GENERAL USE CABLING SHALL BE NO. 12 MINIMUM. AT 120 VOLTS AND OVER 100 FT CIRCUIT LENGTH PROVIDE NO. 10 MINIMUM. AT 265 VOLTS AND OVER 200 FT CIRCUIT LENGTH PROVIDE NO. 10 MINIMUM. MANUFACTURER SHALL BE AMERICAN INSULATED WIRE CORP., CERRO, COLLYER, CAPITOL WIRE AND CABLE, OKONITE, SENETOR, SOUTH WIRE OR TRIANGLE.
- C. CONTROL AND ALARM CABLING, EXCEPT AS NOTED, SHALL BE NO. 14 MINIMUM. AT 120 VOLTS AND OVER 200 FT CIRCUIT LENGTH PROVIDE NO. 12 MINIMUM. OTHER VOLTAGES AND PHASES: ADJUST CABLE SIZING AS REQUIRED TO MAINTAIN VOLTAGE DROP. INCREASE RACEWAY SIZES FOR LARGER WIRE AS REQUIRED.
- D. INSULATION SHALL BE RUBBER AND THERMOPLASTIC MEETING ASTM AND IPCEA STANDARDS. TYPE THW OR THWN SHALL BE UTILIZED FOR FEEDERS AND BRANCH CIRCUITS EXCEPT AS NOTED. TYPE SFF-2 SHALL BE UTILIZED FOR BRANCH CIRCUITS LOCATED IN WIRING CHANNELS OF CONTINUOUS FLUORESCENT FIXTURES AND IN AMBIENT TEMPERATURES OVER 90 DEG C. FOR UNSUBMERGED ISOLATED BRANCH CIRCUITS PROVIDE CROSS-LINKED POLYETHYLENE INSULATION (TYPE XHHW).
- E. ARMORED CABLE (BX) SHALL BE UTILIZED FOR BRANCH CIRCUITS IN DRY HOLLOW LOCATIONS, HUNG CEILINGS, AND BLOCK WALLS. WHEN USED IN LIEU OF WIRING IN CONDUIT, STATE IN PROPOSAL THAT PRICE IS BASED UPON THE USE OF HOSPITAL GRADE BX.
- F. METAL-CLAD CABLE, NFPA 70 ARTICLE 330 TYPE MC:
- INTERLOCKED FLEXIBLE GALVANIZED STEEL ARMOR SHEATH, CONFORMING TO UL REQUIREMENTS FOR TYPE MC METAL CLAD CABLE.
 - INSULATED COPPER CONDUCTORS, SUITABLE FOR 600 VOLTS, RATED 90°C, ONE OF THE TYPES LISTED IN NFPA 70 TABLE 310.13(A) OR OF A TYPE IDENTIFIED FOR USE IN TYPE MC CABLE.
 - INTERNAL FULL SIZE COPPER GROUND CONDUCTOR WITH GREEN INSULATION.
 - ACCEPTABLE COMPANIES: AFC CABLE SYSTEMS INC., SOUTHWIRE, GENERAL CABLE.
 - CONNECTORS FOR MC CABLE: AFC FITTING INC.'S AFC SERIES, ARLINGTON INDUSTRIES INC.'S SADDLE GRIP, OR THOMAS & BETTS CO.'S TITE-BITE WITH ANTI-SHORT BUSHINGS.
- G. COLOR CODING SHALL BE AS FOLLOWS:

120/208 VOLT SYSTEM:
BLACK FOR A PHASE
RED FOR B PHASE
BLUE FOR C PHASE

277/480 VOLT SYSTEM:
BROWN FOR A PHASE
ORANGE FOR C PHASE
YELLOW FOR C PHASE

NEUTRAL WIRE SHALL UTILIZE WHITE OUTER COVERING THROUGHOUT. EQUIPMENT GROUND WIRE SHALL UTILIZE GREEN OUTER COVERING THROUGHOUT. WHERE COLOR-CODED CABLE IS NOT AVAILABLE, CERTIFY IN WRITING AND REQUEST PERMISSION TO OVERLAP CONDUCTORS WITH 6 IN. OF COLOR TAPING IN ACCESSIBLE LOCATIONS.

- H. PROVIDE FLAMEPROOF LINEN OR FIBER TAGS IN ACCESSIBLE LOCATIONS. FOR FEEDERS INDICATE FEEDER NUMBER, SIZE, PHASE AND POINTS OF ORIGIN AND TERMINATIONS. FOR CONTROLS AND ALARM WIRING INDICATE TYPE (CONTROL OR ALARM), SIZE OF WIRE, AND POINTS OF ORIGIN AND TERMINATIONS.
- I. TERMINATIONS, SPLICES AND TAPS UNDER 600 VOLTS: COPPER CONDUCTORS NO. 10 AND SMALLER SHALL UTILIZE COMPRESSION-TYPE OF TWIST-ON, SPRING-LOADED, CONNECTORS AND CLEAR NYLON-INSULATED COVERING. COPPER CONDUCTORS NO. 8 AND LARGER SHALL UTILIZE MECHANICAL BOLTED PRESSURE OR HYDRAULIC COMPRESSION TYPE USING MANUFACTURER'S RECOMMENDED TOOLING. CABLE LUGS AND CONNECTORS SHALL UTILIZE COMPRESSION TYPE OF SAME METAL AS CONDUCTOR. PROVIDE TO MATCH CABLE, WITH MARKING INDICATING SIZE AND TYPE. COPPER LUG CONNECTIONS TO BUS BARS: USE ANTISEIZE COMPOUND ON TANG.
- J. NOT MORE THAN 3 LIGHTING OR CONVENIENCE OUTLET CIRCUITS, SHALL BE INSTALLED IN ONE CONDUIT UNLESS OTHERWISE INDICATED. PULL NO THERMOPLASTIC WIRES AT TEMPERATURES LOWER THAN 32 DEG F. PROVIDE SEPARATE RACEWAYS FOR CONDUCTORS OF 120/208 AND 265/460VOLT SYSTEMS, EXCEPT 480 VOLT MOTOR BRANCH CIRCUIT WIRING AND RELATED 120 VOLT CONTROL WIRING. THERMOPLASTIC WIRES SHALL NOT BE INSTALLED IN COMPUTER AREA RAISED FLOORS.
- K. LEAVE WIRES WITH SUFFICIENT SLACK TO PERMIT MAKING FINAL CONNECTIONS.
- L. PERFORM CONTINUITY AND INSULATION TESTS. MEGGER TEST 100 PERCENT OF FEEDERS, 10 PERCENT OF BRANCH CIRCUITS AND ALL MOTOR BRANCH CIRCUITS OVER 25 HP.
- PERFORM TESTS PRIOR TO CONNECTING EQUIPMENT AND IN PRESENCE OF AUTHORIZED REPRESENTATIVE. SUBMIT WRITTEN REPORT OF RESULTS. CORRECT OR REPLACE CABLE TESTING BELOW MANUFACTURER'S STANDARDS.
12. WIRING DEVICES:
- A. WIRING DEVICES SHALL BE SPECIFICATION GRADE UNLESS OTHERWISE SPECIFIED. ALL DEVICES SHALL BE FLUSH MOUNTED, UNLESS OTHERWISE NOTED. PROVIDE COMPLETE MATERIAL AND ACCESSORIES AS NOTED.
- B. LOCAL WALL SWITCHES SHALL BE ROCKER TYPE, QUIET OPERATING, RATED 20 AMP, 120/277 VOLT, AC, SIMILAR TO LEVITON DECORA SERIES A5621 (SINGLE POLE), A5623 (3-WAY) AND A5624 (4-WAY).
- C. STRAIGHT BLADE RECEPTACLES SHALL BE COMMERCIAL SPECIFICATION GRADE DUPLEX CONVENIENCE 125 VOLTS, 2 POLE, 3 WIRE, U GROUND SLOT, DECORA SERIES BY LEVITON, GROUNDED, EXCEPT AS NOTED.
- SINGLE GANG, RECESSED, DUPLEX RECEPTACLE: TAMPER RESISTANT, 2-POLE, 3-WIRE GROUNDING, 15A, 125V, NEMA 5-20R; LEVITON 689 SERIES (COLOR AS SPECIFIED BY ARCHITECT).
- D. INSERTION RECEPTACLES SHALL BE HOSPITAL GRADE DUPLEX CONVENIENCE 125 VOLTS, 2 POLE, 3 WIRE, U GROUND SLOT, GROUNDED, EXCEPT AS NOTED
- HEALTH CARE FACILITIES:
 - a. DUPLEX, 20 AMP, 125 VOLTS, 2 POLE, 3 WIRE, U GROUND SLOT: SIMILAR TO HUBBELL NO. 8300 HOSPITAL GRADE.
 - b. SINGLE, 20 AMP, 125 VOLT, 2 POLE, 3 WIRE, U GROUND SLOT: SIMILAR TO HUBBELL NO. 8310 HOSPITAL GRADE.
 - GROUND FAULT INTERRUPTER RECEPTACLES:
 - a. 20 AMP DUPLEX FEED-THROUGH TYPE. SIMILAR TO NO. GF8300.
- E. DEVICE PLATES: SEE ARCHITECT FOR TYPE. FOR RECEPTACLES WITH OTHER THAN 120 VOLT, INSCRIBED VOLTAGE AVAILABLE.

- F. COLORS: COORDINATE COLORS WITH ARCHITECT.

- G. MOUNTING ORIENTATION OF RECEPTACLES (HORIZONTAL OR VERTICAL): COORDINATE WITH ARCHITECT.

13. LIGHTING FIXTURES:

- A. FIXTURES TO BE AS SPECIFIED BY ARCHITECT U.O.N. AND SHALL BE COMPLETELY FACTORY ASSEMBLED, WIRED AND EQUIPPED WITH ALL NECESSARY SOCKETS, BALLASTS, SUPPORTING HARDWARE AND ACCESSORIES. REFER TO DRAWINGS FOR INDIVIDUAL FIXTURE DESCRIPTIONS.
- B. FIXTURE CATALOG NUMBERS USED TO ILLUSTRATE EQUIPMENT TYPE DO NOT NECESSARILY DENOTE REQUIRED MOUNTING EQUIPMENT OR ACCESSORIES. PROVIDE ACCESSORIES TO SUIT.
- C. BALLAST: CLASS P, HIGH POWER FACTOR, LOWEST AVAILABLE NEMA RATED NOISE LEVEL, ET1 AND CBM APPROVED. ENERGY SAVING TYPE. TRIGGER START FOR 24-INCH LAMPS AND RAPID START FOR 48-INCH. TWO LAMP BALLASTS; NO THREE LAMP BALLASTS. BALLASTS SHALL BE ADVANCE MAGNETEK, UNIVERSAL OR EQUAL.
- D. LED DRIVERS SHALL BE ELECTRONIC TYPE, LABELED AS COMPLIANT WITH RADIO FREQUENCY INTERFERENCE (RFI) REQUIREMENTS OF FCC TITLE 47, PART 15 AND COMPLY WITH NEMA SSL 1 "ELECTRONIC DRIVERS FOR LED DEVICES, ARRAYS OR SYSTEMS". LED DRIVERS SHALL HAVE A SOUND RATING OF "A", HAVE A MINIMUM EFFICIENCY OF 85% AND BE RATED FOR A THD OF LESS THAN 20% AT ALL INPUT VOLTAGES.
- E. DIMMABLE LED DRIVERS SHALL BE CAPABLE OF DIMMING WITHOUT LED STROBING OR FLICKER ACROSS THEIR FULL DIMMING RANGE. PROVIDE TYPE OF LED DRIVER AS PER LIGHTING FIXTURE SCHEDULE. DIMMABLE LED DRIVERS SHALL BE 0-10V WHERE NOT INDICATED.
- F. FLUORESCENT LIGHTING FIXTURES, INCLUDING GENERAL CONSTRUCTION, LAMPS AND BALLASTS SHALL CONFORM TO THE ENERGY EFFICIENCY REQUIREMENTS OF CONSOLIDATED EDISON CO. AND QUALITY FOR A UTILITY REBATE TO OWNER UNDER CON EDISON'S ENLIGHTENED ENERGY LIGHTING REBATE PROGRAM. CONTRACTOR SHALL COORDINATE REBATE PROGRAM WITH CON EDISON AND ARRANGE FOR CON EDISON TO PERFORM A SURVEY TO INVENTORY ALL EXISTING FIXTURES PRIOR TO DEMOLITION.
- G. EXIT SIGNS SHALL BE PRECISION DIE-CAST ALUMINUM HOUSING WITH LASER-FORMED ACRYLIC LEGEND. EXIT SIGNS SHALL COMPLY WITH UL 924 AND BE MEA APPROVED FOR USE IN NEW YORK CITY. AC POWERED WITH PREMIUM LONG-LIFE NICKEL CADMIUM BATTERY WITH STANDARD UL LISTED 3-HOUR RUN TIME. PROVIDE WITH INTEGRAL AUTOMATIC CHARGER IN A SELF-CONTAINED POWER PACK. LED INDICATOR WITH PUSH TO TEST SWITCH.

14. VOICE/DATA CONDUIT SYSTEM:

- A. PROVIDE COMPLETE SYSTEM OF: RACEWAYS AND ACCESSORIES, OUTLET BOXES, SLEEVES AND FISHWIRES.
- B. OUTLETS SHALL BE:
- PROVIDE A TWO-GANG J-BOX AND SINGLE OR DOUBLE GANG FLUSH WALL OPENING AS REQUIRED FOR EACH VOICE/DATA OUTLET.
- C. PROVIDE PULLSTRINGS, IN RACEWAYS OVER 10 FT LONG.
- D. CONDUIT SHALL BE 3/4 IN. MINIMUM.

15. GROUNDING AND BONDING:

- A. PROVIDE GROUNDING SYSTEM IN ACCORDANCE WITH NYS ELECTRICAL CODE 2017 (ADOPTS NFPA 70, 2017 WITHOUT AMENDMENTS), AND THESE SPECIFICATIONS. THE WIRING SYSTEM SHALL BE INSTALLED AS REQUIRED TO PROVIDE A CONTINUOUSLY GROUNDING SYSTEM.
- B. USE EXOTHERMIC WELDING PROCESS FOR INACCESSIBLE CONNECTIONS.
- C. EXTEND EXISTING SYSTEM GROUND TO INCLUDE ALL THE ELECTRICAL EQUIPMENT IN THE SCOPE OF WORK.
- D. WHERE FLEXIBLE METALLIC CONDUIT IS USED AN INTERNAL BONDING CONDUCTOR SHALL BE INSTALLED.
- E. IN ADDITION, FURNISH A SEPARATE INSULATED GREEN EQUIPMENT GROUND CONDUCTOR WHERE INDICATED ON DRAWINGS AND FOR THE FOLLOWING BRANCH CIRCUITS:
- CIRCUITS SERVING ANY WALL BOX DIMMER.
 - CIRCUITS SERVING ANY ISOLATED GROUND RECEPTACLES, TERMINATE GROUND DIRECTLY AT AN EQUIPMENT GROUNDING CONDUCTOR TERMINAL OF THE SOURCE, OR AS OTHER WISE NOTED ON DRAWINGS.
 - CIRCUITS SERVING ANY DUPLEX OR SIMPLEX COMPUTER RECEPTACLES
 - ANY CIRCUIT SERVED VIA AN ISOLATION TRANSFORMER OR COMPUTER POWER DISTRIBUTION UNIT.

16. PANELBOARDS:

- A. PANELBOARDS SHALL BE OF THE DEAD FRONT TYPE MANUFACTURED IN CODE GAUGE AND SIZE BOXES FOR MOUNTING AS INDICATED ON PLANS COMPLETE WITH TRIM, DOORS AND LOCKS. ALL LOCKS SHALL BE KEYED ALIKE.
- B. CIRCUIT BREAKERS SHALL BE OF THE BOLT-ON THERMAL MAGNETIC MOLDED CASE TYPE, AND SHALL HAVE THE TRIP RATINGS AND NUMBER OF POLES SHOWN IN SCHEDULES ON THE CONTRACT DRAWINGS. FOR BLANK (SPACE) COMPARTMENTS, PROVIDE FULL RATED BUS. MINIMUM GUTTER SPACES SHALL BE 5-3/4". SIDES, TOP AND BOTTOM, INCREASE FOR THROUGH FEEDERS. PROVIDE 25% COPPER GROUND BUS AND 100% COPPER NEUTRAL BUS AND INCREASE NEUTRAL BUS INDICATED.
- C. LOCKING TABS SHALL BE PROVIDED ON ALL CIRCUIT BREAKERS SERVING EMERGENCY LIGHTING, FIRE ALARM SYSTEM, SECURITY SYSTEMS AND OTHER EMERGENCY OR CRITICAL EQUIPMENT AND AS NOTED ON THE CONTRACT DRAWINGS. A TOTAL OF 5 SPARE LOCKING TABS SHALL BE FURNISHED TO THE OWNER.
- D. BUSES SHALL BE HARD DRAWN COPPER OF 98 PERCENT CONDUCTIVITY AND SHALL HAVE CROSS SECTIONAL AREAS LARGE ENOUGH TO LIMIT THE TEMPERATURE RISE, WHEN CARRYING FULL LOAD, TO 35 DEGREES C. ABOVE AN AMBIENT INSIDE THE ENCLOSURE OF 55 DEGREES C. AS DEFINED IN IEEE STANDARD RULES. MAIN BUS CAPACITY SHALL BE AS SHOWN ON THE CONTRACT DRAWINGS.
- E. ENCLOSURES SHALL BE SURFACE OR FLUSH AS INDICATED. TRIMS SHALL BE SECURED TO PANEL WITH MACHINE SCREWS. COVERS SHALL BE HINGED DOOR-IN-DOOR CONSTRUCTION WITH CYLINDER LOCKS AND CATCHES. LOCKS MUST BE COMPATIBLE WITH BUILDING STANDARD KEY SYSTEM AND WHEN NONE EXISTS, THEY SHALL BE SIMILAR TO A YALE NO. 911 KEY.
- F. DISTRIBUTION AND SUB-DISTRIBUTION PANELBOARD SHALL BE A

MINIMUM OF 30" WIDE AND 10" DEEP.

- G. ALL STANDARD PANELBOARDS SHALL BE A MINIMUM OF 20" WIDE AND 5 3/4" DEEP.

- H. FURNISH ALL PANELBOARDS WITH FEED-THRU LUGS UNLESS OTHERWISE INDICATED ON THE DRAWINGS.

- I. ALL NEW PANELBOARDS SHALL BE PROVIDED WITH AN ENGRAVED WHITE CORE LAMACOID NAMEPLATE, WITH 3/4 IN. WHITE LETTERING ON A BLACK BACKGROUND, WITH DESIGNATION LISTED (PANELBOARD NAME), FASTENED WITH EPOXY CEMENT OR OVAL HEAD CHROME PLATED MACHINE SCREWS.
- J. THE CIRCUIT DIRECTORY SHALL BE TYPEWRITTEN AND PROVIDED INSIDE EACH PANEL DOOR TO INDICATE EQUIPMENT AND/OR AREA SERVED. DIRECTORY HOLDER SHALL BE METAL FRAME WITH CLEAR PLASTIC, TRANSPARENT COVER. THE TYPEWRITTEN LIST INDICATING CIRCUIT NUMBERS, OUTLETS SUPPLIED AND THEIR LOCATIONS SHALL BE PROVIDED.
- K. TIE-BARS SHALL NOT BE USED TO CREATE MULTI-POLE CIRCUITS. MAXIMUM 42 CIRCUITS ALLOWED.
- L. ONLY ONE WIRE SHALL BE INSTALLED UNDER EACH CIRCUIT BREAKER LUG.
- M. SHORT CIRCUIT RATING OF PANELBOARDS SHALL NOT BE LESS THAN AS INDICATED ON THE CONTRACT DRAWINGS OR SPECIFIED HEREIN. WHERE NOT INDICATED OR SPECIFIED THE MINIMUM SHORT CIRCUIT RATING SHALL BE EQUAL TO THE INTERRUPTING CAPACITY OF THE LOWEST RATED CIRCUIT BREAKER IN THE PANELBOARD, BUT IN NO CASE LESS THAN 10,000 AMPERES R.M.S. SYMMETRICAL FOR 208Y/120 VOLT SYSTEM AND 14,000 AMPERES R.M.S. SYMMETRICAL FOR 480Y/277 VOLT SYSTEM. SERIES RATED PANELBOARDS SHALL BE USED TO ACHIEVE REQUIRED SHORT CIRCUIT RATINGS.
- N. FOR ALL EXISTING PANELBOARDS, CONTRACTOR SHALL PROVIDE NEW CIRCUIT BREAKERS TO REPLACE EXISTING AS REQUIRED AS INDICATED ON DRAWINGS.

REVISIONS

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ELECTRICAL SPECIFICATIONS
SHEET 2 OF 2

PERMIT DWG DATE: 05/09/2024	PROJECT NUMBER: 24-09-002
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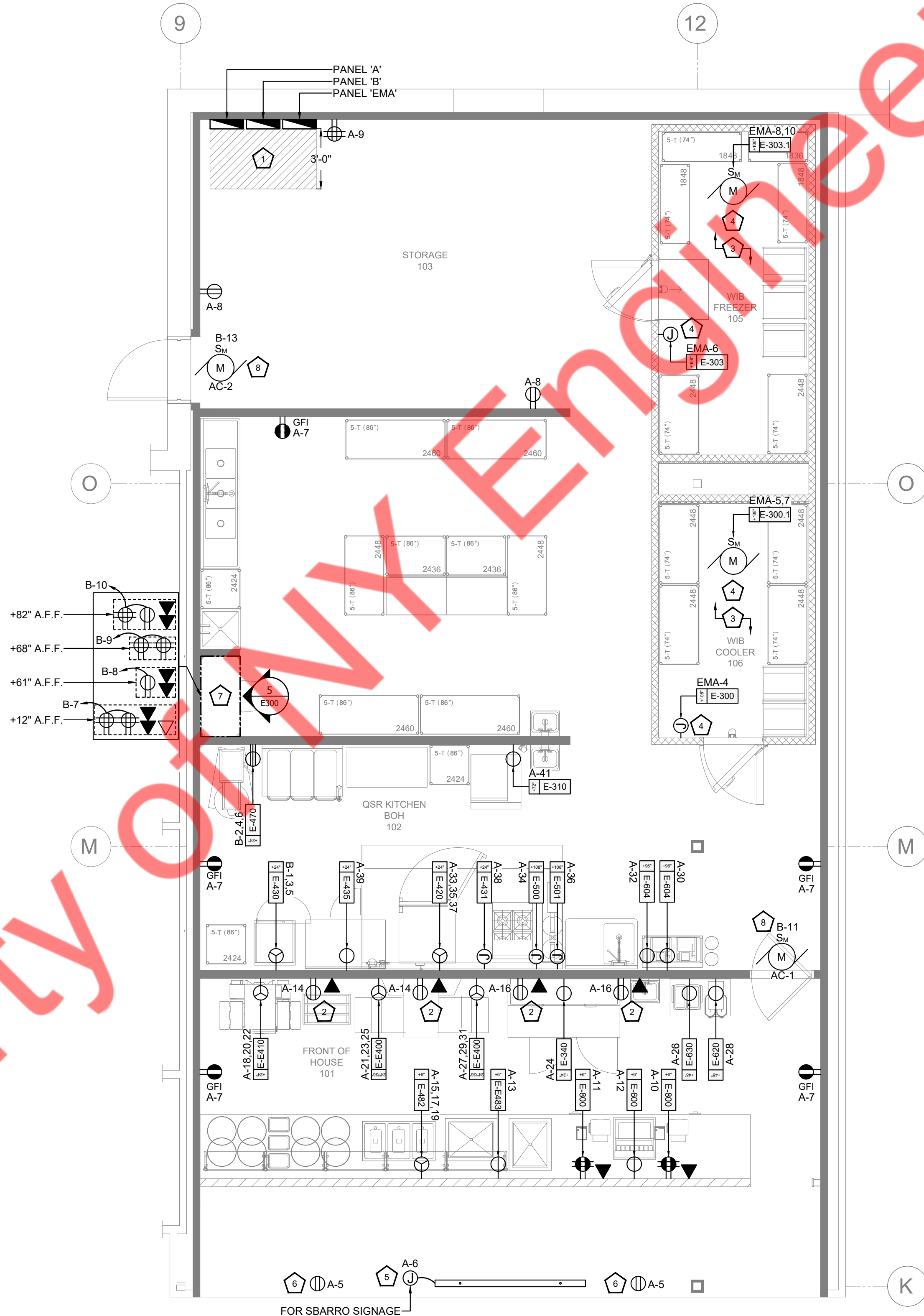
E003

ELECTRICAL POWER PLAN GENERAL NOTES:

- ALL DIMENSIONS TO J-BOXES ARE FROM FACE OF STUD TO CENTER OF BOX, U.O.N.
- ALL CONDUIT DROPS ARE INSIDE WALLS U.O.N. SEE ARCH. DWGS FOR WALL DIMS.
- ALL J-BOX CIRCUITS, CONDUITS, FIXTURES, ETC. SHALL BE AS INDICATED ON THE ELECT. DWGS AND SPECS.
- CONTRACTOR SHALL VERIFY UNDERGROUND CONDUIT LOCATIONS PRIOR TO POURING SLAB.
- IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO COORDINATE THIS DATA ON THE LOCATION OF ELECT. ROUGH-INS WITH INFO PROVIDED ON THE ARCH. AND STRUCT. DWGS AND THE EQUIPMENT ACTUALLY SUPPLIED, AND TO CONFIRM THE CORRECTNESS OF ANY DIMENSIONS HEREIN.
- LOCATIONS OF ALL OUTLETS MAY BE RELOCATED TO NEAREST STUD. DO NOT CUT INTO STUDS.
- FOR EXACT LOCATIONS OF KITCHEN & MECHANICAL EQUIPMENT AND POINTS OF CONNECTION, REFER TO KITCHEN & MECHANICAL EQUIPMENT DRAWINGS AND MANUFACTURER'S SHOP DRAWINGS.
- ALL CIRCUIT FEEDERS AND DISCONNECTS SHALL BE SIZED BY NEC.
- CONTRACTOR SHALL VERIFY CIRCUIT BREAKER, DISCONNECT SWITCH, STARTER AND FUSE SIZES WITH SELECTED EQUIPMENT MANUFACTURER'S SHOP DRAWINGS PRIOR TO PLACING ORDER AND PROVIDE EVERYTHING AS REQUIRED.
- ELECTRICAL EQUIPMENT ENCLOSURES SHALL BE NEMA-1 FOR INTERIOR AND NEMA 3R FOR EXTERIOR. IN COASTAL REGIONS THE STANDARD FOR OUTSIDE SHALL BE NEMA-4X.
- PER SECTION 210.8(B)(2) NEC 2017, ALL 15 AND 20A, 120V RECEPTACLES IN COMMERCIAL KITCHENS ARE REQUIRED TO BE GFCI PROTECTED. THIS INCLUDES ISOLATED GROUND RECEPTACLES.
- 5mA GFCI BREAKERS MUST BE USED WHERE OUTLETS REQUIRING GFCI PROTECTION ARE NOT ACCESSIBLE FOR COMPLIANCE WITH NEC 210.8. WHERE GFCI PROTECTION SHUNT TRIP IS REQUIRED, THE CIRCUIT SHALL HAVE A GFCI BREAKER.
- ALL SINGLE PHASE RECEPTACLE 50A OR LESS AND THREE PHASE RECEPTACLES RATED 100A OR LESS INSTALLED WITHIN THE KITCHEN AREA SHALL BE PROVIDED WITH GFCI PROTECTION AS PER NEC 210.8.
- THE SUSPENSION OF ANY ITEMS FROM BASE BUILDING STRUCTURE BY MEANS OF DRILLING, WELDING, SHOOTING ARE PROHIBITED. CONTRACTOR TO MAKE SURE ALL THE EQUIPMENTS, CONDUITS, CABLE TRAYS TO BE SUPPORTED BY MEANS OF THE BEAM CLAMPS.
- DO NOT MEASURE/LOCATE OUTLETS ON DRAWINGS. USE DIMENSIONS PROVIDED.
- CONDUIT MAY RUN UNDER SLAB AT G.C.'S DISCRETION.
- E.C. SHALL PROVIDE A PREPRINTED SELF-ADHESIVE LABEL ON ALL POS RECEPTACLES STATING "POS USE ONLY".
- FOR ALL CIRCUITS NOT SHOWN ON EQUIPMENT SCHEDULE, CONTRACTOR SHALL PROVIDE CONDUCTOR AND CONDUIT SIZES AS SHOWN ON BRANCH CIRCUIT WIRING SCHEDULE SHOWN ON E500. IF SIZES DIFFER FROM N.E.C., THE MORE STRINGENT (LARGER) SIZE SHALL BE PROVIDED.
- OUTLETS WITHIN FOH TO BE AT 18" AFF FOR ADA ACCESS.
- G.C. TO COORDINATE ALL LOW VOLTAGE LOCATIONS AND REQUIREMENTS WITH TENANT & TENANT LV SUBCONTRACTOR.
- REFER TO DWG. E001 FOR ELECTRICAL GENERAL NOTES, SYMBOL LIST & ABBREVIATIONS. REFER TO DWG. E002 & E003 FOR ELECTRICAL SPECIFICATION. REFER DWG. E500 FOR ELECTRICAL RISER DIAGRAM.
- FINAL CONDUIT/CABLE ROUTING SHALL BE DETERMINED IN-FIELD, AND PRIOR TO THE COMMENCEMENT OF WORK, COORDINATED WITH OTHER TRADE CONTRACTORS AND THE TENANT.
- OUTLETS' LOCATION SHOWN IN THE DRAWING ARE DIAGRAMMATIC. FOR ACTUAL LOCATION AND MOUNTING HEIGHT REFER ARCHITECTURAL PLAN.
- CONTRACTOR SHALL COORDINATE EXACT RECEPTACLE TYPE FOR EQUIPMENT WITH EQUIPMENT VENDOR/MANUFACTURER.

ELECTRICAL POWER PLAN KEYED NOTES: 1

- LOCATION OF NEW ELECTRICAL PANELS. REFER TO ELECTRICAL RISER DIAGRAM & PANEL SCHEDULES FOR ADDITIONAL INFORMATION. ELECTRICAL CONTRACTOR SHALL COORDINATE WITH ARCHITECT/OWNER FOR THE EXACT LOCATION OF ELECTRICAL PANELS IN FIELD. MAINTAIN CLEARANCE AS PER NEC 110.26.
- (04) QTY. DIGITAL MENU BOARDS, CONTRACTOR SHALL COORDINATE EXACT LOCATION OF DATA AND POWER RECEPTACLES IN FIELD.
- ELECTRICAL CONTRACTOR SHALL COORDINATE EXACT LOCATION AND POWER REQUIREMENTS WITH WALK-IN COOLER/FREEZER MANUFACTURER. ELECTRICAL CONTRACTOR SHALL PROVIDE NECESSARY ELECTRICAL CONNECTION IN FIELD.
- PROVIDE ELECTRICAL CONNECTION FOR WALK-IN COOLER EVAPORATOR AND LIGHTS AS REQUIRED. ELECTRICAL CONTRACTOR SHALL COORDINATE ALL ELECTRICAL REQUIREMENTS AND EXACT LOCATIONS WITH EQUIPMENT VENDOR PRIOR TO ROUGH-IN.
- JUNCTION BOX WITH TOGGLE DISCONNECT PER NEC FOR CONNECTION TO BUILDING MOUNTED SIGNAGE. ELECTRICAL CONTRACTOR SHALL VERIFY EXACT LOCATION, MOUNTING HEIGHT AND CONNECT TO SIGN PER MANUFACTURER INSTRUCTIONS. ROUTE CIRCUIT TO PANEL VIA EXTERIOR LIGHTING/SIGNAGE'S TIMECLOCK.
- ELECTRICAL CONTRACTOR SHALL PROVIDE SHOW WINDOW RECEPTACLE AS PER NEC 210.62.
- ELECTRICAL CONTRACTOR SHALL COORDINATE EXACT ELECTRICAL REQUIREMENTS FOR THE MANAGER DESK WITH ARCHITECT/OWNER. PROVIDE ELECTRICAL OUTLET/DATA OUTLETS AS REQUIRED IN FIELD.
- ALL MECHANICAL AND PLUMBING EQUIPMENT SHALL BE PROVIDED WITH THE REQUIRED ROUGH-INS, MOCIP, AND WIRE SIZE REQUIREMENTS. THE ELECTRICAL CONTRACTOR MUST COORDINATE WITH THE MANUFACTURER FOR THE EXACT TYPE OF ROUGH-INS AND WIRE SIZE THE COMMENCEMENT OF WORK.



1 ELECTRICAL POWER PLAN
Scale: 1/4"=1'-0"

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PROJECT TITLE:



DRAWING TITLE:

ELECTRICAL POWER PLAN

PERMIT DWG DATE: 05/09/2024	PROJECT NUMBER: 24-09-002
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E100

- ELECTRICAL ROOF POWER PLAN GENERAL NOTES:
1.

REFER TO DWG. E001 FOR ELECTRICAL GENERAL NOTES, SYMBOL LIST & ABBREVIATIONS. REFER TO DWG. E002 & E003 FOR ELECTRICAL SPECIFICATION. REFER DWG. E500 FOR ELECTRICAL RISER DIAGRAM.
2.

REFER TO DWG. E100 FOR ADDITIONAL ELECTRICAL GENERAL NOTES.

ELECTRICAL ROOF POWER PLAN KEYED NOTES:

1.

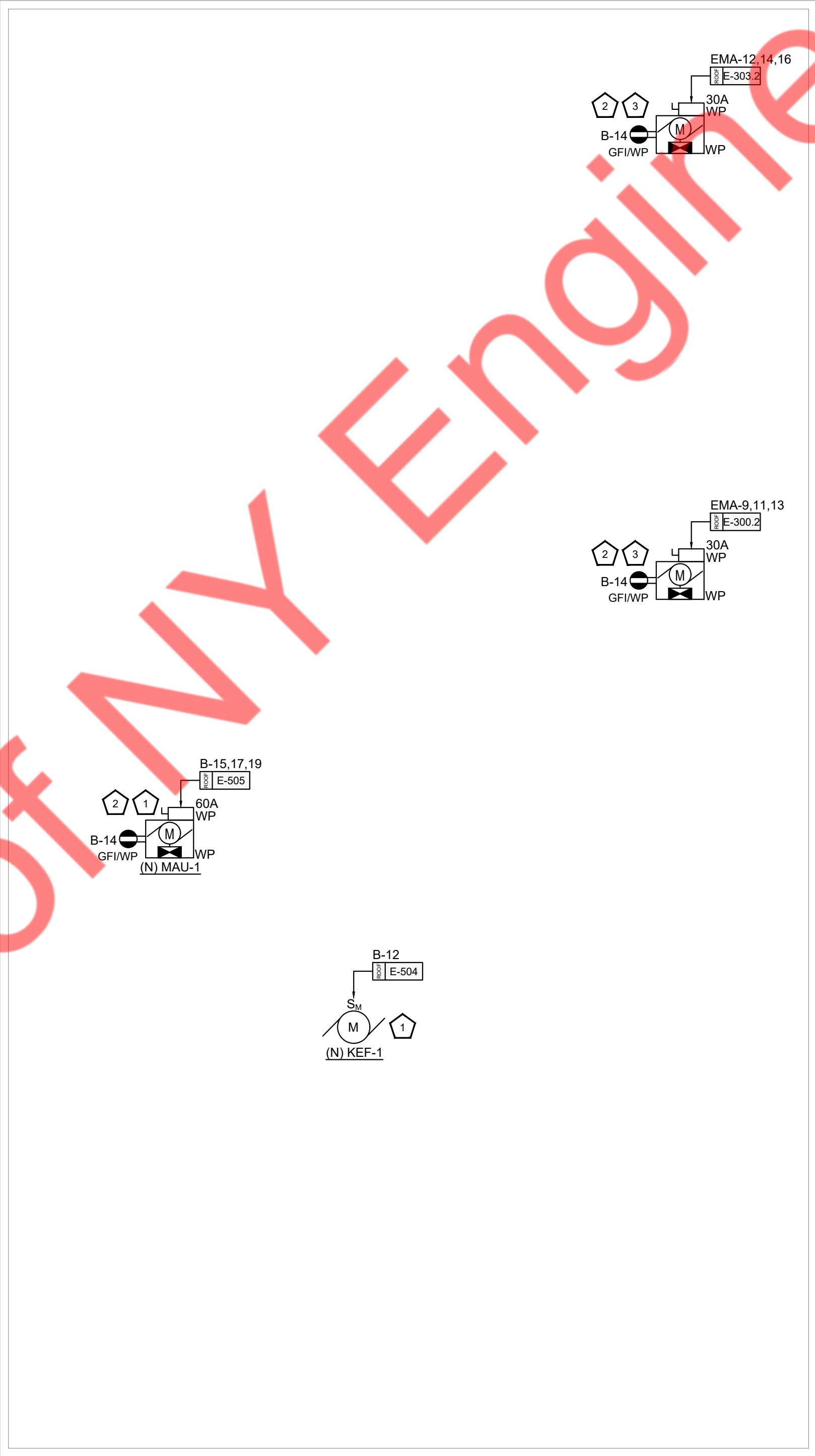
ALL MECHANICAL AND PLUMBING EQUIPMENT SHALL BE PROVIDED WITH THE REQUIRED ROUGH-INS, MOCP, AND WIRE SIZE REQUIREMENTS. THE ELECTRICAL CONTRACTOR MUST COORDINATE WITH THE MANUFACTURER FOR THE EXACT TYPE OF ROUGH-INS AND WIRE SIZE THE COMMENCEMENT OF WORK.

2.

FACTORY MOUNTED POWERED CONVENIENCE OUTLET. FIELD VERIFY THAT OUTLET IS POWERED. WIRE ALL WITH THIS NOTE TO CIRCUIT SHOWN IF THEY ARE NOT POWERED. IF FACTORY MOUNTED POWERED CONVENIENCE OUTLET NOT PROVIDED, 120V 20A GFI WEATHER PROOF RECEPTACLE SHALL BE PROVIDED WITHIN 25FT OF ALL HVAC EQUIPMENT. FIELD COORDINATE EXACT LOCATION OF HVAC EQUIPMENT AND ADD ADDITIONAL RECEPTACLES IF REQUIRED.

3.

ELECTRICAL CONTRACTOR SHALL COORDINATE EXACT LOCATION AND POWER REQUIREMENTS WITH WALK-IN COOLER/FREEZER MANUFACTURER. E.C. SHALL PROVIDE NECESSARY ELECTRICAL CONNECTION IN FIELD.



