

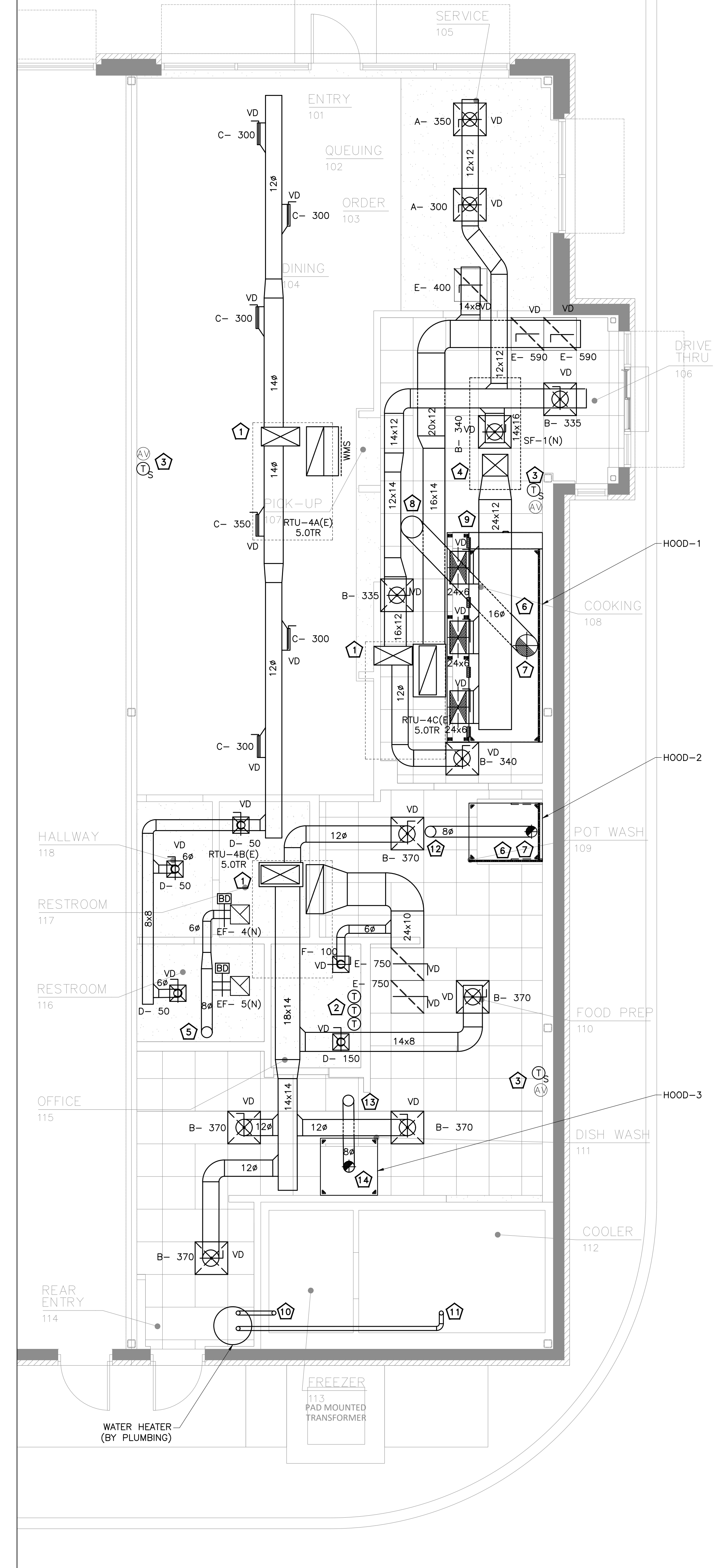
MECHANICAL LEGEND

ABBREVIATIONS

6

Property of NY Engineers

ING (P.)



MECHANICAL PLAN KEY NOTES

1. EXTEND FULL SIZE SUPPLY & RETURN DUCTWORK FROM RTU-4A(E), RTU-4B(E) & RTU-4C(E) TO SPACE. EXTEND AS SHOWN. ACOUSTICALLY LINE THE FIRST 10'-0" OF BOTH SUPPLY AND RETURN MAIN DUCTS.
2. RELOCATE AND REUSE EXISTING THERMOSTAT IF EXISTING THERMOSTAT IS NOT IN CONDITION TO REUSE THEN INSTALL AND WIRE NEW 7-DAY PROGRAMMABLE THERMOSTAT. COORDINATE EXACT LOCATION WITH ARCHITECT AND OWNER PRIOR TO ROUGH-IN.
3. REMOTE SENSOR 66" A.F.F. ON WALL NEAR LOCATION INDICATED THIS SHEET. AUDIO-VISUAL ANNUNCIATOR TIED INTO SMOKE DETECTOR. COORDINATE LOCATION ON SITE WITH G.C. AND EQUIPMENT. AVOID SOURCE OF HEAT SEAL WALL OPENING WITH CAULK. PROVIDE THERMOSTATS IN MANAGERS AREA RTU-4A(E), RTU-4C(E). ONLY. HUMIDISTAT SET TO 55% RELATIVE HUMIDITY.
4. 18"X16" MAKE AIR DUCT UP THRU ROOF TO SF-1(N).
5. ROUTE 8" Ø EXHAUST DUCT UP THROUGH ROOF WITH GOOSENECK AND BIROSCREEN. MAINTAIN A MINIMUM OF 10'-0" FROM ALL OUTSIDE AIR INTAKES AND TERMINATES 36" ABOVE ROOF.
6. INSTALL TYPE 1 GREASE EXHAUST HOOD. SUPPORT HOOD PER MANUFACTURER'S INSTALLATION INSTRUCTIONS. PROVIDE TRAPEZE HANGERS FOR ALL THREAD SUPPORT UNDER DUCTWORK AS REQUIRED. TRANSITION FROM HOOD CONNECTION TO WELDED KITCHEN EXHAUST DUCT SIZES SHOWN.
7. GREASE DUCT TO BE PROVIDED WITH KITCHEN EQUIPMENT AND INSTALLED BY MECHANICAL CONTRACTOR. INSTALL PER MANUFACTURER'S INSTRUCTIONS.
8. 16" Ø GREASE EXHAUST DUCT FROM HOOD UP THRU ROOF TO EF-1(N)
9. EXTEND SUPPLY AIR DUCT FROM HOOD COLLAR UP TO MOUNTED SUPPLY AIR FAN ON ROOF SF-1(N)
10. 3" Ø WATER HEATER AIR INTAKE PIPE UP THROUGH ROOF.
11. 3" Ø WATER HEATER EXHAUST VENT PIPE UP THROUGH ROOF.
12. 8" Ø GREASE EXHAUST DUCT FROM HOOD UP THRU ROOF TO EF-2(N).
13. 8" Ø KITCHEN EXHAUST DUCT FROM HOOD UP THRU ROOF TO EF-3(N).
14. INSTALL TYPE 2 KITCHEN EXHAUST HOOD. SUPPORT HOOD PER MANUFACTURER'S INSTALLATION INSTRUCTIONS. PROVIDE TRAPEZE HANGERS FOR ALL THREAD SUPPORT UNDER DUCTWORK AS REQUIRED. TRANSITION FROM HOOD CONNECTION TO WELDED KITCHEN EXHAUST DUCT SIZES SHOWN.

MECHANICAL GENERAL NOTES

- A. ALL WORK SHALL COMPLY WITH ALL LOCAL AND STATE CODES AND AUTHORITIES HAVING JURISDICTION.
- B. THE CONTRACTOR SHALL SECURE AND PAY FOR ALL REQUIRED PERMITS AND ARRANGE ALL REQUIRED INSPECTIONS.
- C. THE CONTRACTOR SHALL COORDINATE THEIR WORK WITH OTHER CONTRACTORS AND TRADES.
- D. THESE DRAWINGS, AS PREPARED, ARE DIAGRAMMATIC BUT SHALL BE FOLLOWED AS CLOSELY AS CONSTRUCTION OF THE PROJECT AND THE WORK OF THE TRADES WILL PERMIT. EQUIPMENT LOCATIONS INDICATED ARE APPROXIMATE. COORDINATE EXACT LOCATIONS AND REQUIRED CLEARANCES WITH EQUIPMENT SUPPLIER AND ALL TRADES PRIOR TO INSTALLATION.
- E. THE CONTRACTOR SHALL FURNISH AND INSTALL ALL THE EQUIPMENT INDICATED WITHIN THE MECHANICAL DRAWINGS UNLESS OTHERWISE NOTED. ALL EQUIPMENT SHALL BE UL LISTED. VERIFY LOCATION AND DIMENSIONS IN THE FIELD PRIOR TO FABRICATION AND / OR INSTALLATION.
- F. ALL ROOF PENETRATIONS SHALL BE AT THE CONTRACTOR'S EXPENSE. COORDINATE WITH OWNER'S ROOFING CONTRACTOR SO AS NOT TO VOID ANY EXISTING ROOF WARRANTIES.
- G. EACH UNIT GENERATING CONDENSATE SHALL BE PROVIDED WITH A CONDENSATE DRAIN WITH EXTERNAL, 4" DEEP P-TRAP. EXTEND DRAIN TO A ROOF MOUNTED SPLASH PAD OR AN ACCEPTABLE LOCATION REQUIRED BY CODE.
- H. DUCT SIZES SHOWN ON DRAWINGS ARE CLEAR INSIDE DIMENSION.
- I. ALL METAL DUCT AND AIR DISTRIBUTION DEVICES SHALL BE INSULATED WITH R-6, 75 DENSITY FOIL-BACKED INSULATION WITH FIRE AND SMOKE RATINGS 25-50.
- J. ALL DUCTWORK SHALL BE FABRICATED, INSTALLED, SEALED, AND INSULATED PER THE LATEST ISSUE OF SMACNA LOW-VELOCITY DUCT MANUAL.
- K. UNLESS OTHERWISE NOTED, ALL SUPPLY TAKEOFFS SHALL HAVE A MANUAL VOLUME CONTROL DAMPER.
- L. ALL FLEX DUCT SHALL BE UL LISTED, R-6, FOIL-BACKED, CLASSIFIED AS A CLASS 1 AIR DUCT. MAXIMUM LENGTH IS TO BE 14'-0" PER DROP OR PER LOCAL CODE.
- M. THE CONTRACTOR SHALL COORDINATE DIFFUSER LOCATIONS ON SITE WITH THE MOST RECENT REFLECTED CEILING PLAN.
- N. THE CONTRACTOR IS TO MAKE ALL LOW-VOLTAGE WIRING CONNECTIONS FOR ALL HVAC EQUIPMENT INCLUDING TEMPERATURE CONTROLS, ROOF TOP UNITS, SMOKE DETECTORS AND CONTRACTOR PANEL.
- O. PROVIDE AND INSTALL SMOKE DUCT DETECTORS IN EACH AIR CONDITIONING UNIT RETURN DUCT GREATER THAN 2000 CFM. CONTRACTOR SHALL PROVIDE INTERCONNECTION AND WIRE TO THE FIRE ALARM CONTROL PANEL IF REQUIRED. DUCT DETECTORS SHALL HAVE REMOTE TEST STATIONS LOCATED IN THE OFFICE NEAR THE RESPECTIVE THERMOSTATS. VERIFY CODE REQUIREMENTS FOR DUCT DETECTORS IN BOTH THE SUPPLY AND RETURN AIR STREAMS.
- P. THE ENTIRE INSTALLATION SHALL BE GUARANTEED FREE OF DEFECTS AND CONTRACTOR SHALL REPAIR AND / OR REPLACE ANY DEFECTIVE MATERIALS OR EQUIPMENT AT NO COST TO THE OWNER FOR A MINIMUM PERIOD OF ONE YEAR FROM THE DATE OF ACCEPTANCE BY ARCHITECT OR ENGINEER.
- Q. ALL WORK SHALL BE SUBJECT TO THE ACCEPTANCE AND APPROVAL OF THE ARCHITECT AND OWNER. THE ARCHITECT SHALL BE NOTIFIED OF ANY AND ALL DISCREPANCIES BETWEEN FIELD CONDITIONS AND THE CONTRACT DOCUMENTS BEFORE PROCEEDING WITH THAT PORTION OF THE WORK. FAILURE OF PROPER NOTIFICATION DOES NOT RELIEVE THE CONTRACTOR. THE CONTRACTOR SHALL CORRECT ANY AND ALL WORK ARISING FROM SUCH FAILURE TO COORDINATE DISCREPANCIES TO THE SATISFACTION OF THE ARCHITECT WITHOUT ADDITIONAL COST TO THE OWNER.
- R. THE CONTRACTOR SHALL, UPON COMPLETION OF PROJECT, PERFORM A COMPLETE TEST AND BALANCE OF ALL EQUIPMENT. PROVIDE A WRITTEN REPORT TO THE ARCHITECT. ALL CAPACITIES MUST BE SET TO WITHIN ±10% OF AMOUNTS INDICATED ON THE FLOOR PLAN AND SCHEDULES.

UNIT ID	MANUFACTURER	EFFICIENCY	MODEL	AREA SERVED	NOMINAL TONS	SUPPLY FAN		GAS HEAT		COOLING				ELECTRICAL				EFFICIENCY			OPERATING WEIGHT (LBS)	NOTES		
						TOTAL CFM	OUTSIDE AIR (CFM)	STATIC PRESSURE (INCH)	INPUT MBH	OUTPUT MBH	TOTAL MBH	SENSIBLE MBH	AMBIENT DB (DEG F)	ENTERING DB / WB (DEG F)	STAGES	VOLTS	PHASE	MCA (AMPS)	MOCP (AMPS)	THERMAL (%)			EER	SEER
RTU-4A (E)	S.A.E.	S.A.E.	S.A.E.	S.A.E.	5.0	2000	545	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.	S.A.E.	S.A.E.	S.A.E.	S.A.E.	S.A.E.	S.A.E.	S.A.E.
RTU-4B (E)	S.A.E.	S.A.E.	S.A.E.	S.A.E.	5.0	2000	400	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.	S.A.E.	S.A.E.	S.A.E.	S.A.E.	S.A.E.	S.A.E.	S.A.E.
RTU-4C (E)	S.A.E.	S.A.E.	S.A.E.	S.A.E.	5.0	2000	420	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.	S.A.E.	S.A.E.	S.A.E.	S.A.E.	S.A.E.	S.A.E.	S.A.E.

NOTES:
 1. S.A.E. - SAME AS EXISTING.
 2. RTU IS AN EXISTING. CONTRACTOR TO FIELD VERIFY EXACT LOCATION.
 4. SET OUTSIDE AIR DAMPER AS PER AIRFLOW MENTIONED IN THE TABLE ABOVE.

UNIT ID	MANUFACTURER	HOOD LENGTH	MODEL	CFM	TYPE	FAN RPM	E.S.P. (IN. W.G.)	MOTOR			SERVICE	INTERLOCKED WITH	WEIGHT (LBS)	NOTES / ACCESSORIES
								HP	VOLTS	PHASE				
EF-1(N)	CAPTIVE-AIRE	11' 10"	DU180HFA	2500	ROOF	1227	1.5	2	208	3	GREASE HOOD	HOOD CONTROL	220	1,2,3,4,5,6,7,8
EF-2(N)	CAPTIVE-AIRE	3' 6"	DU33HFA	475	ROOF	1227	0.65	0.333	208	1	OVEN	HOOD CONTROL	100	1,2,3,4,5,6,7,8
EF-3(N)	CAPTIVE-AIRE	3' 6"	DU12HFA	375	ROOF	1298	0.5	0.25	115	1	DISH	HOOD CONTROL	76	1,2,3,4,5,6,7,8
EF-4(N)	CAPTIVE-AIRE	-	CFA-D90-CA	70	CEILING	700	0.25	0.043	115	1	TOILET EXHAUST	LIGHT	10	1,4,6,8
EF-5(N)	CAPTIVE-AIRE	-	CFA-D90-CA	70	CEILING	700	0.25	0.043	115	1	TOILET EXHAUST	LIGHT	10	1,4,6,8

NOTES / ACCESSORIES:
 1. Birdscreen
 2. Weather Proof Disconnect Switch
 3. Variable Speed Control
 4. Speed Control Switch
 5. Thermal Overload Protection
 6. Gravity Backdraft Damper
 7. Roof Curb
 8. AMCA Seal & UL Certified

AIR BALANCE					
UNIT	AREA SERVED	SUPPLY AIR	OUTSIDE AIR	RETURN AIR	EXHAUST AIR
RTU-4A(E)	DINING; HALLWAY; TOILET-116 & TOILET-117	2000 CFM	545 CFM	1455 CFM	-
RTU-4B(E)	FOOD PREP; OFFICE	2000 CFM	400 CFM	1600 CFM	-
RTU-4C(E)	SERVICE; COOKING	2000 CFM	420 CFM	1580 CFM	-
SF-1(N)	HOOD-1	-	2125 CFM	-	-
EF-1(N)	GREASE HOOD	-	-	-	2500 CFM
EF-2(N)	OVEN	-	-	-	475 CFM
EF-3(N)	DISHWASHER	-	-	-	375 CFM
EF-4(N)	RESTROOM	-	-	-	70 CFM
EF-5(N)	RESTROOM	-	-	-	70 CFM
TOTAL:		6000 CFM	3490 CFM	4635 CFM	3490 CFM
BUILDING PRESSURE:			0 CFM	NEUTRAL

UNIT ID	MANUFACTURER	MODEL	PRICE	SC
A	PRICE	SC		
B	PRICE	SC		
C	PRICE	SC		
D	PRICE	SC		
E	PRICE	SC		

NOTES:
 1. MAXIMUM NOISE CRITERION
 2. BAKED ENAMEL FINISH, COLD
 3. DIFFUSERS SHALL BE 4-WAY
 4. MOUNTING FRAME TYPE SHALL
 5. HOOK SIZE SHALL BE AS SCHEDULE

KITCHEN EXHAUST HOODS SCHEDULE										
UNIT ID	MANUFACTURER	LENGTH (FEET-INCH)	MODEL	SERVICE	COOKING TEMPERATURE (DEG F)	EXHAUST AIR (CFM)	COLLAR (INCH)	E.S.P (IN. W.G.)	CONSTRUCTION	WEIGHT (LBS)
HOOD-2	CAPTIVE-AIRE	3'-6"	5424 ND-2	OVEN	450	475	8"	0.312	430 STAINLESS STEEL	295
HOOD-3	CAPTIVE-AIRE	3'-6"	4224 VHB-G	DISH	700	375	8"	0.054	430 STAINLESS STEEL	161

TAG	SERVICE	FLOW RATE CFM	EXTERNAL STATIC PRESSURE IN W.G.	SPEED RPM	HEATING CAPACITY			ELECTRIC DATA										BASIS OF DESIGN		
					INPUT MBH	OUTPUT MBH	EFFICIENCY	PRESSURE RANGE IN. WC	TEPM RISE	V/PH/Hz	FLA	MCA (A)	MOCP (A)	HP	BHP	SONES	WEIGHT (LBS)	MANUFACTURER	MODEL	REMARK
SF-1(N)	HOOD-1	2125	0.625	1066	166.118	152.829	92%	7-14	69°F	208/3/60	3.8	4.8	15	1	0.638	8.5	700	CAPTIVEAIRE	A2-D.250-200	1,2,3

NOTES:
 1) PROVIDE ALL NECESSARY ACCESSORIES AS PER MANUFACTURER'S RECOMMENDATIONS.
 2) REFER MAKE UP AIR UNIT DATA ON SHEET M701 TO M703 FOR DETAILED INFORMATION.
 3) CONTRACTOR TO PROVIDE MAKE UP AIR UNIT SELECTION EQUIVALENT TO ABOVE SELECTION.

