

DOUBLE LINE SYMBOL	DESCRIPTION	SINGLE LINE SYMBOL
	DUCT- FIRST NUMBER IS VISIBLE DIMENSION. RADIUS ELBOW W/VANE(S) (1.5=R/D STANDARD)	
	DUCT SECTION, POSITIVE PRESSURE	
	DUCT SECTION, NEGATIVE PRESSURE	
	DUCT & AIRFLOW UP(LEFT) POSITIVE PRESSURE	
	DUCT & AIRFLOW DN(RIGHT) POSITIVE PRESSURE	
	DUCT & AIRFLOW UP(LEFT) NEGATIVE PRESSURE	
	DUCT & AIRFLOW DN(RIGHT) NEGATIVE PRESSURE	
	DUCT & AIRFLOW UP(LEFT) NEG./POS. PRESSURE	
	DUCT & AIRFLOW DN(RIGHT) NEG./POS. PRESSURE	
	CHANGE OF ELEVATION=RISE (R), DROP (D)	
	DUCT W/INTERNAL LINING CLEAR INSIDE DIMENSIONS SHOWN	
	ACCESS DOOR=SIDE (L), BOTTOM (M), TOP (R)	
	FLEXIBLE CONNECTOR	
	FLEXIBLE DUCT	
	FD- FIRE DAMPER, SD-SMOKE DAMPER, FSD- FIRE/SMOKE DAMPER.	
	MANUAL VOLUME DAMPER-SPECIFIC TYPE, NO LABEL-BUTTERFLY, OBD-OPPOSED BLADED DAMPER, PBD-PARALLEL BLADE DAMPER	
	MOTORIZED DAMPER OR ZONE CONTROL DAMPER	
	BRANCH TAP-W/45 DEG. ENTRY	
	BRANCH TAP-CONICAL SPIN-IN	
	BRANCH TAP-STRAIGHT SPIN-IN	
	TRANSITION	
	EXISTING DUCTWORK TO BE DEMOLISHED	
	EXISTING DUCTWORK TO REMAIN	
	HVAC - EQUIP AS NOTED	
	AIR DEVICE, SUPPLY- CEILING. CLEAR	
	AIR DEVICE TAG SPIN-IN DIMENSION AIRFLOW (CFM)	
	AIR DEVICE, RETURN- CEILING.	
	AIR DEVICE, EXHAUST- CEILING.	
	AIR DEVICE, SUPPLY- SIDEWALL.	
	AIR DEVICE, RETURN/EXHAUST- SIDEWALL.	

BD	BACKDRAFT DAMPER
CDS	CEILING DIFFUSER SUPPLY
CDR	CEILING DIFFUSER RETURN
CFM	CUBIC FEET OF AIR PER MINUTE
CD	CONDENSATE DRAIN PIPE
DN	DOWN
EER	ENERGY EFFICIENCY RATIO
FC	FLEXIBLE CONNECTION
HSPF	HEATING SEASONAL PERFORMANCE FACTOR
IEER	INTEGRATED ENERGY EFFICIENCY RATIO
SEER	SEASONAL ENERGY EFFICIENCY RATIO
VD	VOLUME DAMPER
EF	EXHAUST FAN
RTU	ROOF TOP UNIT
SAE	SAME AS EXISTING
MAU	MAKEUP AIR UNIT
KEF	KITCHEN EXHAUST FAN
SAE	SAME AS EXISTING
VIF	VERIFY IN FIELD

GENERAL

1. COORDINATE WORK AMONG ALL DISCIPLINES. IT IS NOT THE INTENT OF THESE DOCUMENTS TO DICTATE WHO MUST DO THE WORK. ALL WORK SHOWN IS THE RESPONSIBILITY OF THE (PRIME) CONTRACTOR.
2. FIELD VERIFY ALL CONDITIONS AND MEASURE DIMENSIONS WITHIN THE BUILDING PRIOR TO ORDERING EQUIPMENT AND/OR PROCEEDING WITH INSTALLATION.
3. ALL EQUIPMENT SHALL BE FACTORY TESTED, AND CONTRACTOR SHALL VERIFY THEIR CONDITION PRIOR TO INSTALLATION. CONTRACTOR IS RESPONSIBLE FOR EQUIPMENT DAMAGED DURING MOVING AND INSTALLATION.
4. EQUIPMENT FOUND DEFECTIVE PRIOR TO FINAL ACCEPTANCE SHALL BE REPLACED AT NO COST TO OWNER.
5. SUBMISSION OF BID PROPOSAL IS CONSIDERED AN ACKNOWLEDGEMENT THAT CONTRACTOR VISITED SITE, AND VERIFIED ALL EXISTING CONDITIONS, AND INCLUDED ANY MODIFICATIONS TO EXISTING AND NEW WORK REQUIRED FOR INSTALLATION OF A COMPLETE AND OPERATIONAL MECHANICAL SYSTEM.
6. COORDINATE WITH OWNER AND ENGINEER FOR ANY DISRUPTION IN UTILITY SERVICES, PARTICULARLY THOSE THAT MIGHT AFFECT OTHER BUILDINGS.
7. CONTRACTOR SHALL NOT PROCEED WITH ANY WORK INVOLVING A CHANGE IN PROJECT SCOPE OR COST WITHOUT FIRST HAVING OBTAINED ENGINEER'S APPROVAL IN WRITING. UNLESS ENGINEER HAS AGREED TO SUCH CHANGE PRIOR TO IT BEING DONE, AND HAS AGREED THAT AN INCREASE IN COST ASSOCIATED WITH SUCH CHANGE IS WARRANTED; CONTRACTOR WILL NOT BE REIMBURSED FOR SUCH CHANGE.
8. TESTING, ADJUSTING AND BALANCING (TAB) CONTRACTOR SHALL BE RETAINED BY THE PRIME CONTRACTOR TAB SHALL NOT BE A PART OF THE MECHANICAL CONTRACT.

1. PERFORM ALL WORK PER LATEST VERSION OF INTERNATIONAL MECHANICAL CODE, AND APPLICABLE LOCAL CODES AND ORDINANCES, UNLESS DRAWINGS OR SPECIFICATIONS HAVE MORE STRINGENT REQUIREMENTS.
2. CONTRACTOR IS RESPONSIBLE FOR ALL PERMITS AND FEES ASSOCIATED WITH PROJECT, INCLUDING FEES FOR INSPECTIONS, APPLICATIONS, AND PROVISION OF NEW SERVICES.
3. NOTIFY ENGINEER OF ANY ASPECTS OF DESIGN WHICH ARE THOUGHT TO BE IN NONCOMPLIANCE WITH APPLICABLE CODES.

1. COORDINATE ALL WORK WITH OTHER TRADES; COORDINATE SCHEDULE OF WORK WITH ALL SUB-CONTRACTORS TO ACHIEVE SMOOTH FLOW OF CONSTRUCTION.
2. CONTRACTOR SHALL REVIEW COMPLETE DOCUMENTS PRIOR TO SUBMITTAL OF PROPOSAL TO GAIN COMPLETE UNDERSTANDING OF PROJECT SCOPE, WORK BY OTHERS, AND MECHANICAL WORK ASSOCIATED WITH OTHER DISCIPLINES.
3. ENGINEER/ ARCHITECT MUST BE GIVEN AT LEAST A TEN (10) WORKING DAY NOTICE TO PERFORM ALL TYPES OF INSPECTIONS. COORDINATE WORK SCHEDULE WITH ARCHITECT AND ENGINEER TO PLAN ACCORDINGLY FOR APPROPRIATE INSPECTIONS.
4. COORDINATE LIGHT LOCATIONS WITH ELECTRICAL CONTRACTOR PRIOR TO INSTALLATION OF AIR DEVICES. LIGHT LOCATIONS TAKE PRECEDENCE OVER AIR DEVICES

1. MECHANICAL DESIGN ASSUMES A MINIMUM 1" DOOR UNDERCUTS FOR ALL DOORS AND WALL PARTITIONS WITHIN CONDITIONED SPACES.
2. CONTRACTOR SHALL IMMEDIATELY NOTIFY THE PROJECT ENGINEER IF ANY DOOR OR PARTITION IS NOT PROVIDED WITH A MINIMUM 1" UNDERCUT OR IF ANY OF THE SPECIFIED SYSTEM RETURN PATHS ARE COMPROMISED DURING CONSTRUCTION IN ANY WAY.
3. AT A MINIMUM, THE CONTRACTOR SHALL PROVIDE A FIBERGLASS DUCTED TRANSFER BOOT/GRILL ABOVE CEILING FOR ANY DOOR OR PARTITION THAT IS NOT PROVIDED WITH A MINIMUM 1" UNDERCUT.
4. RETURN BOOT SHALL TERMINATE IN NEW RETURN AIR DEVICES. RETURN AIR DEVICES SHALL BE WHITE ALUMINUM PERFORATED LAY-IN TYPE WITH ALL NECESSARY MOUNTING HARDWARE TO MATCH OTHER RETURN DEVICES ON SITE. PROVIDE FRAMED AIR DEVICE IF IN HARD CEILING.

1. DRAWINGS ARE DIAGRAMMATIC IN NATURE. FOR CLARITY SAKE, MOST DUCT OFFSETS/RISES/DROPS ARE NOT SHOWN. RECTANGULAR AND ROUND DUCTWORK SHALL BE GALVANIZED STEEL. SIZES SHOWN ARE INSIDE CLEAR DIMENSION.
2. PRIOR TO CONSTRUCTION, CONTRACTOR IS REQUIRED TO COORDINATE HEIGHTS OF DUCTWORK LAYOUT WITH EXISTING STRUCTURE, OTHER TRADES, AND PROPOSED CEILING HEIGHT TO CONFIRM ADEQUATE VERTICAL SPACE FOR STACKING.
3. CONSTRUCT AND LEAKAGE TEST ALL DUCTWORK BASED ON SMACNA REQUIREMENTS. COORDINATE PRESSURE CLASSES WITH EQUIPMENT SCHEDULES.
4. ALL GALVANIZED SHEET METAL DUCT WORK SHALL COMPLY WITH SMACNA'S "HVAC DUCT CONSTRUCTION STANDARDS"—METAL AND FLEXIBLE".
5. USE 2" GLASS FIBER—REINFORCED FABRIC JOINT AND SEAM TAPE. USE WATER BASED JOINT AND SEAM SEALER. USE FIRE RESISTANT SEALER FOR FILLING OPENINGS AROUND DUCT PENETRATIONS THROUGH WALLS. ACCEPTABLE PRODUCTS ARE DOW CORNING, FIRE STOP FOAM AND FIRE STOP SEALER OR EQUAL.
6. USE SHEET METAL SCREWS OR BLIND RIVETS COMPATIBLE WITH DUCT MATERIALS WHEN SECURING ALL DUCTWORK TO STRUCTURE.
7. FLEXIBLE DUCT MAY BE USED TO CONNECT TO SUPPLY DIFFUSERS. MAXIMUM LENGTH OF FLEXIBLE DUCT LIMITED TO 6 FEET. PROVIDE FLEXMASTER TYPE 8M UL 181 CLASS 1 AIR DUCT OR EQUAL. FLEXIBLE DUCT SHALL HAVE MIN. R-8 INSULATING VALUE.
8. FLEXIBLE DUCT CLAMP SHALL BE OF STAINLESS STEEL BANDS WITH CADMIUM PLATED HEX SCREW TO TIGHTEN BAND WITH WORM GEAR ACTION.
9. PROVIDE TURNING VANES IN ALL SPLITS, TEES AND SWEEP 90 DEGREE ANGLE DUCT FITTINGS. MANUFACTURED TURNING VANES TO BE 1-1/2" WIDE, DOUBLE VANE, CURVED BLADES OF GALVANIZED SHEET STEEL SET 1/4" O.C. ACCEPTABLE MANUFACTURER'S ARE DUCTMATE INDUSTRIES, METALEAIR, WARD INDUSTRIES OR EQUAL.
10. WHERE RECTANGULAR TEE FITTINGS ARE SHOWN, PROVIDE FITTING WITH ADJUSTABLE DIVIDER SHEET AND TURNING VANES.

11. WHERE RECTANGULAR MAIN AND BRANCH CONNECTIONS ARE SHOWN, PROVIDE EXTRACTOR VANES.
12. PROVIDE MANUAL VOLUME CONTROL DAMPERS WHERE SHOWN ON DRAWINGS. DAMPERS TO HAVE NEOPRENE BLADE SEALS AND GALVANIZED STEEL FRAMES, TIE BARS, DAMPER AND BRACKETS. ACCEPTABLE MANUFACTURER'S ARE RUSKIN CO., NAILOR INDUSTRIES, FLEXMASTER OR EQUAL.
13. ABOVE INACCESSIBLE CEILINGS AND WHERE DUCT CONFIGURATION DOES NOT ALLOW FOR INSTALLATION OF DAMPER IN DUCTWORK OR DIFFUSER, PROVIDE REMOTE MANUAL DAMPER BY YOUNG REGULATOR, (BOWDEN CABLE CONTROL SYSTEM). CONTRACTOR MAY PROVIDE OPPOSED BLADE DAMPER THAT IS INTEGRAL TO GPD WITH ENGINEER'S APPROVAL

ALL WORK SHALL COMPLY WITH APPLICABLE SECTIONS OF THE INTERNATIONAL BUILDING CODE 2018, AND ALL AMENDMENTS AND RULES AND REGULATIONS OF THE DEPARTMENT OF BUILDINGS TO DATE.

1. ALL HEATING AND COOLING LOADS CALCULATED PER ASHRAE/ACCA 183.
2. VENTILATION FOR ALL AREA SHALL COMPLY WITH INTERNATIONAL MECHANICAL CODE 2018 CHAPTER 4.
3. TESTS OF MECHANICAL SYSTEMS SHALL BE PERFORMED IN ACCORDANCE WITH THE FOLLOWING SECTIONS OF THE INTERNATIONAL MECHANICAL CODE 2018:
  - A. VENTILATION SYSTEM BALANCING-IMC 2018 – 403.1
4. THE FOLLOWING WORK ITEMS, COMPONENTS, MATERIALS, CAPACITIES, ETC. SHALL COMPLY WITH THE REFERENCED CODE OR STANDARD:
  - A. STANDARDS OF HEATING – IMC 2018 – 309.1
  - B. DUCT CONSTRUCTION AND INSTALLATION – IMC 2018 – 603
  - C. AIR INTAKES, EXHAUSTS AND RELIEF – IMC 2018 – 401.5
  - D. AIR FILTERS – IMC 2018 – 605
  - E. MANUAL AND AUTOMATIC FIRE AND SMOKE CONTROLS FOR AIR DISTRIBUTION SYSTEMS – IMC 2018 – 606
  - F. GAS FIRED EQUIPMENT – 2018 IFGC
5. MINIMUM TEMPERATURE TO BE MAINTAINED IN OCCUPIED SPACES DURING HEATING SEASON: 68 DEG. FAHRENHEIT.
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 IMC 2018 – 403.3
7. REFER TO ARCHITECTURAL DRAWINGS FOR REQUIRED FIRE-RATED WALL AND SMOKE WALL CONSTRUCTION AND LOCATION.
8. THESE PLANS ARE APPROVED ONLY FOR THE WORK INDICATED ON THE APPLICATION SPECIFICATION SHEET. ALL OTHER MATTERS SHOWN ARE NOT TO BE RELIED UPON OR TO BE CONSIDERED AS EITHER BEING APPROVED OR IN ACCORDANCE WITH APPLICABLE CODES.
9. 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.
10. SMOKE DETECTOR SHALL MEET UL 268A.
11. CONTRACTOR TO BALANCE THE ENTIRE SYSTEM AND SUBMIT THE FINAL AIR BALANCE REPORT TO THE INSPECTOR OF THE RESPECTIVE BUILDING DEPARTMENT PRIOR TO THE FINAL INSPECTION.

1.1 SUMMARY

A. TESTING, ADJUSTING, AND BALANCING FOR THE FOLLOWING:

1. AIR SYSTEMS: CONSTANT AND VARIABLE VOLUME SYSTEMS.
2. MOTORS.

- 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 AND HYDRONIC 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 AND HYDRONIC 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 HAVE 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

M-1	HVAC SYMBOLS AND NOTES
M-2	HVAC NOTES
M-3	HVAC DETAILS (1 OF 2)
M-4	HVAC DETAILS (2 OF 2)
M-5	HVAC SCHEDULES
M-6	HVAC FLOOR & MEZZANINE FLOOR PLANS
M-7	HVAC ROOF PLAN
M-8	HOOD DRAWINGS 01 OF 02
M-9	HOOD DRAWINGS 02 OF 02

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 THESE PROJECT:

- A. INTERNATIONAL BUILDING CODE, 2018.
- B. INTERNATIONAL MECHANICAL CODE, 2018.
- C. ILLINOIS STATE PLUMBING CODE, 2014.
- D. INTERNATIONAL FIRE CODE, 2018.
- E. INTERNATIONAL ENERGY CONSERVATION CODE, 2018.
- F. NATIONAL ELECTRICAL CODE, 2017.



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:	R–6
WITHIN BUILDING ENVELOPE ASSEMBLY:	R–12
EXTERIOR OF BUILDING:	R–12

1.4 ITEMS NOT INSULATED:

- FIBROUS–GLASS DUCTS.
- METAL DUCTS WITH DUCT LINER OR SUFFICIENT THICKNESS TO COMPLY WITH ENERGY CODE AND ASHRAE/IESNA 90.1.
- FACTORY–INSULATED FLEXIBLE DUCTS.
- FACTORY–INSULATED PLENUMS AND CASINGS.
- FLEXIBLE CONNECTORS.
- VIBRATION–CONTROL DEVICES.
- FACTORY–INSULATED ACCESS PANELS AND DOORS.
- DUCTS THAT HAVE INTERNAL ACOUSTICAL LINING.

1.5 PRODUCTS

- A. THE FOLLOWING INSULATION MANUFACTURERS WILL BE ACCEPTABLE:

- JOHNS–MANVILLE
- OWENS–CORNING

1.6 ACOUSTICAL TREATMENT

- 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

SECTION 233713 – DIFFUSERS, REGISTERS, AND GRILLES

1.1 PRODUCTS

- A. DIFFUSERS, REGISTERS AND GRILLES SHALL BE FURNISHED AND INSTALLED FOR CAPACITIES AND IN LOCATIONS INDICATED ON DRAWINGS. ALL REGISTERS AND DIFFUSERS SHALL BE PRIME COATED STEEL OR EXTRUDED ALUMINUM FINISHED UNLESS OTHERWISE NOTED IN BAKED WHITE ENAMEL.

- B. MANUFACTURERS: TITUS

1. SUBJECT TO COMPLIANCE WITH REQUIREMENTS, PROVIDE PRODUCT BY ONE OF THE FOLLOWING:

- CARNES.
- HART & COOLEY INC.
- KRUEGER.
- METALAIRE, INC.
- NAILOR INDUSTRIES INC.
- RUSKIN

- C. ALL DIFFUSERS SHALL HAVE CONTROLLING/EQUALIZING GRID AND OPPOSED BLADE DAMPER UNLESS OTHERWISE NOTED.

- D. ALL DUCTED RETURN REGISTERS SHALL HAVE AN OPPOSED BLADE DAMPER UNLESS OTHERWISE NOTED.

END OF SECTION 233713

THERMOSTATIC CONTROLS NOTES:

C403.4.1 THERMOSTATIC CONTROLS (MANDATORY)

THE SUPPLY OF HEATING AND COOLING ENERGY TO EACH ZONE SHALL BE CONTROLLED BY INDIVIDUAL THERMOSTATIC CONTROLS CAPABLE OF RESPONDING TO TEMPERATURE 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.

C403.4.1.2 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.

C403.4.1.3 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 C403.4.1.2.

C403.4.2 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.

C403.4.2.1 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 (28°C).

C403.4.2.2 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 TOOPERATE THE SYSTEM FOR UP TO 2 HOURS; OR AN OCCUPANCY SENSOR.

GREASE DUCT SPECIFICATIONS

- 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 2018 INTERNATIONAL 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.
- DUCT TO EXHAUST FAN CONNECTIONS SHALL BE FLANGED, GASKETED AND BOLTED TO THE INLET AND OUTLET OF THE FAN FOR INLINE FANS. APPROVED FLEXIBLE CONNECTIONS MAY BE PROVIDED.
- 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 IMC 2018 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 LOADS WITHIN THE STREET LIMITATIONS OF THE 2018 INTERNATIONAL BUILDING 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 E2336. FIELD APPLIED GREASE DUCT ENCLOSURE SHALL COMPLY ALL REQUIREMENTS PER 2018 IMC SECTION 506.3.11.2.



FLAT TOP GRILL

NY ENGINEERS

NY ENGINEERS  
382 NE 191st ST, SUITE 49674  
MIAMI, FL 33179

98/1423	ISSUED FOR PERMIT
REVISIONS	

EXP. 11/30/2023

Drawing Title

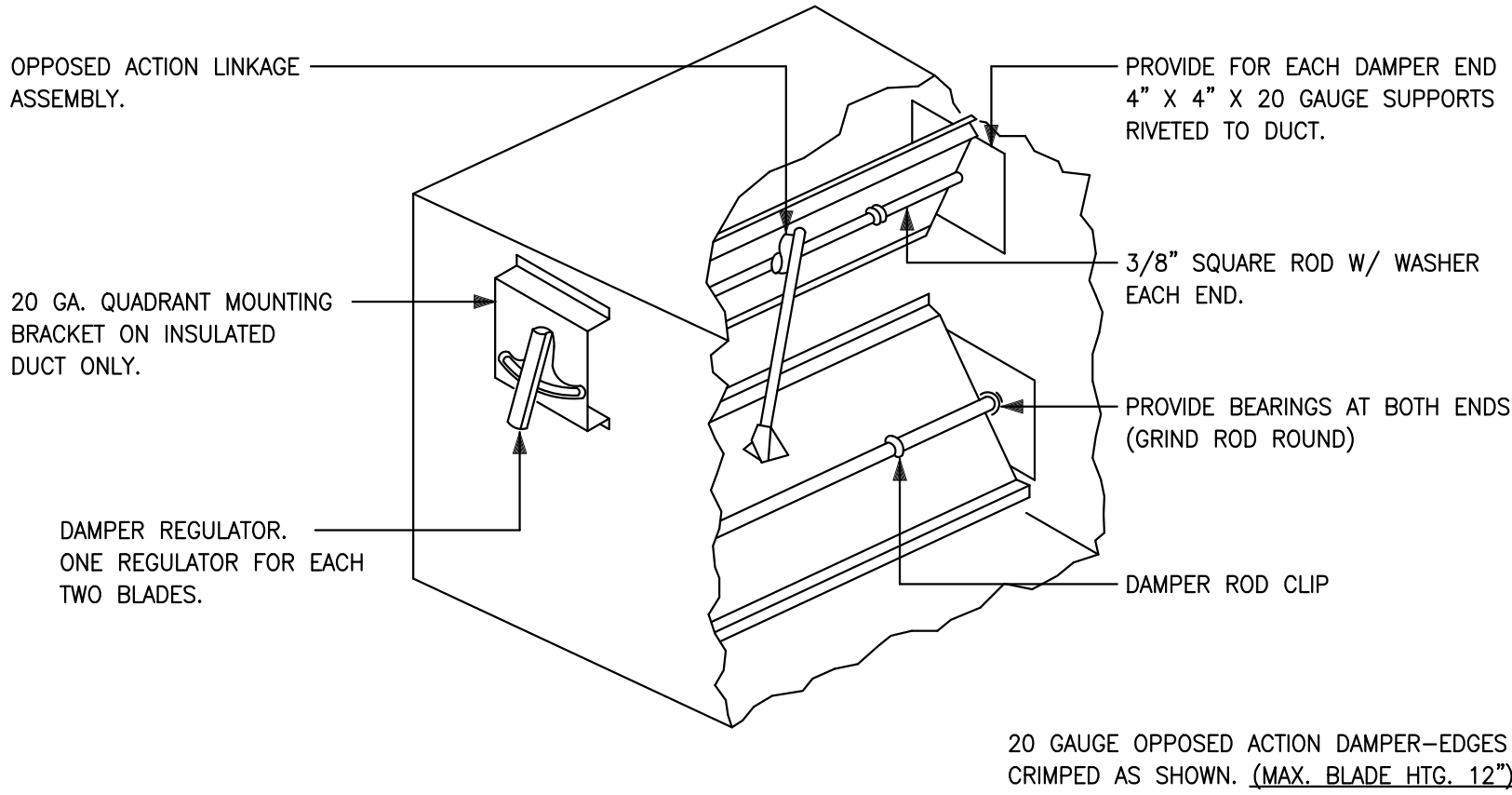
HVAC  
NOTES

Job No.  
164.2023

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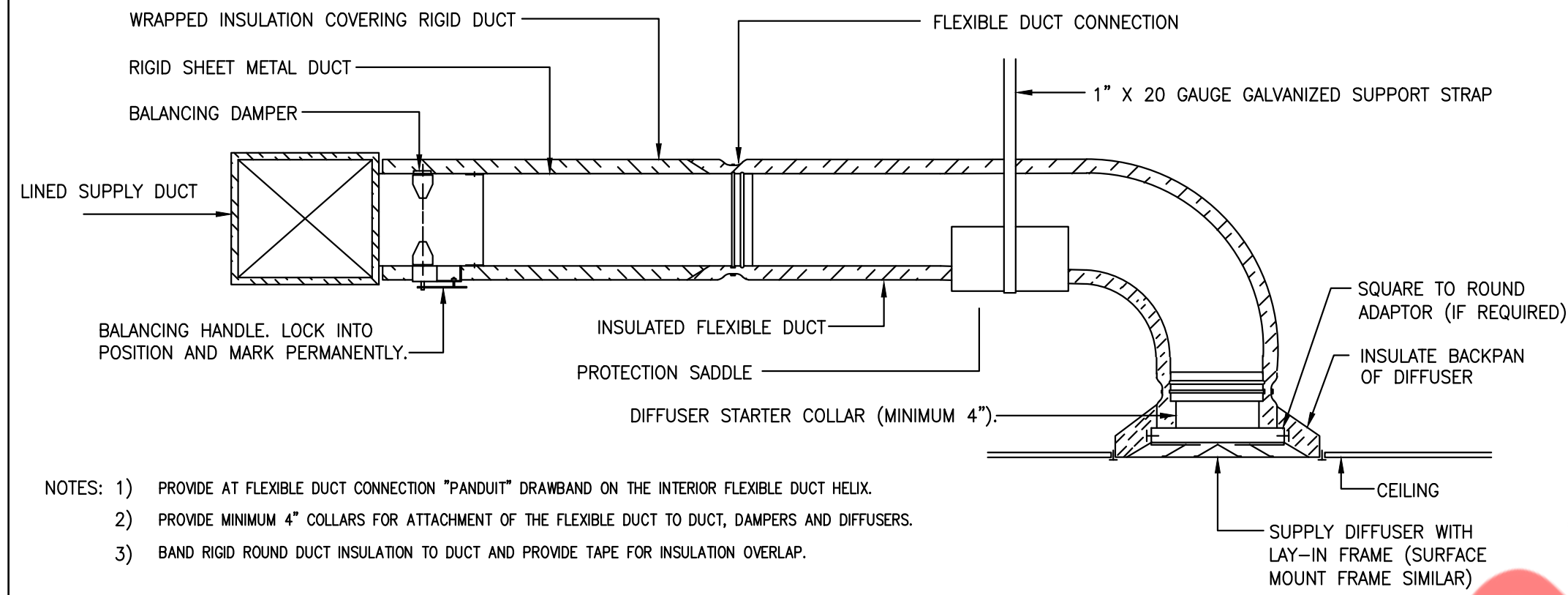
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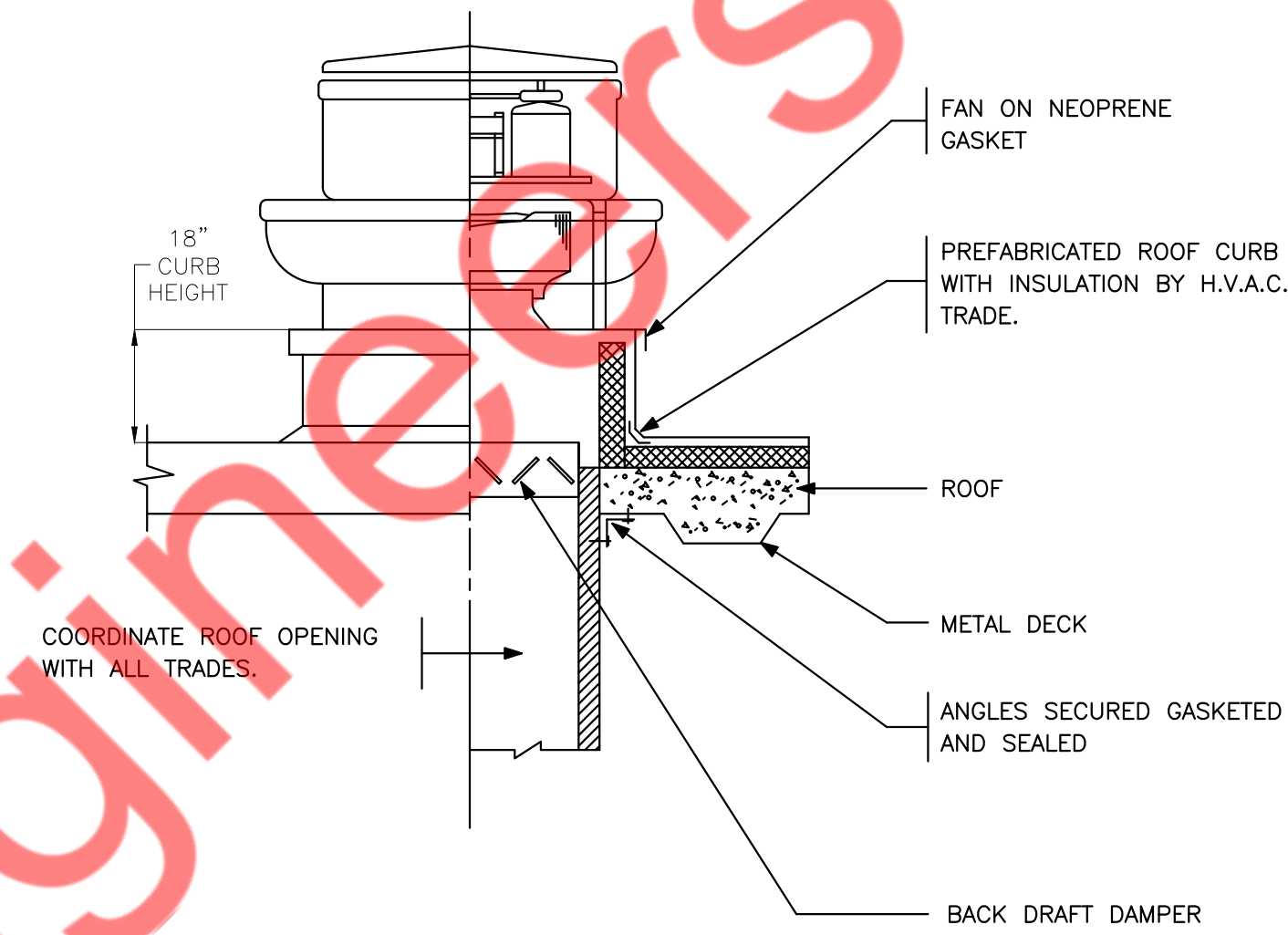
NOTE: 1. FOR DUCTS OVER 29\"/>

1 LOW PRESSURE BALANCING DAMPER  
M-3 N.T.S

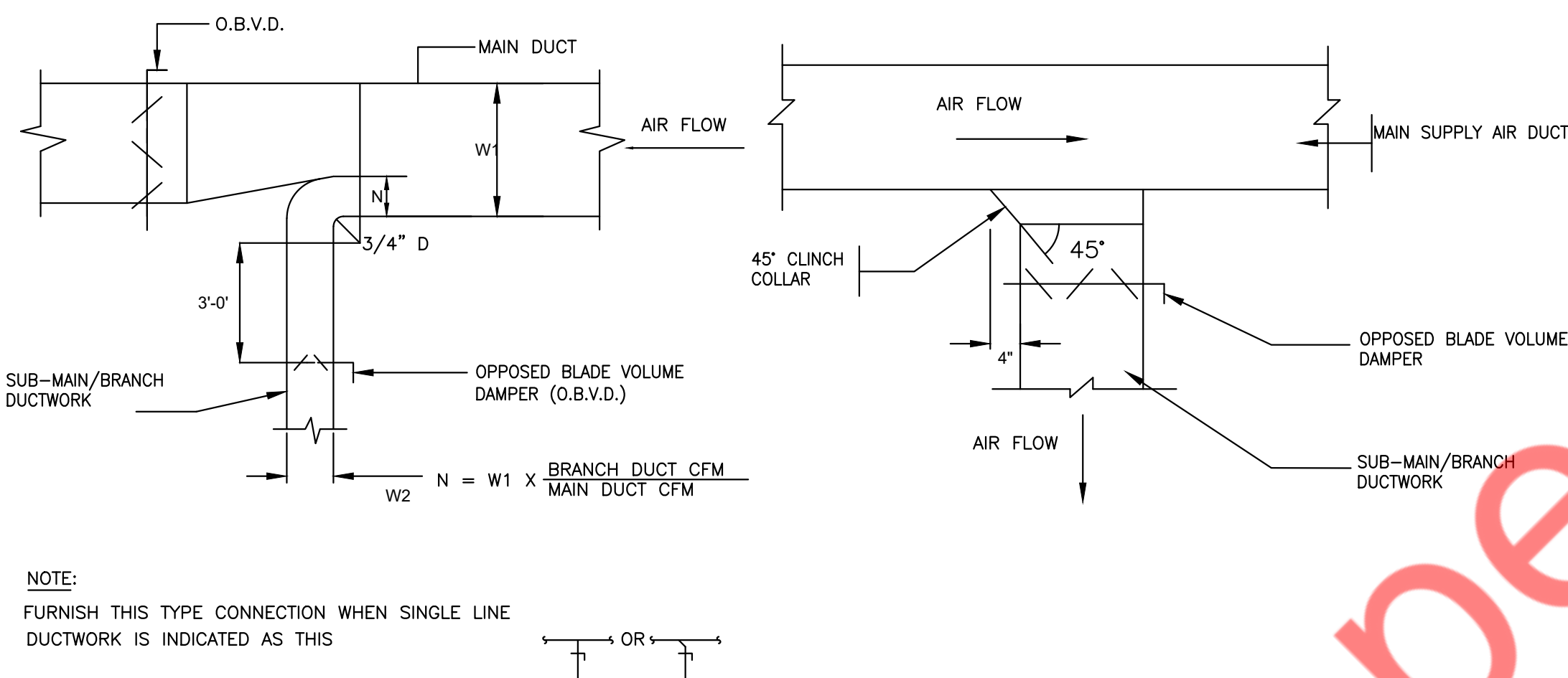


- NOTES: 1) PROVIDE AT FLEXIBLE DUCT CONNECTION "PANDUIT" DRAWBAND ON THE INTERIOR FLEXIBLE DUCT HELIX.  
2) PROVIDE MINIMUM 4\"/>