1

ELECTRICAL ROOF POWER PLAN

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ELECTRICAL ROOF POWER PLAN

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E101

EQUIPMENT SCHEDULE:

FOODSERVICE ELECTRICAL EQUIPMENT SCHEDULE														
ITEM NO.	QTY.	ELECRTICAL									EQUIPMENT CATEGORY	MANUFACTURER	MODEL NUMBER	ELECTRICAL REMARK
		VOLTS	PHASE	AMPS	KW	HP	DIRECT	PLUG	NEMA	AFF (IN)				
E-300	1	120	1	15A CKT	-	-	X	-	-	108"	WALK-IN COOLER	NORLAKE	CUSTOM	FOR LIGHTS AND ACCESSORIES; REFER TO MFR SHOP DRAWINGS
E-300.1	1	208-240	1	5.4	-	-	X	-	-	108"	EVAPORATOR, COOLER	NORLAKE	CUSTOM	REFER TO MFR SHOP DRAWINGS
E-300.2	1	208-240	3	10	-	1/2	X	-	-	ROOF	WALK-IN COOLER CONDENSING UNIT	NORLAKE	CUSTOM	REFER TO MFR SHOP DRAWINGS
E-303	1	120	1	15A CKT	-	-	X	-	-	108"	WALK-IN FREEZER W/ FLOOR	NORLAKE	CUSTOM	FOR LIGHTS AND ACCESSORIES; REFER TO MFR SHOP DRAWINGS
E-303.1	1	208-240	1	5.4	-	-	X	-	-	108"	EVAPORATOR, FREEZER	NORLAKE	CUSTOM	REFER TO MFR SHOP DRAWINGS
E-303.2	1	208-240	3	10	-	1	X	-	-	ROOF	WALK-IN FREEZER CONDENSING UNIT	NORLAKE	CUSTOM	REFER TO MFR SHOP DRAWINGS
E-310	1	115	1	15.2	1.6	-	X	-	-	72"	ICE MAKER	HOSHIZAKI	F-1002MAJ-C	-
E-340	1	115	1	6	-	1/2	-	X	5-15P	24"	PIZZA PREP. REFRIGERATOR	HOSHIZAKI	PR67B	-
E-420	1	240	3	47	19	-	-	X	5-60P	24"	COMBI OVEN, ELECTRIC	UNOX, INC.	XAVC-06FS-EPRM	-
E-430	1	208	3	28	10	-	-	X	L15-30P	24"	STEAMER, CONVECTION, COUNTERTOP, ELECTRIC	ACCUTEMP PRODUCTS	E62083D100	-
E-431	1	115	1	1	-	-	-	-	-	-	GAS RANGE	VULCAN	24S-4B	VERIFY REQUIREMENTS W/PROVIDER
E-435	1	120	1	8.4	1	-	-	X	5-15P	24"	HOLDING CABINET, MOBILE	ALTO-SHAAM	500-S	-
E-470	1	208	1	16.8	-	3	X	-	-	24"	DOUGH MIXER	UNIVEX	106440807-SBA	-
E-482	1	208	3	10.1	3.6	-	X	-	-	STUB UP 6"	DROP-IN HOT WELLS	HATCO	HWBI-3MA	BRANCH POWER TO OUTLET MOUNTED IN COUNTER
E-600	1	120	1	1.5	-	-	-	X	5-15P	STUB UP 6"	SODA ICE & BEVERAGE DISPENSER	CORNELIUS	631100055	BRANCH POWER TO OUTLET MOUNTED IN COUNTER
E-630	1	115	1	6	0.7	1/5	-	X	5-15P	48"	BEVERAGE DISPENSER, ELECTRIC	GRINDMASTER	D25-3	-
E-800	2	120	1	15A CKT	-	-	-	X	5-15P	STUB UP 6"	POS SYSTEM W/ PRINTER	-	-	BRANCH POWER/DATA TO OUTLETS MOUNTED IN COUNTER; VERIFY ROUGH-IN/DATA REQUIREMENTS & LOCATIONS W/PROVIDER
E-500	1	120	1	15A CKT	-	-	X	-	-	108"	EXHAUST HOOD	-	CUSTOM	EXHAUST HOODS PROVIDED BY OTHERS; VERIFY REQUIREMENTS W/ PROVIDER
E-500.1	1	120	1	15A CKT	-	-	X	-	-	108"	FIRE SUPPRESSION CABINET	-	CUSTOM	EXHAUST HOODS PROVIDED BY OTHERS; VERIFY REQUIREMENTS W/ PROVIDER
E-504	1	120	3	11.6	-	1	X	-	-	ROOF	KITCHEN EXHAUST FAN	-	CUSTOM	EXHAUST HOODS PROVIDED BY OTHERS; VERIFY REQUIREMENTS W/ PROVIDER REFER HVAC SCHEDULE
E-505	1	208	3	29.4	-	-	X	-	-	ROOF	MAKE UP AIR UNIT	-	CUSTOM	EXHAUST HOODS PROVIDED BY OTHERS; VERIFY REQUIREMENTS W/ PROVIDER, REFER HVAC SCHEDULE
E-604	2	120	1	20	-	-	-	X	5-15P	96"	CARBONATOR	-	-	PROVIDED BY OTHERS; VERIFY REQUIREMENTS W/PROVIDER
E-620	1	120	1	15	-	-	-	X	5-15P	48"	ICED TEA BREWER	-	-	PROVIDED BY OTHERS; VERIFY REQUIREMENTS W/PROVIDER
E-E400	2	208-240	3	40	-	-	-	X	5-50P	24"/36"	OVEN, CONVEYOR, VENTLESS	EXISTING	HCT-4215 (HIGH H CONVEYOR 2020)	EXISTING EQUIPMENT STACKED; VERIFY REQUIREMENTS W/ OWNER; (2) CONNECTIONS REQUIRED
E-E410	1	208-240	3	23	7.4	-	-	X	5-30P	24"	OVEN, RAPID COOK, VENTLESS	EXISTING	HCS-9500 (HIGH H CONVEYOR 1618)	EXISTING EQUIPMENT; VERIFY REQUIREMENTS W/ OWNER
E-E483	1	115	1	5.5	-	1/4	-	X	5-15P	STUB UP 6"	DROP-IN, COLD PAN	EXISTING	RCP-200	EXISTING EQUIPMENT; VERIFY REQUIREMENTS W/ OWNER; BRANCH POWER TO OUTLET MOUNTED IN COUNTER

EQUIPMENT SCHEDULE GENERAL NOTE:

ELECTRICAL CONTRACTOR SHALL VERIFY EXACT POWER REQUIREMENTS & LOCATION OF ALL KITCHEN EQUIPMENT WITH THE ARCHITECT/MANUFACTURER PRIOR TO ROUGH-IN. PROVIDE THE OUTLET AS PER EQUIPMENT CUTSHEET. BASE BID ACCORDINGLY.

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ELECTRICAL EQUIPMENT
SCHEDULE

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


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E102

- ELECTRICAL LIGHTING PLAN GENERAL NOTES:
- CONFIRM LIGHTING FIXTURE QUANTITIES WITH SUPPLIER.
 - EMERGENCY AND NORMAL LIGHTING MARKED WITH LIGHT TAG "NL" SUBSCRIPT SHALL OPERATE CONTINUOUSLY.
 - LIGHT FIXTURES DESIGNATED WITH 'EM' TO REMAIN ENERGIZED AT EMERGENCY (POWER OUT) CONDITION.
 - ALL CONDUITS ENTERING OR LEAVING COOLER/FREEZER SHALL BE PROVIDED WITH SEAL-OFF FITTING WITH COMPOUND PER NEC 300-(7a).
 - CONTRACTOR TO FIELD VERIFY CEILING TYPE AND PROVIDE PROPER MOUNTING HARDWARE.
 - ALL FIXTURES SHALL SUPPLIED WITH LAMPS.
 - ALL EXTERIOR NON-EMERGENCY LIGHT FIXTURES, BUILDING SIGNS, AND EXTERIOR SIGNS SHALL BE CONTROLLED THROUGH TIME CLOCK/PHOTO CELL.
 - CONTRACTOR SHALL PROVIDE DIMMING SYSTEM WHEN REQUIRED BY LOCAL ENERGY CODE. BASE BID ACCORDINGLY.
 - E.C. SHALL COORDINATE WITH ARCHIECT/OWNER FOR FINAL LIGHT FIXTURE AND MODEL PRIOR TO ROUGH-IN.
 - E.C. SHALL PROVIDE ADDITIONAL LIGHTING CONTROLS AS PER AHJ REQUIREMENTS IF ANY TO COMPLETE THE PERMIT REQUIREMENTS.
 - ALL DIMMING SWITCHES SHALL BE 0-10V.
 - REFER TO DRAWING E100 FOR GENERAL NOTES, SYMBOL LIST AND ABBREVIATIONS AND E101 & E102 FOR ELECTRICAL SPECIFICATIONS.
 - THE SUSPENSION OF ANY ITEMS FROM BASE BUILDING STRUCTURE BY MEANS OF DRILLING, WELDING, SHOOTING ARE PROHIBITED. CONTRACTOR TO MAKE SURE ALL THE EQUIPMENTS, CONDUITS, CABLE TRAYS TO BE SUPPORTED BY MEANS OF THE BEAM CLAMPS.
 - REFER TO DWG. E001 FOR ELECTRICAL GENERAL NOTES, SYMBOL LIST & ABBREVIATIONS. REFER TO DWG. E002 & E003 FOR ELECTRICAL SPECIFICATION. REFER DWG. E500 FOR ELECTRICAL RISER DIAGRAM.

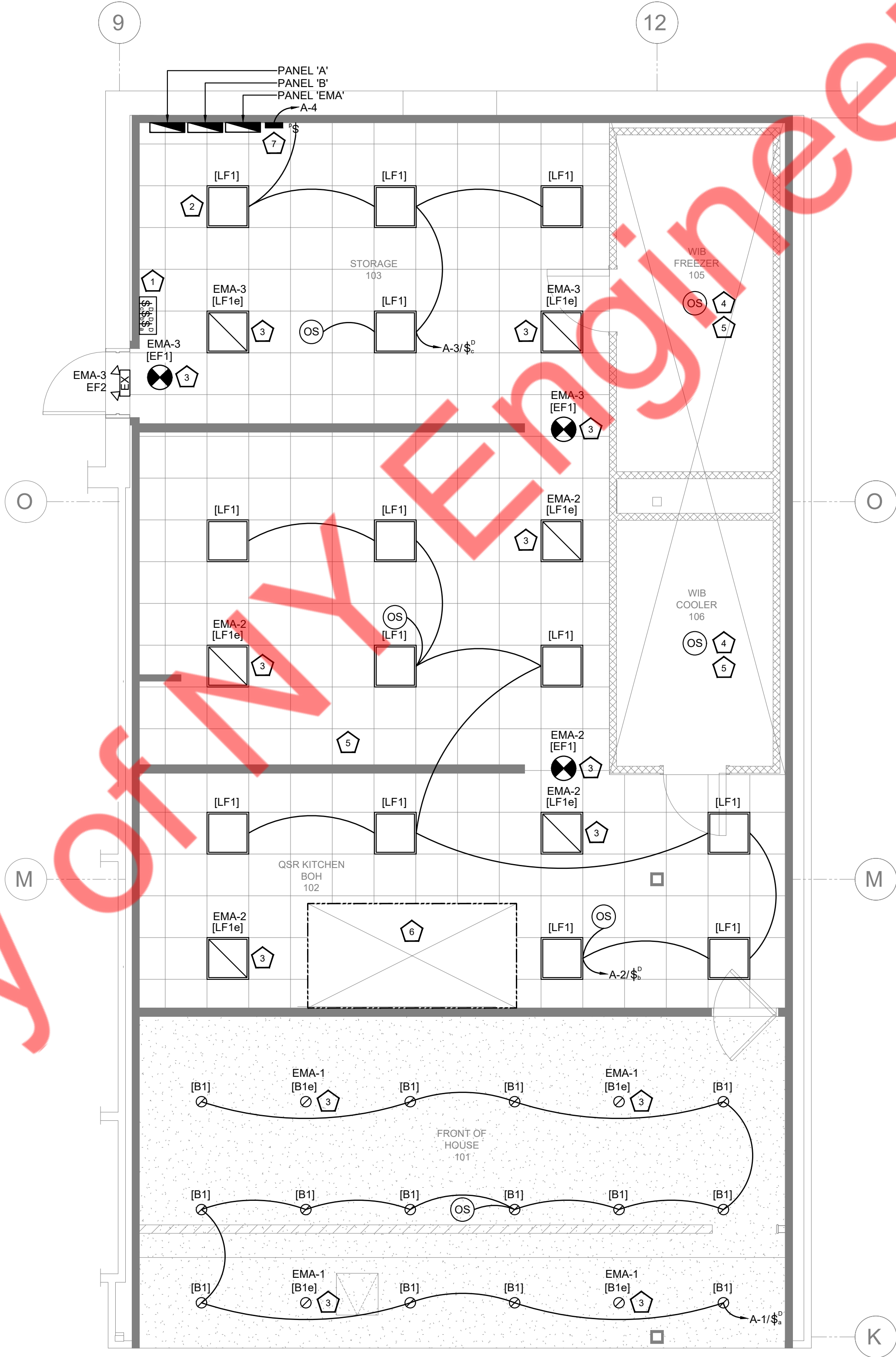
- ELECTRICAL LIGHTING PLAN KEYED WORK NOTES: ⚠
- ELECTRICAL CONTRACTOR TO COORDINATE THE FINAL LOCATION OF DIMMER SWITCH BANK WITH ARCHITECT/OWNER. DIMMER SWITCHES SHALL BE RATED FOR TOTAL LOAD OF SWITCHED CIRCUIT AND LAMP TYPE AS REQUIRED. DIMMERS SHALL BE PROVIDED WITH AN ON/OFF SWITCH.
 - THIS LIGHT FIXTURE SHALL NOT BE CONTROLLED BY AUTOMATIC MEANS ONLY AS PER 110.26(D).
 - WIRE ALL EMERGENCY, EXIT AND NIGHT LIGHT TO LIGHTING CIRCUIT AHEAD OF ALL CONTROL & SWITCHING FOR CONTINUOUS OPERATIONS.
 - WALK-IN COOLER AND FREEZER LIGHT FIXTURES TO BE CONTROLLED VIA OCCUPANCY SENSOR. ELECTRICAL CONTRACTOR SHALL PROVIDE CIRCUITING TO THE LIGHT FIXTURES ACCORDINGLY.
 - LIGHTING FIXTURES FURNISHED BY WALK-IN BOX VENDER. ELECTRICAL CONTRACTOR TO INSTALL AND CONNECT FIXTURES COORDINATING ALL ELECTRICAL REQUIREMENTS AND EXACT LOCATION WITH VENDOR PRIOR TO ROUGH-IN.
 - EXHAUST HOOD LIGHT FIXTURES SUPPLIED WITH HOOD. ELECTRICAL CONTRACTOR SHALL COORDINATE ALL ELECTRICAL REQUIREMENTS WITH VENDOR PRIOR TO ROUGH-IN TO PROVIDE POWER PROVISION FOR HOOD CONTROL PANEL.
 - ELECTRICAL CONTRACTOR SHALL COORDINATE THE EXACT LOCATION OF TIME CLOCK WITH ARCHITECT/OWNER IN FIELD.

LIGHTING FIXTURE SCHEDULE:

TYPE	SYMBOL	ITEM NAME	MANU.	DESCRIPTION	WATTS
LF1		RECESSED 2'x2' LIGHT	COLUMBIA LIGHTING	LCAT 22 / 4000K 80 CRI ML BLANK DIMMING - SUPPLIED BY OWNER INSTALLED BY G.C	30 WATTS
LF1e		RECESSED 2X2 LIGHT (EMERGENCY)	COLUMBIA LIGHTING	LCAT 22 / 4000K 80 CRI ML BLANK DIMMING - SUPPLIED BY OWNER INSTALLED BY G.C	30 WATTS
B1		RECESSED CAN LIGHT	LITHONIA LIGHTING	6BP TRMW LED / 2700K 90 CRI M12.7W DIMMING - SUPPLIED BY OWNER INSTALLED BY G.C	12.7 WATTS
B1e		RECESSED CAN LIGHT (EMERGENCY)	LITHONIA LIGHTING	6BP TRMW LED / 2700K 90 CRI M12.7W DIMMING - SUPPLIED BY OWNER INSTALLED BY G.C	12.7 WATTS
EF1		EXIT FIXTURE - PER CODE	LITHONIA LIGHTING	LQM (RED) - SUPPLIED AND INSTALLED BY G.C.	-
EF2		EXTERIOR EMERGENCY LIGHTING - PER CODE	TBD	-	-

LIGHTING FIXTURE SCHEDULE NOTES:

- COORDINATE FINAL FIXTURE MAKE, WATTAGE AND MODEL WITH ARCHITECT.
- ALL ILLUMINATED EXIT SIGN TO HAVE A MAX WATTAGE OF 5 PER SIDE.
- ALL EMERGENCY LIGHT MARKED AS "EM" ARE WITH BATTERY BACKUP POWER SUPPLY.



1 ELECTRICAL LIGHTING PLAN
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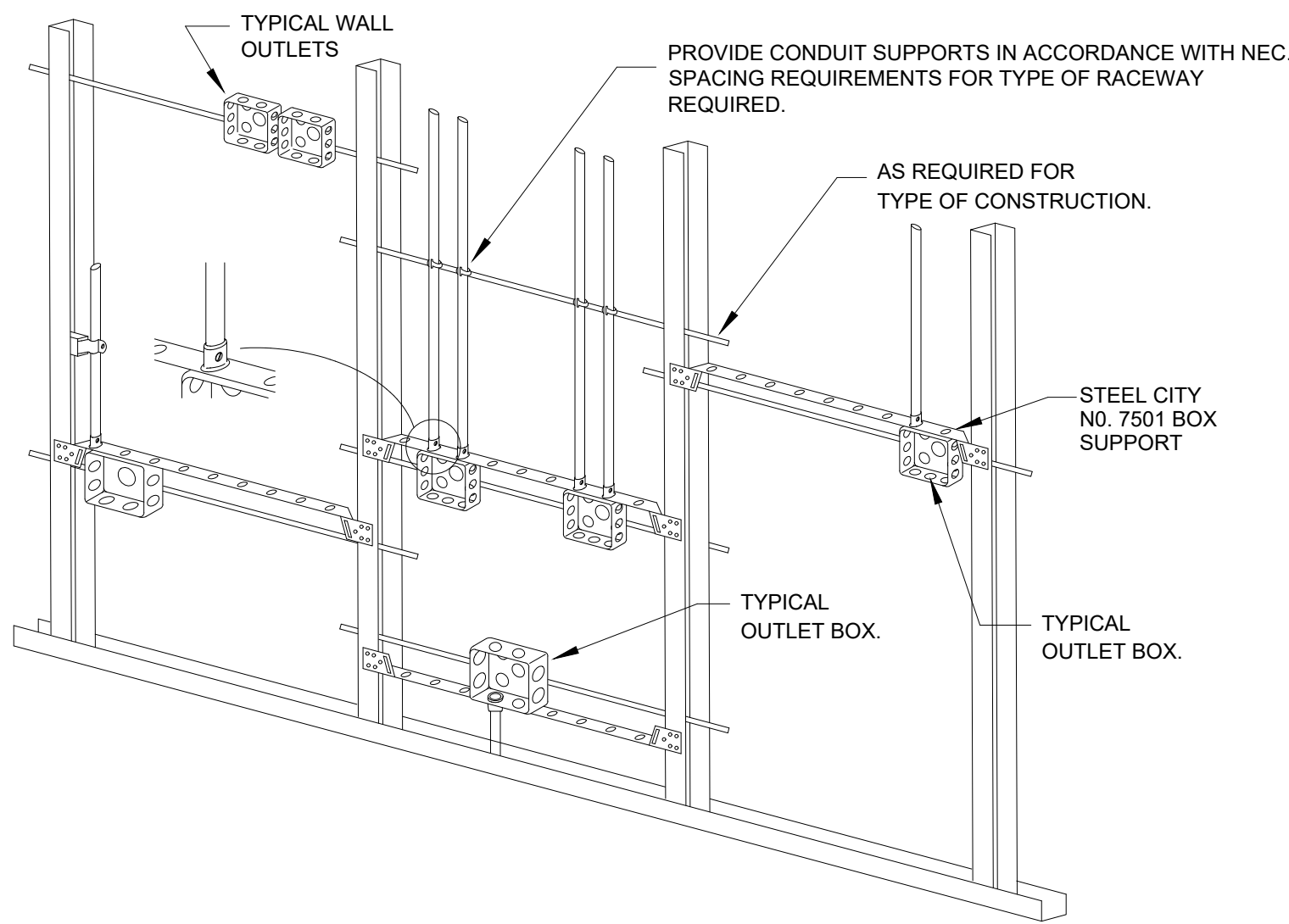
ELECTRICAL LIGHTING PLAN

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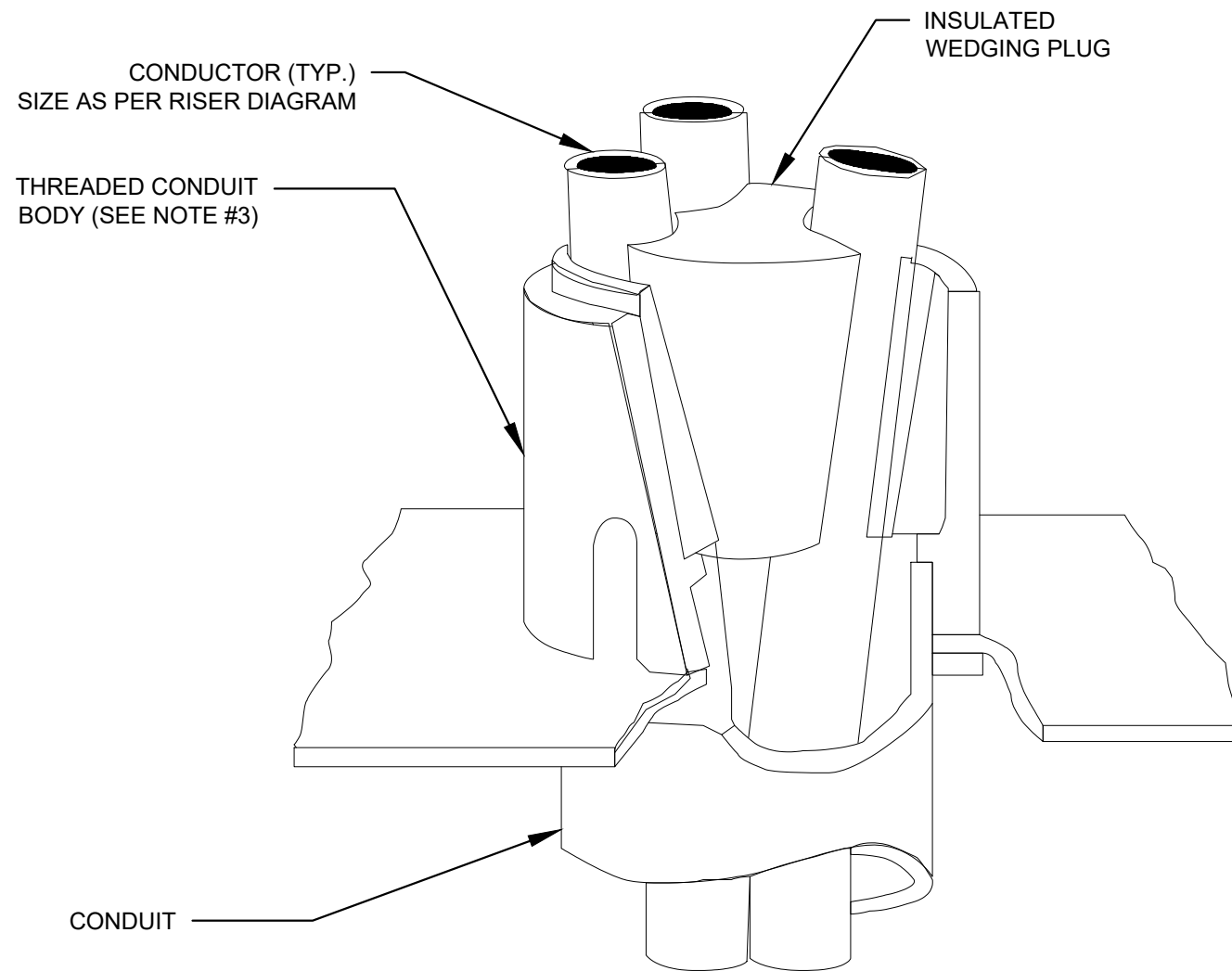
E200



- NOTES:
1. TYPICAL FOR WOOD AND METAL STUD ROUGH-IN
 2. PLASTER RINGS NOT SHOWN
 3. LOCATE ALL OUTLET BOXES IN ACCORDANCE WITH ARCHITECTURAL DRAWINGS, AND WITH ALL APPLICABLE SHOP DRAWINGS.
 4. OUTLETS ON OPPOSITE SIDES OF WALLS OR PARTITIONS IN THE SAME STUD SPACE MUST BE SEPARATED BY A MIN. OF 24" HORIZONTAL DISTANCE.

1 TYPICAL ROUGH-IN REQUIREMENTS

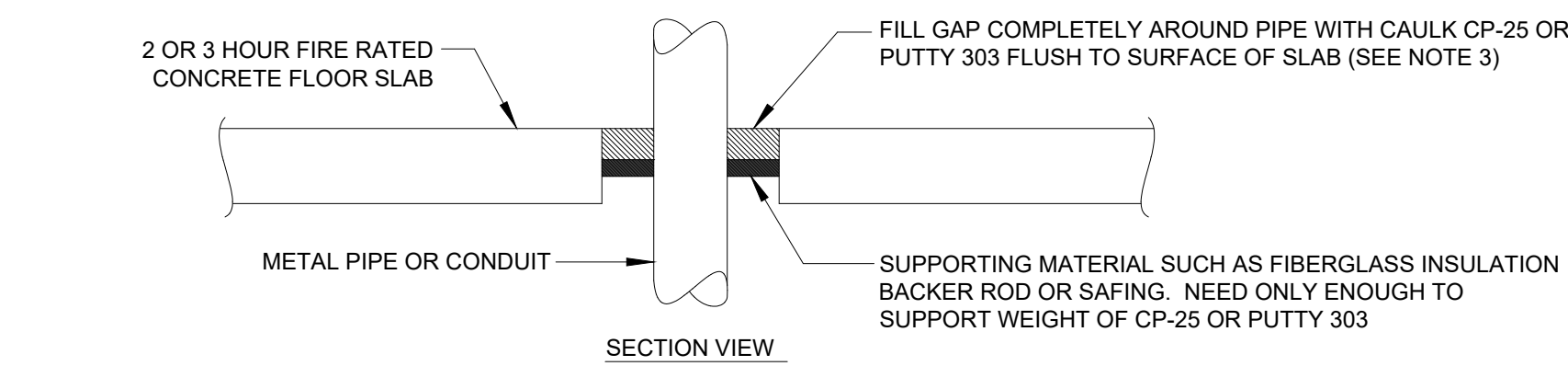
SCALE: NOT TO SCALE



- NOTES:
1. ALL CONDUCTORS IN VERTICAL RACEWAYS SHALL BE SUPPORTED IN ACCORDANCE WITH ARTICLE 300.19 OF NEC. CABLE SUPPORTS SHALL BE LOCATED AT THE INTERVALS REQUIRED BY THE NEC.
 2. CABLE SUPPORT SYSTEM SHALL BE AS MANUFACTURED BY Q-Z GEDNEY WITH pQZ-GRIP "S-STYLE" WEDGING PLUG OR APPROVED EQUAL.
 3. FOR THREADLESS CONDUIT (RIGID, IMC OR EMT), ATTACH CONDUIT BODY TO MALE THREADS OF A SET SCREW OR COMPRESSION CONNECT, AS PERMITTED BY SPECIFICATIONS.
 4. PROVIDE PULL BOX AT EACH LOCATION OF CABLE SUPPORTS. PULL BOX SHALL BE SIZED AS PER CODE TO ACCOMMODATE ALL CONDUITS.

2 VERTICAL CABLE SUPPORT DETAIL

SCALE: NOT TO SCALE

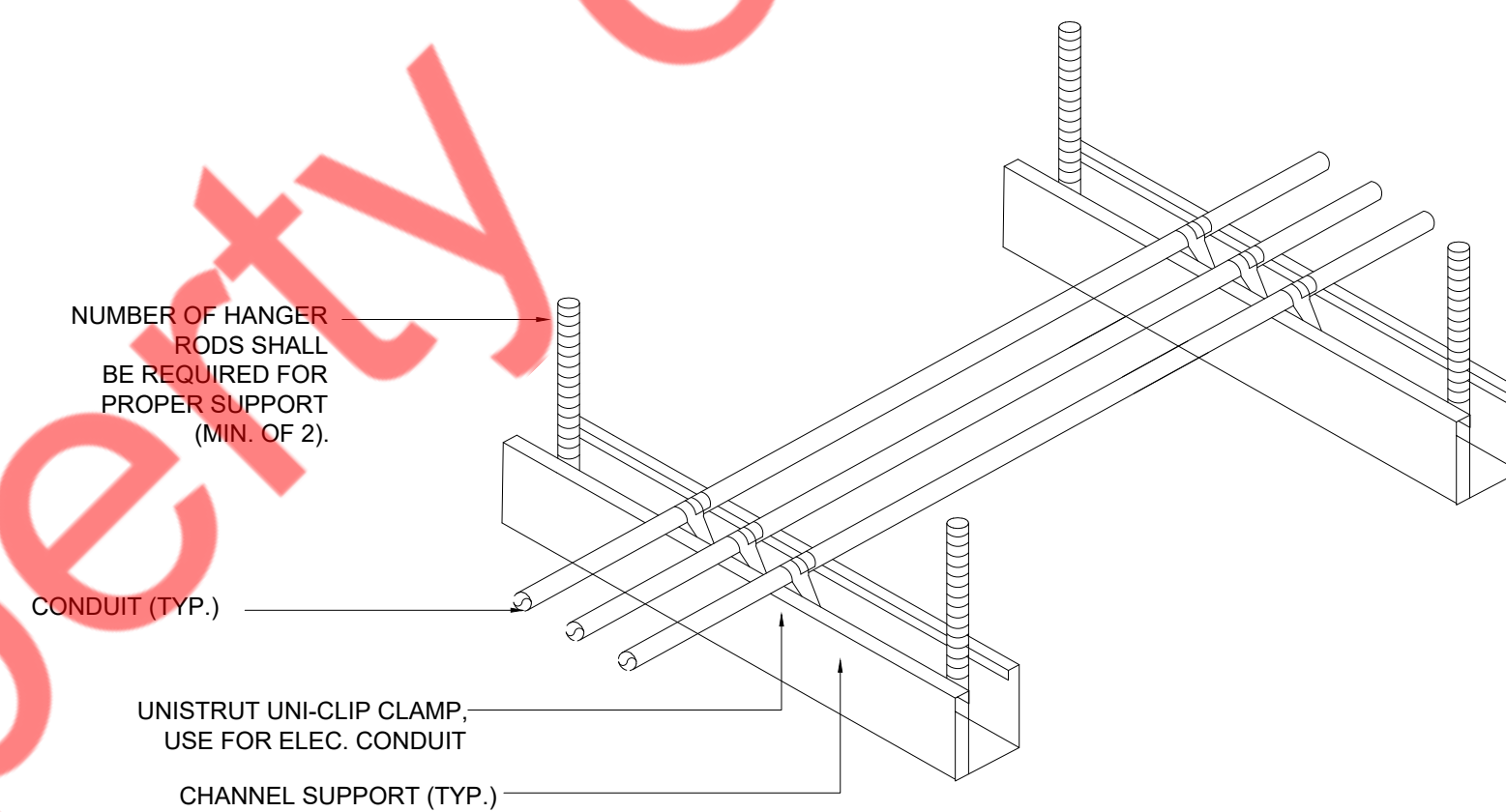


- NOTES:
1. FOR CONCRETE BLOCK WALLS, CENTER CAULK CP-25 OR PUTTY 303 WITHIN WALL WITH DAMMING ON BOTH SIDES.
 2. RECOMMENDATIONS BASED ON PRODUCT PERFORMANCE PER ASTM E-814 (UL 1479) FIRE TEST AND UL CLASSIFICATION FIRE STOP SYSTEMS 49, 33 AND 91.
 3. UP TO 40% SHRINKAGE OF CP-25 OR PUTTY 303 IS ACCEPTABLE AFTER WET DEPTH INSTALLATION. WHEN ANNULAR SPACE EXCEEDS 3/4" (19mm), A 28 AWG METAL COVER PLATE MUST BE MECHANICALLY SECURED ATOP THE 3M FIRE BARRIER APPLICATION, OR TIGHTLY PACK A NON-COMBUSTIBLE DAMMING MATERIAL ATOP INSTALLED CAULK OR PUTTY.
 5. OPTIONS TO MASKING TAPE TO PREVENT SAGGING:
A.A. INSTALL ADDITIONAL DAMMING MATERIAL OVER PRODUCT TO HOLD WITHIN OPENING.
A.B. REMOVE PRODUCT FROM CONTAINER AND ALLOW TO AIR CURE IN SMALL BATCHES FOR 12 HRS. THEN HAND FORM INTO OPENING.
 6. WET INSTALLED DEPTH OF CAULK CP-25 OR PUTTY 303 DEPENDS ON TYPE AND SIZE OF PIPE:
- | WET DEPTH | PIPE SIZE | FIRE RATING |
|-------------|-----------------|-------------|
| 1/2" (13mm) | MAX. 8" (203mm) | 2 HRS. |
| 2" (25mm) | MAX. 6" (152mm) | 3 HRS. |
- 1" (25mm) DEPTH CAULK CP-25 OR PUTTY 303 WITHIN WALL

3 FIRE STOP DETAIL

SCALE: NOT TO SCALE

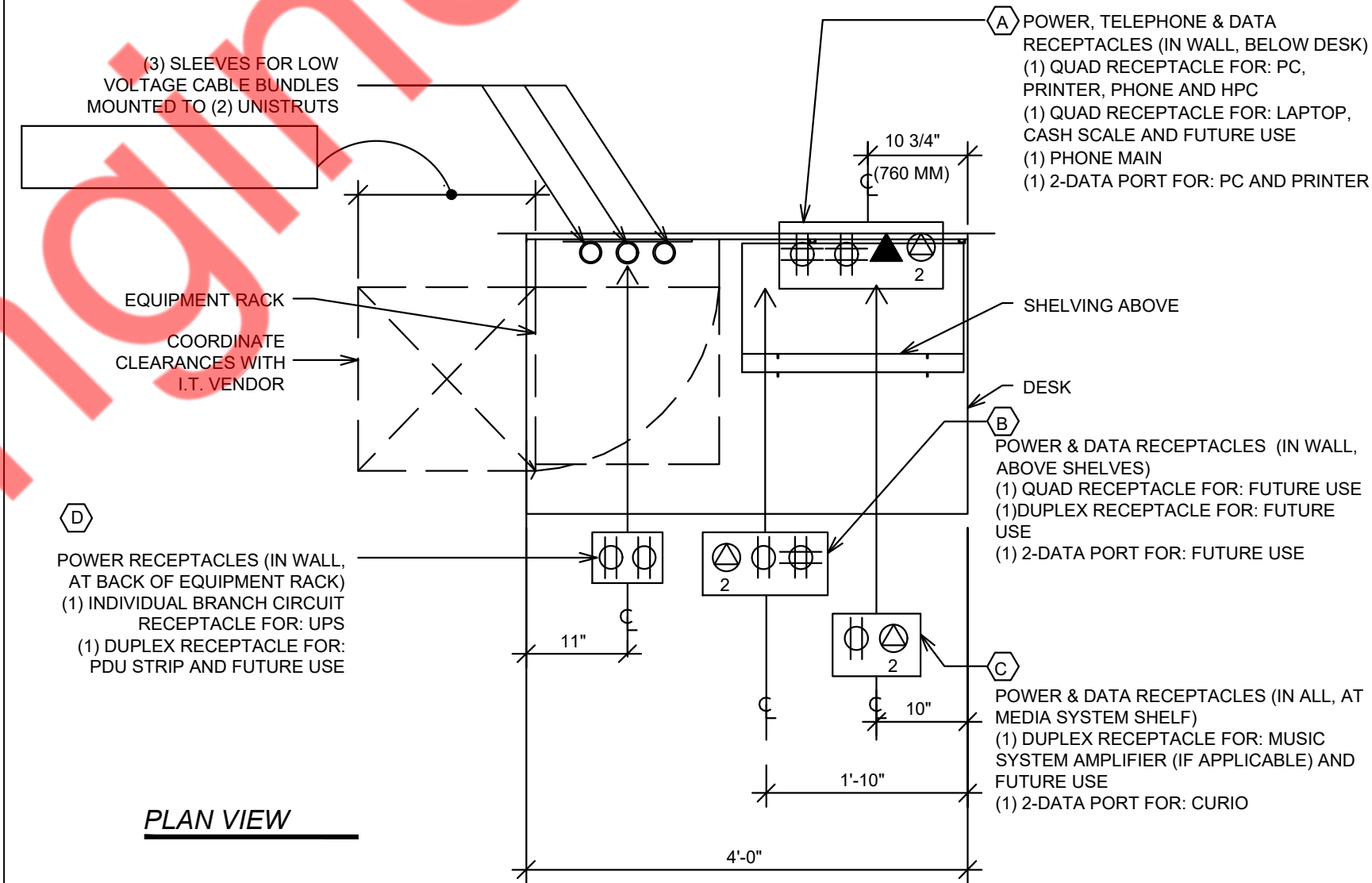
NOTE:
THIS INFORMATION MAY NOT CONTAIN ALL DETAILS REQUIRED FOR CONSTRUCTION. APPROPRIATE MODIFICATION MAY BE REQUIRED TO ENSURE SUITABILITY OF THESE DRAWINGS FOR THE SPECIFIC APPLICATION. IT IS THE USER'S RESPONSIBILITY TO ENSURE INSTALLATION OF THE EQUIPMENT/SYSTEM IS IN ACCORDANCE WITH BUILDING/PROJECT SPECIFICATIONS, APPLICABLE CODES AND STANDARDS.