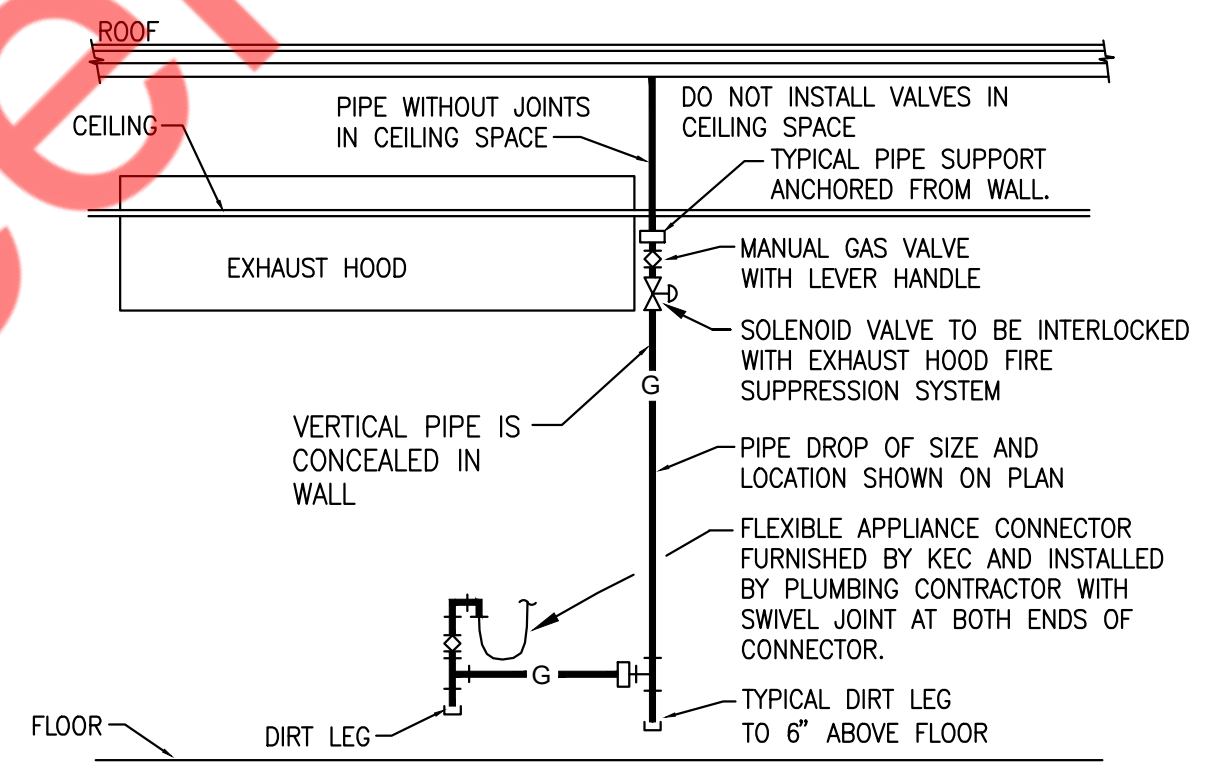
ROOM NAME	AREA (SQ.FT.)	NO. OF PEOPLE/1000sq.ft. AS PER MMC 2015	NO. OF PEOPLE AS PER MMC 2015	NO. OF CHAIR	FINAL PEOPLE	MIN OUTSIDE AIR AS PER MMC 2015			REQ. OSA (CFM)	PROVIDED OSA (CFM)	TOTAL OSA (CFM)	EXHAUST AIRFLOW RATE (CFM/SQ.FT. OR CFM/FIXT.)	TOTAL EXHAUST (CFM)
						CFM/PERSON	CFM/SQ.FT.	CFM/CHAIR					
RTU-4A(E)													
DINING	643	70	46	28	28	7.5	0.18	326	460	545	0	0	0
HALLWAY	39	0	0	0	0	0	0.06	2	85	545	0	0	0
TOILET-116	47	0	0	0	0	0	0	0	0	545	70	70	0
TOILET-117	46	0	0	0	0	0	0	0	0	545	70	70	0
RTU-4B(E)													
FOOD PREP	465	0	0	4	4	0	0	0	240	400	0.7	326	0
OFFICE	42	5	1	0	1	5	0.06	8	160	400	0	0	0
RTU-4C(E)													
SERVICE	123	15	2	3	3	7.5	0.12	37	180	420	0	0	0
COOKING	356	0	0	4	4	0	0	0	240	420	0.7	249	0
TOTAL										1365			715

1 MECHANICAL FLOOR PLAN
 SCALE: 1/4" = 1'-0"

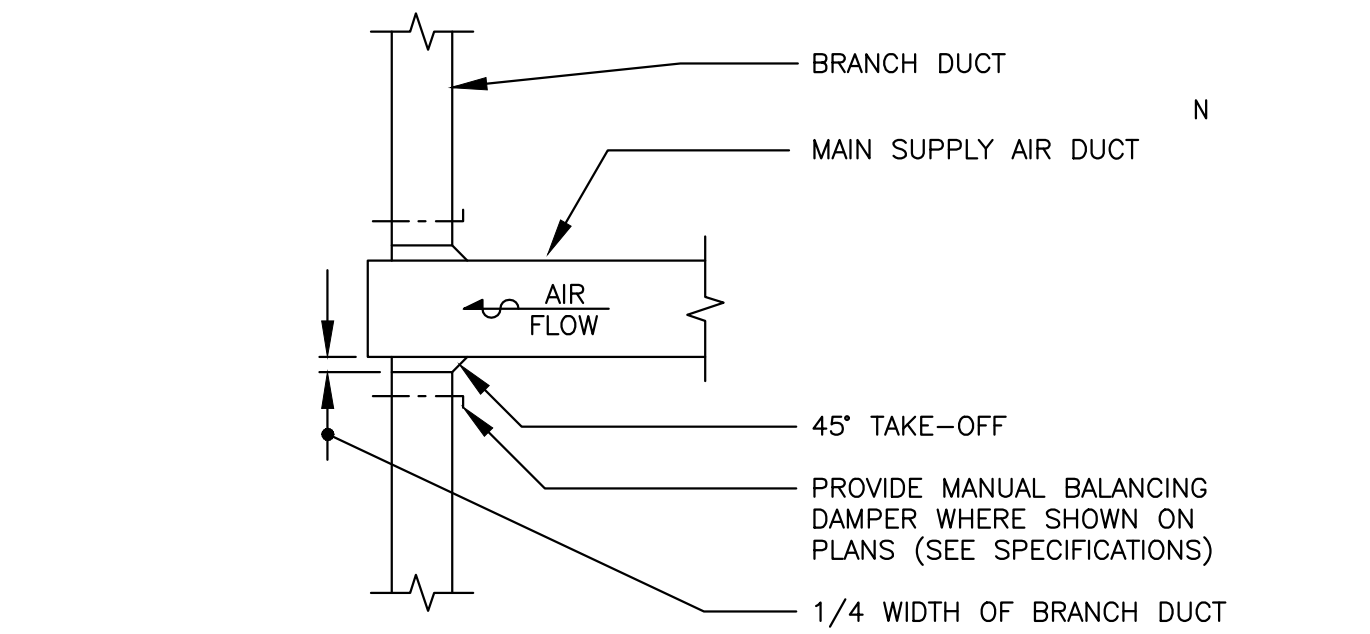
TABLE- DUCT CONSTRUCTION MIN. SHEET METAL THICKNESS

ROUND DUCT DIAMETER (inches)	STATIC PRESSURE			
	1/2-inch water gage		1-inch water gage	
	Thickness (inches)		Thickness (inches)	
<12	Galvanized	Aluminum	Galvanized	Aluminum
12 to 14	0.013	0.018	0.013	0.018
15 to 17	0.016	0.023	0.019	0.027
18	0.016	0.023	0.024	0.034
19 to 20	0.019	0.027	0.024	0.034

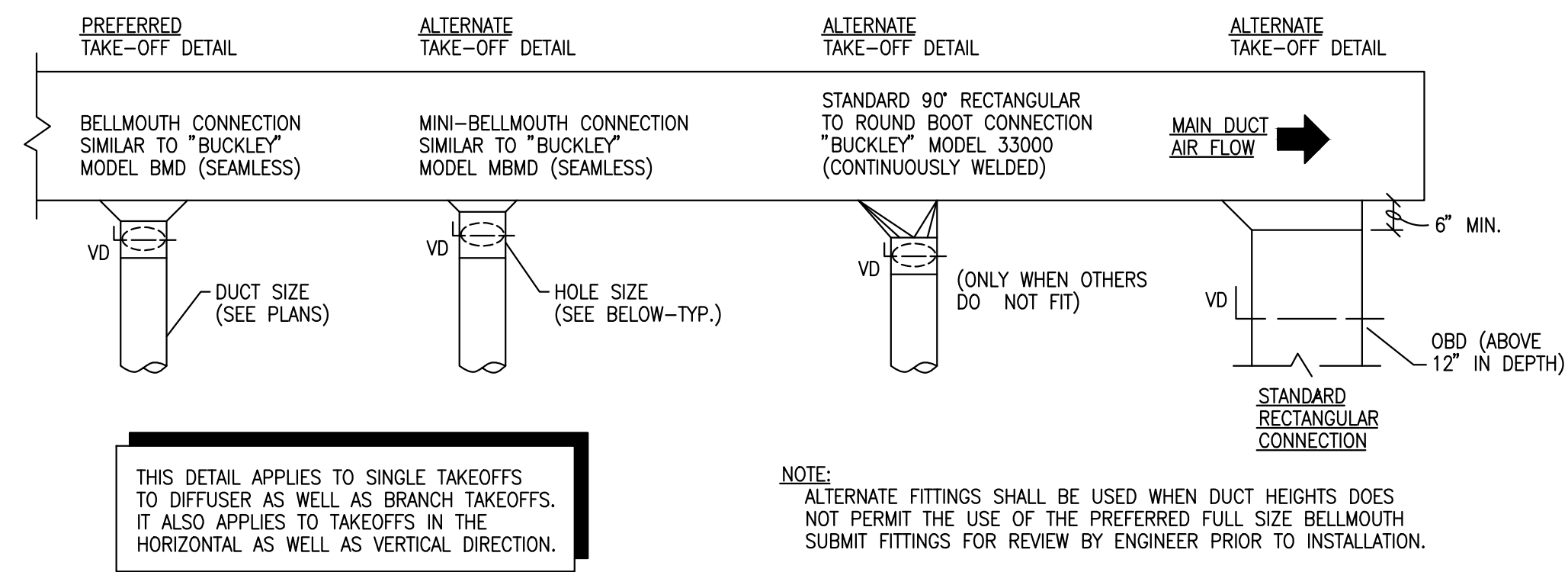
RECTANGULAR DUCT DIMENSION (inches)	STATIC PRESSURE			
	1/2-inch water gage		1-inch water gage	
	Thickness (inches)		Thickness (inches)	
≤ 8	Galvanized	Aluminum	Galvanized	Aluminum
9 to 10	0.013	0.018	0.013	0.018
11 to 12	0.013	0.018	0.016	0.023
13 to 16	0.016	0.023	0.019	0.027
17 to 18	0.019	0.027	0.019	0.027
19 to 20	0.019	0.027	0.024	0.034



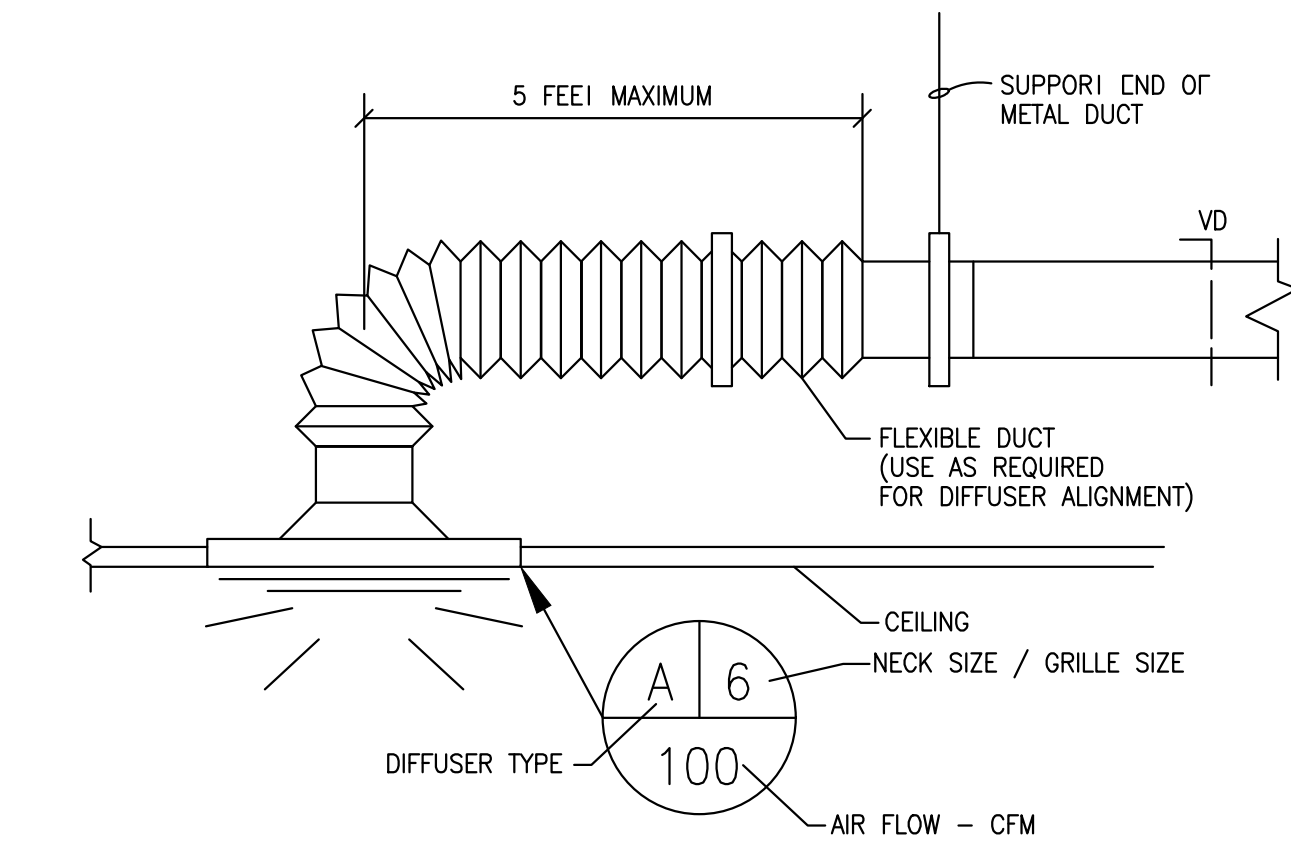
COOKING APPLIANCE GAS PIPE DETAIL



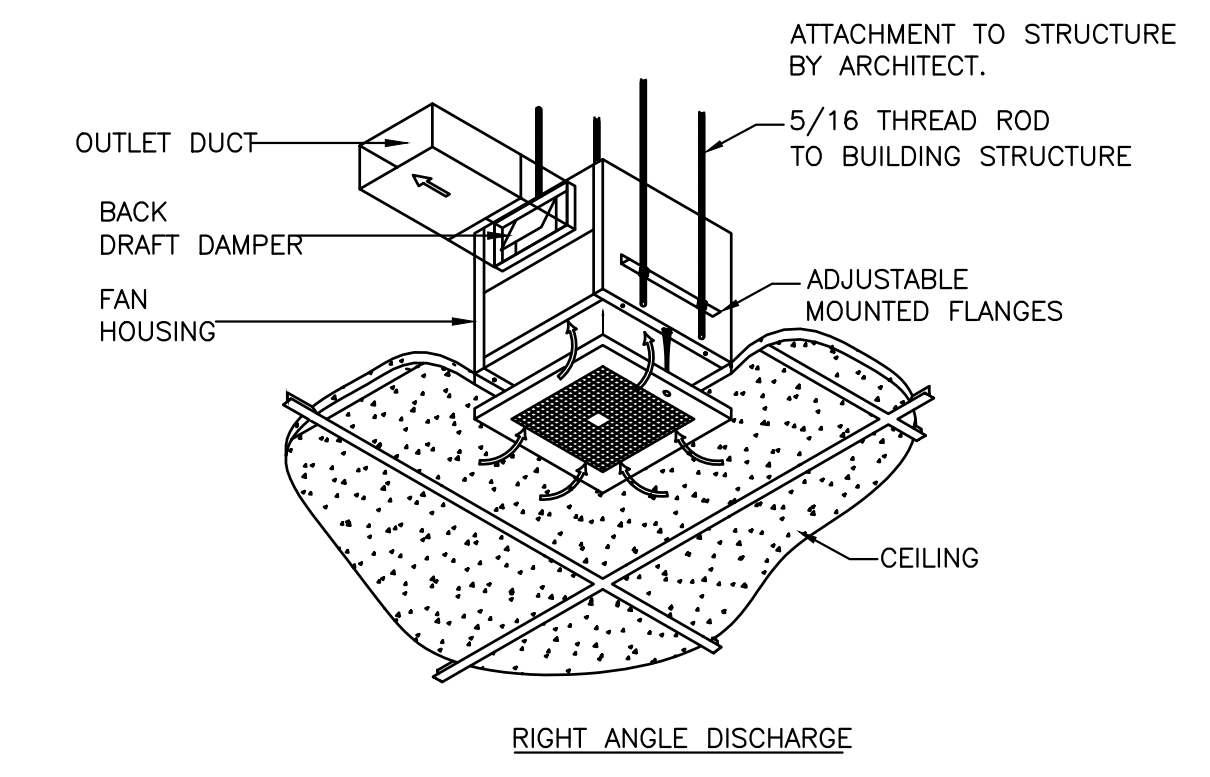
LOW PRESSURE END OF SUPPLY AIR DUCT DETAIL



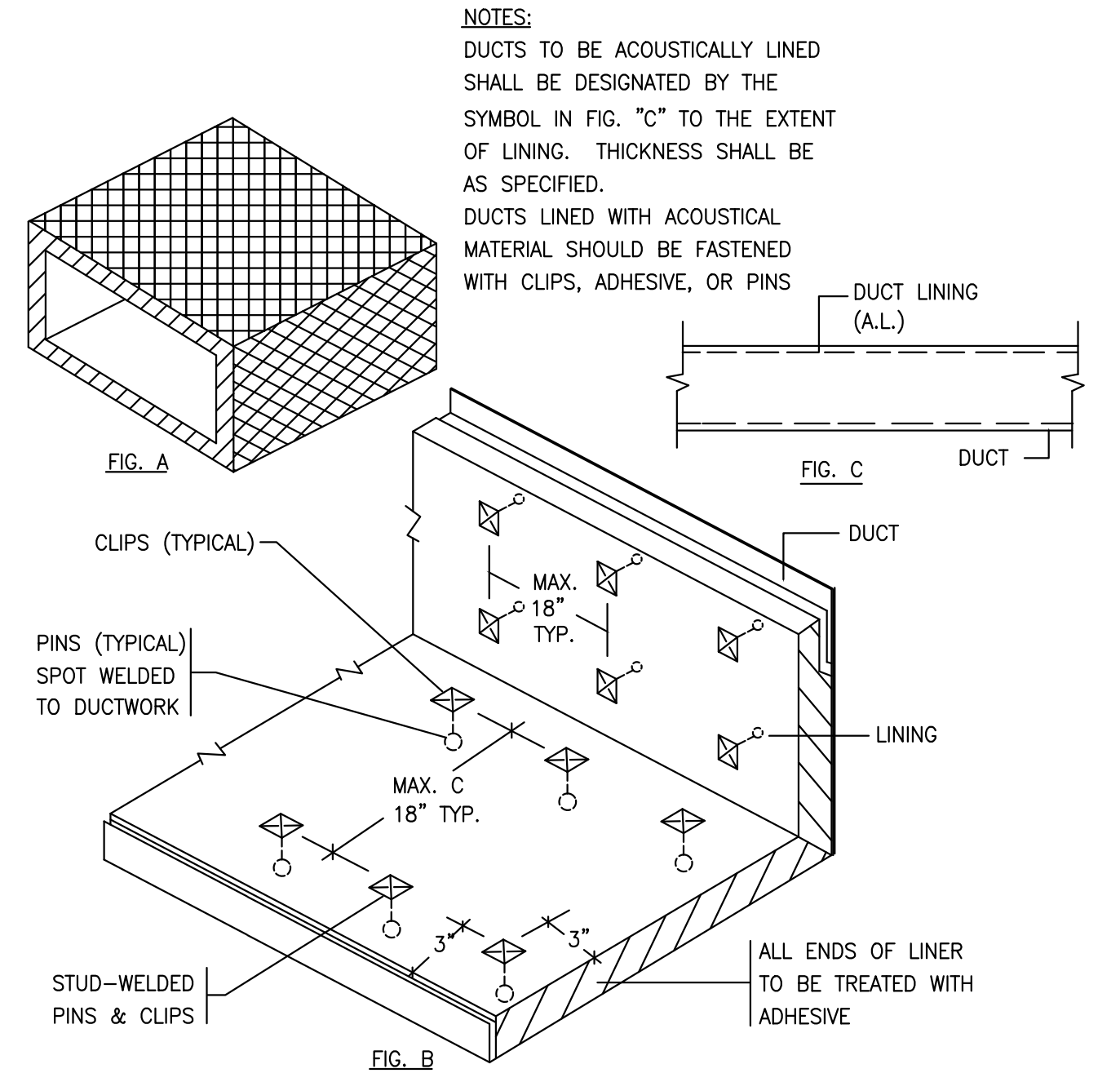
DUCT TAKEOFFS



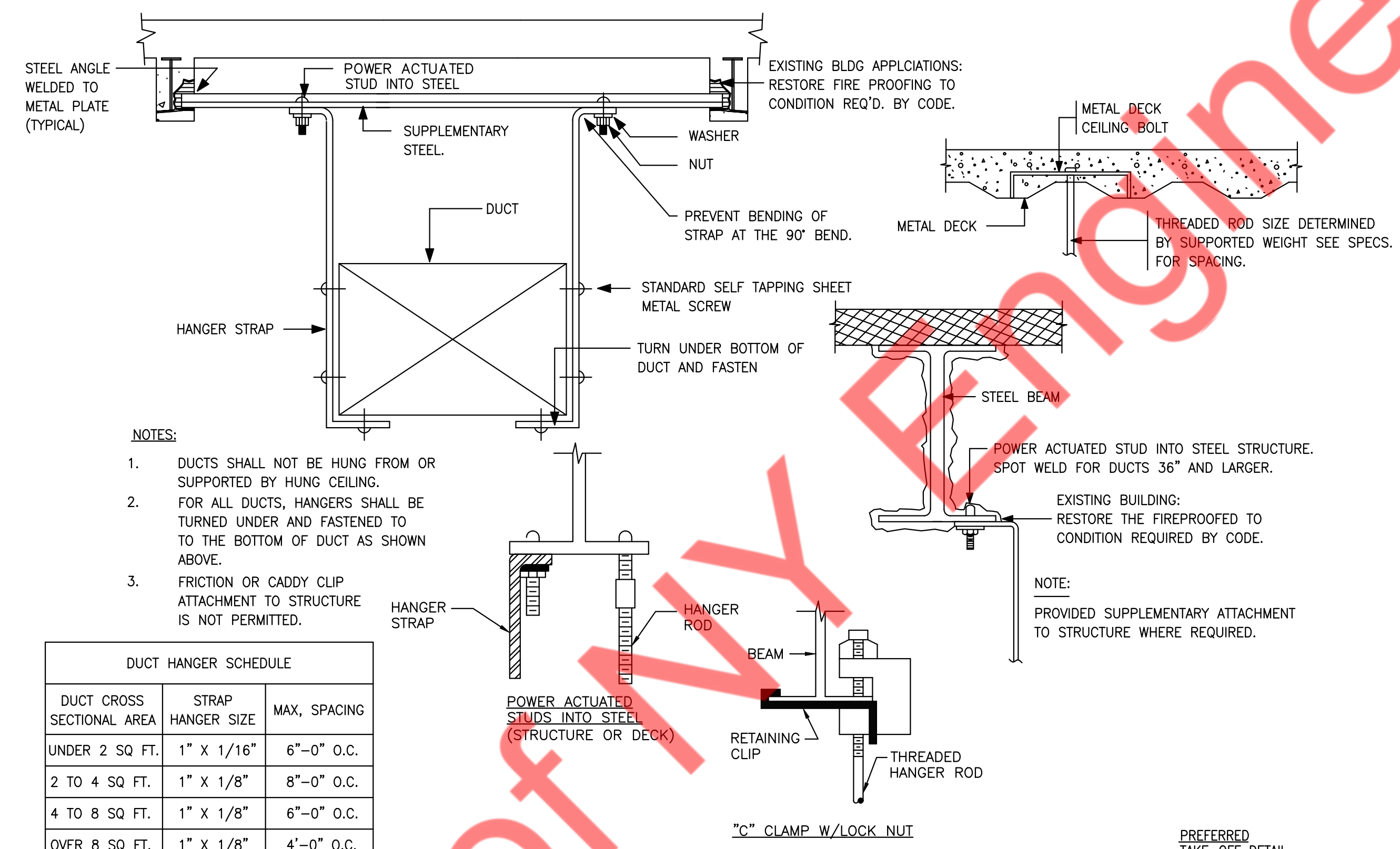
CEILING DIFFUSER BRANCH DUCTS W/ FLEX CONNECTION