2 DIFFUSER CONNECTION DETAIL-FLEX DUCT  
M-3 N.T.S

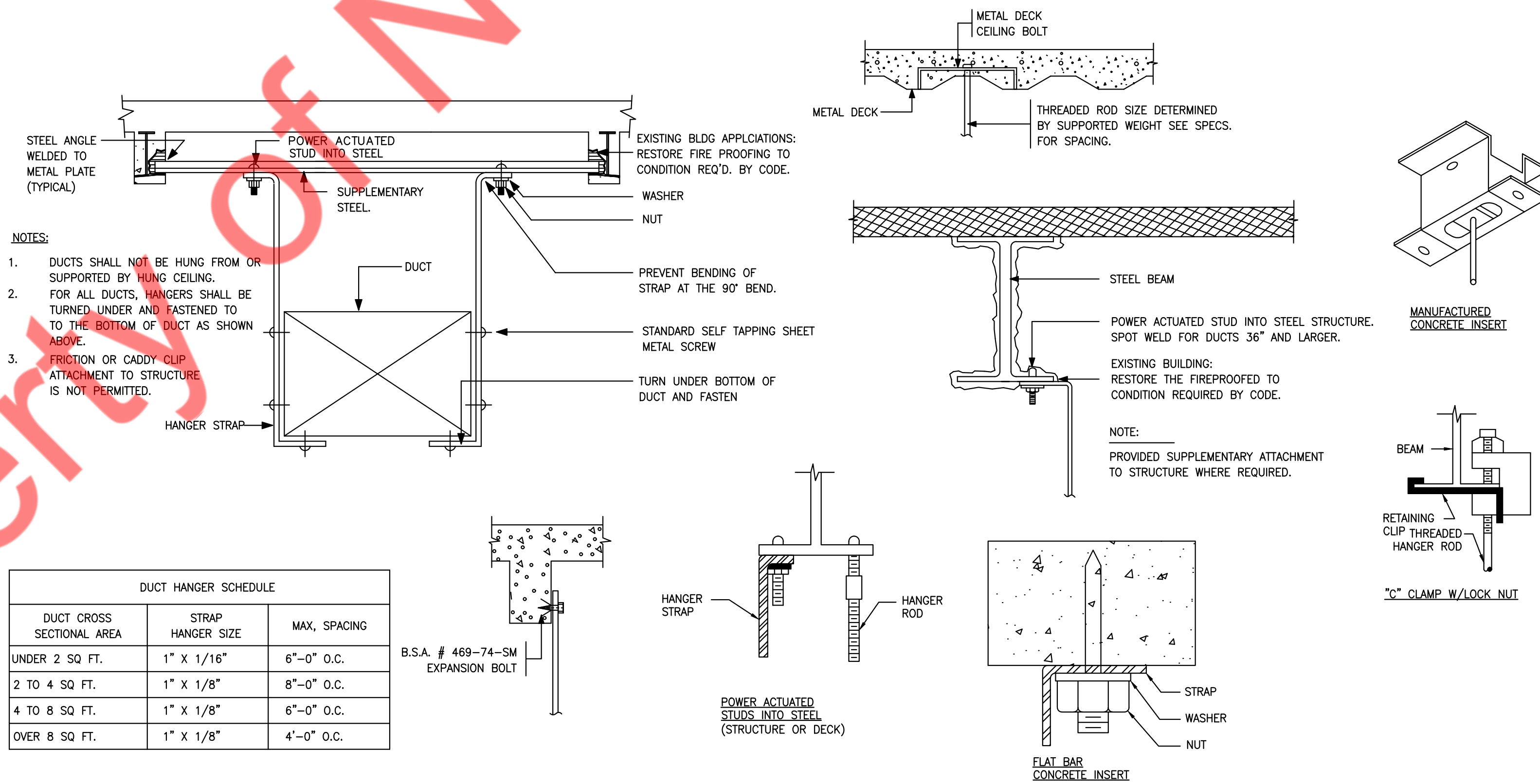


3 UP BLAST EXHAUST FAN DETAIL  
M-3 N.T.S



NOTE:  
FURNISH THIS TYPE CONNECTION WHEN SINGLE LINE DUCTWORK IS INDICATED AS THIS

4 SUPPLY AIR DUCTWORK SUB-MAIN/BRANCH DUCT CONNECTION  
M-3 N.T.S



5 DUCT HANGING DETAILS  
M-3 N.T.S





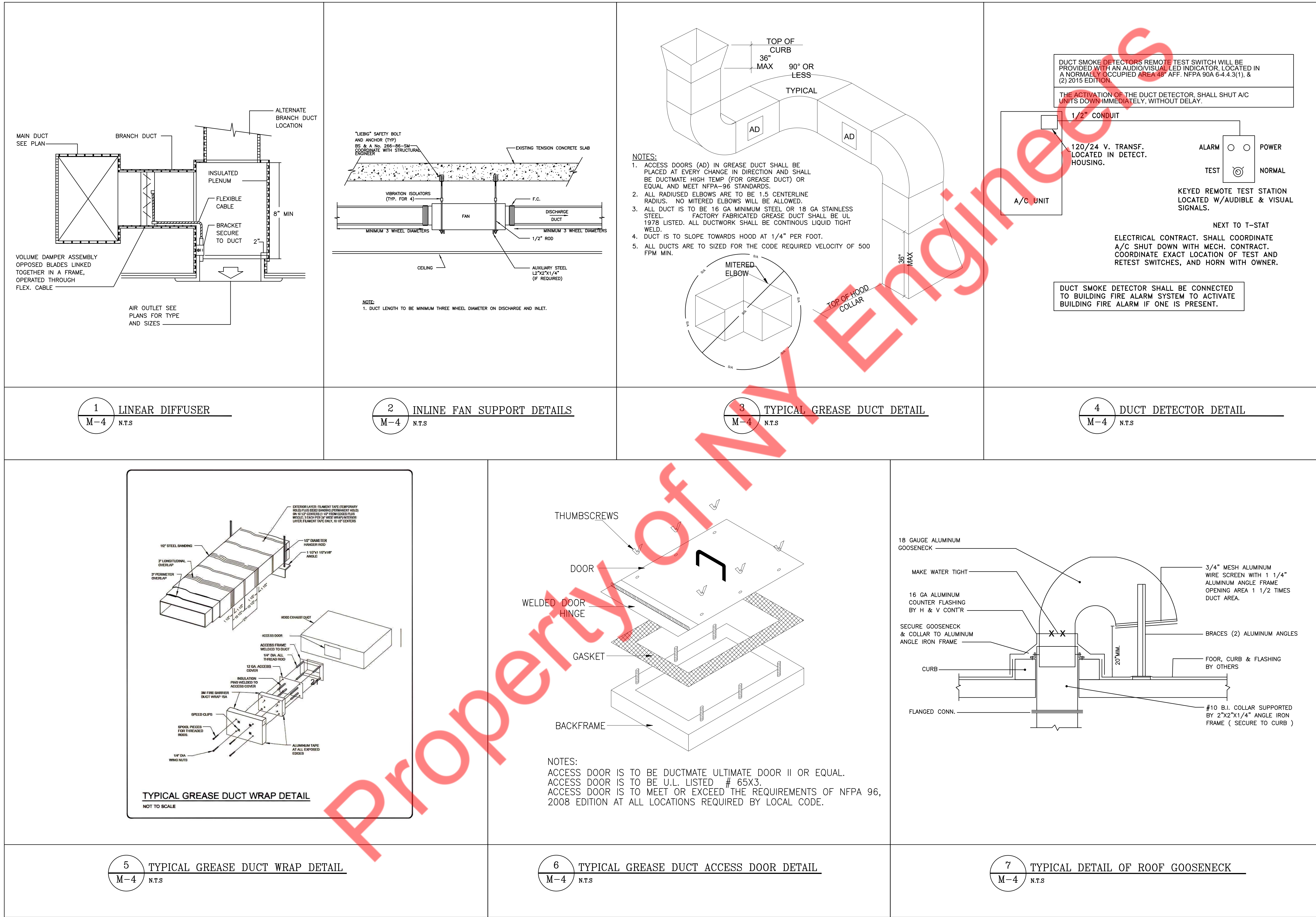
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# HVAC DETAILS

## (2 OF 2)

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# M-4





VENTILATION CALCULATIONS MAIN LEVEL												
ROOM NAME	AREA (SQ.FT.)	NUMBER OF PEOPLE/1000sq.ft AS PER IMC 2018	NUMBER OF PEOPLE AS PER IMC 2018	NUMBER OF PEOPLE AS PER ARCH LAYOUT	FINAL PEOPLE NO.	MIN OUTSIDE AIR AS PER IMC 2018		REQ. OSA	PROVIDED OSA	EXHAUST AIRFLOW RATE (CFM)/(CFM/SQ.FT)	EXHAUST AIRFLOW RATE (CFM)/(CFM/SQ.FT)	EXHAUST AIRFLOW RATE (CFM)/(CFM/SQ.FT)
						CFM/PEOPLE	CFM/SQ.FT					
DINING AREA	1380	70	97	32	97	7.5	0.18	976		0.0	0	0
SERVICE AREA	54	15	1	1	1	7.5	0.12	14		0.0	0	0
HALLWAY	225	0	0	0	0	0	0.06	14		0.0	0	0
STORAGE	142	0	0	0	0	0	0.12	17		0.0	0	0
MEN RR	85	0	0	0	0	0	0	0		70.0	140	140
WOMEN RR	123	0	0	0	0	0	0	0		70.0	140	140
BAR	170	100	17	5	5	7.5	0.18	68	1640	0.0	0	0
DISH AREA	122	20	3	4	4	7.5	0.18	52		0.7	85	1708
PREP AREA	111	20	3	4	4	7.5	0.18	50		0.7	78	1554
COOK AREA	342	20	7	4	4	7.5	0.18	92		0.7	239	4788
TOTAL	2754	-	-	-	115	-	-	1282	1640	-	683	8330

VENTILATION CALCULATIONS MEZZANINE LEVEL												
ROOM NAME	AREA (SQ.FT.)	NUMBER OF PEOPLE/1000sq.ft AS PER IMC 2018	NUMBER OF PEOPLE AS PER IMC 2018	NUMBER OF PEOPLE AS PER ARCH LAYOUT	FINAL PEOPLE NO.	MIN OUTSIDE AIR AS PER IMC 2018		REQ. OSA	PROVIDED OSA	EXHAUST AIRFLOW RATE (CFM)/(CFM/SQ.FT)	EXHAUST AIRFLOW RATE (CFM)/(CFM/SQ.FT)	EXHAUST AIRFLOW RATE (CFM)/(CFM/SQ.FT)
						CFM/PEOPLE	CFM/SQ.FT					
STORAGE 1	250	0	0	0	0	0	0.12	30		0.0	0	0
STORAGE 2	218	0	0	0	0	0	0.12	26		0.0	0	0
SODA STORAGE	50	0	0	0	0	0	0.12	6		0.0	0	0
OFFICE	92	5	1	1	1	5	0.06	11		0.0	0	0
WH	15	0	0	0	0	0	0.12	2		0.0	0	0
TOTAL	625	-	-	-	1	-	-	74	200	-	0	0

ROOF TOP UNIT SCHEDULE																	
UNIT ID	MANUFACTURER	STATUS	MODEL	AREA SERVED	NOMINAL TONS	SUPPLY FAN		HEATING CAPACITY			COOLING CAPACITY		ELECTRICAL				EER
						SUPPLY CFM	OUTSIDE AIR CFM	ESP (IN. OF W.G.)	TOTAL IN MBH	TOTAL OUT MBH	EFF %	TOTAL MBH	SENSIBLE MBH	VOLTS	PHASE	MCA (A)	MOCP (A)
RTU-F13(E)	YORK	EXISTING	DF078N15P4BAA3C	SEE PLAN	6.5	2600	500	S.A.E	180 (V.I.F)	144 (V.I.F)	S.A.E	S.A.E	S.A.E	460 (V.I.F)	3 (V.I.F)	17.4 (V.I.F)	20 (V.I.F)
RTU-F16(E)	YORK	EXISTING	DM060N10P4BAA2A	SEE PLAN	5.0	2000	200	S.A.E	125 (V.I.F)	100 (V.I.F)	S.A.E	S.A.E	S.A.E	460 (V.I.F)	3 (V.I.F)	13.4 (V.I.F)	20 (V.I.F)
RTU-DOC(E)	YORK	EXISTING	DF120N20P4AAA3C	SEE PLAN	10.0	4000	900	S.A.E	240 (V.I.F)	192 (V.I.F)	S.A.E	S.A.E	S.A.E	460 (V.I.F)	3 (V.I.F)	27.2 (V.I.F)	35 (V.I.F)
RTU-F15(E)	YORK	EXISTING	DM048N10P4BAA2A	SEE PLAN	4.0	1600	240	S.A.E	125 (V.I.F)	100 (V.I.F)	S.A.E	S.A.E	S.A.E	460 (V.I.F)	3 (V.I.F)	12.3 (V.I.F)	15 (V.I.F)
NOTES: 1. EXISTING RTUS TO REMAIN AND TO BE REUSED WITH ALL ACCESSORIES. REPLACE FILTERS IF REQUIRED. 2. S.A.E : SAME AS EXISTING. VIF : VERIFY IN FIELD. 3. CONTRACTOR TO FIELD VERIFY EXACT LOCATION AND CONFIGUARTION OF UNITS ON SITE. 4. PROVIDE NEW THERMOSTAT & TEMPERATURE SENSOR COMPATIBLE WITH THE EXISTING RTU. CO-ORDINATE FINAL LOCATION OF T-SENSOR WITH ARCHITECT/OWNER. 5. CONTRACTOR TO BALANCE OUTSIDE AIR & RETURN AIR DAMPER ON RTUS TO MATCH VALUES MENTIONED IN ABOVE TABLE.																	

MAKEUP AIR UNIT SCHEDULE																				
TAG	UNIT	MANUFACTURER	STATUS	MODEL	AREA SERVED	NOMINAL TONS	HP	SUPPLY FAN		HEATING CAPACITY			COOLING CAPACITY		ELECTRICAL				SEER	OPERATING WEIGHT (LBS.)
								SUPPLY CFM	ESP (IN. OF W.G.)	TOTAL IN MBH	TOTAL OUT MBH	BURNER EFF %	TOTAL MBH	SENSIBLE MBH	VOLTS	PHASE	MCA (A)	MOCP (A)		
MAU-1(E)	GAS HEAT	CAPTIVEAIRE	EXISTING	A1-D.250-G10 (V.I.F)	SEE PLAN	S.A.E	S.A.E	S.A.E	S.A.E	98.2 (V.I.F)	78.5 (V.I.F)	S.A.E	S.A.E	S.A.E	460 (V.I.F)	3 (V.I.F)	1.65 (V.I.F)	S.A.E	S.A.E	S.A.E
MAU-2(N)	GAS HEAT	CAPTIVEAIRE	NEW	A2-D.250-20D-MPU	SEE PLAN	5.0	1.0	2250	0.5	185.7	170.9	92	46	31.2	460	3	12.9	20	14	1500
NOTES FOR MAU-1(E) 1. EXISTING MAU-1(E) WITH ALL ACCESSORIES TO REMAIN THE SAME AND TO BE REUSED. IF FOUND DAMAGE REPAIR/REPLACE WITH THE SAME TYPE. 2. S.A.E - SAME AS EXISTING. V.I.F : VERIFY IN FIELD. 3. REPLACE FILTERS, IF REQUIRED.																				
NOTES FOR MAU-2(N) 1. DIRECT GAS-FIRED HEATED MAKE UP AIR UNIT WITH 20" MIXED FLOW DIRECT DRIVE FAN. 2. INTAKE HOOD WITH EZ FILTERS. 3. DOWN DISCHARGE - AIR FLOW RIGHT -> LEFT. 4. PROFILE PLATE CONFIGURATION FOR SIZE 2 DIRECT FIRED UNIT FOR LOW CFM APPLICATIONS. 5. GAS PRESSURE GAUGE, 0-35", 2.5" DIAMETER, 1/4" THREAD SIZE. 6. GAS PRESSURE GAUGE, -5 TO +15 INCHES WC., 2.5" DIAMETER, 1/4" THREAD SIZE. 7. BUTTERFLY MOD VALVE OPTION FOR MOD SIZE 2 (1" MOD VALVE). 8. SHIP LOOSE GAS STRAINER. TO BE INSTALLED UPSTREAM OF UNIT CONNECTION. 1" CONNECTION. 9. MOTORIZED BACK DRAFT DAMPER 22.75" X 24" FOR SIZE 2 STANDARD & MODULAR HEATER UNITS W/EXTENDED SHAFT, STANDARD GALVANIZED CONSTRUCTION, 3/4" REAR FLANGE, LOW LEAKAGE, LF120S ACTUATOR INCLUDED. 10. 5 TON, SINGLE CIRCUIT MODULAR PACKAGED COOLING OPTION FOR SIZE 2 DF/EH MODULAR PACKAGED UNIT. INCLUDES CONDENSER, DX COIL, FILTER/DRYER KIT, THERMAL EXPANSION VALVE, R410A REFRIGERANT, AND REFRIGERANT PIPING. (2,000 TO 3,000 CFM) WHEN ORDERED WITH OPPOSITE AIRFLOW CONDENSERS ACCESS AND COIL PIPING WILL REMAIN IN STANDARD POSITION. DRAIN AND SLEDS WILL MOVE TO THE OPPOSITE SIDE. ANY OTHER CHANGE WILL REQUIRE CLI. CONDENSERS REQUIRE A SEPARATE 460V, 3 PHASE POWER SUPPLY UNLESS ORDERED WITH SINGLE POINT CONNECTION. COIL = 3E21001R. 11. DOWNTURN PLENUM FOR SIZE 2 COOLING COIL MODULE - REQUIRED FOR DOWN-DISCHARGE COOLING COIL APPLICATIONS. 12. SINGLE POINT MPU CONNECTION, 1 CONDENSER. 13. UNIT MOUNTED VFD FOR USE WITH ECPM03. 14. HINGED DOUBLE WALL INSULATED DOOR ASSEMBLY (BURNER/BLOWER/MPU SECTION). 15. 2 YEAR PARTS WARRANTY																				

MAKEUP AIR UNIT CONDENSER SCHEDULE										
TAG	UNIT	MANUFACTURER	STATUS	MODEL	AREA SERVED	NOMINAL TONS	ELECTRICAL			
							VOLTS	PHASE	MCA (A)	MOCP (A)
MAU-2(N)	DX	CAPTIVEAIRE	NEW	A2-D.250-20D-MPU	SEE PLAN	5.0	460	3	10.5	15.0

MECHANICAL FAN SCHEDULE											
TAG	AREA SERVED	FLOW RATE CFM	STATIC EXTERNAL PRESSURE IN W.G.	HP	ELECTRIC DATA				MAXIMUM LOUDNESS (DBA)	BASIS OF DESIGN	
					SPEED RPM	FLA (Amps)	INPUT WATT	V/PH/HZ		MANUFACTURER	MODEL
EF-1(N)	MENS RR	140	0.5	-	825	0.46	121	115/1/60	25	GREENHECK	CSP-A200
EF-2(E)	WOMENS RR	S.A.E	S.A.E	S.A.E	S.A.E	S.A.E	S.A.E	S.A.E	S.A.E	S.A.E	S.A.E
KEF-1(N)	COOK AREA	2925	1.25	2.0	1203	8.3	-	208/3/60	-	CAPTIVEAIRE	DU180HFA
KEF-2(E)	DISHWASH	S.A.E	S.A.E	S.A.E	S.A.E	S.A.E	S.A.E	S.A.E	S.A.E	S.A.E	S.A.E
KEF-3(E)	AS SHOWN	S.A.E	S.A.E	S.A.E	S.A.E	S.A.E	S.A.E	S.A.E	S.A.E	S.A.E	S.A.E
OPTIONS FOR EF-1(N): 1. INTERCONNECT EF-1 (N) WITH RTU-F13(E) OR PROVIDE 24 HR TIMER CONTROL. CONFIRM FINAL REQ WITH ARCHITECT/OWNER. 2. PROVIDE BACK DRAFT DAMPER.											
OPTIONS FOR KEF-1(N) 1. GREASE BOX. 2. FAN BASE CERAMIC SEAL - SHIP LOOSE FOR GREASE DUCTS. 3. UNIT MOUNTED VFD FOR USE WITH ECPM03. 4. VFD MOUNTING BRACKET FOR DU/DR 180 200. 5. EXHAUST FAN HEAT BAFFLE. 6. 2 YEAR PARTS WARRANTY. 7. INTERLOCKED WITH MUA-2(N)											
NOTES FOR EF-2(E), KEF-2(E) & KEF-3(E): 1. THE CONTRACTOR TO FIELD VERIFY THE EXACT CAPACITY OF THE KEF-2(E), KEF-3(E), AND EF-2(E) AND REUSE IT.											

AIR TERMINAL DEVICES SCHEDULE			
MANUFACTURER	TITUS	TITUS	TITUS
DESIGNATION	A	A2	E
USE	SUPPLY	SUPPLY	EXHAUST
MODEL	TDC-AA	PAS	36FL
MOUNTING	CEILING	CEILING	CEILING
LOCATION	AS SHOWN	AS SHOWN	AS SHOWN
FACE SIZE	24"X24"	24"X24"	6"X6"
NECK SIZE	REFER TABLE-A	REFER TABLE-A	
FRAME TYPE	LAY IN/FLANGED	LAY IN/FLANGED	LAY IN/FLANGED
ACCESSORIES	VOLUME DAMPER	VOLUME DAMPER	VOLUME DAMPER
NOTES: 1. MAX. NC LEVEL 30 OR LESS. 2. COORDINATE WITH ARCHITECT FOR PAINT & FINISH. 3. PROVIDE 4-WAY AIR THROW PATTERN UNLESS NOTES OR INDICATED. 4. PROVIDE INSULATED BACKS ON ALL DIFFUSERS.			

NECK SIZE TABLE-A	
FLEX DUCT DIA	CFM RANGE
Ø6"	0-100
Ø8"	101-200
Ø10"	201-400
Ø12"	401-600

AIR BALANCE					
UNIT	AREA SERVED	SUPPLY AIR	OUTSIDE AIR	RETURN AIR	EXHAUST AIR
RTU-DOC(E)	SEE PLAN	4000 CFM	900 CFM	3100 CFM	-
RTU-F13(E)	SEE PLAN	2600 CFM	500 CFM	2100 CFM	-
RTU-F15(E)	SEE PLAN	1600 CFM	240 CFM	1360 CFM	-
RTU-F16(E)	SEE PLAN	2000 CFM	200 CFM	1800 CFM	-
MAU-1(E)	SEE PLAN	3100 CFM (V.I.F)	3100 CFM (V.I.F)	-	-
MAU-2(N)	SEE PLAN	2250 CFM	2250 CFM	-	-
EF-1(N)	MENS RR	-	-	-	140 CFM
EF-2(E)	WOMENS RR	-	-	-	360 CFM (V.I.F)
KEF-1(N)	SEE PLAN	-	-	-	2925 CFM
KEF-2(E)	SEE PLAN	-	-	-	600 CFM (V.I.F)
KEF-3(E)	SEE PLAN	-	-	-	3000 CFM (V.I.F)
TOTAL:		15550 CFM	7190 CFM	8360 CFM	7025 CFM
BUILDING PRESSURE:				165 CFM	POSITIVE
THE CONTRACTOR TO FIELD VERIFY THE EXACT CAPACITY OF THE MAU-1(E), KEF-2(E), KEF-3(E), AND EF-2(E) SERVING OUR SPACE. IF FOUND ANY DISCREPANCY IN THE CAPACITY OF EXISTING UNITS REPORT THE INSPECTOR IN THE RECORD BEFORE COMMENCING ANY CONSTRUCTION					



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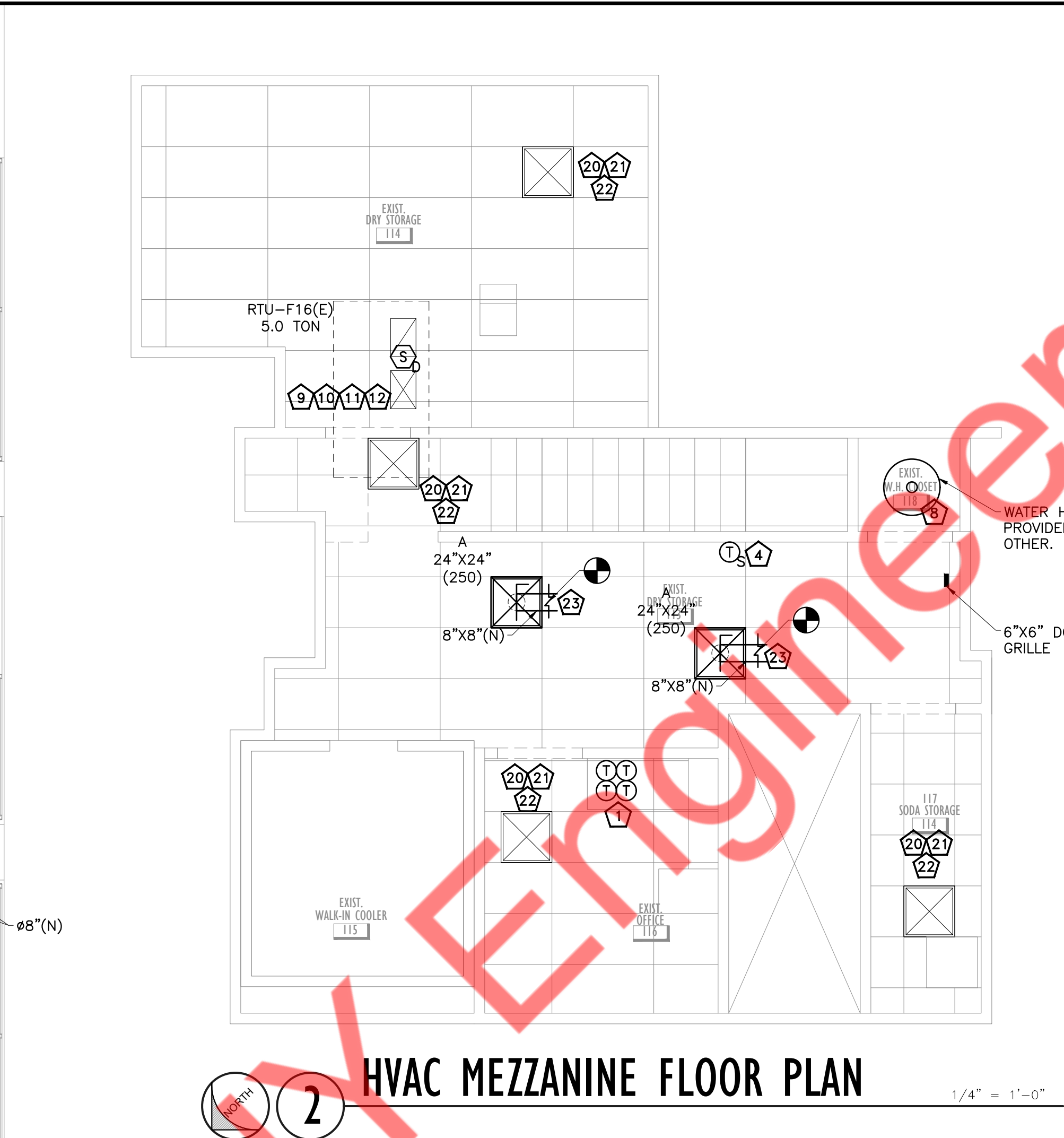
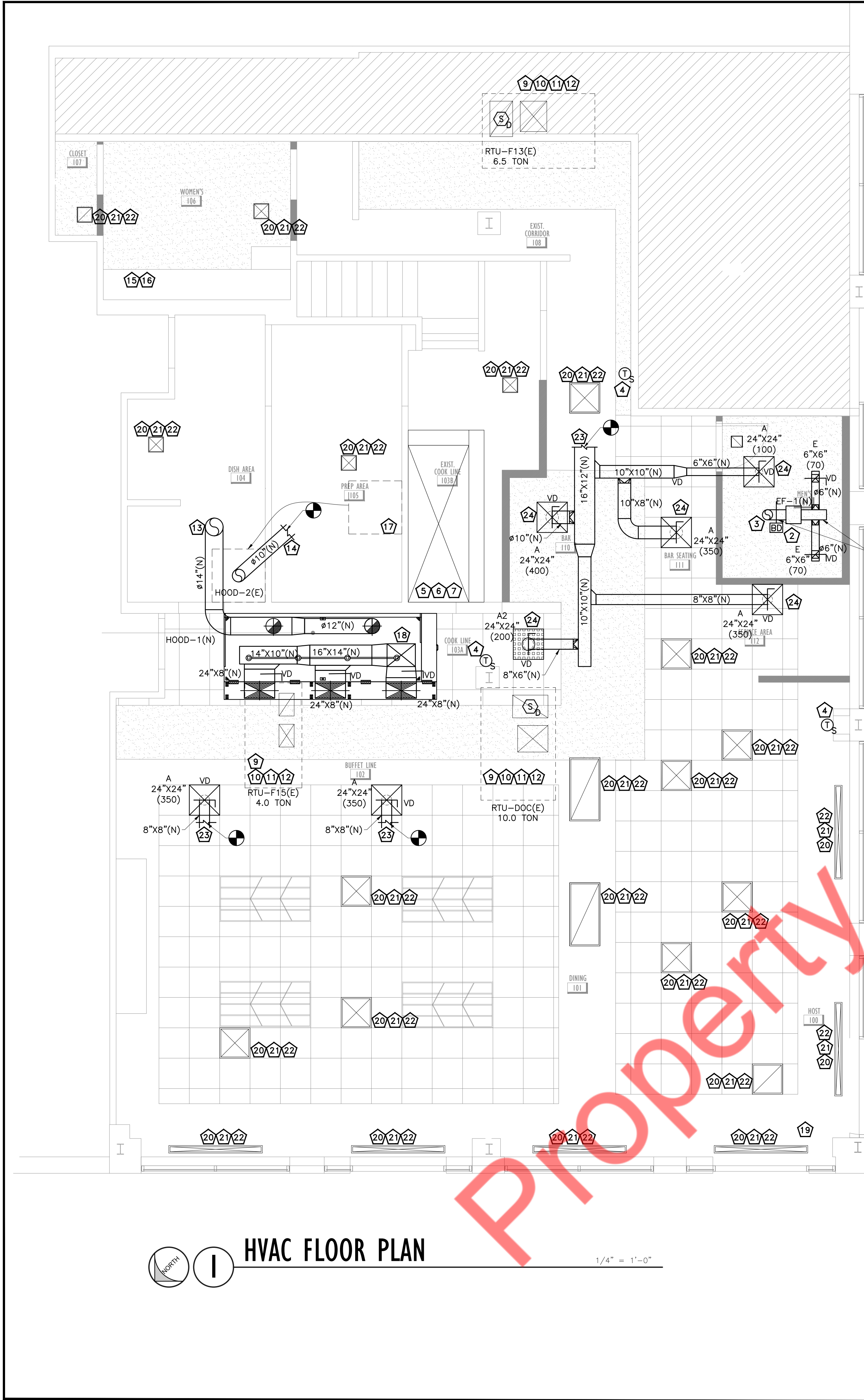
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AIR QUANTITY TABLE			
LOCATION		SUPPLY AIR	RETURN AIR
MAIN LEVEL	DINING AREA	4900	4110
	COOK AREA/BUFFET LINE	900	750
	SERVICE AREA	350	250
	BAR SEATING	350	250
	BAR	400	300
	MEN RESTROOM	100	0
	HALLWAY	200	200
	PREP AREA	450	350
MEZZANINE	DISH AREA	450	350
	WOMEN RESTROOM	100	0
	EXISTING DRY STORAGE 1	750	700
	EXISTING DRY STORAGE 2	750	700
	EXISTING OFFICE	250	200
WH		DOOR GRILLE	

1. CONTRACTOR IS TO BALANCE THE EXISTING DAMPER TO MATCH THE AIR QUANTITIES PROVIDE IN THE TABLE ABOVE.


2. THE AIR BALANCE IN THE ABOVE TABLE ARE INCLUSIVE OF THE NEW DIFFUSERS AIR QUANTITY MENTIONED IN THE PLAN.

MECHANICAL GENERAL NOTES

- A. CONTRACTOR SHALL BALANCE EACH DEVICE WITH THE CFM SHOWN PLAN.
- B. NEW DUCTWORK SHOWN ON PLAN ARE SCHEMATIC ONLY. CONTRACTOR SHALL COORDINATE WITH OTHER TRADES FOR DUCTWORK ROUTING, OFFSET AND RUN DUCTWORK INSIDE THE STRUCTURE. IF REQUIRED, PROVIDE ANY EXTRA DUCTWORK, FITTINGS, INSULATIONS AND OTHER ACCESSORIES IN ORDER TO COMPLETE THE INSTALLATION.
- C. COORDINATE LOCATIONS AND SIZES OF ROOF OPENINGS WITH OWNER AND STRUCTURE ENGINEERS.
- D. EQUIPMENT SIZES, DIMENSIONS AND REQUIRED CONNECTIONS SHALL BE VERIFIED WITH THE ACTUAL EQUIPMENT AT FIELD BEFORE FABRICATION OF DUCTWORK ETC.
- E. DUCT SIZES SHOWN ON PLANS ARE CLEAR INSIDE AIR STREAM DIMENSIONS.
- F. CONTRACTOR SHALL COORDINATE ALL ELECTRICAL REQUIREMENTS FOR ALL HVAC BASED ON ACTUAL EQUIPMENT SELECTED PRIOR TO INSTALLATION.
- G. ALL EXPOSED DUCTWORK SHALL BE INTERNALLY INSULATED AND ALL CONCEALED DUCTWORK SHALL BE EXTERNALLY INSULATED.
- H. COORDINATE WITH ALL TRADES FOR MATERIALS IN RATED AND PLENUM SPACES.
- I. ALL SOURCE OF MECHANICAL INTAKE SHALL MAINTAIN 10 LINEAR FEET SEPARATION BETWEEN ANY SOURCE OF EXHAUST. CONTRACTOR IS RESPONSIBLE TO ADJUST DUCT LENGTH AS NEEDED.
- J. PROVIDE FIRE OR FIRE+SMOKE DAMPER WHEREVER DUCTS ARE CROSSING FIRE/SMOKE RATED WALLS/BARRIERS/SLABS. COORDINATE WITH ARCHITECTURAL DRAWING FOR FIRE RATING OF THE WALLS.
- K. PROVIDE MINIMUM R-6 INSULATION (INTERNAL INSULATION FOR EXPOSED DUCTS AND EXTERNAL FOR CONCEALED DUCTS) FOR SUPPLY & RETURN AIR DUCTS. PROVIDE ACOUSTIC INSULATION ON MAIN SUPPLY AND RETURN DUCTS UP TO 10 FT. FROM HVAC UNIT.
- L. TEST AND BALANCE AIR SYSTEMS. PROVIDE REPORT TO GENERAL CONTRACTOR AND OWNER.
- M. CONTRACTOR SHALL FIELD VERIFY THE CONDITIONS OF THE EXISTING DIFFUSER, GRILLES AND LINEAR DIFFUSER. CLEAN AND REUSE AS MUCH AS POSSIBLE IF THOSE ARE IN GOOD CONDITION.
- N. CONTRACTOR TO FIELD VERIFY IF THE EXISTING DIFFUSERS/GRILLES ARE PROVIDED WITH VOLUME DAMPER. IF NOT PROVIDE AND INSTALL NEW VOLUME DAMPER.
- O. CONTRACTOR TO REUSE EXISTING DUCTWORK AS MUCH AS POSSIBLE AND PROVIDE NEW DUCTWORK FOR THE AREA AS SHOWN IN THE PLAN.