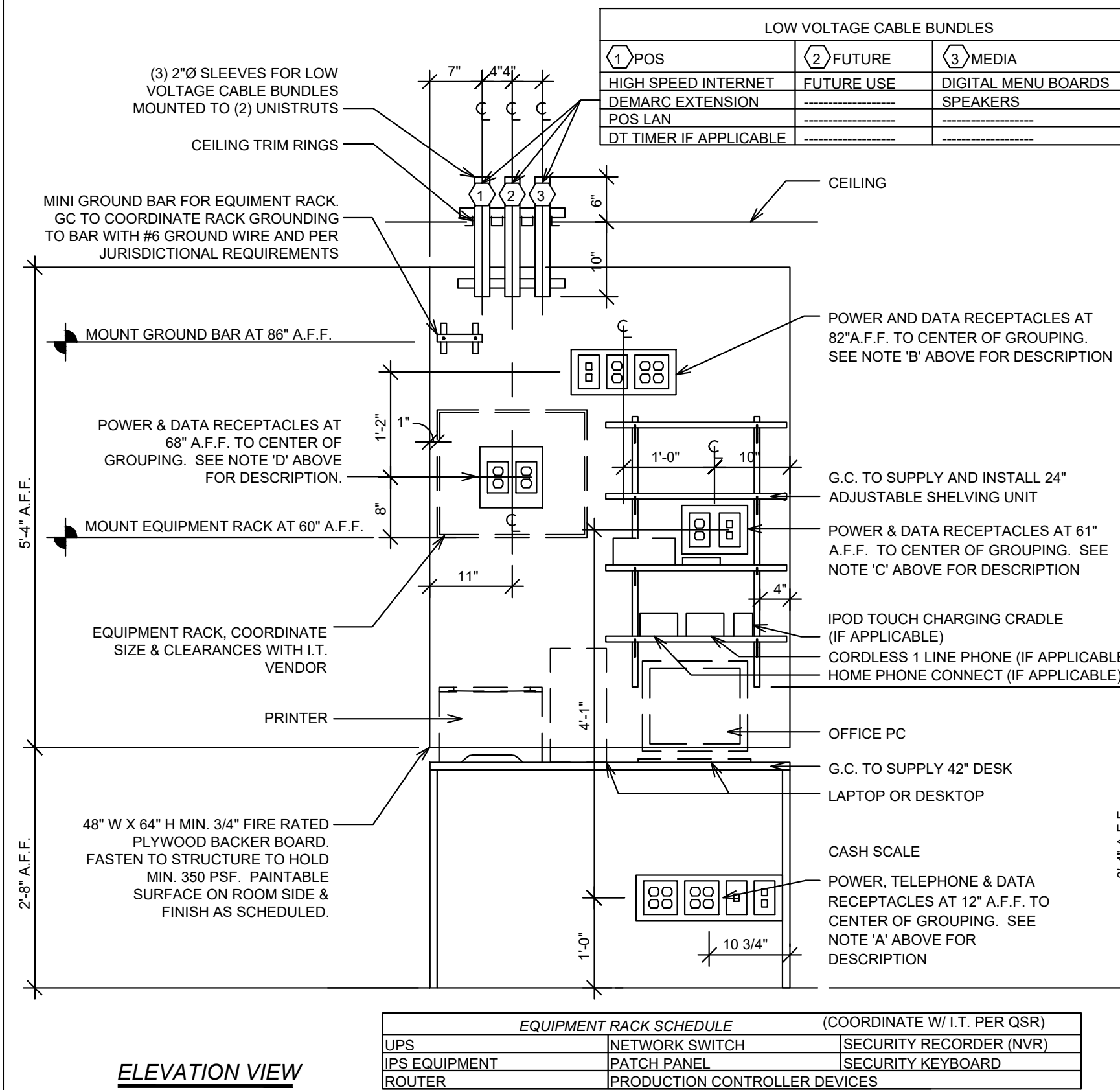
- NOTES:
1. ALL CONDUIT MAY BE COMBINED ON SAME SUPPORT CHANNEL WHERE PRACTICAL.
 2. SUPPORT CHANNEL LENGTH SHALL NOT BE DETERMINED UNTIL ALL PIPING, CONDUIT, ETC. TO BE SUPPORTED IS COORDINATED.
 3. SUPPORT CHANNEL SPACING SHALL BE NO MORE THAN 10'-0".
 4. UNISTRUT AND CONDUIT INSTALLATION MAY BE REVERSED.

4 CONDUIT SUPPORT DETAIL

SCALE: NOT TO SCALE



PLAN VIEW



ELEVATION VIEW

5 MANAGER DESK ELEVATION

SCALE: NOT TO SCALE

NY ENGINEERS

NEARBY ENGINEERS
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MIAMI, FL 33179 PH-914.257.3455
WWW.NY-ENGINEERS.COM

REVISIONS

NUMBER	REMARKS	DATE
1	REVIEW SET	05/22/2024
2	PERMIT SET	09/06/2024

ISSUED FOR:	DATE ISSUED:
REVIEW	05/22/2024

PROJECT TITLE:



DRAWING TITLE:

ELECTRICAL DETAILS

PERMIT DWG DATE: 05/09/2024	PROJECT NUMBER: 24-09-002
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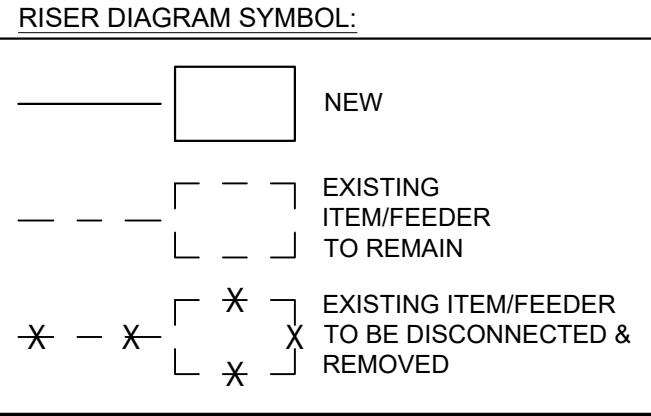
DRAWN BY: NYE	CHECKED BY: NYE
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DRAWING NUMBER:

E300

- ELECTRICAL RISER GENERAL NOTES:
1. PROPER CLEARANCE MUST BE MAINTAINED ABOUT ELECTRICAL EQUIPMENT PER N.E.C. FIELD VERIFY EXACT MOUNTING SPACE AVAILABLE IN ELECTRICAL ROOM/AREA PRIOR TO INSTALLATION OF ELECTRICAL EQUIPMENT.
 2. MAKE ALL FINAL ELECTRICAL CONNECTIONS FOR A COMPLETE ELECTRICAL DISTRIBUTION SYSTEM. ALL CONNECTIONS/DISCONNECTIONS TO LANDLORDS/UTILITIES SERVICE EQUIPMENT SHALL BE AS DIRECTED BY LANDLORDS/UTILITIES SITE REPRESENTATIVE. TENANT GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR ALL TERMINATION/DETERMINATION EXPENSES.
 3. SYSTEM SHALL BE GROUNDED TO THE MAIN BUILDING'S GROUNDING SYSTEM.
 4. DISCONNECT SWITCHES AND PANELS SHALL BE INSTALLED ON PLYWOOD BACKBOARDS.
 5. TENANT CONTRACTOR MUST VERIFY ELECTRICAL SERVICE, SUB-FEED WIRING AND PANELS PRIOR TO START OF TENANT'S ELECTRICAL WORK. TENANT GENERAL CONTRACTOR SHALL MAKE APPLICATION TO THE LOCAL UTILITY FOR CONTINUED ELECTRIC SERVICE IN THE TENANT'S NAME. TENANT GENERAL CONTRACTOR SHALL CONFIRM ALL LOCAL UTILITY GUIDELINES AND REQUIREMENTS PRIOR TO BID, SHALL INCLUDE THE COSTS OF THESE REQUIREMENTS IN THE BID, AND SHALL COMPLY WITH THEM DURING CONSTRUCTION. AVAILABLE FAULT CURRENT AT SERVICE EQUIPMENT SHALL BE LEGIBLY MARKED IN THE FIELD WITH THE MAXIMUM AVAILABLE FAULT CURRENT PER NATIONAL ELECTRICAL CODE (NEC) OF ARTICLE 110.24.
 6. CONTRACTOR SHALL COORDINATE SHORT CIRCUIT RATING (ISC) WITH UTILITY & AHJ, PRIOR TO COMMENCING ANY WORK, TYPICAL FOR ALL ELECTRICAL EQUIPMENT
 7. CONTRACTOR SHALL VERIFY INCOMING SERVICE AMPERAGE, WIRE SIZING AND DISTRIBUTION.
 8. CONTRACTOR SHALL COORDINATE WITH BASE BUILDING FOR THE EXACT LOCATION OF THE EXISTING SWITCH GEAR AND EXACT POWER DISTRIBUTION.
 9. CONTRACTOR SHALL VERIFY OPERABLE CONDITION INFIELD OF ALL EXISTING TO REMAIN ELECTRICAL DEVICES/EQUIPMENTS AND REPLACE WITH NEW IF FOUND INOPERABLE.
 10. DRAWING ARE DIAGRAMMATIC AND INDICATE GENERAL ARRANGEMENT OF SYSTEMS AND WORK. ALL CONDUIT ROUTING AND OFFSETS, DROPS AND RISES OF RUNS ARE NOT SHOWN ON THE PLANS AND ARE SHOWN DIAGRAMMATICALLY IN THE RISERS. THE CONTRACTOR SHALL ALLOW IN HIS PRICE FOR ROUTING OF CONDUIT TO AVOID OBSTRUCTIONS. COORDINATION WITH EXISTING SERVICES, INCLUDING THOSE OF OTHER TRADES, IS REQUIRED. MAINTAIN HEADROOM AND SPACE CONDITIONS.

- ELECTRICAL RISER KEYED WORK NOTES:
1. E.C. SHALL COORDINATE WITH BASE BUILDING/LANDLORD/OWNER FOR LOCATION OF ELECTRICAL METER & SERVICE DISCONNECT SWITCH/BREAKER OF THIS SPACE. PRIOR TO COMMENCING ANY WORK. BASE BID ACCORDINGLY.
 2. 350A, 208/120V, 3-PHASE, 4-WIRE ELECTRICAL SERVICE FROM THE LANDLORDS EXISTING PANEL 'LP-1'. E.C. SHALL COORDINATE WITH BASE BUILDING/LANDLORD/OWNER FOR EXACT POWER DISTRIBUTION PRIOR TO COMMENCING ANY WORK. INFORM ENGINEER ON RECORD FOR ANY DISCREPANCIES. BASE BID ACCORDINGLY.
 3. 150A, 208/120V, 3-PHASE, 4-WIRE EMERGENCY ELECTRICAL SUPPLY FROM THE LANDLORDS EXISTING PANEL 'LP-EM'. E.C. SHALL COORDINATE WITH BASE BUILDING/LANDLORD/OWNER FOR EXACT POWER DISTRIBUTION PRIOR TO COMMENCING ANY WORK. INFORM ENGINEER ON RECORD FOR ANY DISCREPANCIES. BASE BID ACCORDINGLY.
 4. NEW 200A, 208/120V, 3 PHASE, 4-WIRE ELECTRICAL PANELBOARD 'A' & 'B'.
 5. NEW 150A, 208/120V, 3 PHASE, 4-WIRE EMERGENCY ELECTRICAL PANELBOARD 'EMA'.

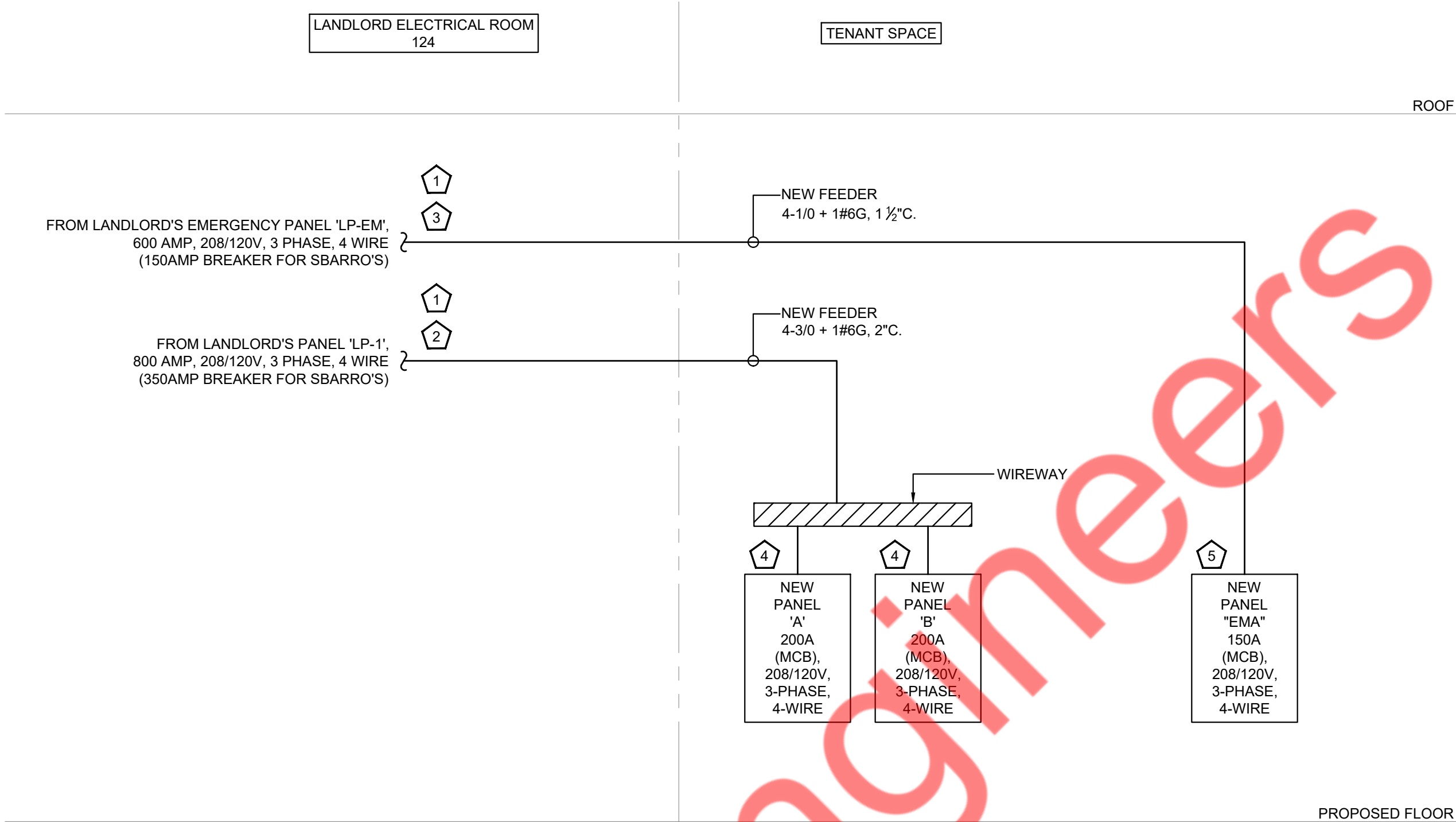


EXISTING CONDITIONS NOTE:

CONTRACTOR TO VERIFY IN FIELD ALL LOCATIONS AND QUANTITY OF EXISTING DEVICES AND NOTIFY THE ENGINEERS OF RECORD ON DISCREPANCIES BETWEEN EXISTING CONDITIONS AND THE DESIGN ELECTRICAL DRAWINGS.

ELECTRICAL PANEL SCHEDULE-EMERGENCY																			
PANELBOARD			EMA		VOLTAGE		120 / 208 V		PHASE		3		WIRE						
PANEL TYPE			MCB		MAINS		150 AMP MCB		BUS RATING		200 AMP		22KA						
NEMA TYPE ENCLOSURE			1		MOUNTING		SURFACE		OPTIONS		1		NEW PANEL						
CKT.	EQT	CKT	DESCRIPTION		POLE	WIRE	BKR.	TOTAL	PHASE	TOTAL	BKR.	WIRE	POLE	DESCRIPTION	CKT	EQT	CKT.		
1	NO.	TAG	TAG			SIZE	SIZE	WATTS		WATTS	SIZE	SIZE			TAG	TAG	NO.		
3				EM & EXIT LIGHT, FRONT OF HOUSE (101)	1	12	20	100	A	200	20	12	1	EM & EXIT LIGHT, QSR KITCHEN BOH (102)			2		
5				EM & EXIT LIGHT, STORAGE (103)	1	12	20	200	B	500	20	12	1	E-300, EM LIGHT W/IB COOLER (106)			4		
7				E-300_1_EVAPORATOR, COOLER (105)	2	12	20	565	C	500	20	12	1	E-303, EM LIGHT W/IB FREEZER (105)			6		
9				E-300_2_WALK-IN COOLER CONDENSING UNIT (105)	3	12	20	565	A	565	20	12	2	E-303_1_EVAPORATOR, FREEZER (106)			8		
11								1,200	B	565						10			
13								1,200	C	1,200						12			
15								1,200	A	1,200						14			
17				SPARE	1		20		B	1,200	20	12	3	E-303_2_WALK-IN FREEZER CONDENSING UNIT (106)			16		
19				SPARE	1		20		C							SPARE			18
21				SPARE	1		20		A							SPARE			20
23				SPARE	1		20		B							SPARE			22
25				SPARE	1		20		C		20	1		SPARE			24		
27				SPARE	1		20		A		20	1		SPARE			26		
29				SPARE	1		20		B		20	1		SPARE			28		
31				SPARE	1		20		C		20	1		SPARE			30		
ALL PHASES TO BE BALANCED TO WITHIN 7%																			
A= 3,830			WATTS		(E) EXISTING TO REMAIN														
B= 3,665			WATTS		(N) NEW CIRCUIT														
C= 3,465			WATTS		GFCI GROUND FAULT CURRENT INTERRUPTER														
IG CIRCUITS WITH ISOLATED GROUND																			
TC CIRCUITS ON TIMECLOCK																			
EMS ROUTING TO THE EMS PANEL																			
C BREAKER LOCK																			
a,b,c SWITCHES CONTROLLING LIGHTS																			
TOTAL CONNECTED LOAD			10,960		WATTS		31		AMPS										
TOTAL DEMAND LOAD			11,335		WATTS		32		AMPS										

ELECTRICAL LOAD SUMMARY-EMERGENCY					
DESCRIPTION	NEC CONNECTED KW	VOLT	PHASE	NEC DEMAND FACTOR	NEC DEMAND KW
LIGHTING- 120V	1.5	120	1	1.25	1.9
EVAPORATOR UNIT	2.3	208	1	1.00	2.3
CU	7.2	208	3	1.00	7.2
TOTALS	11.0				11.3
NOTES:					
* USE GREATER VALUE OF THE TWO CATEGORIES.					
** 125% OF THE LARGEST MOTOR OR COMPRESSOR IN SYSTEM APPLIED ONLY ON ONE UNIT.					
*** N.E.C. ARTICLE 220-12 REQUIREMENT (200 VA PER FOOT OF SHOW WINDOW)					
MINUS ACTUAL SHOW WINDOW LIGHTING KVA.					
N.E.C. DEMAND KVA x 1.000					
SYSTEM VOLTAGE x 1.732					
11.3	x 1.000 =	11.335	31.5 AMPS	USE (EXISTING) 150AMP SERVICE.	
208	x 1.732 =	360			



1 ELECTRICAL RISER DIAGRAM

Scale: N.T.S.

ELECTRICAL PANEL SCHEDULE																		
PANELBOARD			A		VOLTAGE		120 / 208 V		PHASE		3		WIRE					
PANEL TYPE			MCB		MAINS		200 AMP MCB		BUS RATING		200 AMP		4					
NEMA TYPE ENCLOSURE			1		MOUNTING		SURFACE		OPTION		NOTE		22KA					
													NEW PANEL					
CKT.	EQT	CKT.	DESCRIPTION		POLE	WIRE	SIZE	BKR.	TOTAL	PHASE	TOTAL	BKR.	WIRE	POLE	DESCRIPTION	CKT	EQT	CKT.
NO.	TAG	TAG				SIZE	SIZE	SIZE	WATTS		WATTS	SIZE	SIZE			TAG	TAG	NO.
1			LIGHT_FRONT OF HOUSE (101)		1	12	20	400	A	200	20	12	1		LIGHT_QSR KITCHEN BOH (102)			2
3			LIGHT_STORAGE (103)		1	12	20	500	B	100	20	12	1		LIGHT_TIME CLOCK			4
5			REC_SHOW WINDOW		1	12	20	1,000	C	1,200	20	12	1		LIGHT_STOREFRONT SIGN			6
7			REC_GFI_CONVEYANCE OUTLET		1	12	20	900	A	360	20	12	1		REC_CONVE_OUTLET			8
9			REC_CONVE_OUTLET ELECT BOARD		1	12	20	360	B	360	20	12	1		E-400_POS SYSTEM W/ PRINTER			10
11			E-400_POS SYSTEM W/ PRINTER		1	12	20	360	C	180	20	12	1		E-400_SODA ICE & BEVERAGE DISPENSER			12
13			E-4483_DROP-IN, COLD PAN		1	12	20	650	A	360	20	12	1		REC_DIGITAL MENU BOARD			14
15								1,200	B	360	20	12	1		REC_DIGITAL MENU BOARD			16
17			E-482_DROP-IN HOT WELLS		3	12	20	1,200	C	2,470								18
19								1,200	A	2,470	30	10	3		E-4410_OVEN, RAPID COOK, VENTLESS			20
21								3,840	B	2,470								22
23			E-4400_OVEN, CONVEYOR, VENTLESS					3,840	C	650	20	12	1		E-340_PIZZA PREP. REFRIGERATOR			24
25								3,840	A	700	20	12	1		E-4300_BEVERAGE DISPENSER, ELECTRIC			26
27								3,840	B	1,750	20	12	1		E-420_ICED TEA BREWER			28
29								3,840	C	1,900	20	12	1		E-404_CARBONATOR			30
31								3,840	A	1,900	20	12	1		E-604_CARBONATOR			32
33								5,750	B	1,500	20	12	1		E-600_EXHAUST HOOD			34
35			E-4420_COMBI OVEN, ELECTRIC		3	4	60	5,750	C	1,500	20	12	1		E-600_1_FIRE SUPPRESSION CABINET			36
37								5,750	A	180	20	12	1		E-431_GAS RANGE			38
39			E-435_HOLDING CABINET, MOBILE		1	12	20	1,050	B		20				SPARE			40
41			E-310_ICE MAKER		1	12	20	1,850	C		20				SPARE			42
ALL PHASES TO BE BALANCED TO WITHIN 7%																		
A= 29,790			WATTS		(E) EXISTING TO REMAIN													
B= 23,080			WATTS		(N) NEW CIRCUIT													
C= 25,740			WATTS		GFCI GROUND FAULT CURRENT INTERRUPTER													
IG CIRCUITS WITH ISOLATED GROUND																		
TC CIRCUITS ON TIMECLOCK																		
EMS ROUTING TO THE EMS PANEL																		
C BREAKER LOCK																		
a,b,c SWITCHES CONTROLLING LIGHTS																		
TOTAL CONNECTED LOAD			71,570		WATTS		199		AMPS									
TOTAL DEMAND LOAD			49,632		WATTS		138		AMPS									

ELECTRICAL PANEL SCHEDULE																				
PANELBOARD			B		VOLTAGE		120 / 208 V		PHASE		3		WIRE		4					
PANEL TYPE			MCB		MOUNTING		SURFACE		BUS RATING		AMP		AIC RATING		22KA					
ENCLOSURE			1						OPTIONS		NOTE		NEW PANEL							
CKT.	EQT	CKT	DESCRIPTION				POLE	WIRE	BKR.	TOTAL	PHASE	TOTAL	BKR.	WIRE	POLE	DESCRIPTION		CKT	EQT	CKT.
NO.	TAG	TAG					SIZE	SIZE	SIZE	WATTS		WATTS	SIZE	SIZE				TAG	TAG	NO.
1			E-430_STEAMER, CONVECTION,				3	10	30		2,850	A	1,000			E-470_DOUGH MIXER				2
3			COUNTERTOP, ELECTRIC								2,850	B	1,000	20	12	3				4
5											2,850	C	1,000							6
7			REC_MGR DESK OUTLET				1	12	20	720	A	180					REC_MGR DESK OUTLET			8
9			REC_MGR DESK OUTLET				1	12	20	720	B	540	20	12	1		REC_MGR DESK OUTLET			10
11			AIR CURTAIN (AC-1)				1	12	20	900	C	750	20	12	1		KEF-1			12
13			AIR CURTAIN (AC-2)				1	12	20	900	A	540	20	12	1		REC_GFI/MP_HVAC OUTLET			14
15											3,650	B	20	1			SPARE			16
17			MAU-1				3	8	40		3,650	C	20	1			SPARE			18
19											3,650	A	20	1			SPARE			20
21			SPARE				1		20	B		20	1				SPARE			22
23			SPARE				1		20	C		20	1				SPARE			24
25			SPARE				1		20	A		20	1				SPARE			26
27			SPARE				1		20	B		20	1				SPARE			28
29			SPARE				1		20	C		20	1				SPARE			30
31			SPARE				1		20	A		20	1				SPARE			32
33			SPARE				1		20	B		20	1				SPARE			34
35			SPARE				1		20	C		20	1				SPARE			36
37			SPARE				1		20	A		20	1				SPARE			38
39			SPARE				1		20	B		20	1				SPARE			40
41			SPARE				1		20	C		20	1				SPARE			42
ALL PHASES TO BE BALANCED TO WITHIN 7% A= 9,840 WATTS B= 8,760 WATTS C= 9,150 WATTS															(E) EXISTING TO REMAIN (N) NEW CIRCUIT GFCI GROUND FAULT CURRENT INTERRUPTER IG CIRCUITS WITH ISOLATED GROUND TC CIRCUITS ON TIMECLOCK EMS ROUTING TO THE EMS PANEL C BREAKER LOCK a,b,c SWITCHES CONTROLLING LIGHTS					
TOTAL CONNECTED LOAD			27,750		WATTS		78		AMPS											
TOTAL DEMAND LOAD			23,708		WATTS		66		AMPS											

PLUMBING SYMBOLS LIST

	VENT PIPING
	WASTE PIPE UNDERGROUND
	GREASE WASTE UNDERGROUND
	COLD WATER PIPING
	HOT WATER PIPING
	HOT WATER RETURN PIPING
	FILTER WATER PIPING
	EXISTING COLD WATER PIPING
	EXISTING HOT WATER PIPING
	EXISTING HOT WATER RETURN PIPING
	EXISTING GAS PIPING
	GAS PIPING
	P-TRAP
	PIPE UP
	PIPE DROP
	PIPE CAP
	CONTROL VALVE
	GAS VALVE
	BACKFLOW PREVENTER
	POINT OF CONNECTION
	CLEANOUT
	BALANCING VALVE
	FLOOR SINK
	FLOOR / HUB DRAIN

PLUMBING ABBREVIATIONS

FCO	CLEANOUT
W	WASTE
V	VENT
GW	GREASE WASTE
FFD	FUNNEL FLOOR DRAIN
HD	HUB DRAIN
EX	EXISTING
FD	FLOOR DRAIN
CW	COLD WATER
HW	HOT WATER
HWR	HOT WATER RETURN
TYP	TYPICAL
DN	DOWN
AFF	ABOVE FINISH FLOOR
BFP	BACK FLOW PREVENTER
M	WATER METER
PRV	PRESSURE REDUCING VALVE
UNGD	UNDERGROUND
HS	HAND SINK
3-CS	THREE COMPARTMENT SINK
1-CS	ONE COMPARTMENT SINK
FS	FLOOR SINK
IM	ICE MAKER / MACHINE
BD	BEVERAGE DISPENSER
FW	FILTERED WATER
GR	GAS RANGE
AAV	AIR ADMITTANCE VALVE

BUILDING DEPARTMENT PLUMBING NOTES

- ALL PLUMBING SYSTEMS (SANITARY, WASTE, VENT, WATER) AND ASSOCIATED EQUIPMENT SHALL BE INSTALLED, OPERATED AND MAINTAINED IN ACCORDANCE WITH THE REQUIREMENTS OF 2020 NEW YORK STATE PLUMBING CODE.
- INSTALLATION OF UNDERGROUND PIPING SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF SECTION PC 702.2.
- PROTECTION OF PIPING AND PLUMBING SYSTEM COMPONENTS AS PER SECTION PC 305.
- TRENCHING, EXCAVATION AND BACKFILL AS PER SECTION PC 306.
- RODENT PROOFING AS PER PC 304.
- MATERIALS USED IN PLUMBING SYSTEMS SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF SECTION PC 303, PC 605, PC 702, PC 902, PC 1102.
- EQUIPMENT CONNECTIONS AND JOINING OF PIPING SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF CHAPTERS 4, 5, 6, 7 AND 9.
- DEEP SEAL TRAPS FOR FLOOR DRAINS SHALL BE PROVIDED AS PER PC 1002, AND CLEAN-OUTS SHALL BE INSTALLED IN ACCORDANCE WITH THE REQUIREMENTS OF SECTION PC 708.
- DRAINAGE PIPE CLEANOUTS AS PER SECTION PC 708.
- VERTICAL AND HORIZONTAL PIPING SHALL BE SUPPORTED IN ACCORDANCE WITH THE REQUIREMENTS OF SECTION PC 308.
- WATER SUPPLY SYSTEMS SHALL BE INSTALLED AND MAINTAINED IN ACCORDANCE WITH THE REQUIREMENTS OF CHAPTER 6 SECTION PC 601-603, 604, 606, 607, 608, 610.
- THE SANITARY DRAINAGE SYSTEM SHALL BE SIZED AND INSTALLED IN ACCORDANCE WITH THE REQUIREMENTS OF CHAPTER 7 SECTION PC 701, 704, 705, 706, 707, 708, 711.
- VENT PIPING FOR THE SANITARY DRAINAGE SYSTEM SHALL BE INSTALLED IN ACCORDANCE WITH THE REQUIREMENTS OF CHAPTER 9 SECTIONS PC 901 THROUGH PC 912 THROUGH PC 917.
- INSPECTION AND TESTING OF PLUMBING SYSTEMS SHALL BE IN ACCORDANCE WITH SECTION PC 312.

PLUMBING DRAWING LIST
P001 PLUMBING SYMBOLS, ABBREVIATIONS, NOTES AND SPECIFICATIONS
P002 PLUMBING SPECIFICATIONS
P100 PLUMBING SANITARY AND VENT PLAN
P101 PLUMBING WATER AND GAS PLAN
P200 PLUMBING RISER DIAGRAM
P300 PLUMBING DETAILS
P400 PLUMBING SCHEDULE

CODE COMPLIANCE
ALL WORK AND MATERIAL SHALL BE PERFORMED AND INSTALLED IN COMPLIANCE WITH THE FOLLOWING CODES AS ADOPTED AND AMENDED BY THE INSPECTING AUTHORITY. NOTHING IN THESE DRAWINGS IS TO BE CONSTRUCTED TO PERMIT WORK NOT CONFORMING TO THESE CODES OR OTHERS APPLICABLE TO THIS PROJECT.
2020 NEW YORK STATE BUILDING CODE:
a. 2020 NEW YORK STATE MECHANICAL CODE.
b. 2020 NEW YORK STATE PLUMBING CODE.
c. 2020 NEW YORK STATE ENERGY CONSERVATION CODE.
d. 2020 NEW YORK STATE FUEL GAS CODE
e. 2017 NATIONAL ELECTRICAL CODE.

PLUMBING SPECIFICATIONS

- BASIC PLUMBING REQUIREMENTS, MATERIALS AND METHODS
 - SCOPE
 - PROVIDE ALL MATERIAL, TOOLS, SUPERVISION AND LABOR INCLUDING ALL MISCELLANEOUS AND INCIDENTAL ITEMS REQUIRED FOR COMPLETE AND OPERABLE PLUMBING INSTALLATIONS AS SHOWN OR DESCRIBED ON THE DRAWINGS AND IN THESE SPECIFICATIONS.
 - THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF ALL NEW CONDITIONS AND MATERIALS WITHIN THE CONSTRUCTION AREA. ANY DAMAGE CAUSED BY THE CONTRACTOR SHALL BE REPAIRED TO THE OWNER'S SATISFACTION.
 - OBTAIN ALL PERMITS, PAY ALL PERMIT FEES AND SCHEDULE ALL REQUIRED INSPECTIONS. COPIES OF ALL PERMITS AND INSPECTION CERTIFICATES SHALL BE FORWARDED TO THE OWNER FOR RECORD.
 - THE GENERAL CONDITIONS OF THE CONTRACT AND ALL DIVISION 1 REQUIREMENTS APPLY TO THE WORK OF THIS SECTION.
 - THE CONTRACTOR SHALL VISIT THE SITE PRIOR TO SUBMITTING BID TO DETERMINE CONDITIONS AND THE EXTENT OF THE WORK. BY COMMENCING WORK, THE CONTRACTOR ACKNOWLEDGES HIS CONFIRMATION OF ALL CONDITIONS AS ACCEPTABLE WITH REFERENCE TO HIS CONTRACT, SCOPE OF WORK AND BID PRICE SUCH THAT NO ADDITIONAL COMPENSATION SHALL BE FORTHCOMING FOR UNFORESEEN EXISTING CONDITIONS.
 - IN ALL AREAS SUBJECT TO FREEZING CONDITIONS, THE CONTRACTOR SHALL PROVIDE FREEZE PROTECTION FOR ALL DOMESTIC WATER PIPING INSTALLED UNDER HIS CONTRACT.
 - ALL ELECTRICAL REQUIREMENTS SHALL BE COORDINATED WITH THE CONTRACTOR FOR ELECTRICAL WORK. THIS CONTRACTOR IS RESPONSIBLE FOR ALL LOW VOLTAGE WIRING FOR EQUIPMENT INSTALLED UNDER HIS CONTRACT. THE CONTRACTOR FOR ELECTRICAL WORK IS RESPONSIBLE FOR LINE VOLTAGE POWER WIRING ONLY.
 - COLOR AND FINISH SELECTIONS FOR ALL MATERIALS, INCLUDING PAINTING OF PIPING, SHALL BE AS DIRECTED AND/OR APPROVED BY THE ARCHITECT.
 - MINOR DETAILS NOT SHOWN OR SPECIFIED, BUT NECESSARY FOR THE PROPER AND ACCEPTABLE CONSTRUCTION, INSTALLATION OR OPERATION OF ANY PART OF THE WORK AS DETERMINED BY THE ENGINEER SHALL BE INCLUDED AS IF SPECIFIED OR INDICATED ON THE DRAWINGS.
 - THIS CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING ALL REQUIREMENTS FOR THE INSTALLATION, CONNECTION, EXTENSION OR MODIFICATION TO ALL UTILITY SERVICES WITH RESPECTIVE PROVIDERS INCLUDING PAYMENT OF ALL ASSOCIATED FEES.
 - THE CONTRACTOR IS RESPONSIBLE FOR ALL PAINTING ASSOCIATED WITH CUTTING AND PATCHING. ALL PAINTING IN AREAS WITH COMPLETE FINISH RENOVATIONS SHALL BE PROVIDED BY THE GENERAL CONTRACTOR.
 - SUBMITTALS
 - SUBMITTAL REQUIREMENTS SHALL BE COORDINATED WITH THE ARCHITECT AND AUTHORITIES HAVING JURISDICTION. UNLESS OTHERWISE DIRECTED, CONTRACTOR SHALL PROVIDE SUBMITTALS AS LISTED BELOW.
 - PIPE AND FITTINGS
 - VALVES
 - HANGERS AND SUPPORTS
 - PLUMBING PIPING LAYOUT
 - TESTS
 - PLUMBING FIXTURES
 - FLOOR DRAINS
 - MIXING VALVES
 - BACKFLOW PREVENTER
 - ALL SCHEDULED PLUMBING EQUIPMENT
 - SUBMITTALS FROM SUPPLIERS OR MANUFACTURERS WHICH DO NOT BEAR THE STAMP OF THE SUBMITTING CONTRACTOR INDICATING THAT THE CONTRACTOR HAS REVIEWED THE SUBMITTAL FOR CONFORMANCE WITH THE PROJECT REQUIREMENTS WILL BE RETURNED REJECTED.
 - THE ENGINEER'S REVIEW OF SUBMITTALS IS A COURTESY WHICH DOES NOT RELIEVE THE CONTRACTOR FROM CONFORMING WITH THE CONSTRUCTION DOCUMENTS, REGARDLESS OF THE ACTION INDICATED BY THE SHOP DRAWINGS STAMP.
 - REVIEW OF SHOP DRAWINGS BY THE ENGINEER SHALL BE LIMITED TO THE INITIAL REVIEW, AND A SECOND REVIEW OF ANY REQUIRED RESUBMITTED DATA. IF THE ENGINEER IS REQUIRED TO REVIEW SHOP DRAWINGS FOR A THIRD (OR MORE) SUBMISSION OF THE SAME ITEM, THE CONTRACTOR SHALL BE LIABLE FOR COMPENSATING THE ENGINEER FOR THESE SUBSEQUENT REVIEWS AS PER THE ENGINEER'S CURRENT HOURLY RATE SCHEDULE.
 - SUBMIT PROOF OF APPROVAL AND/OR CONFIRMATION OF SATISFACTORY TEST RESULTS TO THE OWNER AND THE ARCHITECT.
 - SUBMIT TO THE OWNER'S MAINTENANCE PERSONNEL OPERATION AND MAINTENANCE DATA FOR ALL SYSTEM COMPONENTS, SERVICING REQUIREMENTS, INSPECTION DATA, REPLACEMENT PART NUMBERS AND AVAILABILITY AND CONTACT INFORMATION FOR SERVICE/SUPPLY COMPANY.
 - FOR ALL BELOW GRADE PIPING WHERE ACTUAL INSTALLATION DEVIATES FROM CONSTRUCTION DRAWINGS, THE CONTRACTOR SHALL PROVIDE AS-BUILT DRAWINGS INDICATING BELOW GRADE PIPE LOCATIONS DIMENSIONED TO NEAREST COLUMN LINES.
 - RECORD AS-BUILT DRAWINGS SHALL BE SUPPLIED TO THE OWNER/TENANT AFTER COMPLETION OF THE WORK SHOWING ANY ALTERATIONS, ADDITIONS AND/OR DELETIONS TO THE SYSTEM(S) INSTALLED.
 - SUBSTITUTIONS
 - ALL EQUIPMENT SHALL BE PRODUCTS OF THE SPECIFIED MANUFACTURER OR MANUFACTURERS. ALL BIDS SHALL BE BASED ON THE SPECIFIED MANUFACTURER OR MANUFACTURERS EQUIPMENT. FOR SUBSTITUTIONS OF OTHER MANUFACTURER'S EQUIPMENT TO BE CONSIDERED, THE SUBSTITUTION MUST BE INDICATED PRIOR TO BIDDING WITH THE REASON FOR THE PROPOSED SUBSTITUTION IDENTIFIED, AND THE PROPOSED CREDIT TO THE OWNER INDICATED. THE ENGINEER SHALL DETERMINE THE ACCEPTABILITY OF ANY PROPOSED SUBSTITUTIONS.
 - THE CONTRACTOR ASSUMES ALL RESPONSIBILITY FOR COORDINATING THE WORK OF OTHER TRADES WHICH MAY BE AFFECTED BY SUBSTITUTIONS, INCLUDING ALL RELATED COSTS.
 - DEFINITIONS
 - FURNISH: TO PURCHASE, PROCURE, ACQUIRE AND DELIVER, COMPLETE WITH RELATED ACCESSORIES.
 - INSTALL: TO ERECT, MOUNT AND CONNECT, COMPLETE WITH RELATED