CEILING EXHAUST FAN DETAIL



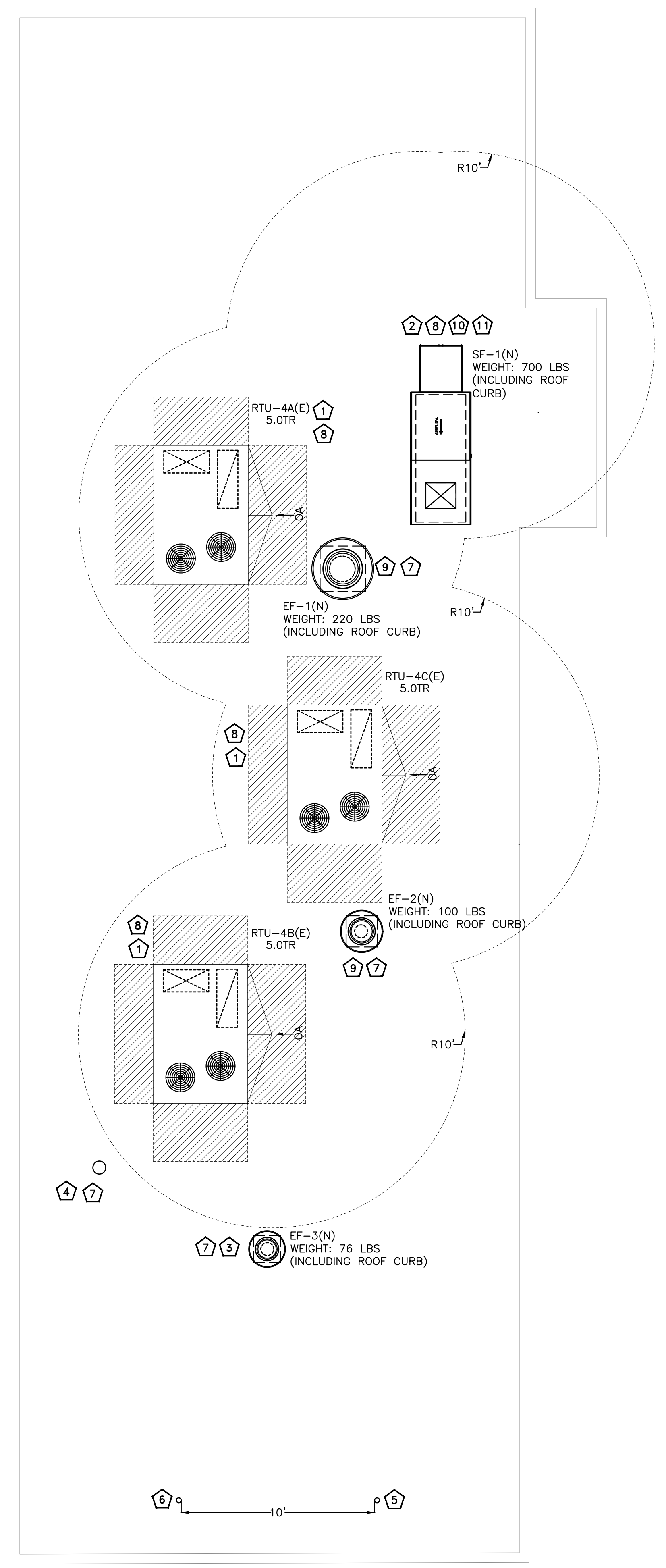
ACOUSTICAL DUCT LINING DETAILS



DUCT HANGING & SUPPORT DETAILS

MECHANICAL ROOF KEY NOTES

- PROVIDE FLEXIBLE CONNECTORS ON SUPPLY AND RETURN DUCT CONNECTIONS. 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.
- SUPPLY AIR FAN ROOF CURB ARE OWNER PROVIDED. COORDINATE LOCATION OF UNIT WITH LANDLORD AND EXISTING CONDITIONS. ADJUST DUCTWORK ROUTING ACCORDINGLY. PROVIDE FLEXIBLE CONNECTION ON THE SUPPLY DUCT CONNECTION TRANSITION TO DUCT SIZE INDICATED. FIELD VERIFY EXISTING CONDITIONS PRIOR TO BID.
- ROOF MOUNTED KITCHEN EXHAUST FAN AND FAN CURB ARE OWNER PROVIDED. COORDINATE INSTALLATION OF FAN WITH LANDLORD AND EXISTING CONDITIONS TO ENSURE THAT FAN IS NOT INSTALLED WITHIN 10 FEET OF ANY OUTSIDE AIR INTAKE.
- 8" EXHAUST DUCT UP THROUGH ROOF. MAINTAIN A MINIMUM OF 10'-0" FROM ALL OUTSIDE AIR INTAKES AND TERMINATE 36" ABOVE ROOF.
- 3" WATER HEATER FLUE PIPE UP THROUGH ROOF WITH GOOSENECK AND BIRDSCREEN. MAINTAIN A MINIMUM OF 10'-0" FROM ALL OUTSIDE AIR INTAKE AND TERMINATES 36" ABOVE ROOF.
- 3" WATER HEATER AIR INTAKE PIPE UP THROUGH ROOF WITH GOOSENECK AND BIRDSCREEN. MAINTAIN A MINIMUM OF 10'-0" FROM ALL EXHAUST AIR VENTS AND TERMINATES 36" ABOVE ROOF.
- CONTRACTOR TO FIELD VERIFY THAT THE LOCATION OF ANY INTAKE SOURCE FROM ADJACENT TENANTS SHOULD BE AT LEAST 10' AWAY FROM THE RTU-4A(E), RTU-4B(E), RTU-4C(E) & SF-1(N).
- CONTRACTOR TO FIELD VERIFY THAT THE LOCATION OF ANY EXHAUST SOURCE FROM ADJACENT TENANTS SHOULD BE AT LEAST 10' AWAY FROM THE RTU-4A(E), RTU-4B(E), RTU-4C(E) & SF-1(N).
- ROOF MOUNTED GREASE EXHAUST FAN AND FAN CURB ARE OWNER PROVIDED. PROVIDE 2 FT. TALL WIND BAND FOR EXHAUST FAN. COORDINATE INSTALLATION OF FAN WITH LANDLORD AND EXISTING CONDITIONS TO ENSURE THAT EXHAUST OUTLETS SHALL BE LOCATED NOT LESS THAN 10 FT. HORIZONTALLY FROM OR NOT LESS THAN 3 FT. ABOVE AIR INTAKE SOURCE
- CONDENSATE DRAIN LINE SHALL BE CONFIGURED TO PERMIT THE CLEARING OF BLOCKAGE AND PERFORMANCE OF MAINTENANCE WITHOUT REQUIRING THE DRAIN LINE TO BE CUT.
- CONDENSATE WASTE AND DRAIN LINE SIZE SHALL NOT BE LESS THAN 3/4" INTERNAL DIAMETER AND SHALL NOT DECREASE IN SIZE FROM THE DRAIN PAN CONNECTION TO THE PLACE OF DISPOSAL.



MECHANICAL ROOF PLAN

GENERAL ELECTRICAL NOTES

- ANY AND ALL "BUILDING STANDARDS" AND/OR "BUILDING SPECIFICATIONS" SHALL BE CONSIDERED AN INTEGRAL PART OF THESE DOCUMENTS AND THE CONTRACTOR SHALL BE RESPONSIBLE TO OBTAIN A COPY OF THESE REQUIREMENTS/THIS DOCUMENT AND COMPLY WITH ALL REQUIREMENTS AND STANDARDS CONTAINED WITHIN.
- THESE DRAWINGS ARE GENERALLY DIAGRAMMATIC AND ARE INTENDED TO CONVEY THE SCOPE OF WORK AND INDICATE GENERAL ARRANGEMENT OF LIGHTING FIXTURES, DEVICES, CONTROLS, ELECTRICAL FIXTURES, MOTORS, PANELBOARDS, EQUIPMENT, ETC. THE LOCATIONS OF ALL ITEMS SHOWN ON THESE DRAWINGS OR CALLED FOR IN THE SPECIFICATIONS THAT ARE NOT DEFINITELY FIXED BY DIMENSIONS ARE APPROXIMATE. THE EXACT LOCATIONS NECESSARY TO SECURE THE BEST CONDITIONS AND RESULTS MUST BE DETERMINED AT THE PROJECT. ALL LOCATIONS OF WORK EXPOSED TO VIEW ARE SUBJECT TO APPROVAL OF THE ARCHITECT PRIOR TO INSTALLATION.
- THE ELECTRICAL CONTRACTOR SHALL VERIFY EXISTING CONDITIONS TO INSURE THAT ALL NEW WORK WILL FIT INTO THE EXISTING STRUCTURE IN THE MANNER INTENDED AND AS SHOWN ON THE DRAWINGS. THE CONTRACTOR SHALL NOTIFY THE ARCHITECT/OWNERS REPRESENTATIVE PRIOR TO ANY ROUGH-INS, FABRICATIONS, OR PERFORMING ANY WORK IN THE AREA INVOLVING DIFFERENCES. NOTIFICATION SHALL BE IN THE FORM OF A DRAWING OR SKETCH INDICATING FIELD MEASUREMENTS AND NOTES RELATED TO THE AREA.
- ANY DISCREPANCIES BETWEEN DRAWINGS AND SPECIFICATIONS SHALL BE PROMPTLY BROUGHT TO THE ATTENTION OF THE ENGINEER FOR CLARIFICATION DURING THE BIDDING PERIOD. NO ALLOWANCE SHALL SUBSEQUENTLY BE MADE TO THE CONTRACTOR BY REASON OF HIS FAILURE TO HAVE BROUGHT SAID DISCREPANCIES TO THE ATTENTION OF THE ENGINEER DURING THE BIDDING PERIOD OR OF ANY ERROR ON THE CONTRACTOR'S PART.
- ALL EQUIPMENT SHALL BE INSTALLED IN A NEAT, PROFESSIONAL AND WORKMANLIKE MANNER, RECTILINEAR TO BUILDING STRUCTURE.
- ALL COMPONENTS SHOWN ON THE RISER/ONE-LINE DIAGRAMS BUT NOT ON THE PLAN OR VICE VERSA, SHALL BE INCLUDED AS IF SHOWN ON BOTH.
- REVIEW ALL TRADES' CONTRACT DOCUMENTS TO DETERMINE SPECIFIC MOUNTING LOCATIONS FOR ELECTRICAL EQUIPMENT. COORDINATE EXACT MOUNTING LOCATIONS WITH THE ARCHITECT.
- REFER TO ARCHITECTURAL ELEVATIONS TO DERIVE EXACT LOCATIONS OF ALL RECEPTACLES, OUTLETS/JACKS, SWITCHES, ETC. LUMINAIRES AND CEILING MOUNTED EQUIPMENT SHALL BE COORDINATED WITH THE ARCHITECTURAL REFLECTED CEILING PLANS.
- EXACT LOCATION OF MECHANICAL EQUIPMENT THAT REQUIRE ELECTRICAL CONNECTION ARE SHOWN ON THE MECHANICAL DRAWINGS. FIELD VERIFY EXACT LOCATIONS WITH MECHANICAL CONTRACTOR PRIOR TO ANY ROUGH-INS.
- ALL CIRCUITING SHALL BE RUN CONCEALED UNLESS SPECIFIED OTHERWISE.
- ALL RACEWAYS RUNNING THROUGH BUILDING EXPANSION JOINTS SHALL BE EQUIPPED WITH EXPANSION FITTINGS.
- CONDUIT HOME RUNS SHOWN ON THE DRAWING WITH MORE THAN (3) CURRENT CARRYING CONDUCTORS ARE SHOWN DIAGMATICALLY. THIS CONTRACTOR SHALL NOT INSTALL MORE THAN (3) CURRENT CARRYING CONDUCTORS IN A RACEWAY UNLESS NATIONAL ELECTRIC CODE (N.E.C), ARTICLE 310.15 DERATING FACTORS ARE APPLIED.
- ALL LIGHTING AND GENERAL POWER BRANCH CIRCUITS SHALL INCLUDE A SEPARATE NEUTRAL CONDUCTOR, UNLESS SPECIFICALLY NOTED OTHERWISE.
- THE ELECTRICAL CONTRACTOR SHALL REFER TO THE ELECTRICAL SPECIFICATIONS FOR ACCEPTABLE CONDUIT TYPES/LOCATIONS. ALL CONDUIT SIZES ON THE DRAWINGS ARE BASED ON THE LATEST EDITION OF THE N.E.C. CONDUIT FILL TABLES FOR ELECTRICAL METALLIC TUBING (E.M.T). CONDUIT SIZES SHALL BE REVISED TO THE SIZE REQUIRED, RELATIVE TO THE ACTUAL CONDUIT TYPE TO BE INSTALLED.
- IT IS NOT INTENDED THAT THE PLANS INDICATE ALL THE NECESSARY BENDS, OFFSETS, PULL BOXES AND OBSTRUCTIONS. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO INSTALL HIS WORK TO CONFORM TO THE STRUCTURE, MAINTAIN HEADROOM AND KEEP OPENINGS AND PASSAGEWAYS CLEAR. REFER TO THE ARCHITECTURAL DRAWINGS FOR ALL DIMENSIONS AS REQUIRED.
- IT IS NOT INTENDED THAT THE PLANS INDICATE ALL CONDUIT ROUTES, PULL BOXES, ETC. CONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING ACTUAL CONDUIT ROUTING, QUANTITY AND LOCATION OF PULL BOXES WITHIN ACCESSIBLE LOCATIONS.
- PROVIDE SCREW-COVER PULL BOXES IN CONDUIT RUNS AS REQUIRED TO LIMIT THE NUMBER OF BENDS TO NO MORE THAN THREE (3), OR 270 DEGREES TOTAL. SIZE PULL BOXES IN ACCORDANCE WITH NEC, ARTICLE 314.28. DOCUMENT ON RECORD DRAWINGS, SIZE AND LOCATION OF PULL BOXES USED IN FEEDER CONDUIT RUNS.
- ALL OUTLET BOXES IN WALLS SHALL HAVE A MINIMUM OF ONE (1) DEDICATED VERTICAL CONDUIT ENTERING AT THE TOP OF THE BOX. HORIZONTAL CONDUIT CONNECTIONS SHALL ONLY BE PERMITTED UNDER WINDOWS OR UNLESS OTHERWISE NOTED ON DRAWINGS.
- WHERE MULTIPLE DEVICES ARE INDICATED IN A COMMON LOCATION, GANG INTO A SINGLE COVER PLATE.
- ALL EXISTING PANELS SHALL BE PROVIDED WITH ENGRAVED NAMEPLATES AS DESIGNATED ON PANEL SCHEDULES SECURED TO PANEL FACE AND NEW ENGRAVED NAMEPLATES DENOTING ORIGIN OF FEEDER FROM WHICH PANEL IS SERVED.

ELECTRICAL DRAWING LIST

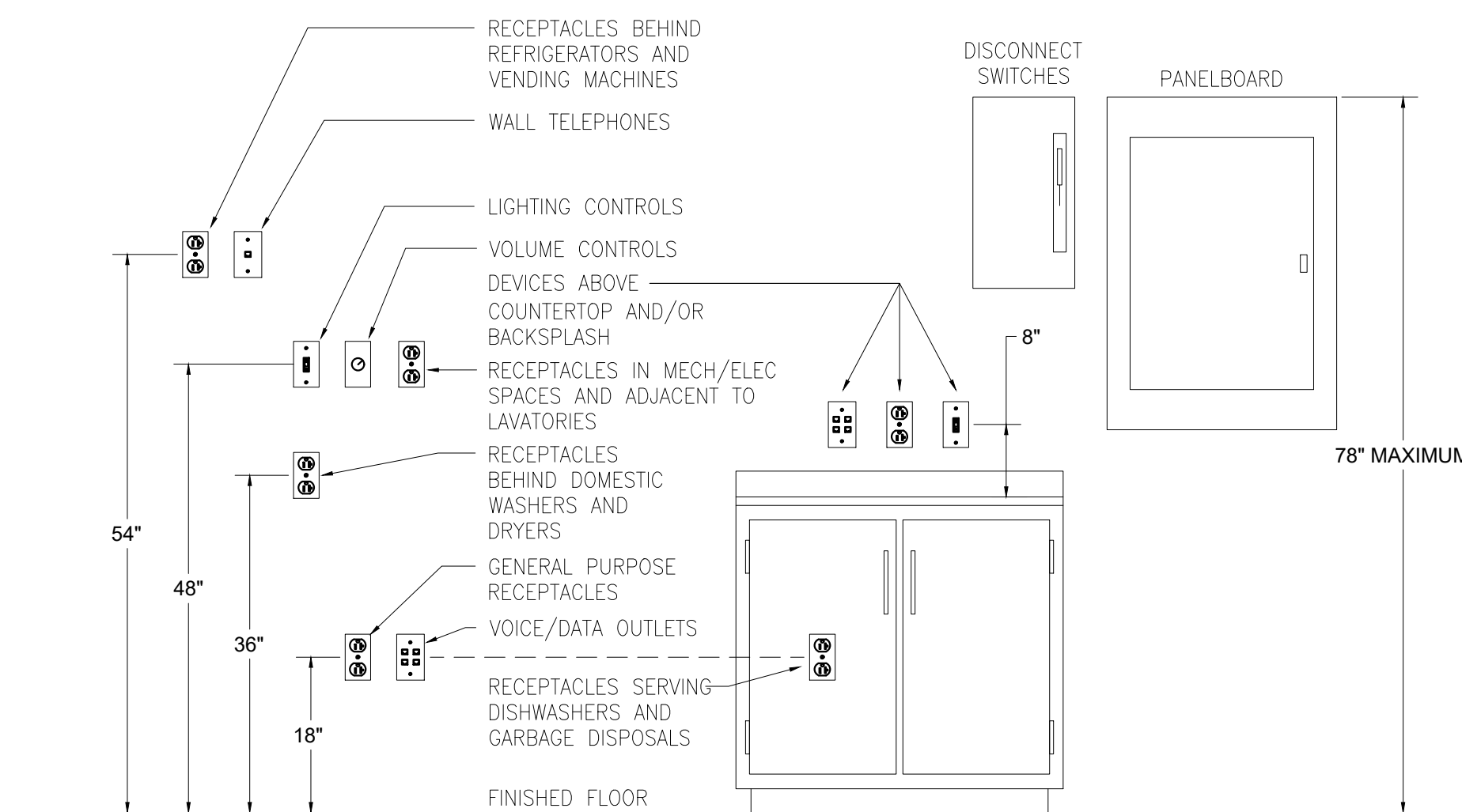
- E1 ELECTRICAL LEGENDS, NOTES AND ABBREVIATIONS
- E2 LIGHTING PLAN
- E3 ELECTRICAL POWER PLAN
- E4 ELECTRICAL ROOF PLAN
- E5 ELECTRICAL DETAILS
- E6 ELECTRICAL RISER DIAGRAM AND PANEL SCHEDULE