MECHANICAL FLOOR PLAN KEY NOTES:

- 1 LOCATION OF DIGITAL THERMOSTAT/HUMIDISTAT CONTROL. CONTRACTOR TO REPLACE THE EXISTING THERMOSTAT WITH SAME TYPE IF EXISTING FOUND DAMAGE OR NOT FOUND. CONFIRM FINAL LOCATION WITH ARCHITECT / CLIENT.
- 2 IN LINE EXHAUST FAN. INTERCONNECT EXHAUST FAN WITH RTU-F13(E). FAN SHALL BE SUSPENDED FROM STRUCTURE ABOVE. VERIFY EXACT LOCATION OF STRUCTURAL MEMBERS PRIOR TO INSTALLATION.
- 3 #8" TOILET EXHAUST DUCT UP--TO THE ROOF AND TERMINATE WITH GOOSENECK AND BIRD SCREEN.
- 4 INSTALL & WIRE TEMP. SENSOR FOR RTU. CONFIRM FINAL LOCATION / REQUIREMENT WITH ARCHITECT/CLIENT.
- 5 CONTRACTOR TO FIELD VERIFY AND REUSE THE EXISTING KITCHEN HOOD ALONG WITH EXHAUST FAN AND MAKE UP AIR FAN AND RELATED DUCTWORKS. CONTRACTOR TO CLEAN AND BRING THE HOOD TO LIKE NEW. REPLACE THE FILTERS IF REQUIRED.
- 6 CONTRACTOR TO FIELD VERIFY THE CONDITION OF THE EXISTING GREASE DUCTWORK AND REUSE IT. CONTRACTOR TO REPAIR/REPLACE IF ANY PORTION IS FOUND DAMAGED. CONTRACTOR TO CLEAN THE EXISTING GREASE DUCT AND CLEAN OUT TO BRING LIKE NEW.
- 7 CONTRACTOR TO FIELD VERIFY THE CONDITION OF THE EXISTING FIRE WRAP OF THE EXHAUST HOOD. IF FOUND DAMAGED, REPAIR/REPLACE WITH THE SAME TYPE COMPLYING LOCAL CODE.
- 8 WATER HEATER PROVIDED BY G.C. CONTRACTOR TO FIELD VERIFY THE EXISTING WATER HEATER VENT AND CONNECT TO THE SAME. REPAIR FOR ANY DAMAGES WITH SAME TYPE. IF REQUIRED REPLACE WITH SAME TYPE.
- 9 SMOKE DETECTOR SHALL BE FURNISHED/INSTALLED BY MECHANICAL CONTRACTOR AND WIRED BY ELECTRICAL CONTRACTOR TO SHUT DOWN CORRESPONDING AC UNDER ALARM CONDITIONS. ALL WIRING SHALL BE IN CONDUIT PER N E C SMOKE DETECTOR SHALL BE SYSTEM SENSOR SHALL COMPLY WITH UL268A.
- 10 EXISTING DUCTWORK FROM ROOFTOP UNITS TO REMAIN AND REUSED. CONTRACTOR TO FIELD VERIFY THE EXISTING DUCTWORK AND REUSE AS MUCH AS POSSIBLE. IF EXISTING EXISTING DUCTWORK/INSULATION FOUND DAMAGED, REPAIR AND REPLACE WITH SAME TYPE.
- 11 CONTRACTOR TO FIELD VERIFY THE EXACT LOCATION OF THE EXISTING RTU PRIOR COMMENCING ANY CONSTRUCTION WORK OR BASE BID.
- 12 IF CONTRACTOR FINDS ANY DISCREPANCIES WITH THE CAPACITIES OF THE EXISTING RTUs SERVING TENANT'S SPACE, INFORM ENGINEER ON THE RECORD PRIOR TO BID AND COMMENCING ANY WORK.
- 13 #14" KITCHEN EXHAUST DUCT UP--TO KEF-1(N) ON THE ROOF. PROVIDE GREASE DUCT AS PER SPECIFICATIONS AND COMPLYING LOCAL CODES.
- 14 #10" DISH WASHER EXHAUST DUCT. CONTRACTOR TO FIELD VERIFY AND CONNECT TO EXISTING TYPE-II HOOD EXHAUST DUCT. CONTRACTOR TO FIELD VERIFY THE CONDITION OF EXISTING DUCTWORK AND SHALL REPAIR/REPLACE WITH SAME TYPE IF FOUND DAMAGED.
- 15 REUSE EXISTING EXHAUST SYSTEM INCLUDING GRILLES, DUCTWORK AND FAN IN WOMEN RESTROOM CONTRACTOR TO FIELD VERIFY AND CONFIRM THE CONDITION OF EXISTING SYSTEM IF FOUND ANY DAMAGE REPLACE WITH SAME KIND.
- 16 CONTRACTOR TO FIELD VERIFY EXISTING EXHAUST FAN HAVE BACK DRAFT DAMPER. IF NOT FOUND OR DAMAGED PROVIDE NEW BACK DRAFT DAMPER.
- 17 RELOCATE AND REUSE THE EXISTING TYPE-II HOOD OVER THE NEW DISH WASH AS SHOWN IN THE PLAN. EXISTING HOOD SHALL BE CLEANED AND MAKE DUST/GREASE FREE. CONTRACTOR TO CLEAN AND BRING TO LIKE NEW EQUIPMENT BEFORE REUSING.
- 18 22"x18" DUCT FROM MAU-2(N) LOCATED AT ROOF.
- 19 CONFIRM THE REQUIREMENT OF THE EXISTING CEILING HEATER WITH THE CLIENT/ARCHITECT.
- 20 CONTRACTOR SHALL FIELD VERIFY THE CONDITIONS OF THE EXISTING DIFFUSER, GRILLES AND LINEAR DIFFUSER. CLEAN AND REUSE AS MUCH AS POSSIBLE IF THOSE ARE IN GOOD CONDITION. IF FOUND DAMAGED REPLACE WITH THE SAME TYPE.
- 21 CONTRACTOR TO FIELD VERIFY IF THE EXISTING DIFFUSERS ARE PROVIDED WITH VOLUME DAMPERS. IF NOT PROVIDE NEW ONE.
- 22 CONTRACTOR TO BALANCE ALL THE EXISTING DIFFUSERS/GRILLE PER THE SUPPLY AND RETURN AIR QUANTITIES MENTIONED IN THE AIR QUANTITY TABLE.
- 23 CONNECT TO EXISTING DUCTWORK FROM EXISTING RTU SERVING THE SPACE.
- 24 PROVIDE NEW DIFFUSER/GRILLE AS PER SCHEDULE AND AS SHOWN IN THE PLAN.



FLAT TOP GRILL  
EAT ADVENTUROUSLY.

FLAT TOP GRILL

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HVAC FLOOR & MEZZANINE FLOOR PLANS

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M-6

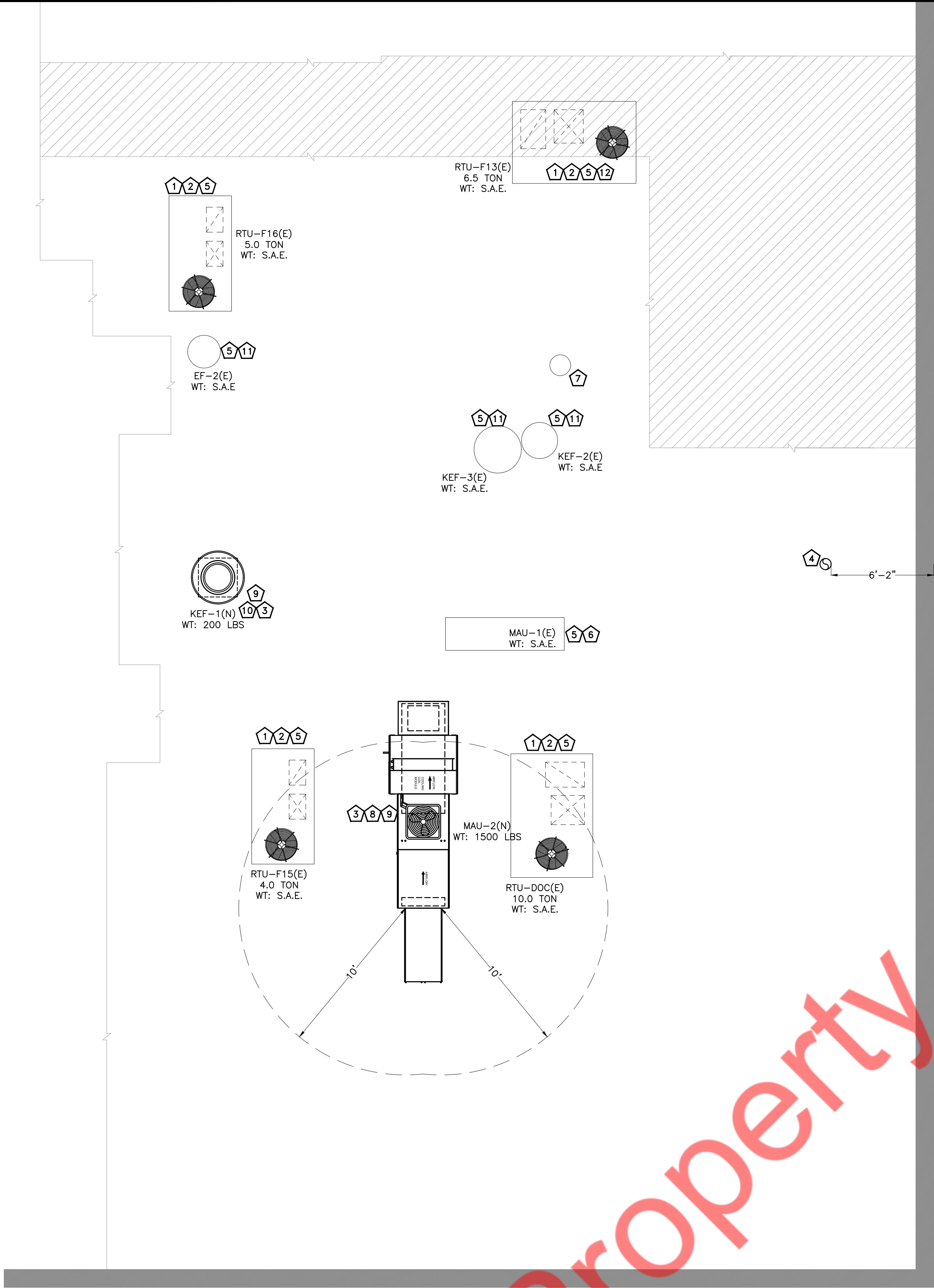


MECHANICAL GENERAL NOTES

- A. COORDINATE LOCATIONS AND SIZES OF ROOF OPENINGS WITH OWNER AND STRUCTURAL ENGINEERS.
- B. EQUIPMENT SIZES, DIMENSIONS AND REQUIRED CONNECTIONS SHALL BE VERIFIED WITH THE ACTUAL EQUIPMENT AT FIELD BEFORE FABRICATION OF DUCTWORK.
- C. CONTRACTOR SHALL COORDINATE ALL ELECTRICAL REQUIREMENTS FOR ALL HVAC BASED ON ACTUAL EQUIPMENT SELECTED PRIOR TO INSTALLATION.
- D. ALL SOURCE OF MECHANICAL INTAKE SHALL MAINTAIN 10 LINEAR FEET SEPARATION BETWEEN ANY SOURCE OF EXHAUST. CONTRACTOR IS RESPONSIBLE TO ADJUST DUCT LENGTH AS NEEDED.

MECHANICAL ROOFTOP PLAN KEY NOTES:

- 1 EXISTING ROOF TOP UNITS TO REMAIN AND TO BE REUSED. CONTRACTOR TO FIELD VERIFY EXACT LOCATION IN THE FIELD PRIOR STARTING ANY CONSTRUCTION AND BASE BID. PROVIDE DUCT MODIFICATIONS IF REQUIRED. SET OUTSIDE AIR AS INDICATED ON ROOFTOP UNIT SCHEDULES. MECHANICAL CONTRACTOR SHALL SCRIBE INTO UNIT POSITION OF OUTSIDE AIR DAMPER AND LABEL OUTSIDE AIR VOLUME AND PERCENT OF OUTSIDE AIR. EXISTING DUCTWORK TO BE COMPLETELY REMAIN AND REUSED.
- 2 CONTRACTOR TO CLEAN AND FLUSH THE EXISTING DRAIN LINES AND VERIFY THE CONDITION OF THE SAME. REPAIR/REPLACE THE EXISTING DRAIN LINE WITH THE SAME TYPE OR ANY APPROVED TYPE IF FOUND DAMAGED. IF REQUIRED CONTRACTOR TO PROVIDE CONDENSATE PUMP IF EXISTING IS NOT IN GOOD SHAPE.
- 3 COORDINATE FINAL LOCATION OF MECHANICAL UNITS, SUPPORT DETAILS WITH STRUCTURAL DRAWINGS. TAKE STRUCTURAL ENGINEER'S APPROVAL ON MAU AND KEF WEIGHTS AND CALCULATIONS.
- 4 Ø8" TOILET EXHAUST DUCT UP THROUGH ROOF FROM BELOW FLOOR. TERMINATE WITH GOOSENECK, WEATHER SKIRT, AND BIRD SCREEN. MAINTAIN A MINIMUM OF 10'-0" FROM ALL OUTSIDE AIR INTAKES.
- 5 G.C. SHALL REFURBISH ALL EXISTING MECHANICAL EQUIPMENT TO REMAIN AND BRING TO "LIKE NEW" CONDITIONS. G.C. SHALL VERIFY SPECIFICATIONS OF THE EXISTING MECHANICAL EQUIPMENT TO BE REUSED AND NOTIFY THE ENGINEER IF ANY CONFLICT OR DISCREPANCY IS FOUND PRIOR TO CONSTRUCTION.
- 6 CONTRACTOR TO FIELD VERIFY EXACT LOCATION OF MAU-1(E) IN THE FIELD AND REUSE IT WILL ALL ITS EXISTING DUCTWORK.
- 7 CONTRACTOR TO FIELD VERIFY AND LOCATE THE EXISTING W.H VENT. EXISTING VENT TO BE REUSED. REPAIR/REPLACE WITH SAME TYPE IF FOUND DAMAGED.
- 8 CONNECT CONDENSATE DRAIN LINES TO NEAREST APPROVED PLACE OF DISPOSAL.
- 9 NO PENETRATIONS ARE ALLOWED ON THE SIDE OF CURBS. ALL KIND OF PENETRATIONS MUST FALL WITHIN MECHANICAL UNIT.
- 10 NEW KITCHEN EXHAUST FAN. CONTRACTOR TO PROVIDE THE NECESSARY SUPPORT AND DUCTWORK AS PER SITE CONDITIONS.
- 11 CONTRACTOR TO FIELD VERIFY AND CONFIRM THE WORKING CONDITION OF EXISTING EXHAUST FAN AND REUSE IT.
- 12 PROVIDE FIRE OR FIRE+SMOKE DAMPER WHEREVER DUCTS ARE CROSSING FIRE/SMOKE RATED WALLS/BARRIERS/SLABS. COORDINATE AT SITE OR WITH ARCHITECTURAL DRAWING FOR FIRE RATING OF THE WALLS.



1

HVAC ROOF PLAN

1/4" = 1'-0"



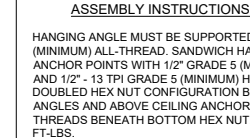
PREFERRED LENGTH PLENUM(S)						RESOURCES				
HOOD NO	TAG	POS	SUPPLY	WIDTH	HEIGHT	TYPE	WATER	DA	CFM	SP
1		Front	16"	14"	6"	MJA	12"	24"	750	0.11"
						MJA	12"	24"	750	0.11"

**FIRE SYSTEM INFORMATION - JOB#06041108**

FIRE SYSTEM NO	TAG	TYPE	SIZE	FLOW POINTS	FR
1		TANK FS	4.0/4.0/4.0	41	FR

**GAS VALVES(S)**

FIRE SYSTEM NO	TAG	TYPE	SIZE	SUPPLIED BY
1		SC ELECTRICAL	1.000	CAPTIVATED SYSTEMS



120 & 140 TEMPS, ENGINE 1200

CUTOUTS BETWEEN  
ENGINE BASES ON 100D  
AND FAN (3 OTHERS)

TOP VIEW

### FEATURES

- (DIRECT DRIVE CONSTRUCTION AND BELT TRIPLAVERS)
- HOSE KNOCKED AWAY
- REPLACEMENT MODE
- 1/4 INCH AND 1/2 INCH GLEES
- VERSATILE SPEED CONTROL
- INTERNAL VIBES
- HIGH-HEAT OPERATION (SEE PAGE 5)
- CRACK CONSTRUCTION TESTING
- NEAR 30 SAFETY DISCONNECT SWITCH

### NORMAL TEMPERATURE TEST

- ENGINE FAN MUST OPERATE CONTINUOUSLY
- WITH CRANKING AND 1000 RPM
- UNTIL ALL FAN PARTS HAVE REACHED
- TRADING EQUILIBRIUM AND ALL PARTS
- WITHIN TOLERANCE SPECIFIED TO THE FAN WHICH
- WOULD CAUSE IMPROPER OPERATION

### ABNORMAL CLIMATE TEST

- ENGINE FAN MUST OPERATE CONTINUOUSLY
- AT HIGH COLLECTION SPEED OF
- 4000 RPM FOR THE 1000 RPM
- ABANDON TO ANY POINT THAT COULD CAUSE
- AN IMPROPER CONDITION

### OPTIONS

- LOCAL BOX
- 1/4 INCH GLEES AND 1/2 INCH GLEES
- 1/4 INCH GLEES AND 1/2 INCH GLEES
- 1/4 INCH GLEES AND 1/2 INCH GLEES
- 1/4 INCH GLEES AND 1/2 INCH GLEES
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- 1/4 INCH GLEES AND 1/2 INCH GLEES
- 1/4 INCH GLEES AND 1/2 INCH GLEES
- 1/4 INCH GLEES AND 1/2 INCH GLEES

ANY FIELD RELATED DISCREPANCIES THAT ARE DISCOVERED DURING THE SDV WILL BE BROUGHT TO THE ATTENTION OF THE GENERAL CONTRACTOR AND CORRESPONDING TRADES ON SITE. THESE ISSUES WILL BE DOCUMENTED AND FORWARDED TO THE APPROPRIATE SALES OFFICE. IF CAS SERVICE HAS TO RESOLVE A DISCREPANCY THAT IS A FIELD ISSUE, THE GENERAL CONTRACTOR WILL BE NOTIFIED AND RETURN TO THE SDV. IF THE DISCREPANCY IS NOT A FIELD RELATED DISCREPANCY THAT CANNOT BE RESOLVED DURING THE SDV, THERE WILL BE ADDITIONAL TRIP CHARGES.

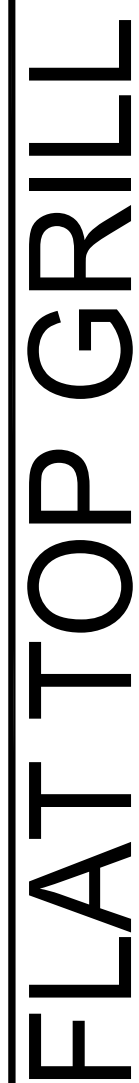
DURING THE SDV, CAS SERVICE WILL ADDRESS ANY DISCREPANCY THAT IS THE FAULT OF THE MANUFACTURER. SHOULD A RETURN TRIP BE REQUIRED, THE GENERAL CONTRACTOR AND APPROPRIATE SALES OFFICE WILL BE NOTIFIED. THERE WILL BE NO ADDITIONAL CHARGES FOR MANUFACTURER DISCREPANCIES.

REVISIONS		DATE
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GAS FIRED MAKE-UP AIR UNIT(S)				
FAN UNIT NO	TAG	INPUT BTU <sub>h</sub>	OUTPUT BTU <sub>h</sub>	TEMP RISE
3		185762	170901	73°F

[illegible][illegible]





08/14/23	ISSUED FOR PERMIT
REVISIONS	

Drawing Title

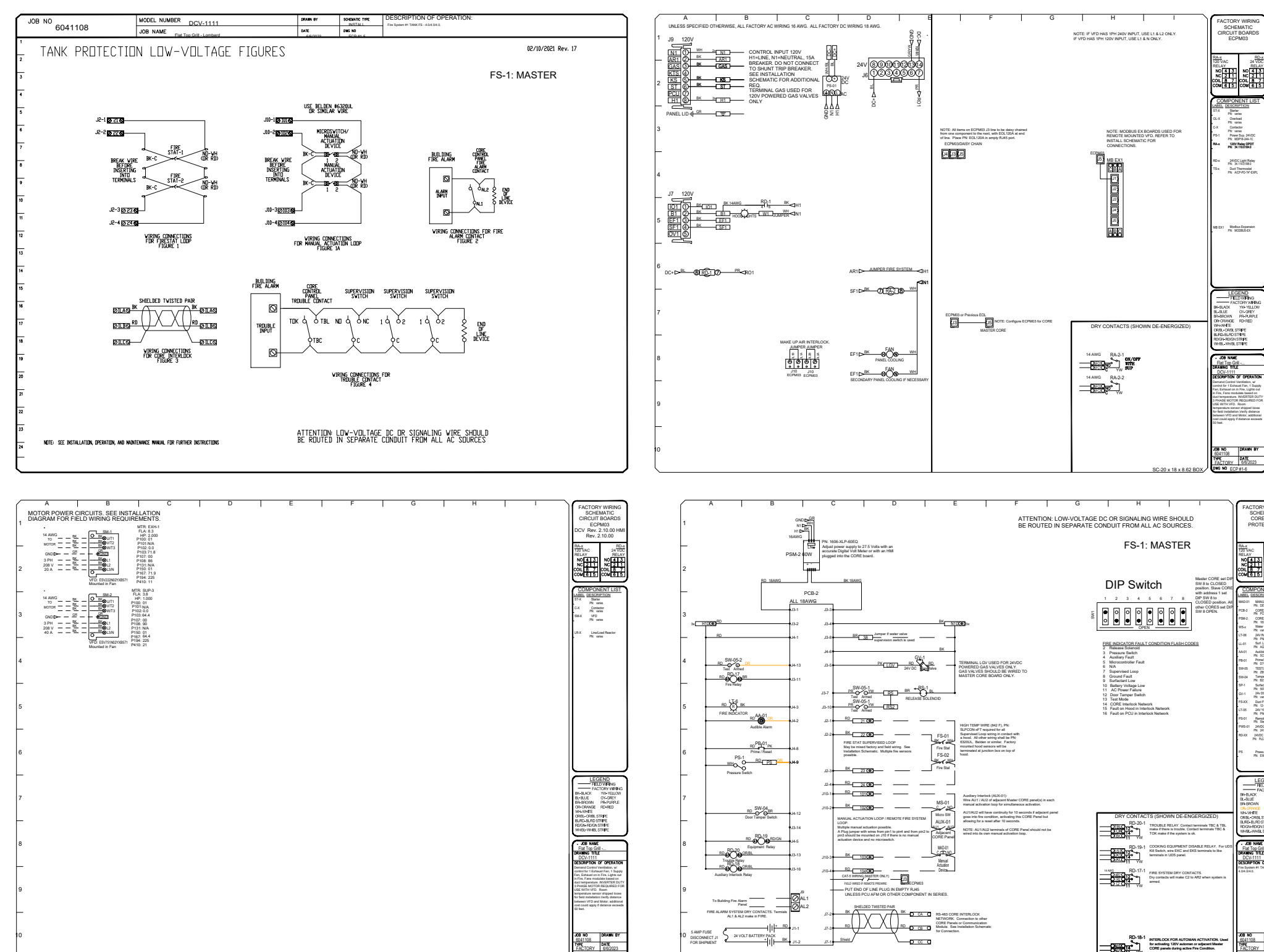
**HOOD DRAWINGS**


**02 OF 02**

Job No.	Drawn
164.2023	NYE

Sheet No.

**M-9**



    	REVISONS	
	DESCRIPTION	DATE
 www.captiveair.com		
Chicago Mechanical Office 18 Pioneer Blvd., Lombard, IL 60132-6699 FAX: (630) 222-6699 TEL: (630) 222-6699		
Flat Top Grill - Lombard		
DATE: 6/6/2025		
DWG. BY: GML/TGB		
DRAWN BY: Jeremy		
SCALE: 3/4" = 1'-0"		
MASTER DRAWING		
SHEET NO. 5		



ELECTRICAL SYMBOLS LIST																																																																																																																									
LIGHTING		POWER AND TELECOMMUNICATION		ABBREVIATIONS																																																																																																																					
<div>LIGHTING FIXTURE AND OUTLET BOX. HALF SHADED FIXTURE OR "EM" INDICATES FIXTURES WITH INTEGRAL BATTERY PACK FOR EMERGENCY SERVICE, U.O.N.</div> <div>LUMINAIRE TYPE : INDICATE BY LIPPERCASE LETTER SEE LIGHTING EXTURE SCHEDULE.</div> <div>CIRCUIT NUMBER : INDICATED BY NUMBER</div> <div>SWITCHING INDICATED BY LOWER CASE LETTERS.</div> <div>●EM DENOTES LUMINAIRE ON EMERGENCY CIRCUIT.</div> <div>●NL DENOTES FIXTURES DESIGNATED AS NIGHTLIGHT, WIRED TO 24 HOURS UNSWITCHED CIRCUIT.</div> <div>☉ ☘ ☙ ☚ CEILING/WALL MOUNTED SELF POWERED EXIT LIGHT FIXTURE WITH DIRECTIONAL ARROWS AS INDICATED. SHADED AREA DENOTES FACE(S). ISOLITE ELITE SERIES LED EXIT SIGN</div> <div>STRIP LIGHTING FIXTURE AND OUTLET BOX.</div> <div>EMERGENCY LIGHT WITH BATTERY UNIT</div>		<div>MOTORS AND CONTROLS</div> <div>DISCONNECT (SAFETY) SWITCH "200/3/150" DENOTES AMPERES/POLE/FUSE, "NF" DENOTES NON-FUSED, "N3R" DENOTES NEMA 3R</div> <div>AC INDOOR UNIT MOTOR AS NOTED WITH LIQUID TIGHT FLEXIBLE CONNECTION WITH JUNCTION BOX AND MOTOR SWITCH.</div> <div>RECEPTACLES AND OUTLETS</div> <div>DUPLEX CONVENIENCE RECEPTACLE</div> <div>DEDICATED POWER OUTLET</div> <div>"GFI" DENOTES GROUND FAULT INTERRUPTER, "WP" DENOTES WEATHERPROOF,</div> <div>CEILING MOUNTED DUPLEX OUTLET</div> <div>QUAD OUTLET</div> <div>JUNCTION BOX</div> <div>POWER DISTRIBUTION</div> <div>DISTRIBUTION PANELBOARD, SURFACE OR FLUSH MOUNTED.</div> <div>COMMUNICATIONS</div> <div>TELEPHONE OUTLET, ELECTRICAL CONTRACTOR TO PROVIDE MUD RING AND PULL STRING ALONG WITH CAT6 CABLE TO ABOVE CEILING</div> <div>DATA OUTLET, ELECTRICAL CONTRACTOR TO PROVIDE MUD RING ALONG WITH CAT 6 CABLE AND PULL STRING TO ABOVECEILING</div> <div>TELEPHONE/DATA OUTLET.</div> <div>CCTV</div> <div>SPEAKER</div>		<div>DRAWING/DETAIL REFERENCE KEY</div> <div>REFER TO DRAWING/DETAIL NUMBER →  SHEET NUMBER →</div> <div>RE:      1 /E000</div> <div>GENERAL NOTES</div> <div>A. NOT ALL SYMBOLS SHOWN ON THIS SYMBOL LIST ARE USED IN THE CONTRACT DOCUMENTS.</div>		<table><tr><td>A</td><td>AMPERES</td></tr><tr><td>A/C, AC</td><td>AIR CONDITIONING UNIT</td></tr><tr><td>AF</td><td>AMPERE FRAME/AMP FUSE</td></tr><tr><td>AFF</td><td>ABOVE FINISHED FLOOR</td></tr><tr><td>AS</td><td>AMP SWITCH</td></tr><tr><td>AIC</td><td>AMPS INTERRUPTING CAPACITY</td></tr><tr><td>AWG</td><td>AMERICAN WIRE GAUGE</td></tr><tr><td>C</td><td>CONDUIT</td></tr><tr><td>C/B,CB</td><td>CIRCUIT BREAKER</td></tr><tr><td>CKT</td><td>CIRCUIT</td></tr><tr><td>CLG</td><td>CEILING</td></tr><tr><td>CU</td><td>COPPER</td></tr><tr><td>*C</td><td>DEGREE CELSIUS</td></tr><tr><td>*F</td><td>DEGREE FAHRENHEIT</td></tr><tr><td>DIA</td><td>DIAMETER</td></tr><tr><td>DN</td><td>DOWN</td></tr><tr><td>DP</td><td>DISTRIBUTION PANEL</td></tr><tr><td>DWG</td><td>DRAWING</td></tr><tr><td>J.B.</td><td>JUNCTION BOX</td></tr><tr><td>KCMIL</td><td>ONE THOUSAND CIRCULAR MILS</td></tr><tr><td>KV</td><td>KILOVOLT</td></tr><tr><td>KVA</td><td>KILOVOLT-AMPERES</td></tr><tr><td>KW</td><td>KILOWATTS</td></tr><tr><td>LTG</td><td>LIGHTING</td></tr><tr><td>MAX</td><td>MAXIMUM</td></tr><tr><td>MCB</td><td>MAIN CIRCUIT BREAKER</td></tr><tr><td>MIN</td><td>MINIMUM</td></tr><tr><td>MLO</td><td>MAIN LUGGS ONLY</td></tr><tr><td>MTD</td><td>MOUNTED</td></tr><tr><td>N</td><td>NEUTRAL</td></tr><tr><td>NTS</td><td>NOT TO SCALE</td></tr><tr><td>EA</td><td>EACH</td></tr><tr><td>EC</td><td>EMPTY CONDUIT/ ELECTRICAL CONTRACTOR</td></tr><tr><td>EM</td><td>EMERGENCY</td></tr><tr><td>EMT</td><td>ELECTRICAL METALLIC TUBING</td></tr><tr><td>FL</td><td>FLOOR</td></tr><tr><td>G</td><td>GROUND</td></tr><tr><td>GFI</td><td>GROUND FAULT INTERRUPTER</td></tr><tr><td>HP</td><td>HORSEPOWER</td></tr><tr><td>HZ</td><td>HERTZ</td></tr><tr><td>IC</td><td>INTERRUPTING CAPACITY</td></tr><tr><td>PP</td><td>POWER PANEL</td></tr><tr><td>PVC</td><td>POLYVINYL CHLORIDE</td></tr><tr><td>R</td><td>REMOVE</td></tr><tr><td>REC</td><td>RECEPTACLE</td></tr><tr><td>RGS</td><td>RIGID GALVANIZED STEEL</td></tr><tr><td>SECT</td><td>SECTION</td></tr><tr><td>SW</td><td>SWITCH</td></tr><tr><td>P</td><td>POLES</td></tr><tr><td>TYP</td><td>TYPICAL</td></tr><tr><td>U.O.N.</td><td>UNLESS OTHERWISE NOTED</td></tr><tr><td>V</td><td>VOLT/VOLTAGE</td></tr><tr><td>VA</td><td>VOLT AMPERE</td></tr><tr><td>WP</td><td>WEATHER PROOF</td></tr><tr><td>E</td><td>EXISTING</td></tr><tr><td>N.I.C.</td><td>NOT IN CONTRACT</td></tr><tr><td>RCP</td><td>RECIRCULATION PUMP</td></tr></table>		A	AMPERES	A/C, AC	AIR CONDITIONING UNIT	AF	AMPERE FRAME/AMP FUSE	AFF	ABOVE FINISHED FLOOR	AS	AMP SWITCH	AIC	AMPS INTERRUPTING CAPACITY	AWG	AMERICAN WIRE GAUGE	C	CONDUIT	C/B,CB	CIRCUIT BREAKER	CKT	CIRCUIT	CLG	CEILING	CU	COPPER	*C	DEGREE CELSIUS	*F	DEGREE FAHRENHEIT	DIA	DIAMETER	DN	DOWN	DP	DISTRIBUTION PANEL	DWG	DRAWING	J.B.	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<div>SWITCHES AND CONTROLS</div> <div>20A SPST TOGGLE SWITCH U.O.N. "ø" DENOTES LIGHTING FIXTURE CONTROLLED.</div> <div>WALL BOX DIMMER SWITCH. DENOTES LIGHTING FIXTURE CONTROLLED.</div> <div>WALL MOUNTED VACANCY SENSOR SWITCH,</div> <div>DOOR SWITCH</div> <div>PHOTOCELL IN NEMA 3R ENCLOSURE.</div> <div>CEILING OCCUPANCY SENSOR.</div>																																																																																																																									
<div>ELECTRICAL DRAWING LIST</div> <table><tr><td>E-0</td><td>ELECTRICAL SYMBOLS &amp; ABBREVIATIONS</td></tr><tr><td>E-1</td><td>ELECTRICAL SPECIFICATIONS-1</td></tr><tr><td>E-2</td><td>ELECTRICAL SPECIFICATIONS-2</td></tr><tr><td>E-3</td><td>ELECTRICAL LIGHTING PLAN</td></tr><tr><td>E-4</td><td>ELECTRICAL POWER PLAN</td></tr><tr><td>E-5</td><td>ELECTRICAL POWER PLAN-ROOF</td></tr><tr><td>E-6</td><td>ELECTRICAL RISER DIAGRAM &amp; PANEL SCHEDULE</td></tr></table>		E-0	ELECTRICAL SYMBOLS & ABBREVIATIONS	E-1	ELECTRICAL SPECIFICATIONS-1	E-2	ELECTRICAL SPECIFICATIONS-2	E-3	ELECTRICAL LIGHTING PLAN	E-4	ELECTRICAL POWER PLAN	E-5	ELECTRICAL POWER PLAN-ROOF	E-6	ELECTRICAL RISER DIAGRAM & PANEL SCHEDULE																																																																																																										
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<div>CODE COMPLIANCE</div> <div>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 THESE PROJECT:</div> <div>A. INTERNATIONAL BUILDING CODE, 2018.</div> <div>B. INTERNATIONAL MECHANICAL CODE, 2018.</div> <div>C. ILLINOIS STATE PLUMBING CODE, 2014.</div> <div>D. INTERNATIONAL FIRE CODE, 2018.</div> <div>E. INTERNATIONAL ENERGY CONSERVATION CODE, 2018.</div> <div>F. NATIONAL ELECTRICAL CODE, 2017.</div>																																																																																																																									



## ELECTRICAL SPECIFICATIONS

- |   |   |  |
|---|---|--|
| GENERAL:  |   | 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.  |
| <p>A. THE "GENERAL CONDITIONS OF THE CONTRACT FOR CONSTRUCTION," AIA DOCUMENT A201, LATEST EDITION, AND THESE SPECIFICATIONS AS APPLICABLE ARE PART OF THIS CONTRACT.</p> <p>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 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.</p> <p>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.</p> <p>D. DISCONNECT, REMOVE AND/OR RELOCATE EXISTING MATERIAL, EQUIPMENT AND OTHER WORK AS NOTED OR REQUIRED FOR PROPER INSTALLATION OF NEW WORK.</p> <p>E. 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.</p> <p>F. SEAL OPENINGS THROUGH PARTITIONS, WALLS AND FLOORS WITH MINERAL WOOL OR OTHER NONCOMBUSTIBLE MATERIAL, UNLESS OTHERWISE NOTED.</p> <p>G. 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.</p> <p>H. 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 AND 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.</p> <p>I. 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.</p> <p>J. 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.</p> <p>K. ALL MATERIAL AND EQUIPMENT SHALL BE NEW UNLESS OTHERWISE NOTED AND SHALL BE IN ACCORDANCE WITH BUILDING STANDARDS.</p> <p>L. INSURANCE: PROVIDE IN ACCORDANCE WITH OWNER/BUILDING REQUIREMENTS AND SHALL INCLUDE A HOLD HARMLESS CLAUSE FOR OWNER AND ENGINEER.</p> <p>M. 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.</p> | <p>4) HIGHLIGHTS OF OUTLETS:</p> <p>a. FROM FINISHED FLOOR TO CENTERLINE OF OUTLETS FOR:</p> <ul style="list-style-type: none"> <li>RECEPTACLES AND TELEPHONES: 1 FT-6 IN.</li> <li>WALL SWITCHES: 4 FT-0 IN.</li> <li>WALL FIXTURES: 7 FT-0 IN.</li> <li>MOTOR CONTROLLERS: 5 FT-0 IN.</li> <li>CLOCKS: 7 FT 6 IN</li> </ul> <p>b. EXCEPTIONS: AT JUNCTION OF DIFFERENT WALL FINISH MATERIALS, ON MOLDING OR BREAK IN SURFACE, IN VIOLATION OF CODE, OR AS NOTED OR DIRECTED.</p> <p>D. PRODUCT DELIVERY, STORAGE AND HANDLING</p> <p>1) MOVING OF EQUIPMENT: WHERE NECESSARY, SHIP IN CARTED SECTIONS OF SIZE TO PERMIT PASSING THROUGH AVAILABLE SPACES.</p> <p>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.</p> <p>E. MATERIALS</p> <p>1) NAMEPLATES: PROVIDE BLACK LAMICOID 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.</p> <p>2) CABLE TAGS: TAG EACH CONDUCTOR PASSING THROUGH SPLICE OR PULLBOX WITH A WHITE LINEN TAG, INDICATING POINT OF ORIGIN AND TERMINATION OF THE CIRCUIT.</p> <p>3) INSERTS AND SUPPORTS:</p> <p>a. INSERTS: STEEL, SLOTTED TYPE, FACTORY PAINTED.</p> <ul style="list-style-type: none"> <li>SINGLE ROD: SIMILAR TO GRINNELL FIG. 281.</li> <li>MULTI-ROD: SIMILAR TO FEE AND MASON SERIES 9000 WITH END CAPS AND CLOSURE STRIPS.</li> <li>CLIP FORM NAILS FLUSH WITH INSERTS.</li> <li>MAXIMUM LOADING 75 PERCENT OF RATING.</li> </ul> <p>b. SUPPORTS FROM BUILDING CONSTRUCTION: INSERTS, BEAM CLAMPS, STEEL FISHPLATES (IN CONCRETE FILL ONLY), CANTILEVER BRACKETS OR OTHER MEANS. SUBMIT FOR REVIEW.</p> <p>c. GROUPED LINES AND SERVICES: TRAPEZE HANGERS OF BOLTED ANGLES OR CHANNELS.</p> <p>d. WHERE BUILDING CONSTRUCTION IS INADEQUATE: PROVIDE ADDITIONAL FRAMING. SUBMIT FOR REVIEW.</p> <p>F. 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 MARKED SURFACES OF STEEL EQUIPMENT AND RACEWAYS. A FIELD-APPLIED ZINC BASED PRIME COAT SHALL BE UTILIZED FOR STEEL OR IRONWORK.</p> <p>G. 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.</p> <p>H. FINAL LOCATIONS AND MOUNTING ORIENTATIONS OF ALL SWITCHES, RECEPTACLES AND LIGHT FIXTURES SHALL BE VERIFIED WITH ARCHITECT.</p> <p>I. ALL ACCESS ROD LOCATIONS SHALL BE REVIEWED BY ARCHITECT PRIOR TO INSTALLATION.</p> <p>3. SCOPE OF WORK:</p> <p>A. SCOPE OF WORK SHALL CONSIST OF PROVIDING LABOR, MATERIALS, EQUIPMENT, SERVICES AND FEES NECESSARY FOR COMPLETE AND SAFE INSTALLATION IN CONFORMING WITH NATIONAL AND LOCAL CODES AND AUTHORITIES HAVING JURISDICTION, AS INDICATED ON DRAWINGS AND HEREIN SPECIFIED.</p> <p>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.</p> <p>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 OCCUR OR 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</p> <p>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.</p> <p>E. CONTRACTOR SHALL PERFORM ALL CONTROLLED INSPECTIONS IN ACCORDANCE WITH THE ILLINOIS STATE BUILDING CODE. SECURE ALL REQUIRED PERMITS AND APPROVALS AND TRANSMIT SAME TO OWNER. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL FEES.</p> <p>F. AREAS WITH NO ELECTRICAL WORK SHALL REMAIN AS IS. CONTRACTOR SHALL MAINTAIN CONTINUITY OF ALL ELECTRICAL</p> | <p>4. SHOP DRAWINGS</p> <p>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.</p> <p>B. INDICATE ON EACH SHOP DRAWINGS SUBMITTED:</p> <p>1) PROJECT NAME AND LOCATION</p> <p>2) NAME OF ARCHITECT AND ENGINEER</p> <p>3) ITEM IDENTIFICATION</p> <p>4) APPROVAL STAMP OF PRIME CONTRACTOR</p> <p>C. SUBMISSIONS:</p> <p>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.</p> <p>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.</p> <p>D. SUBMIT SHOP DRAWINGS FOR THE FOLLOWING:</p> <p>1) SAFETY/DISCONNECT SWITCHES</p> <p>2) FUSES</p> <p>3) CIRCUIT BREAKERS</p> <p>4) PANELBOARDS/LOADCENTER (INCLUDING DIMENSIONS, SCHEDULES AND CATALOG CUTS).</p> <p>5) RACEWAYS</p> <p>6) WIRE AND CABLE</p> <p>7) WALL SWITCHES</p> <p>8) INSERTION RECEPTACLES</p> <p>9) MOMENTARY CONTACT SWITCHES</p> <p>10) TIME SWITCHES</p> <p>11) LIGHTING FIXTURES.</p> <p>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. CERTIFY 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.</p> <p>5. AS-BUILT DRAWINGS AND EQUIPMENT OPERATIONAL INSTRUCTIONS</p> <p>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.</p> <p>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.</p> <p>C. THE INSTRUCTION BOOKLET SHALL BEAR THE NAME, ADDRESS AND TELEPHONE NUMBER OF THE PROJECT, ARCHITECT AND ENGINEER.</p> <p>D. REPRODUCIBLE "AS-BUILT" DRAWINGS SHALL BE PROVIDED INDICATING THE INSTALLED CONDITIONS OF THE WORK. "AS-BUILT" DRAWINGS SHALL BE PROVIDED TO THE ARCHITECT AFTER COMPLETION OF THE INSTALLATION.</p> <p>6. LOW-VOLTAGE DISTRIBUTION EQUIPMENT:</p> <p>A. PROVIDE COMPLETE EQUIPMENT INCLUDING: SWITCHES, FUSES, CIRCUIT BREAKERS, PANELS AND TRANSFORMERS.</p> <p>B. ALL EQUIPMENT SHALL CONFORM TO NEMA, ANSI AND IEEE STANDARDS.</p> <p>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. 6808. 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 800 AMP. ARC QUENCHERS SHALL BE PROVIDED. SWITCHES SHALL BE SIMILAR TO GENERAL ELECTRIC QMR. ALL SWITCH ENCLOSURES SHALL BE DEAD FRONT, NEMA TYPE 1, EXCEPT AS NOTED.</p> |
| <p>2. GENERAL PROVISIONS FOR ELECTRICAL WORK:</p> <p>A. DEFINITIONS:</p> <p>1) "PROVIDE": TO FURNISH, INSTALL AND CONNECT UP COMPLETE AND READY FOR SAFE AND REGULAR OPERATION THE PARTICULAR WORK REFERRED TO UNLESS SPECIFICALLY OTHERWISE NOTED.</p> <p>2) "INSTALL": TO ERECT, MOUNT AND CONNECT COMPLETE WITH RELATED ACCESSORIES.</p> <p>3) "FURNISH" OR "SUPPLY": TO PURCHASE, PROCURE, ACQUIRE, AND DELIVER COMPLETE WITH RELATED ACCESSORIES.</p> <p>4) "WORK": LABOR, MATERIALS, EQUI</p>   |   |  |

AMPERES RMS SYMMETRICAL.