- ACCESSORIES.
- B. PROVIDE: TO FURNISH AND INSTALL.
- C. PLUMBING CONTRACTOR, THE CONTRACTOR, THIS CONTRACTOR: THE CONTRACTOR FOR PLUMBING WORK WHICH IS SPECIFIED HEREIN AND SHOWN ON THESE DRAWINGS.
- D. REFER TO THE NATIONAL STANDARD PLUMBING CODE FOR ADDITIONAL DEFINITIONS.
- 1.05 DRAWINGS
- A. THE DRAWINGS ARE DIAGRAMMATIC AND ARE INTENDED TO ILLUSTRATE THE GENERAL ARRANGEMENT AND ROUTING OF PIPING AND GENERAL LOCATIONS OF EQUIPMENT. PRECISE LOCATIONS OF EQUIPMENT, RISERS AND STACKS, AND ROUTING AND ELEVATION OF ALL PIPING SYSTEMS SHALL BE COORDINATED IN THE FIELD WITH THE ARCHITECT, ARCHITECTURAL DRAWINGS, THE WORK OF OTHER TRADES, EXISTING AND NEW BUILDING CONDITIONS AND/OR THE PREFERENCES OF THE OWNER/TENANT AS CONSTRUCTION PROCEEDS. ALL PIPING SHALL BE INSTALLED CONCEALED IN FINISHED SPACES, UNLESS NOTED OTHERWISE.
- B. PROVIDE ALL NECESSARY INCIDENTAL MATERIALS AND ACCESSORIES REQUIRED TO MAKE THE WORK COMPLETE IN ALL RESPECTS, EVEN IF NOT PARTICULARLY SHOWN OR SPECIFIED.
- C. REFER TO PLUMBING EQUIPMENT/FIXTURE SCHEDULE ON THE DRAWINGS FOR ALL FIXTURE AND EQUIPMENT SPECIFICATIONS.
- D. REFER TO FIXTURE CONNECTION SIZE SCHEDULE FOR ALL FIXTURE ROUGHING SIZE REQUIREMENTS.
- E. VERIFY ALL INDICATED CONDITIONS BEFORE STARTING WORK AND REPORT ANY DISCREPANCIES. THE DRAWINGS REFLECT CONDITIONS WHICH CAN BE REASONABLY INTERPRETED FROM THE EXISTING VISIBLE CONDITIONS OR FROM DRAWINGS AND INFORMATION FURNISHED BY THE OWNER.
- F. LOCATE ALL FIXTURES AND EQUIPMENT AS PER THE FINAL ARCHITECTURAL DRAWINGS.
- 1.06 PRODUCTS
- A. SANITARY AND VENT PIPING:
- ABOVE GRADE PIPING SHALL BE HUBLESS CAST IRON PIPE WITH STAINLESS STEEL COUPLINGS AND ELASTOMERIC GASKETS WITH A MINIMUM NO. OF BANDS PER COUPLING AS PER CISPI 301. ALSO PVC IS APPROVED SUBSTITUTE FOR THE SANITARY DRAIN AND VENT.
 - SLOPE OF DRAINAGE SYSTEM SHALL BE 1/8" PER FOOT OF RUN FOR PIPE OVER 2" (I.D.) AND 1/4" PER FOOT OF RUN FOR PIPE 2" AND SMALLER (I.D.). VENT PIPING SHALL BE PITCHED TO DRAIN.
 - ALL CAST IRON SOIL PIPE AND FITTINGS SHALL BE MARKED WITH THE COLLECTIVE TRADEMARK OF THE CAST IRON SOIL PIPE INSTITUTE (CISPI) AND BE LISTED BY NSF INTERNATIONAL.
- B. DOMESTIC WATER PIPING:
- ABOVE GRADE WATER PIPING SHALL BE TYPE 'L' HARD-DRAWN COPPER TUBE.
 - FITTINGS IN DOMESTIC WATER PIPING SHALL BE WROUGHT COPPER OR CAST BRASS.
 - JOINTS SHALL BE MADE WITH LEAD-FREE SOLDER.
 - THE ENTIRE DOMESTIC WATER DISTRIBUTION SYSTEM SHALL BE INSULATED INCLUDING ALL VALVES, FITTINGS, ETC.
 - COMPLY WITH NSF 61 FOR MATERIALS FOR WATER-SERVICE PIPING AND SPECIALTIES FOR DOMESTIC WATER.
 - ALL RETICULATION PIPING, FIRST 8 FEET OF OUTLET OR BRANCH PIPING, INLET PIPING AND PIPING THAT IS EXTREMELY HEATED SHALL BE INSULATED IN ACCORDANCE WITH SECTION DETAIL AND TABLE C403.2.10.
 - WATER DISTRIBUTION SYSTEM AS PER NEWYORK STATE ENERGY CONSERVATION CODE 2020 C404.7, HAVING ONE OR MORE RECIRCULATION PUMPS THAT PUMP WATER FROM A HEATED-WATER SUPPLY PIPE BACK TO THE HEATED-WATER SOURCE THROUGH A COLD-WATER SUPPLY PIPE SHALL BE A DEMAND RECIRCULATION WATER SYSTEM. PUMPS SHALL HAVE CONTROLS THAT COMPLY WITH BOTH OF THE FOLLOWING:
 - THE CONTROL SHALL START THE PUMP UPON RECEIVING A SIGNAL FROM THE ACTION OF A USER OF A FIXTURE OR APPLIANCE, SENSING THE PRESENCE OF A USER OF A FIXTURE OR SENSING THE FLOW OF HOT OR TEMPERED WATER TO A FIXTURE FITTING OR APPLIANCE.
 - THE CONTROL SHALL LIMIT THE TEMPERATURE OF THE WATER ENTERING THE COLD-WATER PIPING TO 104°F (40°C).
 - AS PER NYS ENERGY CONSERVATION CODE 2020, C404.6.1 HEATED-WATER CIRCULATION SYSTEMS SHALL BE PROVIDED WITH A CIRCULATION PUMP. THE SYSTEM RETURN PIPE SHALL BE A DEDICATED RETURN PIPE OR A COLD WATER SUPPLY PIPE. CONTROLS FOR CIRCULATING HOT WATER SYSTEM PUMPS SHALL START THE PUMP BASED ON THE IDENTIFICATION OF A DEMAND FOR HOT WATER WITHIN THE OCCUPANCY. THE CONTROLS SHALL AUTOMATICALLY TURN OFF THE PUMP WHEN THE WATER IN THE CIRCULATION LOOP IS AT THE DESIRED TEMPERATURE AND WHEN THERE IS NO DEMAND FOR HOT WATER.
 - HW SYSTEM PIPING IS DESIGNED AS PER MAXIMUM ALLOWED PIPE LENGTH METHOD AS PER NYS ENERGY CONSERVATION CODE 2020 C404.6.1. THE HW PIPE LENGTH FROM THE NEAREST SOURCE OF HEATED WATER TO THE TERMINATION OF THE FIXTURE SUPPLY PIPE SHALL BE AS PER FOLLOWING TABLE
- | NOMINAL PIPE SIZE (INCHES) | MAXIMUM PIPING LENGTH (FEET) | |
|----------------------------|------------------------------|----------------|
| | PUBLIC LAV | OTHER FIXTURES |
| 1/2" | 2' | 43' |
| 3/4" | 0.5' | 20' |
| 1" | 0.5' | 13' |
| 1 1/4" | 0.5' | 8' |
| 1 1/2" | 0.5' | 6' |
| 2" OR LARGER | 0.5' | 4' |
- SEAL ALL JOINTS BETWEEN SEGMENTS OF INSULATION.
 - PROVIDE SHIELDS BETWEEN HANGERS AND INSULATION.

- AS PER NEW YORK STATE ENERGY CONSERVATION CODE 2020 C404.3 STORAGE TANK TYPE WATER HEATERS AND HOT WATER STORAGE TANKS THAT HAVE VERTICAL WATER PIPES CONNECTING TO THE INLET AND OUTLET OF THE TANK SHALL BE PROVIDED WITH INTEGRAL HEAT TRAPS AT THOSE INLETS AND OUTLETS OR SHALL HAVE PIPE CONFIGURED HEAT TRAPS IN THE PIPING CONNECTED TO THOSE INLETS AND OUTLETS.

C. MIXING VALVES

- VALVE BODY SHALL BE MADE OF CAST BRASS. THE INTERNAL COMPONENTS SHALL BE MADE OF BRASS OR STAINLESS STEEL.
- THE TEMPERATURE SETTING IS AS PER THE REQUIREMENT OF THE PLUMBING FIXTURE FOR LOCALIZED MIXING OF WATER.
- HANGERS AND SUPPORTS:
 - HANGERS SHALL BE STANDARD STEEL, MALLEABLE OR WROUGHT IRON, AS MANUFACTURED BY GRINNELL OR APPROVED EQUAL, SUITABLE FOR THE TYPE OF CONSTRUCTION. PIPING SHALL NOT BE HUNG FROM OTHER PIPE.
 - SECTIONS OF INDIVIDUAL PIPE RUNS SHALL BE SUPPORTED BY CLEVIS HANGERS.
 - ALL EQUIPMENT SHALL BE PROVIDED WITH APPROVED SUPPORTS.
 - PROVIDE SEISMIC RESTRAINTS IN ACCORDANCE WITH ALL APPLICABLE FEDERAL, STATE AND LOCAL CODES AND STANDARDS AND THE REQUIREMENTS OF AUTHORITIES HAVING JURISDICTION.
 - UNLESS OTHERWISE INDICATED OR REQUIRED BY AUTHORITIES HAVING JURISDICTION, THE FOLLOWING SHALL BE PROVIDED WITH SEISMIC RESTRAINTS AS REQUIRED BY THE 2020 NEW YORK STATE BUILDING CODE, SECTION 1610.6.4: ALL EQUIPMENT AND MACHINERY, ALL NEW PIPING 2-1/2" AND LARGER (1-1/4" AND LARGER INBOILER/MECHANICAL ROOMS) WITH HANGERS GREATER THAN 12" IN LENGTH FROM THE TOP OF PIPE TO THE STRUCTURE.
 - SUPPORTS SHALL BE PROVIDED IN STRICT ACCORDANCE WITH THE RECOMMENDATIONS OF THE PIPING MANUFACTURER.
- GAS PIPING
 - ALL GAS PIPING WORK SHALL COMPLY WITH 2020 NEW YORK STATE FUEL GAS AND LOCAL UTILITY GAS REQUIREMENTS.
 - FURNISH AND INSTALL ALL NECESSARY GAS PIPING TO ALL EQUIPMENT REQUIRING GAS SUPPLY.
 - PROVIDE A LUBRICATED GAS VALVE AT ALL CONNECTIONS TO EQUIPMENT.
 - ALL GAS PIPING AND INSTALLATION SHALL BE IN ACCORDANCE WITH RULES AND REGULATIONS OF LOCAL UTILITY GAS COMPANY AND OTHER AUTHORITIES HAVING JURISDICTION.
 - PROVIDE ADEQUATE SUPPORT FOR ALL PIPING.
 - GAS PIPING SHALL BE BLACK STEEL SCHEDULE 40 THREADED PIPE CONFORMING TO ANSI B36-20.
 - FITTINGS SHALL BE MALLEABLE IRON.
- VALVES:
 - PROVIDE GATE VALVES, BUTTERFLY OR BALL VALVES FOR SHUT-OFF DUTY ON MAIN AND BRANCH SUPPLY LINES. FOR ALL PIPE RUNS 2" AND SMALLER, PROVIDE BALL FOR ALL PIPE RUNS LARGER THAN 2" AND SMALLER THAN 4", PROVIDE GATE VALVES. PIPING 4" AND LARGER, PROVIDE BUTTERFLY VALVES FOR SHUT-OFF DUTY.
 - ALL FIXTURES WITH THE EXCEPTION O FLUSHOMETER-EQUIPPED WATER CLOSETS AND URINALS SHALL HAVE STOP VALVES TO CONTROL SUPPLY TO THE FIXTURE. WHERE SUPPLIES ARE EXPOSED PROVIDE CHROME-PLATED STOPS WITH CHROME-PLATED ESCUTCHEONS ON PIPING PENETRATIONS.
 - ALL PLUMBING FIXTURES AND EQUIPMENT TO HAVE SHUT-OFF VALVES ON SUPPLY LINES.
 - ALL BRANCH LINES TO HAVE SHUT-OFF VALVES.
 - ALL VALVES SHALL BE ACCESSIBLE. PROVIDE ACCESS DOORS WHERE REQUIRED FOR VALVE ACCESS.
 - PROVIDE GLOBE VALVES FOR THROTTLING/BALANCING OF THE HOT WATER CIRCULATING SYSTEM.

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REVISIONS		
NUMBER	REMARKS	DATE
1	REVIEW SET	05/22/2024
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PROJECT TITLE:



DRAWING TITLE: PLUMBING SYMBOL LIST, ABBREVIATIONS & GENERAL NOTES	
PERMIT DWG DATE: 05/09/2024	PROJECT NUMBER: 24-09-002
DRAWN BY: NYE	CHECKED BY: NYE

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P001

G. SLEEVES AND ESCUTCHEONS:

1. SLEEVES THROUGH STRUCTURAL CONCRETE MEMBERS AND SLEEVES FOR WALLS BELOW GRADE AND FLOORS ON GRADE SHALL BE STANDARD WEIGHT GALVANIZED SCHEDULE 40 STEEL PIPE. SLEEVES THROUGH OTHER THAN STRUCTURAL COMPONENTS OF THE BUILDING SHALL BE 20 GAGE GALVANIZED SHEET METAL WITH LOCK SEAM JOINTS. USG THERMAFIBER SAFING INSULATION SHALL BE INSTALLED BETWEEN PIPE AND SLEEVE.
2. PIPE ESCUTCHEON PLATES SHALL BE INSTALLED WHERE EXPOSED PIPING PASSES THROUGH WALLS, CEILINGS, AND FLOORS AND SHALL BE MINIMUM 20 GAGE STEEL. PROVIDE CHROME PLATED ESCUTCHEON PLATES IN FINISHED AREAS.

H. DRAINAGE ACCESSORIES

1. GENERAL:
- a. INSTALL THE WORK OF THIS SECTION IN ACCORDANCE WITH THE MANUFACTURER'S PRINTED INSTALLATION INSTRUCTIONS, UNLESS OTHERWISE SPECIFIED.
- b. SECURE EXTERNAL COMPONENTS IN PLACE WITH VANDAL RESISTANT FASTENERS OR DEVICES WHICH CANNOT BE REMOVED WITHOUT SPECIAL TOOLS.
- K. DEVICES:
- a. CLEANOUT & CLEANOUT PLUG
- THREADED PIPE FITTING OR CAST IRON FERRULE WITH GAS TIGHT CLEANOUT PLUG
- PLUG SHOULD BE CAST BRASS OR BRONZE, WITH THREADED END, AND RAISED OR COUNTERSUNK HEAD.
- LUBRICATE THREADS OF CLEANOUT PLUG WITH ANTI-SEIZE LUBRICANT BEFORE FINAL INSTALLATION.
- b. CLEANOUT WALL PLATE

- IT SHOULD BE ROUND, STAINLESS STEEL OR POLISHED CHROME PLATED BRONZE COVER PLATE WITH STAINLESS STEEL VANDAL RESISTANT FASTENER TO SECURE TO CLEANOUT PLUG.
- c. CLEANOUT DECK PLATE
- IT SHOULD BE STANDARD DUTY FLOOR CLEANOUT FITTING WITH COATED CAST IRON BODY; ROUND, POLISHED NICKEL BRONZE SCORIATED TOP SECURED TO CLEANOUT PLUG WITH STAINLESS STEEL VANDAL RESISTANT FASTENER; THREADED HEIGHT ADJUSTMENT, CAST IRON HEAD, GAS TIGHT CLEANOUT PLUG, AND CONNECTION TO MATCH PIPING OPTION SELECTED.
- GRILLE FREE AREA SHOULD BE AT LEAST EQUAL TO CROSS-SECTION AREA OF PIPE TO WHICH CONNECTION MADE AND MADE OF POLISHED NICKEL BRONZE, WITH REMOVABLE GRATE, EITHER PERFORATED OR BAR TYPE. GRATE ATTACHED TO GRILLE BODY WITH VANDAL RESISTANT FASTENER.

- L. INSTALL PIPING TO CONSERVE BUILDING SPACE. DO NOT INTERFERE WITH USE OF BUILDING SPACE AND THE WORK OF OTHER TRADES. ALL PIPING RUN IN CEILING SHALL BE INSTALLED TIGHT TO THE STRUCTURE ABOVE.

- M. INSTALL PIPING TO ALLOW FOR EXPANSION AND CONTRACTION WITHOUT STRESSING PIPE, JOINTS OR CONNECTED EQUIPMENT. PROVIDE PIPE ANCHORS, GUIDES AND EXPANSION JOINTS OR LOOPS IN ALL HOT WATER AND HOT WATER CIRCULATING MAIN SUPPLY PIPING AND SEGMENTS OF SUCH PIPE THAT EXCEED 30'-0" IN LENGTH.

- N. IN ALL AREAS WITH FINISHED SURFACES, SYSTEM PIPING AND COMPONENTS SHALL BE CONCEALED ABOVE OR WITHIN FINISHED SURFACES.

- O. REDUCTIONS IN PIPE SIZES SHALL BE MADE WITH ONE-PIECE REDUCING FITTINGS. BUSHINGS ARE NOT ACCEPTABLE. USE FLANGED FITTINGS AT THE BASE OF RISERS.

- P. VENT PENETRATIONS THROUGH THE ROOF SHALL BE FLASHED.

- Q. IF WATER PRESSURE EXCEEDS 80 PSI, A WATER PRESSURE REDUCING VALVE SHALL BE INSTALLED IN WATER PIPING AT CONNECTION TO MAIN.

- R. PROVIDE DIELECTRIC FITTINGS BETWEEN DISSIMILAR METALS.

- S. PIPE BACKFLOW PREVENTER DRAINS TO FLOOR DRAIN OR OTHER APPROVED INDIRECT WASTE SOURCE.

- T. PROVIDE ACCESS DOORS/PANELS FOR SERVICE AND ACCESS TO ALL VALVES AND OTHER SYSTEM COMPONENTS ENCLOSED IN WALLS AND CEILINGS. ACCESS DOORS SHALL BE FURNISHED BY THIS CONTRACTOR, INSTALLED BY THE GENERAL CONTRACTOR.

- U. ALL FIXTURES REQUIRING VACUUM BREAKERS SHALL BE EQUIPPED WITH INTEGRAL VACUUM BREAKERS.

- W. ANY PENETRATIONS THROUGH FIRE RATED PARTITIONS, FLOORS, OR CEILINGS SHALL BE STEEL SLEEVED AND SEALED WITH 3M BRAND UL RATED FIRE BARRIER CAULK OR APPROVED EQUAL.

- X. WHEN THE WATER PIPING SYSTEM IS COMPLETE, THOROUGHLY FLUSH ALL DIRT, SEDIMENT, SOLDER, ETC., OUT OF THE SYSTEM, REMOVING ALL STRAINERS, VALVE STEM SEATS, ETC., REQUIRED TO ACCOMPLISH THE FLUSHING.

- Y. AT ALL INDIRECT WASTE DRAINS, MAINTAIN AIR GAP AS REQUIRED BY CODE.

- Z. INSTALL SLEEVES FOR ALL PIPES WHICH PASS THROUGH WALLS, FLOORS, AND CEILINGS, WHERE PIPES ARE TO BE INSULATED. THE SLEEVE SHALL BE LARGE ENOUGH TO ACCOMMODATE INSULATION. SLEEVES SHALL BE FLUSH WITH FINISHED SURFACES AT BOTH ENDS. ON FINISHED SURFACES IN EXPOSED AREAS PROVIDE ESCUTCHEONS COMPATIBLE WITH FINISH.

- AA. PROVIDE WATER HAMMER ARRESTERS ON SUPPLY PIPING TO ALL FLUSHOMETER VALVES AND QUICK-CLOSING VALVES.
- AB. UNLESS OTHERWISE INDICATED, TRAPS SEALS AT ALL FLOOR DRAINS SHALL BE MAINTAINED BY AN APPROVED TRAP PRIMING DEVICE.

- AC. MAINTAIN ALL REQUIRED AND RECOMMENDED CLEARANCES FOR ALL PLUMBING SYSTEM COMPONENTS AND EQUIPMENT.

- AD. MAINTAIN MINIMUM 10'-0" CLEARANCE BETWEEN ALL PLUMBING V.T.R.S. AND ALL OUTDOOR AIR INTAKES. OFFSET VENT STACKS AND STACK VENTS IF AND AS REQUIRED BELOW ROOF TO MAINTAIN SUCH CLEARANCE WHETHER OR NOT SUCH OFFSET IS INDICATED ON THE DRAWINGS. PROVIDE ALL REQUIRED SEISMIC SUPPORTS.

2. INSTALLATION

2.01 GENERAL

- A. ALL WORK WHICH REQUIRES DISRUPTION OF THE ROOFING SHALL BE DONE BY A CONTRACTOR CERTIFIED BY THE ROOFING MANUFACTURER AS REQUIRED TO MAINTAIN ANY EXISTING ROOF WARRANTIES.

- B. EXTERIOR INSTALLATIONS TO BE WEATHER PROOF IN ALL RESPECTS.

- C. EXTERIOR MATERIALS AND EQUIPMENT SHALL BE PAINTED TO PREVENT CORROSION, COLOR PER ARCHITECT.

- D. COORDINATE THE PLUMBING WORK WITH ALL OTHER AFFECTED WORK AND THE CONSTRUCTION SCHEDULE.

- E. REAM PIPE AND TUBE ENDS. REMOVE BURRS. BEVEL PLAIN AND FERROUS END PIPE.

- F. REMOVE SCALE AND FOREIGN MATERIAL, FROM INSIDE AND OUTSIDE, BEFORE ASSEMBLY.

- G. PREPARE PIPING CONNECTIONS TO EQUIPMENT WITH FLANGES AND UNIONS.

- H. COORDINATION WITH THE WORK OF OTHER TRADES IS REQUIRED. PROVIDE OFFSETS IN PIPING SYSTEMS OR MINOR DEVIATIONS TO THE INDICATED PIPE ROUTING IN ORDER TO COORDINATE THE PLUMBING WORK WITH THE WORK OF ALL OTHER TRADES AND THE GENERAL BUILDING CONDITIONS.

- I. NO DOMESTIC WATER PIPING SHALL BE INSTALLED IN UNHEATED SPACES.

- J. PRIOR TO DISCONNECTING AND CONNECTING NEW WORK TO EXISTING SYSTEMS, THE PLUMBING CONTRACTOR SHALL NOTIFY THE PROPERTY MANAGER AND OFFER A PROPOSED SCHEDULE OF WORK. ESB WILL AUTHORIZE CONNECTIONS AND COORDINATE NECESSARY SHUT DOWNS AND DRAIN DOWNS AS REQUIRED. SHUT DOWNS AND DRAIN DOWNS MAY BE PERFORMED BY THE PLUMBING CONTRACTOR ONLY AFTER RECEIVING ESB AUTHORIZATION, AND SHOULD BE PERFORMED UNDER SUPERVISION OF ESB PERSONNEL. THREE (3) DAYS ADVANCE NOTICE TO THE PROPERTY MANAGER IS REQUIRED.

- K. THE PLUMBING CONTRACTOR IS ADVISED THAT DUE TO THE NATURE OF THE OPERATIONS AND TENANT REQUIREMENTS, CONNECTIONS TO EXISTING SYSTEMS MAY HAVE TO BE MADE AFTER REGULAR WORKING HOURS. THE PROPERTY MANAGER WILL ADVISE THE PLUMBING CONTRACTOR OF THE TIME CONSTRAINTS UPON RECEIPT AND APPROVAL OF THE PLUMBING CONTRACTOR'S REQUEST FOR SHUT DOWN AND CONNECTION TO EXISTING SYSTEMS.

- L. WHEN CONNECTING TO EXISTING STACKS AND RISERS, PROVISION IS TO BE MADE FOR FUTURE CONNECTIONS BY PROVIDING CAPPED AND VALVED OUTLETS ON DOMESTIC WATER RISERS AND PLUGGED OUTLETS ON THE SANITARY AND VENT STACKS.

2.02 ABOVE GRADE

- A. INSTALL PLUMBING PIPING IN ACCORDANCE WITH RECOGNIZED INDUSTRY PRACTICES TO ENSURE THAT PIPING COMPLIES WITH REQUIREMENTS AND SERVES INTENDED PURPOSES.

- B. ROUTE PIPING IN AN ORDERLY MANNER, PLUMB AND PARALLEL TO BUILDING STRUCTURE. MAINTAIN GRADIENT. SLOPE PIPING AND ARRANGE SYSTEMS TO DRAIN. IN DOMESTIC WATER SYSTEMS, PROVIDE DRAIN VALVES AT MAIN SHUT-OFF VALVES AND ALL LOW POINTS IN PIPING.

- C. USE EXISTING CONNECTIONS AT MAINS WHERE AVAILABLE FOR NEW BRANCH PIPING. LOCATE ALL RISERS AND PIPING BEFORE CONSTRUCTION COMMENCES AND TAKE CARE NOT TO DAMAGE SAME. ANY DAMAGE OCCURRING TO THE EXISTING PIPING WILL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR.

2.03 INSULATION (PIPE AND FITTINGS)

A. PIPING

COVER ALL HOT WATER PIPE WITH 1" THICK FOR PIPE SIZE UP TO 1½" AND 1½" THICK FOR PIPE SIZE 1½" AND GREATER WITH MANVILLE MICRO-LOK AP-T PLUS FIBERGLASS INSULATION. COVER ALL COLD WATER PIPE WITH ½" THICK FOR PIPE SIZE UP TO 1½" AND 1" THICK FOR PIPE SIZE 1½" AND GREATER WITH 1" MANVILLE MICRO-LOK AP-T PLUS FIBERGLASS INSULATION. FITTINGS AND VALVES SHALL BE INSULATED. INSTALL ALL INSULATION AS PER MANUFACTURERS RECOMMENDATIONS. ALL INSULATION MATERIAL SHALL COMPLY WITH THE NEW YORK STATE BUILDING CODE, 8TH EDITION REQUIREMENT OF A FLAME SPREAD RATING NOT TO EXCEED 25 AND A SMOKE DEVELOPED RATING NOT TO EXCEED 50. ALL PIPE INSULATION SHALL COMPLY WITH NYS BUILDING CODE, ENERGY CONSERVATION, 8TH EDITION.

3. TESTING

- A. AT THE COMPLETION OF THE PLUMBING WORK, COMPLETELY TEST THE ENTIRE INSTALLATION OF ALL SYSTEMS FOR PROPER OPERATION AND COMPLIANCE WITH APPLICABLE CODES AND LOCAL REQUIREMENTS. CORRECT ALL DEFICIENCIES FOUND.

- B. TESTING OF THE INSTALLED SYSTEMS SHALL BE MADE BY THE CONTRACTOR IN THE PRESENCE OF A REPRESENTATIVE OF THE OWNER.

- C. THE CONTRACTOR SHALL NOT COVER UP OR PERMANENTLY CONCEAL PIPING, DEVICES OR ANY PORTION OF NEWLY CONSTRUCTED PLUMBING SYSTEM(S) UNTIL SUCH SYSTEM, OR PORTION OF THE SYSTEM, HAS BEEN TESTED IN THE PRESENCE OF A REPRESENTATIVE OF THE OWNER AND INSPECTED BY THE LOCAL INSPECTOR AND APPROVED IN WRITING, EXCEPT PIPING PASSING THROUGH FLOORS, WALLS, PARTITIONS, OR BEAMS FOR DISTANCES EQUAL TO THE THICKNESS OF SUCH FLOOR, WALL, PARTITION OR BEAM.

- D. THIS CONTRACTOR SHALL NOTIFY THE VARIOUS DEPARTMENTS, BUREAUS AND INDIVIDUALS AT LEAST TWO WEEKS IN ADVANCE OF THE TIME THAT THE TESTS ARE TO BE CONDUCTED.

- E. ALL DEFECTIVE PARTS SHALL BE REPLACED OR CORRECTED BY THIS CONTRACTOR AND AN EXTRA TEST OR TESTS SHALL BE MADE UNTIL THE OPERATION IS SATISFACTORY. ALL ARRANGEMENTS AND EXPENSES NECESSARY TO CONDUCT ALL TESTS REQUIRED BY THESE SPECIFICATIONS AND THE VARIOUS AGENCIES HAVING JURISDICTION OVER THE WORK INSTALLED UNDER THIS CONTRACT SHALL BE MADE BY THIS CONTRACTOR. NO EXTRA COMPENSATION WILL BE ALLOWED FOR THESE TESTS, THE COST THEREOF BEING INCLUDED IN THE LUMP SUM BID FOR THIS CONTRACT.

- F. WHERE ANY EVIDENCE OF STOPPAGE IS FOUND IN PIPING OR EQUIPMENT, THIS CONTRACTOR SHALL DISCONNECT, CLEAN, REPAIR AND RECONNECT ALL OBSTRUCTED PIPING OR EQUIPMENT AND SHALL ALSO PAY FOR ALL NECESSARY CUTTING AND REPAIRS TO ADJOINING WORK.

- G. ALL PIPING AND EQUIPMENT SHALL BE THOROUGHLY CLEANED INSIDE AND OUT, OF DIRT, CUTTINGS, OILS AND OTHER FOREIGN SUBSTANCES AND SHALL BE LEFT CLEAN.

- H. ALL REQUIRED TESTS SHALL BE WITNESSED BY LOCAL AUTHORITIES AND THE OWNER'S REPRESENTATIVE.

- I. ALL EQUIPMENT WILL BE FACTORY TESTED.

- J. CONTRACTOR SHALL IDENTIFY TO THE OWNER'S REPRESENTATIVE ANY LEAKS OR DAMAGE THAT OCCURS AS A RESULT OF SYSTEM TESTING. CONTRACTOR SHALL TAKE NECESSARY PRECAUTIONS TO LIMIT ANY POTENTIAL DAMAGE. CORRECTIVE ACTION REQUIRED AS A RESULT OF TESTING SHALL BE PERFORMED IMMEDIATELY AND AT THE CONTRACTOR'S EXPENSE.

- K. REPORT IN WRITING TO AUTHORITIES HAVING JURISDICTION, THE ARCHITECT AND THE OWNER THE RESULTS OF ALL TESTING.

- L. TESTING REQUIREMENTS
- a. TEST ALL DOMESTIC WATER PIPING HYDROSTATICALLY TO 125 PSIG.
- b. HYDROSTATIC TEST PRESSURES SHALL REMAIN CONSTANT WITH NO VARIATION FOR 120 MINUTES.
- c. TESTS SHALL BE WITNESSED BY THE BUILDING ENGINEER.
- d. THE PLUMBING CONTRACTOR WILL BE HELD RESPONSIBLE FOR ALL DAMAGE DUE TO TEST FAILURES AND LEAKAGE IN THE TEST AREA AND ADJACENT TENANT OR ESB SPACES.

- M. REFILL ENTIRE POTABLE HOT AND COLD WATER SUPPLY SYSTEM WITH CHLORINE SOLUTION (HTH OLIN CHEMICAL CORP.) AT A STRENGTH TO MEET STANDARDS OF THE DEPARTMENT OF HEALTH, AND FOR A PERIOD OF RETENTION AS STIPULATED.

- N. THOROUGHLY FLUSH PIPING SYSTEM WITH FRESH WATER IMMEDIATELY PRIOR TO FINAL ACCEPTANCE.

- O. INSPECTION & TESTING SHALL BE AS PER 2020 NEW YORK STATE BUILDING CODE, PLUMBING, 8TH EDITION SECTION 312.

4. WARRANTY

- A. EQUIPMENT, MATERIALS AND WORKMANSHIP FURNISHED UNDER THIS CONTRACT SHALL BE GUARANTEED BY THE CONTRACTOR FOR A PERIOD OF ONE YEAR FROM THE DATE OF FINAL ACCEPTANCE OF THE WORK BY THE OWNER. THE CONTRACTOR SHALL KEEP THE WORK IN GOOD REPAIR FOR ONE YEAR AFTER THE DATE OF FINAL APPROVAL. THE CONTRACTOR SHALL, AT HIS OWN EXPENSE, PROMPTLY CORRECT AND REPAIR ANY AND ALL BREAKS, FAILURES OR WEAR DUE TO FAULTY MATERIALS, WORKMANSHIP OR EQUIPMENT. ALL SETTLEMENTS OF SURFACES THAT MAY OCCUR WITHIN THAT PERIOD SHALL ALSO BE PROMPTLY REPAIRED.

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1	REVIEW SET	05/22/2024
2	PERMIT SET	09/06/2024

ISSUED FOR:	DATE ISSUED:
REVIEW	05/22/2024

PROJECT TITLE:



DRAWING TITLE:

PLUMBING SPECIFICATIONS

PERMIT DWG DATE: 05/09/2024	PROJECT NUMBER: 24-09-002
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DRAWN BY: NYE	CHECKED BY: NYE
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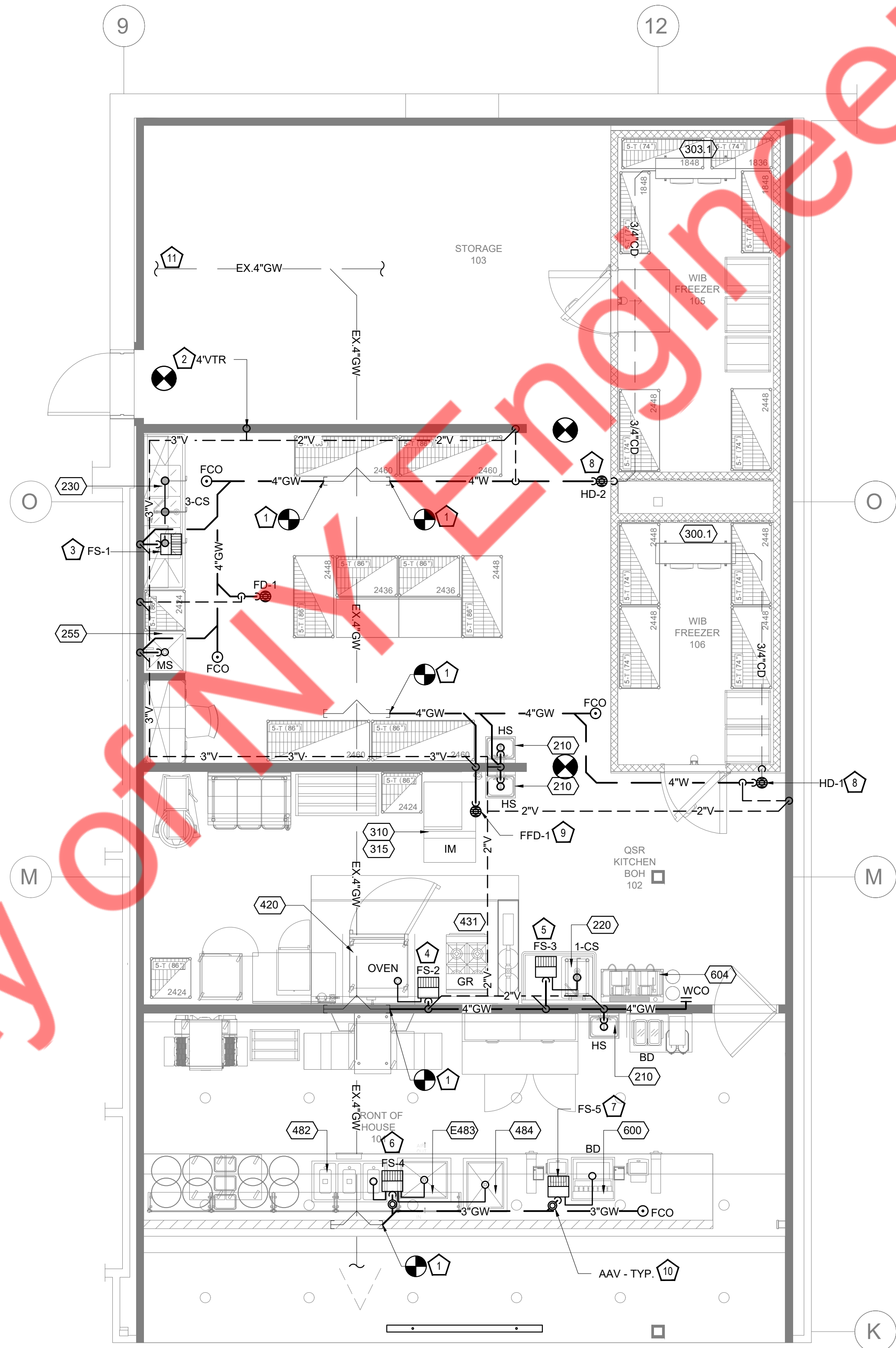
P002

PLUMBING GENERAL NOTES:

- ANY CHANGES AND/ OR UPGRADES TO TENANT'S EXISTING PLUMBING SYSTEMS SHALL COMPLY WITH ALL CODES AND SERVICE AREA CRITERIA. EXISTING SYSTEMS SHALL POSSESS THE CAPACITY TO HANDLE ANY AND ALL CHANGES IN LOAD.
- ALL WATER LINES SHALL BE COPPER - PVC IS NOT PERMITTED. THERE SHALL BE NO PIPING JOINTS OF FITTINGS INSTALLED IN WATER PIPING BELOW THE FLOOR SLAB.
- ALL DRAIN, WASTE AND VENT FITTINGS ABOVE GRADE MUST BE CAST IRON PIPE. ALSO PVC IS APPROVED SUBSTITUTE FOR THE SANITARY DRAIN AND VENT.
- PLUMBING IS NOT PERMITTED IN ANY DEMISING PARTITIONS. FURROUT THE WALL AS NECESSARY.
- EXHAUST AND PLUMBING VENTS SHALL BE LOCATED A MINIMUM OF 10'-0" AWAY FROM ANY OUTSIDE AIR INTAKE, AND 5'-0" FROM ANY DEMISING WALL VERTICAL PLANE.
- ALL FLOOR DRAINS ARE REQUIRED TO HAVE TRAP PRIMERS.
- ANY UNUSED PLUMBING EQUIPMENT, PIPING, ETC., WITHIN OR SERVING THE PREMISES MUST BE COMPLETELY REMOVED TO POINT OF ORIGIN. DO NOT ABANDON IN PLACE.
- ALL FLOOR PENETRATIONS MUST BE CORE BORED, SLEEVED, GROUTED, SEALED AND MADE WATERPROOF. SLEEVES MUST EXTEND A MINIMUM OF 4" AFF.
- IF NOT ALREADY EXISTING, INSTALL A SHUT OFF VALVE ON DOMESTIC WATER LINE INSIDE SPACE.
- NO ROOF PENETRATIONS PERMITTED WITHIN ROOF WATER PLY, REFER TO ROOF PLAN FOR LOCATIONS.
- REFER TO RISER DIAGRAM FOR ALL WASTE AND VENT SIZES
- VERIFY WITH THE LOCAL BUILDING AUTHORITY THAT CONDENSATE DRAINAGE CAN BE ROUTED TO THE MOP SINK.
- THE SUSPENSION OF ANY ITEMS FROM BASE BUILDING STRUCTURE BY MEANS OF DRILLING, WELDING, SHOOTING ARE PROHIBITED. CONTRACTOR TO MAKE SURE ALL THE EQUIPMENTS AND PIPES TO BE SUPPORTED BY MEANS OF THE BEAM CLAMPS

SANITARY AND VENT PLAN KEYED NOTES:

- EXTEND AND CONNECT NEW 4" 3/4" GREASE WASTE PIPING TO THE EXISTING GREASE WASTE STUB UP IN THE SPACE. CONTRACTOR SHALL VERIFY THE EXISTING STUB UP SIZE, ROUTING, INVERT, DIRECTION OF FLOW & TIE-IN CONNECTION PRIOR TO BID.
- EXTEND AND CONNECT NEW 3" VENT PIPING TO THE NEW 4" VTR.
- ROUTE 2" INDIRECT DRAIN FROM 3-COMPARTMENT SINK TO FLOOR SINK-1 WITH AN APPROVED AIR GAP AS PER LOCAL CODE.
- ROUTE INDIRECT DRAIN FROM OVEN TO FLOOR SINK-2 WITH AN APPROVED AIR GAP AS PER LOCAL CODE.
- ROUTE INDIRECT DRAIN FROM 1-COMPARTMENT SINK AND CARBONATOR TO FLOOR SINK-3 WITH AN APPROVED AIR GAP AS PER LOCAL CODE.
- ROUTE INDIRECT DRAIN FROM HOT WELL AND COLD PAN TO FLOOR SINK-4 WITH AN APPROVED AIR GAP AS PER LOCAL CODE.
- ROUTE INDIRECT DRAIN FROM BEVERAGE DISPENSER TO FLOOR SINK-5 WITH AN APPROVED AIR GAP AS PER LOCAL CODE
- PROVIDE 3/4" COPPER CONDENSATE FROM DRAIN PROVIDED BY VENDOR TO OUTFALL AT FLOOR SINK / HUB DRAIN (HEAT ROPE IS SUPPLIED WITH FREEZER CONDENSATE).
- ROUTE INDIRECT DRAIN FROM ICE MACHINE AND ICE BIN TO ADJACENT FUNNEL FLOOR DRAIN WITH AN APPROVED AIR GAP AS PER LOCAL CODE.
- PROVIDE AIR ADMITTANCE VALVE BELOW COUNTER. CONTRACTOR TO FIELD VERIFY AND PROVIDE/INSTALL AAV AS PER LOCAL CODE.
- CONTRACTOR SHALL VERIFY OR CO-ORDINATE WITH LANDLORD / CIVIL DRAWINGS FOR EXISTING EXTERIOR GREASE INTERCEPTOR LOCATION AND CAPACITY TO ENSURE EXISTING INTERCEPTOR WILL SUFFICE THE ADDITION OF DRAIN FROM OUR SPACE.