SYMBOL LEGEND

	FLUORESCENT LIGHTING FIXTURE AND OUTLET BOX. HALF SHADED FIXTURE OR "EM" INDICATES FIXTURES WITH INTEGRAL BATTERY PACK FOR EMERGENCY SERVICE, U.O.N.
	LUMINAIRE TYPE : INDICATE BY LIPPERCASE LETTER SEE LIGHTING EXTURE SCHEDULE.
	CIRCUIT NUMBER : INDICATED BY NUMBER
	SWITCHING INDICATED BY LOWER CASE LETTERS.
	EM DENOTES LUMINAIRE ON EMERGENCY CIRCUIT.
	NL DENOTES FIXTURES DESIGNATED AS NIGHTLIGHT, WIRED TO 24 HOURS UNSWITCHED CIRCUIT.
	CEILING/WALL MOUNTED SELF POWERED EXIT LIGHT FIXTURE WITH DIRECTIONALARROWS AS INDICATED. SHADED AREA DENOTES FACE(S). ISOLITE ELITE SERIES LED EXIT SIGN
	COMBINATION OF EXIT SIGN AND EMERGENCY BUG-EYE FIXTURE.
	EMERGENCY BATTERY UNIT WITH ATTACHED EMERGENCY FIXTURES AND OUTLET BOX.
	LIGHT SWITCH, SINGLE POLE, 20A
	*"o" CONTROL OF SPECIFIED LUMINAIRES **"3" 3-WAY TYPE "OS" LINE VOLTAGE MULTI TECHNOLOGY WALL SWITCH OCCUPANCY SENSOR WITH MANUAL ON/OFF SWITCH. "VS" LINE VOLTAGE MULTI TECHNOLOGY WALL SWITCH VACANCY SENSOR WITH MANUAL ON/OFF SWITCH.
	WALL MOUNTED OCCUPANCY SENSOR SWITCH.
	MANUAL OVERRIDE SWITCH
	POWER OR LIGHTING CIRCUITRY HOMERUN WITH PANELBOARD DESIGNATION, NUMBER WHERE USED INDICATES CIRCUIT NUMBER. IT SHALL CONSISTS OF 1#12 Ø, 1#12 N. & 1#12 G. IN 3/4"C, UNLESS OTHERWISE NOTED.
	POWER OR LIGHTING CIRCUITRY HOMERUN WITH PANELBOARD DESIGNATION, NUMBER WHERE USED INDICATES CIRCUIT NUMBER. IT SHALL CONSISTS OF 2#12 Ø, 2#12 N. & 2#12 G. IN 3/4"C, UNLESS OTHERWISE NOTED.
	POWER OR LIGHTING CIRCUITRY HOMERUN WITH PANELBOARD DESIGNATION, NUMBER WHERE USED INDICATES CIRCUIT NUMBER. IT SHALL CONSISTS OF 3#12 Ø, 3#12 N. & 3#12 G. IN 3/4"C, UNLESS OTHERWISE NOTED.
	30A/240V NON UNFUSED DISCONNECT SWITCH
	60A/240V NON UNFUSED DISCONNECT SWITCH
	100A/240V NON UNFUSED DISCONNECT SWITCH
	200A/240V NON UNFUSED DISCONNECT SWITCH
	JUNCTION BOX WITH BLANK COVER PLATE, FLUSH IN FLOOR.
	JUNCTION BOX WITH BLANK COVER PLATE, WALL MOUNTED, +18" AFF OR AS NOTED.
	DUPLEX CONVENIENCE RECEPTACLE, +18" AFF OR AS NOTED.
	DEDICATED DUPLEX RECEPTACLE, +18" AFF OR AS NOTED.
	DOUBLE DUPLEX RECEPTACLE - 20A-1P, 125V, NEMA 5-20R.
	DUPLEX CONVENIENCE GFCI RECEPTACLE, +18" AFF OR AS NOTED.
	DUPLEX CEILING MOUNTED RECEPTACLE.
	DUPLEX FLOOR MOUNTED RECEPTACLE.
	TELEPHONE/DATA OUTLET, 4" SQUARE OUTLET BOX WITH SINGLE GANG COLLAR AND BLANK PLATE. PROVIDE 3/4" B.C., U.O.N., UP TO HUNG CEILING AND TERMINATE WITH 90° ELBOW, BUSHING AND DRAG WIRE.
	DATA OUTLET
	VOICE OUTLET
	UNIT MOTOR AS NOTED WITH CONTROLLER AND DISCONNECT SWITCH WITH WEATHER PROOF.
	MOTORIZED DAMPER.
	MANUAL MOTOR SWITCH
	PHOTOCELL IN NEMA 3R ENCLOSURE.
	ELECTRICAL HEATER, NUMBER DENOTES HEATER RATING

ABBREVIATIONS

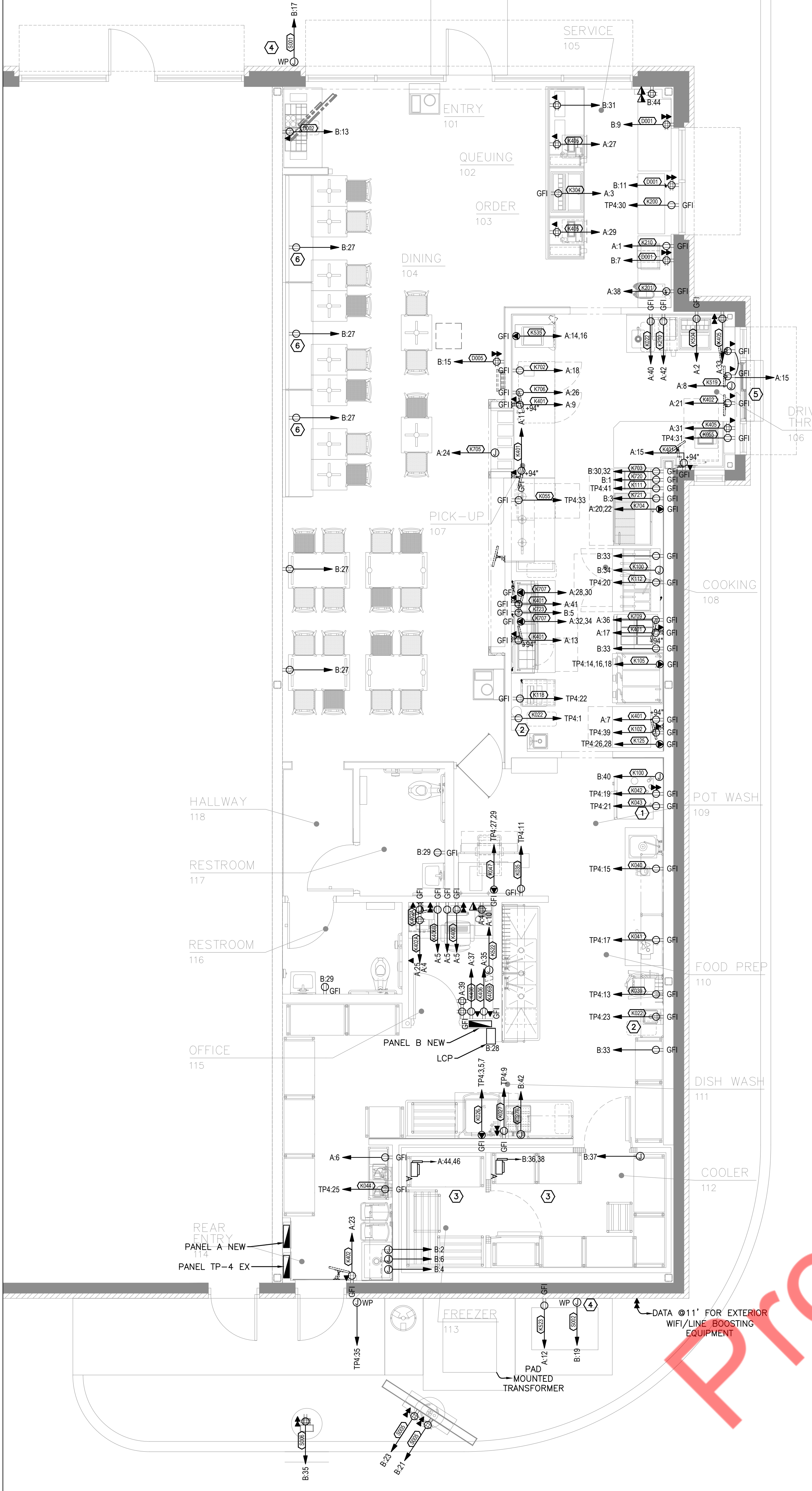
A	AMPERES	EF	EXHAUST FAN
AFF	ABOVE FINISHED FLOOR	EM	EMERGENCY
AS	AMP SWITCH	EMT	ELECTRICAL METALLIC TUBING
AIC	AMPS INTERRUPTING CAPACITY	EQUIP	EQUIPMENT
AT	AMP TRIP	ER	EXISTING TO BE RELOCATED
AWG	AMERICAN WIRE GAUGE	FDR	FEEDER
C	CONDUIT	FIXT	FIXTURE
C/B,CB	CIRCUIT BREAKER	FL	FLOOR
CKT	CIRCUIT	G	GROUND
CLG	CEILING	GFI	GROUND FAULT INTERRUPTER
CU	COPPER	GP	GENERAL PURPOSE
DWG	DRAWING	HP	HORSEPOWER
KCMIL	ONE THOUSAND CIRCULAR MILS	HZ	HERTZ
KVA	KILOVOLT-AMPERES	IC	INTERRUPTING CAPACITY
KW	KILOWATTS	PP	POWER PANEL
LTG	LIGHTING	REC	RECEPTACLE
MAX	MAXIMUM	NC	NOT IN CONTRACT
MCB	MAIN CIRCUIT BREAKER	NTS	NOT TO SCALE
MIN	MINIMUM	P	POLES
N	NEUTRAL	PNL	PANEL
TYP	TYPICAL	IG	ISOLATED GROUND
UNON	UNLESS OTHERWISE NOTED	W	WATT
V	VOLT/VOLTAGE	EX	EXIT
WP	WEATHER PROOF	VA	VOLT AMPERE
EM	EMERGENCY LIGHT		



TYPICAL DEVICE MOUNTING DETAIL

SCALE: NOT TO SCALE

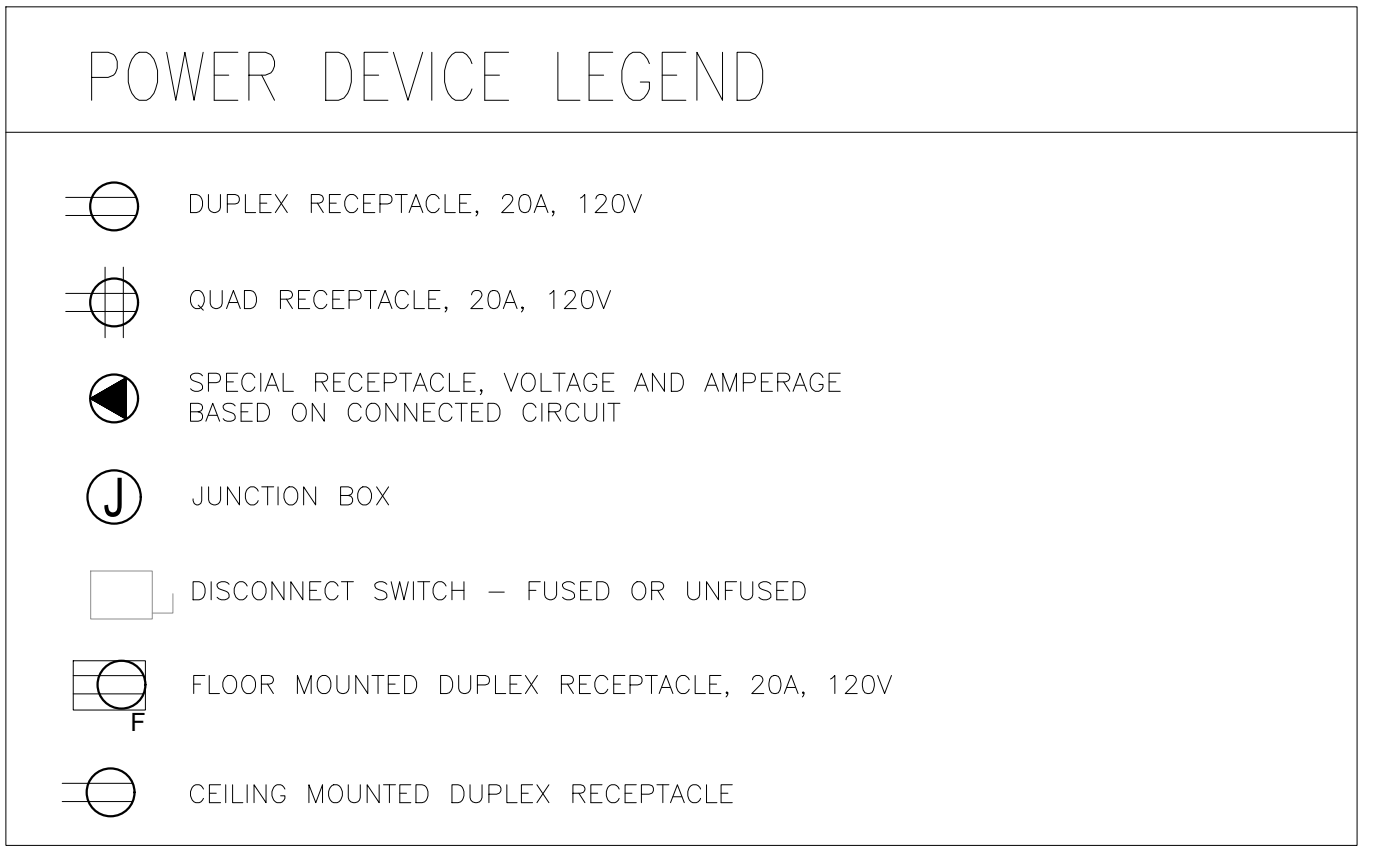
- NOTES:
- ALL MOUNTING HEIGHTS SHALL BE MEASURED FROM FINISHED FLOOR TO THE CENTERLINE OF DEVICE EXCEPT FIRE ALARM A/V DEVICES.
 - NO WIRING DEVICES OR OUTLET BOXES SHALL BE MOUNTED BACK TO BACK.
 - ALL MOUNTING DEVICES SHALL BE INSTALLED AT MOUNTING HEIGHTS AS INDICATED ON THIS DETAIL UNLESS OTHERWISE NOTED.
 - FOR ALL ELEVATIONS (WHERE APPLICABLE), CASEWORK DETAILS, FIRE WALLS, SMOKE WALLS, LOCATION OF COUNTERTOP RECEPTACLES, LIGHTING FIXTURE SWITCHES, TELEPHONE OUTLETS, EQUIPMENT ROUGH-INS, HEADWALLS, ETC., SEE ARCH DRAWINGS. WHERE NO ARCHITECTURAL ELEVATIONS OR DETAILS OCCUR, THE ELECTRICAL CONTRACTOR SHALL USE MEANS AND METHODS AS WELL AS THEIR FIELD KNOWLEDGE TO SPOT DEVICES IN THE BEST LOCATIONS FOR THE PROJECT.



1 POWER PLAN
SCALE: 1/4" = 1'-0"

ELECTRICAL SCHEDULE											
#	DESCRIPTION	ROUGH-IN HEIGHT	VOLTS	PH	AMPS	KW	HP	DIRECT	PLUG	NEMA	REMARKS
K022	HANDS FREE ELECTRIC FAUCET	24"	120	1					●		
K026	DISH MACHINE - HI TEMP	24"	208/240	3	60				●	VFY	S.R. THRU WALL
K027	CONDENSATE HOOD SYSTEM	CEILING	120	1	20						
K027b	CONDENSATE HOOD SYSTEM- FANS	CEILING	208	1	4.4						
K035	WORK TABLE	50"	120	1	20				●		D.R. THRU WALL
K039	30 QT MIXER, FLOOR MODEL	24"	115	1	16		1		●	5-20P	D.R. THRU WALL
K040	FOOD PROCESSOR	54"	120	1	6		3/4		●	5-15P	S.R. THRU WALL
K041	ROBOT COUPE	54"	120	1	12		1.5		●	5-15P	D.R. THRU WALL
K042	COMBI OVEN (Gas)	42"	120	1	15	0.6			●	5-15P	S.R. THRU WALL
K043	EXHAUST HOOD SYSTEM	CEILING	120	1	20				●		FOR LIGHTS IN HOOD
K044	BAG-IN-BOX SYSTEM	94"	120	1	20				●		O.R. THRU WALL
K047	ICE CUBER	52"	208/230	1	17.7				●		D.R. THRU WALL
K055	UNDER COUNTER REF. WITH DRAWERS	24"	115	1	3.2		1/5		●	5-15P	S.R. THRU WALL
K100	EXHAUST HOOD SYSTEM	CEILING	120	1	20				●		FOR LIGHTS IN HOOD
K100a	EXHAUST HOOD SYSTEM - FANS	CEILING	208	1	4.0				●		VERIFY WITH MFG SPECS / DWGS
K102	WORK TOP REFRIGERATOR WITH DRAWERS	24"	115	1	3.2		1/5		●	5-15P	S.R. THRU WALL
K104	HOLDING CABINET	42"	208	1	VFY				●	6-10P	S.R. THRU WALL
K105	CLAM SHELL GRILL (Gas)	24"	208	3	22				●	L15-32P	S.R. THRU WALL
K111	4 CHANNEL TIMER	46"	120	1	.083				●	5-15P	S.R. THRU WALL
K112	FRYER ASSEMBLY (Gas)	24"	115	12	12.0				●	5-15P	D.R. THRU WALL
K118	BUN TOASTER	24"	120	1	14.7				●	5-15P	UNDER COUNTERTOP
K122	3 HEAT LAMP, 1 LUMINAIRE, 1 TRACK	CLG	120	1	VFY				●		THRU GANTRY FROM ABOVE
K125	MICROWAVE - 1800W	78"	208/240	1	13.5	2.8			●	6-20P	S.R. THRU WALL
K200	BOTTLE COOLER	24"	115	1	3.8		1/4		●	5-15P	S.R. THRU WALL
K201	ICE TEA BREWER	54"	120	1	14				●	5-15P	S.R. THRU WALL
K210	BEVERAGE BUBBLER	54"	120	1	8.5				●	5-15P	S.R. THRU WALL
K304	COKE DISPENSER	24"	115	1	20				●		S.R. THRU WALL
K400	BACK OFFICE COMPUTER	42"	120	1	VFY				●		GENERAL D.R. THRU WALL
K401a	KDS MONITOR	94"	120	1	VFY				●	5-15P	D.R. THRU WALL
K401b	KDS MONITOR	94"	120	1	VFY				●		DATA RECEPTACLE
K401c	KDS MONITOR	72"	120	1	VFY				●	5-15P	D.R. THRU BULK HEAD ABOVE
K401d	KDS MONITOR (3)	72"	120	1	VFY				●		DATA RECEPTACLE
K402a	DRIVE-THRU SURVEILLANCE MONITOR	94"	120	1	VFY				●	5-15P	D.R. THRU WALL
K402b	DRIVE-THRU SURVEILLANCE MONITOR	94"	120	1	VFY				●	5-15P	DATA RECEPTACLE
K405a	P.O.S. SYSTEM	54"	120	1	VFY				●		O.R. THRU WALL
K405b	POS DATA	54"	120	1	VFY				●		RJ45 DATA RPT IN MILLWORK
K405c	P.O.S. SYSTEM	18"	120	1	VFY				●		D.R. INSTALLED IN MILLWORK
K405d	POS DATA	18"	120	1	VFY				●		RJ45 DATA RECEPTACLE
K406a	SURVEILLANCE SYSTEM	95"	120	1	VFY				●		D.R. THRU WALL
K406b	DATA	42"	120	1	VFY				●		DATA
K408	MUSIC E SYSTEM	88"	120	1	20				●		S.R. THRU WALL
K409	MUSIC VOLUME CONTROL	72"	120	1	VFY				●		OPEN J-BOX FOR VOLUME CONTROL
K504	DROP-IN SODA DISPENSER	24"	115	1	20				●		S.R. THRU WALL
K519	DRIVE-THRU TIMER	94"	120	1	VFY				●	5-15P	S.R. THRU WALL
K519b	DRIVE-THRU TIMER	94"	120	1	VFY				●		DATA
K522	DRIVE-THRU HEADSETS	48"	120	1	VFY				●	5-15P	S.R. THRU WALL
K523	BULK WASTE OIL RECYCLING SYSTEM	72"	120	1	20				●	5-15P	FM BELOW, DEDICATED NON-GFI
K535	FROZEN BEVERAGE FREEZER	54"	208-230	1	15				●	L6-20P	S.R. THRU WALL
K702	BLENDER	54"	120	1	5.2		3/4		●		D.R. THRU WALL
K703	FRENCH FRY WARMER	54"	208	1	14				●	6-20P	S.R. THRU WALL
K704	CHEESE MELT	68"	208	1	21.6				●	6-30P	S.R. THRU WALL
K705.1	TO-GO CABINET- LIGHTS	90"	120	1	20				●	VFY	
K706	UNDER COUNTER REFRIGERATOR	24"	115	1	4		1/5		●	5-15P	D.R. THRU WALL
K707	HOLDING UNIT	60"	208-240	1	11				●	6-15P	S.R. THRU WALL
K709	BREADING STATION	24"	115	1	4.7		1/4		●	5-15P	D.R. THRU WALL
K720	REF. COUNTER TOP UNIT	54"	120	1	1.4		1/5		●	5-15P	D.R. THRU WALL
K721	FREEZER	24"	115	1	6.4	4.52	1/2		●	5-15P	D.R. THRU WALL
K723	REFRIGERATOR, SALAD TOP	24"	115	1	4.5		1/4		●	5-15P	D.R. THRU WALL
D001	DIGITAL MENU PANELS, W/ WALL BRACKETS	126"	120	1	20				●		D.R. THRU WALL
D001b	DIGITAL MENU PANELS, W/ WALL BRACKETS	126"	120	1	20				●		DATA
D002	DIGITAL PROMOTIONAL MONITOR	96"	120	1	20				●		D.R. THRU WALL
D002b	DIGITAL PROMOTIONAL MONITOR	96"	120	1	20				●		DATA
D005	DIGITAL MENU PANELS, W/ WALL BRACKETS	80"	120	1	20				●		D.R. THRU WALL
D005b	DIGITAL MENU PANELS, W/ WALL BRACKETS	80"	120	1	20				●		DATA
S001	MAIN BUILDING SIGN	VFY	VFY	1	VFY				●		DIRECT
S002	BUILDING SIGN	VFY	VFY	1	VFY				●		DIRECT
S005	DRIVE-THRU MENU BOARD	VFY	VFY	1	VFY				●		DIRECT
S006	DRIVE-THRU SPEAKER BOX	VFY	VFY	1	VFY				●		DIRECT