- 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 A/N 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
  - 3) 277/480 VOLTS, 100-AMP FRAME: 22,000 AMPS MINIMUM.

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

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

3) 277/480 VOLTS, 100-AMP FRAME: 22,000 AMPS MINIMUM



ELECTRICAL SPECIFICATIONS (CONT.)

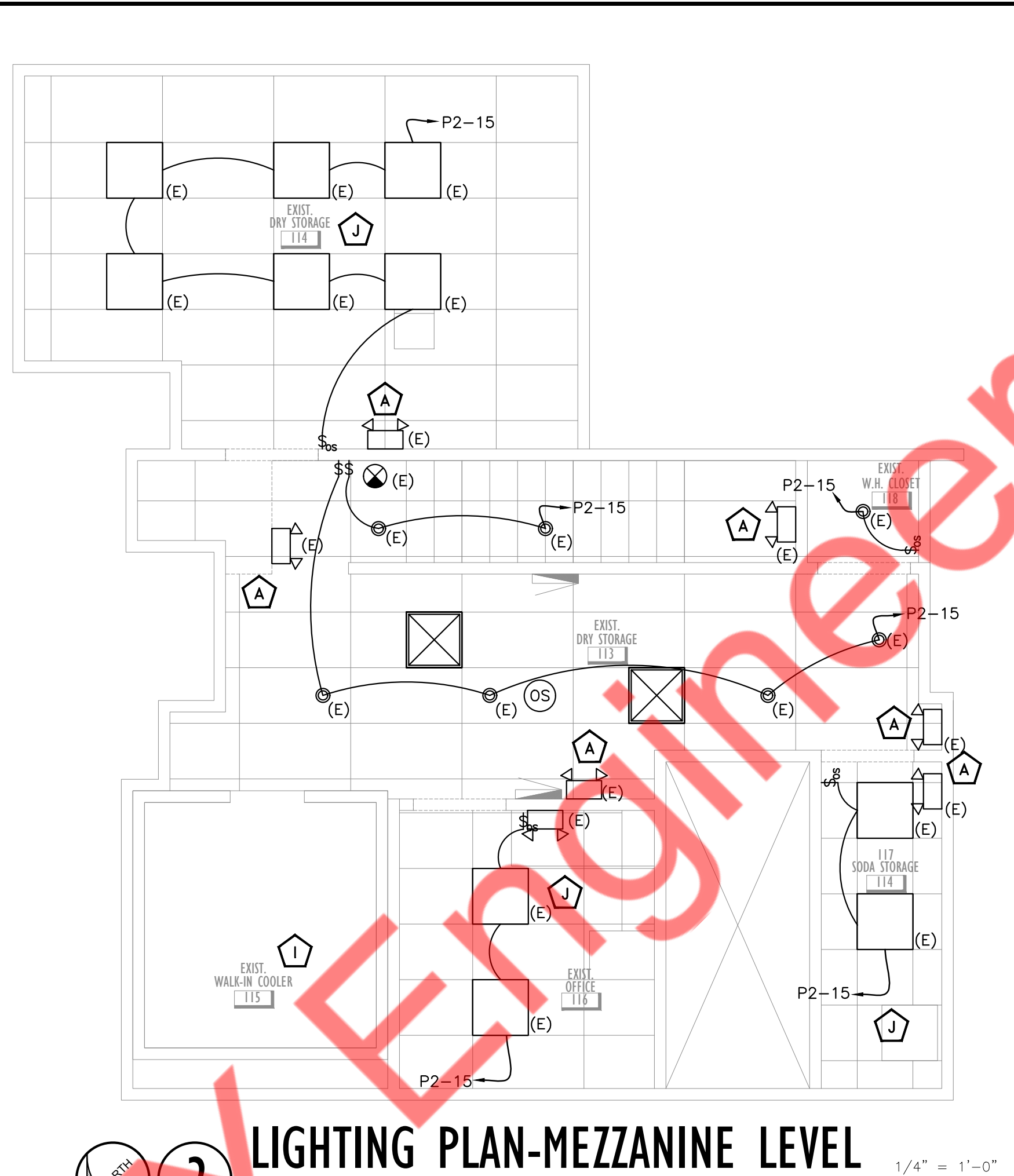
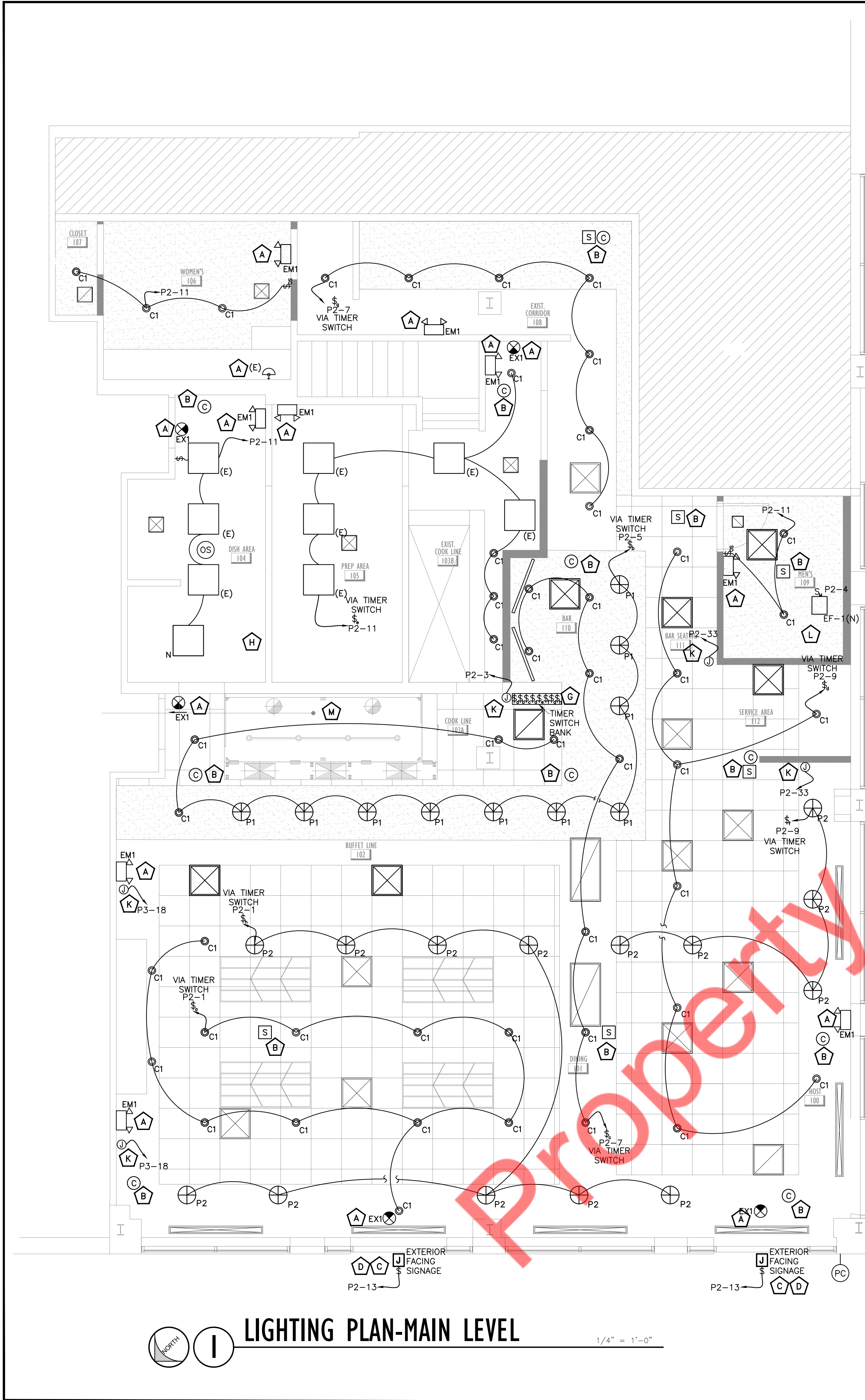
- 8) BOXES:
- a. OUTLET BOXES: EXCEPT AS OTHERWISE REQUIRED BY CONSTRUCTION, DEVICES OR WIRING, BOXES SHALL BE STAMPED STEEL, 4 IN. SQUARE OR OCTAGON FOR FIXTURES. BOXES ABOVE CEILING SHALL BE 1-1/2 IN. DEEP. BOXES IN CEILING OR SLAB SHALL BE 3 IN. DEEP. BOXES IN WALL FOR FIXTURES SHALL BE 2-3/4 IN. 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.
- 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 265/460 VOLT WIRING AND BETWEEN EMERGENCY AND NORMAL WIRING. FLOOR BOXES SHALL BE SUITABLE FOR CONDUIT AND DEVICES NOTED. RAISED OUTLETS SHALL BE HUBBELL #B2414 SERIES WITH ABOVE FLOOR FITTING. TELEPHONE, BUSHED HOLE, POWER, DUPLEX RECEPTACLE OR OTHER AS NOTED. INCREASE SIZE TO SUIT AS NECESSARY. FLUSH OUTLETS SHALL BE HUBBELL #B2414 SERIES WITH FLUSH FLOOR FITTING FOR TELEPHONE AND FLUSH DUAL FLAP COVER WITH DUPLEX RECEPTACLE FOR POWER AS NOTED. INCREASE SIZE TO SUIT AS NECESSARY.
- N. 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. NAILS, RAWL PLUGS OR WOOD PLUGS SHALL NOT BE PERMITTED. WHERE REQUIRED BY STRUCTURE, FURNISH THROUGH BOLTS AND FISHPATES.
- 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.
- O. 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-GEDNEY. TYPE SF SHALL BE USED FOR ARMORED CABLE.
- P. 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 TABLE 300.19(A).

- Q. 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.
- R. 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.
- S. FIRE SEALANTS: PROVIDE FOR RACEWAYS AND WIRE PASSING THROUGH FLOOR SLOTS, SLEEVES OR OPENINGS IN FIRE-PARTITIONS ROOMS.
- T. 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.
9. 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.
- 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 UNGROUNDED 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. COLOR CODING SHALL BE AS FOLLOWS:
- 120/208 VOLT SYSTEM:  
BLACK FOR A PHASE  
RED FOR B PHASE  
BLUE FOR C PHASE
- 3) 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.
- G. PROVIDE FLAMEPROOF LINEN OR FIBER TAGS IN ACCESSIBLE LOCATIONS. FOR FEEDERS INDICATE FEEDER NUMBER, SIZE, PHASE AND POINTS OF ORIGIN AND TERMINATIONS. FOR CONTROL AND ALARM WIRING INDICATE TYPE (CONTROL OR ALARM), SIZE OF WIRE, AND POINTS OF ORIGIN AND TERMINATIONS.
- H. TERMINATIONS, SPLICES AND TAPS UNDER 600 VOLTS: COPPER CONDUCTORS NO. 10 AND SMALLER SHALL UTILIZE COMPRESSION-TYPE OR 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.
- I. 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 265/460 VOLT SYSTEMS, EXCEPT 460 VOLT MOTOR BRANCH CIRCUIT WIRING AND RELATED 120 VOLT CONTROL WIRING. THERMOPLASTIC WIRES SHALL NOT BE INSTALLED IN COMPUTER AREA RAISED FLOORS.
- J. LEAVE WIRES WITH SUFFICIENT SLACK TO PERMIT MAKING FINAL CONNECTIONS.
- K. 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 REPRESENTATIVES. SUBMIT WRITTEN REPORT OF RESULTS. CORRECT OR REPLACE CABLE TESTING BELOW MANUFACTURER'S STANDARDS.

10. 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, 120/208 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 SLOTT, DECORA SERIES BY LEVITON. GROUNDED, EXCEPT AS NOTED.
- 1) 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)
- 2) USB CHARGER/ DUPLEX TAMPER-RESISTANT RECEPTACLE: TAMPER RESISTANT,
- 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.
11. LIGHTING FIXTURES:
- A. FIXTURES TO BE AS SPECIFIED BY ARCHITECT 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, ETI 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. CONTINUOUS ROW, TWO LAMP STRIP FIXTURES SHALL BE STAGGERED TYPE.
- G. 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.
- H. 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. 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.
12. TELEPHONE CONDUIT SYSTEM:
- A. PROVIDE COMPLETE SYSTEM OF: RACEWAYS AND ACCESSORIES, OUTLET BOXES, SLEEVES AND FISHWIRES.
- B. EQUIPMENT SHALL CONFORM TO REQUIREMENTS OF TELEPHONE COMPANY.
- C. OUTLETS SHALL BE:
- 1) WALL: 4 IN. SQUARE WITH BUSHED COVER PLATE.
- D. PROVIDE FISHWIRES, IN RACEWAYS OVER 10 FT LONG.
- E. CONDUIT SHALL BE 3/4 IN. MINIMUM. FURNISH EMPTY CONDUIT FROM OUTLET BOX TO BUSHED END THRU WALL 6" BELOW THE PLASTER CEILING.
- F. FACE RACEWAYS IN ROOMS SHALL HUBBELL HBL500, HBL750 OR HBL2000 SERIES OR AS ACCEPTABLE.
13. GROUNDING AND BONDING:
- A. PROVIDE GROUNDING SYSTEM IN ACCORDANCE WITH LATEST NATIONAL ELECTRICAL CODE, AND THESE SPECIFICATIONS. THE WIRING SYSTEM SHALL BE INSTALLED AS REQUIRED TO PROVIDE A CONTINUOUSLY GROUNDED SYSTEM. WHERE FLEXIBLE CONDUIT IS USED FOR PART OF A CONDUIT RUN, EXCEPT LIGHTING BRANCH CIRCUITS, AN INSULATED GROUNDING CONDUCTOR SHALL BE PROVIDED IN THE CONDUIT AND CONNECTED TO GROUNDING BUSHINGS AT EACH END OF THE RUN.
- 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:
- 1) CIRCUITS SERVING ANY WALL BOX DIMMER.
- 2) CIRCUITS SERVING ANY ISOLATED GROUND RECEPTACLES. TERMINATE GROUND DIRECTLY AT AN EQUIPMENT GROUNDING CONDUCTOR TERMINAL OF THE SOURCE AT THE SOURCE, OR AS OTHER WISE NOTED ON DRAWINGS.
- 3) CIRCUITS SERVING ANY DUPLEX OR SIMPLEX COMPUTER RECEPTACLES
- 4) ANY CIRCUIT SERVED VIA AN ISOLATION TRANSFORMER OR COMPUTER POWER DISTRIBUTION UNIT.





- # ELECTRICAL LIGHTING PLAN GENERAL NOTES:**
- SEE ARCHITECTURAL REFLECTED CEILING PLAN FOR EXACT FIXTURE LOCATIONS AND ORIENTATIONS.
  - REFER TO ARCHITECTURAL ELEVATIONS AND SECTIONS FOR ADDITIONAL LIGHTING FIXTURE MOUNTING DETAILS AND INFORMATION.
  - THIS LIGHTING PLAN IS FOR TENANT ONLY.
  - VERIFY ALL MOUNTING HEIGHTS AND LED LENGTHS WITH ARCHITECT AND ENGINEER PRIOR TO ORDERING FIXTURES.
  - PROVIDE EMERGENCY LIGHTS WITH BATTERY BACKUP.
  - FOR SPEAKER, E.C. SHALL COORDINATE WITH IT DRAWINGS/SPECIALIST FOR EXACT REQUIREMENTS AS PER THE EXISTING SITE CONDITIONS.
- # ELECTRICAL LIGHTING PLAN KEYED WORK NOTES:**
- A** CONNECT ALL EMERGENCY EGRESS AND NIGHT LIGHTING(24X7 ON) FIXTURES TO THE NEAREST LIGHTING BRANCH CIRCUIT AHEAD OF ALL SWITCHING AND CONTROLS PER STATE AND LOCAL CODES.
- B** E.C. SHALL COORDINATE EXACT LOCATION AND REQUIREMENTS WITH OWNER.
- C** E.C. TO COORDINATE THE EXTERIOR FACING SIGNAGE CONNECTION REQUIREMENTS WITH SIGN VENDOR. BASE BID ACCORDINGLY.
- D** ALL EXTERIOR SIGNAGE SHALL BE CONTROLLED WITH EXTERIOR MOUNTED PHOTOCELL. PHOTOCELL SHALL NOT BE MOUNTED 10' ABOVE GROUND. E.C. TO VERIFY LOCATION IN FIELD PRIOR TO ROUGH-IN.
- E** NOT USED.
- F** NOT USED.
- G** E.C. SHALL COORDINATE EXACT LOCATION OF TIMER SWITCH BANK WITH ARCHITECT/OWNER. E.C. SHALL CONFIRM CLEAR SPACE FOR SWITCH, NO OBJECT IN FRONT ON SWITCH LOCATION.
- H** E.C. TO COORDINATE WITH ARECHITECT/OWNER FOR THE EXACT LIGHTING REQUIREMENTS IN THE EXISTING HOOD RELOCATED AT THIS LOCATION BEFORE COMMENCING ANY WORK.
- I** LIGHT FIXTURES IN EXISTING WALK IN COOLER AREA SHALL REMAIN AND CONNECTED TO THE RESPECTIVE EXISTING ELECTRICAL PANEL. E.C. TO COORDINATE WITH OWNER/ARCHITECT/WALK IN COOLER MANUFACTURER. ALSO VERIFY THE OPERABLE CONDITION IN FIELD AND REPLACE IF FOUND INOPERABLE. BASE BID ACCORDINGLY.
- J** LIGHT FIXTURES IN THIS AREA SHALL REMAIN AND CONNECTED TO THE RESPECTIVE EXISTING ELECTRICAL PANEL ALONG WITH ITS CONTROL. E.C. TO COORDINATE WITH OWNER/ARCHITECT. ALSO VERIFY THE OPERABLE CONDITION IN FIELD AND PROVIDE NEW CONTROL AS SHOWN ON THE DRAWING IF FOUND INOPERABLE. BASE BID ACCORDINGLY.
- K** E.C. TO COORDINATE THE NEON SIGNAGE CONNECTION REQUIREMENTS AND EXACT LOCATION WITH VENDOR/OWNER. BASE BID ACCORDINGLY.
- L** INTERCONNECT EXHAUST FAN EF-1(N) WITH RTU-F13(E). COORDINATE WITH MECHANICAL DRAWINGS.
- M** E.C. TO COORDINATE WITH ARCHITECT/OWNER FOR THE EXACT LIGHTING REQUIREMENTS IN THE NEW HOOD BEFORE COMMENCING ANY WORK.

**LIGHTING FIXTURE SCHEDULE:**

LIGHTING FIXTURE SCHEDULE							
TYPE	DESCRIPTION	MANUFACTURE R/SUPPLIER	CATALOGUE#	MOUNTING	VOLTAGE	WATTAGE (W)	REMARK
C1	RECESSED CAN LIGHT	CONTECH LIGHTING	RL20-CTR2002-CLR-NK	SURFACE	120	50	
P1	14" BLACK	METAL BOWL	T.B.D.	PENDANT	120	43	
P2	14" RED	METAL BOWL	T.B.D.	PENDANT	120	72	
EX1	EXIT SIGN	LITHONIA	EDG-1-R-EL	WALL/CEILING	120	3	EMERGENCY FIXTURE
EM1	EMERGENCY LIGHT BATTERY PACK	LITHONIA	EML2L	WALL/CEILING	120	4.8	EMERGENCY FIXTURE

**LIGHTING FIXTURE SCHEDULE NOTES:**


- REFER TO ARCHITECTURAL SCHEDULE FOR EXACT INFORMATION, INCLUDING MANUFACTURER, MODEL NUMBER, COLORS, FINISHES, TRIMS. LAMP COLOR TEMPERATURE AND CEILING TYPES.
- REFER TO ARCHITECTURAL SHEETS FOR WALL, COLUMN, AND PENDANT MOUNTING HEIGHTS UNLESS NOTED OTHERWISE.
- PROVIDE DIMMING DRIVERS WHERE REQUIRED. COORDINATE CONTROL TYPE PRIOR TO BID. REFER TO FLOOR PLANS AND LIGHTING CONTROL SCHEDULES FOR MORE INFORMATION. COORDINATE EXACT CONTROL REQUIREMENTS WITH LIGHTING MANUFACTURERS AND COORDINATE WITH CONTROL MANUFACTURERS PRIOR TO BID.
- E.C. SHALL COORDINATE VOLTAGES REQUIRED FOR FIXTURES PRIOR TO ORDERING.
- ALL FIXTURES SHALL BE UL OR ETL LISTED.
- PROVIDE CURRENT LIMITERS FOR ALL TRACK LIGHTING. LIMITERS SHALL BE SIZED TO CARRY THE LOAD FOR THE QUANTITY OF HEADS SHOWN TO BE INSTALLED PLUS TWO EXTRA HEADS. SIZE LIMITER TO THE NEAREST NOMINAL SIZE PROVIDED BY THE MANUFACTURER.
- ALL FIXTURES SHALL BEAR A MAXIMUM WATTAGE LABEL AS INDICATED ABOVE. THE DISTRIBUTOR SHALL AFFIX THE MAX WATTAGE LABEL PRIOR TO SHIPMENT WHERE A REDUCTION IN MAXIMUM WATTAGE IS REQUIRED FOR ENERGY CODE COMPLIANCE.

**# ELECTRICAL LIGHTING CONTROL GENERAL NOTES:**

- E.C. SHALL INSTALL SENSOR DEVICES AS PER MANUFACTURERS INSTRUCTIONS.
- E.C. SHALL PROVIDE OWNER TRAINING ON THE OPERATION OF ALL LIGHTING CONTROL DEVICES PRIOR TO TURN OVER.
- CONTRACTOR SHALL REVISIT SITE 30 DAYS POST TURN OVER TO ADJUST LIGHTING CONTROL DEVICES AS PER OWNER REQUIREMENTS.
- PROVIDE POWER PACKS AS REQUIRED FOR CONTROLLING PURPOSE.
- ENABLE WALK THROUGH MODE ON ALL SENSORS PROVIDED.
- ALL LOW VOLTAGE CONDUITS SHALL BE COORDINATED WITH ARCHITECT/OWNER.

**LIGHTING CONTROL SCHEDULE:**

DESCRIPTION	AREA	MAKE/MODEL	MOUNTING	OPERATION
INDOR DECORA 24-HOUR PROGRAMMABLE TIMER	DINING, SERVICE AREA, HALLWAY & PREP AREA	VPT24-16Z	WALL	AUTO ON/OFF



**FLAT TOP GRILL**  
EAT ADVENTUROUSLY.

# FLAT TOP GRILL

**NY ENGINEERS**

NY ENGINEERS  
382 NE 191st ST, SUITE 49674  
MIAMI, FL 33179

18/1423	ISSUED FOR PERMIT
REVISIONS	

Drawing Title

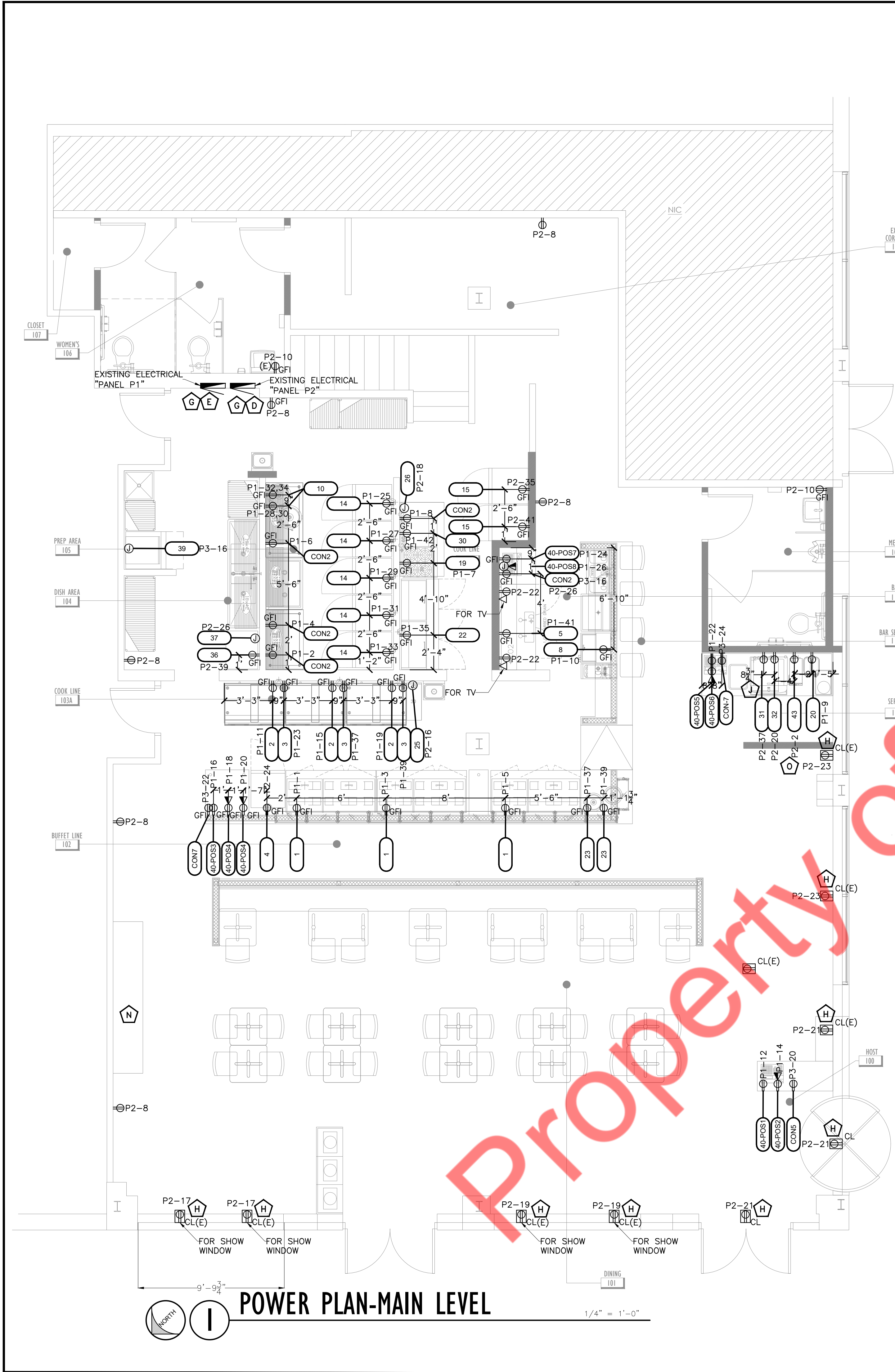
## ELECTRICAL LIGHTING PLAN

Job No. 164.2023	Drawn NYE
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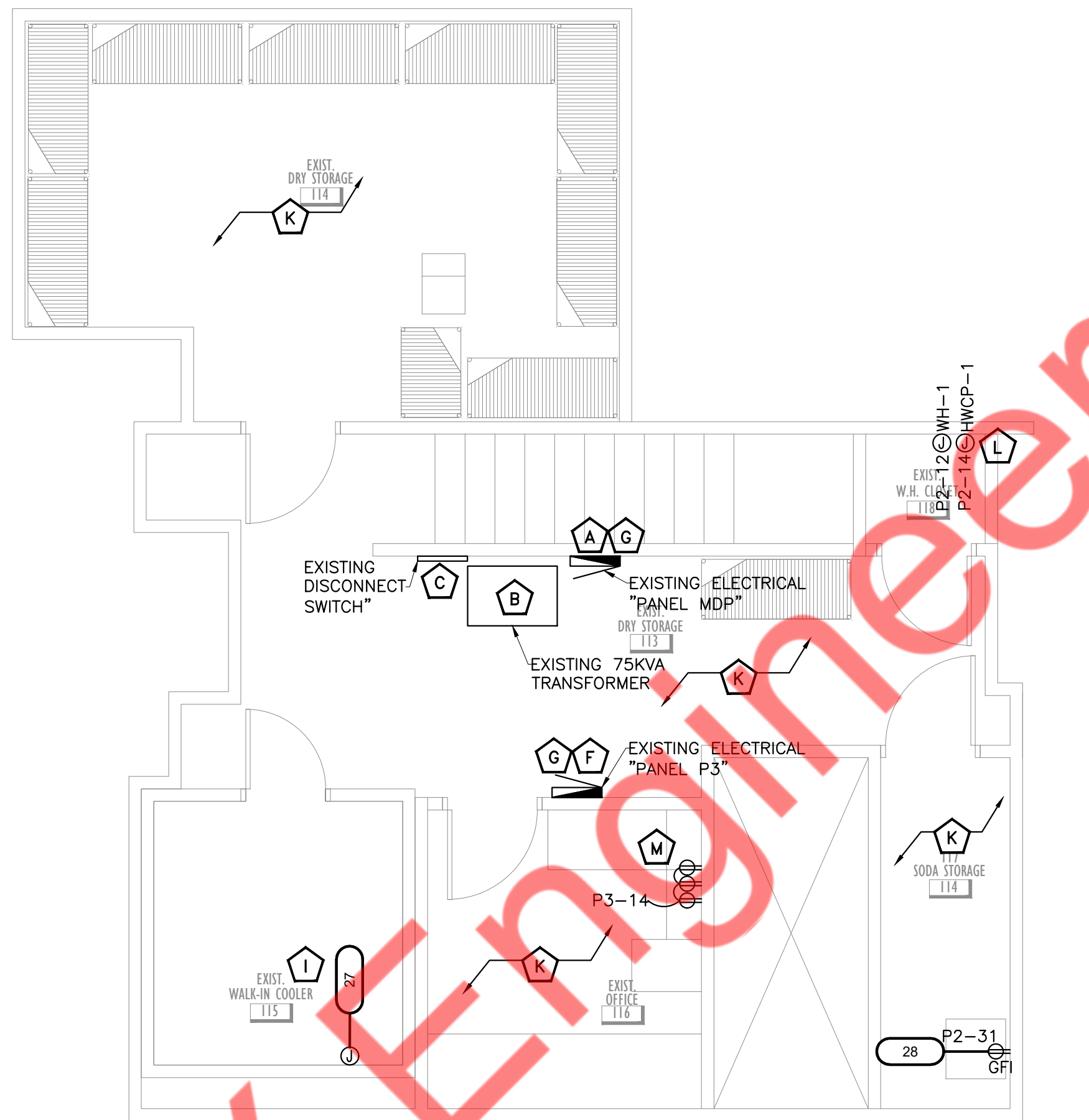
# E-3





POWER PLAN-MAIN LEVEL

1/4" = 1'-0"



POWER PLAN-MEZZANINE LEVEL

1/4" = 1'-0"

ELECTRICAL POWER PLAN KEYED WORK NOTES:

- EXISTING 225A, 277/480V, 3-PHASE, 4-WIRE ELECTRICAL "PANEL MDP" AND ITS INCOMING FEEDER TO REMAIN. E.C. SHALL VERIFY EXACT SIZE, LOCATION & OPERABLE CONDITION OF PANEL. REPLACE IF FOUND INOPERABLE. BASE BID ACCORDINGLY.
- EXISTING 75KVA, 3-PHASE TRANSFORMER WITH PRIMARY 277/480V AND SECONDARY 120/208V. E.C. TO FIELD VERIFY THE EXACT RATING, SIZE, LOCATION & OPERABLE CONDITION OF THE TRANSFORMER, REPLACE IF INOPERABLE. BASE BID ACCORDINGLY.
- EXISTING ELECTRICAL "DISCONNECT P1 & P2" AND ITS INCOMING FEEDER TO REMAIN. E.C. SHALL VERIFY EXACT SIZE, LOCATION & OPERABLE CONDITION OF DISCONNECT SWITCH. REPLACE IF FOUND INOPERABLE. BASE BID ACCORDINGLY.
- EXISTING 200A(MCB), 120/208V, 3-PHASE, 4-WIRE ELECTRICAL "PANEL P2" AND ITS INCOMING FEEDER TO REMAIN. E.C. SHALL VERIFY EXACT SIZE, LOCATION & OPERABLE CONDITION OF PANEL. REPLACE IF FOUND INOPERABLE. BASE BID ACCORDINGLY.
- EXISTING 200A(M.L.O.), 120/208V, 3-PHASE, 4-WIRE ELECTRICAL "PANEL P1" AND ITS INCOMING FEEDER TO REMAIN. E.C. SHALL VERIFY EXACT SIZE, LOCATION & OPERABLE CONDITION OF PANEL. REPLACE IF FOUND INOPERABLE. BASE BID ACCORDINGLY.
- EXISTING 150A(M.L.O.), 120/208V, 3-PHASE, 4-WIRE ELECTRICAL "PANEL P3" AND ITS INCOMING FEEDER TO REMAIN. E.C. SHALL VERIFY EXACT SIZE, LOCATION & OPERABLE CONDITION OF PANEL. REPLACE IF FOUND INOPERABLE. BASE BID ACCORDINGLY.
- E.C. TO FIELD VERIFY THE ELECTRICAL PANELS SHALL COMPLY WITH MINIMUM CLEARANCE AS PER NEC & THE PANEL SHALL BE READILY ACCESSIBLE.
- EXISTING CEILING RECEPTACLE TO REMAIN. PROVIDE NEW CIRCUIT AS SHOWN IN THE DRAWING IF REQUIRED. E.C. SHALL VERIFY OPERABLE CONDITION OF THE RECEPTACLE AND REPLACE IF FOUND IN OPERABLE. REPORT TO ENGINEER FOR ANY DISCREPANCIES. BASE BID ACCORDINGLY.
- ALL EXISTING ELECTRICAL FIXTURES FOR WALK IN COOLER AREA SHALL BE REUSED AND REMAIN CONNECTED TO THE RESPECTIVE EXISTING ELECTRICAL PANEL. E.C. TO COORDINATE WITH OWNER/ARCHITECT.
- COORDINATE EXACT POWER REQUIREMENTS WITH THE CORRESPONDING MODEL IN COORDINATION WITH THE ARCHITECT/OWNER/EQUIPMENT MANUFACTURER. RECEPTACLE AND BRANCH CIRCUIT ELECTRICAL REQUIREMENTS MAY VARY BASED ON THE MODEL NUMBER. BASE BID ACCORDINGLY.
- ALL EXISTING ELECTRICAL FIXTURES IN THIS AREA SHALL BE REUSED AND REMAIN CONNECTED TO THE RESPECTIVE EXISTING ELECTRICAL PANEL. E.C. TO COORDINATE WITH OWNER/ARCHITECT.
- ELECTRICAL CONTRACTOR SHALL COORDINATE WITH THE WATER HEATER MANUFACTURER FOR THE EXACT POWER REQUIREMENTS PRIOR TO ROUGH-IN. BASE BID ACCORDINGLY.
- EXISTING OFFICE RECEPTACLE TO REMAIN AS IT IS. PROVIDE NEW CIRCUIT AS SHOWN IN THE DRAWING IF REQUIRED. E.C. SHALL VERIFY OPERABLE CONDITION OF THE RECEPTACLE AND REPLACE IF FOUND IN OPERABLE. REPORT TO ENGINEER FOR ANY DISCREPANCIES. BASE BID ACCORDINGLY.
- EXISTING FIRE PLACE TO REMAIN. ELECTRICAL CONTRACTOR TO VERIFY ON FIELD PROPER FUNCTIONING OF THE FIRE PLACE. REPORT TO ENGINEER FOR ANY DISCREPANCIES. BASE BID ACCORDINGLY.
- ELECTRICAL CONTRACTOR TO CO-ORDINATE WITH TEA BREWER VENDOR FOR ITS POWER REQUIREMENT AND OTHER DETAILS BEFORE COMMENCING AND WORK. BASE BID ACCORDINGLY.