1 PLUMBING SANITARY AND VENT PLAN
Scale: 1/4"=1'-0"

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DRAWING TITLE:

PLUMBING SANITARY
AND VENT PLAN

PERMIT DWG DATE: 05/09/2024	PROJECT NUMBER: 24-09-002
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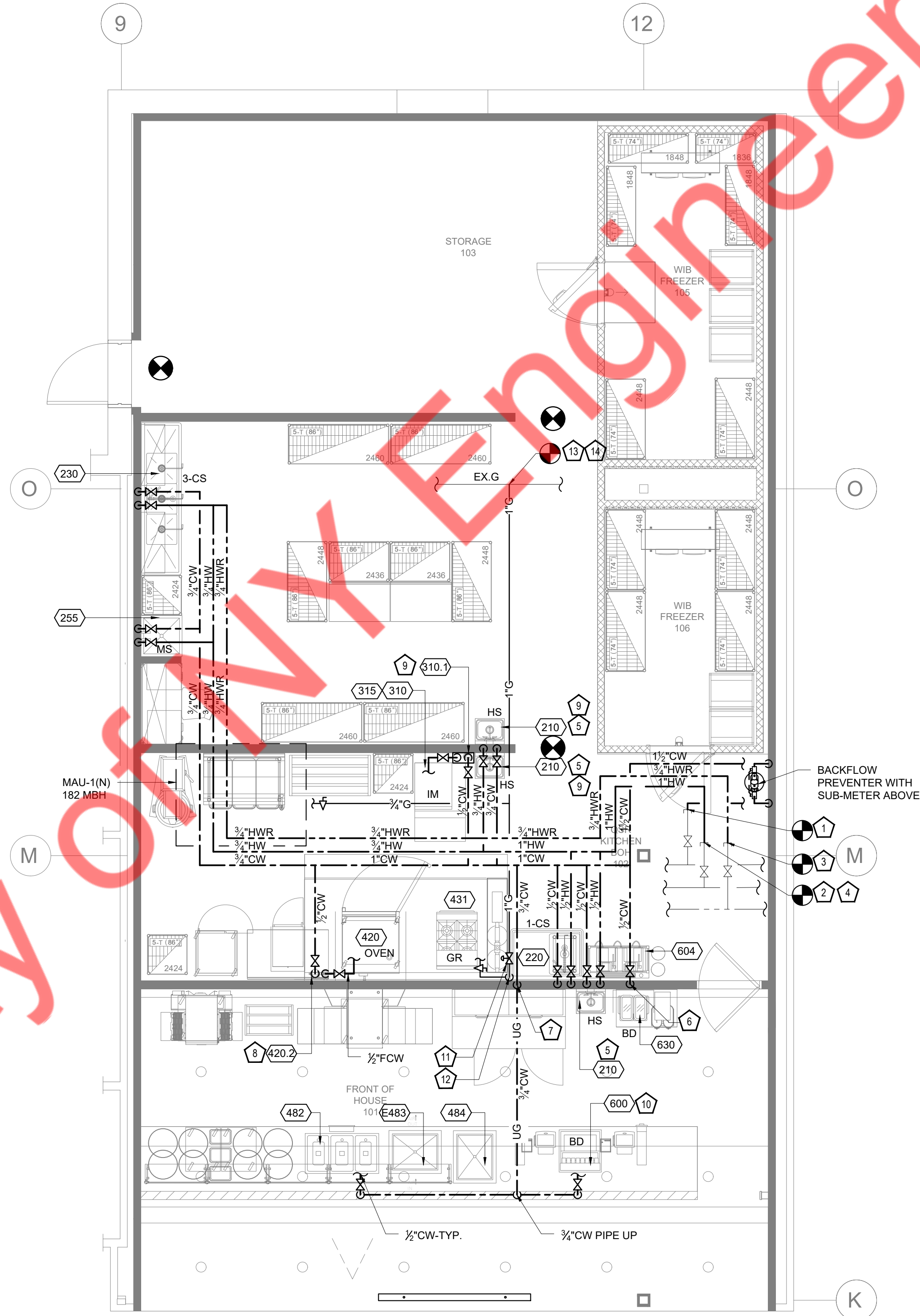
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DRAWING NUMBER:

P100

- PLUMBING GENERAL NOTES:
1. ANY CHANGES AND/ OR UPGRADES TO TENANT'S EXISTING PLUMBING SYSTEMS SHALL COMPLY WITH ALL CODES AND SERVICE AREA CRITERIA. EXISTING SYSTEMS SHALL POSSESS THE CAPACITY TO HANDLE ANY AND ALL CHANGES IN LOAD.
 2. ALL WATER LINES SHALL BE COPPER - PVC IS NOT PERMITTED. THERE SHALL BE NO PIPING JOINTS OF FITTINGS INSTALLED IN WATER PIPING BELOW THE FLOOR SLAB.
 3. ALL DRAIN, WASTE AND VENT FITTINGS ABOVE GRADE MUST BE CAST IRON PIPE. ALSO PVC IS APPROVED SUBSTITUTE FOR THE SANITARY DRAIN AND VENT.
 4. PLUMBING IS NOT PERMITTED IN ANY DEMISING PARTITIONS. FURROUT THE WALL AS NECESSARY.
 5. EXHAUST AND PLUMBING VENTS SHALL BE LOCATED A MINIMUM OF 10'-0" AWAY FROM ANY OUTSIDE AIR INTAKE, AND 5'-0" FROM ANY DEMISING WALL VERTICAL PLANE.
 6. ALL FLOOR DRAINS ARE REQUIRED TO HAVE TRAP PRIMERS.
 7. ANY UNUSED PLUMBING EQUIPMENT, PIPING, ETC., WITHIN OR SERVING THE PREMISES MUST BE COMPLETELY REMOVED TO POINT OF ORIGIN. DO NOT ABANDON IN PLACE.
 8. ALL FLOOR PENETRATIONS MUST BE CORE BORED, SLEEVED, GROUTED, SEALED AND MADE WATERPROOF. SLEEVES MUST EXTEND A MINIMUM OF 4" AFF.
 9. IF NOT ALREADY EXISTING, INSTALL A SHUT OFF VALVE ON DOMESTIC WATER LINE INSIDE SPACE.
 10. NO ROOF PENETRATIONS PERMITTED WITHIN ROOF WATER PLY. REFER TO ROOF PLAN FOR LOCATIONS.
 11. REFER TO RISER DIAGRAM FOR ALL WASTE AND VENT SIZES
 12. VERIFY WITH THE LOCAL BUILDING AUTHORITY THAT CONDENSATE DRAINAGE CAN BE ROUTED TO THE MOP SINK.
 13. THE SUSPENSION OF ANY ITEMS FROM BASE BUILDING STRUCTURE BY MEANS OF DRILLING, WELDING, SHOOTING ARE PROHIBITED. CONTRACTOR TO MAKE SURE ALL THE EQUIPMENTS AND PIPES TO BE SUPPORTED BY MEANS OF THE BEAM CLAMPS

- WATER AND GAS PLAN KEYED NOTES:
1. CONNECT NEW 1-1/2" CW LINE TO EXISTING COLD WATER MAIN LINE IN THE SPACE. PROVIDE BFP AND CONTRACTOR TO COORDINATE WITH LANDLORD FOR WATER METER.
 2. CONNECT NEW 1" HW LINE TO EXISTING HOT WATER MAIN LINE IN THE SPACE. CONTRACTOR TO FILED VERIFY EXISTING WATER MAIN PIPE SIZE AND LOCATION PRIOR TO BID.
 3. CONNECT NEW 3/4" HWR LINE TO EXISTING HOT WATER RETURN MAIN LINE IN THE SPACE. CONTRACTOR TO FILED VERIFY EXISTING WATER MAIN PIPE SIZE AND LOCATION PRIOR TO BID.
 4. CONTRACTOR TO CO-ORDINATE WITH LANDLORD AND ENSURE THE EXISTING HOT WATER MAIN LINE WILL PROVIDE THE ADEQUATE HOT WATER SUPPLY FOR THE SPACE.
 5. PROVIDE THERMOSTATIC MIXING VALVE SET TO 110 F AT EACH HAND SINK
 6. 1/2" COLD WATER DOWN IN WALL TO BEVERAGE DISPENSER AND CARBONATOR.
 7. 3/4" COLD WATER DOWN IN WALL AND RUNNING UNDERGROUND TO SODA ICE / BEVERAGE DISPENSER AND DROP IN HOT WELL
 8. 1/2" COLD WATER PIPE DOWN IN WALL TO FILTER AND 1/2" FILTER WATER SUPPLY FROM THE FILTRATION UNIT TO THE OVEN. PROVIDE ASSE APPROVED 1022 SECONDARY BACKFLOW PREVENTERS BY WATTS SD-3 FOR EQUIPMENT AS PER CODE.
 9. 1/2" COLD WATER PIPE DOWN IN WALL TO FILTER AND 1/2" FILTER WATER SUPPLY FROM THE FILTRATION UNIT TO THE ICE MAKER. PROVIDE ASSE APPROVED 1012 SECONDARY BACKFLOW PREVENTERS BY WATTS LF-9 FOR EQUIPMENT AS PER CODE.
 10. PROVIDE ASSE APPROVED 1022 SECONDARY BACKFLOW PREVENTERS BY WATTS SD-3 FOR BEVERAGE DISPENSER AS PER CODE.
 11. EMERGENCY GAS SHUT OFF VALVE LOCATED BELOW CEILING.
 12. 1" GAS DOWN IN WALL TO COOKING EQUIPMENT. VERTICAL GAS PIPING IN WALL SHALL NOT BE RIGIDLY SECURED AND ADEQUATE PIPE PROTECTION SHALL BE PROVIDED.
 13. CONNECT NEW 1" GAS PIPING TO EXISTING GAS PIPING RUNNING IN THE SPACE. CONTRACTOR TO FIELD VERIFY EXISTING PIPE LOCATION, PRESSURE AND MAKE SURE TO PROVIDE ADEQUATE INLET PRESSURE REQUIRED FOR KITCHEN EQUIPMENTS AND MECHANICAL EQUIPMENTS. PROVIDE PRESSURE REGULATOR BEFORE THE EQUIPMENT IF REQUIRED. CONTRACTOR SHALL PROVIDE NEW DIRT LEG, SHUT-OFF PLUG COCK, AND UNION. ALSO PROVIDE SHUT-OFF VALVE AN ACCESSIBLE LOCATION.
 14. GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATION AND COST OF CONNECTING/DISCONNECTING BY THE GAS COMPANY.



1 PLUMBING WATER AND GAS PLAN
Scale: 1/4"=1'-0"

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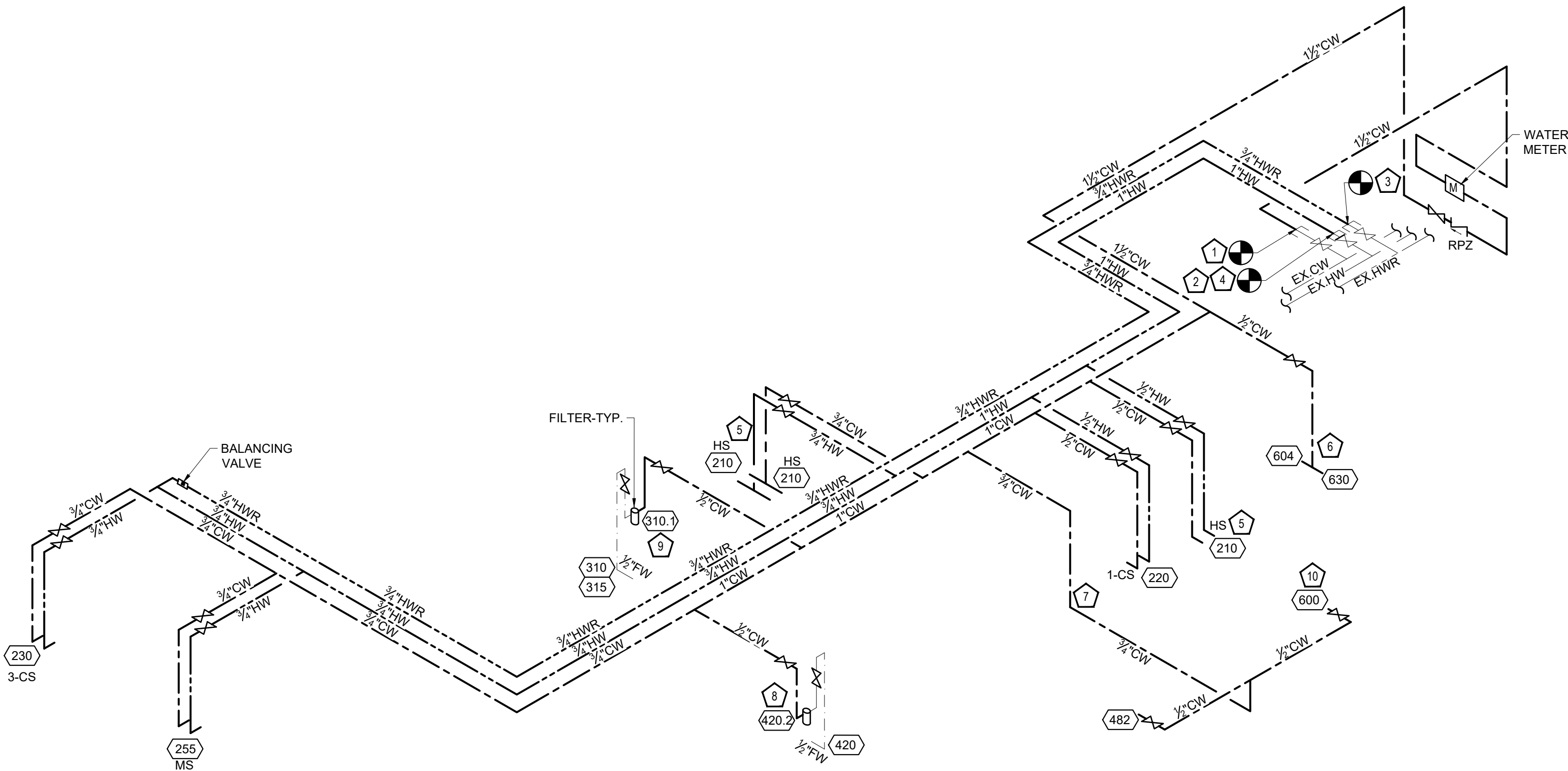
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PLUMBING WATER
AND GAS PLAN

PERMIT DWG DATE: 05/09/2024	PROJECT NUMBER: 24-09-002
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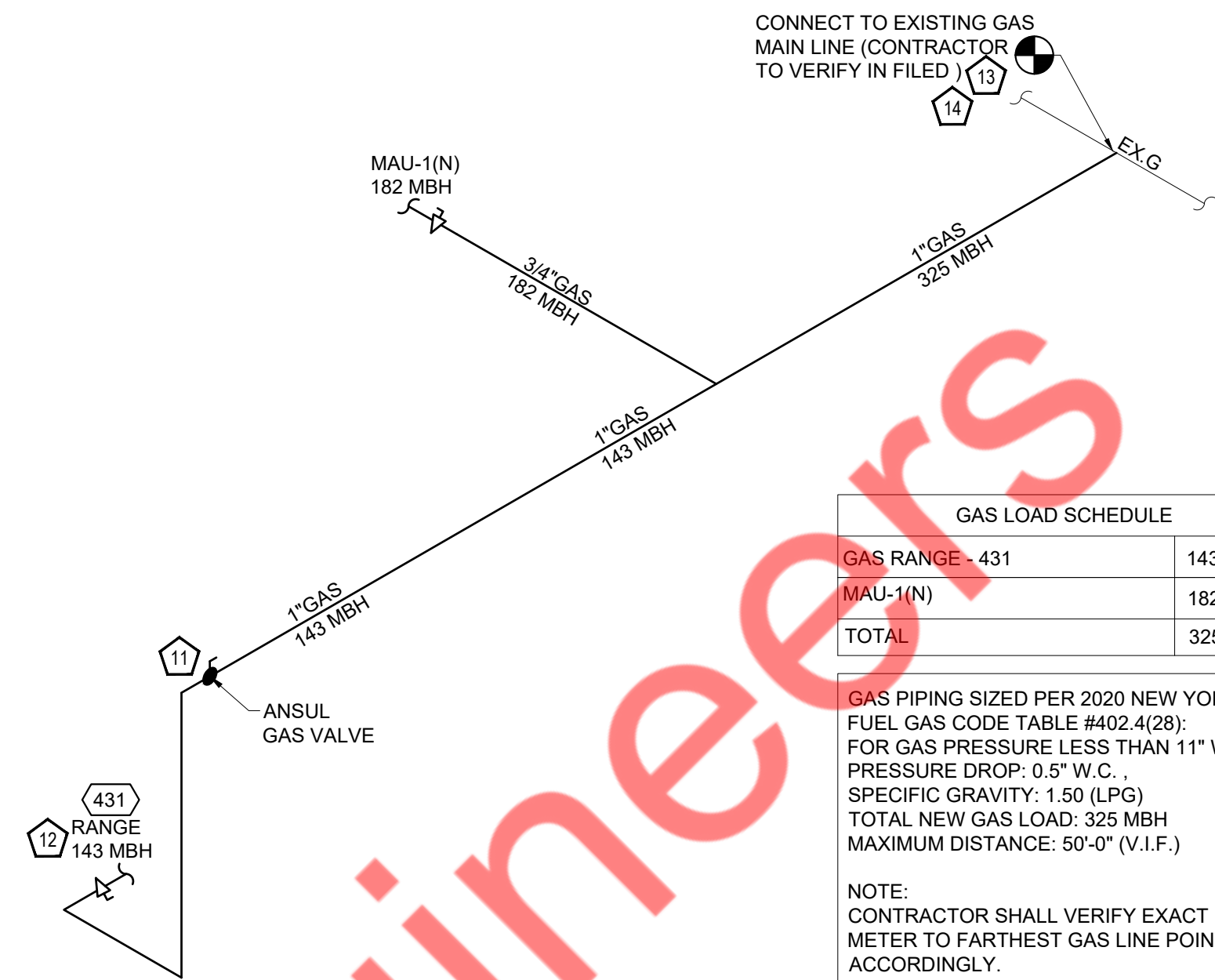
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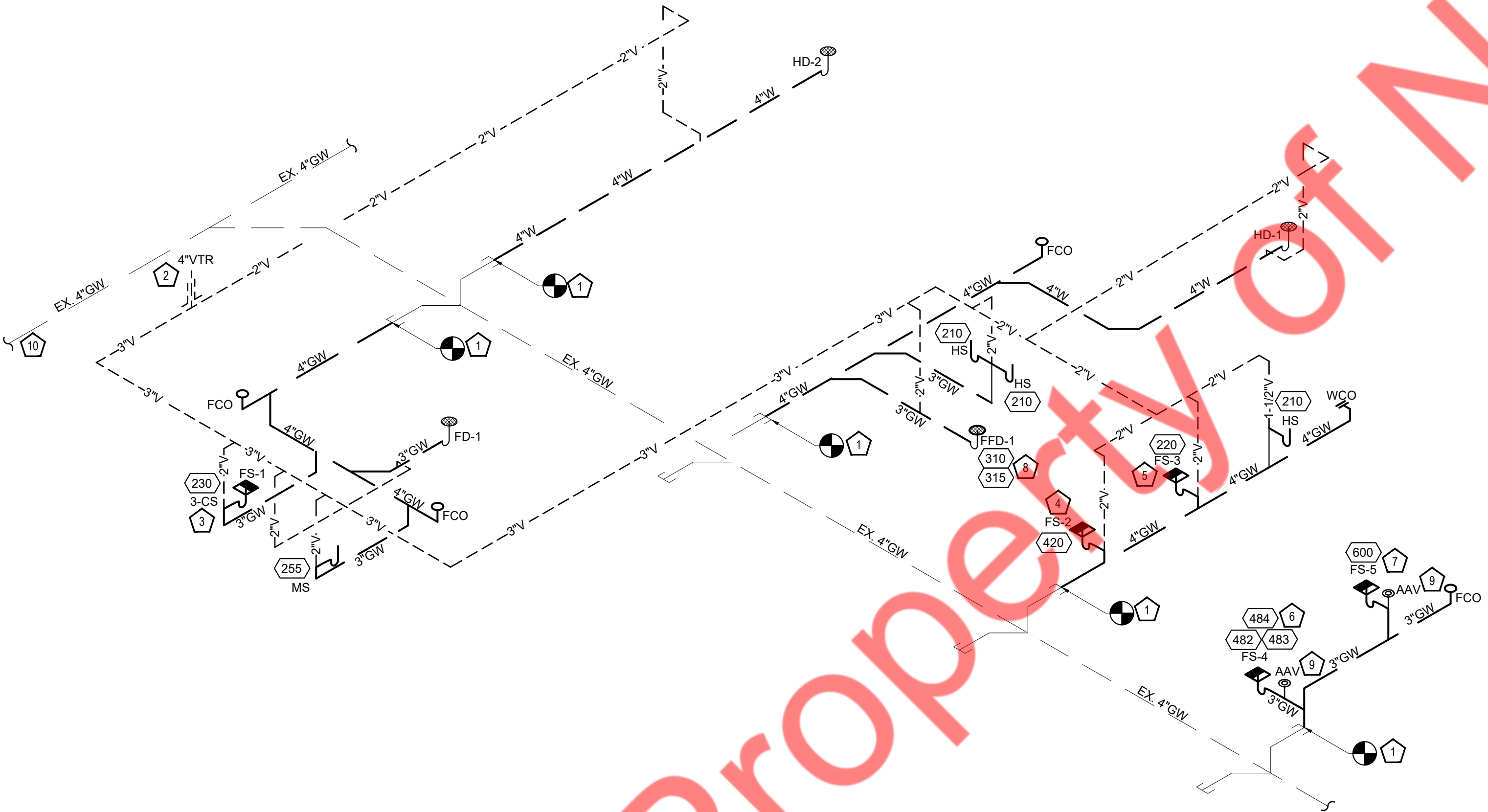
P101



1 WATER ISOMETRIC DIAGRAM
SCALE: NOT TO SCALE



3 GAS ISOMETRIC DIAGRAM
SCALE: NOT TO SCALE



2 SANITARY AND VENT ISOMETRIC DIAGRAM
SCALE: NOT TO SCALE

- CONNECT NEW 1-1/2" CW LINE TO EXISTING COLD WATER MAIN LINE IN THE SPACE. PROVIDE BFP AND CONTRACTOR TO COORDINATE WITH LANDLORD FOR WATER METER.
- CONNECT NEW 1" HW LINE TO EXISTING HOT WATER MAIN LINE IN THE SPACE. CONTRACTOR TO FILED VERIFY EXISTING WATER MAIN PIPE SIZE AND LOCATION PRIOR TO BID.
- CONNECT NEW 3/4" HWR LINE TO EXISTING HOT WATER RETURN MAIN LINE IN THE SPACE. CONTRACTOR TO FILED VERIFY EXISTING WATER MAIN PIPE SIZE AND LOCATION PRIOR TO BID.
- CONTRACTOR TO CO-ORDINATE WITH LANDLORD AND ENSURE THE EXISTING HOT WATER MAIN LINE WILL PROVIDE THE ADEQUATE HOT WATER SUPPLY FOR THE SPACE.
- PROVIDE THERMOSTATIC MIXING VALVE SET TO 110 F AT EACH HAND SINK
- 1/2" COLD WATER DOWN IN WALL TO BEVERAGE DISPENSER AND CARBONATOR.
- 3/4" COLD WATER DOWN IN WALL AND RUNNING UNDERGROUND TO SODA ICE / BEVERAGE DISPENSER AND DROP IN HOT WELL
- 1/2" COLD WATER PIPE DOWN IN WALL TO FILTER AND 1/2" FILTER WATER SUPPLY FROM THE FILTRATION UNIT TO THE OVEN. PROVIDE ASSE APPROVED 1022 SECONDARY BACKFLOW PREVENTERS BY WATTS SD-3 FOR EQUIPMENT AS PER CODE.
- 1/2" COLD WATER PIPE DOWN IN WALL TO FILTER AND 1/2" FILTER WATER SUPPLY FROM THE FILTRATION UNIT TO THE ICE MAKER. PROVIDE ASSE APPROVED 1012 SECONDARY BACKFLOW PREVENTERS BY WATTS LF-9 FOR EQUIPMENT AS PER CODE.
- PROVIDE ASSE APPROVED 1022 SECONDARY BACKFLOW PREVENTERS BY WATTS SD-3 FOR BEVERAGE DISPENSER AS PER CODE.
- EMERGENCY GAS SHUT OFF VALVE LOCATED BELOW CEILING.
- 1" GAS DOWN IN WALL TO COOKING EQUIPMENT. VERTICAL GAS PIPING IN WALL SHALL NOT BE RIGIDLY SECURED AND ADEQUATE PIPE PROTECTION SHALL BE PROVIDED.
- CONNECT NEW 1" GAS PIPING TO EXISTING GAS PIPING RUNNING IN THE SPACE. CONTRACTOR TO FIELD VERIFY EXISTING PIPE LOCATION, PRESSURE AND MAKE SURE TO PROVIDE ADEQUATE INLET PRESSURE REQUIRED FOR KITCHEN EQUIPMENTS AND MECHANICAL EQUIPMENTS. PROVIDE PRESSURE REGULATOR BEFORE THE EQUIPMENT IF REQUIRED. CONTRACTOR SHALL PROVIDE NEW DIRT LEG, SHUT-OFF PLUG COCK, AND UNION. ALSO PROVIDE SHUT-OFF VALVE AN ACCESSIBLE LOCATION.
- GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATION AND COST OF CONNECTING/DISCONNECTING BY THE GAS COMPANY.

4 WATER AND GAS KEYED NOTES

- EXTEND AND CONNECT NEW 4"/3" GREASE WASTE PIPING TO THE EXISTING GREASE WASTE STUB UP IN THE SPACE. CONTRACTOR SHALL VERIFY THE EXISTING STUB UP SIZE, ROUTING, INVERT, DIRECTION OF FLOW & TIE-IN CONNECTION PRIOR TO BID.
- EXTEND AND CONNECT NEW 3" VENT PIPING TO THE NEW 4" VTR.
- ROUTE 2" INDIRECT DRAIN FROM 3-COMPARTMENT SINK TO FLOOR SINK-1 WITH AN APPROVED AIR GAP AS PER LOCAL CODE.
- ROUTE INDIRECT DRAIN FROM OVEN TO FLOOR SINK-2 WITH AN APPROVED AIR GAP AS PER LOCAL CODE.
- ROUTE INDIRECT DRAIN FROM 1-COMPARTMENT SINK AND CARBONATOR TO FLOOR SINK-3 WITH AN APPROVED AIR GAP AS PER LOCAL CODE.
- ROUTE INDIRECT DRAIN FROM HOT WELL AND COLD PAN TO FLOOR SINK-4 WITH AN APPROVED AIR GAP AS PER LOCAL CODE.
- ROUTE INDIRECT DRAIN FROM BEVERAGE DISPENSER TO FLOOR SINK-5 WITH AN APPROVED AIR GAP AS PER LOCAL CODE
- ROUTE INDIRECT DRAIN FROM ICE MACHINE AND ICE BIN TO ADJACENT FUNNEL FLOOR DRAIN WITH AN APPROVED AIR GAP AS PER LOCAL CODE.
- PROVIDE AIR ADMITTANCE VALVE BELOW COUNTER. CONTRACTOR TO FIELD VERIFY AND PROVIDE/INSTALL AAV AS PER LOCAL CODE.
- CONTRACTOR SHALL VERIFY OR CO-ORDINATE WITH LANDLORD / CIVIL DRAWINGS FOR EXISTING EXTERIOR GREASE INTERCEPTOR LOCATION AND CAPACITY TO ENSURE EXISTING INTERCEPTOR WILL SUFFICE THE ADDITION OF DRAIN FROM OUR SPACE.

5 SANITARY AND VENT KEYED NOTES

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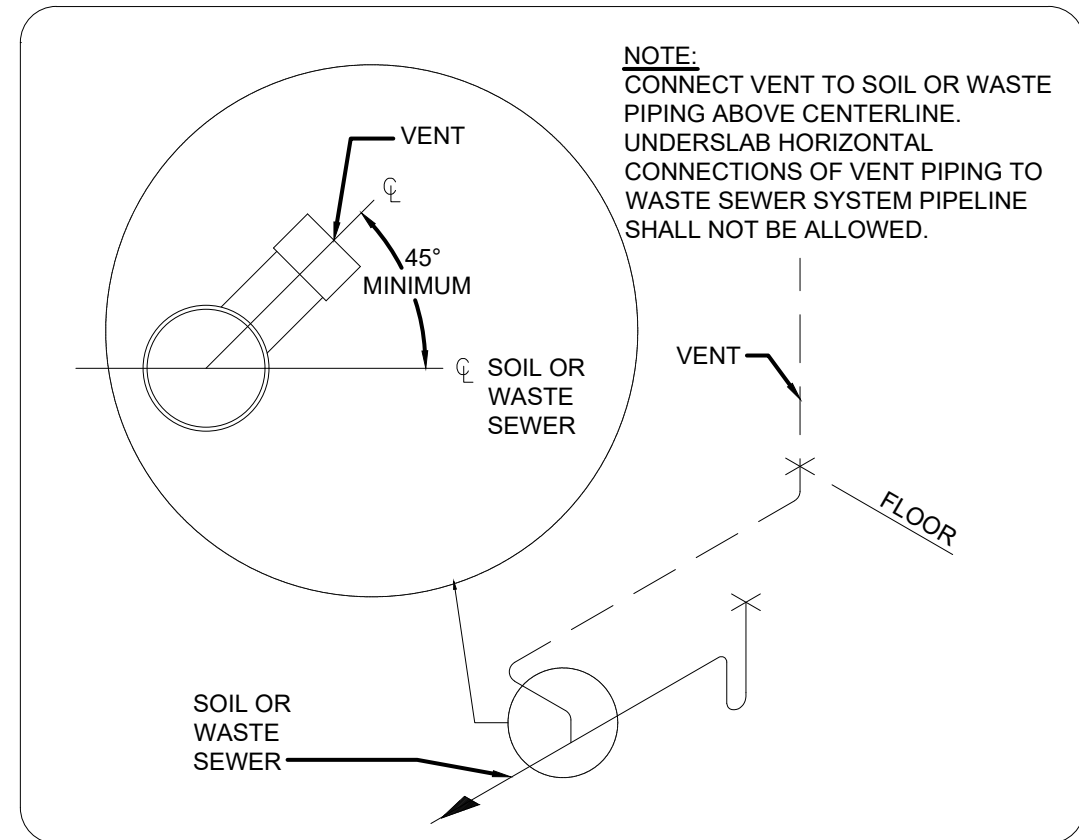
PLUMBING RISER
DIAGRAMS

PERMIT DWG DATE: 05/09/2024	PROJECT NUMBER: 24-09-002
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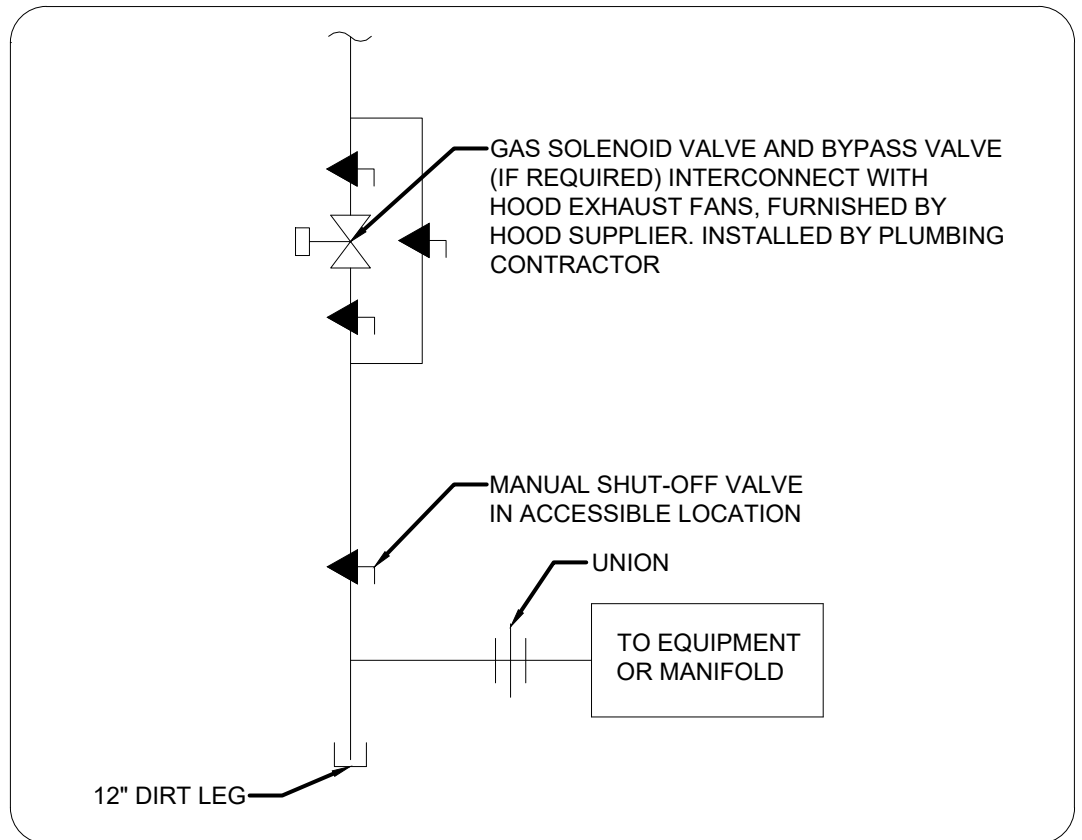
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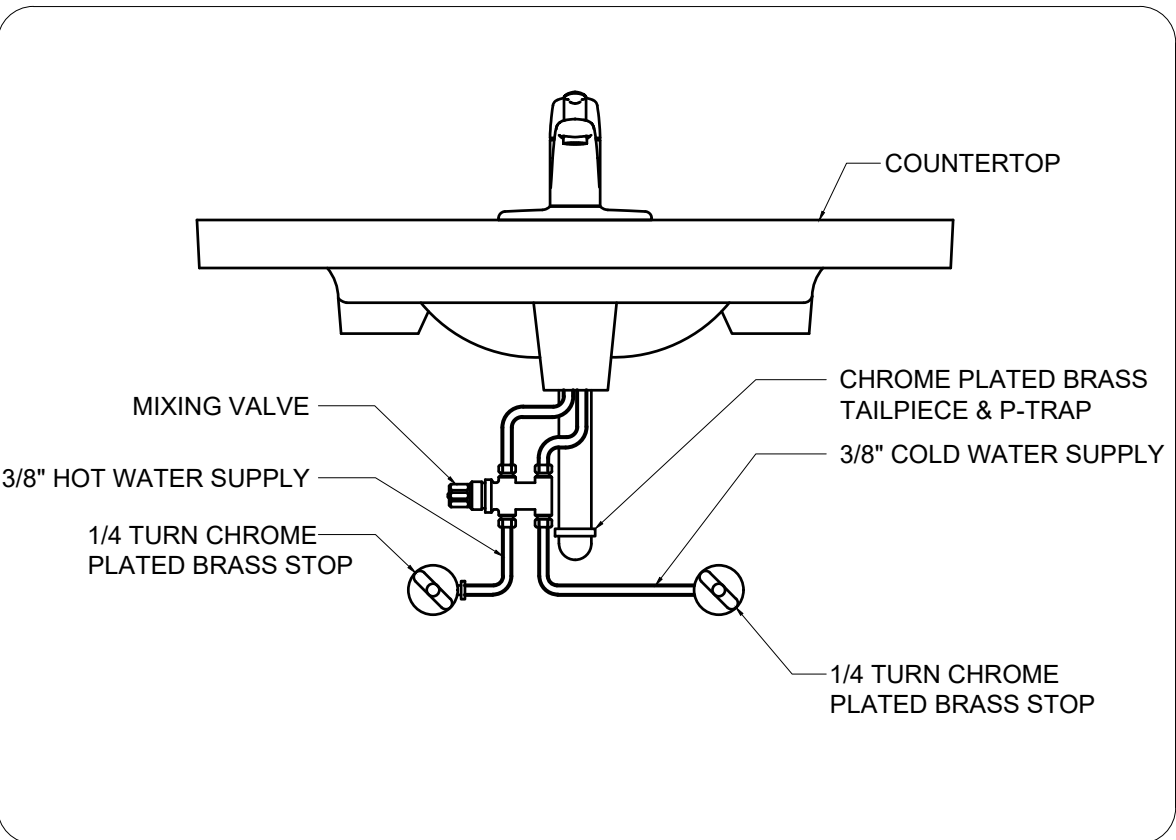
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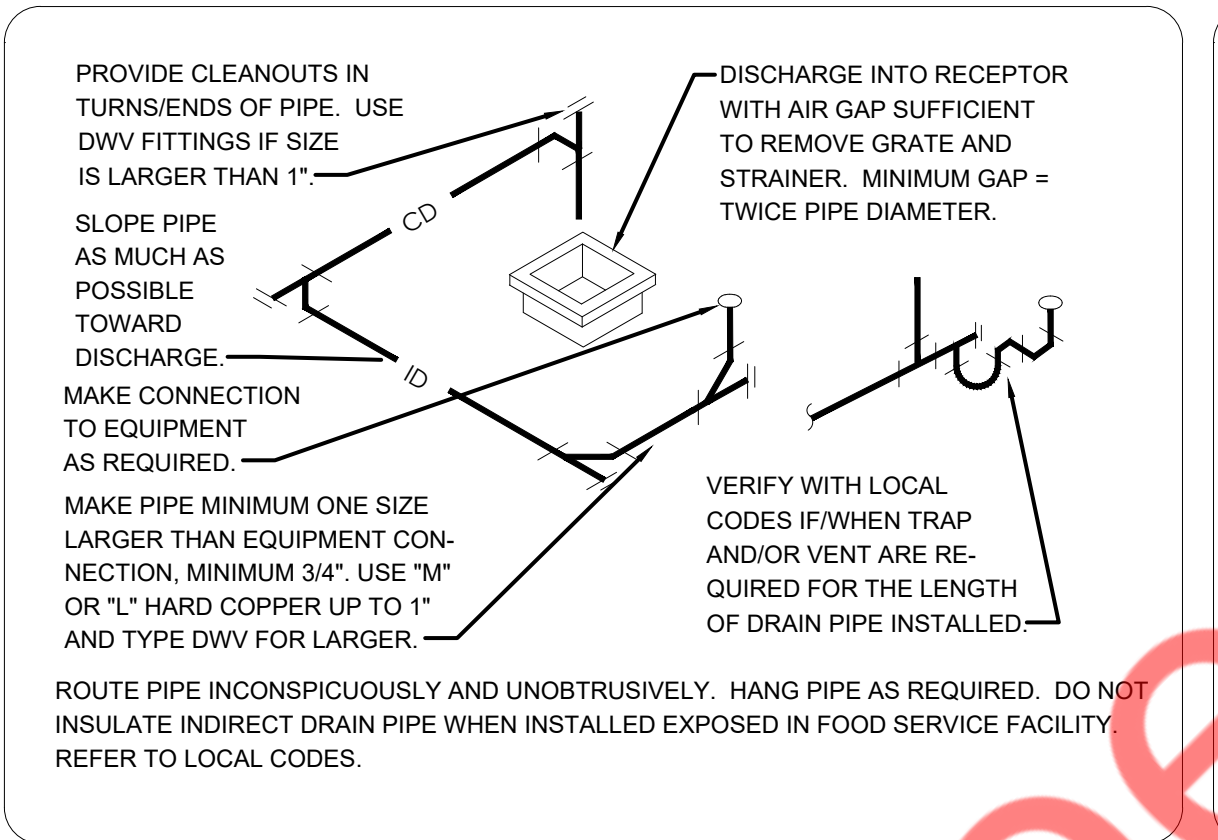
1 VENT PIPING INSTALLATION
SCALE: NOT TO SCALE