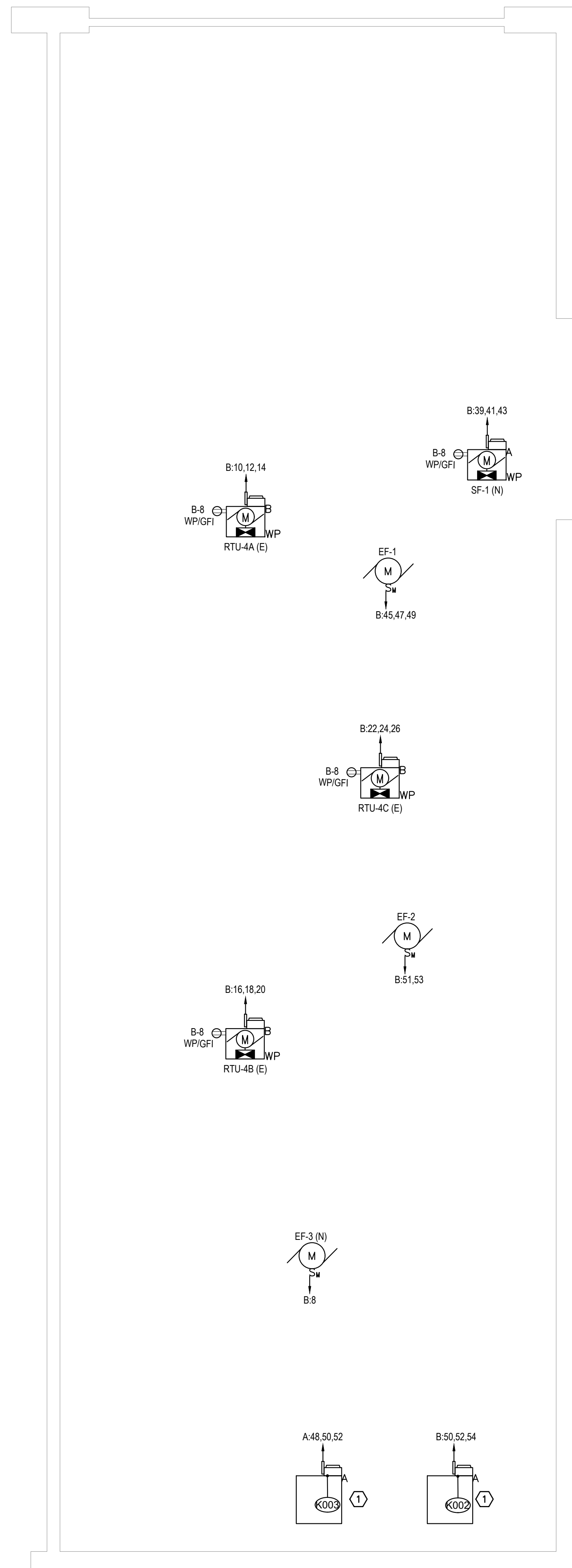
2 EQUIPMENT SCHEDULE
SCALE: N.T.S.



- KEYED NOTES**
- CONTRACTOR SHALL PROVIDE POWER AND NECESSARY WIRING FOR THE HOOD CONTROL PANEL. SEE THE CAPTIVE AIRE DRAWINGS FOR WIRING REQUIREMENTS.
 - PROVIDE JUNCTION BOX FOR AUTO FAUCET IN KITCHEN AREA. COORDINATE EXACT LOCATION OF JUNCTION BOX WITH MANUFACTURER.
 - E.C. TO COORDINATE EXACT POWER REQUIREMENT FOR WALK-IN BOXES WITH THE MANUFACTURER AND PROVIDE BREAKER AND BRANCH CIRCUITS ACCORDINGLY.
 - ELECTRICAL CONTRACTOR SHALL PROVIDE JUNCTION BOX FOR THE EXTERIOR SIGNAGE. INSTALL THE JUNCTION BOX WITHIN THE BUILDING. COORDINATE WITH THE SIGN VENDOR ON THE QUANTITY AND LOCATION OF THE REQUIRED JUNCTION BOXES. THE CONTRACTOR SHALL PROPERLY SIZE THE JUNCTION BOX BASED ON THE QUANTITY OF CONNECTIONS REQUIRED. VERIFY LOCATION WITH ARCHITECTURAL ELEVATION ON SHEET AS.0 AND SIGN VENDOR PRIOR TO INSTALLING. ALL SIGNS SHALL BE CONTROLLED VIA TIME CLOCK.
 - PROVIDE JUNCTION BOX OR POWER AND DATA OUTLET AS REQUIRED FOR DRIVE THROUGH MENUBOARD AND SPEAKER BOX. COORDINATE EXACT LOCATION WITH CIVIL DRAWINGS. REFER DRIVE THROUGH MENU AND LOOP DETAIL ON SHEET ES FOR WIRING AND CONDUIT SIZE. VERIFY ELECTRICAL REQUIREMENT WITH MANUFACTURER.
 - MOUNT RECEPTACLES IN MILLWORK

- GENERAL NOTES**
- E.C. TO COORDINATE WITH ARCHITECT FOR EXACT MOUNTING HEIGHT OF THE RECEPTACLES.
 - ALL 15A & 20A RECEPTACLES IN KITCHEN AREA SHALL BE OF GFCI TYPE. RECEPTACLES SHALL BE LOCATED IN ACCESSIBLE LOCATION, ELSE PROVIDE GFI BREAKER IN PANEL.
 - COOKING EQUIPMENT OUTLETS SHALL BE WEATHER PROOF BOXES.
 - ALL GFCI OUTLET BOXES FOR COOK LINE EQUIPMENT SHALL BE WEATHER PROOF (EXTERIOR RATED).

Property of [Redacted]



GENERAL NOTES

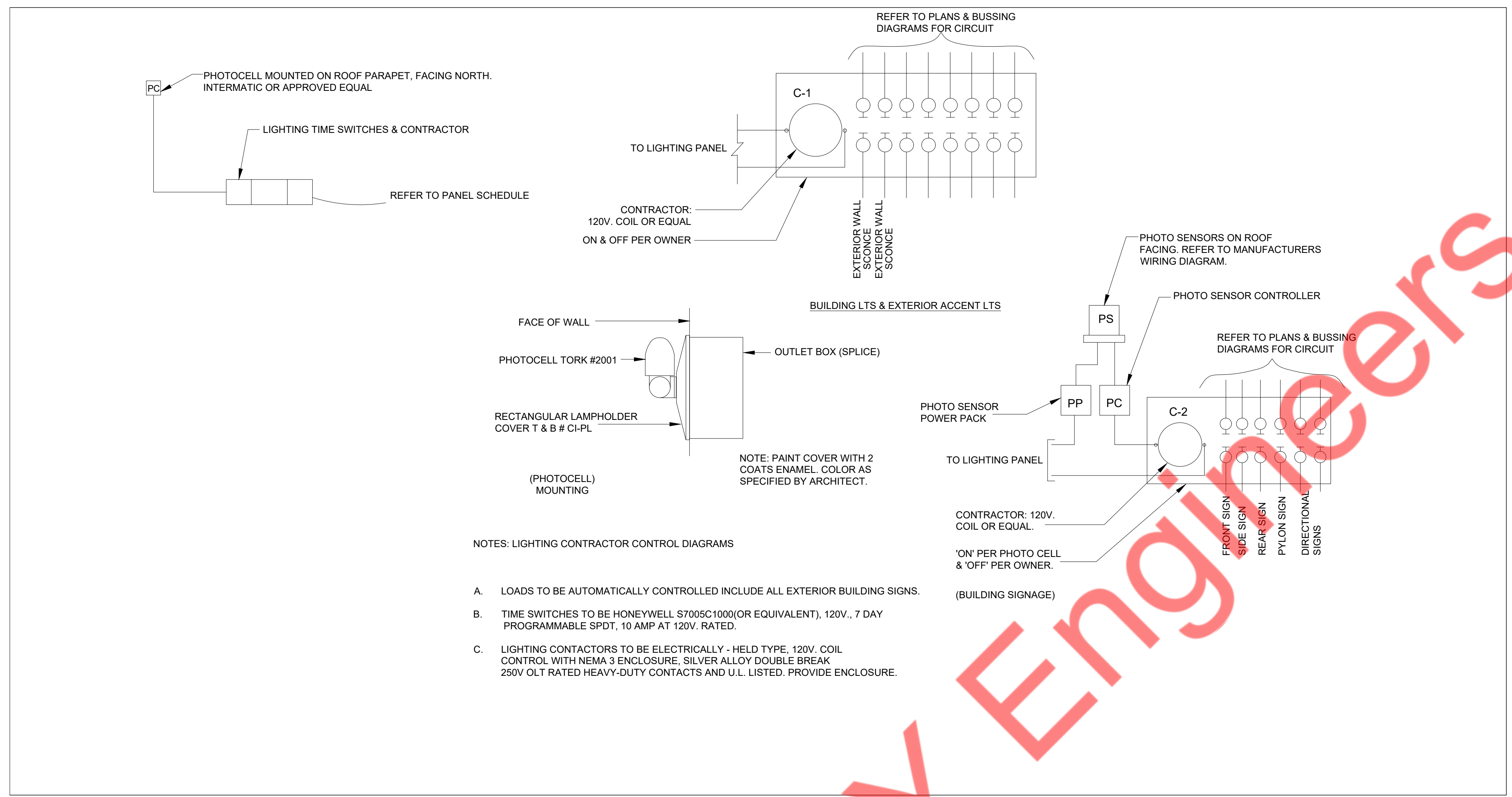
1. COORDINATE EXACT LOCATION OF HVAC EQUIPMENTS ON ROOF WITH MECHANICAL CONTRACTOR.
2. ELECTRICAL CONTRACTOR SHALL COORDINATE DISCONNECT AND FUSE REQUIREMENT FOR MECHANICAL UNIT WITH MECHANICAL CONTRACTOR AND EQUIPMENT MANUFACTURER PRIOR TO ROUGH-IN AND PROVIDE AS REQUIRED. COORDINATE LOCATION OF DISCONNECT WITH MANUFACTURER AND MECHANICAL CONTRACTOR PRIOR TO ROUGH-IN. LOCATE AS REQUIRED TO MAINTAIN NEC CLEARANCES.

KEYED NOTES

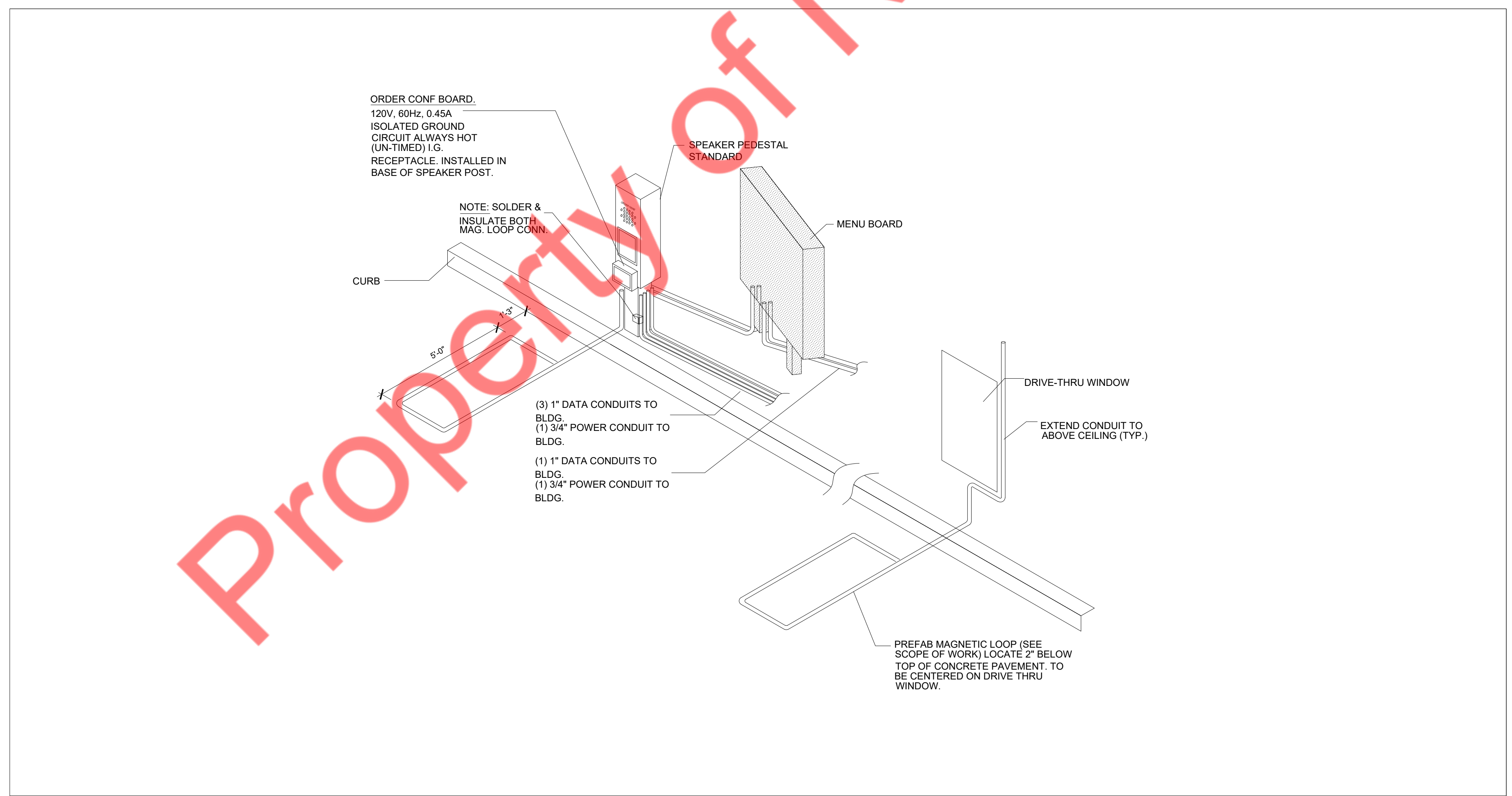
1. E.C. TO COORDINATE EXACT POWER REQUIREMENT FOR WALK-IN BOXES WITH THE MANUFACTURER AND PROVIDE BREAKER AND BRANCH CIRCUITS ACCORDINGLY.

1 ELECTRICAL ROOF PLAN
SCALE: 1/4" = 1'-0"

Property of NY Engineers



1 EXTERIOR LIGHTING CONTRACTOR DETAIL(TYPICAL)
SCALE: NO SCALE



2 DRIVE-THRU MENU & LOOP DETAIL
SCALE: NO SCALE

PANEL:		TP-4 (EXISTING)													
208Y/120	VOLTS,	3	PHASE	4	WIRE	PANEL LOCATION: EXISTING									
MCB	600A	BUS:		600A	MIN.										
NOTE:															
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	K022-HANDSFREE ELE. FAUCET	E	0.50	2#12,1#12,3/4"C	0.50						SPARE	20	2	
3			E	7.20			8.10			2#12,1#12,3/4"C	0.90	L	LIGHTING-DRIVE THRU, COOKING, FOOD PREP	20	4
5	60/3P	K026-DISH MACHINE HI TEMP	E	7.20	3#6,1#10,3/4"C			7.80		2#12,1#12,3/4"C	0.60	L	EXTERIOR LIGHTING	20	6
7			E	7.20										8	
9	20	K027-CONDENSATE HOOD SYSTEM	E	2.40	2#12,1#12,3/4"C			2.40				SPARE	30/3P	10	
11	20	K035-WORK TABLE	E	2.40	2#12,1#12,3/4"C			2.40						12	
13	20	K039-30 QT MIXER FLOOR MODEL	E	1.84	2#12,1#12,3/4"C	4.48								14	
15	20	K040-FOOD PROCESSOR	E	0.69	2#12,1#12,3/4"C		3.33			3#10,1#10,3/4"C	2.64	E	K105-CAM SHELL GRILL (GAS)	30/3P	16
17	20	K041-ROBOT COUPE	E	1.44	2#12,1#12,3/4"C			4.08			2.64	E		18	
19	20	K042-COMBI OVEN GAS	E	1.80	2#12,1#12,3/4"C	3.18				2#12,1#12,3/4"C	1.38	E	K112-FRYER ASSEMBLY (GAS)	20	20
21	20	K043-EXHAUST HOOD SYSTEM	E	1.90	3#10,1#10,3/4"C		3.66			2#12,1#12,3/4"C	1.76	E	K118-BUN TOASTER	20	22
23	20	K022-AUTO FAUCET	E	1.90	3#10,1#10,3/4"C			2.80		2#12,1#12,3/4"C	0.90	L	K122-3HEAT LAMP 1 LUM 1 TRACK	20	24
25	20	K044-BAG-N-BOX SYSTEM	E	2.40	2#12,1#12,3/4"C	3.80				2#12,1#12,3/4"C	1.40	E	K125-MICROWAVE - 1800W	20/2P	26
27			E	1.84				3.24			1.40	E		28	
29	20/2P	K047-ICE CUBER	E	1.84	2#12,1#12,3/4"C			2.28		2#12,1#12,3/4"C	0.44	E	K200-BOTTLE COOLER	20	30
31	20	K055-UNDER COUNTER REFRIGERATOR	E	0.37	2#12,1#12,3/4"C	15.21					14.84	O		32	
33	20	K055-UNDER COUNTER REFRIGERATOR	E	0.37	2#12,1#12,3/4"C		15.21			4#1,1#6,1 1/4"C	14.84	O	TO SUB PANEL A	125/3P	34
35	20	DOOR BELL	R	0.50	2#12,1#12,3/4"C						14.84	O		36	
37	20	SPARE						26.22			26.22	O		38	
39	20	K102-WORK TOP REF. WITH DRAWER	E	0.37	2#12,1#12,3/4"C			26.59		4#4/0,1#4,2"C	26.22	O	TO SUB PANEL B	225/3P	40
41	20	K111-4 CHANNEL TIMER	E	0.09	2#12,1#12,3/4"C			26.31			26.22	O		42	
						60.59	62.53	61.01							

PANEL:		A (NEW)													
208Y/120	VOLTS,	3	PHASE	4	WIRE	PANEL LOCATION:									
MLO	225A	BUS:		225A	MIN.										
NOTE:															
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	K210-BEVERAGE BUBBLER	E	1.02	2#12,1#12,3/4"C	3.32				2#12,1#12,3/4"C	2.30	E	K504-DROP IN SODA DISPENSER	20	2
3	30	K304-COKE DISPENSER	E	2.30	2#12,1#12,3/4"C		2.66			2#12,1#12,3/4"C	0.36	R	K603-OUTLET	20	4
5	20	K400-BACK OFFICE COMPUTER	R	0.90	2#12,1#12,3/4"C			1.60		2#12,1#12,3/4"C	0.70	R	UNDER COUNTER EQUIPMENT	20	6
7	20	K401-KDS MONITOR	R	0.50	2#12,1#12,3/4"C	1.00				2#12,1#12,3/4"C	0.50	E	K519-DRIVE THRU TIMER	20	8
9	20	K401-KDS MONITOR	R	0.50	2#12,1#12,3/4"C		1.00			2#12,1#12,3/4"C	0.50	E	K522-DRIVE-THRU HEADSETS	20	10
11	20	K401-KDS MONITOR	R	0.50	2#12,1#12,3/4"C			2.80		2#10,1#10,3/4"C	2.30	E	K523-BULK WASTE OIL RECYCLING SYSTEM	20	12
13	20	K401-KDS MONITOR	R	0.50	2#12,1#12,3/4"C	2.06				2#12,1#12,3/4"C	1.56	E	K535-FROZEN BEVERAGE FREEZER	20/2P	14
15	20	K401-KDS MONITOR	R	0.50	2#12,1#12,3/4"C		2.06			2#12,1#12,3/4"C	1.56	E		16	
17	20	K401-KDS MONITOR	R	0.50	2#12,1#12,3/4"C			1.12		2#12,1#12,3/4"C	0.62	E	K702-BLENDER	20	18
19	20	K401-KDS MONITOR	R	0.50	2#12,1#12,3/4"C	2.74				2#12,1#12,3/4"C	2.24	E		20	
21	20	K402-DRIVE THRU SURVEILLANCE MONITOR	E	0.50	2#12,1#12,3/4"C		2.74			2#12,1#12,3/4"C	2.24	E	K704-CHEESE MELT	30/2P	22
23	20	K402-DRIVE THRU SURVEILLANCE MONITOR	E	0.50	2#12,1#12,3/4"C			2.80		2#12,1#12,3/4"C	2.30	E	K705-TO GO CABINET LIGHT	20	24
25	20	K402-DRIVE THRU SURVEILLANCE MONITOR	E	0.50	2#12,1#12,3/4"C	0.96				2#12,1#12,3/4"C	0.46	E	K706-UC REF	20	26
27	20	K405-POS	E	0.50	2#12,1#12,3/4"C		1.64			2#12,1#12,3/4"C	1.14	E	K707-HOLDING UNIT	20/2P	28
29	20	K405-POS	E	0.50	2#12,1#12,3/4"C		1.64			2#12,1#12,3/4"C	1.14	E		30	
31	20	K405-POS	E	0.50	2#12,1#12,3/4"C	1.64				2#12,1#12,3/4"C	1.14	E	K707-HOLDING UNIT	20/2P	32
33	20	K405-POS	E	0.50	2#12,1#12,3/4"C		1.64			2#12,1#12,3/4"C	1.14	E		34	
35	20	K406-SURVEILLANCE SYSTEM & DATA	E	0.50	2#12,1#12,3/4"C		1.04			2#12,1#12,3/4"C	0.54	E	K709-BREADING STATION	20	36
37	20	K408-MUSIC SYSTEM	E	2.30	2#12,1#12,3/4"C	3.98				2#12,1#12,3/4"C	1.68	E	K201-ICE TEA BREWER	20	38
39	20	K603-IT EQUIPMENT	R	0.72	2#12,1#12,3/4"C		1.74			2#12,1#12,3/4"C	1.02	E	K022-HANDS FREE ELECTRIC FAUCET	20	40
41	20	K401-KDS MONITOR	R	0.50	2#12,1#12,3/4"C		1.52			2#12,1#12,3/4"C	1.02	E	K210-BEVERAGE BUBBLER	20	42
43	20	SPARE								2#12,1#12,3/4"C	1.44	M	K002-WALK IN COOLER EVAPORATOR	20/2P	44
45	20	SPARE									1.44	M		46	
47	20	SPARE									2.87	M		48	
49	20	SPARE									2.87	M	K003-WALK IN FREEZER CONDENSER	30/3P	50
51	20	SPARE									2.87	M		52	
						15.70	13.48	12.52							