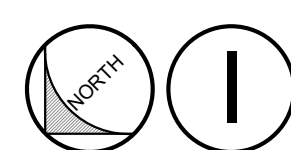
EQUIPMENT SCHEDULE:

ITEM NO.	QTY.	DESCRIPTION	VOLTAGE	PHASE	AMPS	KW	NEMA	AFF
1	3	SANDWICH/SALAD PREP REFRIGERATOR	115	1	9.9	1.14	5-15P	24"
2	3	GRIDDLE,GAS,COUNTERTOP	120	1	1	0.12	5-15P	50"
3	3	EQUIPMENT STAND, REFRIGERATED STAND	115	1	2.3	0.26	5-15P	24"
4	1	UNDERCOUNTER FREEZER	115	1	1.8	0.21	5-15P	24"
5	1	KEGERATOR	115	1	2.3	0.26	5-15P	24"
8	1	BOTTLE COOLER	120	1	1.9	0.23	5-15P	24"
10	2	ELECTRIC RISE/GRAIN COOKER	230	1	15	3.45	6-20P	50"
14	5	REACH-IN REFRIGERATOR	115	1	2.1	0.24	5-15P	18"
15	2	REACH-IN FREEZER	115	1	6.3	0.72	5-15P	18"
19	1	HOTPLATE,COUNTERTOP,GAS	115	1	1	0.12	5-15P	50"
20	1	BUBBLER	120	1	12	1.44	5-15P	50"
22	1	SANDWICH/SALAD PREP REFRIGERATOR	115	1	2.8	0.32	5-15P	24"
23	2	RICE/GRAIN WARMER	120	1	0.8	0.10	5-15P	24"
25	1	EXHAUST HOOD SYSTEM	120	1	1.5	0.18	JB	
26	1	EXISTING EXHAUST HOOD SYSTEM	120	1	1.5	0.18	JB	(E)
27	1	WALK-IN COOLER EXISTING	(E)	(E)	(E)	(E)	(E)	(E)
28	1	BAG-IN-BOX SODA SYSTEM	120	1	3	0.36	5-15P	84"
30	1	24" FLAT TOP GRILLE	120	1	0.8	0.10	5-15P	50"
31	1	ICE MAKER, CUBE STYLE	115	1	8.45	0.97	HARDWARE	86"
32	1	SODA ICE & BEVERAGE DISPENSER	120	1	2.25	0.27	5-15P	50"
36	1	DISHMACHINE	115	1	12	1.38	DISCONNECT	62"
37	1	DISHWASHER HOOD SYSTEM	120	1	1.5	0.18	JB	
39	1	ICE MACHINE W/BIN	120	1	11.8	1.42	JB	72"
43	1	TEA BREWER	120	1	13	1.56	5-15P	50"
POS1	1	POS TERMINAL AND PRINTER	120	1	10	1.20		50"
POS2	1	POS TERMINAL AND PRINTER DATA	120	1	15	1.80		50"
POS3	1	POS TERMINAL AND PRINTER	120	1	10	1.20		18"
POS4	1	POS TERMINAL AND PRINTER DATA	120	1	15	1.80		18"
POS5	1	POS TERMINAL AND PRINTER	120	1	10	1.20		18"
POS6	1	POS TERMINAL AND PRINTER DATA	120	1	15	1.80		18"
POS7	1	POS TERMINAL AND PRINTER	120	1	10	1.20		18"
POS8	1	POS TERMINAL AND PRINTER DATA	120	1	15	1.80		18"

ELECTRICAL POWER PLAN GENERAL NOTES:

- E.C. SHALL COORDINATE WITH THE ARCHITECT/OWNER FOR THE EXACT HEIGHT/LOCATIONS OF THE RECEPTACLES PRIOR TO ROUGH-IN.
- UNLESS OTHERWISE SPECIFIED, THE ELECTRICIAN IS TO FURNISH ALL 208 VOLT CORDS, PLUGS AND RECEPTACLES WHERE NECESSARY.
- E.C. TO SUPPLY AND INSTALL ALL CONDUIT, WIRING, BOXES, FACEPLATES, BRACKETS, ETC TO COMPLETE INSTALLATION. E.C. SHALL ALSO MAKE ALL FINAL CONNECTIONS TO EQUIPMENTS.
- ALL ELECTRICAL WORK PERFORMED IS TO BE DONE IN ACCORDANCE WITH ALL STATE AND LOCAL CODES.
- ALL ELECTRICAL CONDUIT TO BE RUN WITHIN WALL SURFACE AND BOXES AND RECEPTACLES ARE TO BE INSET FLUSH WITH WALL SURFACE. SURFACE MOUNTED ELECTRICAL WORK IS NOT TO BE USED UNLESS OTHERWISE SPECIFIED ON FOOD SERVICE EQUIPMENT ROUGH-IN PLAN.
- E.C. SHALL PROVIDE COMPUTER GRADE ISOLATED GROUND ELECTRICAL SERVICE FOR POS. VERIFY EXACT REQUIREMENTS WITH EQUIPMENT SUPPLIER.
- E.C. SHALL PULL ALL LOW VOLTAGE WIRING FOR POS SYSTEM. COORDINATE WITH LV VENDOR FOR EXACT QUANTITY AND POWER REQUIREMENTS BEFORE COMMENCING ANY WORK. BASE BID ACCORDINGLY.
- E.C. TO CONNECT ALL ELECTRICAL EQUIPMENTS AND FIXTURES AND DO ANY INTERNAL WIRING REQUIRED IN THE FIXTURES AS REQUIRED BY THE SPECIFICATIONS. ALL ELECTRICAL OUTLET COVER PLATES ARE TO BE STAINLESS STEEL AND ARE TO BE FURNISHED BY THE ELECTRICIAN, AS WELL AS THE RECEPTACLE, UNLESS OTHERWISE SPECIFIED IN THE ITEM SPECIFICATIONS. ALL DISCONNECT SWITCHES ARE TO BE FURNISHED AND INSTALLED BY THE ELECTRICIAN AT TIME OF INSTALLATION.
- ALL WORK TO BE PERFORMED IN FULL ACCORDANCE WITH ALL APPLICABLE CODES RELATING TO HOOK-UP, INSTALLATION AND WIRING OF EQUIPMENT. OMISSIONS OR ERRORS ON THE SCHEDULE DO NOT RELIEVE THE ELECTRICIAN FROM COMPLETE FINAL CONNECTION RESPONSIBILITY.
- IF ELECTRICAL OUTLETS AND/OR RECEPTACLES CHANGED FROM "STUB-UP" TO "WALL-MOUNTED" OUTLETS AND/OR RECEPTACLES ARE TO BE SET AT 12" A.F.F.
- ALL 125-VOLT THROUGH 250-VOLT RECEPTACLES SUPPLIES BY SINGLE-PHASE BRANCH CIRCUITS RATED 150 VOLTS OR LESS TO GROUND, 50 AMPERES OR LESS, AND ALL RECEPTACLES SUPPLIED BY THREE-PHASE BRANCH CIRCUITS RATED 150 VOLTS OR LESS TO GROUND, 100 AMPERES OR LESS, INSTALLED IN THE LOCATIONS SPECIFIED IN 210.8(B) SHALL HAVE GFCI PROTECTION. ALL THE KITCHEN EQUIPMENTS SHALL HAVE GFI BREAKER IN PANELS.
- THE CONTRACTOR IS RESPONSIBLE FOR REVIEWING THE LATEST KITCHEN PLANS AND EQUIPMENT CUT SHEETS FOR PROPER EQUIPMENT REQUIREMENTS, LOCATIONS AND CONNECTIONS DETAILS PRIOR TO ROUGH IN. BASE BID ACCORDINGLY.
- E.C. TO COORDINATE WITH ARCHITECT/OWNER FOR THE HOOD SUPPRESSION SYSTEM REQUIREMENTS AND PROVIDE THE PROVISIONS ACCORDINGLY.




$$1/4'' = 1'-0''$$

- # ELECTRICAL POWER PLAN KEYED WORK NOTES:

1 EXISTING MECHANICAL EQUIPMENT WITH ITS ELECTRICAL CONNECTION AND ELECTRICAL FIXTURE TO REMAIN. E.C. SHALL VERIFY OPERABLE CONDITION OF ELECTRICAL CONNECTION AND ELECTRICAL FIXTURE ON FIELD. REPLACE IF INOPERABLE. BASE BID ACCORDINGLY. E.C. SHALL COORDINATE WITH LANDLORD FOR THE EXACT LOCATION OF RTU AND ITS ELECTRICAL CONNECTIONS ON FIELD.

2 EXISTING ROOF OUTLETS SHALL REMAIN WITH ITS BRANCH CIRCUITS. E.C. SHALL COORDINATE IN FIELD THE OPERABLE CONDITIONS OF THE SAME AND PROVIDE NEW IF FOUND INOPERABLE AS SHOWN ON THE DRAWINGS. BASE BID ACCORDINGLY.

3 ELECTRICAL CONTRACTOR SHALL COORDINATE FOR EXACT LOCATION OF MECHANICAL EQUIPMENTS WITH MECHANICAL DRAWINGS.

4 ELECTRICAL CONTRACTOR SHALL COORDINATE DISCONNECT AND FUSE REQUIREMENT FOR MECHANICAL UNIT WITH MECHANICAL CONTRACTOR AND EQUIPMENT MANUFACTURER PRIOR TO ROUGH-IN AND PROVIDE AS REQUIRED. LOCATE AS REQUIRED TO MAINTAIN NEC CLEARANCES.

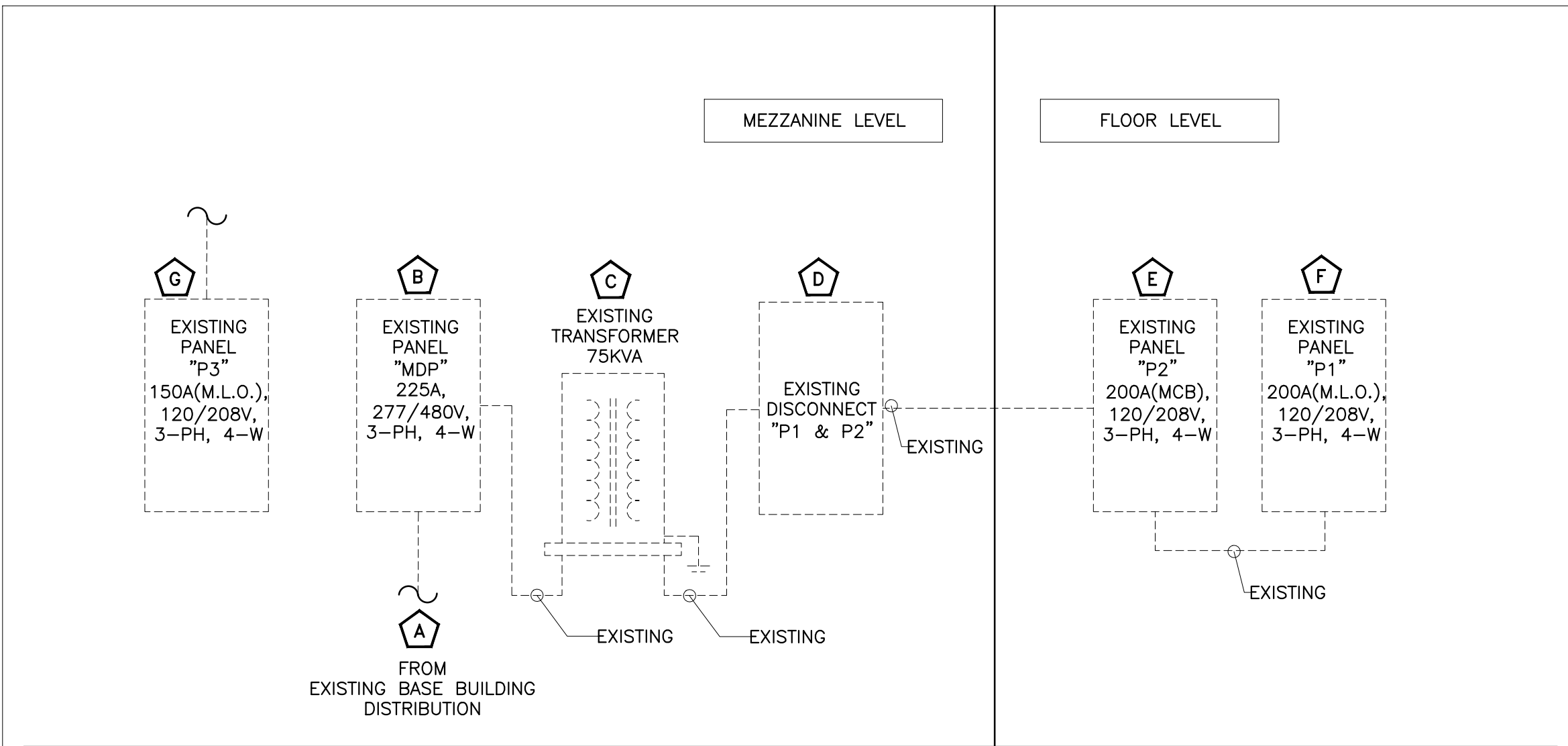
5 INTERLOCK EXHAUST FAN KEF-1(N) WITH MUA-2(N). COORDINATE WITH MECHANICAL DRAWINGS.

6 EXISTING WALK IN CONDENSER UNIT WITH ITS ELECTRICAL CONNECTION AND ELECTRICAL FIXTURE SHALL REMAIN. E.C. SHALL VERIFY THE EXISTING BRANCH FEEDER AND BRANCH BREAKER PROVIDED FOR IT ON FIELD. IF THE OPERATING CONDITIONS IN FIELD, REPLACE IF FOUND INOPERABLE. IF REQUIRED PROVIDE NEW BRANCH BREAKER AND BRANCH FEEDER FROM THE EXISTING PANEL "P2". INFORM ENGINEER ON RECORD FOR ANY DISCREPANCIES/ ISSUES BEFORE COMMENCING ANY WORK. BASE BID ACCORDINGLY.

Sheet No.

**E-5**





## 1 ELECTRICAL RISER DIAGRAM

### ELECTRICAL RISER KEYED WORK NOTES:

- A** EXISTING 200A, 277/480V, 3-PHASE, 4-WIRE ELECTRICAL INCOMING SERVICE UP TO THE ELECTRICAL "PANEL MDP" FOR THE LEASED SPACE FROM THE EXISTING BASE BUILDING DISTRIBUTION. E.C. SHALL COORDINATE WITH THE BASE BUILDING/LANDLORD/OWNER FOR EXACT POWER DISTRIBUTION. REPORT TO ENGINEER ON RECORD FOR ANY DISCREPANCIES.
- B** EXISTING 225A, 277/480V, 3-PHASE, 4-WIRE ELECTRICAL "PANEL MDP" AND ITS INCOMING FEEDER TO REMAIN. E.C. SHALL VERIFY EXACT SIZE, LOCATION & OPERABLE CONDITION OF PANEL. REPLACE IF FOUND INOPERABLE. BASE BID ACCORDINGLY.
- C** EXISTING 75KVA, 3-PHASE TRANSFORMER WITH PRIMARY 277/480V AND SECONDARY 120/208V. E.C. TO FIELD VERIFY THE EXACT RATING, SIZE, LOCATION & OPERABLE CONDITION OF THE TRANSFORMER, REPLACE IF INOPERABLE. BASE BID ACCORDINGLY.
- D** EXISTING ELECTRICAL "DISCONNECT P1 & P2" AND ITS INCOMING FEEDER TO REMAIN. E.C. SHALL VERIFY EXACT SIZE, LOCATION & OPERABLE CONDITION OF DISCONNECT SWITCH. REPLACE IF FOUND INOPERABLE. BASE BID ACCORDINGLY.
- E** EXISTING 200A(MCB), 120/208V, 3-PHASE, 4-WIRE ELECTRICAL "PANEL P2" AND ITS INCOMING FEEDER TO REMAIN. E.C. SHALL VERIFY EXACT SIZE, LOCATION & OPERABLE CONDITION OF PANEL. REPLACE IF FOUND INOPERABLE. BASE BID ACCORDINGLY.
- F** EXISTING 200A(M.L.O.), 120/208V, 3-PHASE, 4-WIRE ELECTRICAL "PANEL P1" AND ITS INCOMING FEEDER TO REMAIN. ELECTRICAL PANEL "P1" SHALL FEED THROUGH LUGS FROM EXISTING ELECTRICAL PANEL "P2". E.C. SHALL VERIFY EXACT SIZE, LOCATION & OPERABLE CONDITION OF PANEL. REPLACE IF FOUND INOPERABLE. BASE BID ACCORDINGLY.
- G** EXISTING 150A(M.L.O.), 120/208V, 3-PHASE, 4-WIRE ELECTRICAL "PANEL P3" AND ITS INCOMING FEEDER TO REMAIN. E.C. SHALL VERIFY EXACT SIZE, LOCATION & OPERABLE CONDITION OF PANEL. REPLACE IF FOUND INOPERABLE. BASE BID ACCORDINGLY.

### ELECTRICAL GENERAL NOTE:

- ABOVE RISER DIAGRAM IS FOR REFERENCE PURPOSES ONLY. E.C. SHALL VERIFY EXACT POWER DISTRIBUTION IN FIELD AND INFORM ENGINEER ON RECORD FOR ANY DISCREPANCY.
- E.C. SHALL VERIFY INCOMING SERVICE AMPERAGE, WIRE SIZING AND DISTRIBUTION.
- ELECTRICAL CONTRACTOR TO COORDINATE FAULT CURRENT (ISC) RATING WITH UTILITY COMPANY AND AHJ PRIOR TO COMMENCING ANY WORK.
- E.C. TO VERIFY OPERABLE CONDITIONS OF EXISTING DEVICES IN FIELD. REPLACE/RECTIFY IF FOUND IN OPERABLE. BASE BID ACCORDINGLY.
- EXISTING ELECTRICAL DISTRIBUTION TO BE MAINTAINED AND UTILIZED TO SERVE PROJECT SPACE. POWER RISER DIAGRAM INDICATED FOR REFERENCE PURPOSES ONLY.

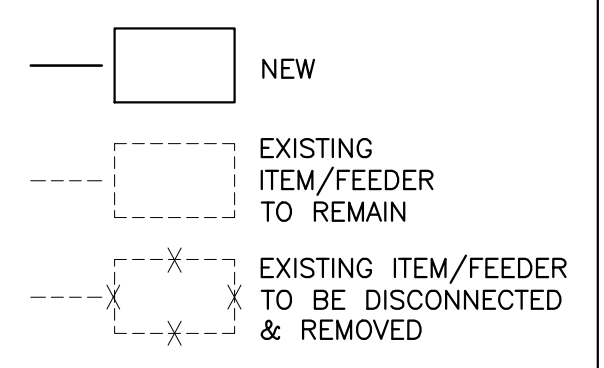
### PANEL SCHEDULE GENERAL NOTES:

- ALL CIRCUITING SHOWN IN PANEL "MDP", "P1", "P2" & "P3" FOR REFERENCE PURPOSE ONLY. E.C. SHALL VERIFY CIRCUITING OF THE EXISTING DEVICES IN FIELD AND INFORM ENGINEER FOR DISCREPANCIES.
- ELECTRICAL CONTRACTOR TO VERIFY THE EXACT PANEL SIZES AND INCOMING FEEDER SIZE.
- E.C. SHALL PROVIDE NEW CIRCUIT BREAKERS IN PLACE OF EXISTING CIRCUIT BREAKERS WHEREVER NECESSARY TO BE IN LINE WITH THE PANEL SCHEDULE
- ELECTRICAL CONTRACTOR SHALL VERIFY EXACT CIRCUIT NUMBER & BREAKER SIZE OF EXISTING DEVICES IN FIELD.
- E.C. SHALL VERIFY THE EXISTING EQUIPMENT LOAD & RATINGS IN FIELD AND ACCORDINGLY CONSIDER THE ELECTRICAL LOAD IN PANEL BOARD SCHEDULE.
- EXISTING MECHANICAL UNIT ACCU-1(E) WITH ITS ELECTRICAL CONNECTION AND ELECTRICAL FIXTURE SHALL REMAIN. E.C. SHALL VERIFY THE EXACT EXISTING BRANCH FEEDER AND BRANCH BREAKER PROVIDED AND THEIR OPERATING CONDITIONS IN FIELD. REPLACE IF FOUND INOPERABLE. PROVIDE NEW BRANCH BREAKER AND BRANCH FEEDER FROM THE NEW PANEL "B" AS SHOWN ON THE PLANS IF REQUIRED. INFORM ENGINEER ON RECORD FOR ANY DISCREPANCIES/ ISSUES BEFORE COMMENCING ANY WORK. BASE BID ACCORDINGLY.

### PANEL SCHEDULE KEYED WORK NOTES:

- A** E.C TO PROVIDE ONE (2)20A/1P CIRCUIT BREAKER IN PLACE OF (1) 30A/2P CIRCUIT BREAKER. BASE BID ACCORDINGLY.
- B** E.C TO PROVIDE ONE (2)20A/1P CIRCUIT BREAKER IN PLACE OF (1) 20A/2P CIRCUIT BREAKER. BASE BID ACCORDINGLY.
- C** E.C TO PROVIDE ONE (1)20A/1P CIRCUIT BREAKER IN PLACE OF (1) SPACE. BASE BID ACCORDINGLY.
- D** E.C TO PROVIDE ONE (1)20A/3P CIRCUIT BREAKER IN PLACE OF (3) SPARES. BASE BID ACCORDINGLY.
- E** E.C TO CONFIRM ON FIELD THE EXACT CIRCUIT NUMBER AND CIRCUIT BREAKER FOR ALL THE EXISTING EQUIPMENT/RECEPTACLES. REROUTE THE CIRCUIT ACCORDINGLY BEFORE COMMENCING ANY WORK. INFORM ENGINEER FOR ANY DISCREPANCIES. BASE BID ACCORDINGLY.

### ELECTRICAL RISER SYMBOLS:



### PANEL SCHEDULE:

PANEL:		MDP(E)										MOUNTING:		SURFACE	
480Y/277		VOLTS,		3		PHASE,		4		WIRE					
MAIN CB:		225A		MLO:		NA		BUS:		EXISTING		MIN,			
NOTE: L - LIGHTING, R - RECEPTACLE, H - HVAC, E - KITCHEN EQUIPMENTS, O - OTHER/MISCELLANEOUS															
CKT NO.	TRIP AMPS	DESCRIPTION OF LOAD	LOAD TYPE	LOAD (KVA)	MINIMUM BRANCH CIRCUIT	PER PHASE (KVA)			MINIMUM BRANCH CIRCUIT	LOAD (KVA)	LOAD TYPE	DESCRIPTION OF LOAD	TRIP AMPS	CKT NO.	
						A	B	C							
1	20	SPARE				0.00						SPARE	20	2	
3	20	SPARE					0.00					SPARE	20	4	
5	20	SPARE						0.00				SPARE	20	6	
7						2.00						SPARE	20	8	
9	20/3P	KEF-3(E)	H	2.00	EXISTING		2.00					SPARE	20	10	
11			H	2.00				2.00				SPARE	20	12	
13			H	1.92		1.92						SPARE	20	14	
15	20/3P	RTU-D0C(E)	H	1.92	EXISTING		1.92					SPARE	20	16	
17			H	1.92				1.92				SPARE	20	18	
19			H	2.73		6.00									
21	20/3P	MAU-2(N) AIR MAKEUP UNIT	H	2.73	3#12, #12G, 3/4"C		6.00		EXISTING	3.27	H	RTU-F15(E)	20/3P	22	
23			H	2.73				6.00		3.27	H			24	
25			H	2.00		5.56				3.56	H			26	
27	20/3P	KEF-2(E)	H	2.00	EXISTING		5.56		EXISTING	3.56	H	RTU-F16(E)	20/3P	28	
29			H	2.00				5.56		3.56	H			30	
31			H	4.62		6.54				1.92	H			32	
33	20/3P	RTU-F13(E)	H	4.62	EXISTING		6.54		EXISTING	1.92	H	MAU-2(N)	20/3P	34	
35			H	4.62				6.54		1.92	H			36	
37			H	0.44		21.57				21.14	O			38	
39	20/3P	MAU-1(E)	H	0.44	EXISTING		21.57		EXISTING	21.14	O	EXISTING 75 KVA TRANSFORMER	100/3P	40	
41			H	0.44				21.57		21.14	O			42	
TOTAL LOAD (KVA)						43.59	43.59	43.59							

PANEL: P2(E)											MOUNTING: RECESSED				
208Y/120		VOLTS,		3		PHASE,		4		WIRE					
MAIN CB: 200A				MLO: NA				BUS: EXISTING				MIN,			
NOTE: L - LIGHTING, R - RECEPTACLE, H - HVAC, E - KITCHEN EQUIPMENTS, O - OTHER/MISCELLANEOUS															
CKT NO.	TRIP AMPS	DESCRIPTION OF LOAD	LOAD TYPE	LOAD (KVA)	MINIMUM BRANCH CIRCUIT	PER PHASE (KVA)			MINIMUM BRANCH CIRCUIT	LOAD (KVA)	LOAD TYPE	DESCRIPTION OF LOAD	TRIP AMPS	CKT NO.	
						A	B	C							
1	20	LIGHTING-DINING AREA	L	0.40	2-12, 1#12G, 3/4"	1.96			2-12, 1#12G, 3/4"	1.56	E	TEA BREWER_(#43)	20	2	
3	20	SIGNAGE	L	1.00	2-12, 1#12G, 3/4"		1.05		2-12, 1#12G, 3/4"	0.05	H	EF-1(N)	20	4	
5	20	LIGHTING-DINING AREA TRACK LIGHTING	L	0.20	2-12, 1#12G, 3/4"			0.92	2-12, 1#12G, 3/4"	0.72	R	RECEPTACLE-ROOF	20	6	
7	20	LIGHTING-HALLWAY	L	0.20	2-12, 1#12G, 3/4"	1.28			2-12, 1#12G, 3/4"	1.08	R	RECEPTACLE-GENERAL	20	8	
9	20	LIGHTING-SERVICE AREA	L	0.71	2-12, 1#12G, 3/4"		1.43		2-12, 1#12G, 3/4"	0.72	R	RECEPTACLE-RESTROOM	20	10	
11	20	LIGHTING-DISH AREA, PREP AREA, RESTROOMS	L	0.30	2-12, 1#12G, 3/4"			0.34	2-12, 1#12G, 3/4"	0.04	O	WH-1	20	12	
13	20	BUILDING SIGNAGE	L	1.20	2-12, 1#12G, 3/4"	1.29			2-12, 1#12G, 3/4"	0.09	O	HWCP-1	20	14	
15	20	LIGHTING-MEZZANINE LEVEL	L	1.00	2-12, 1#12G, 3/4"		1.18		2-12, 1#12G, 3/4"	0.18	O	EXHAUST HOOD SYSTEM_(#25)	20	16	
17	20	RECEPTACLE-SHOW WINDOW	L	2.00	2-12, 1#12G, 3/4"			2.18	EXISTING	0.18	O	EXISTING EXHAUST HOOD_(#26)	20	18	
19	20	RECEPTACLE-SHOW WINDOW	L	2.00	2-12, 1#12G, 3/4"	2.27			2-12, 1#12G, 3/4"	0.27	E	SODA ICE & BEVERAGE DISPENSER_(#32)	20	20	
21	20	RECEPTACLE-SHOW WINDOW	L	2.00	2-12, 1#12G, 3/4"		2.36		2-12, 1#12G, 3/4"	0.36	R	TV RECEPTACLE	20	22	
23	20	RECEPTACLE-SHOW WINDOW	L	2.00	2-12, 1#12G, 3/4"			2.21	2-12, 1#12G, 3/4"	0.21	E	UNDERCOUNTER FREEZER_(#4)	20	24	
25						0.18			2-12, 1#12G, 3/4"	0.18	O	DISHWASHER HOOD_(#37)	20	26	
27	100/3P	SPARE					0.10		EXISTING	0.10	O	WALK IN LIGHTS	20	28	
29								0.50	EXISTING	0.50	O	WALK IN COIL	20	30	
31	20	BAG-IN BOX SODA SYSTEM_(#28)	E	0.36	2-12, 1#12G, 3/4"	0.36							20	32	
33	20	NEON SIGNAGE	L	0.50	2-12, 1#12G, 3/4"		0.50					SPARE	50/3P	34	
35	20	REACH IN FREEZER_(#15)	E	0.72	2-12, 1#12G, 3/4"			0.72					20	36	
37	20	ICE MAKER, CUBE STYLE_(#31)	E	0.97	2-12, 1#12G, 3/4"	0.97							20	38	
39	20	DISHMACHINE_(#36)	E	1.38	2-12, 1#12G, 3/4"		1.38					SPARE	100/3P	40	
41	20	REACH IN FREEZER_(#15)	E	0.72	2-12, 1#12G, 3/4"			0.72					20	42	
TOTAL LOAD (KVA)						8.31	8.00	7.59							

PANEL: P1(E)										MOUNTING: RECESSED					
208Y/120		VOLTS,		3		PHASE,		4		WIRE					
MAIN CB:		NA		MLO: 200A		BUS:		EXISTING		MIN,					
NOTE: L - LIGHTING, R - RECEPTACLE, H - HVAC, E - KITCHEN EQUIPMENTS, O - OTHER/MISCELLANEOUS															
CKT NO.	TRIP AMPS	DESCRIPTION OF LOAD	LOAD TYPE	LOAD (KVA)	MINIMUM BRANCH CIRCUIT	PER PHASE (KVA)			MINIMUM BRANCH CIRCUIT	LOAD (KVA)	LOAD TYPE	DESCRIPTION OF LOAD	TRIP AMPS	CKT NO.	
						A	B	C							
1	20	SANDWICH/SALAD PREP REFRIGERATOR_(#1)	E	1.14	2-12, 1#12G, 3/4"C	2.94			2-12, 1#12G, 3/4"C	1.80	R	CONVENIENCE OUTLET_(#CON2)	20	2	
3	20	SANDWICH/SALAD PREP REFRIGERATOR_(#1)	E	1.14	2-12, 1#12G, 3/4"C		2.94		2-12, 1#12G, 3/4"C	1.80	R	CONVENIENCE OUTLET_(#CON2)	20	4	
5	20	SANDWICH/SALAD PREP REFRIGERATOR_(#1)	E	1.14	2-12, 1#12G, 3/4"C			2.94	2-12, 1#12G, 3/4"C	1.80	R	CONVENIENCE OUTLET_(#CON2)	20	6	
7	20	HOTPLATE,COUNTERTOP,GAS_(#19)	E	0.12	2-12, 1#12G, 3/4"C	1.92			2-12, 1#12G, 3/4"C	1.80	R	CONVENIENCE OUTLET_(#CON2)	20	8	
9	20	BUBBLER_(#20)	E	1.44	2-12, 1#12G, 3/4"C		1.67		2-12, 1#12G, 3/4"C	0.23	E	BOTTLE COOLER_(#8)	20	10	
11	20	GRIDDLE,GAS,COUNTERTOP_(#2)	E	0.12	2-12, 1#12G, 3/4"C			1.32	2-12, 1#12G, 3/4"C	1.20	R	POS TERMINAL AND PRINTER_(#POS1)	20	12	
13	20	SHUNT BREAKER				1.20			2-12, 1#12G, 3/4"C	1.20	R	POS TERMINAL AND PRINTER_(#POS2)	20	14	
15	20	GRIDDLE,GAS,COUNTERTOP_(#2)	E	0.12	2-12, 1#12G, 3/4"C		1.32		2-12, 1#12G, 3/4"C	1.20	R	POS TERMINAL AND PRINTER_(#POS3)	20	16	
17	20	SHUNT BREAKER						1.20	2-12, 1#12G, 3/4"C	1.20	R	POS TERMINAL AND PRINTER_(#POS4)	20	18	
19	20	GRIDDLE,GAS,COUNTERTOP_(#2)	E	0.12	2-12, 1#12G, 3/4"C	1.32			2-12, 1#12G, 3/4"C	1.20	R	POS TERMINAL AND PRINTER_(#POS4)	20	20	
21	20	SHUNT BREAKER					1.20		2-12, 1#12G, 3/4"C	1.20	R	POS TERMINAL AND PRINTER_(#POS5&6)	20	22	
23	20	EQUIPMENT STAND, REFRIGERATED STAND_(#3)	E	0.26	2-12, 1#12G, 3/4"C		1.46		2-12, 1#12G, 3/4"C	1.20	R	POS TERMINAL AND PRINTER_(#POS7)	20	24	
25	20	REACH IN REFRIGERATOR_(#14)	E	0.24	2-12, 1#12G, 3/4"C	2.04			2-12, 1#12G, 3/4"C	1.80	R	POS TERMINAL AND PRINTER_(#POS8)	20	26	
27	20	REACH IN REFRIGERATOR_(#14)	E	0.24	2-12, 1#12G, 3/4"C		1.97		2-12, 1#12G, 3/4"C	1.73	E	ELECTRIC RISE/GRAIN COOKER_(#10)	20/2P	28	
29	20	REACH IN REFRIGERATOR_(#14)	E	0.24	2-12, 1#12G, 3/4"C			1.97	2-12, 1#12G, 3/4"C	1.73	E		20/2P	30	
31	20	REACH IN REFRIGERATOR_(#14)	E	0.24	2-12, 1#12G, 3/4"C			1.97	2-12, 1#12G, 3/4"C	1.73	E	ELECTRIC RISE/GRAIN COOKER_(#10)	20/2P	32	
35	20	SANDWICH/SALAD PREP REFRIGERATOR_(#22)	E	0.52	2-12, 1#12G, 3/4"C			0.90		0.58	H		20	36	
37	20	EQUIPMENT STAND, REFRIGERATED STAND_(#3)	E	0.26	2-12, 1#12G, 3/4"C	0.84			3-10, 1#10G, 3/4"C	0.58	H	KEF-[N]	20/3P	38	
39	20	EQUIPMENT STAND, REFRIGERATED STAND_(#3)	E	0.26	2-12, 1#12G, 3/4"C		0.84			0.58	H		20	40	
41	20	KEGREGATOR_(#5)	E	0.26	2-12, 1#12G, 3/4"C			0.36	2-12, 1#12G, 3/4"C	0.10	E	24" FLAT TOP GRILLE_(#30)	20	42	
TOTAL LOAD (KVA)						12.22	11.90	10.14							



PLUMBING SYMBOLS LIST

-----	VENT PIPING
-----	COLD WATER PIPING
-----	HOT WATER PIPING
-----	HOT WATER RETURN PIPING
--- EX.SAN ---	EXISTING SANITARY PIPING
--- SAN ---	SANITARY WASTE
--- G.SAN ---	GREASE SANITARY WASTE
--- EX.V ---	EXISTING VENT PIPING
--- V ---	VENT PIPING
--- G ---	GAS PIPING
--- EX.G ---	EXISTING GAS PIPING
-----○	P--TRAP
-----○	PIPE UP
-----○	PIPE DROP
-----○	CLEANOUT
-----○	POINT OF CONNECTION
-----	FLOOR SINK
-----	GAS PRESSURE REGULATOR
FFD	FUNNEL DRAIN
FD	FLOOR DRAIN
-----	BALANCING VALVE
-----	SECONDARY BFP
-----	GAS SHUT--OFF VALVE

PLUMBING ABBREVIATIONS

CODP	CLEAN OUT DECK PLATE
CW	COLD WATER
HW	HOT WATER
HWR	HOT WATER RETURN
SAN	SANITARY
V	VENT
LAV	LAVATORY
TYP.	TYPICAL
DN	DOWN
FD	FLOOR DRAIN
BFP	BACK FLOW PREVENTER
N.I.C.	NOT IN SCOPE
FS	FLOOR SINK
EX.	EXISTING
WH	WATER HEATER

PLUMBING DRAWING LIST

P-1	PLUMBING SPECIFICATIONS, SYMBOLS & ABBREVIATIONS
P-2	PLUMBING SPECIFICATIONS
P-3	PLUMBING DETAILS
P-4	PLUMBING WATER SUPPLY PLAN & SCHEDULE
P-5	PLUMBING GAS SUPPLY PLAN
P-6	PLUMBING DRAINAGE & VENT PLAN
P-7	PLUMBING SCHEDULE AND RISERS
P-8	PLUMBING SCHEDULE

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 2014 ILLINOIS STATE PLUMBING CODE.
- INSTALLATION OF DRAINAGE SYSTEM SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF 2014 ILLINOIS STATE PLUMBING CODE SECTION 890.1320.
- TRENCHING, BEDDING AND BACKFILL AS PER 2014 ILLINOIS STATE PLUMBING CODE SECTION 890.180.
- MATERIALS USED IN PLUMBING SYSTEMS SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF SECTION 2014 ILLINOIS STATE PLUMBING CODE SECTION 890.210.
- EQUIPMENT CONNECTIONS AND JOINING OF PIPING SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF 2014 ILLINOIS STATE PLUMBING CODE SECTION SUBPART C JOINTS AND CONNECTIONS.
- DEEP SEAL TRAPS FOR FLOOR DRAINS SHALL BE PROVIDED AS PER 2014 ILLINOIS STATE PLUMBING CODE SECTION 890.1370, AND CLEAN-OUTS SHALL BE INSTALLED IN ACCORDANCE WITH THE REQUIREMENTS OF SECTION 2014 ILLINOIS STATE PLUMBING CODE SECTION 890.420.
- VERTICAL AND HORIZONTAL PIPING SHALL BE SUPPORTED IN ACCORDANCE WITH THE REQUIREMENTS OF SECTION 2014 ILLINOIS STATE PLUMBING CODE SECTIONS 890.920 & 890.930.
- WATER SUPPLY SYSTEMS SHALL BE INSTALLED AND MAINTAINED IN ACCORDANCE WITH THE REQUIREMENTS OF 2014 ILLINOIS STATE PLUMBING CODE SUBPART I WATER SUPPLY AND DISTRIBUTION.
- THE SANITARY DRAINAGE SYSTEM SHALL BE SIZED AND INSTALLED IN ACCORDANCE WITH THE REQUIREMENTS OF 2014 ILLINOIS STATE PLUMBING CODE SUBPART J DRAINAGE SYSTEM.
- VENT PIPING FOR THE SANITARY DRAINAGE SYSTEM SHALL BE INSTALLED IN ACCORDANCE WITH THE REQUIREMENTS OF 2014 ILLINOIS STATE PLUMBING CODE SUBPART K VENTS AND VENTING.
- INSPECTION AND TESTING OF PLUMBING PIPING SYSTEMS SHALL BE IN ACCORDANCE WITH SECTION 2014 ILLINOIS STATE PLUMBING CODE SECTION 890.1910, 890.1920 & 890.1930.