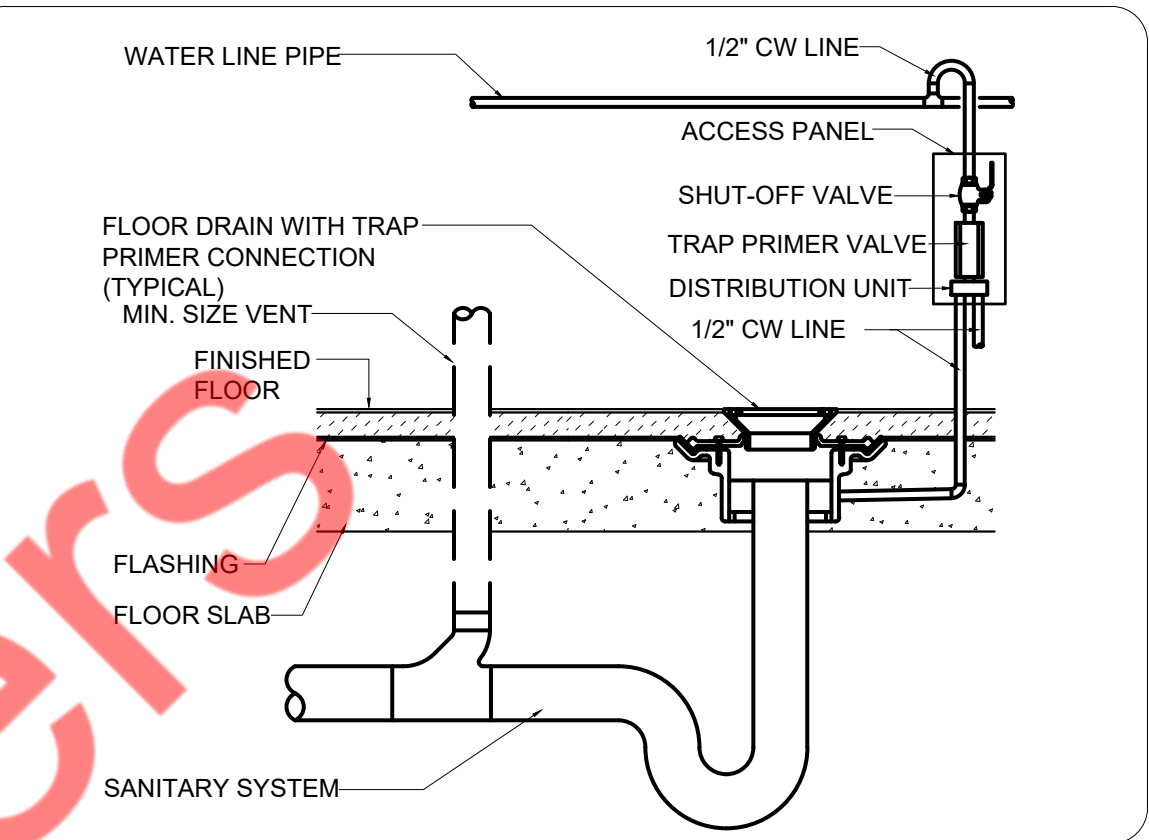
2 AUTOMATIC GAS SHUT-OFF VALVE
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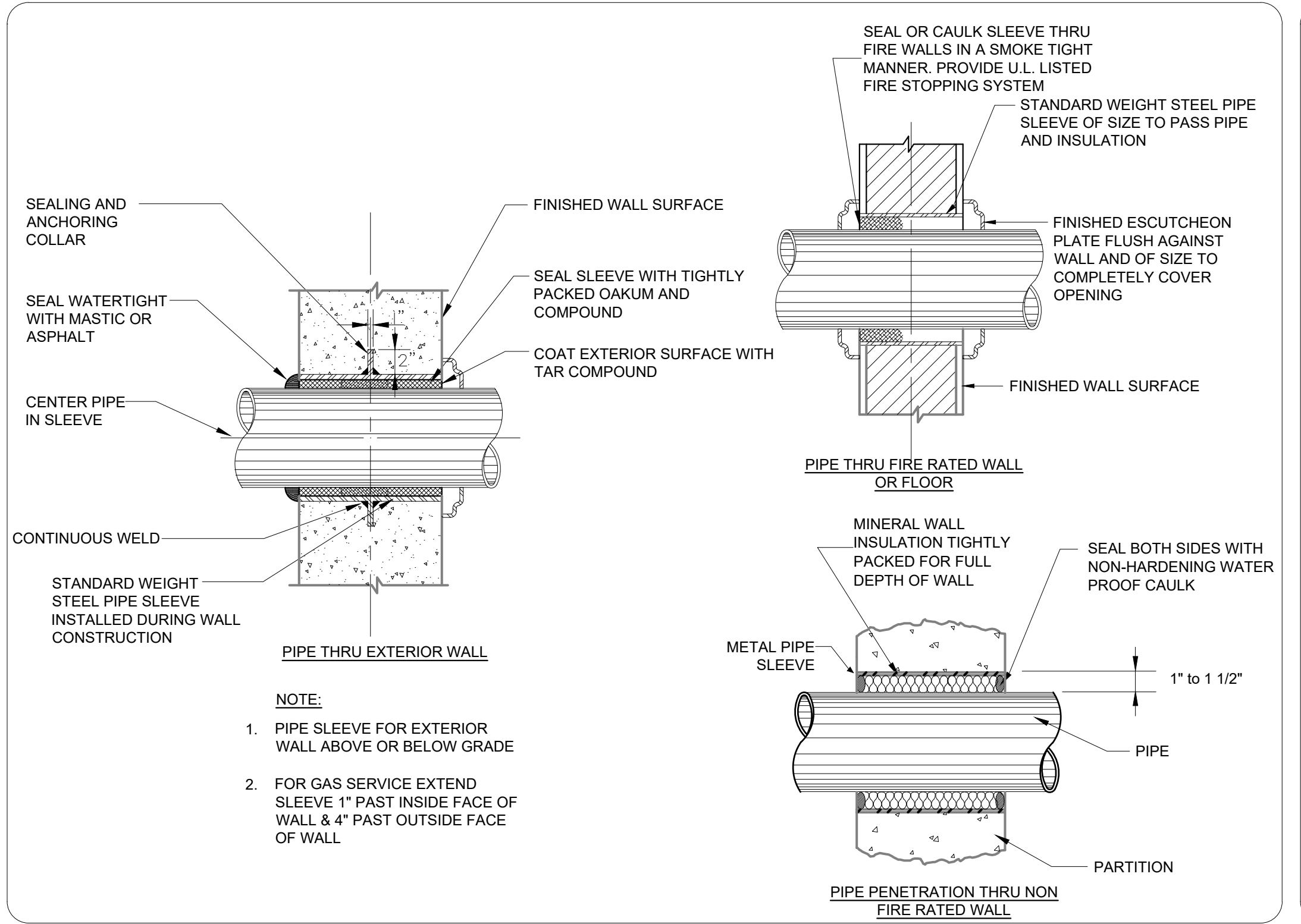
3 MIXING VALVE DETAILS
SCALE: NOT TO SCALE



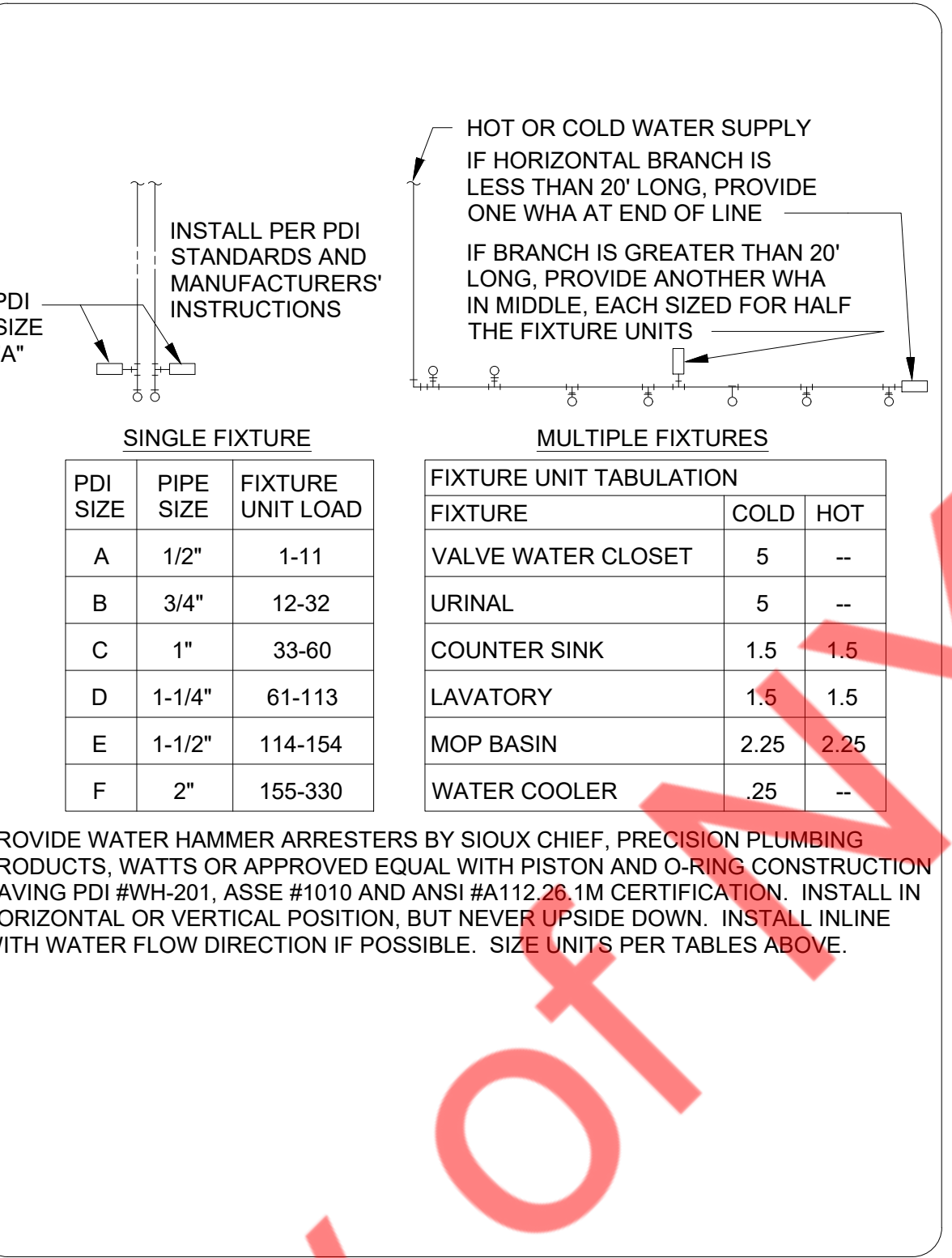
4 INDIRECT CONDENSATE DRAIN DETAILS
SCALE: NOT TO SCALE



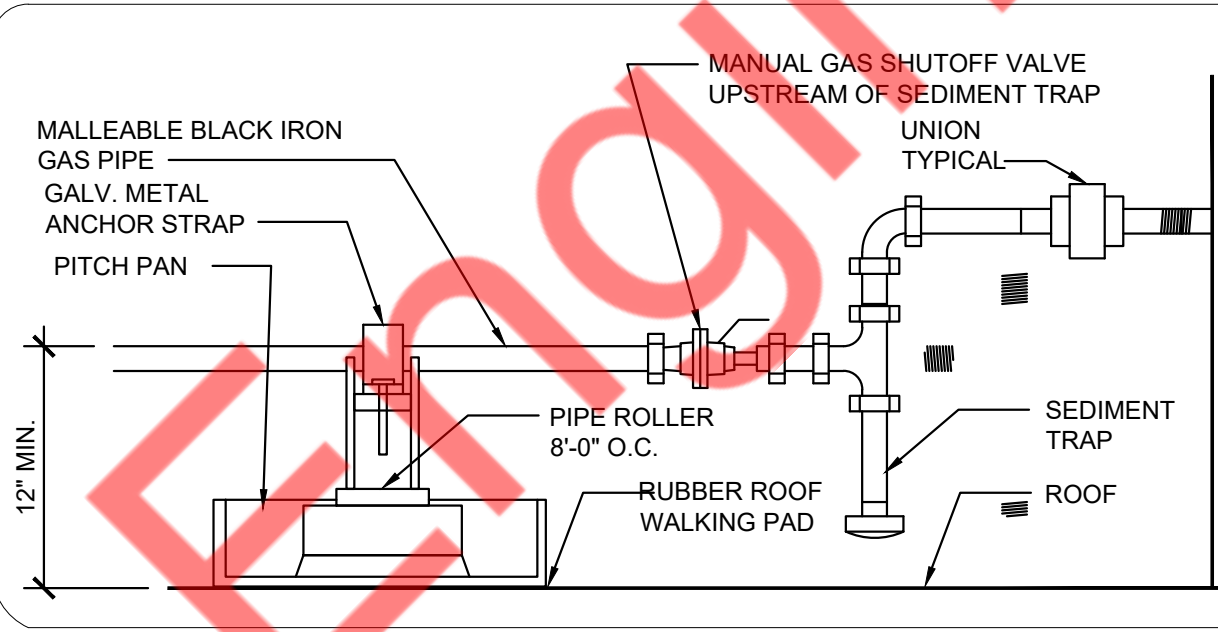
5 FLOOR DRAIN WITH TRAP PRIMER
SCALE: NOT TO SCALE



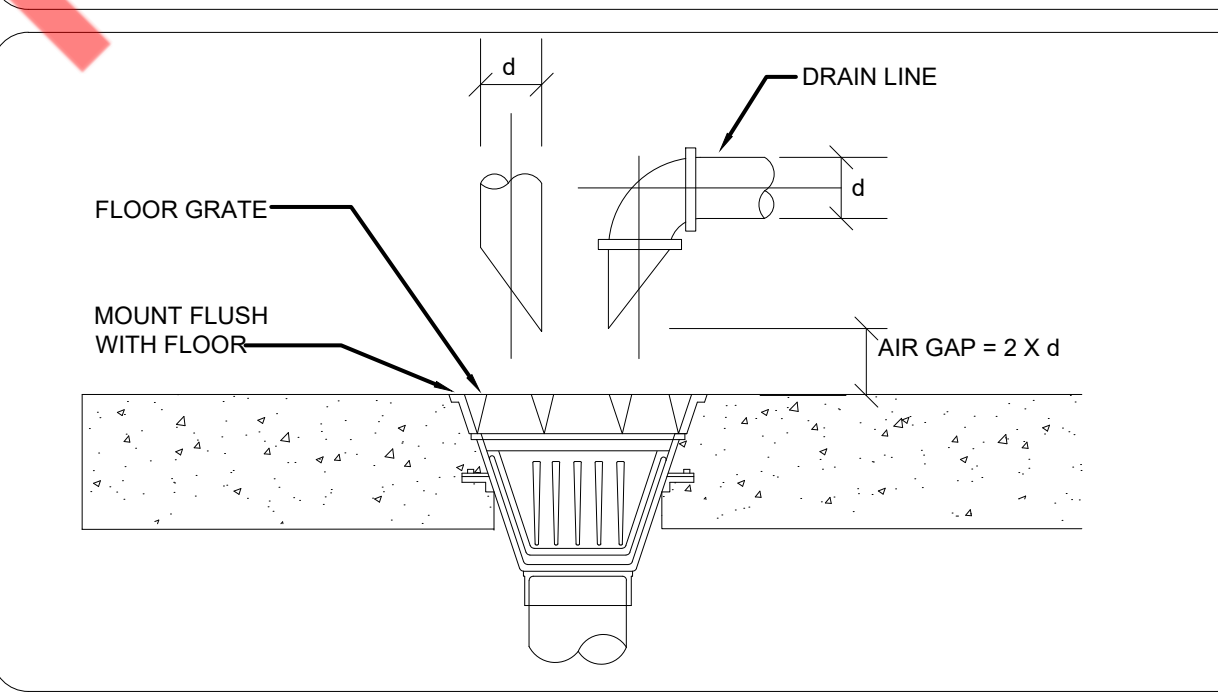
6 PIPE SLEEVE THRU WALL SECTION
SCALE: NOT TO SCALE



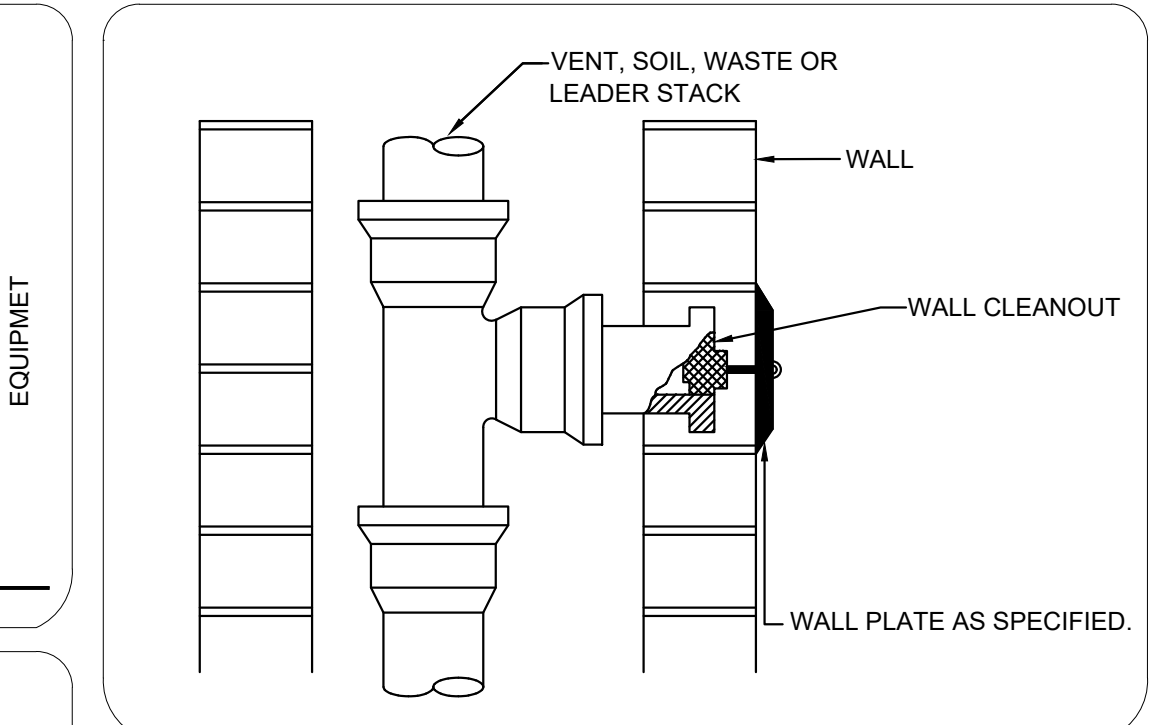
7 WATER HAMMER ARRESTOR
SCALE: NOT TO SCALE



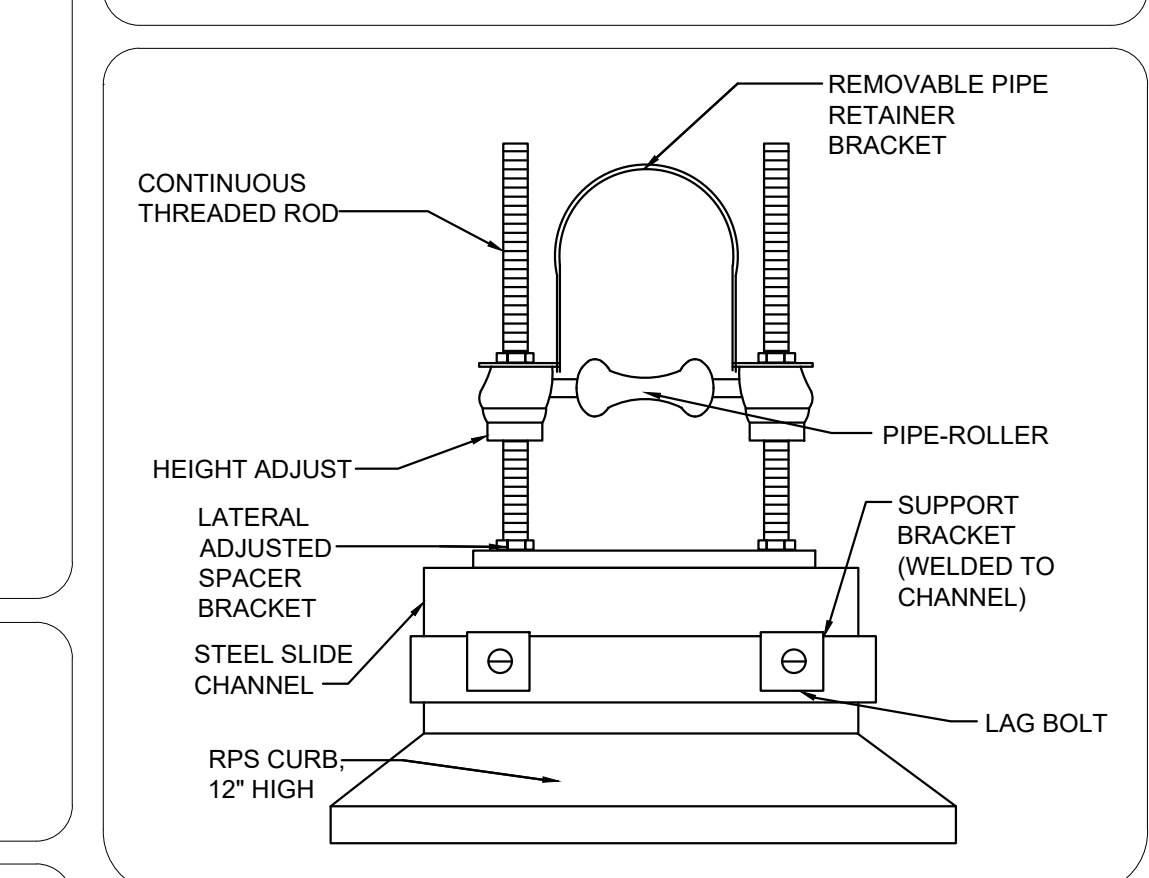
8 GAS CONNECTION DETAIL
SCALE: NOT TO SCALE



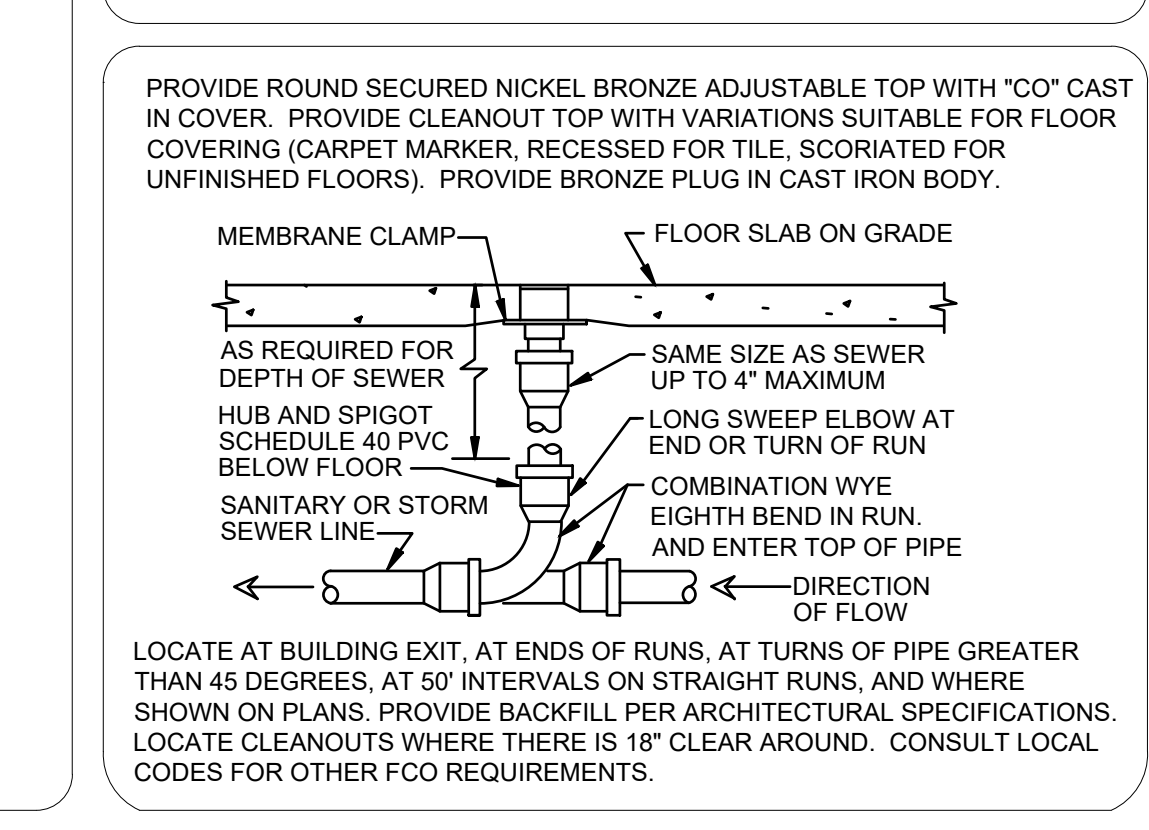
9 FLOOR SINK DETAIL
SCALE: NOT TO SCALE



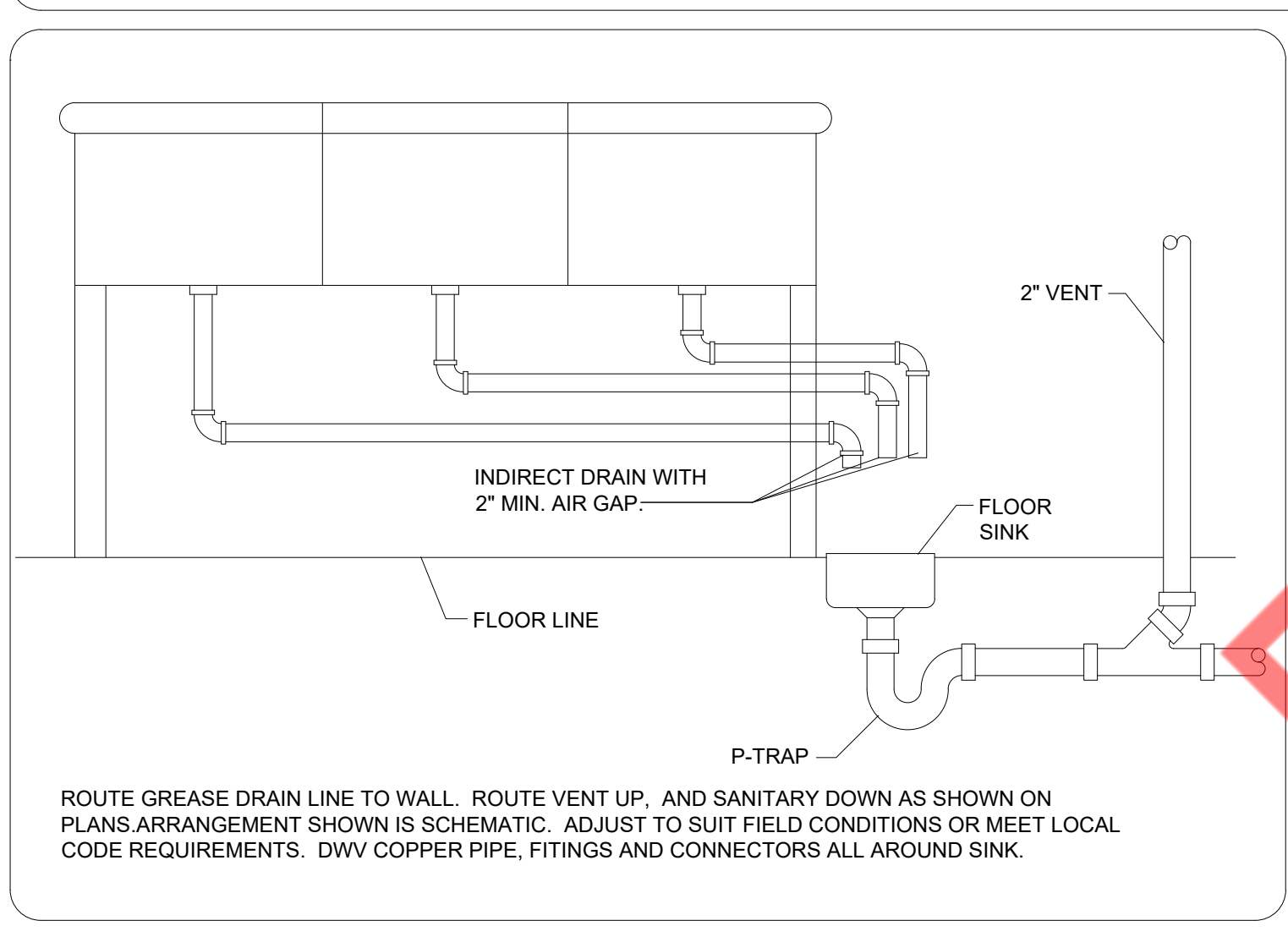
10 WALL CLEANOUT DETAIL
SCALE: NOT TO SCALE



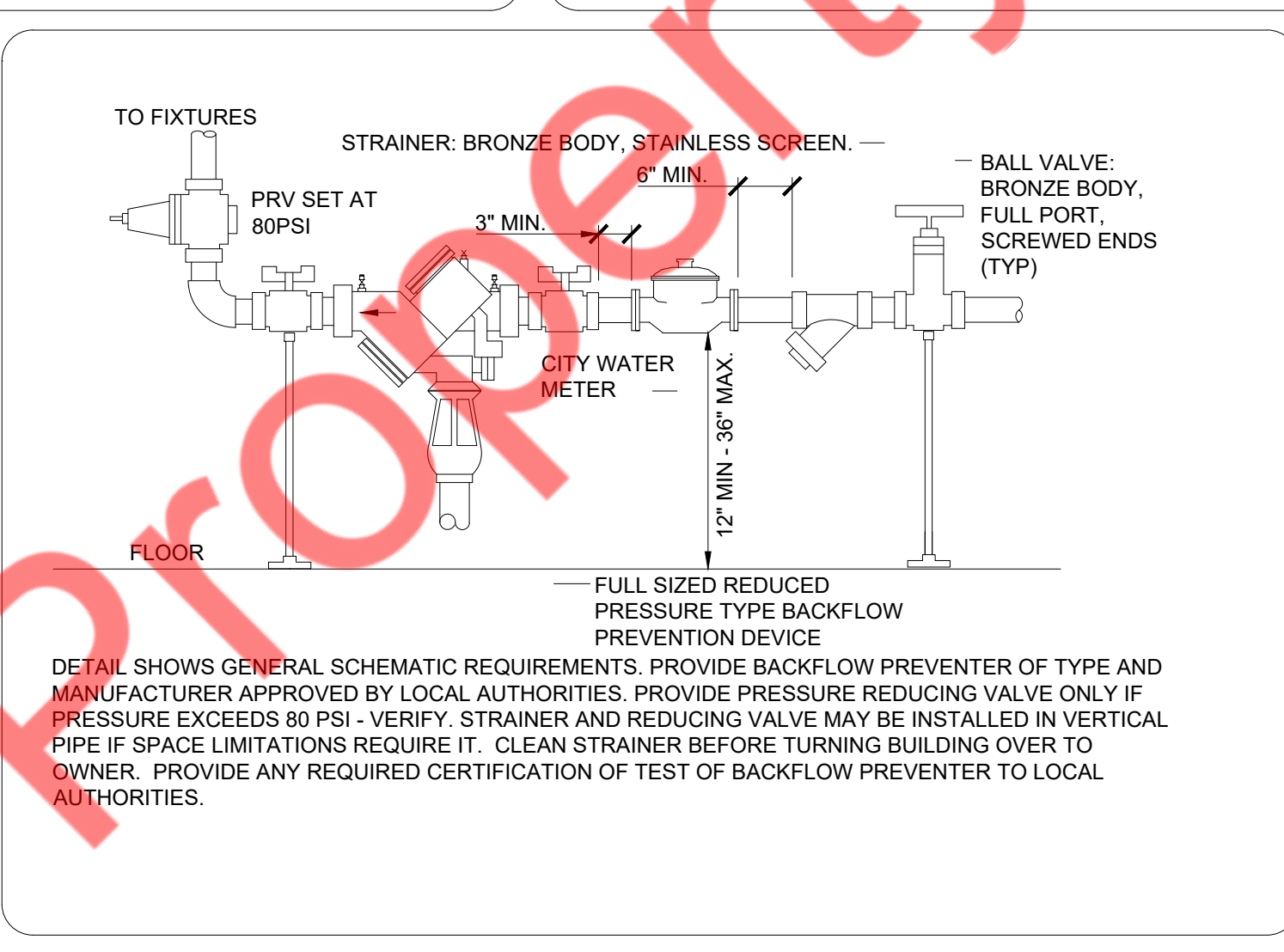
11 ROOF PIPE SUPPORT DETAIL
SCALE: NOT TO SCALE