PANEL:		B (NEW)													
208Y/120	VOLTS,	3	PHASE	4	WIRE	PANEL LOCATION:									
MLO	225A	BUS:		225A	MIN.										
NOTE:															
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	K720-REF. COUNTER TOP UNIT	E	0.17	2#12,1#12,3/4"C	0.27				2#12,1#12,3/4"C	0.10	H	WH-1	20	2
3	20	K721-FREEZER	E	0.74	2#12,1#12,3/4"C		0.84			2#12,1#12,3/4"C	0.10	H	WH-1	20	4
5	20	K723-REF. SALAD TOP	E	0.52	2#12,1#12,3/4"C			1.02		2#12,1#12,3/4"C	0.50	H	RCP-1	20	6
7	30	D001-DIGITAL MENU PANELS	E	2.40	2#12,1#12,3/4"C	3.12				2#12,1#12,3/4"C	0.72	R	ROOF-TOP RECEPTACLE	20	8
9	30	D001-DIGITAL MENU PANELS	E	2.40	2#12,1#12,3/4"C		6.20				3.80	M		10	
11	30	D001-DIGITAL MENU PANELS	E	2.40	2#12,1#12,3/4"C			6.20		3#6,1#10,3/4"C	3.80	M	RTU-4A (E)	60/3P	12
13	30	D002-DIGITAL PROMOTIONAL MONITOR	E	2.40	2#12,1#12,3/4"C	6.20					3.80	M		14	
15	20	D005-DIGITAL MENU PANEL	E	2.40	2#12,1#12,3/4"C		6.20				3.80	M		16	
17	20	S001-MAIN BUILDING SIGN	L	1.20	2#12,1#12,3/4"C			5.00		3#6,1#10,3/4"C	3.80	M	RTU-4B (E)	60/3P	18
19	20	S002-BUILDING SIGN	L	1.20	2#12,1#12,3/4"C			5.00			3.80	M		20	
21	20	S005-DRIVE-THRU MENU BOARD	R	0.90	2#12,1#12,3/4"C			4.70			3.80	M		22	
23	20	S005-DRIVE-THRU SPEAKER BOX	R	0.50	2#12,1#12,3/4"C			4.30		3#6,1#10,3/4"C	3.80	M	RTU-4C (E)	60/3P	24
25	20	LIGHTING-RESTROOM-116, 117, HALLWAY 118, OFFICE 115, COOLER, FREEZER	L	0.50	2#12,1#12,3/4"C	4.30					3.80	M		26	
27	20	DINING RECEPTACLE	R	0.90	2#12,1#12,3/4"C		1.90			2#12,1#12,3/4"C	1.00	L	LCP	20	28
29	20	RESTROOM GFI	R	0.36	2#12,1#12,3/4"C			1.81		2#12,1#12,3/4"C	1.45	E	K703-FRENCH FRY WARMER	20/2P	30
31	20	SERVICE AREA RECEPTACLE	R	0.36	2#12,1#12,3/4"C		1.81				1.45	E		32	
33	20	COOKING AREA RECEPTACLE	R	0.90	2#12,1#12,3/4"C		1.90			2#12,1#12,3/4"C	1.00	O	HOOD FAN	20	34
35	20	S006-DRIVE-THRU SPEAKER BOX	R	0.36	2#12,1#12,3/4"C			2.11		2#12,1#12,3/4"C	1.75	M	K003-WALK IN FREEZER EVAPORATOR	20/2P	36
37	20	MISCELLANEOUS	O	0.50	2#12,1#12,3/4"C	2.25					1.75	M		38	
39			O	0.58			1.58			2#12,1#12,3/4"C	1.00	O	HOOD FAN	20	40
41	20/3P	SF-1(N)	O	0.58	3#12,1#12,3/4"C			1.58		2#12,1#12,3/4"C	1.00	O	HOOD FAN	20	42
43			O	0.58			0.94			2#12,1#12,3/4"C	0.36	R	PHONE / UTILITY OUTLET	20	44
45			O	0.90				0.90					SPARE	20	46
47	20/3P	EF-1(N)	O	0.90	3#12,1#12,3/4"C			0.90					SPARE	20	48
49			O	0.90			3.77				2.87	M		50	
51	20/2P	EF-2(N)	O	0.24	2#12,1#12,3/4"C			3.11		3#10,1#10,3/4"C	2.87	M	K002-WALK IN COOLER CONDENSER	30/3P	52
53															

PLUMBING SPECIFICATIONS

- A. GENERAL CONDITIONS OTHER CONTRACT DOCUMENTS**
1. THE GENERAL CONDITIONS AND OTHER CONTRACT DOCUMENTS AS SET FORTH HEREBY ARE TO BE INCORPORATED INTO AND BECOME A PART OF THE SPECIFICATIONS FOR THE WORK UNDER THIS DIVISION.
- B. CODES AND PERMITS**
1. COMPLY WITH RULES, REGULATIONS OF STATE, COUNTY, AND CITY AUTHORITIES HAVING JURISDICTION OVER THE PREMISES, INCLUDING SAFETY REQUIREMENTS OF OSHA. DO NOT CONSTRUCT THIS AS RELIEVING CONTRACTOR FROM COMPLYING WITH SPECIFICATIONS WHICH EXCEED CODE REQUIREMENTS AND NOT IN CONFLICT THEREWITH.
 2. SECURE AND PAY FOR ALL PERMITS AND CERTIFICATES OF INSPECTION REQUIRED. MAKE PAYMENTS TO ALL PUBLIC UTILITIES FOR WORK PERFORMED BY THEM IN PROVIDING SERVICE CONNECTIONS.
- C. LOCAL CONDITIONS**
1. VISIT SITE, BECOME FAMILIAR WITH CONDITIONS AFFECTING THIS WORK. NO ADDITIONAL PAYMENT WILL BE MADE ON CLAIMS THAT ARISE FROM LACK OF KNOWLEDGE OF EXISTING CONDITIONS.
 2. THIS CONTRACTOR SHALL BE HELD TO HAVE EXAMINED THE PREMISES AND SITE SO AS TO COMPARE THEM WITH THE DRAWINGS AND SPECIFICATIONS. NO ALLOWANCE SHALL BE MADE TO THE CONTRACTOR BY REASON OF HIS FAILURE TO HAVE MADE SUCH EXAMINATION OR OF ANY ERROR ON HIS PART.
- D. DRAWINGS**
1. DRAWINGS AND SPECIFICATIONS ARE TO BE CONSIDERED AS SUPPLEMENTING EACH OTHER. WORK SPECIFIED SHALL BE PERFORMED OR FURNISHED AS THOUGH MENTIONED IN BOTH SPECIFICATIONS AND DRAWINGS.
 2. THE DRAWINGS ARE SCHEMATIC ONLY AND ARE INTENDED TO SHOW THE APPROXIMATE LOCATIONS. DO NOT SCALE.
- E. SHOP DRAWINGS**
1. THIS CONTRACTOR SHALL SUBMIT SHOP DRAWINGS ON THE ITEMS OF EQUIPMENT AND SYSTEMS AS NECESSARY TO CLEARLY SHOW EQUIPMENT AND CONSTRUCTION.
- F. SUPERVISION**
1. THIS CONTRACTOR SHALL HAVE IN CHARGE OF THE WORK, A COMPETENT SUPERINTENDENT WITH EXPERIENCE IN THE WORK TO BE INSTALLED UNDER THIS CONTRACT.
- G. COORDINATION**
1. THIS CONTRACTOR SHALL COORDINATE HIS WORK AND COOPERATE WITH THE OTHER CONTRACTORS. HE SHALL ARRANGE HIS WORK WITH THEIRS SO THAT THERE WILL BE NO DELAY IN THE PROPER INSTALLATION.
 2. EXAMINE WORK OF OTHER TRADES WHICH COMES IN CONTACT WITH OR IS COVERED BY THIS WORK. DO NOT ATTACH TO, COVER, OR FINISH AGAINST ANY DEFECTIVE WORK, OR INSTALL WORK OF THIS DIVISION IN A MANNER WHICH WILL PREVENT OTHER TRADES FROM PROPERLY INSTALLING THEIR WORK. CONSULT ALL DRAWINGS, SPECIFICATIONS AND DETAILS OF OTHER DIVISIONS OF THE WORK.
- H. CUTTING AND PATCHING**
1. ALL CUTTING AND PATCHING WORK RELATED TO THIS CONTRACT WILL BE THE RESPONSIBILITY OF THIS CONTRACTOR.
- I. GUARANTEE AND WARRANTIES**
1. WARRANT THAT EQUIPMENT AND ALL WORK IS INSTALLED IN ACCORDANCE WITH GOOD ENGINEERING PRACTICE AND THAT ALL EQUIPMENT WILL MEET REQUIREMENTS SPECIFIED. ANY EQUIPMENT FAILING TO PERFORM OR FUNCTION AS SPECIFIED SHALL BE REPLACED WITH COMPLYING EQUIPMENT, WITHOUT COST TO THE OWNER.
 2. GUARANTEE AGAINST DEFECTS IN WORKMANSHIP AND MATERIALS; MAKE GOOD REPAIR OR REPLACE ANY DEFECTIVE WORK, MATERIAL OR EQUIPMENT WITHIN ONE YEAR FROM DATE OF ACCEPTANCE.
- J. INSTALLATION REQUIREMENTS**
1. LOCATION OF PIPING, EQUIPMENT, ETC., ON THE DRAWINGS IS DIAGRAMMATIC; INDICATED POSITIONS SHALL BE FOLLOWED AS CLOSELY AS POSSIBLE; EXACT LOCATIONS SHALL BE SUBJECT TO BUILDING CONSTRUCTION AND INTERFERENCES WITH OTHER WORK. ARCHITECT RESERVES RIGHT TO MAKE MINOR CHANGES IN LOCATION OF ANY PART OF THE WORK UP TO THE TIME OF ROUGHING-IN WITHOUT ADDITIONAL COST.
- K. TEST AND ADJUSTMENTS**
1. OBTAIN ALL INSPECTIONS REQUIRED BY LAW, ORDINANCES, RULES, REGULATIONS OF AUTHORITIES HAVING JURISDICTION, FURNISH CERTIFICATES OF SUCH INSPECTIONS. PAY ALL FEES AND PROVIDE ALL EQUIPMENT, POWER AND LABOR NECESSARY FOR INSPECTIONS AND TEST.
 2. PRESSURE TESTS
 - a. ALL PIPING SHALL BE GIVEN THE FOLLOWING PRESSURE TEST WITHOUT APPRECIABLE PRESSURE DROP. EQUIPMENT WHICH WOULD BE DAMAGED BY THE REQUIRED TEST PRESSURE SHALL BE ISOLATED FROM THE SYSTEM DURING TESTING.

SERVICE	MEDIUM	(PSI)	HRS.
DOMESTIC WATER	WATER	125	6
GAS PIPING	AIR	50	24
 - b. SANITARY SEWERS PER STATE PLUMBING CODE AND LOCAL AUTHORITY.
- L. MATERIALS**
1. PIPE & FITTINGS
 - DOMESTIC WATER - TYPE "L" HARD COPPER
 - WASTE & DRAIN PIPING (ABOVE GROUND INTERIOR) - CAST IRON PIPE
 - BUILDING SEWERS & DRAINS (UNDERGROUND) - CAST IRON PIPE
 - REFRIGERANT - TYPE "L" HARD COPPER.
- M. VALVES**
1. VALVES IN WATER PIPING: BALL VALVES WITH SCREWED ENDS, MIN. 150 LBS., SWP. VALVES USED FOR SHUT-OFF AND BALANCING SHALL BE EQUIPPED WITH MEMORY STOP.
- N. INSULATION**
1. ALL INSULATION SHALL BE INSTALLED OVER CLEAN DRY SURFACES. INSULATION MUST BE DRY AND IN GOOD CONDITION. WET OR DAMAGED INSULATION WILL NOT BE ACCEPTABLE. NO INSULATION SHALL BE APPLIED PRIOR TO PRESSURE TEST COMPLETION OF THE RESPECTIVE PIPING SYSTEMS.
 2. FIBERGLASS PIPE INSULATION SHALL BE INSTALLED WITH JOINTS BUTTED FIRMLY TOGETHER. JACKET LAPS TO BE SEALED WITH FACTORY APPLIED ADHESIVE. BUTT JOINTS TO BE SEALED WITH BUTT STRIPES, HAVING FACTORY APPLIED ADHESIVE. VALVES AND FITTINGS SHALL BE INSULATED USING MITERED SECTIONS OF INSULATION, INSULATION CEMENT, OR PREMOLDED FITTING INSULATION. THE INSULATION APPLIED TO THE VALVES AND FITTINGS SHALL BE COVERED WITH THE SAME TYPE OF COVERING AS USED ON THE PIPE INSULATION.
 3. PROVIDE THE FOLLOWING INSULATION PRODUCTS AS MANUFACTURED BY OWENS-CORNING. INSULATION PRODUCTS AS MANUFACTURED BY ARMSTRONG, CERTAINTED OR KNAUF ARE ACCEPTABLE. ADHESIVE SHALL BE BENJAMIN FOSTER OR EQUAL.
 4. MATERIAL
 - DOMESTIC HOT WATER - 1/2" THICK ASJ/SSL FIBERGLASS
 - DOMESTIC COLD WATER - 1/2" THICK ASJ/SSL FIBERGLASS
- O. WASTE SYSTEMS**
1. RUN ALL DRAINAGE PIPING AS DIRECT AS POSSIBLE. ACTUAL LOCATION OF DRAINS AND WASTE PIPING SHALL MEET THE VARIOUS BUILDING CONDITIONS. DO ANY WORK NECESSARY TO CONCEAL PIPING OR CLEAR PIPING OF OTHER TRADES.
- P. WATER SUPPLY SYSTEMS**
1. EXTEND WATER SERVICE FROM LANDLORD SUPPLIED WATER METER CONNECTION PROVIDED OUTSIDE OF BUILDING WITH HOT AND COLD WATER BEING SUPPLIED AND CONNECTED TO ALL FIXTURES AND EQUIPMENT.
- Q. GAS PIPING SYSTEMS**
1. EXTEND NEW GAS PIPING FROM THE EXISTING METER LOCATED OUTSIDE OF BUILDING WHICH IS ALLOCATED FOR SPACE, AND CONNECT TO ALL ROOFTOP HVAC UNITS, KITCHEN EQUIPMENT & WATER HEATERS. INSTALL DRIP LEG AND SHUTOFF VALVE AT CONNECTION.

END OF SECTION

FIXTURE CONNECTION SCHEDULE					
MARK	FIXTURE	HW	CW	SAN	VENT
WC-1	ADA WATER CLOSET	--	1	4	2
LAV-1	ADA LAVATORY	1/2	1/2	1-1/2	1-1/2
FD-1	FLOOR DRAIN	--	--	3,4	--
FD-2	FLOOR DRAIN	--	--	3,4	--
FS-1	FLOOR SINK	--	--	3	2
FS-2	FLOOR SINK	--	--	3	2
CO-1	CLEANOUT	--	--	3,4	--

ENERGY CONSERVATION NOTES:

1. AS PER MICHIGAN ENERGY CODE (IECC 2015) PIPING FROM A WATER HEATER TO THE TERMINATION OF HEATED WATER FIXTURE SUPPLY PIPE SHALL BE INSULATED IN ACCORDANCE WITH TABLE OF MINIMUM PIPE INSULATION THICKNESS.

MINIMUM PIPE INSULATION THICKNESS						
FLUID OPERATING TEMPERATURE RANGE AND USAGE (°F)	INSULATION CONDUCTIVITY		NOMINAL PIPE OR TUBE SIZE (INCHES)			
	CONDUCTIVITY BTU-IN./ (H-FT ² -°F)	MEAN RATING TEMPERATURE, °F	<1	1 to < 1 1/2	1 1/2 to < 4	4 to >8
141-200	0.25-0.29	125	1.5	1.5	2	2
105-140	0.21-0.28	100	1.0	1.0	1.5	1.5
40-60	0.21-0.27	75	0.5	0.5	1.0	1.0

2. HOT WATER SYSTEM PIPING IS DESIGNED AS PER MAXIMUM ALLOWED PIPE LENGTH METHOD AS PER MICHIGAN ENERGY CODE (IECC 2015). THE HOT WATER VOLUME FROM THE NEAREST SOURCE OF HEATED WATER TO THE TERMINATION OF THE FIXTURE SUPPLY PIPE SHALL BE AS PER MAXIMUM PIPING LENGTH TABLE.
3. AS PER MICHIGAN ENERGY CODE (IECC 2015) AUTOMATIC CONTROLS SHALL BE INSTALLED THAT LIMITS THE OPERATION OF A RE-CIRCULATING PUMP AND THE SYSTEM RETURN PIPE SHALL BE A DEDICATED RETURN PIPE OR A COLD WATER SUPPLY PIPE.
4. AS PER MICHIGAN ENERGY CODE (IECC 2015) THE CONTROLS ON PUMPS THAT CIRCULATE WATER BETWEEN A WATER HEATER AND A HEATED-WATER STORAGE TANK SHALL LIMIT OPERATION OF THE PUMP FROM HEATING CYCLE STARTUP TO NOT GREATER THAN 5 MINUTES AFTER THE END OF THE CYCLE.
5. AS PER MICHIGAN ENERGY CODE (IECC 2015) PUMPS SHALL HAVE CONTROLS THAT COMPLY WITH BOTH OF THE FOLLOWING:
 - A. THE CONTROL SHALL START THE PUMP UPON RECEIVING A SIGNAL FROM THE ACTION 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.
 - B. THE CONTROL SHALL LIMIT THE TEMPERATURE OF THE WATER ENTERING THE COLD-WATER PIPING TO 104°F (40°C).