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 THESE PROJECT:

- INTERNATIONAL BUILDING CODE, 2018.
- INTERNATIONAL MECHANICAL CODE, 2018.
- ILLINOIS STATE PLUMBING CODE, 2014.
- INTERNATIONAL FIRE CODE, 2018.
- INTERNATIONAL ENERGY CONSERVATION CODE, 2018.
- NATIONAL ELECTRICAL CODE, 2017.
- INTERNATIONAL FUEL GAS CODE, 2018.

PLUMBING SPECIFICATIONS

- BASIC PLUMBING REQUIREMENTS, MATERIALS AND METHODS

1.01 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 EXISTING AND 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.

1.02 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
  - WATER HEATERS & ACCESSORIES
  - FLOOR DRAINS
  - MIXING VALVES
  - 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.
- 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.

1.03 SUBSTITUTIONS

- ALL EQUIPMENT SHALL BE PRODUCTS OF THE SPECIFIED MANUFACTURER OR MANUFACTURERS. ALL BIDS SHALL BE BASED ON THE SPECIFIED MANUFACTURER OR MANUFACTURER'S 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.
- 1.04 DEFINITIONS
- FURNISH: TO PURCHASE, PROCURE, ACQUIRE AND DELIVER, COMPLETE WITH RELATED ACCESSORIES.
  - INSTALL: TO ERECT, MOUNT AND CONNECT, COMPLETE WITH RELATED ACCESSORIES.
  - PROVIDE: TO FURNISH AND INSTALL.
  - PLUMBING CONTRACTOR, THE CONTRACTOR, THIS CONTRACTOR: THE CONTRACTOR FOR PLUMBING WORK WHICH IS SPECIFIED HEREIN AND SHOWN ON THESE DRAWINGS.
  - REFER TO THE 2014 ILLINOIS STATE PLUMBING CODE FOR ADDITIONAL DEFINITIONS.

1.04 DRAWINGS

- 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.
- PROVIDE ALL NECESSARY INCIDENTAL MATERIALS AND ACCESSORIES REQUIRED TO MAKE THE WORK COMPLETE IN ALL RESPECTS, EVEN IF NOT PARTICULARLY SHOWN OR SPECIFIED.
- REFER TO PLUMBING EQUIPMENT/FIXTURE SCHEDULE ON THE DRAWINGS FOR ALL FIXTURE AND EQUIPMENT SPECIFICATIONS.
- REFER TO FIXTURE CONNECTION SIZE SCHEDULE FOR ALL FIXTURE ROUGHING SIZE REQUIREMENTS.
- 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.
- LOCATE ALL FIXTURES AND EQUIPMENT AS PER THE FINAL ARCHITECTURAL DRAWINGS.

1.05 PRODUCTS

- SANITARY AND VENT PIPING:

- ABOVE GRADE/ UNDERGROUND PIPING SHALL BE CAST IRON PIPE WHICH SHOULD COMPLY WITH ASTM A74; ASTM A883; STANDARD/CISPI 301.
- SLOPE OF DRAINAGE SYSTEM SHALL BE 1/8" PER FOOT OF RUN FOR PIPE OVER 3" (I.D.) AND 1/4" PER FOOT OF RUN FOR PIPE 3" 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.

- DOMESTIC WATER PIPING:

- ABOVE GRADE WATER PIPING SHALL BE TYPE 'L' HARD-DRAWN COPPER TUBE.
- FITTINGS IN DOMESTIC WATER PIPING SHALL BE COPPER ALLOY AS PER APPENDIX A, 2014 ILLINOIS STATE PLUMBING CODE.
- 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 DOMESTIC WATER PIPING ABOVE GRADE SHALL BE FIRE--RETARDANT, FACTORY--APPLIED JACKET. PROVIDE COLD WATER PIPING WITH FACTORY--APPLIED VAPOR BARRIER. INSULATION REQUIREMENT SHOULD COMPLY SECTION C404.4 REFER WITH 2018 INTERNATIONAL ENERGY CONSERVATION CODE TABLE C403.11.3.

MINIMUM PIPE INSULATION THICKNESS						
FLUID OPERATING TEMPERATURE RANGE AND USAGE (°F)	INSULATION CONDUCTIVITY		NOMINAL PIPE OR TUBE SIZE (INCHES)			
	CONDUCTIVITY BTU IN./ (H· FT2·°F)	MEAN RATING TEMPERATURE, °F	<1	1 to < 1½	1½ to < 4	4 to ≥8
105--140	0.21--0.28	100	1.0	1.0	1.5	1.5 1.5
40--60	0.21--0.27	75	0.5	0.5	1.0	1.0 1.0

- WATER DISTRIBUTION SYSTEM AS PER INTERNATIONAL ENERGY CONSERVATION CODE 2018 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 INTERNATIONAL ENERGY CONSERVATION CODE 2018 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.

NOMINAL PIPE SIZE (INCHES)	MIXIMUM PIPING LENGTH (FEET)	
	PUBLIC LAV	OTHER FIXTURES
¾"	3'	50'
½"	2'	43'
¾"	0.5'	21'
1"	0.5'	13'
1½"	0.5'	8'
1½"	0.5'	6'
2" OR LARGER	0.5'	4'

- GAS WATER HEATER

- TANKS SHALL 100 GALLON CAPACITY AND SHALL HAVE 160 PSI WORKING PRESSURE AND BE EQUIPPED WITH GLASS LINING PERMANENTLY BONDED TO TANK INTERIOR SURFACE.
- BURNER SHALL BE ALUMINIZED STEEL OR CAST IRON, ADJUSTABLE, OR SELF--ADJUSTING AIR--GAS MIXTURE CONTROL.
- INSTALL THE WORK OF THIS SECTION IN ACCORDANCE WITH NFPA 54, NFPA 211, AND THE MANUFACTURER'S PRINTED INSTALLATION INSTRUCTIONS, UNLESS OTHERWISE SPECIFIED.
- THE OUTER JACKET SHALL BE STEEL WITH BAKED ENAMEL/ACRYLIC FINISH AND SHALL BE PROVIDED WITH ACCESS DOOR FOR SERVICING CONTROLS AND BURNER.
- THE DRAIN VALVE SHALL BE LOCATED IN THE FRONT FOR EASE OF SERVICING.
- GAS PIPING

- ALL GAS PIPING WORK SHALL COMPLY WITH INTERNATIONAL FUEL GAS CODE 2018, 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.

- HOT WATER RE--CIRCULATING PUMP

- IN--LINE PUMP: SINGLE STAGE VOLUTE TYPE PUMP SHALL BE MADE OF CAST IRON OR FORGED LEAD--FREE BRONZE IMPELLER.
- THE PUMP SHALL HAVE A GROUND AND POLISHED STEEL SHAFT WITH A HARDENED INTEGRAL THRUST COLLAR. THE SHAFT SHALL BE SUPPORTED BY TWO HORIZONTAL SLEEVE BEARINGS DESIGNED TO CIRCULATE OIL. THE PUMPS ARE TO BE EQUIPPED WITH A MECHANICAL SEAL WITH CARBON SEAL FACE ROTATING AGAINST CERAMIC SEAT. THE MOTOR SHALL BE NON--OVERLOADING AT ANY POINT ON PUMP CURVE.
- DIRECT CONNECT PUMP TO ELECTRIC MOTOR WITH FLEXIBLE COUPLING. THE MOTOR SHALL BE OF THE Drip--PROOF, SLEEVE--BEARING, QUIET OPERATING, RUBBER--MOUNTED CONSTRUCTION. EQUIPMENT MOTOR WITH BUILT--IN THERMAL OVERLOAD PROTECTION.
- INSTALL IN--LINE CIRCULATING PUMPS BETWEEN PIPE FLANGES IN PIPING SYSTEMS. INSTALL OVERHEAD PIPE SUPPORTS, BOTH SIDES OF IN--LINE PUMPS, INSTALLED IN HORIZONTAL PIPING RUNS.

- MIXING VALVES

- VALVE BODY SHALL BE MADE OF CAST BRASS. THE INTERNAL COMPONENTS SHALL BE MADE OF BRASS WITH CORROSION RESISTANT AND LEAD FREE INTERNAL COMPONENTS.
- THE VALVE SHALL CONTAIN AN ADVANCED PARAFFIN SENSOR WITH A TEMERATURE RANGE OF 100°F TO 160°F AND FACTORY SET AT 120°F WITH A LOCK NUT TO PREVENT UNAUTHORISED TEMPERATURE CHANGES.
- CHECKS AND SCREENS MUST BE INTERGRAL TO THE VALVE. EXTERNAL INLET SHUT OFF'S WILL BE INCLUDED WITH THE VALVE AND SHALL BE RELIABLE BALL VALVE DESIGN. BODY MATERIAL SHALL BE LEAD FREE BRASS WITH CORROSION RESISTANT INTERNAL COMPONENTS.

- 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..
- SUPPORTS SHALL BE PROVIDED IN STRICT ACCORDANCE WITH THE RECOMMENDATIONS OF THE PIPING MANUFACTURER.



FLAT TOP GRILL

NY ENGINEERS

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98/1423	ISSUED FOR PERMIT

REVISIONS

Drawing Title

PLUMBING SPECIFICATION,  
SYMBOLS & ABBREVIATION

Job No.

164.2023

Drawn

NYE

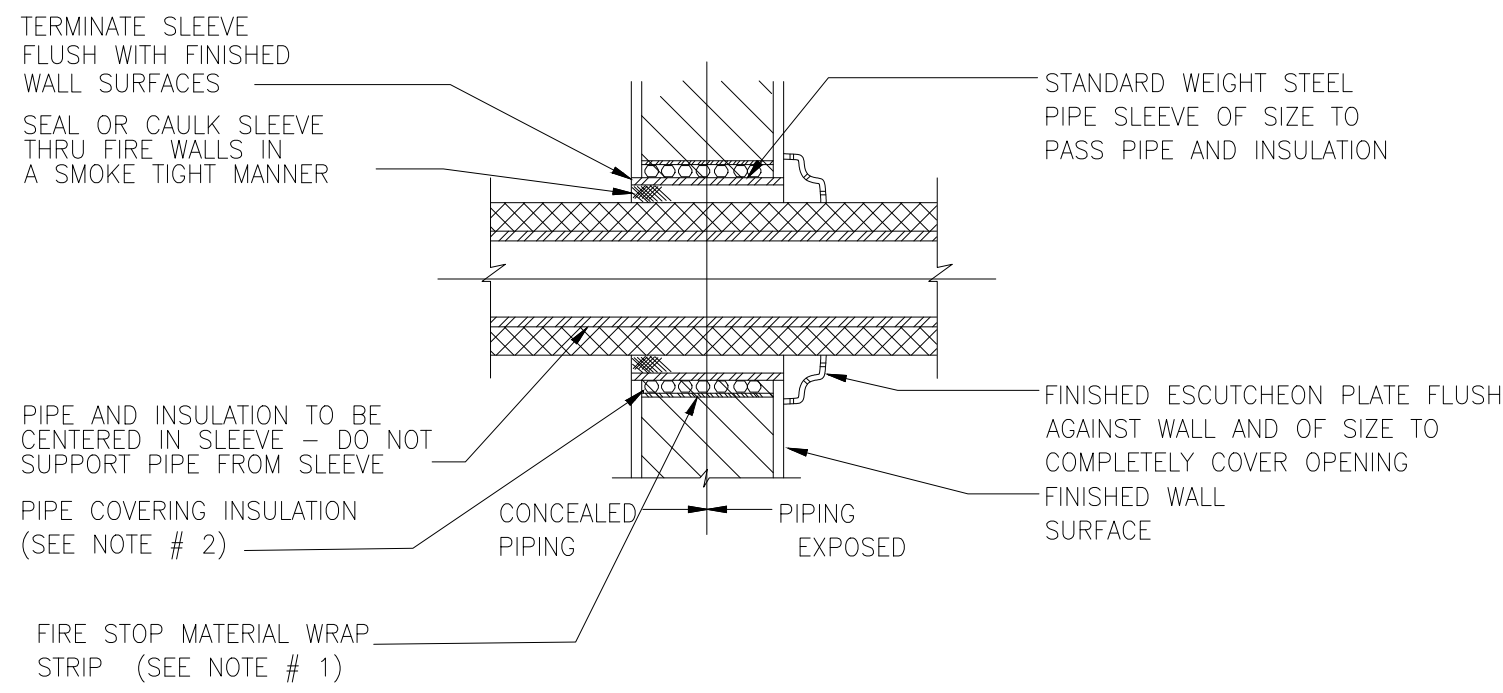
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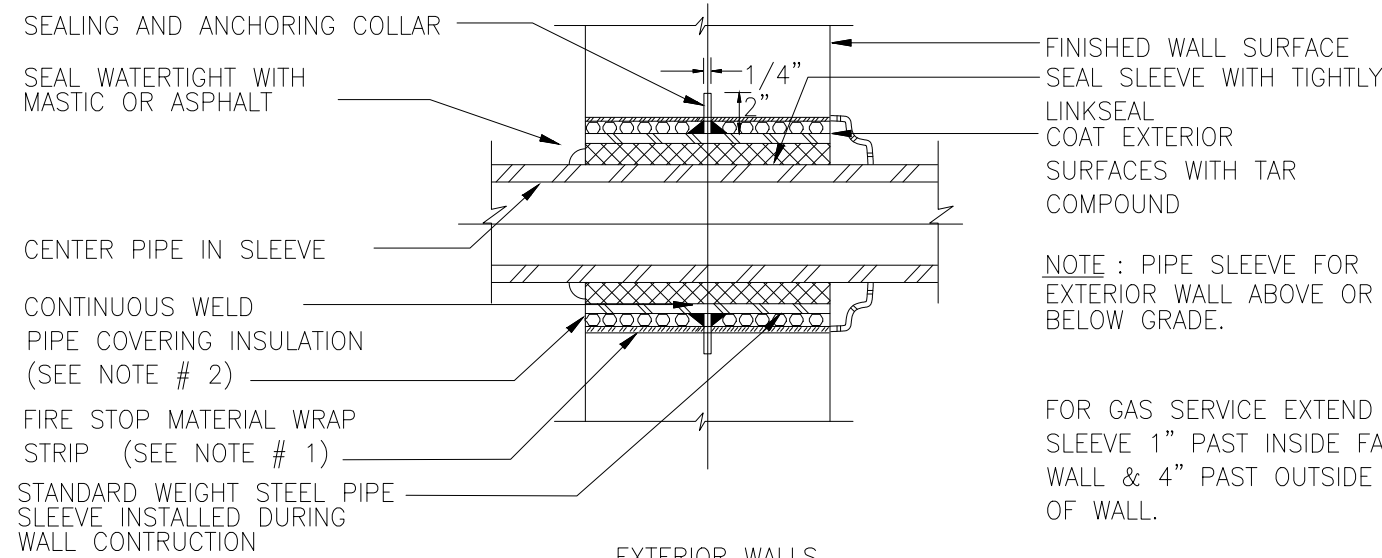








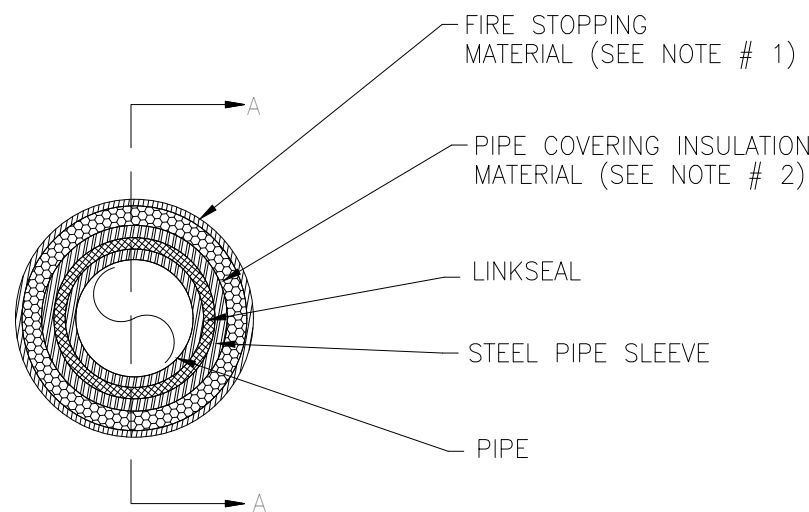
INTERIOR WALLS



EXTERIOR WALLS

### PIPE SLEEVE THRU WALL SECTION

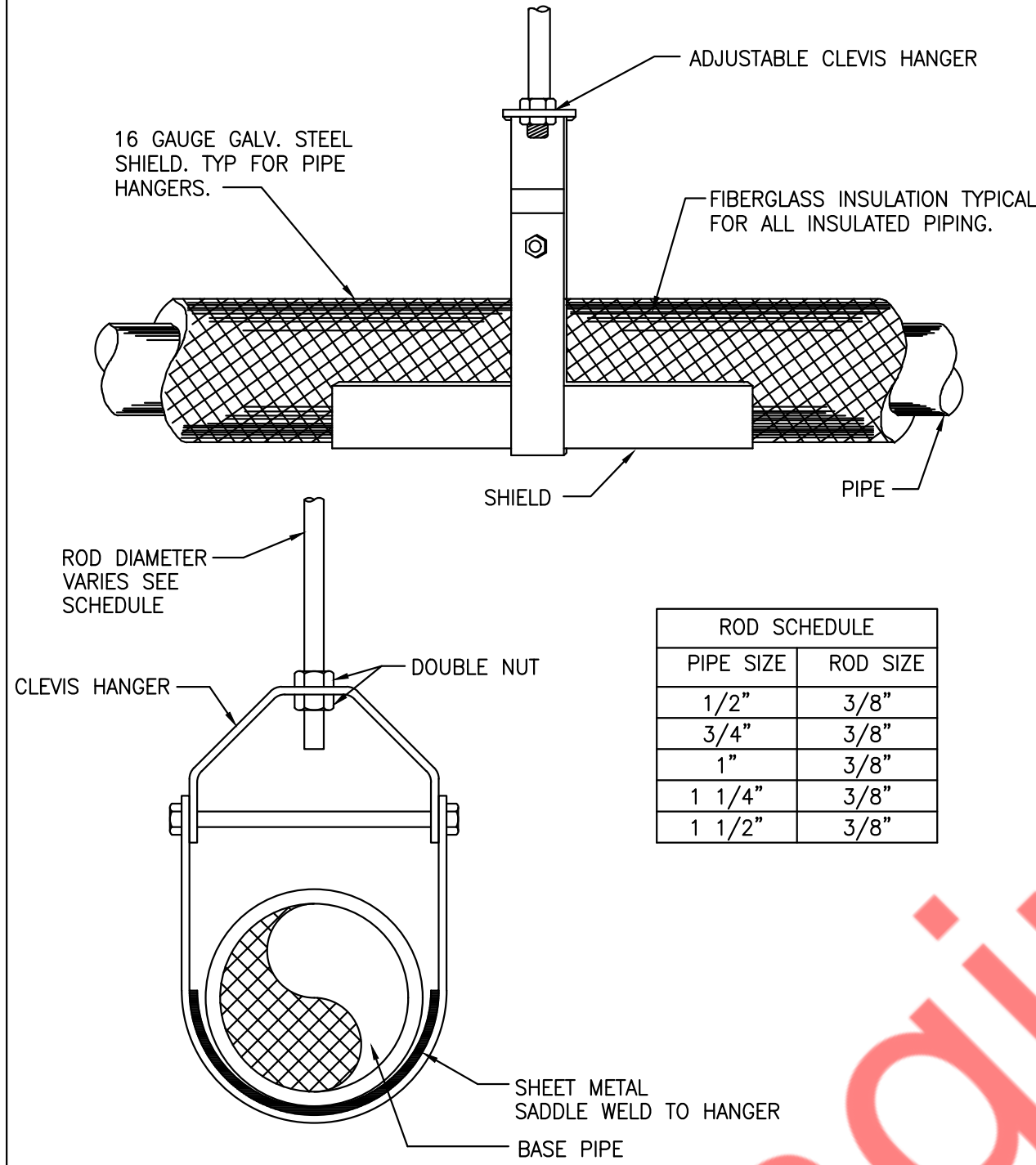
1  
P-3  
N.T.S  
PIPE SLEEVE THRU WALL SECTION



### PIPE SLEEVE VIEW

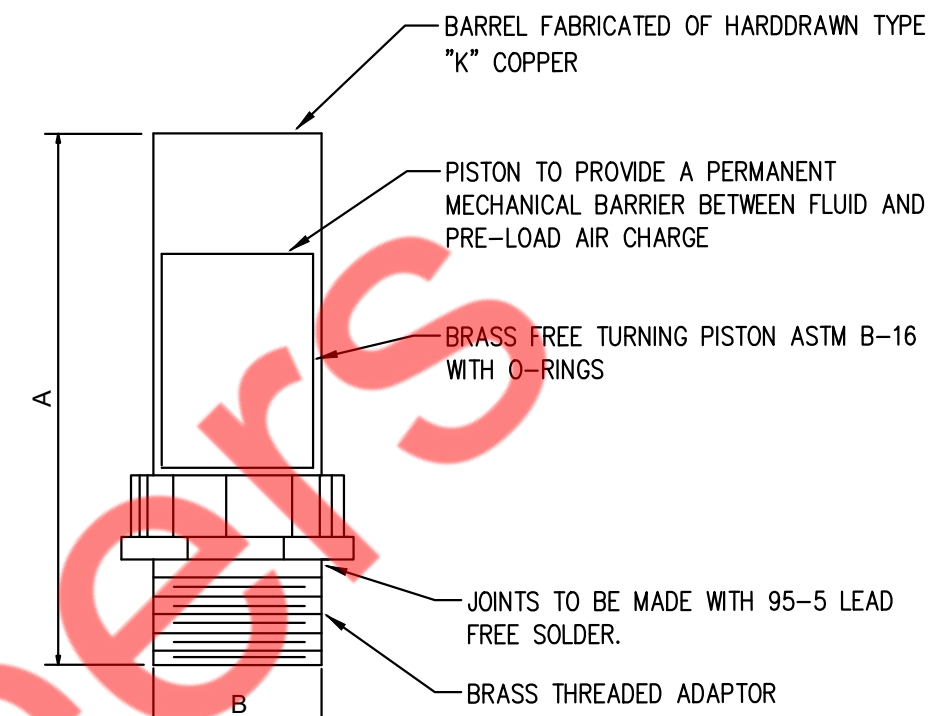
NOTES:

1. FIRESTOP MATERIAL WRAP STRIP SHALL BE 1/4" THICK INTUMESCENT ELASTOMERIC MATERIAL FACED ON ONE SIDE WITH ALUMINUM FOIL SUPPLIED IN 2 IN. WIDE STRIPS AND WRAP AROUND THE PIPE AS PER UL MATERIAL LISTED 3M COMPANY FS-195+ OR FILL CAVITY WITH CAULK OR SEALANT MIN. 1/4" DIA. CONTINUOUS BEAD APPLIED TO THE WRAP STRIP/WALL INTERFACE AND TO THE EXPOSED OF THE WRAP STRIP LAYER APPROX. 3/4" FROM WALL SURFACE. AS PER UL LISTED 3M COMPANY CP25WB+, IC 15WB+, FIRE DAM 150+CAULK.
2. PIPE COVERING INSULATION SHALL BE 2" THICK HOLLOW CYLINDRICAL HEAVY DENSITY GLASS FIBER UNITS JACKETED ON THE OUTSIDE WITH AN ALL SERVICE JACKETED. AS PER UL CLASSIFICATION AND MARKING WITH A FLAME SPREAD INDEX OF 25 OR LESS AND A SMOKE DEVELOPED INDEX OF 50 OR LESS MAY BE USED.



PIPE SIZE	ROD SIZE
1/2"	3/8"
3/4"	3/8"
1"	3/8"
1 1/4"	3/8"
1 1/2"	3/8"

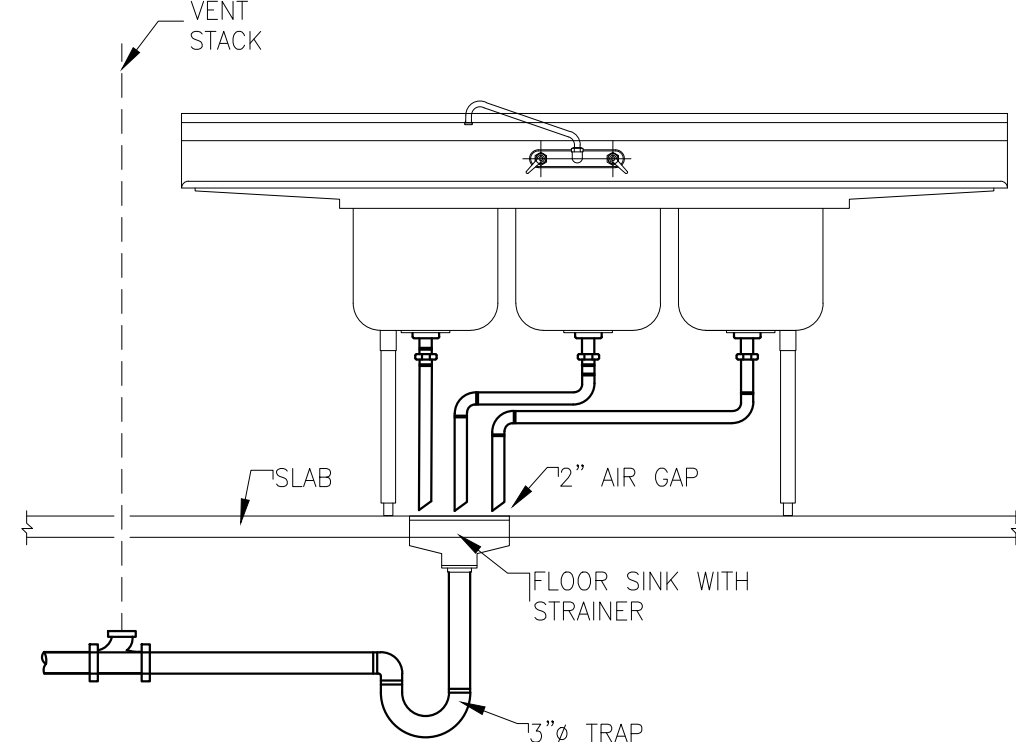
2  
P-3  
N.T.S  
HANGER DETAIL



PIPE SIZE	P.D.I. SYMBOL	FIXTURE UNIT RATINGS	A SIZE	B SIZE
1/2"	A	1 - 11	5"	1 1/2"
3/4"	B	12 - 32	5"	3/4"
1"	C	33 - 60	7"	1"
1-1/4"	D	61 - 113	7"	1-1/4"
1-1/2"	E	114 - 154	9"	1-1/2"
2"	F	155 - 330	9"	2"

NOTE: LOCATE ONE FOR EACH BANK OF FLUSHOMETER FIXTURES AT LAST FIXTURE PROVIDE A STAINLESS STEEL ACCESS DOOR FOR EACH SUFFICIENT IN SIZE TO ALLOW REPLACEMENT OF ARRESTOR AT A FUTURE DATE.

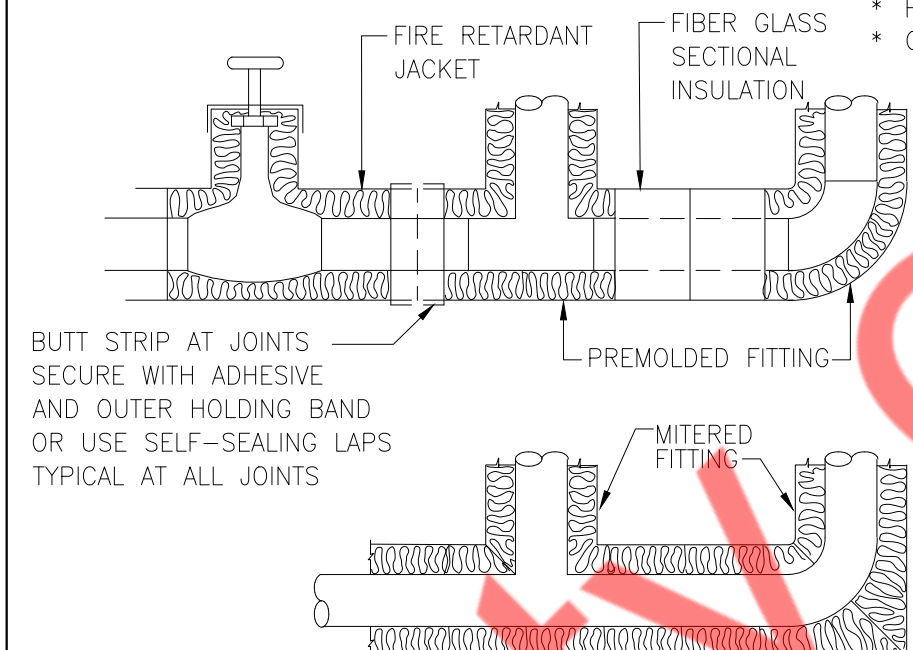
3  
P-3  
N.T.S  
WATER HAMMER ARRESTOR DETAILS



4  
P-3  
N.T.S  
3-COMPARTMENT SINK DETAILS

### CONCEALED VALVES AND FITTINGS

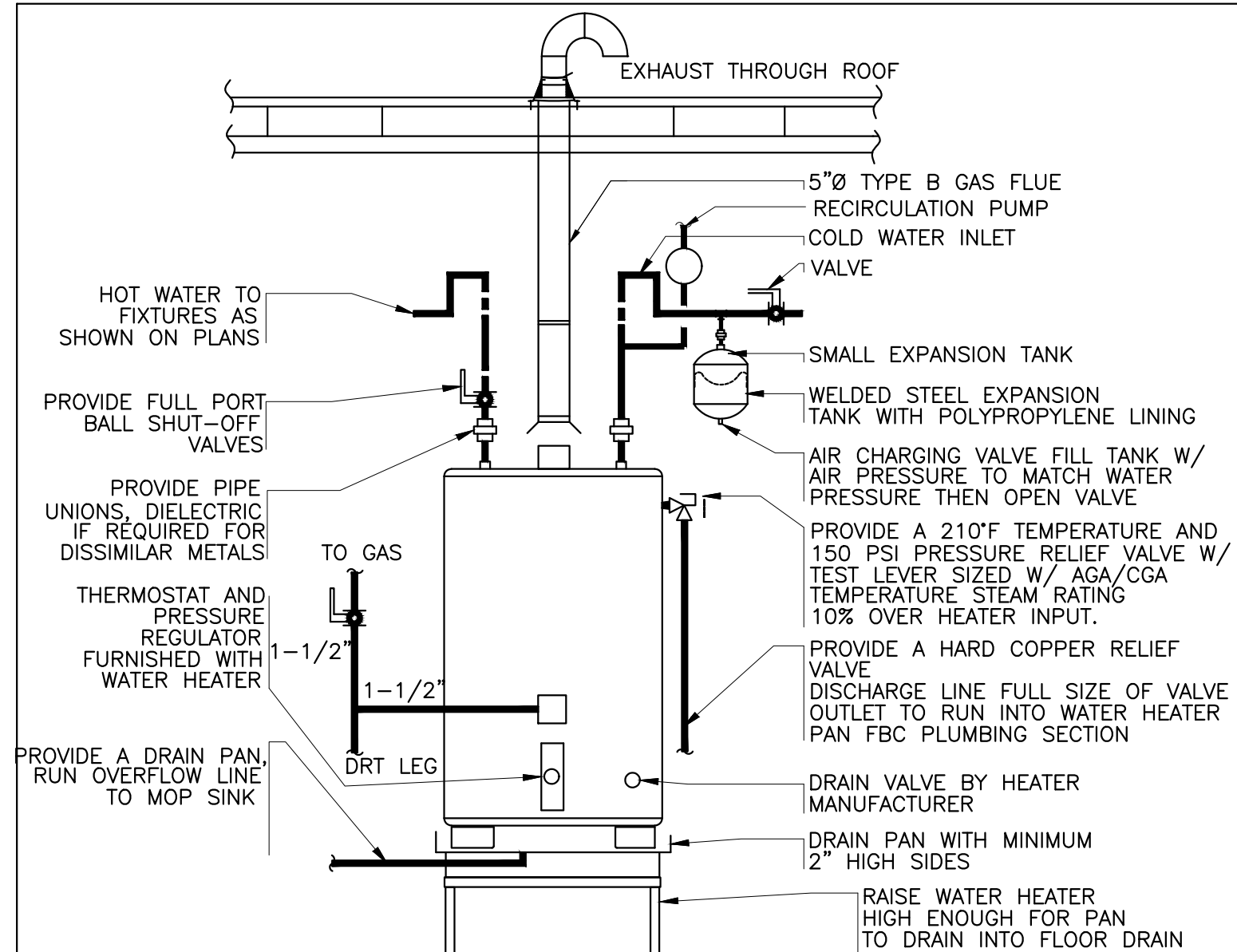
- \* WRAP WITH 1-INCH THICK, 1-POUND DENSITY TO REQUIRED PIPE INSULATION THICKNESS
- \* SECURE WITH WIRE OR TAPE.
- \* VAPOR SEAL COLD WATER, CHILLED WATER AND STORM WATER PIPING.