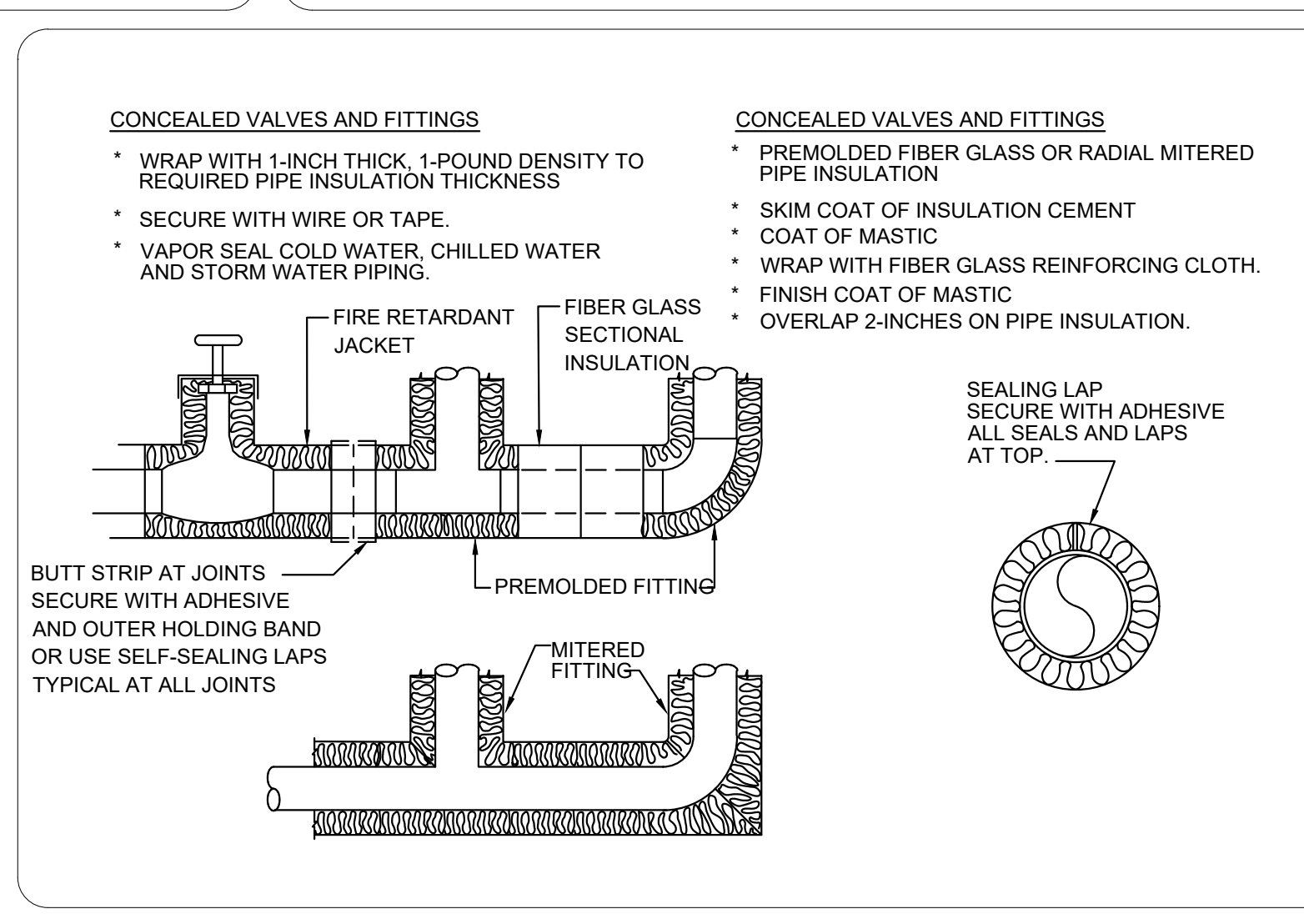
12 3-COMPARTMENT SINK DETAIL
SCALE: NOT TO SCALE



13 WATER SERVICE ENTRY DETAIL
SCALE: NOT TO SCALE



14 PIPE INSULATION DETAIL
SCALE: NOT TO SCALE



15 FLOOR CLEANOUT DETAIL
SCALE: NOT TO SCALE

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P300

KITCHEN EQUIPMENT PLUMBING SCHEDULE														
TAG NO	EQUIPMENT	COLD WATER SIZE (IN)	COLD WATER AFF (IN)	HOT WATER SIZE (IN)	HOT WATER AFF (IN)	FILTERED WATER SIZE (IN)	INDIRECT DRAIN SIZE (IN)	INDIRECT WASTE	DIRECT DRAIN SIZE (IN)	DIRECT DRAIN AFF (IN)	GAS SIZE (IN)	MBTUH	GAS AFF (IN)	PLUMBING REMARKS
210	HAND SINK, WALL MOUNT	1/2"	16"	1/2"	16"	-	-	-	1-1/2"	20"	-	-	-	STUB UP DRAIN LINE IN WALL; DIRECT CONNECTION THRU WALL
220	WORK TABLE W/ SINK / PREP SINK	1/2"	16"	1/2"	16"	-	1-1/2"	FS-3	-	-	-	-	-	RUN DRAIN LINE TO FLOOR SINK
230	THREE COMPARTMENT SINK	3/4"	16"	3/4"	16"	-	(3)1-1/2"	FS-1	-	-	-	-	-	MANIFOLD (3) DRAIN LINES; RUN DRAIN LINE TO SINK
300.1	EVAPORATOR, COOLER	-	-	-	-	-	3/4"	HD-2	-	-	-	-	-	RUN DRAIN LINE TO HUB DRAIN
303.1	EVAPORATOR, FREEZER	-	-	-	-	-	3/4"	HD-1	-	-	-	-	-	RUN DRAIN LINE TO HUB DRAIN
310	ICE MAKER	1/2"	72"	-	-	1/2"	(2)3/4"	FFD-1	-	-	-	-	-	BTC THRU WATER FILTER, ITEM #310.1; RUN DRAIN LINE TO FUNNEL FLOOR DRAIN
315	ICE BIN	-	-	-	-	-	3/4"	FFD-1	-	-	-	-	-	RUN DRAIN LINE TO FUNNEL FLOOR DRAIN
420	COMBI OVEN, ELECTRIC	1/2"	48"-60"	-	-	3/4"	1"	FS-2	-	-	-	-	-	BTC THRU WATER FILTER, ITEM #420.2; RUN DRAIN LINE TO FLOOR SINK
431	RANGE, GAS	-	-	-	-	-	-	-	-	-	3/4"	143.0	12"	BTC THRU GAS CONNECTOR
482	DROP-IN HOT WELLS	1/2"	STUB UP 6"	-	-	-	3/4"	FS-4	-	-	-	-	-	STUB UP COLD WATER CONNECTION 6"; RUN DRAIN LINE TO FLOOR SINK
484	DROP-IN, COLD PAN	-	-	-	-	-	1"	FS-4	-	-	-	-	-	RUN DRAIN LINE TO FLOOR SINK
600	SODA ICE & BEVERAGE DISPENSER	-	-	-	-	-	1"	FS-5	-	-	-	-	-	RUN DRAIN LINE TO FLOOR SINK
604	CARBONATOR	1/2"	60"	-	-	-	-	-	-	-	-	-	-	BTC THRU WATER FILTER; VERIFY REQUIREMENTS W/PROVIDER
630	BEVERAGE DISPENSER, ELECTRIC	1/2"	48"	-	-	-	-	-	-	-	-	-	-	-
255	MOP SINK	3/4"	36"	3/4"	36"	-	-	-	2"	4"	-	-	-	PROVIDED BY OTHERS; VERIFY REQUIREMENTS W/PROVIDER
E483	DROP-IN, COLD PAN	-	-	-	-	-	1"	-	-	-	-	-	-	EXISTING EQUIPMENT; VERIFY REQUIREMENTS W/ OWNER; RUN DRAIN LINE TO FLOOR SINK

IT IS THE RESPONSIBILITY OF THE ARCHITECT'S ENGINEERS TO LOCATE ADEQUATE NUMBERS OF FLOOR DRAINS, PROPERLY LOCATED & SLOPED TO DRAIN THE FOOD SERVICE AREAS. FLOOR DRAINS BY THE GENERAL CONTRACTOR.

*** NOTE***
DRAINS FOR WAREWASHERS, HOT WELLS DRAIN LINES MUST BE ABLE TO HANDLE WASTE WATER TEMPERATURES OF 200°F+

DRAIN ACCESSORIES AND SCHEDULE																																								
DESIGNATION	BODY															STRAINER															REMARKS									
	REQUIRED	MANUFACTURER: ZURN,WATTS,EBBE	CAST IRON	ABS	ALL BRONZE	STAINLESS STEEL	SECONDARY CLAMP	CLAMPING DEVICE	DECK CLAMP	BACK WATER VALVE	SUMP RECEIVER	FLASHING COLLAR	CAST IRON	GALVANIZED	ALL BRONZE	STAINLESS STEEL	NICKEL BRONZE (ADJUSTABLE)	CHROME PLATED	SEDIMENT BUCKET	SECONDARY STRAINER	POLISHED FINISH	SATIN FINISH	TRACTOR GRATE	ST. STEEL	FUNNEL TOP	FLAT TOP	DOME	RAISED LIP	EXTENSION (WHERE REQUIRED)	LESS GRATE			BRONZE TOP	IRON GRATE	POLYETHYLENE	VANDAL PROOF	SECURED TOP	SOLID HINGED COVER		
FD	●	FD-2322-NH4	●				●										●																							KITCHEN AREA, STORAGE
FS	●	Z1749				●											●																							KITCHEN AREA
HD	●	Z1870				●											●																							KITCHEN AREA
FFD	●	Z1019				●											●																							
NOTE: 1. THE TOP OF ALL FLOOR DRAINS SHALL BE FLUSH WITH THE ADJACENT FINISHED FLOOR.																																								

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1	REVIEW SET	05/22/2024
2	PERMIT SET	09/06/2024

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REVIEW	05/22/2024

PROJECT TITLE:



DRAWING TITLE:
PLUMBING SCHDULE

PERMIT DWG DATE: 05/09/2024	PROJECT NUMBER: 24-09-002
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DRAWING NUMBER:

P400

- SPRINKLER GENERAL NOTES:
1. CONTRACTOR TO FIELD VERIFY TO INSTALL ALL SPRINKLER HEADS TO BE MAX. 12" FROM CEILING.
 2. ALL NEW SPRINKLER HEADS LOCATION TO BE COORDINATED WITH LIGHTING AND DIFFUSERS TO AVOID CONFLICT.
 3. ALL SPRINKLER HEADS & PIPING TO BE COORDINATED OTHER TRADES.
 4. ANY WORK SHOWN ON THE DRAWINGS AND NOT PARTICULARLY DESCRIBED IN THE SPECIFICATIONS OR DETAILS, OR ANY WORK WHICH MAY BE DEEMED NECESSARY TO COMPLETE THE CONTRACT SHALL BE PROVIDED BY THE CONTRACTOR AS PART OF THIS CONTRACT.
 5. FOR PURPOSES OF CLEARNESS AND LEGIBILITY, SPRINKLER DRAWINGS ARE ESSENTIALLY DIAGRAMMATIC AND SIZE AND LOCATION OF EQUIPMENT ARE DRAWN TO SCALE WHEREVER POSSIBLE. THE DRAWING INDICATE SIZE, CONNECTION POINTS, AND ROUTED OF PIPES. IT IS NOT INTENDED, HOWEVER, THAT ALL OFFSETS, RISES AND DROPS ARE SHOWN. PROVIDE PIPING AS REQUIRED TO FIT STRUCTURE, AVOID OBSTRUCTIONS, AND RETAIN CLEARANCES. HEADROOM OPENINGS AND PASSAGEWAYS. ALL PENDANT SPRINKLERS MUST BE SPACED AS FOLLOWS -
MAXIMUM 7.5' FROM WALL
MAXIMUM DISTANCE BETWEEN 2 SPRINKLER HEADS IS 15'.
MINIMUM DISTANCE BETWEEN 2 SPRINKLER HEADS IS 6'.
COVERAGE AREA PER SPRINKLER SHALL BE MAX. 225 SQ.FT FOR LIGHT HAZARD AND 130 SQ.FT. FOR ORDINARY HAZARD.
 7. ALL SPRINKLER HEADS MEET DESIGN CRITERIA PER COVERAGE.
 8. AUXILIARY DRAIN SHALL BE PROVIDED AT THE TRAPPED SECTIONS.
 9. FOR SPRINKLER WORK ONLY.

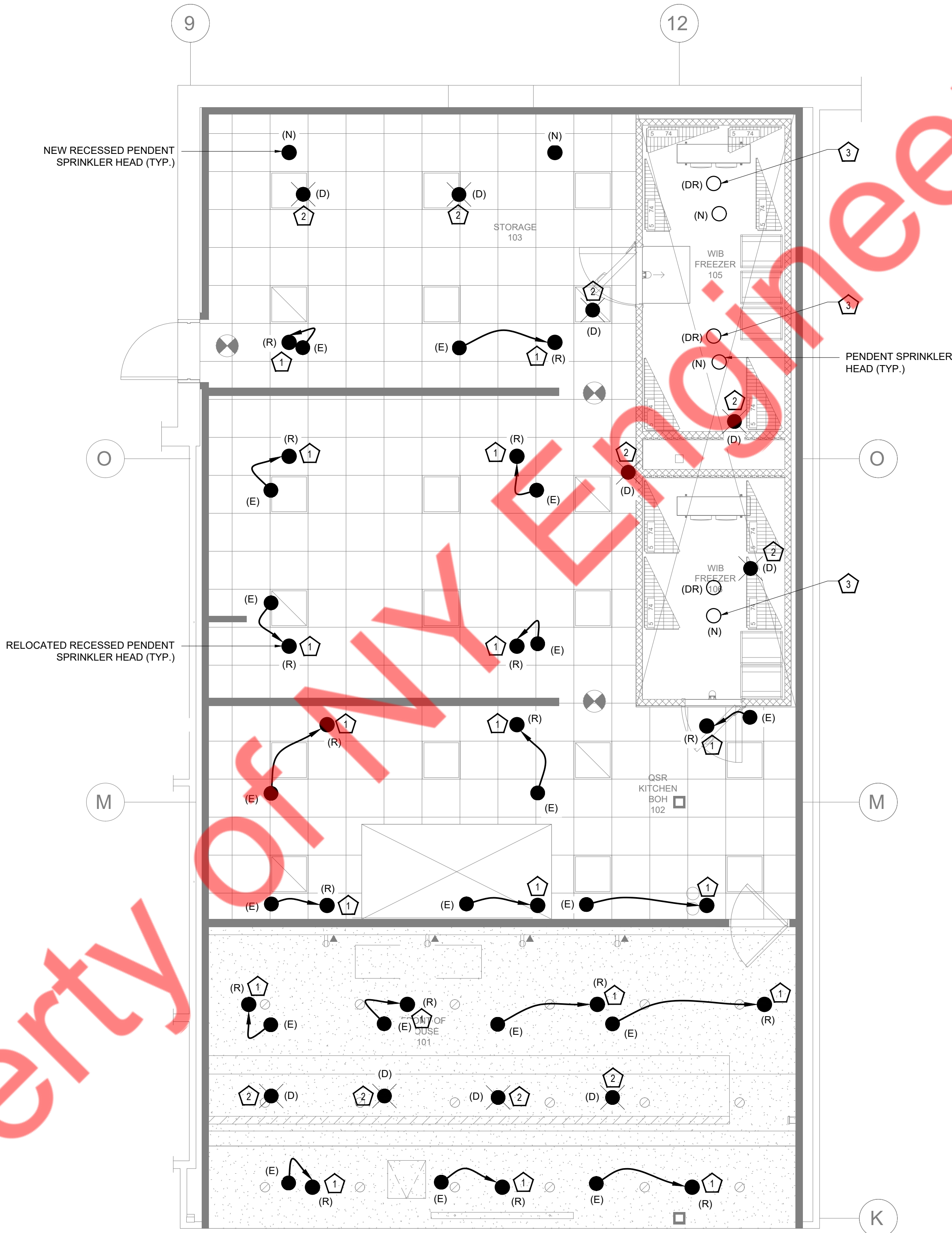
- SPRINKLER KEYED NOTES:
1. CONTRACTOR TO FIELD VERIFY LOCATION OF EXISTING SPRINKLER HEAD & SAME TO BE RELOCATED AT NEW LOCATION AS SHOWN ON SPRINKLER PLAN. MODIFY SPRINKLER PIPING AS PER THE NEW SPRINKLER LOCATION.
 2. EXISTING SPRINKLER TO BE DEMOLISHED & PIPING TO BE CAPPED.
 3. PROVIDE DRY SPRINKLER HEADS & LOCATE WITHIN COOLER AND FREEZER UNITS. LOCATE DRY HEADS WITHIN COOLER AND FREEZER, A MINIMUM OF 48" FROM EVAPORATORS.

HAZARD CLASSIFICATION AND DESIGN DENSITY	
AREA : FRONT OF HOUSE, KITCHEN & STORAGE	
OCCUPANCY:	ORDINARY HAZARD
MINIMUM DESIGN DENSITY:	0.15 GPM/SQ. FT.

SPRINKLER LEGENDS	
(N)	NEW RECESSED PENDENT SPRINKLER HEAD
(D)	DEMOLISHED EXISTING SPRINKLER HEAD
(R) (E)	RELOCATED EXISTING RECESSED PENDENT SPRINKLER HEAD
(N)	NEW PENDENT SPRINKLER HEAD
(DR)	NEW DRY PENDENT SPRINKLER HEAD

SPRINKLER ABBREVIATIONS	
(N)	NEW SPRINKLER
(R)	RELOCATED SPRINKLER
(D)	DEMOLISHED SPRINKLER
(E)	EXISTING SPRINKLER
(DR)	DRY SPRINKLER

SPRINKLER HEAD COUNT	
NEW RECESSED PENDENT SPRINKLER	02
RELOCATED RECESSED PENDENT SPRINKLER	19
DEMOLISHED SPRINKLER	10
DRY SPRINKLER HEAD	03
PENDENT SPRINKLER	03
TOTAL ACTIVE SPRINKLERS	27



1 SPRINKLER PLAN
Scale: 1/4"=1'-0"

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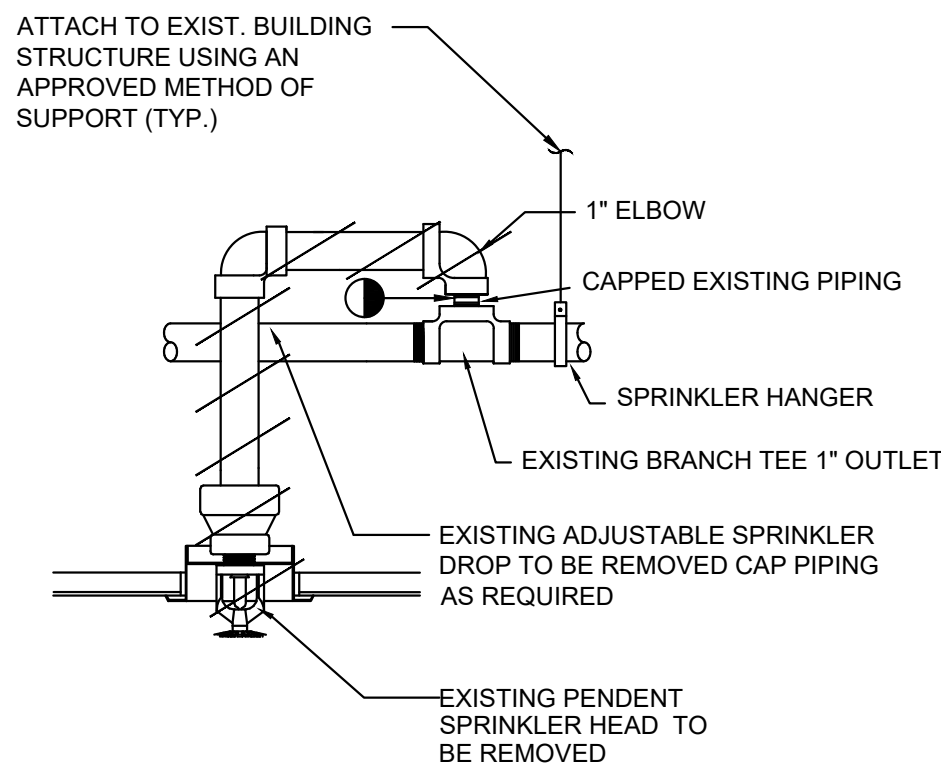
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REVIEW	05/22/2024



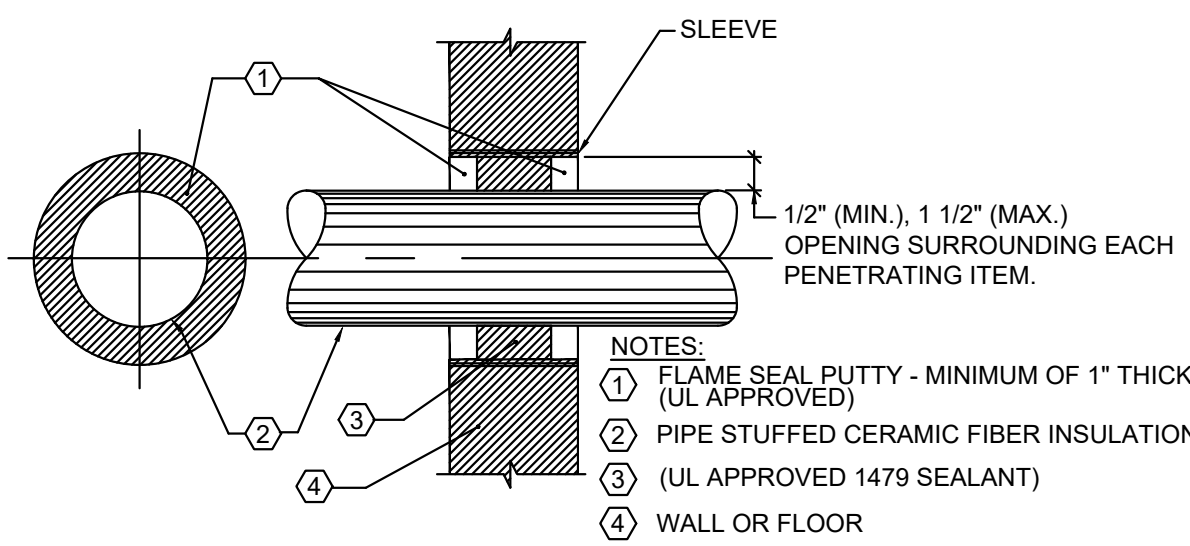
DRAWING TITLE:	
SPRINKLER PLAN	
PERMIT DWG DATE: 05/09/2024	PROJECT NUMBER: 24-09-002
DRAWN BY: NYE	CHECKED BY: NYE
DRAWING NUMBER:	

SP101



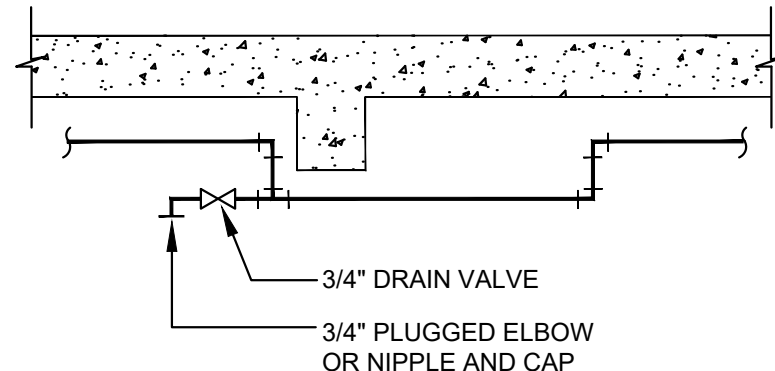
1 DEMOLITION PENDENT SPRINKLER HEAD DETAIL

SCALE: NOT TO SCALE



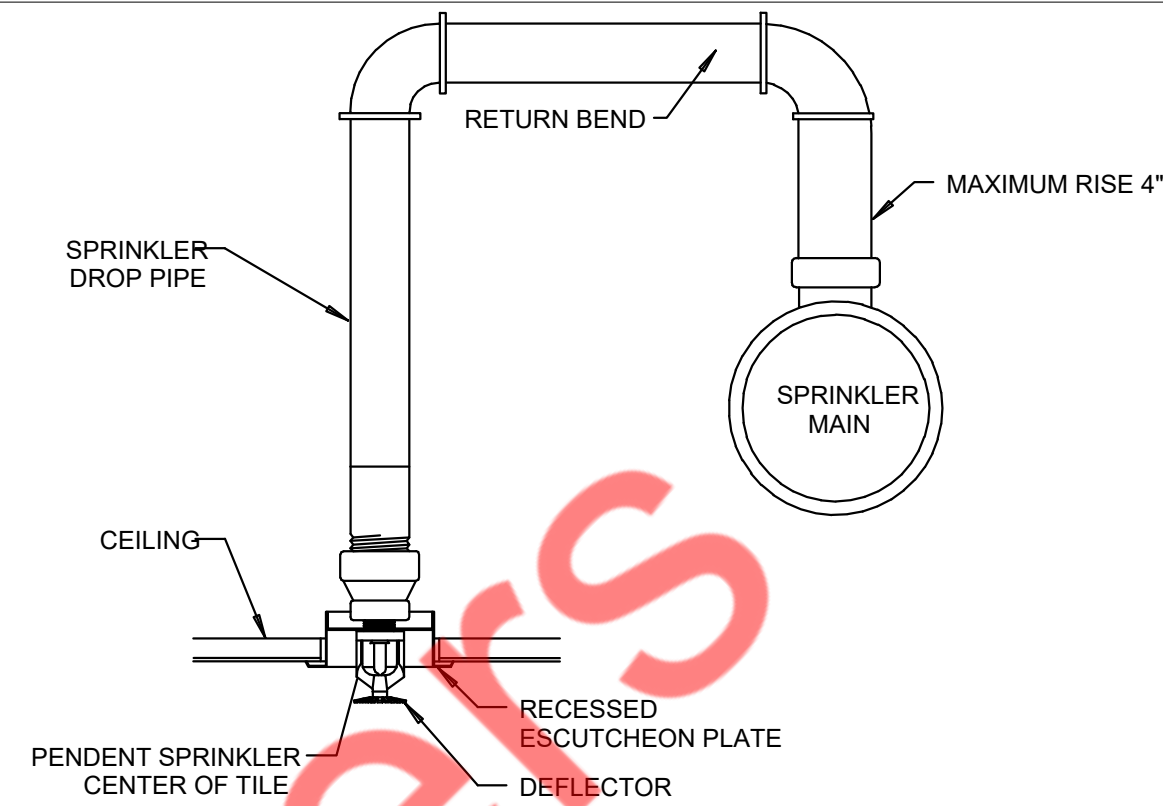
2 FIRE STOPPING DETAIL FOR FIRE/SMOKE RATED WALL/FLOOR OPENINGS

SCALE: NOT TO SCALE



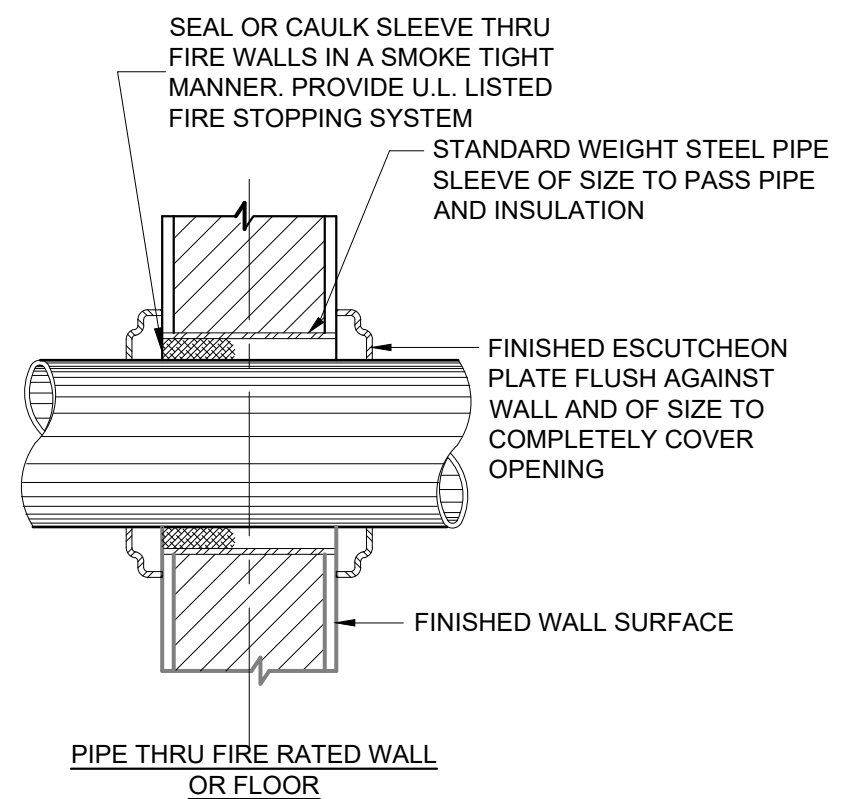
3 TYPICAL DRAIN CONNECTION FOR TRAPPED LINES ON WET PIPE SPRINKLER SYSTEMS

SCALE: NOT TO SCALE



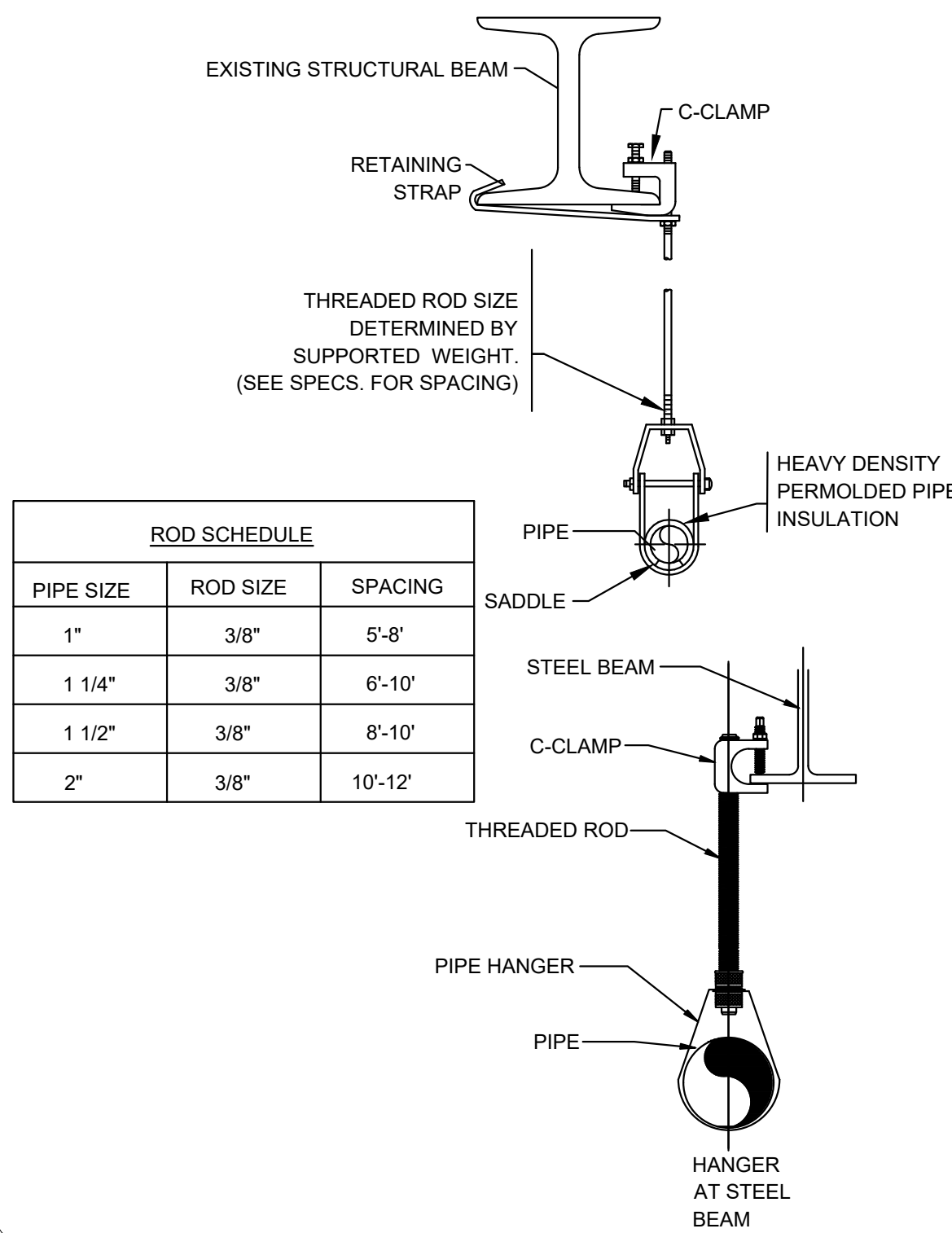
4 RECESSED PENDENT SPRINKLER HEAD DETAIL

SCALE: NOT TO SCALE



5 PIPE SLEEVE THRU WALL SECTION

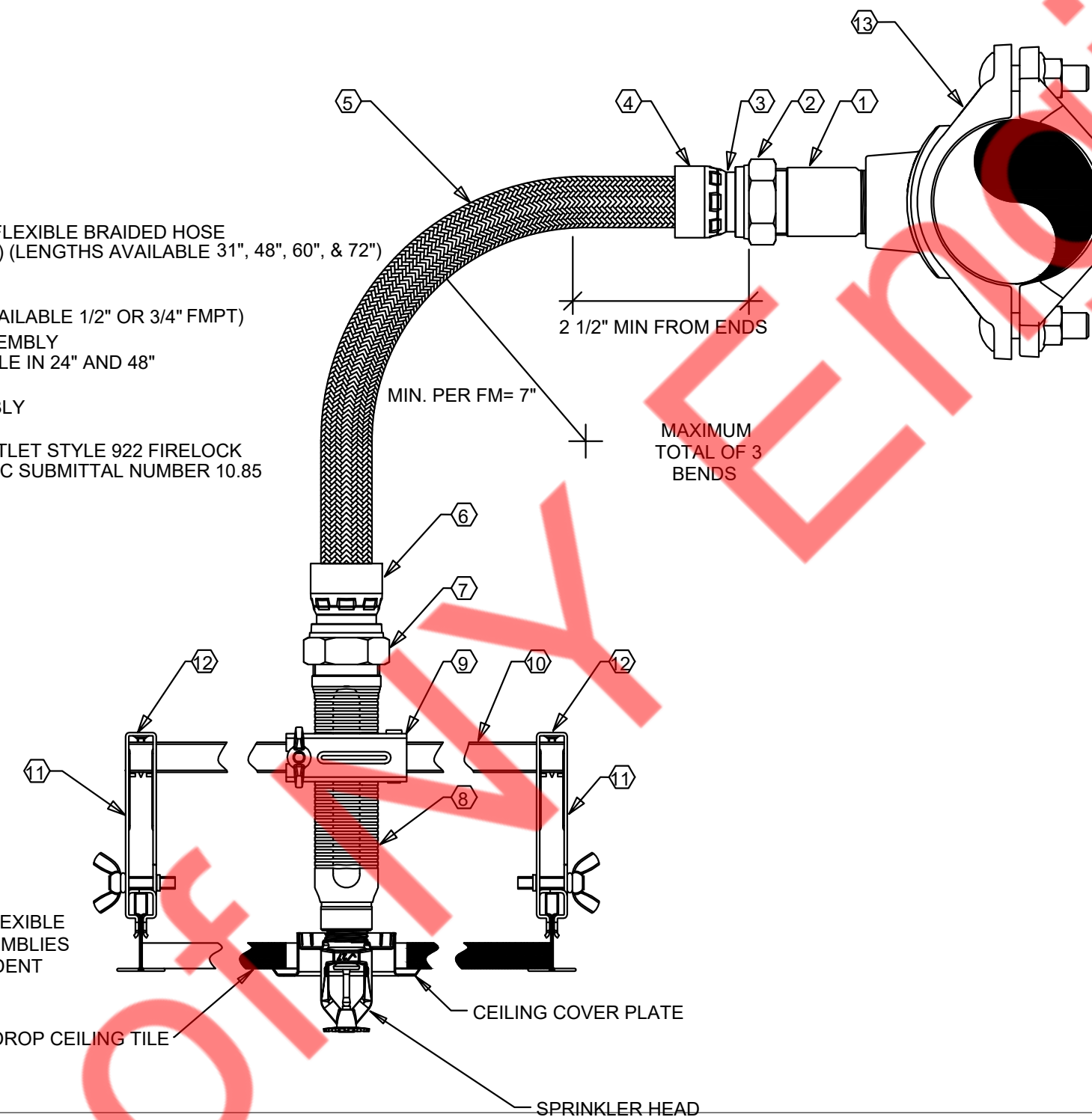
SCALE: NOT TO SCALE



6 TYPICAL HANGER DETAIL AND ROD SCHEDULE

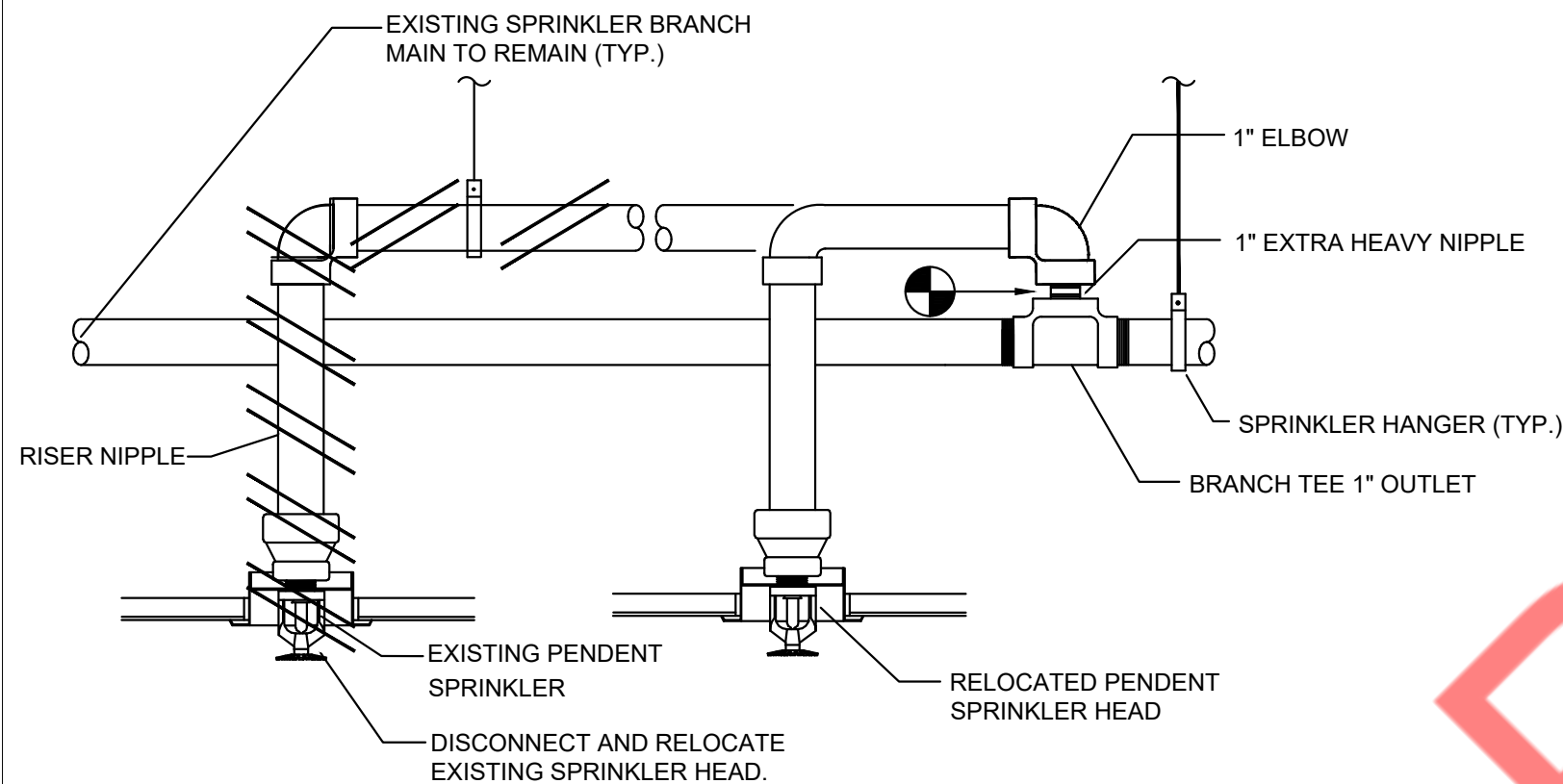
SCALE: NOT TO SCALE

- KEYNOTES:
1. 1" NIPPLE (INLET)
 2. NUT
 3. ADAPTER RING
 4. COLLAR
 5. 304 STAINLESS STEEL FLEXIBLE BRAIDED HOSE (1" NOMINAL DIAMETER) (LENGTHS AVAILABLE 31", 48", 60", & 72")
 6. COLLAR
 7. NUT
 8. REDUCING OUTLET (AVAILABLE 1/2" OR 3/4" FMPT)
 9. CENTER BRACKET ASSEMBLY
 10. SQUARE BAR (AVAILABLE IN 24" AND 48" LENGTHS)
 11. END BRACKET ASSEMBLY
 12. SHEET METAL SCREW
 13. VIC MECHANICAL-T OUTLET STYLE 922 FIRELOCK (1" FMPT) SEE VICTAULIC SUBMITTAL NUMBER 10.85