MAXIMUM PIPING LENGTH		
NOMINAL PIPE SIZE (INCHES)	MAXIMUM PIPING LENGTH (FEET)	
	PUBLIC LAV	OTHER FIXTURES
1/2"	2'	4.3'
3/4"	0.5'	2.1'
1"	0.5'	1.3'
1 1/4"	0.5'	0.8'
1 1/2"	0.5'	0.6'
2" OR LARGER	0.5'	0.4'

PLUMBING DRAWING INDEX	
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P5	PLUMBING DETAILS
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P7	PLUMBING SPECIFICATION

PLUMBING LEGEND	
SYMBOL	DESCRIPTION
--- SAN ---	SANITARY SEWER (UNDERFLOOR)
--- EX.SAN ---	EXISTING SANITARY SEWER (UNDERFLOOR)
--- G.SAN ---	GREASE SANITARY (UNDERFLOOR)
--- EX.G.SAN ---	EXISTING GREASE SANITARY (UNDERFLOOR)
-----	VENT PIPING
-----	COLD WATER
-----	EXISTING COLD WATER
-----	HOT WATER
-----	RE-CIRCULATING HOT WATER
---	SODA LINE
G	GAS
EX.G	EXISTING GAS
∩	CHECK VALVE
⊠	BALANCING VALVE
⊠	FLOOR SINK WITH HALF GRATE
⊠	FLOOR DRAIN
⊠	PIPE UP OR DOWN
⊠	PIPE UP
⊠	UNION
⊠	SHUT-OFF VALVE IN RISER
⊠	CAP ON END OF PIPE
⊠	CLEANOUT
⊠	DOUBLE CHECK VALVE ASSEMBLY
⊠	REDUCED PRESSURE BACKFLOW PREVENTER
⊠	SOLENOID VALVE
⊠	POINT OF NEW CONNECTION

ABBREVIATIONS

AFF	ABOVE FINISHED FLOOR
CI	CAST IRON
DV	DRAIN VALVE
EC	ELECTRICAL CONTRACTOR
EL	ELEVATION
ETR	EXISTING TO REMAIN
FD	FLOOR DRAIN
GC	GENERAL CONTRACTOR
INL	INLET
INV	INVERT
LAV	LAVATORY
MC	MECHANICAL CONTRACTOR
MH	MANHOLE
PC	PLUMBING CONTRACTOR
UR	URNAL
VTR	VENT THRU ROOF
WC	WATER CLOSET
MV	MIXING VALVE
WH	WATER HEATER
GWH	WATER HEATER
RCP	RE CIRCULATION PUMP
ET	EXPANSION TANK

GENERAL PLUMBING NOTES

1. CONTRACTOR SHALL VERIFY EXACT LOCATIONS OF ALL UTILITIES TO BE USED FOR POINTS OF CONNECTION PRIOR TO SUBMITTING BID AND START OF WORK, AND SHALL IMMEDIATELY NOTIFY THE ARCHITECT OF ANY DISCREPANCIES.
2. FIXTURE: EXACT LOCATIONS, MOUNTING HEIGHTS AND COLORS OF PLUMBING FIXTURES SHALL BE OBTAINED FROM THE ARCHITECTURAL AND KITCHEN EQUIPMENT DRAWINGS.
3. DISABLED ACCESS FIXTURES: SEE ARCHITECTURAL DRAWINGS FOR LOCATIONS AND MOUNTING HEIGHTS, INSTALLATION SHALL COMPLY WITH A.D.A. REQUIREMENTS.
4. INTERFERENCE: ALL PLUMBING WORK SHALL BE INSTALLED SO AS TO AVOID STRUCTURAL FRAMING, MECHANICAL AND ELECTRICAL EQUIPMENT.
5. CLEANOUTS: ALL CLEANOUTS SHALL BE INSTALLED WHERE READILY ACCESSIBLE, WHERE INDICATED AND AS REQUIRED BY CODE. THE CONTRACTOR SHALL COORDINATE ALL CLEAN OUTS LOCATIONS WITH EQUIPMENT, CABINETS, ETC., AND THE ARCHITECT PRIOR TO ANY INSTALLATION.
6. VENT TERMINATION: ALL PLUMBING FIXTURE VENTS TO TERMINATE A MIN. OF 12 INCHES FROM ANY VERTICAL SURFACE AND 10 FEET FROM OR TERMINATED 3'-0" ABOVE ANY OUTSIDE AIR INTAKES.
7. FULL SIZE: ALL VALVES, UNIONS, ETC. TO BE SAME SIZE AS LINE SIZE UNLESS OTHERWISE INDICATED ON DRAWINGS.
8. LATERAL SUPPORT: ALL EQUIPMENT SHALL BE LATERALLY SUPPORTED IN ALL DIRECTIONS TO RESIST A MIN. OF 50% OF THE EQUIPMENT'S OPERATING WEIGHT.
9. 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 CONSTRUED TO PERMIT WORK NOT CONFORMING TO THESE CODES OR OTHERS APPLICABLE TO THIS PROJECT:
 - a. 2015 MICHIGAN BUILDING CODE
 - b. 2017 NATIONAL ELECTRIC CODE
 - c. 2015 MICHIGAN MECHANICAL CODE
 - d. 2018 MICHIGAN PLUMBING CODE
 - e. 2015 MICHIGAN ENERGY CODE/ASHRAE 90.1 2013
 - f. 2015 INTERNATIONAL FUEL GAS CODE
10. FIELD VERIFICATION: BEFORE FABRICATION OR INSTALLATION, THIS CONTRACTOR SHALL VERIFY EXACT LOCATIONS OF ALL MECHANICAL EQUIPMENT AND EQUIPMENT PROVIDED UNDER ANOTHER SECTION OF SPECIFICATIONS. EXACT ROUGH-IN LOCATIONS AND REQUIREMENTS SHALL BE COORDINATED IN FIELD.
11. ISOMETRICS: THE CONTRACTOR SHALL PROVIDE ALL RISER DIAGRAMS OR ISOMETRICS THAT MAYBE REQUIRED BY GOVERNING AUTHORITIES.
12. COORDINATION: THE PLUMBING CONTRACTOR SHALL COORDINATE ALL REQUIREMENTS FOR ALL POINTS OF CONNECTION WITH THE GENERAL CONTRACTOR AND OTHER TRADES PRIOR TO BID.
13. PIPE SLOPE: ALL WASTE AND VENT PIPING SHALL SLOPE AT 2% UNLESS OTHERWISE INDICATED.
14. ACCESSIBILITY: ALL VALVES, OR OTHER EQUIPMENT SHOWN IN WALLS OR ABOVE NON-ACCESSIBLE CEILINGS SHALL BE INSTALLED WITHIN 24" OF, AND BEHIND, AN ACCESS PANEL.
15. SPECIFICATION: THESE DRAWINGS SHALL BE READ IN CONJUNCTION WITH, AND BE CONSIDERED TO BE A PART OF THE SPECIFICATIONS.
16. PATCHING: THE CONTRACTOR SHALL BE RESPONSIBLE FOR PATCHING AND REPAIRING ALL AREAS WHICH ARE EXCAVATED AND/OR DAMAGED BY HIS OPERATIONS.
17. EXISTING PIPING DAMAGED: ALL EXISTING PIPING DAMAGED DURING EXCAVATION SHALL BE REPAIRED WITH MATERIALS TO MATCH EXISTING BY THE CONTRACTOR.
18. SAW CUTTING/CORE DRILLING: ALL CUTTING OF EXISTING PAVING, WALKS AND/OR FLOORS SHALL BE BY MACHINE SAW CUTTING. HOLES FOR PIPING IN CONCRETE WALLS OR FLOORS SHALL BE DONE USING CORE DRILLING EQUIPMENT.
19. INCOMPATIBLE MATERIAL CONNECTION: CONNECTION BETWEEN INCOMPATIBLE MATERIALS ABOVE GRADE AND INSIDE BUILDING SHALL BE MADE WITH 2 DIELECTRIC UNIONS SEPARATED BY A 12" SECTION OF RED BRASS PIPE.
20. SUBMITTALS AND SHOP DRAWINGS: THE PLUMBING CONTRACTOR SHALL SUBMIT SHOP DRAWING ON ALL WORK AND SUBMITTALS ON ALL FIXTURES, EQUIPMENT AND ACCESSORIES FOR REVIEW PRIOR TO ORDERING, FABRICATION AND INSTALLATION.

PIPE HANGER SPACING TABLE

PIPE MATERIAL	PIPE SIZES (INCHES)	HORIZONTAL PIPE MAX. HANGER DISTANCE (FEET)	VERTICAL PIPE MAX. HANGER DISTANCE (FEET)
COPPER & COPPER ALLOY TUBING	1 1/4" & SMALLER	6	10
COPPER & COPPER ALLOY TUBING	1 1/4" & LARGER	10	10
COPPER & COPPER ALLOY PIPE	ALL	12	10
CAST IRON PIPE	ALL	4*	15
STEEL PIPE	ALL	12	15
STAINLESS STEEL DRAINAGE SYSTEM	ALL	10	10**
CPVC & PVC PIPE	ALL	4	10**

NOTES:

- * MAXIMUM HORIZONTAL SPACING OF CAST IRON PIPE HANGERS SHALL BE INCREASED TO TEN FEET WHERE 10' LENGTHS OF PIPE ARE USED.
- ** MIDSTORY GUIDE FOR SIZES 2" AND SMALLER.
- *** NOT ALL PIPE MATERIALS ON THIS TABLE WILL PERTAIN TO THIS PROJECT.

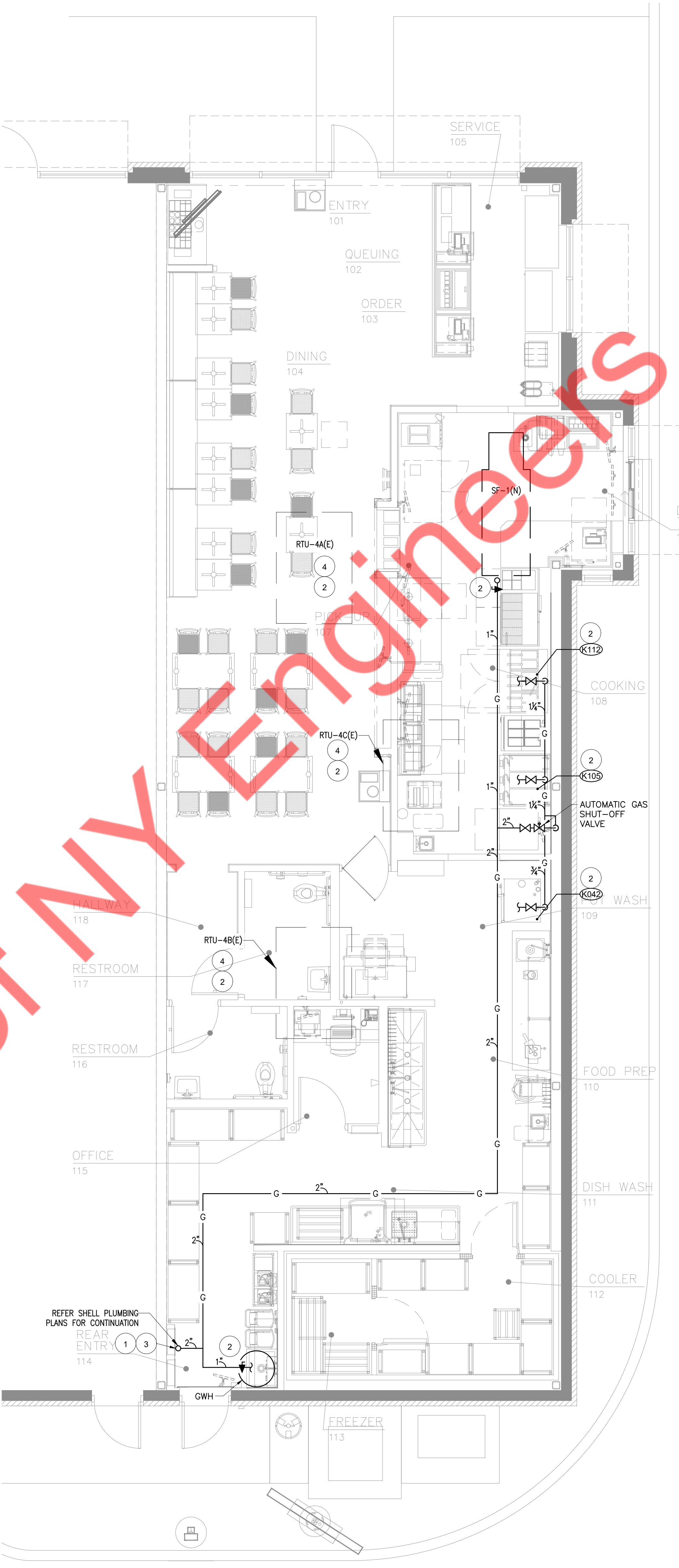
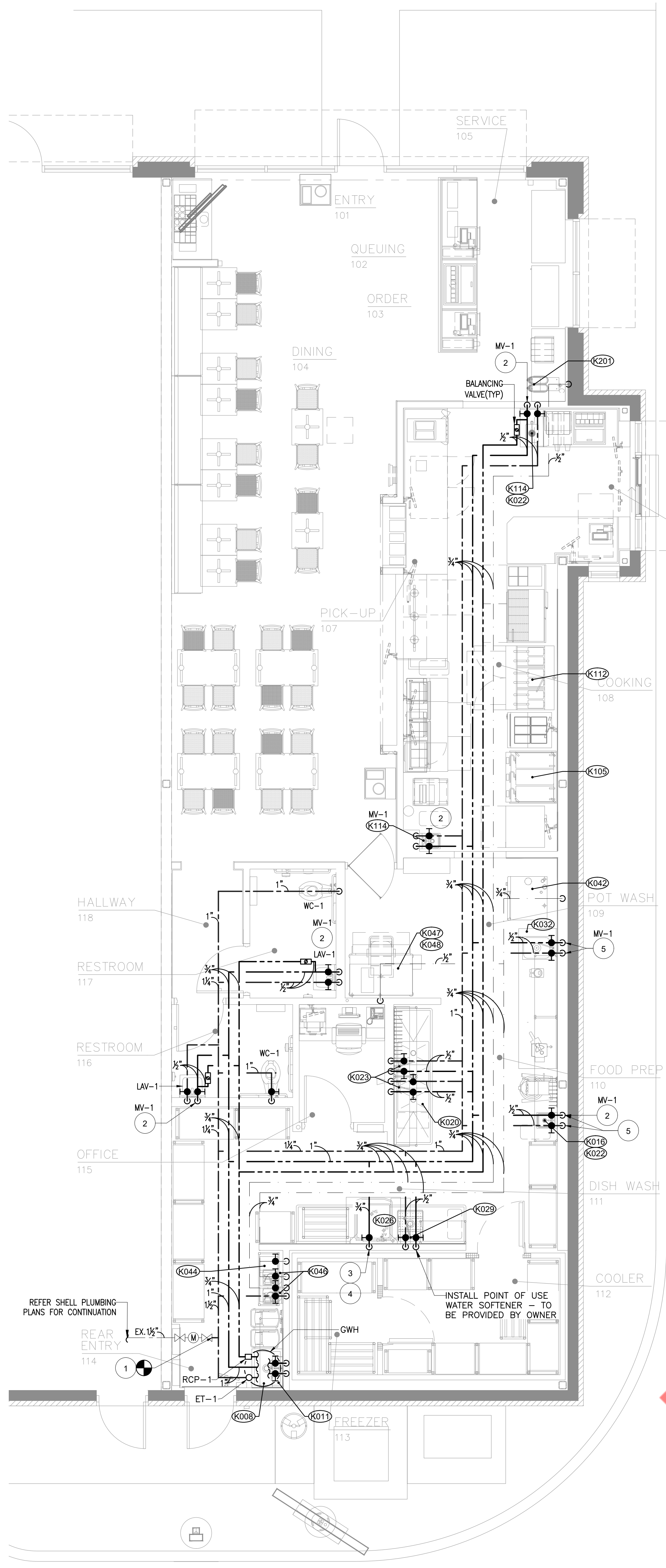
RESTAURANT BACKFLOW PREVENTER CHECKLIST	
APPLICATION (ANYWHERE EQUIPMENT IS INDICATED)	PROTECTION REQUIRED (UNLESS OTHER METHOD REQUIRED BY CODE)
INCOMING DOMESTIC WATER SERVICE	RPZ EXPANSION TANK ON WATER HEATER INLET
COFFEE/TEA/HOT CHOCOLATE MACHINES	DUAL CHECK
CARBONATOR NOTE: THE WATER SUPPLY CONNECTION TO CARBONATED BEVERAGE DISPENSERS SHALL BE PROTECTED AGAINST BACKFLOW BY A DUAL CHECK VALVE. W/ATMOSPHERIC VENT CONFORMING TO NSF STD. NO. 25 (OR AS REQD BY CODE). THE VALVE AND THE PIPING DOWNSTREAM THEREFROM SHALL NOT BE AFFECTED BY CARBON DIOXIDE GAS.	ALDO DISPENSING SYSTEMS; CARMUN INDUSTRIES INC; CHUDNOW MFG. CO. INC.; CORNELIUS CO.; LANCER CORP. ASSE-1022 COMPLIANT
HOSE - DISHWASHER PRE-RINSE	WATTS NLF 9 OR N-9 VACUUM BREAKER
ASPIRATOR OR CHEMICAL FEED FOR SOAP OR WATER TREATMENT	RPZ ASSE-1055-97 COMPLIANT
MOP/SLOP/SERVICE SINK	ATMOSPHERIC VACUUM BREAKER
ICE MAKER	DUAL CHECK

- DOMESTIC WATER PIPING PLAN NOTES:**
- CONNECT NEW 1-1/2" CW TO EXISTING 1-1/2" COLD WATER MAIN IN THIS AREA FOR TENANT. PROVIDE BACKFLOW PREVENTER AND WATER METER AS PER LANDLORD REQUIREMENTS AND EXTEND NEW PIPING AS INDICATED. FIELD VERIFY EXACT SIZE AND LOCATION OF EXISTING MAIN.
 - PROVIDE THERMOSTATIC MIXING VALVES AT ALL LAVATORIES AND HAND SINKS. SET AT 110° F MAX
 - 3/4" 140°F. HOT WATER TO DISHWASHER AT 7" AFF. VERIFY EXACT LOCATION AND CONDITIONS. PROVIDE PRESSURE REDUCING VALVE PROVIDE PRESSURE REDUCING VALVE (IF REQUIRED) FOR DISHMACHINE. VERIFY THAT DISHMACHINE IS FURNISHED WITH INTERNAL BFP ACCEPTABLE TO A.H.J.
 - PROVIDE ACCESSIBLE WATER HAMMER ARRESTORS (ABOVE LAY-IN CEILING OR BEHIND ACCESS PANEL) UPSTREAM OF ALL FLUSH VALVES, SOLENOID VALVES, EQUIPMENT WITH INTERNAL PUMPS OR QUICK CLOSING VALVES OF ANY TYPE.
 - ALL WATER PIPING WITHIN EXTERIOR WALLS SHALL BE INSULATED PER SPECIFICATIONS AND INSTALLED INSIDE OF THE BUILDING EXTERIOR INSULATION. TYPICAL.

GAS LOAD SCHEDULE NOTES	
1.	GAS PIPING SIZED PER THE 2015 INTERNATIONAL FUEL GAS CODE: FUEL/GAS FOR EQUIVALENT LENGTH OF 125', NATURAL GAS OF .60 SPECIFIC GRAVITY, LESS THAN 2.0 PSI INITIAL PRESSURE AND 0.5 INCH W.C. PRESSURE DROP FOR SCHEDULE 40 STEEL PIPE. TOTAL SYSTEM DEMAND:1117 CFH
2.	GAS PIPING CONNECTIONS SHALL BE THREADED ONLY WHERE PERMITTED GAS PIPING CONNECTIONS SHALL BE THREADED ONLY WHERE PERMITTED BUY CODE. GAS PIPING CONNECTIONS SHALL BE WELDED WHERE REQUIRED.
3.	EXTERIOR GAS PIPING SHALL RECEIVE ONE COAT EACH OF A RUST AND WEATHER RESISTANT PRIMER AND TOP COAT. COORDINATE PAINT COLOR WITH ARCHITECT.
4.	ALL GAS BURNING EQUIPMENT SHALL BE INSTALLED PER NFPA #58, NFPA #54 (L.P.G.) OR NFPA #96 (COMMERCIAL COOKING EQUIPMENT).

- GAS PIPING PLAN NOTES:**
- CONTRACTOR TO VERIFY IF THE EXISTING GAS METER'S CAPACITY IS EQUAL TO OR GREATER THAN 950 CFH. COORDINATE ALL WORK WITH UTILITY COMPANY AND LANDLORD.
 - CONTRACTOR TO FIELD VERIFY EXISTING AVAILABLE GAS PRESSURE AND MAKE SURE TO PROVIDE ADEQUATE INLET PRESSURE REQUIRED FOR GAS FIRED WATER HEATER, RTU-4A(E), RTU-4B(E), RTU-4C(E), SF-1(N), COMBI OVEN, CAL SHELL GRILL AND GAS FRYER.
 - CONNECT NEW 2" GAS TO EXISTING GAS MAIN IN THIS AREA FOR TENANT. EXTEND NEW PIPING AS INDICATED. FIELD VERIFY EXACT SIZE AND LOCATION OF EXISTING MAIN.
 - EXISTING RTU-4A, RTU-4B, & RTU-4C TO REMAIN. CONTRACTOR SHALL VERIFY EXISTING GAS PIPING CONDITION & SIZE. UPGRADE IF REQUIRED.