### CONCEALED VALVES AND FITTINGS

- \* PREMOLDED FIBER GLASS OR RADIAL MITERED PIPE INSULATION
- \* SKIM COAT OF INSULATION CEMENT
- \* COAT OF MASTIC
- \* WRAP WITH FIBER GLASS REINFORCING CLOTH
- \* FINISH COAT OF MASTIC
- \* OVERLAP 2-INCHES ON PIPE INSULATION.

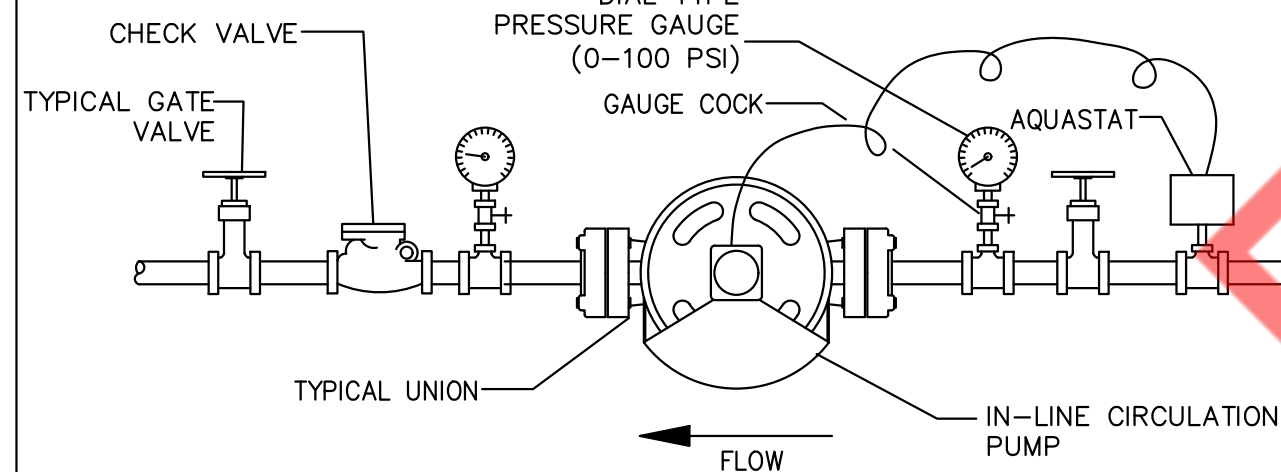
5  
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N.T.S  
INSULATION OF PIPING, VALVES AND FITTINGS FOR EXPOSED AND CONCEALED LOCATIONS



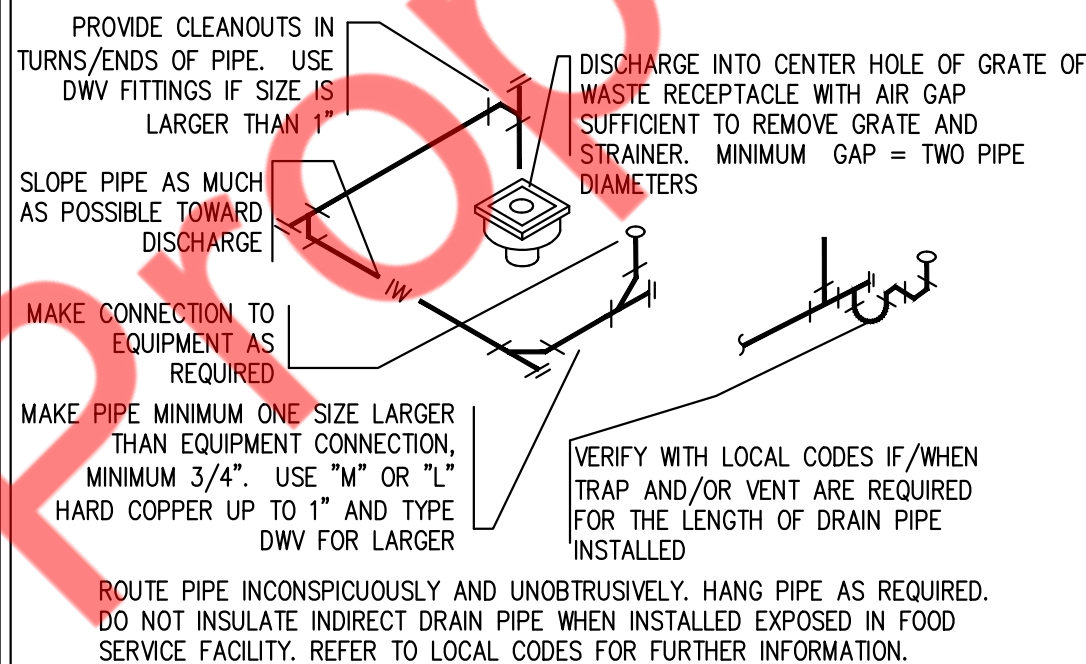
### WATER HEATER DETAIL NOTES

- 1) PIPING ARRANGEMENT SHOWN IS SCHEMATIC
- 2) ADJUST TO SUIT FIELD CONDITIONS
- 3) REFER ISOMETRIC RISER FOR PIPES SIZES
- 4) SET HEATER THERMOSTAT AT 140° F
- 5) GAS WATER HEATER SHALL BE 75 GALLONS

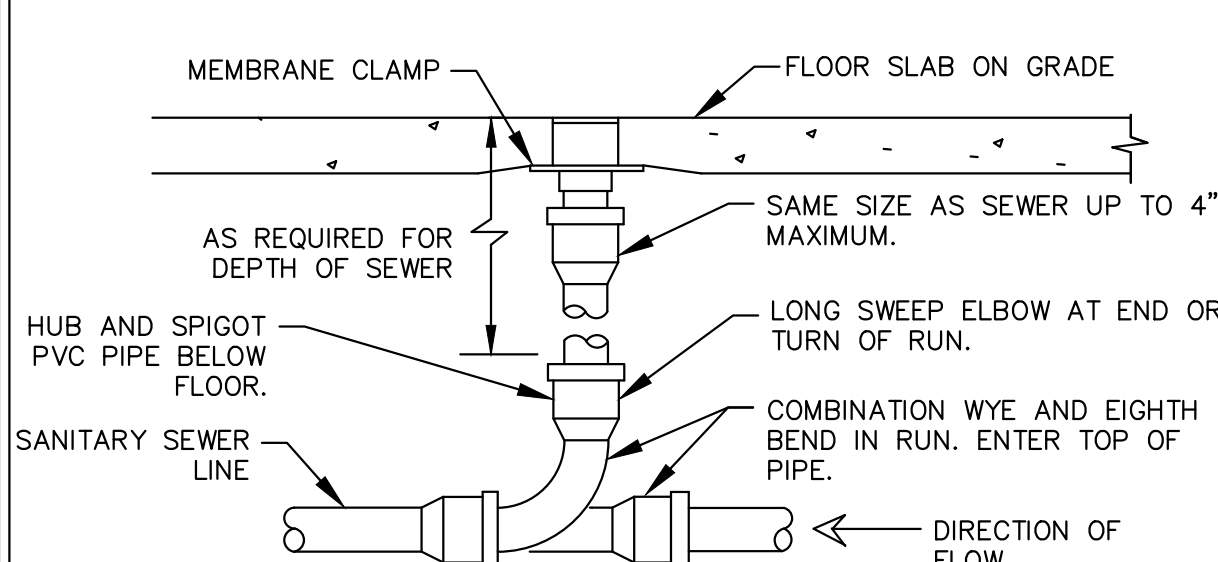
6  
P-3  
N.T.S  
GAS WATER HEATER DETAILS



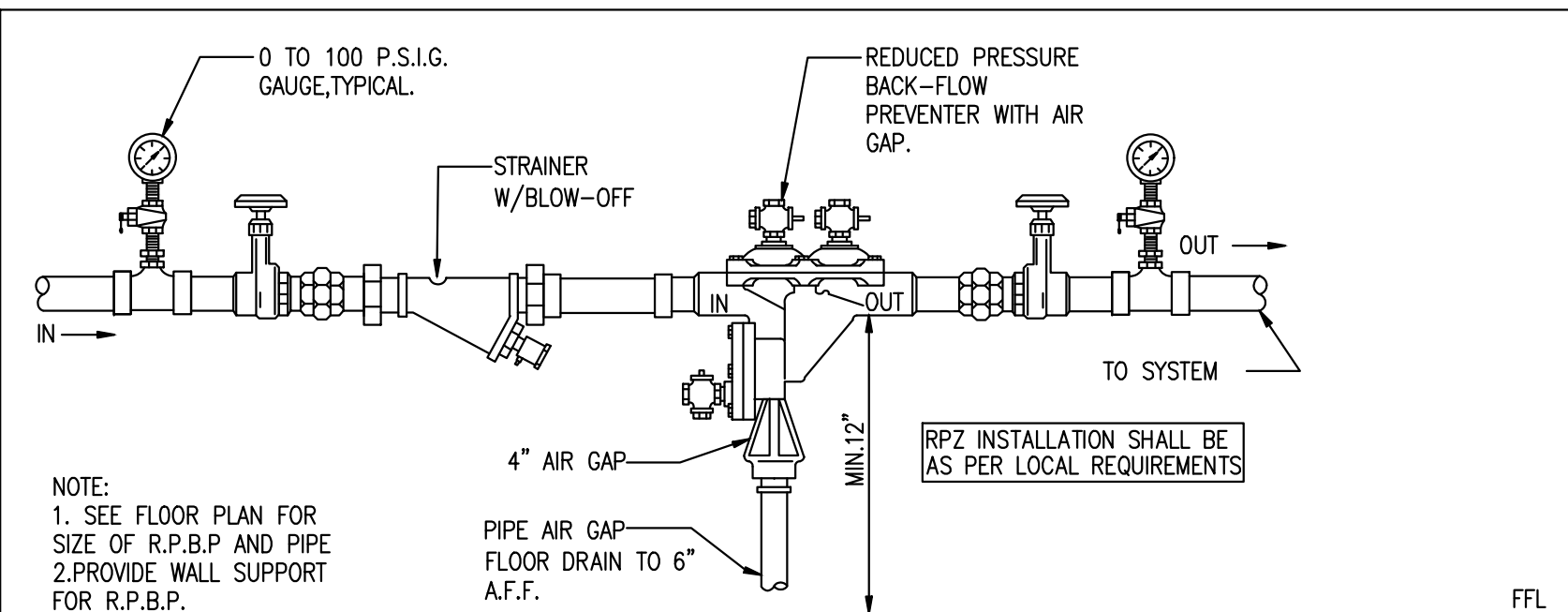
7  
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N.T.S  
INLINE RECIRCULATING PUMP DETAIL



8  
P-3  
N.T.S  
INDIRECT WASTE DETAILS



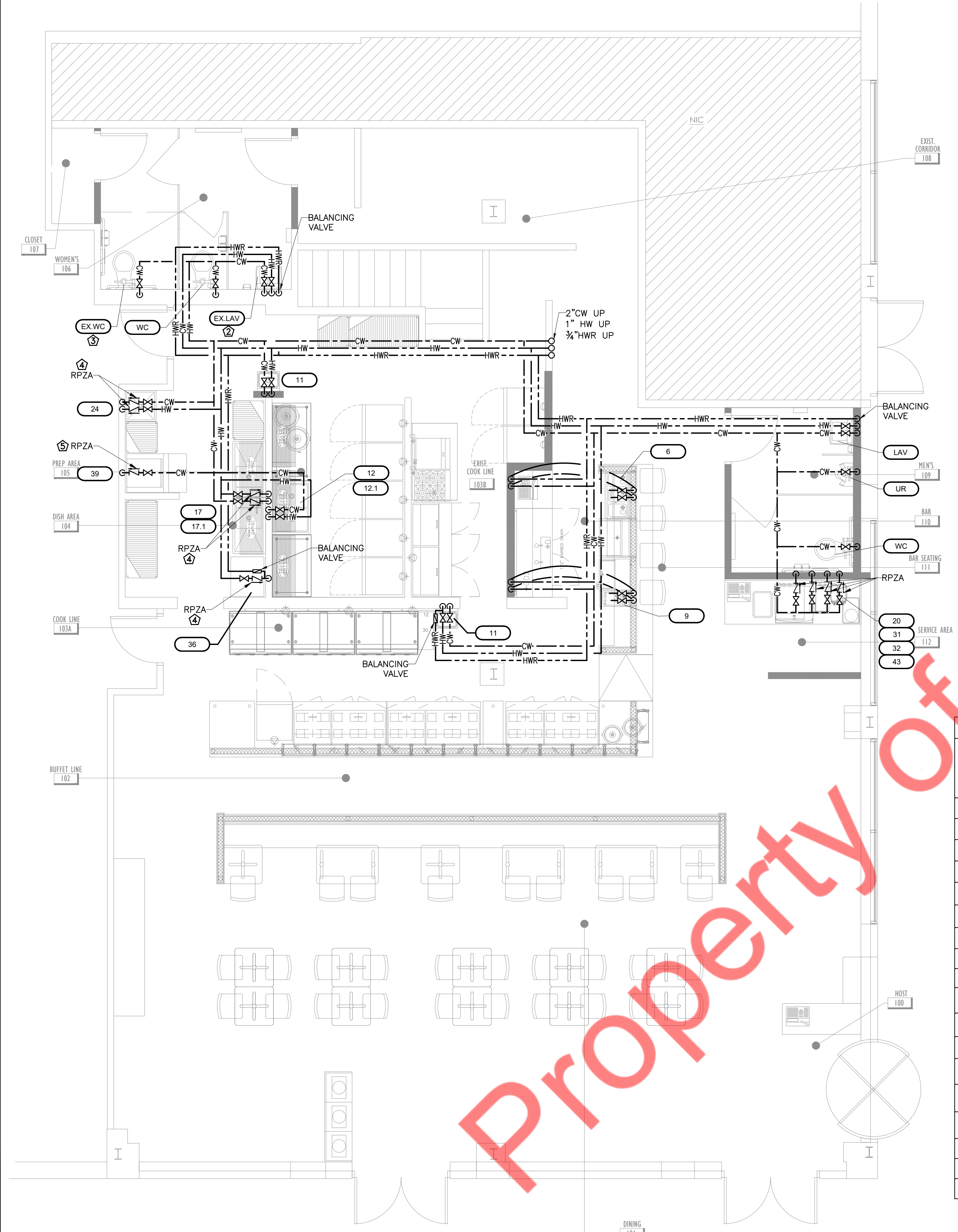
9  
P-3  
N.T.S  
FLOOR CLEANOUT DETAILS



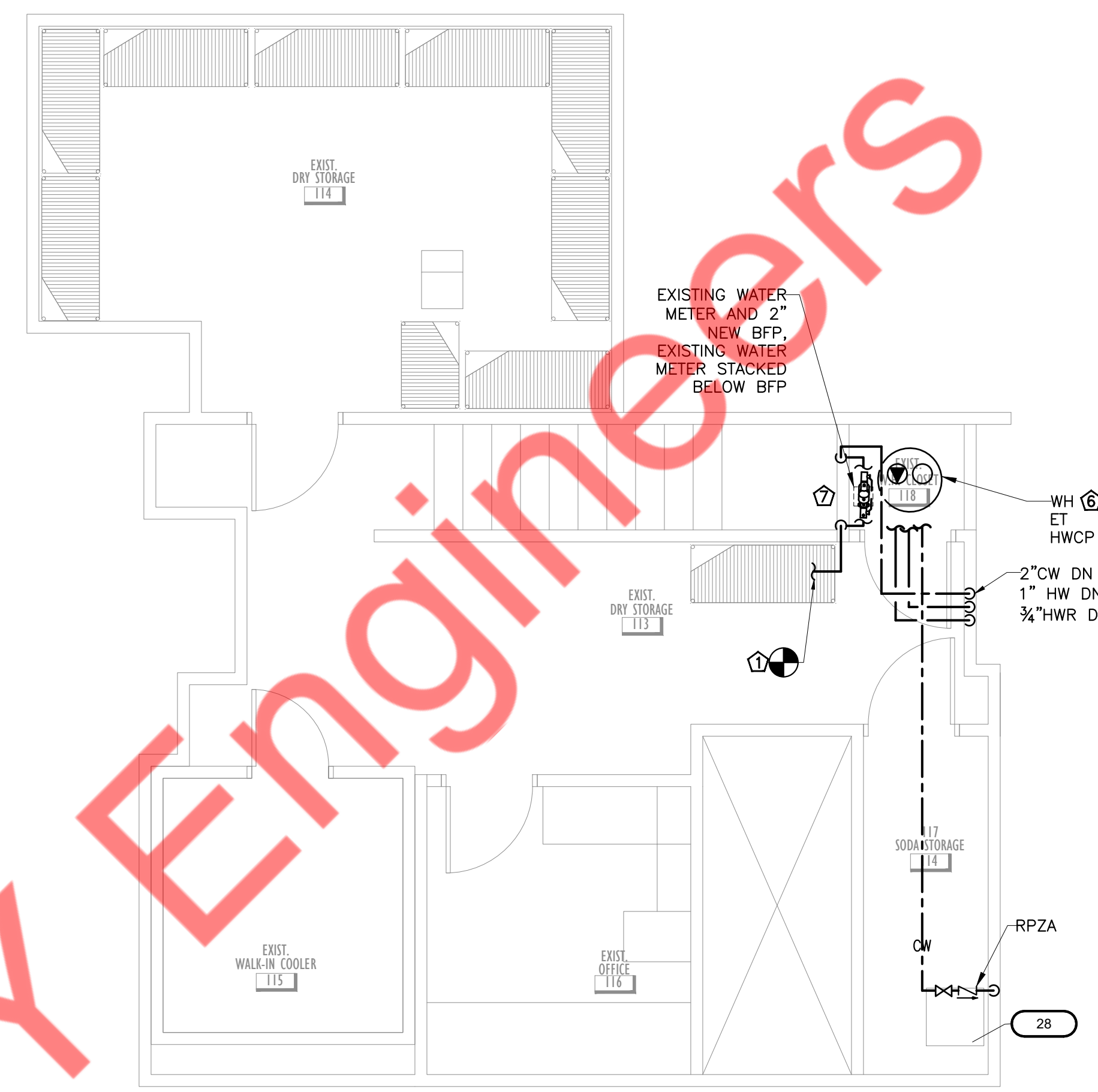
NOTE:  
1. SEE FLOOR PLAN FOR SIZE OF R.P.B.P AND PIPE  
2. PROVIDE WALL SUPPORT FOR R.P.B.P.

10  
P-3  
N.T.S  
BACKFLOW PREVENTER DETAIL





1 PLUMBING WATER SUPPLY FLOOR PLAN 1/4" = 1'-0"



2 PLUMBING WATER SUPPLY MEZZANINE FLOOR PLAN 1/4" = 1'-0"

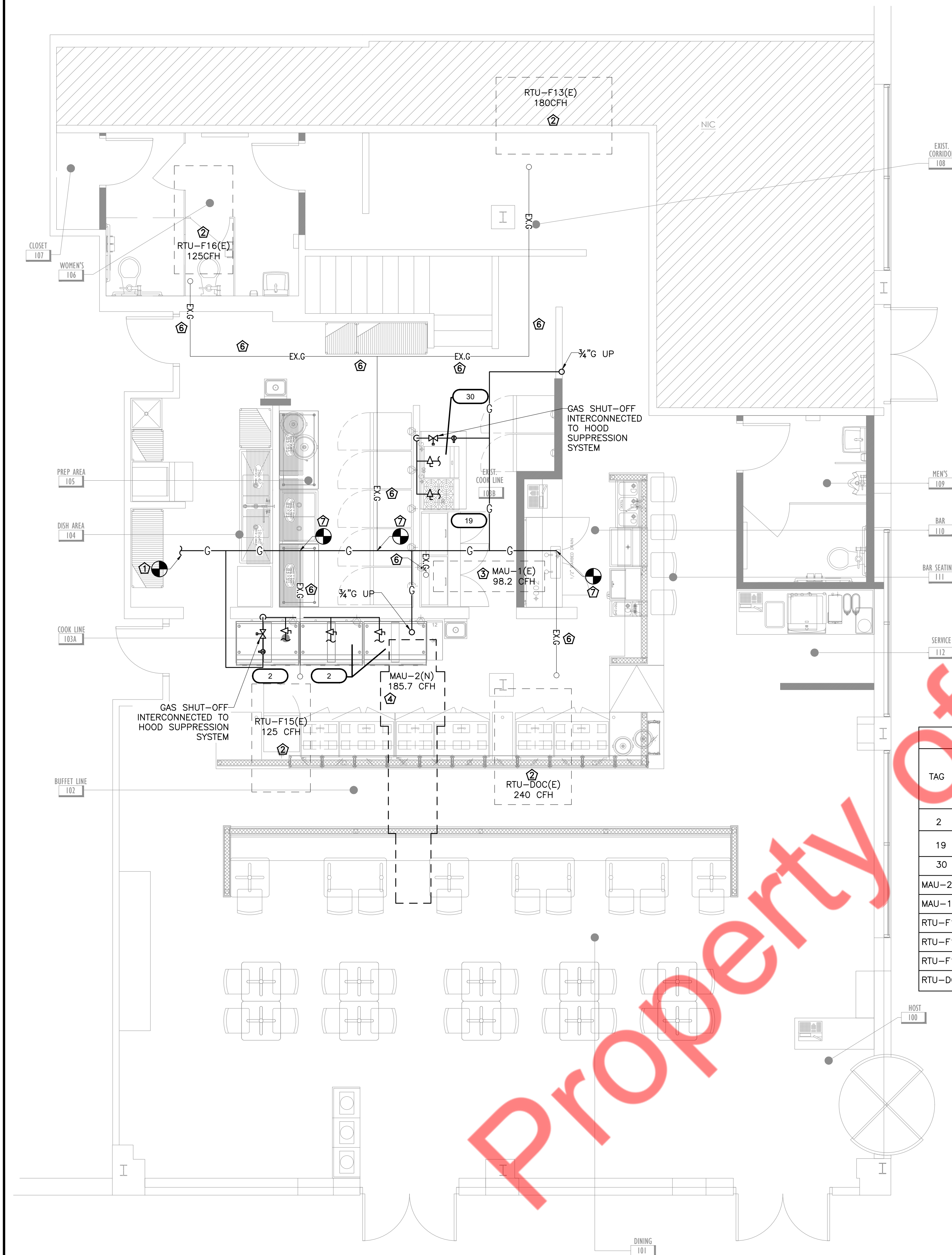
KITCHEN EQUIPMENT SCHEDULE								
TAG	COMPONENT	QTY.	MANUFACTURER/MODEL	CONNECTION SIZE - INCHES				REMARKS
				SOIL/WASTE	VENT	COLD WATER	HOT WATER	
WC	WATER CLOSET	2	-	4	2"	1"	-	P-TRAP
LAV	LAVATORY	1	-	2"	1 1/2"	1/2"	1/2"	P-TRAP & MIXING VALVE
UR	URINALS	1	-	2"	1 1/2"	3/4"	-	P-TRAP
6	UNDER BAR SINK	1	PERLICK/TS33C	1 1/2"	-	1/2"	1/2"	INDIRECT TO FLOOR SINK
9	HAND SINK	1	PERLICK/TS12HS	1 1/2"	1 1/2"	1/2"	1/2"	P-TRAP & MIXING VALVE
11	HAND SINK	2	REGENCY/600HS17SP	1 1/2"	1 1/2"	1/2"	1/2"	P-TRAP & MIXING VALVE
12	TWO COMP. SINK	1	JOHN BOOS/2B18244-X	1 1/2"	2"	1/2"	1/2"	INDIRECT TO HUB DRAIN
12.1	FAUCET	1	T&S BRASS/B-0231	-	-	1/2"	1/2"	-
17	3 COMPARTMENT SINK	1	JOHN BOOS/3B16204-2D18-X	1 1/2"	-	-	-	INDIRECT TO FLOOR SINK
17.1	FACTORY PRE-RINSE UNIT FAUCET	1	T&S BRASS/5PR-8W12	-	-	1/2"	1/2"	-
20	BUBBLER	1	BUNN/ULTRA NX	-	-	1/2"	-	-
24	MOP SINK/ FAUCET	1	MUSTEE/63M	3"	-	1/2"	1/2"	P-TRAP
31	ICE MAKER FILTERED WATER	1	HOSHICROP/KM-420MWJ	3/4"	-	1/2"	-	INDIRECT TO FLOOR SINK
31.1	ICE MAKER CHILLED CONDENSER WATER	1	HOSHICROP/KM-420MWJ	3/8"	-	1/2"	-	INDIRECT TO FLOOR SINK
32	SODA ICE & BEVERAGE DISPENSER	1	LENCER/85-20406-0-0-31E	1"	-	1/2"	-	INDIRECT TO FLOOR SINK
36	DISHMACHINE	1	ECOLAB/ES-2000	2"	-	3/4"	-	INDIRECT TO FLOOR SINK
39	ICE MACHINE	1	HOSHIZAKI/TBD	2-3/4"	-	1/2"	-	INDIRECT TO FLOOR SINK
43	TEE BREWER	1	TBD	2-3/4"	-	1/2"	-	INDIRECT TO FLOOR SINK

- GENERAL FOODSERVICE HEALTH DEPARTMENT NOTES
- ALL COOKING EQUIPMENT UNDER EXHAUST HOODS ARE EITHER ON CASTERS WITH FLEXIBLE UTILITY QUICK DISCONNECTS OR FIXED ON STAINLESS STEEL LEGS AND SEALED TO WALLS WITH CLEAR SILICONE SEALANT.
  - ALL REFRIGERATION EQUIPMENT SHALL HAVE THERMOMETERS WHICH ARE EASILY READABLE, IN PROPER WORKING CONDITION AND ACCURATE, WITHIN A RANGE OF PLUS OR MINUS TWO (2) DEGREES.
  - COUNTER TOP EQUIPMENT NOT READILY MOVABLE, WEIGHING OVER 80 POUNDS, WILL BE PROVIDED WITH LEGS OR FEET AT LEAST FOUR (4") INCHES HIGH.
  - ALL CHEMICAL INJECTION SYSTEMS MUST BE INSTALLED DOWNSTREAM FROM A VACUUM BREAKER OR AIR GAP, TO PREVENT POSSIBLE BACK SIPHONAGE TO THE CHEMICALS INTO THE WATER LINE SYSTEM.
  - BACKSPASHES OF EQUIPMENT SHALL BE SEALED TO WALLS WITH CLEAR SILICONE.
  - VACUUM BREAKERS, WHEN USED, TO BE MINIMUM OF SIX (6") INCHES ABOVE THE FLOOD LEVEL RIM WITH NO SHUT OFF DEVICES BEYOND THE DISCHARGE OF THE VACUUM BREAKER.
  - THE USE OF SEALANTS MUST BE LISTED AS APPROVED BY THE NATIONAL SANITATION FOUNDATION (NSF) UNDER STANDARD C-2.
  - SEALANTS MAY BE USED ONLY IN STRUCTURALLY SOUND JOINTS AND SEAMS. SEALANTS MAY NOT BE UTILIZED IN FOOD AND SPLASH CONTACT SURFACES, TO FILL OPEN SPACES OR VOIDS WHICH RESULT DUE TO IMPROPER FABRICATION. ANY OPENING IN EXCESS OF 1/8 INCH SHALL BE CONSIDERED EXCESSIVE AND MUST BE CLOSED USING PROPER FIELD JOINT.
  - OPENINGS AROUND SERVICE AND UTILITY LINES SHOULD BE CLOSED AS FAR AS POSSIBLE WITH COLLARS, GROMMETS AND FLEXIBLE FORM GASKETS. SEALANTS MAY NOT BE USED TO SEAL SERVICE AND UTILITY LINES TO WALLS OR ADJACENT PIECES OF EQUIPMENT.

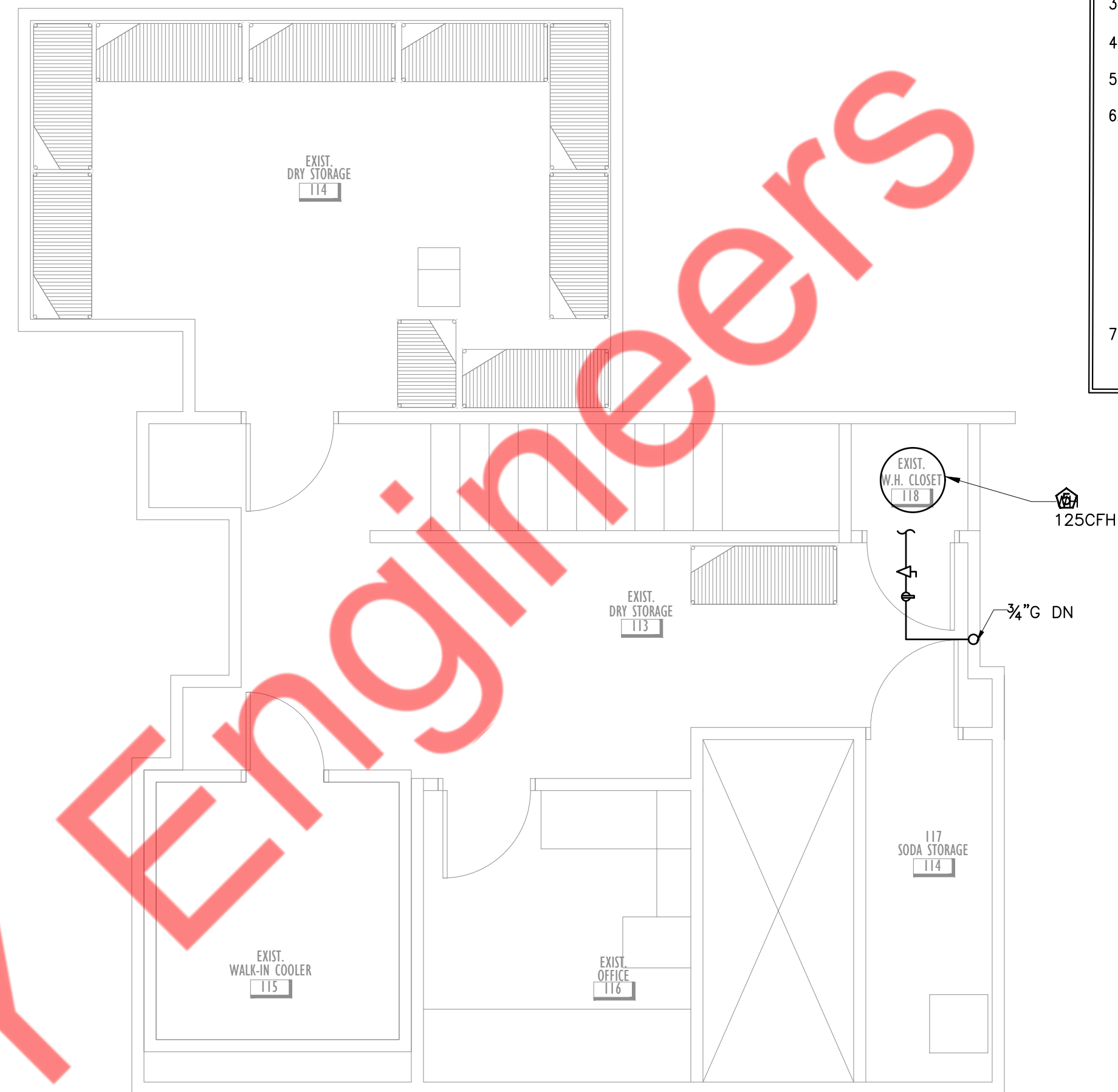
- WATER PLAN KEY NOTES
- CONNECT NEW 2" CW LINE TO THE EXISTING COLD WATER LINE WITH EXISTING WATER METER. CONTRACTOR TO FIELD VERIFY THE SIZE AND LOCATION OF THE EXISTING WATER METER AND UPGRADE IF REQUIRED.
  - EXISTING LAVATORY IS TO REMAIN AS IT IS AND CONNECT WITH NEW HW, CW AND HWR CONNECTION.
  - THE EXISTING WATER CLOSET IS TO REMAIN AS IT IS AND CONNECT WITH THE NEW CW CONNECTION.
  - PROVIDE DUAL CHECK VACUUM BREAKER OF APPROVED ASSE STANDARD AS PER ILLINOIS PLUMBING CODE.
  - PROVIDE ASSE 1022 APPROVED RPZA AS PER ILLINOIS PLUMBING CODE.
  - PROVIDE NEW WATER HEATER AS PER THE SCHEDULE. INSTALLATION OF WATER HEATER TO BE DONE AS PER THE MANUFACTURER INSTRUCTIONS AND LOCAL CODES.
  - NEW BACKFLOW PREVENTER TO BE INSTALLED AND TESTED AS PER LOCAL CODES.

- GENERAL WATER NOTES
- CONTRACTOR SHALL LEAVE NO DEAD ENDS TO CONCEALED, EXPOSED, OR UNDERGROUND PIPING.
  - LOCATION OF EXISTING PLUMBING PIPING ARE TENTATIVE. CONTRACTOR SHALL VERIFY IN FIELD AND DETERMINE THE EXACT LOCATION OF EXISTING PLUMBING PIPES.
  - COORDINATE ALL SERVICE SHUTDOWNS WITH THE LANDLORD, BUILDING STAFF.
  - PROVIDE CUTTING, CORE DRILLING IN WALLS FOR ALL PIPE PENETRATIONS, CONNECTOR, AND ALL ASSOCIATED WORK. PROVIDE PATCHING, RESTORATION, AND FINISHING WORK TO MATCH EXISTING CONDITIONS IN ALL ASPECTS.
  - CONTRACTOR TO MAKE ALL FINAL PLUMBING CONNECTIONS TO EQUIPMENT AS PER MANUFACTURER'S SPECIFICATIONS.
  - CONTRACTOR TO FIELD VERIFY THE EXISTING WATER PIPE SIZE, LOCATION ON SITE.
  - CONTRACTOR TO FIELD VERIFY FEASIBILITY OF SLAB PENETRATION AS PER STRUCTURAL REQUIREMENT.
  - PROVIDE ACCESS PANELS FOR WATER HAMMER ARRESTOR, SHUT-OFF VALVES AS REQUIRED.
  - CW/HW/HWR PIPING TO BE PROVIDED WITH INSULATION AS PER 2018 INTERNATIONAL ENERGY CONSERVATION CODE (REFER SHEET P-1)
  - REFER RISER DIAGRAM FOR WATER PIPE SIZING.
  - PLUMBER TO CONNECT ALL WATER LINES TO FULLY CONNECT ALL EQUIPMENT. PLUMBER TO PROVIDE GATE VALVES ON ALL WATER LINES, ALL VALVES, CUT-OFFS, HYDROSTATIC SHOCK ELIMINATORS, AND MATERIALS NECESSARY TO CONNECT ALL LINES, UNLESS OTHERWISE SPECIFIED IN THE ITEM SPECIFICATIONS. FAUCETS, FITTINGS IN FIXTURE AND SPECIALTY ITEMS ARE TO BE FURNISHED BY THE KITCHEN EQUIPMENT SUPPLIER AS OUTLINED IN THE ITEM SPECIFICATIONS. ALL WORK TO BE PERFORMED IN FULL ACCORDANCE WITH ALL APPLICABLE CODES RELATING TO INSTALLATION AND HOOKUP OF EQUIPMENT OMISSIONS OR ERRORS ON THE SCHEDULE DO NOT RELIEVE THE PLUMBING CONTRACTOR FROM COMPLETE FINAL PLUMBING RESPONSIBILITY.
  - ALL CONNECTIONS SHOWN RELATE TO KITCHEN EQUIPMENT ONLY. REFER TO ARCHITECTURAL PLANS FOR ADDITIONAL REQUIREMENTS.
  - PROVIDE WATER MIXING VALVE TO THE HAND SINK & LAVATORY THAT COMPLY WITH ASSE 1070 STANDARD.