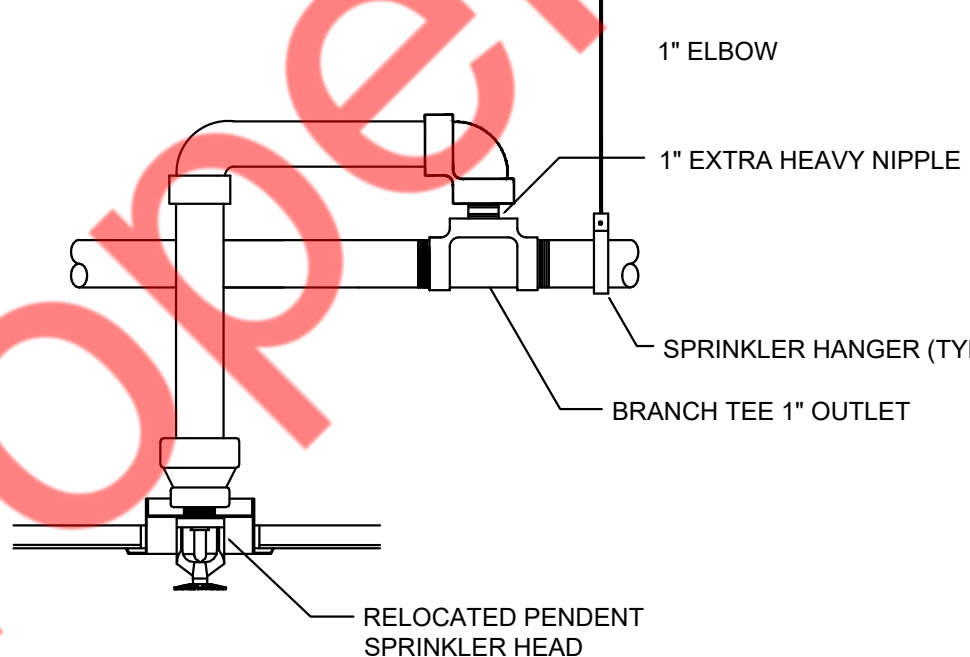
7 FLEXIBLE PENDANT SPRINKLER HEAD DETAIL

SCALE: NOT TO SCALE



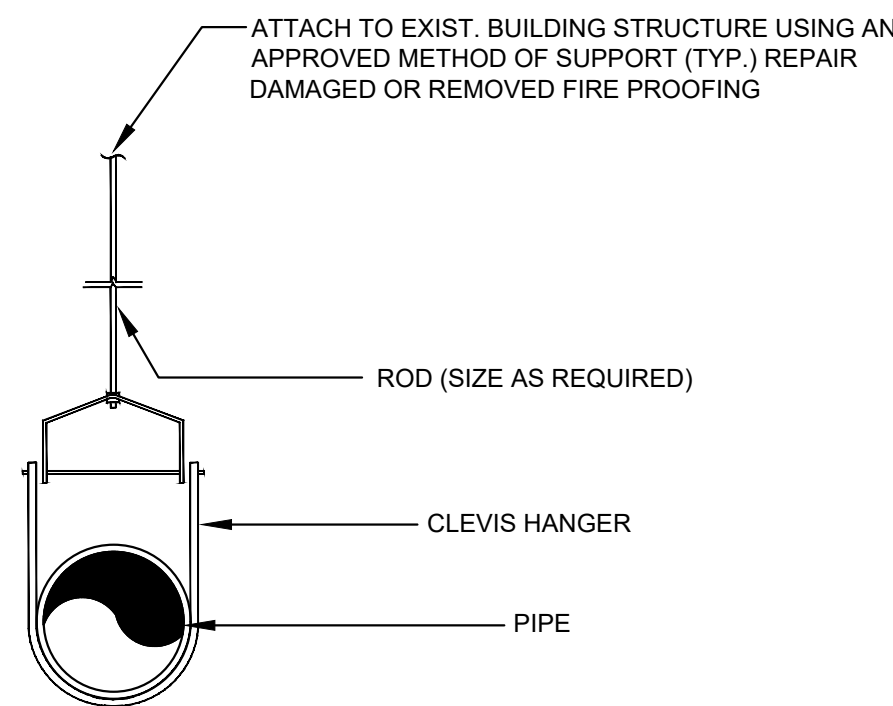
8 RELOCATED PENDENT SPRINKLER HEAD DETAIL

SCALE: NOT TO SCALE



9 NEW PENDENT SPRINKLER HEAD DETAIL

SCALE: NOT TO SCALE



10 HANGER DETAILS TYPICAL

SCALE: NOT TO SCALE

AMBIENT TEMPERATURE OF PROTECTED AREA* AT THE DISCHARGE END OF THE SPRINKLER	EXPOSED BARREL AMBIENT TEMPERATURE		
	40°F/4°C	50°F/10°C	60°F/16°C
EXPOSED MINIMUM BARREL LENGTH** FACE OF THE TEE TO THE OUTER SURFACE OF THE WALL			
	INCHES.	INCHES.	INCHES.
40°F (4°C)	0	0	0
30°F (-1°C)	0	0	0
20°F (-7°C)	4	0	0
10°F (-12°C)	8	1	0
0°F (-18°C)	12	3	0
-10°F (-23°C)	14	4	1
-20°F (-29°C)	14	6	3
-30°F (-34°C)	16	8	4
-40°F (-40°C)	18	8	4
-50°F (-46°C)	20	10	6
-60°F (-51°C)	20	10	6

* THE PROTECTED AREA REFERS TO THE AREA BELOW THE CEILING. THE AMBIENT TEMPERATURE IS THE TEMPERATURE AT THE DISCHARGE END OF THE SPRINKLER. FOR PROTECTED AREA TEMPERATURES THAT OCCUR BETWEEN THE VALUES LISTED, USE THE NEXT COOLER TEMPERATURE.

** THE MINIMUM REQUIRED BARREL LENGTH IS NOT THE SAME AS THE "A" DIMENSION. EXPOSED MINIMUM BARREL LENGTHS ARE INCLUSIVE UP TO 30 MPH WIND VELOCITIES.

11 DRY PENDANT SPRINKLER INSTALLATION DETAILS

SCALE: NOT TO SCALE

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SPRINKLER DETAILS

PERMIT DWG DATE: 05/09/2024	PROJECT NUMBER: 24-09-002
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DRAWING NUMBER:

SP500

PROJECT DATA													
PROJECT DESCRIPTION		BUILDING OCCUPANCY				PROJECT DESCRIPTION					FIRE ALARM SYSTEM FEATURES		
	NEW BUILDING		ASSEMBLY GROUP A (A1,A2,A3,A4 AND A5)		RESIDENTIAL GROUP R (R1,R2 AND R3)	1	TOTAL NUMBER OF LEVELS		ATRIUM		STAIR PRESSURIZATION		NON-VOICE EVACUATION
	FIRE ALARM SYSTEM UPGRADE	X	BUSINESS GROUP B		STORAGE GROUP S (S1 AND S2)	1	ABOVE GROUND LEVELS		FIRE DEPARTMENT ACCESS		POST FIRE SMOKE PURGE		VOICE EVACUATION
	LIFE SAFETY SYSTEM UPGRADE		EDUCATIONAL GROUP E		UTILITY AND MISCELLANEOUS GROUP U	0	BELOW GROUND LEVELS	X	FULLY SPRINKLERED	X	GENERATOR		PARTIAL/SELECTIVE EVACUATION
X	RENOVATION		FACTORY INDUSTRIAL GROUP F (F1 AND F2)		OTHER:	0	NUMBER OF ELEVATOR BANKS		PARTIALLY SPRINKLERED		FIRE PUMP	X	GENERAL EVACUATION
	EMERGENCY REPAIR		HIGH-HAZARD GROUP H (H1,H2,H3,H4 AND H5)			0	NUMBER OF EGRESS STAIRS		NON-SPRINKLERED		OTHER:		DIGITAL ALARM COMMUNICATOR
	TENANT ADDITION		INSTITUTIONAL GROUP I (I1,I2 AND I3)						PRE-ACTION SPRINKLER		OTHER:		PRE-SIGNAL SYSTEM
	OTHER:		MERCANTILE GROUP M										FIRE FIGHTER'S TELEPHONE SYSTEM

I/O MATRIX:

SYSTEM INPUTS INITIATING DEVICES		SYSTEM OUTPUTS INDICATING/CONTROLLED DEVICES		CONTROL UNIT ANNUNCIATION				NOTIFICATION				REQUIRED FIRE SAFETY CONTROL				
				ACTIVATE COMMON ALARM SIGNAL INDICATOR ON LCD OF FIRE ALARM CONTROL PANEL & OUTLYING ANNUNCIATORS	ACTIVATE COMMON TROUBLE SIGNAL INDICATOR ON LCD OF FIRE ALARM CONTROL PANEL & OUTLYING ANNUNCIATORS.	SOUND INTERNAL BUZZER AT FIRE ALARM CONTROL PANEL & OUTLYING ANNUNCIATORS.	TEXT MESSAGE DISPLAY DEVICE TYPE & LOCATION OF THE ACTIVATING DEVICES ON LCD OF FIRE ALARM CONTROL PANEL & OUTLYING ANNUNCIATORS.	ACTIVATE EVACUATION SIGNAL THROUGH HORN AND FLASH THE STROBES ON ALARM FLOOR	TRANSMIT "MANUAL" ALARM SIGNAL TO FIRE DEPARTMENT VIA AN APPROVED CENTRAL STATION MONITORING COMPANY.	TRANSMIT "SMOKE/HEAT" ALARM SIGNAL TO FIRE DEPARTMENT VIA AN APPROVED CENTRAL STATION MONITORING COMPANY.	TRANSMIT "CO" ALARM SIGNAL TO FIRE DEPARTMENT VIA AN APPROVED CENTRAL STATION MONITORING COMPANY.	TRANSMIT "TROUBLE" ALARM SIGNAL TO FIRE DEPARTMENT VIA AN APPROVED CENTRAL STATION MONITORING COMPANY.	INITIATE THE AUTOMATIC FIRE MODE CONDITIONS FOR FAN (AC UNIT)OPERATING, PROCEED AC UNIT SHUTDOWN SEQUENCE.	RELEASE ALL ELECTRICALLY HELD OPEN FIRE & SMOKE DOORS.	RELEASE ALL ELECTRIC STRIKES ON STAIRWAY RE-ENTRY DOORS & ALL OTHER DOORS IN BUILDING IN THE PATHS OF EGRESS TO THE EXIT STAIRWAYS.	PROCEED "CO" PRODUCING EQUIPMENT SHUTDOWN SEQUENCE
		A	B	C	D	E	F	G	H	I	J	K	L	M		
1	MANUAL PULL STATION	●		●	●	●	●					●	●		1	
2	AREA SMOKE DETECTOR	●		●	●	●		●			●	●	●		2	
3	HEAT DETECTOR	●		●	●	●		●			●	●	●		3	
4	FIRE ALARM AC POWER FAILURE		●	●	●	●				●					4	
5	FIRE ALARM SYSTEM LOW BATTERY		●	●	●	●				●					5	
6	OPEN CIRCUIT		●	●	●	●				●					6	
7	GROUND CIRCUIT		●	●	●	●				●					7	
8	NOTIFICATION APPLIANCE CIRCUIT SHORT		●	●	●	●				●					8	
9	CO DETECTOR							●						●	9	

TYPE OF DESIGN

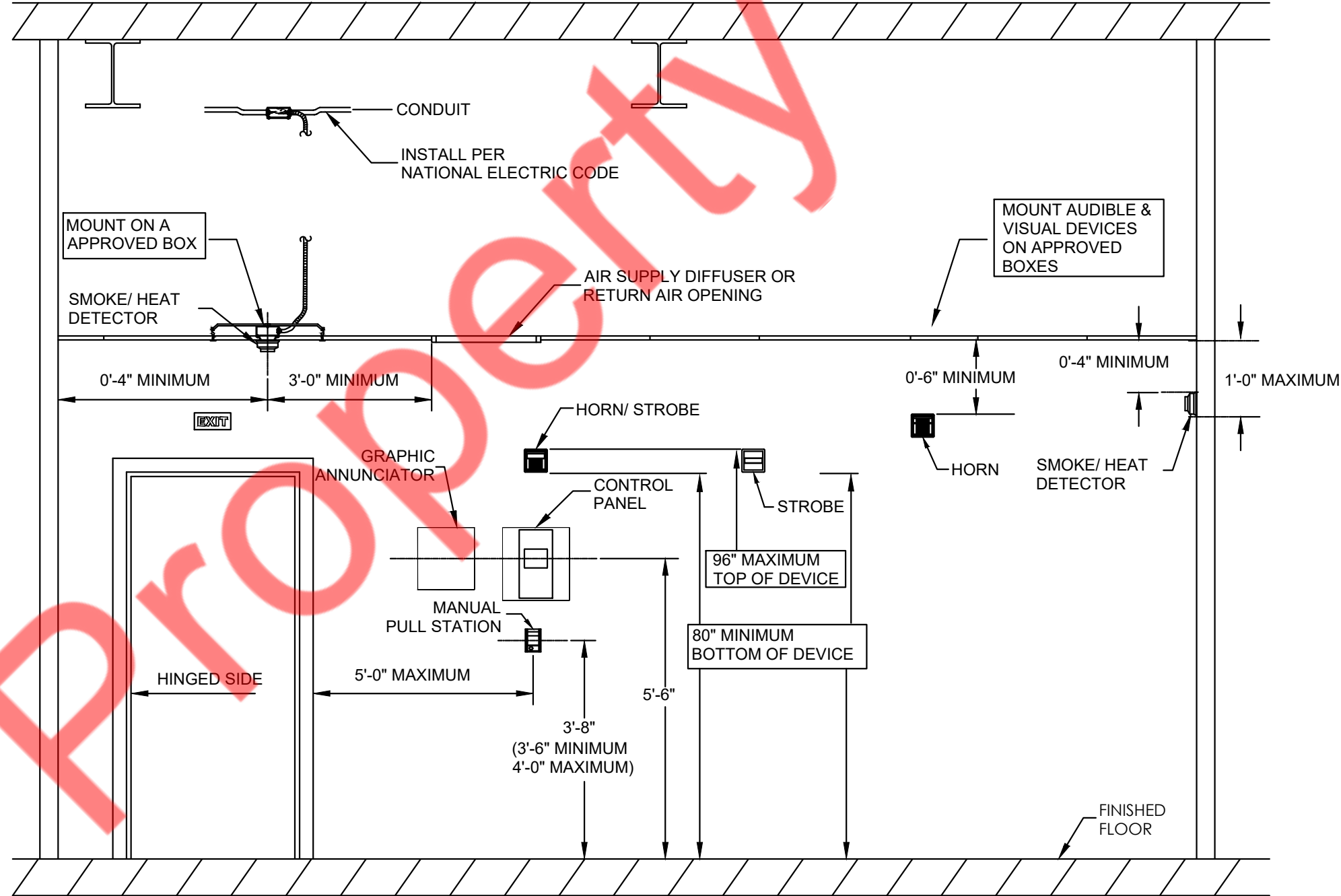
MODIFICATION OF EXISTING FIRE ALARM NOTIFICATION DEVICE SYSTEM AND SPRINKLER ALARM SYSTEM USING EXISTING FIRE ALARM CONTROL PANEL (FACP). NO CHANGE IN USE OCCUPANCY OR EGRESS.

APPLICABLE CODES

2020 BUILDING CODE OF NEW YORK STATE (ADOPTS IBC 2018 WITH AMENDMENTS)
NYS ELECTRICAL CODE 2017 (ADOPTS NFPA 70, 2017 WITHOUT AMENDMENTS)

FIRE ALARM DRAWING INDEX

FA001	FIRE ALARM SYSTEM SPECIFICATIONS, GENERAL NOTES, SYMBOLS LIST & I/O MATRIX
FA002	FIRE ALARM SYSTEM RISER DIAGRAM
FA100	FIRE ALARM FLOOR PLAN



FIRE ALARM DEVICES TYPICAL MOUNTING HEIGHT

FIRE ALARM SYMBOL LIST			
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
	CEILING MOUNTED AREA SMOKE DETECTOR		FIRE ALARM MANUAL PULL STATION, WALL MOUNTED (48" AFF)
	CEILING MOUNTED HEAT DETECTOR		ADDRESSABLE CONTROL MODULE
	CARBON MONOXIDE DETECTOR		MONITOR MODULE
	WALL MOUNTED HORN/STROBE COMBINATION DEVICE (80" AFF)		FIRE ALARM RELAY
	HVAC AC UNIT/FAN		FIRE SUPPRESSION SYSTEM
	FIRE ALARM CONTROL PANEL	—	SOLID THICK LINE INDICATES NEW DEVICE OR WIRING
	REMOTE ANNUNCIATOR PANEL	----	DOTTED LINE INDICATES EXISTING DEVICE OR WIRING
	FUSED DISCONNECT SWITCH, REFER TO RISER DIAGRAM FOR FURTHER INFORMATION.		

FIRE ALARM GENERAL NOTES:

- ALL EQUIPMENT AND WIRING INDICATED ON THESE PLANS ARE NEW (U.O.N.).
- PROVIDE WIRING AS REQUIRED BETWEEN ALL DEVICES AND EQUIPMENT AS REQUIRED TO PERFORM FIRE ALARM SYSTEM FUNCTIONS.
- WIRING FOR FIRE ALARM DEVICES IN FINISHED SPACES WITHOUT HUNG CEILINGS SHALL BE INSTALLED IN EMT CONDUIT.
- ALL STROBES AND HORN/STROBES SHALL BE FLUSH WALL MOUNTED, FINISH BY ARCHITECT, AND APPROVED FOR USE IN AUTHORITY HAVING JURISDICTION (AHJ).
- FOR WALL-MOUNTED F.A. DEVICES PROVIDE 3/4" CONDUIT TERMINATED IN THE NEAREST ACCESSIBLE CEILING.
- WIRING FOR FIRE ALARM DEVICES IN UNFINISHED SPACES SHALL BE INSTALLED IN RGS CONDUIT UP TO 8'-0" AFF AND THEN IN EMT CONDUIT ABOVE 8'-0" AFF.
- CONTRACTOR SHALL VERIFY AND COORDINATE ALL WIRING WITH THE NEW FIRE ALARM DEVICE AND OBTAIN WIRING DIAGRAMS BEFORE PROCEEDING WITH THE START OF ANY WORK.
- ALL WIRING SHALL BE IN ACCORDANCE WITH THE AHJ.
- PROVIDE ALL REQUIRED EXPANSION PANELS, PC BOARDS, POWER SUPPLIES, BATTERIES, FUSE CUTOUTS AND BRANCH CIRCUITS, ETC, FOR A COMPLETE AND OPERATIONAL FIRE ALARM SYSTEM.
- CONTRACTOR SHALL PERFORM ALL LOCAL BUILDING DEPT. FILINGS AND OBTAIN ALL APPROVALS. CONTRACTOR SHALL OBTAIN ALL REQUIRED SIGNED & SEALED LOCAL BUILDING DEPT. FORMS AND ALL REQUIRED SETS OF DRAWINGS FROM THE ENGINEER OF RECORD AND BUILDING DEPT. EXPEDITOR.
- UPON COMPLETION OF INSTALLATION THE SYSTEM SHALL BE 100% PRE-TESTED BY THE FIRE ALARM VENDOR AND THE LICENSED ELECTRICAL CONTRACTOR PRIOR TO LOCAL FIRE DEPARTMENT INSPECTION.

DIVISION 16 - FIRE ALARM

PART 1 - GENERAL

1.1 DESCRIPTION OF WORK

A. WORK UNDER THIS SECTION INCLUDES BUT IS NOT NECESSARILY LIMITED TO, FURNISHING AND INSTALLING THE FOLLOWING.

A.a. FIRE ALARM PANEL, WIRING, AND DEVICES.

B. ALL WORK SHALL BE COMPLETE. ITEMS, EQUIPMENT, ETC., SHALL BE ELECTRICALLY CONNECTED FOR PROPER AND CORRECT OPERATION.

C. ALL WORK UNDER THIS CONTRACT SHALL BE INSTALLED PER THE LATEST EDITION OF THE FOLLOWING CODES AND STANDARDS IN SO FAR AS THEY APPLY:

- C.a. NATIONAL ELECTRICAL CODE
- C.b. NFPA 72
- C.c. UNDERWRITER'S LABORATORIES, INC., STANDARDS AND APPROVED LISTINGS.
- C.d. ELECTRICAL TESTING LABORATORIES STANDARDS.
- C.e. INTERNATIONAL BUILDING CODE, LATEST EDITION, AND REVISIONS.
- C.f. ALL LOCAL CODES AND ORDINANCES.

D. THE FIRE ALARM CONTRACTOR SHALL BE LICENSED IN THE STATE OF NEW YORK AND HAVE ALL LICENSES REQUIRED FOR THE WORK.

E. OBTAIN ALL PERMITS, LICENSES, INSPECTIONS, ETC. REQUIRED FOR THE WORK AND PAY FOR THE SAME. FURNISH FINAL CERTIFICATE OF INSPECTION AND APPROVAL FROM THE ELECTRICAL INSPECTOR HAVING JURISDICTION PRIOR TO ACCEPTANCE OF THE WORK.

F. ALL WORK SHALL BE DONE BY SKILLED MECHANICS AND SHALL PRESENT A NEAT, TRIM, WORKMANLIKE CONDITION WHEN COMPLETED.

1.2 INTENT

A. THE INTENT OF THESE SPECIFICATIONS AND ACCOMPANYING DRAWINGS IS TO CONVEY AS REASONABLY AS POSSIBLE THE REQUIREMENTS FOR A COMPLETE JOB READY FOR THE BUILDING TO OPERATE. THE FIRE ALARM CONTRACTOR SHALL CONSIDER THIS AND INCLUDE IN HIS BASE BID ALLOWANCE FOR CONTINGENCIES AS WILL ALLOW HIM TO PROVIDE MINOR PIECES OF EQUIPMENT AND LABOR NOT SPECIFICALLY INDICATED BUT REQUIRED FOR THE JOB TO OPERATE PROPERLY, AT NO ADDITIONAL COST TO THE OWNER.

1.3 COORDINATION

- A. COORDINATE WORK WITH OTHER CONTRACTORS. NOTIFY THE ARCHITECT OF APPARENT CONFLICT EARLY TO EXPEDITE CONSTRUCTION. IF STRUCTURAL DAMAGE APPEARS IMMINENT, STOP WORK AND NOTIFY THE ARCHITECT FOR A DECISION BEFORE RESUMING OPERATIONS.
- B. LOCATIONS SHOWN ARE APPROXIMATE. THE DRAWING DOES NOT GIVE EXACT DETAILS AS TO ELEVATIONS AND LOCATIONS OF VARIOUS PIPES, FITTINGS, DUCTS, CONDUITS, ETC., AND DOES NOT SHOW ALL OFFSETS AND OTHER INSTALLATION DETAILS WHICH MAY BE REQUIRED. COORDINATE ALL LOCATIONS WITH THE ARCHITECT BEFORE ANY ROUGH-IN.

1.4 SHOP DRAWINGS

A. PROVIDE COMPLETE SHOP DRAWINGS PER SECTION 907.1 TO THE LOCAL FIRE MARSHAL INCLUDING:

- A.a. FLOOR PLAN WITH ROOM NAMES
- A.b. LOCATION OF ALL FA DEVICES
- A.c. LOCATION OF PANELS
- A.d. POWER CONNECTIONS
- A.e. BATTERY CALCULATIONS
- A.f. CONDUCTOR TYPES AND SIZES
- A.g. VOLTAGE DROP CALCULATIONS
- A.h. EQUIPMENT CUT-SHEETS, MODEL, NUMBER, ETC.

PART 2 - PRODUCTION AND MATERIALS

2.1 GENERAL

A. ALL MATERIAL SHOULD BE NEW AND SHALL BEAR THE MANUFACTURER'S NAME TRADE, AND UL LABEL WHERE SUCH STANDARD HAS BEEN ESTABLISHED FOR THE PARTICULAR MATERIAL. MATERIALS SHALL BE STANDARD PRODUCTS OF MANUFACTURERS REGULARLY ENGAGED IN MANUFACTURING OF THE REQUIRED TYPE OF EQUIPMENT AND THE MANUFACTURER'S LATEST APPROVED DESIGN.

- A.a. BOXES INSTALLED IN CONCEALED LOCATIONS SHALL BE SET FLUSH WITH THE FINISHED SURFACES.
- A.b. PROVIDE RATED BOXES ON ALL FIRE BARRIERS AND WALLS INSTALLED PER CODE.

PART 3 - EXECUTION

3.1 FIRE ALARM SYSTEM EQUIPMENT

- A. PROVIDE A COMPLETE OPERABLE FIRE ALARM SYSTEM AS SHOWN ON THE DRAWINGS AND AS REQUIRED BY STATE AND LOCAL CODES.
- B. ALL FIRE ALARM SYSTEM CABLES SHALL BE INSTALLED IN CONDUIT. SIZE AS REQUIRED BY THE EQUIPMENT SUPPLIER. PROVIDE A SUBMITTAL OF ALL DEVICES AND A RISER DIAGRAM FOR APPROVAL BEFORE INSTALLATION OF ANY EQUIPMENT.

3.2 CLEAN UP

A. DURING CONSTRUCTION, KEEP THE SITE CLEAN OF DEBRIS. UPON COMPLETION, AND BEFORE FINAL INSPECTION, CLEAN UP THE PREMISES TO REMOVE ALL EVIDENCE OF WORK. IN ADDITION UPON COMPLETION OF CONSTRUCTION LEAVE EQUIPMENT CLEAN.

3.3 GUARANTEE

- A. GUARANTEE ALL MATERIALS AND LABOR INCLUDED IN THE FIRE ALARM WORK FOR A PERIOD OF ONE YEAR FROM THE DATE OF FINAL ACCEPTANCE BY THE OWNER. ANY PART OR PARTS OF THE WORK OR EQUIPMENT WHICH PROVE TO BE DEFECTIVE DURING THE GUARANTEE PERIOD SHALL BE REPLACED AT NO ADDITIONAL COST TO THE OWNER.

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DRAWING TITLE:
FIRE ALARM SYSTEM SPECIFICATIONS,
GENERAL NOTES, SYMBOLS LIST & I/O
MATRIX

PERMIT DWG DATE: 05/09/2024 PROJECT NUMBER: 24-09-002

DRAWN BY: NYE CHECKED BY: NYE

DRAWING NUMBER:

FA001

- FIRE ALARM RISER GENERAL NOTES:
- ALL COMPONENTS REQUIRED TO MAKE SYSTEM WORKABLE SHALL BE INCLUDED IN BID PRICE.
 - EACH FA RELAY SHALL HAVE MINIMUM OF THREE SETS OF 2 CONTACT 10A RATED @ 120V (TYPICAL).
 - COORDINATE WIRING DIAGRAM WITH FIRE ALARM VENDOR SHOP DRAWINGS. FOR STROBES MAXIMUM CURRENT PER ZONE SHALL NOT EXCEED 1.5A. ZONES FOR STROBES & STROBE/HORNS AS PER FIRE ALARM VENDOR SHOP DRAWINGS (TYPICAL).
 - ALL FIRE ALARM WIRING SHALL BE INSTALLED IN CONDUIT WHERE REQUIRED BY NY STATE ELECTRICAL CODE & AHJ.
 - THIS RISER DIAGRAM IS A SCHEMATIC REPRESENTATION OF THE FIRE ALARM SYSTEM. ALL WIRING SHALL BE AS PER APPROVED MANUFACTURER SHOP DRAWINGS.
 - EACH FIRE ALARM INDICATING DEVICES CIRCUIT TO HAVE A MAXIMUM OF 14 DEVICES PER CIRCUIT. CONTRACTOR TO SUPPLY REQUIRING NUMBER OF INDICATING CIRCUIT TO PROVIDE REDUNDANT CIRCUITING (A,B) SCHEME.
 - ALL FIRE ALARM CONDUITS SHALL BE MINIMUM 3/4".
 - ALL DEVICES SHALL BE COMPATIBLE WITH AND MAINTAIN THE UL LISTING OF EXISTING FIRE ALARM SYSTEM.
 - ALL DUCT SMOKE DETECTORS INSTALLED IN HUNG CEILING AREA AND IN OUT OF SIGHT AREA SHALL HAVE REMOTELY INSTALLED STATUS INDICATOR LAMPS. COORDINATE EXACT LOCATION WITH ARCHITECT AND GENERAL CONTRACTOR.
 - ALL STROBES, PULL STATIONS AND DETECTORS SHALL CONNECTED TO EXISTING FIRE ALARM CONTROL PANEL (FACP), COORDINATE EXACT REQUIREMENT IN FIELD.
 - PROVIDE CONTROL MODULE TO SHUTDOWN SOUND SYSTEM. COORDINATE WITH SOUND OR AUDIO CONTRACTOR.
 - MAKE NOTE THIS IS A DELEGATED DESIGN. CONTRACTOR TO COORDINATE WITH DbCo FIRE ALARM VENDOR TO TIE INTO MAIN SYSTEM

- FIRE ALARM RISER KEYED WORK NOTES:
- EXISTING FIRE ALARM CONTROL PANEL TO REMAIN. CONTRACTOR SHALL FIELD VERIFY EXACT LOCATION OF EXISTING FIRE ALARM CONTROL PANEL AND RECONNECT ALL NEW DEVICES TO IT. BASE BID ACCORDINGLY.
 - THIS RISER DIAGRAM IS A SCHEMATIC REPRESENTATION OF THE FIRE ALARM SYSTEM. CONTRACTOR SHALL FIELD VERIFY EXISTING WIRING LOOP AVAILABLE IN PROJECT SPACE. CONNECT NEW DEVICES AS REQUIRED. OTHERWISE PROVIDE NEW LOOP.

DEVICE SYMBOLS:

NEW

EXISTING ITEM/FEEDER TO REMAIN

-X--X-

-X--X-

EXISTING ITEM/FEEDER TO BE DISCONNECTED & REMOVED

EXISTING CONDITIONS NOTE:
CONTRACTOR TO VERIFY IN FIELD ALL LOCATIONS AND QUANTITY OF EXISTING DEVICES AND NOTIFY THE ENGINEERS OF RECORD ON DISCREPANCIES BETWEEN EXISTING CONDITIONS AND THE DESIGN DRAWINGS.

1 FIRE ALARM SYSTEM RISER DIAGRAM
Scale: N.T.S.

NY ENGINEERS
NEARBY ENGINEERS
382 NE 191ST STREET SUITE 49674,
MIAMI, FL 33179 PH-914.257.3455
WWW.NY-ENGINEERS.COM

REVISIONS		
NUMBER	REMARKS	DATE
1	REVIEW SET	05/22/2024
2	PERMIT SET	09/06/2024

ISSUED FOR:	DATE ISSUED:
REVIEW	05/22/2024




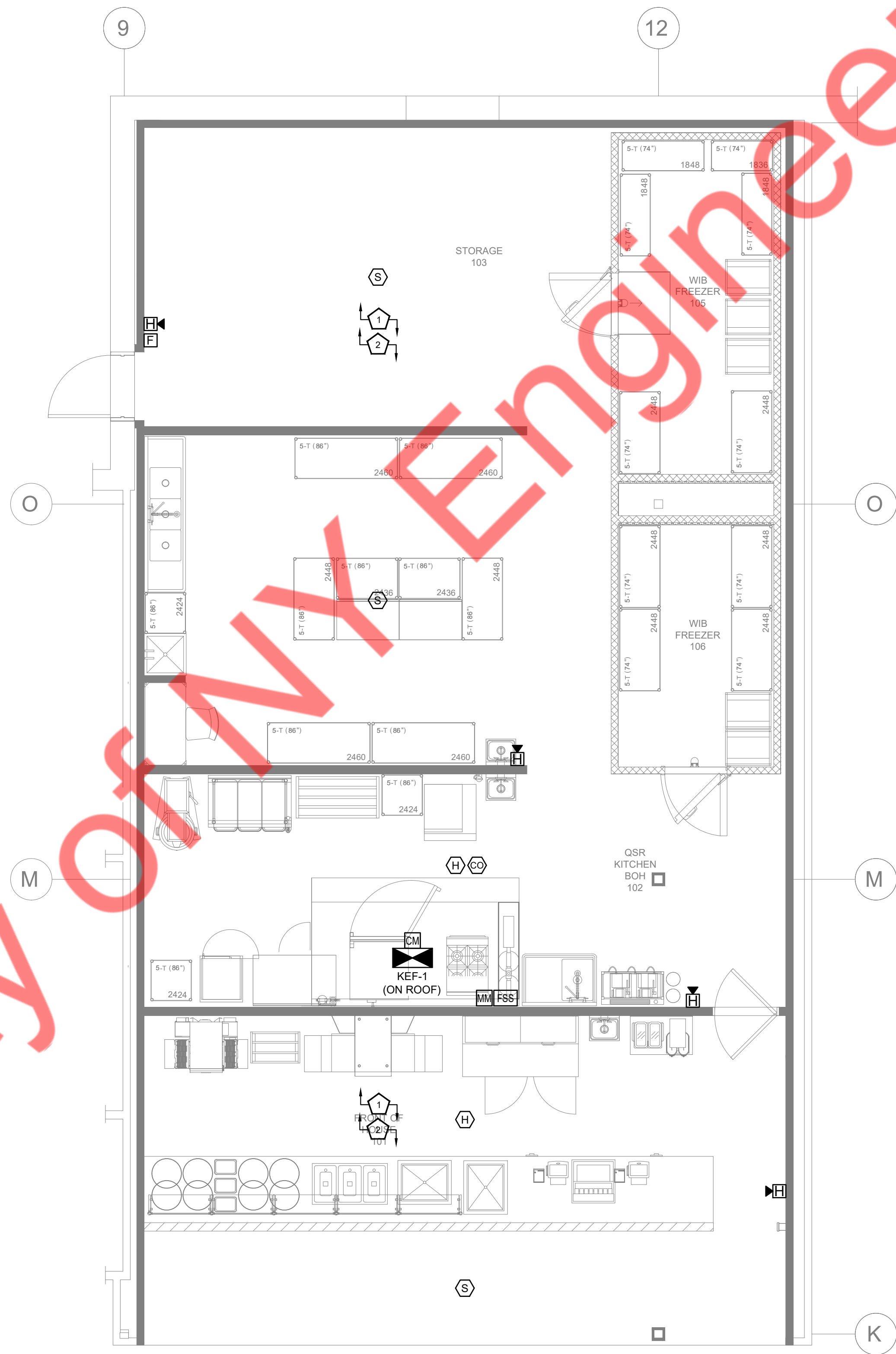
DRAWING TITLE:
FIRE ALARM SYSTEM RISER
DIAGRAM

PERMIT DWG DATE: 05/09/2024	PROJECT NUMBER: 24-09-002
DRAWN BY: NYE	CHECKED BY: NYE

DRAWING NUMBER:
FA002

- FIRE ALARM PLAN GENERAL NOTES:
- REFER TO DWG. FA001 FOR FIRE ALARM GENERAL NOTES, SYMBOL LIST, ABBREVIATIONS AND SPECIFICATION.
 - REFER TO DWG. FA002.00 FOR FIRE ALARM SYSTEM RISER DIAGRAM.
 - FINAL CONDUIT/CABLE ROUTING SHALL BE DETERMINED IN-FIELD, AND PRIOR TO THE COMMENCEMENT OF WORK, COORDINATED WITH OTHER TRADE CONTRACTORS AND THE TENANT.
 - G.C. SHALL FIELD VERIFY EXACT REQUIREMENTS FOR FIRE ALARM SYSTEM PRIOR TO BID, SUPPLY AND INSTALL ALL NECESSARY EQUIPMENT AS REQUIRED. CONFIRM REQUIRED DEVICES AND SEQUENCE OF OPERATION WITH FIRE ALARM CONTRACTOR.
 - ALL DEVICES SHALL BE COMPATIBLE WITH AND MAINTAIN THE 'UL' LISTING OF EXISTING FIRE ALARM SYSTEM EQUIPMENT.
 - PRIOR TO SUBMITTING A PROPOSAL, THE CONTRACTOR SHALL VISIT AND CAREFULLY INVESTIGATE THE EXISTING AREAS AFFECTED BY THIS WORK IN ORDER TO BECOME FAMILIAR WITH EXISTING CONDITIONS AND THE DIFFICULTIES THAT WILL ATTEND THE EXECUTION OF THIS WORK. THE CONTRACTOR SHALL BASE BID ACCORDINGLY.

- FIRE ALARM PLAN KEYED NOTES: 
- CONTRACTOR TO FIELD VERIFY EXACT LOCATION OF EXISTING FIRE ALARM SYSTEM DEVICES IN PROJECT SPACE REUSE IF POSSIBLE, OTHERWISE PROVIDE NEW AS SHOWN ON PLAN. BASE BID ACCORDINGLY.
 - CONTRACTOR TO FIELD VERIFY EXACT LOCATION OF EXISTING FIRE ALARM CONTROL PANEL (FACP). CONNECT ALL NEW DEVICES TO EXISTING BASE BUILDING FIRE ALARM PANEL.



1 FIRE ALARM FLOOR PLAN
Scale: 1/4"=1'-0"

NY ENGINEERS

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PROJECT TITLE:



DRAWING TITLE:

FIRE ALARM FLOOR PLAN

PERMIT DWG DATE: 05/09/2024 PROJECT NUMBER: 24-09-002

DRAWN BY: NYE CHECKED BY: NYE

DRAWING NUMBER:

FA100