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



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

KITCHEN EQUIPMENT SCHEDULE									
TAG	COMPONENT	QTY.	MANUFA/MODEL	CONNECTION SIZE -- INCHES					REMARKS
				SOIL/WASTE	VENT	COLD WATER	HOT WATER	GAS' REQ. CFH	
2	GRIDDLE X3	3	VALCAN/MSA48	—	—	—	—	108@EACH	—
19	HOT PLATE	1	ATOSA/ACHP—4	—	—	—	—	128	—
30	FLAT TOP GROLL	1	ATOSA/ATT—24—24"	—	—	—	—	500	—
MAU—2(N)	MAKEUP AIR UNIT	1	—	—	—	—	—	185.7	—
MAU—1(E)	MAKEUP AIR UNIT	1	—	—	—	—	—	98.2	—
RTU—F13(E)	ROOF TOP UNIT	1	—	—	—	—	—	180	—
RTU—F15(E)	ROOF TOP UNIT	1	—	—	—	—	—	125	—
RTU—F16(E)	ROOF TOP UNIT	1	—	—	—	—	—	125	—
RTU—DOC(E)	ROOF TOP UNIT	1	—	—	—	—	—	240	—

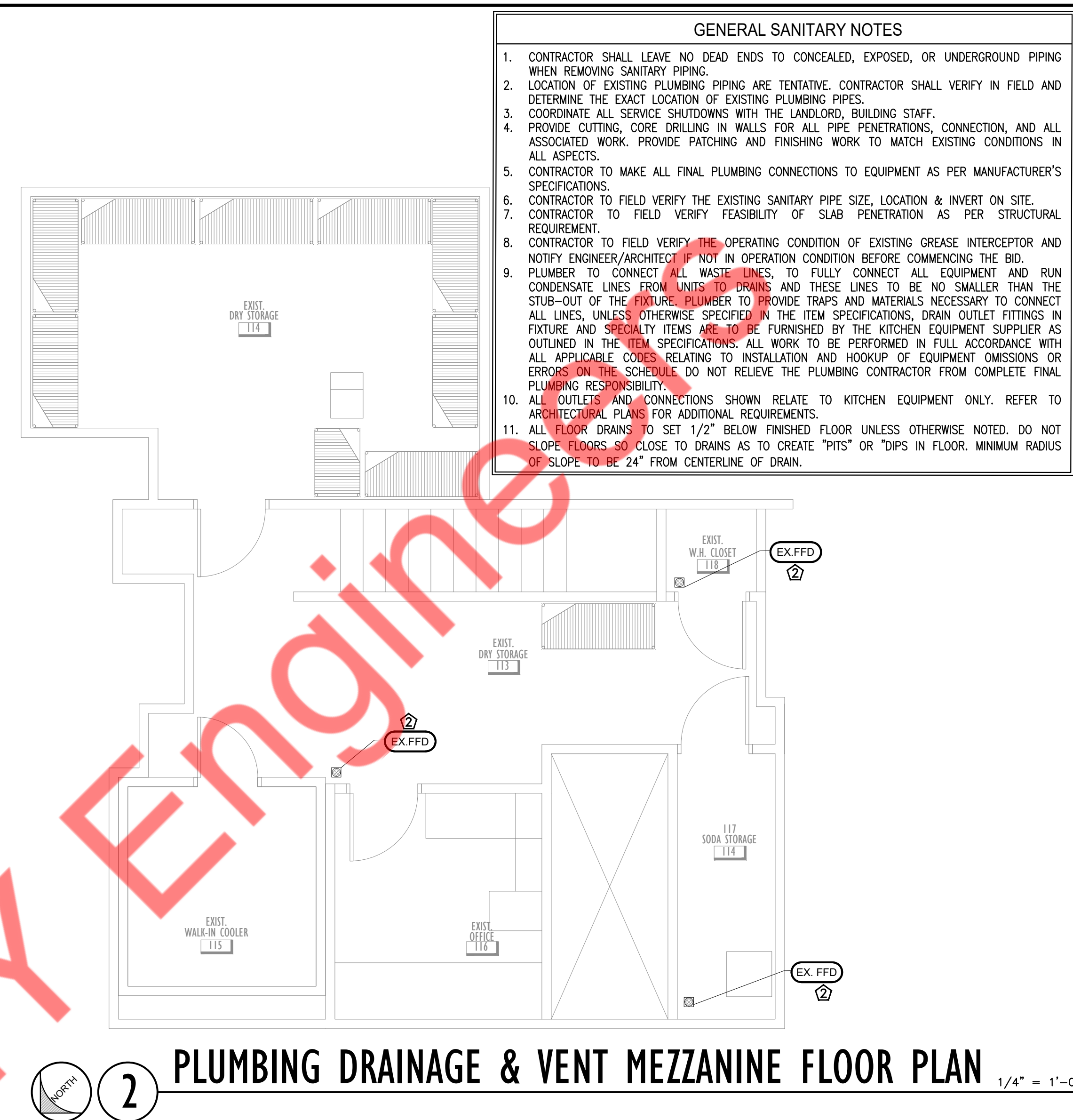
- GAS PLAN KEY NOTES**
- CONNECT NEW 1/4" GAS LINE TO EXISTING GAS LINE WITH EXISTING GAS METER. CONTRACTOR TO FIELD VERIFY SIZE, PRESSURE AND LOCATION OF EXISTING GAS METER AND LINE AND UPGRADE IF REQUIRED.
  - EXISTING RTU TO REMAIN WITH EXISTING BRANCH GAS SUPPLY LINE, ASSOCIATED ACCESSORIES AND FITTING. CONNECT EXISTING BRANCH LINE TO THE NEW MAIN GAS PIPING. CONTRACTOR TO FIELD VERIFY THE CONDITION AND LOCATION OF THE EXISTING GAS PIPING AND REPLACE IT IF REQUIRED.
  - EXISTING MAU TO REMAIN WITH EXISTING BRANCH GAS SUPPLY LINE, ASSOCIATED ACCESSORIES AND FITTING. CONNECT EXISTING BRANCH LINE TO THE NEW MAIN GAS PIPING. CONTRACTOR TO FIELD VERIFY THE CONDITION AND LOCATION OF THE EXISTING GAS PIPING AND REPLACE IT IF REQUIRED.
  - NEW MAU GAS CONNECTION TO BE MADE AS PER THE MANUFACTURER INSTRUCTIONS AND LOCAL CODES WITH ALL REQUIRED ACCESSORIES.
  - INSTALLATION AND GAS CONNECTIONS OF NEW WATER HEATER TO BE DONE AS PER THE MANUFACTURER INSTRUCTIONS AND LOCAL CODES.
  - CONTRACTOR TO FIELD VERIFY THE LOCATION, CONDITION AND SIZE OF EXISTING GAS PIPE. PROVIDE NEW GAS PIPE IF EXISTING GAS LINE SIZE IS LESS THAN THE MENTIONED SIZE OR IF THE EXISTING GAS LINE IS NOT IN GOOD CONDITION.
  - CONTRACTOR TO FIELD VERIFY THE LOCATION AND SIZE OF EXISTING GAS PIPE AND ACCORDINGLY CONNECT EXISTING GAS LINE TO NEW GAS LINE WITH REQUIRED FITTINGS.

- GENERAL GAS NOTES**
- COORDINATE ALL SERVICE SHUTDOWNS WITH THE LANDLORD, BUILDING STAFF.
  - PROVIDE CUTTING, CORE DRILLING IN WALLS FOR ALL PIPE PENETRATIONS, CONNECTION, AND ALL ASSOCIATED WORK. PROVIDE PATCHING AND FINISHING WORK TO MATCH EXISTING CONDITIONS IN ALL ASPECTS.
  - CONTRACTOR TO MAKE ALL FINAL GAS CONNECTIONS TO EQUIPMENT AS PER MANUFACTURER'S SPECIFICATIONS.
  - CONTRACTOR TO FIELD VERIFY THE EXISTING GAS PIPE SIZE, LOCATION & PRESSURE ON SITE.
  - CONTRACTOR TO FIELD VERIFY FEASIBILITY OF SLAB PENETRATION AS PER STRUCTURAL REQUIREMENT.
  - PLUMBER TO CONNECT ALL GAS LINES TO FULLY CONNECT ALL EQUIPMENT. PLUMBER TO PROVIDE GATE VALVES ON ALL GAS LINES, ALL VALVES, CUT-OFFS, TRAPS, PRESSURE REGULATORS AND MATERIALS NECESSARY TO CONNECT ALL LINES, UNLESS OTHERWISE SPECIFIED IN THE ITEM SPECIFICATIONS. FITTINGS IN FIXTURE AND SPECIALTY ITEMS ARE TO BE FURNISHED BY THE KITCHEN EQUIPMENT SUPPLIER AS OUTLINED IN THE ITEM SPECIFICATIONS. ALL WORK TO BE PERFORMED IN FULL ACCORDANCE WITH ALL APPLICABLE CODES RELATING TO INSTALLATION AND HOOKUP OF EQUIPMENT. OMISSIONS OR ERRORS ON THE SCHEDULE DO NOT RELIEVE THE PLUMBING CONTRACTOR FROM COMPLETE FINAL PLUMBING RESPONSIBILITY. REFER TO ARCHITECTURAL PLANS FOR ADDITIONAL REQUIREMENTS.
  - ALL CONNECTIONS SHOWN RELATE TO KITCHEN EQUIPMENT ONLY. REFER TO ARCHITECTURAL PLANS FOR ADDITIONAL REQUIREMENTS.





1 PLUMBING DRAINAGE AND VENT FLOOR PLAN 1/4" = 1'-0"



2 PLUMBING DRAINAGE & VENT MEZZANINE FLOOR PLAN 1/4" = 1'-0"

KITCHEN EQUIPMENT SCHEDULE								
TAG	COMPONENT	QTY.	MANUFACTURER/MODEL	CONNECTION SIZE -- INCHES				REMARKS
				SOIL/WASTE	VENT	COLD WATER	HOT WATER	
WC	WATER CLOSET	2	—	4	2"	1"	—	P-TRAP
LAV	LAVATORY	1	—	2"	1½"	½"	½"	P-TRAP
UR	URINALS	1	—	2"	1½"	¾"	—	P-TRAP
6	UNDER BAR SINK	1	PERLICK/TS33C	1½"	—	½"	½"	INDIRECT TO FLOOR SINK
7	UNDER BAR ICE CHEST	1	PERLICK/TS301C	1½"	—	—	—	INDIRECT TO FLOOR SINK
9	HAND SINK	1	PERLICK/TS12HS	1½"	1½"	½"	½"	P-TRAP
11	HAND SINK	2	REGENCY/600HS17SP	1½"	1½"	½"	½"	P-TRAP
12	TWO COMP. SINK	1	JOHN BOOS/2B18244-X	1½"	2"	½"	½"	INDIRECT TO HUB DRAIN
17	3 COMPARTMENT SINK	1	JOHN BOOS/3B16204-2D18-X	1½"	—	—	—	INDIRECT TO FLOOR SINK
24	MOP SINK/ FAUCET	1	MUSTEE/63M	3"	—	½"	½"	P-TRAP
31	ICE MAKER FILTERED WATER	1	HOSHICROP/KM-420MWJ	¾"	—	½"		INDIRECT TO FLOOR SINK
31.1	ICE MAKER CHILLED CONDENSER WATER	1	HOSHICROP/KM-420MWJ	⅜"	—	½"		INDIRECT TO FLOOR SINK
32	SODA ICE & BEVERAGE DISPENSER	1	LENCER/85-20406-0-0-31E	1"	—	½"		INDIRECT TO FLOOR SINK
36	DISHMACHINE	1	ECOLAB/ES-2000	2"	—	¾"		INDIRECT TO FLOOR SINK
39	ICE MACHINE	1	HOSHIZAKI/TBD	2-3/4"	—	½"		INDIRECT TO FLOOR SINK
43	TEE BREWER	1	TBD	2-3/4"	—	½"		INDIRECT TO FLOOR SINK
FS	FLOOR SINK	4	ZURN/#Z1900-3NH-K-4	3"	2"	—	—	SET FLOOR SINK LEVEL WITH FINISH FLOOR.
FFD	FUNNEL DRAIN	—	—	3"	2"	—	—	EXISTING TO REMAIN
FD	FLOOR DRAIN	1	ZURN/#ZN415-B-3NH	3"	2"	—	—	INSTALL PER MANUFACTURERS RECOMMENDATIONS.

- GENERAL SANITARY NOTES
- CONTRACTOR SHALL LEAVE NO DEAD ENDS TO CONCEALED, EXPOSED, OR UNDERGROUND PIPING WHEN REMOVING SANITARY PIPING.
  - LOCATION OF EXISTING PLUMBING PIPING ARE TENTATIVE. CONTRACTOR SHALL VERIFY IN FIELD AND DETERMINE THE EXACT LOCATION OF EXISTING PLUMBING PIPES.
  - COORDINATE ALL SERVICE SHUTDOWNS WITH THE LANDLORD, BUILDING STAFF.
  - PROVIDE CUTTING, CORE DRILLING IN WALLS FOR ALL PIPE PENETRATIONS, CONNECTION, AND ALL ASSOCIATED WORK. PROVIDE PATCHING AND FINISHING WORK TO MATCH EXISTING CONDITIONS IN ALL ASPECTS.
  - CONTRACTOR TO MAKE ALL FINAL PLUMBING CONNECTIONS TO EQUIPMENT AS PER MANUFACTURER'S SPECIFICATIONS.
  - CONTRACTOR TO FIELD VERIFY THE EXISTING SANITARY PIPE SIZE, LOCATION & INVERT ON SITE.
  - CONTRACTOR TO FIELD VERIFY FEASIBILITY OF SLAB PENETRATION AS PER STRUCTURAL REQUIREMENT.
  - CONTRACTOR TO FIELD VERIFY THE OPERATING CONDITION OF EXISTING GREASE INTERCEPTOR AND NOTIFY ENGINEER/ARCHITECT IF NOT IN OPERATION CONDITION BEFORE COMMENCING THE BID.
  - PLUMBER TO CONNECT ALL WASTE LINES, TO FULLY CONNECT ALL EQUIPMENT AND RUN CONDENSATE LINES FROM UNITS TO DRAINS AND THESE LINES TO BE NO SMALLER THAN THE SUB-OUT OF THE FUTURE PLUMBER TO PROVIDE TRAPS AND MATERIALS NECESSARY TO CONNECT ALL LINES, UNLESS OTHERWISE SPECIFIED IN THE ITEM SPECIFICATIONS, DRAIN OUTLET FITTINGS IN FIXTURE AND SPECIALTY ITEMS ARE TO BE FURNISHED BY THE KITCHEN EQUIPMENT SUPPLIER AS OUTLINED IN THE ITEM SPECIFICATIONS. ALL WORK TO BE PERFORMED IN FULL ACCORDANCE WITH ALL APPLICABLE CODES RELATING TO INSTALLATION AND HOOKUP OF EQUIPMENT OMISSIONS OR ERRORS ON THE SCHEDULE DO NOT RELIEVE THE PLUMBING CONTRACTOR FROM COMPLETE FINAL PLUMBING RESPONSIBILITY.
  - ALL OUTLETS AND CONNECTIONS SHOWN RELATE TO KITCHEN EQUIPMENT ONLY. REFER TO ARCHITECTURAL PLANS FOR ADDITIONAL REQUIREMENTS.
  - ALL FLOOR DRAINS TO SET 1/2" BELOW FINISHED FLOOR UNLESS OTHERWISE NOTED. DO NOT SLOPE FLOORS SO CLOSE TO DRAINS AS TO CREATE "PITS" OR "DIPS IN FLOOR. MINIMUM RADIUS OF SLOPE TO BE 24" FROM CENTERLINE OF DRAIN.

- DRAINAGE AND VENT PLAN KEY NOTES
- EXISTING FLOOR DRAIN WITH EXISTING SANITARY & VENT CONNECTION TO REMAIN. CONTRACTOR TO FIELD VERIFY CONDITION OF EXISTING PIPING AND REPLACE IF REQUIRED.
  - EXISTING FUNNEL DRAIN WITH EXISTING SANITARY & VENT CONNECTION TO REMAIN. CONTRACTOR TO FIELD VERIFY CONDITION OF EXISTING PIPING AND REPLACE IF REQUIRED.
  - EXISTING LAVATORY TO REMAIN WITH EXISTING SANITARY & VENT CONNECTION. CONTRACTOR TO FIELD VERIFY CONDITION OF EXISTING PIPING AND REPLACE IF REQUIRED.
  - EXISTING WATER CLOSET TO REMAIN WITH EXISTING SANITARY & VENT CONNECTION. CONTRACTOR TO FIELD VERIFY CONDITION OF EXISTING PIPING AND REPLACE IF REQUIRED.
  - CONNECT NEW 4" SANITARY LINE TO 4" EXISTING SANITARY. CONTRACTOR TO FIELD VERIFY THE EXACT LOCATION, INVERT AND FLOW DIRECTION OF EXISTING SANITARY LINE.
  - CONNECT NEW 2" SANITARY LINE TO 4" EXISTING SANITARY LINE. CONTRACTOR TO FIELD VERIFY THE EXACT LOCATION, INVERT AND FLOW DIRECTION OF EXISTING SANITARY LINE.
  - CONNECT NEW 4" GREASE SANITARY LINE TO 4" EXISTING GREASE SANITARY. CONTRACTOR TO FIELD VERIFY THE EXACT LOCATION, INVERT AND FLOW DIRECTION OF EXISTING SANITARY LINE.
  - CONNECT NEW 3" GREASE SANITARY LINE TO 4" EXISTING GREASE SANITARY LINE. CONTRACTOR TO FIELD VERIFY THE EXACT LOCATION, INVERT AND FLOW DIRECTION OF EXISTING GREASE SANITARY LINE.
  - CONNECT NEW 1 1/2" VENT LINE TO EXISTING VENT LINE OF ADEQUATE SIZE. CONTRACTOR TO FIELD VERIFY THE EXACT LOCATION & SIZE OF EXISTING VENT LINE AND UPGRADE IF REQUIRED.
  - CONNECT NEW 2" VENT LINE TO EXISTING VENT LINE OF ADEQUATE SIZE. CONTRACTOR TO FIELD VERIFY THE EXACT LOCATION & SIZE OF EXISTING VENT LINE AND UPGRADE IF REQUIRED.
  - CONNECT NEW 3" VENT LINE TO EXISTING VENT LINE OF ADEQUATE SIZE. CONTRACTOR TO FIELD VERIFY THE EXACT LOCATION & SIZE OF EXISTING VENT LINE AND UPGRADE IF REQUIRED.
  - ROUTE NEW INDIRECT WASTE LINES FROM 2 COMPARTMENT SINK TO NEAREST FLOOR SINK WITH APPROVED AIRGAP.
  - PROVIDE NEW FLOOR SINK AND CONNECT NEW SANITARY LINE FROM THE NEAREST KITCHEN EQUIPMENT.
  - CONNECT NEW 3" SANITARY LINE TO 4" EXISTING SANITARY. CONTRACTOR TO FIELD VERIFY THE EXACT LOCATION, INVERT AND FLOW DIRECTION OF EXISTING SANITARY LINE.
  - ROUTE NEW INDIRECT WASTE LINES FROM 3 COMPARTMENT SINK TO NEAREST FLOOR SINK WITH APPROVED AIRGAP.
  - ROUTE INDIRECT WASTE FROM WAREWASH TO FLOOR SINK WITH APPROVED AIRGAP. CONTRACTOR TO MAKE SURE THAT DRAIN WATER TEMPERING KIT SHOULD BE INSTALLED PROPERLY IN THE DISH MACHINE.



FLAT TOP GRILL  
EAT ADVENTUROUSLY.

FLAT TOP GRILL



NY ENGINEERS

NY ENGINEERS  
382 NE 191st ST, SUITE 49674  
MIAMI, FL 33179

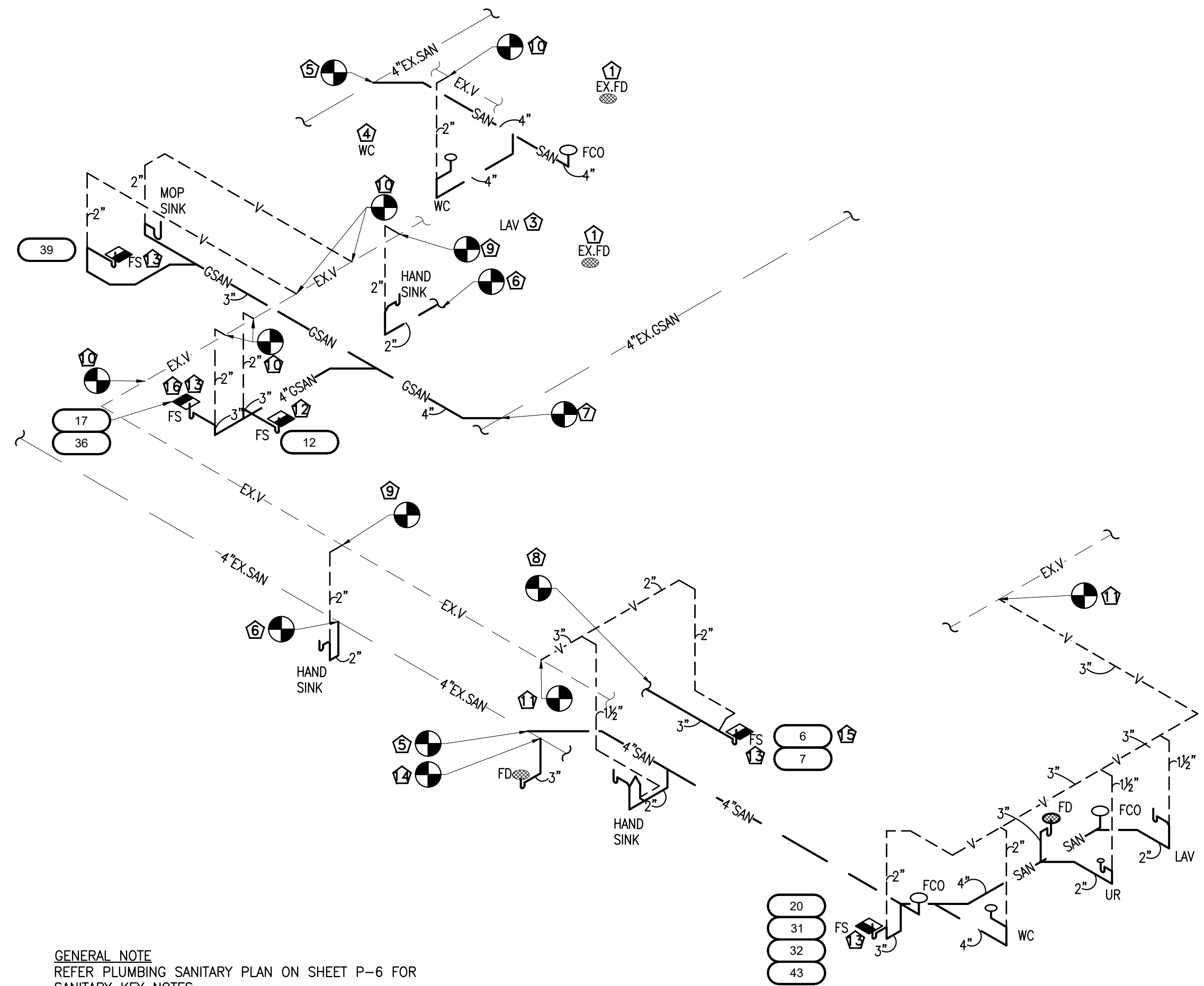
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REVISIONS	

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PLUMBING DRAINAGE & VENT PLAN

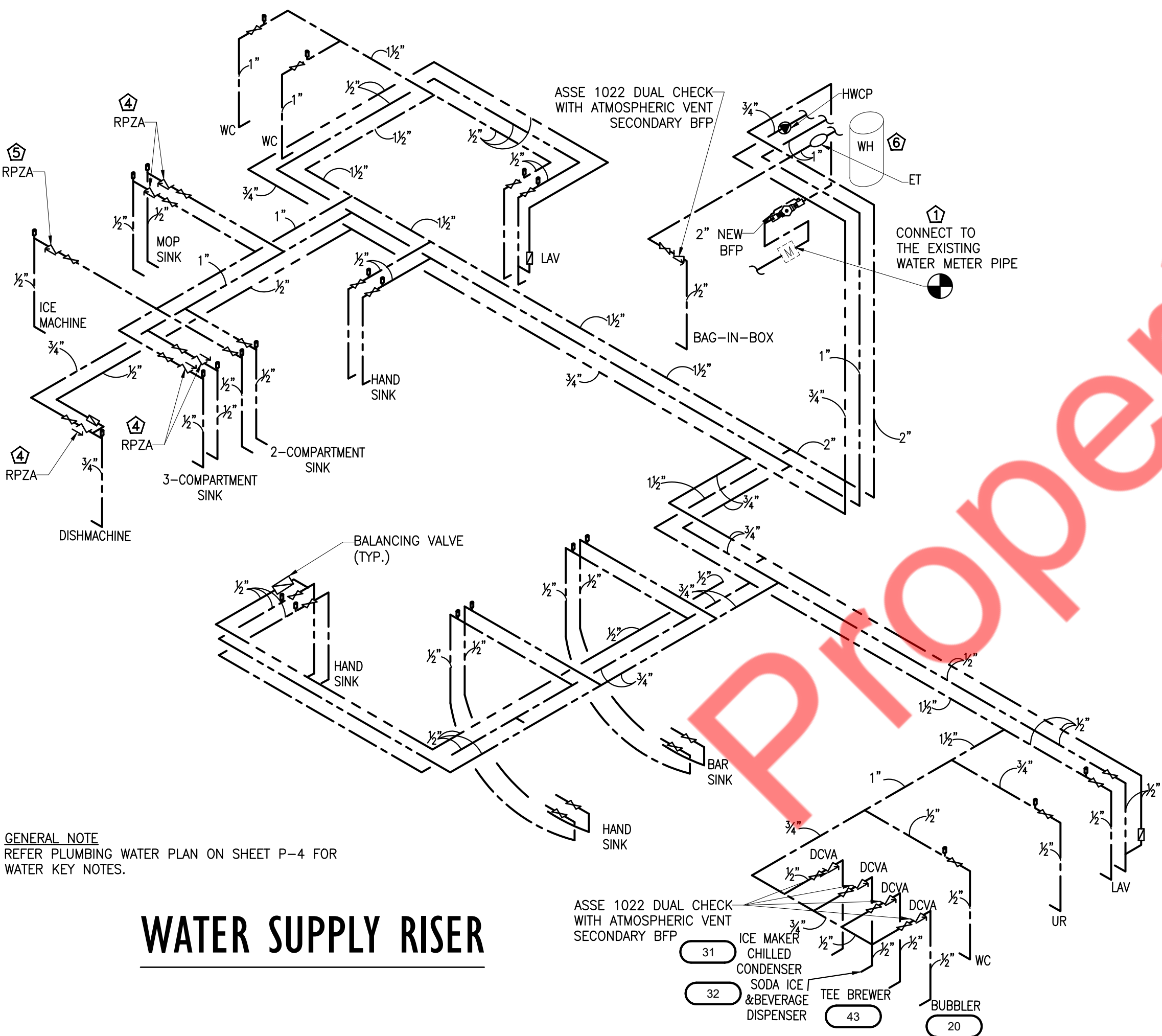
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P-6





DRAINAGE AND VENT RISER



GAS RISER

NATURAL GAS PIPING SYSTEM  
PROVIDE A COMPLETE GAS PIPING SYSTEM TO SERVE GAS EQUIPMENT FURNISHED BY OTHERS, AS NOTED ON THE DRAWINGS. PROVIDE EITHER THREADED STEEL OR MALLEABLE IRON PIPE WITH MALLEABLE FITTINGS OR WELDED STEEL. PROVIDE ALL UNIONS, SHUT-OFF VALVES AND DIRT LEGS REQUIRED BY NFPA-54 AND GOVERNING LOCAL CODES AND AT EACH GAS APPLIANCE CONNECTION. PROVIDE ALL TESTS, METERS, INSPECTIONS, HANGERS AND EQUIPMENT CONNECTIONS REQUIRED FOR A COMPLETE AND OPERATING SYSTEM.

NOTES:  
1. GAS PIPING TO BE SCHEDULE 40 STEEL PIPE W/125 CAST IRON SCREWED FITTINGS  
2. GAS SYSTEM TO BE INSTALLED BY QUALIFIED LICENSED CONTRACTOR.  
3. VERIFY EQUIPMENT BTU PRIOR TO INSTALLATION. ADJUST PIPE SIZE ACCORDING TO 2018 INTERNATIONAL FUEL GAS CODE TABLE 402.4(2) AND 402.4(5).  
4. CONTRACTOR TO FIELD VERIFY THE LONGEST LENGTH AND GAS PRESSURE SHOULD MATCH WITH THE GAS PLAN AND RISER. IF NOT THEN NOTIFY TO THE ENGINEER BEFORE COMMENCING THE BID.

GAS DEMAND SCHEDULE		
2	GAS GRIDDLE X3	324 CFH
19	HOT PLATE	128 CFH
30	FLAT TOP GRILL	500 CFH
MAU-2(N)	MAKEUP AIR UNIT	185.7 CFH
MAU-1(E)	MAKEUP AIR UNIT	98.2 CFH
RTU-F13(E)	ROOF TOP UNIT	180 CFH
RTU-F15(E)	ROOF TOP UNIT	125 CFH
RTU-F16(E)	ROOF TOP UNIT	125 CFH
RTU-DOC(E)	ROOF TOP UNIT	240 CFH
WH	WATER HEATER	125 CFH
TOTAL DEMAND		= 2030.6 CFH

NOTE: COORDINATE GAS DEMAND REQUIREMENTS.  
DEVELOPED LENGTH = 10+16+30+165+11+3 = 235  
+40% = 329'

GAS PIPE SIZING PER TABLE 402.4(2) AND 402.4(5).  
2018 INTERNATIONAL FUEL GAS CODE

HIGH PRESSURE SYSTEM (TABLE 402.4(5))  
INLET PRESSURE - 2.0PSI  
PRESSURE DROP - 1.0PSI  
LONGEST LENGTH-APPROX. 329'

LOW PRESSURE SYSTEM (TABLE 402.4(2))  
INLET PRESSURE < 2.0PSI  
PRESSURE DROP- 0.5 IN W.C.  
LONGEST LENGTH-APPROX. 20'



KITCHEN EQUIPMENT SCHEDULE									
TAG	COMPONENT	QTY.	MANUFA/MODEL	CONNECTION SIZE -- INCHES					REMARKS
				SOIL/WASTE	VENT	COLD WATER	HOT WATER	GAS REQ. CFH	
WC	WATER CLOSET	2	—	4	2"	1"	—		P—TRAP
LAV	LAVATORY	1	—	2"	1½"	½"	½"		P—TRAP & MIXING VALVE
UR	URINALS	1	—	2"	1½"	¾"	—		P—TRAP
2	GRIDDLE X3	3	VALCAN/MSA48	—	—	—	—	108@EACH	—
6	UNDER BAR SINK	1	PERLICK/TS33C	1½"	—	½"	½"		INDIRECT TO FLOOR SINK
7	UNDER BAR ICE CHEST	1	PERLICK/TS0301C	1½"	—	—	—		INDIRECT TO FLOOR SINK
9	HAND SINK	1	PERLICK/TS12HS	1½"	1½"	½"	½"		P—TRAP & MIXING VALVE
11	HAND SINK	2	REGENCY/600HS17SP	1½"	1½"	½"	½"		P—TRAP & MIXING VALVE
12	TWO COMP. SINK	1	JOHN BOOS/2B18244—X	1½"	2"	½"	½"		INDIRECT TO HUB DRAIN
12.1	FAUCET	1	T&S BRASS/B—0231			½"	½"		
17	3 COMPARTMENT SINK	1	JOHN BOOS/3B16204—2D18—X	1½"	—	—	—		INDIRECT TO FLOOR SINK
17.1	FACTORY PRE—RINSE UNIT FAUCET	1	T&S BRASS/5PR—8W12	—	—	—	—		—
19	HOT PLATE	1	ATOSA/ACHP—4			—	—	128	—
20	BUBBLER	1	BUNN/ULTRA NX			½"	—		—
24	MOP SINK/ FAUCET	1	MUSTEE/63M	3"	—	½"	½"		P—TRAP
28	BAG—IN BOX SODA SYSTEM	1	—	—	—				INDIRECT TO FUNNEL DRAIN
30	FLAT TOP GROLL	1	ATOSA/ATT—24—24"	—	—	—		500	—
31	ICE MAKER FILTERED WATER	1	HOSHICROP/KM—420MWJ	¾"	—	½"			INDIRECT TO FLOOR SINK
31.1	ICE MAKER CHILLED CONDENSER WATER	1	HOSHICROP/KM—420MWJ	¾"	—	½"			INDIRECT TO FLOOR SINK
32	SODA ICE & BEVERAGE DISPENSER	1	LENCER/B5—20406—0—0—31E	1"	—	½"			INDIRECT TO FLOOR SINK
36	DISHMACHINE	1	ECOLAB/ES—2000	2"	—	¾"			INDIRECT TO FLOOR SINK
39	ICE MACHINE	1	HOSHIZAKI/TBD	2—3/4"	—	½"			INDIRECT TO FLOOR SINK
43	TEE BREWER	1	TBD	2—3/4"	—	½"			INDIRECT TO FLOOR SINK
FS	FLOOR SINK	4	ZURN/#Z1900—3NH—K—4	3"	2"	—	—		SET FLOOR SINK LEVEL WITH FINISH FLOOR.
FFD	FUNNEL DRAIN	—	—	3"	2"	—	—		EXISTING TO REMAIN
FD	FLOOR DRAIN	1	ZURN/#ZN415—B—3NH	3"	2"	—	—		INSTALL PER MANUFACTURERS RECOMMENDATIONS.

NEW ELECTRIC STORAGE WATER HEATER										
TAG No.	FIXTURES SERVING	STORAGE GALONS	RECOVERY CAP. (GPM @ RISE)	TYPE	GAS	ELECTRICAL				REMARKS
					MBH	VOLTS	PHASE	HERTZ	AMP.	
WH	ALL PLUMBING FIXTURES	75	121 GPH @ 100°F	GAS TANK WATER HEATER	125	120	1	60	0.3	RHEEM 675—125 —DIMENSIONS 26¼"DIA X 61"H —480 LBS —HEATERS SHALL HAVE 150PSI WORKING PRESSURE.

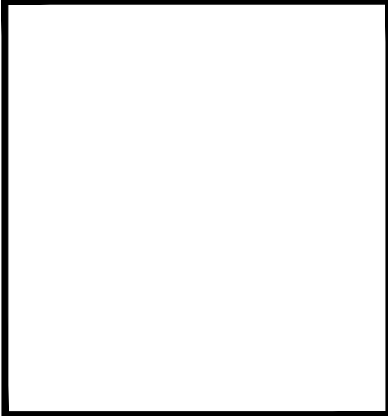
NOTE:  
1. VACUUM RELIEF VALVE SHALL CONFIRM WITH ANSI Z21.22.  
2. PROVIDE EXPANSION TANK (ET) WATTS AMTROL ST—35—CL OR SIMILAR.

RECIRCULATING PUMP SCHEDULE					
MARK	SERVICE	GPM	TOTAL HEAD FT.	MOTOR HP	MANUFACTURER & REMARKS
HWCP	HW RECIRCULATION	2	10	0.115	GRUNDFOS UP 15—18 B5 W/AQUASTAT + TIMER

THERMOSTATIC MIXING VALVE								
ITEM	CAPACITY (GPM)	PRESSURE DROP (PSI)	MINIMUM FLOW (GPM)	MAKE	CW INLET	HIGH TEMP. INLET	LOW TEMP. OUTLET	REMARKS
TMV—1	5	5	0.5	ACORN MW17—1	1/2"	1/2" (140°F)	1/2" (120°F)	—BRONZE BODY AND LEAD FREE CONSTRUCTION —ASSE CERTIFIED
NOTES: 1. PROVIDE TMV AT HAND SINK AND PREEP SINK								



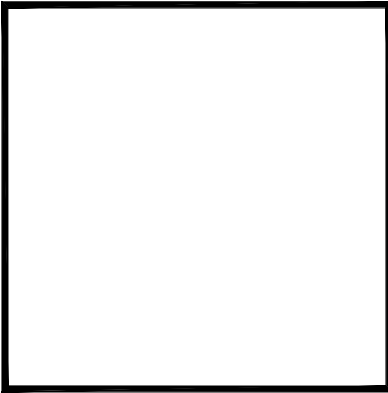
FLAT TOP GRILL



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PLUMBING SCHEDULE

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P-8