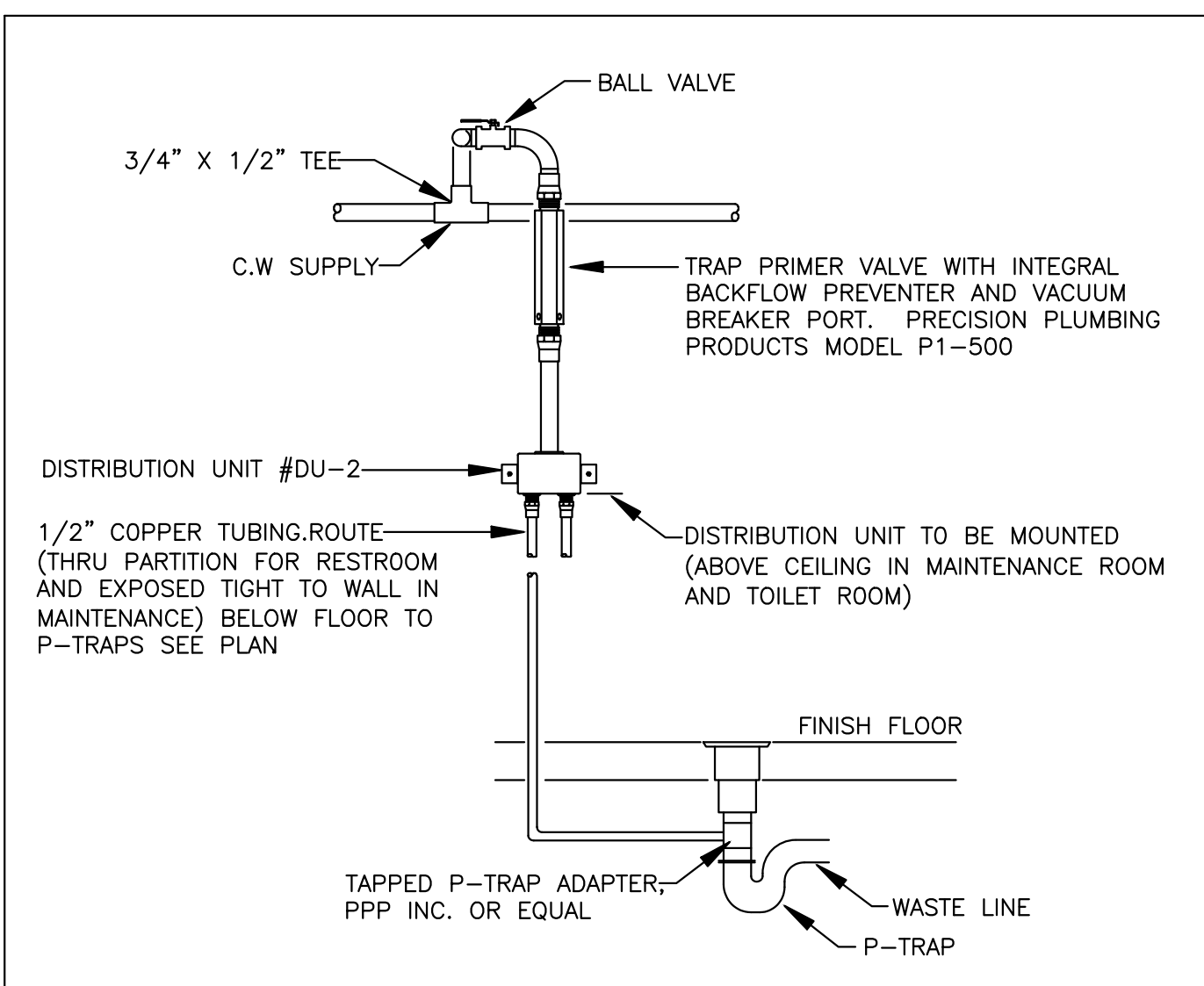
GAS LOAD SCHEDULE					
ITEM NO.	DESCRIPTION	CONN. SIZE	LOAD	QTY.	TOTAL
WH-1	WATER HEATER	1"	120	1	120
K042	COMBI OVEN	3/4"	50	1	50
K105	CAL SHELL GRILL	1/2"	75	1	75
K112	FRYER BATTERY	1/2"	255	1	255
-	RTU-4A(E)	-	130	1	150
-	RTU-4B(E)	-	130	1	150
-	RTU-4C(E)	-	130	1	150
-	SF-1(N)	-	167	1	167
CUM.TOTAL					1117



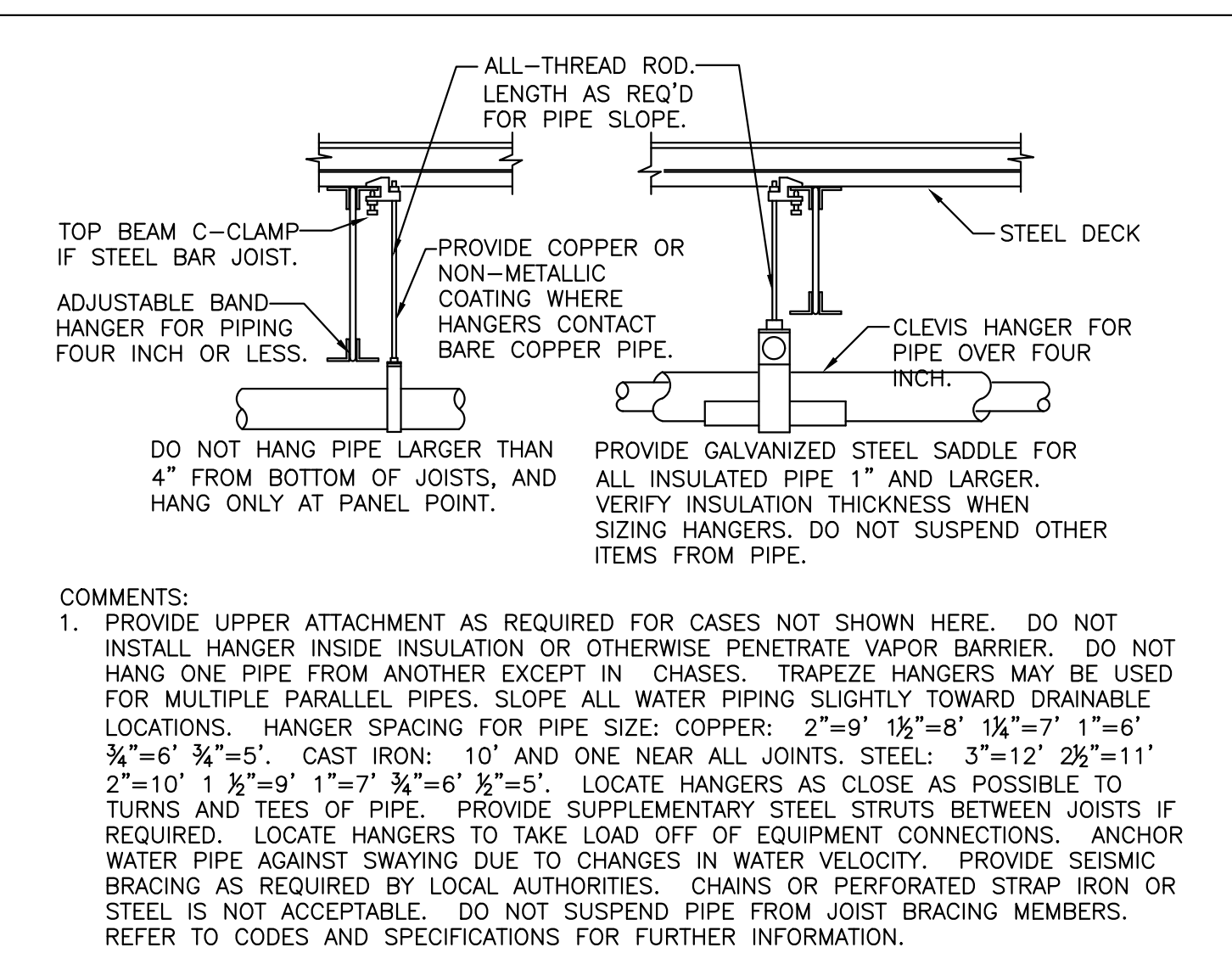
1 DOMESTIC WATER PIPING PLAN
SCALE: 1/4" = 1'-0"

1 GAS PIPING PLAN
SCALE: 1/4" = 1'-0"

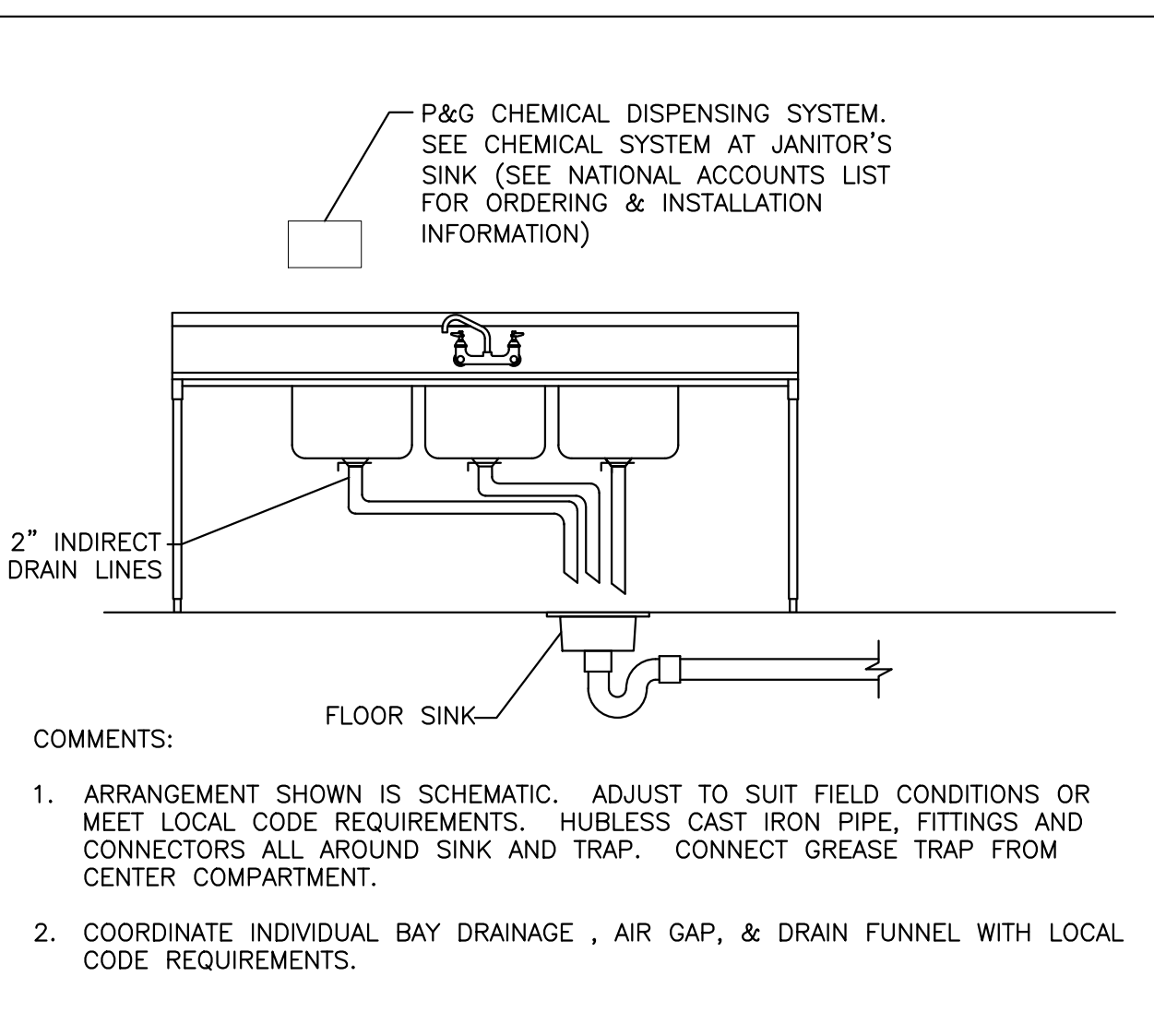
Property of NY Engineers



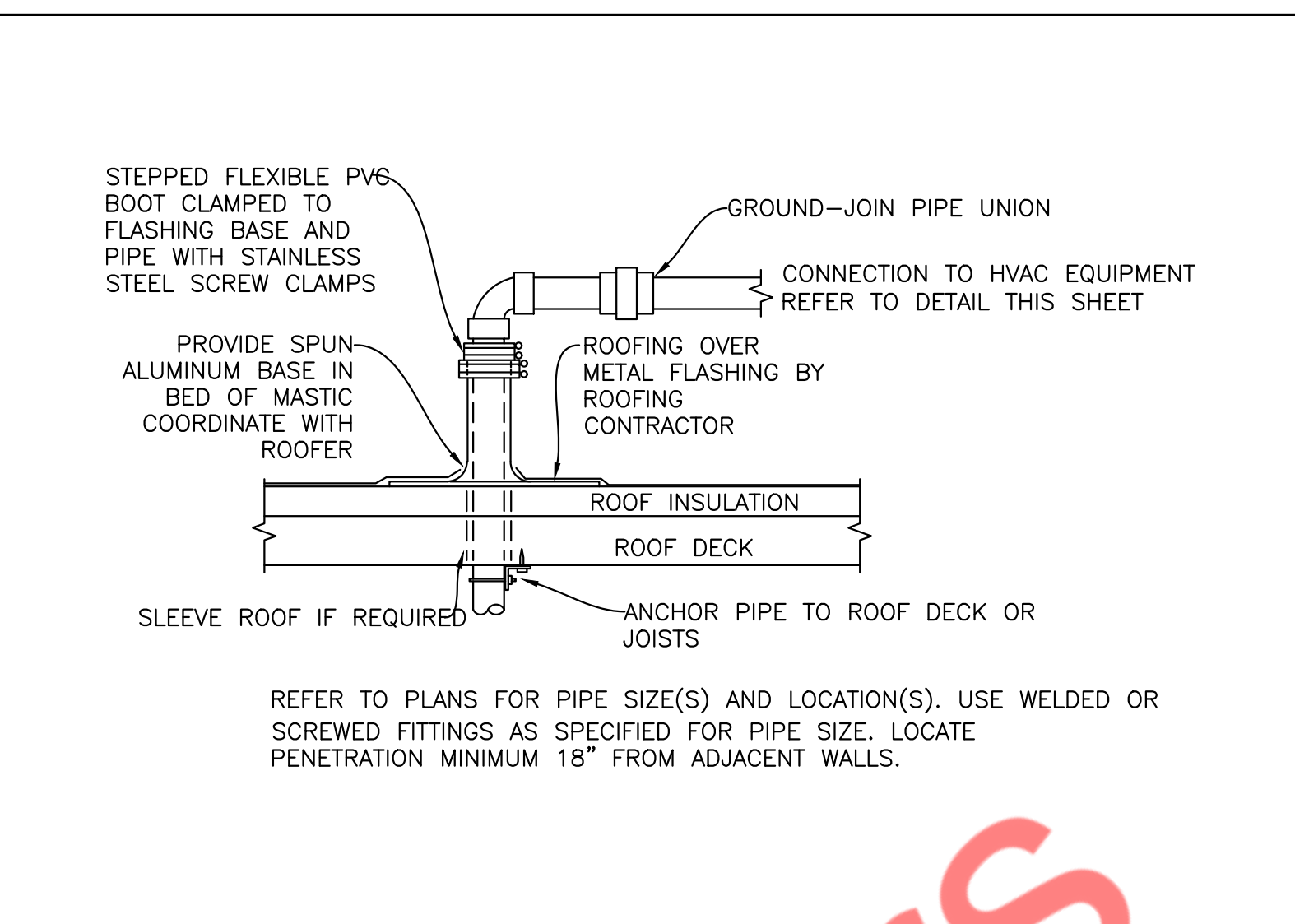
① TRAP PRIMER DETAIL
SCALE: N.T.S



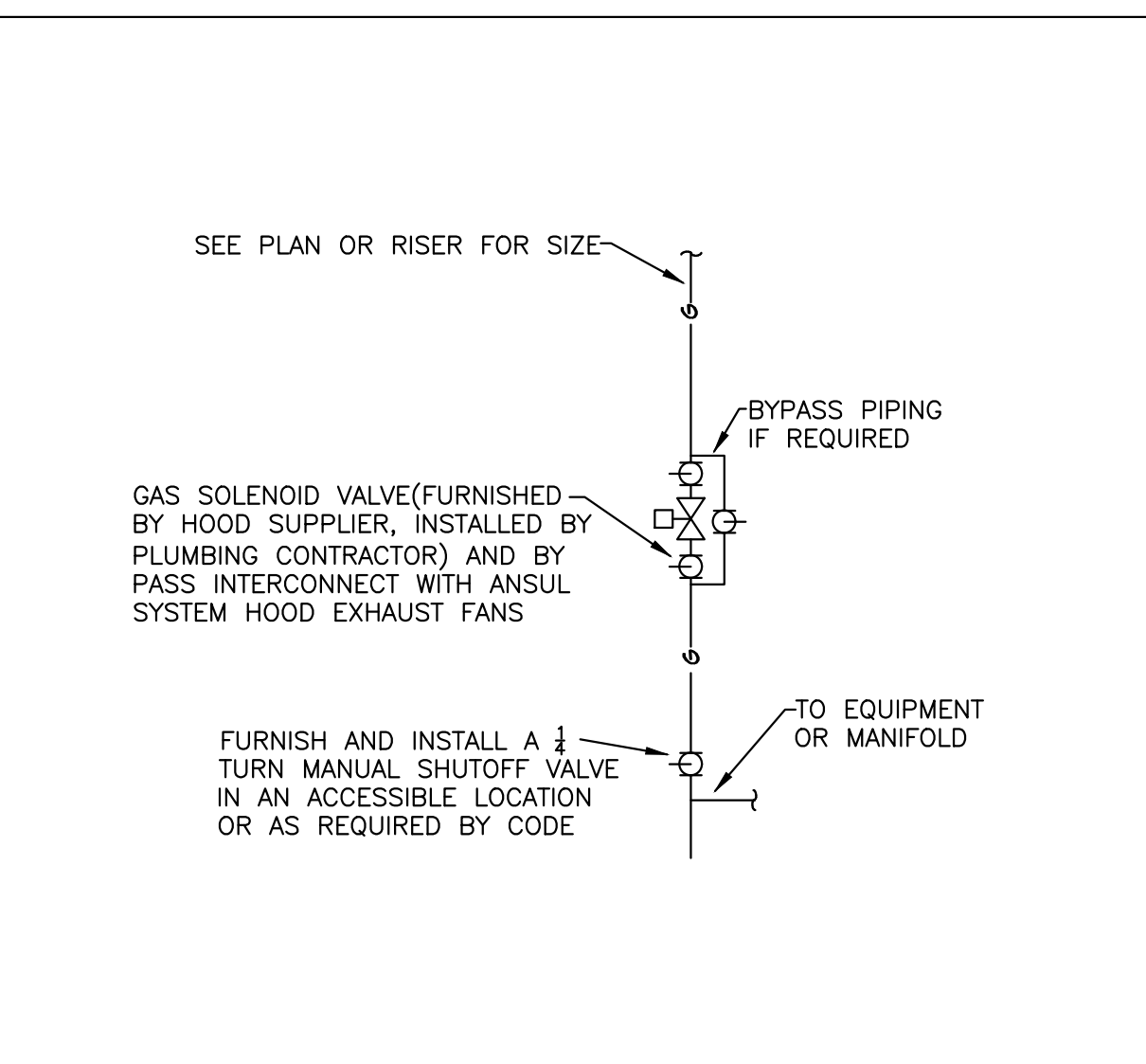
② PIPE HANGER DETAIL
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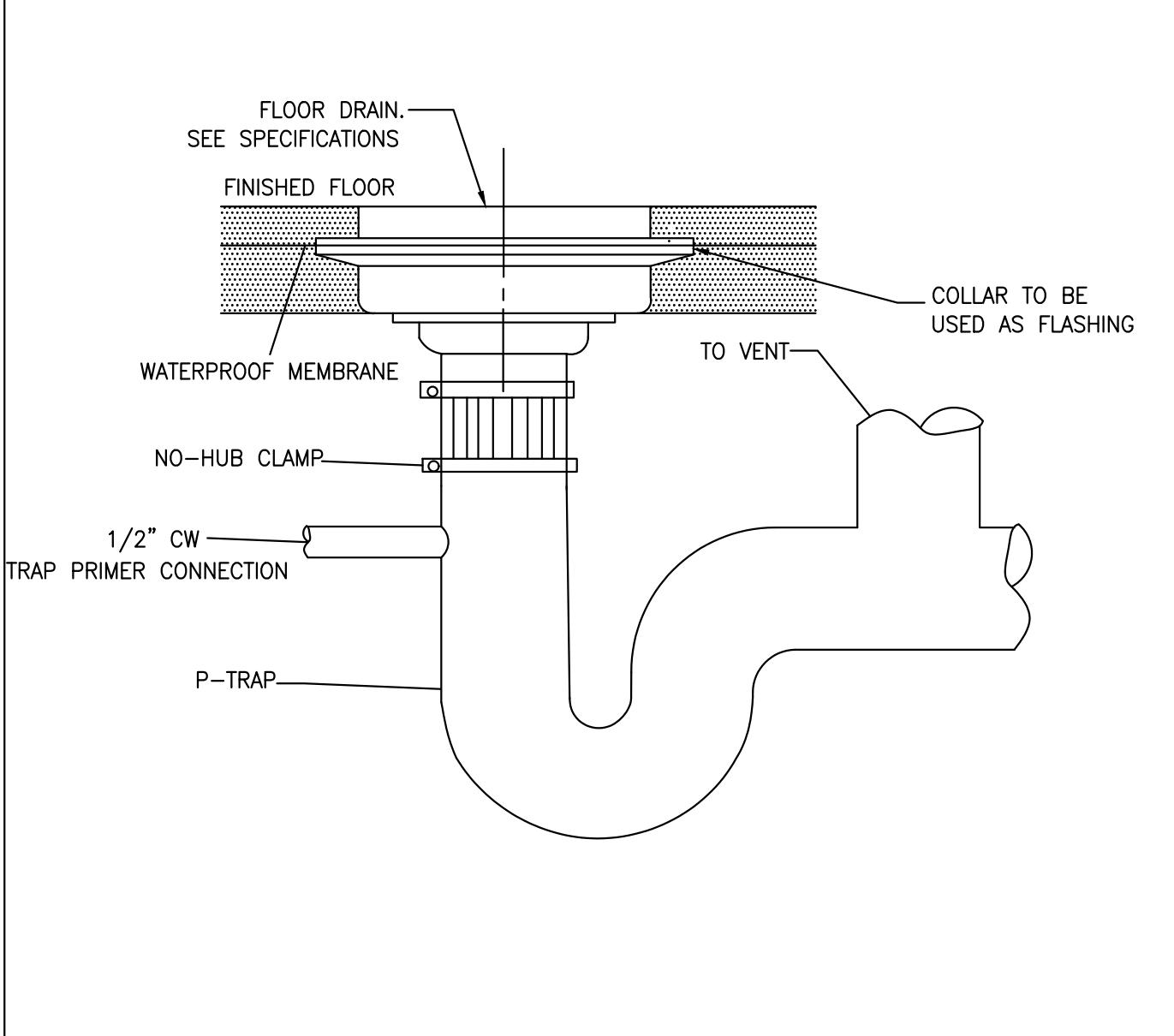
③ 3-COMPARTMENT SINK DETAIL
SCALE: N.T.S



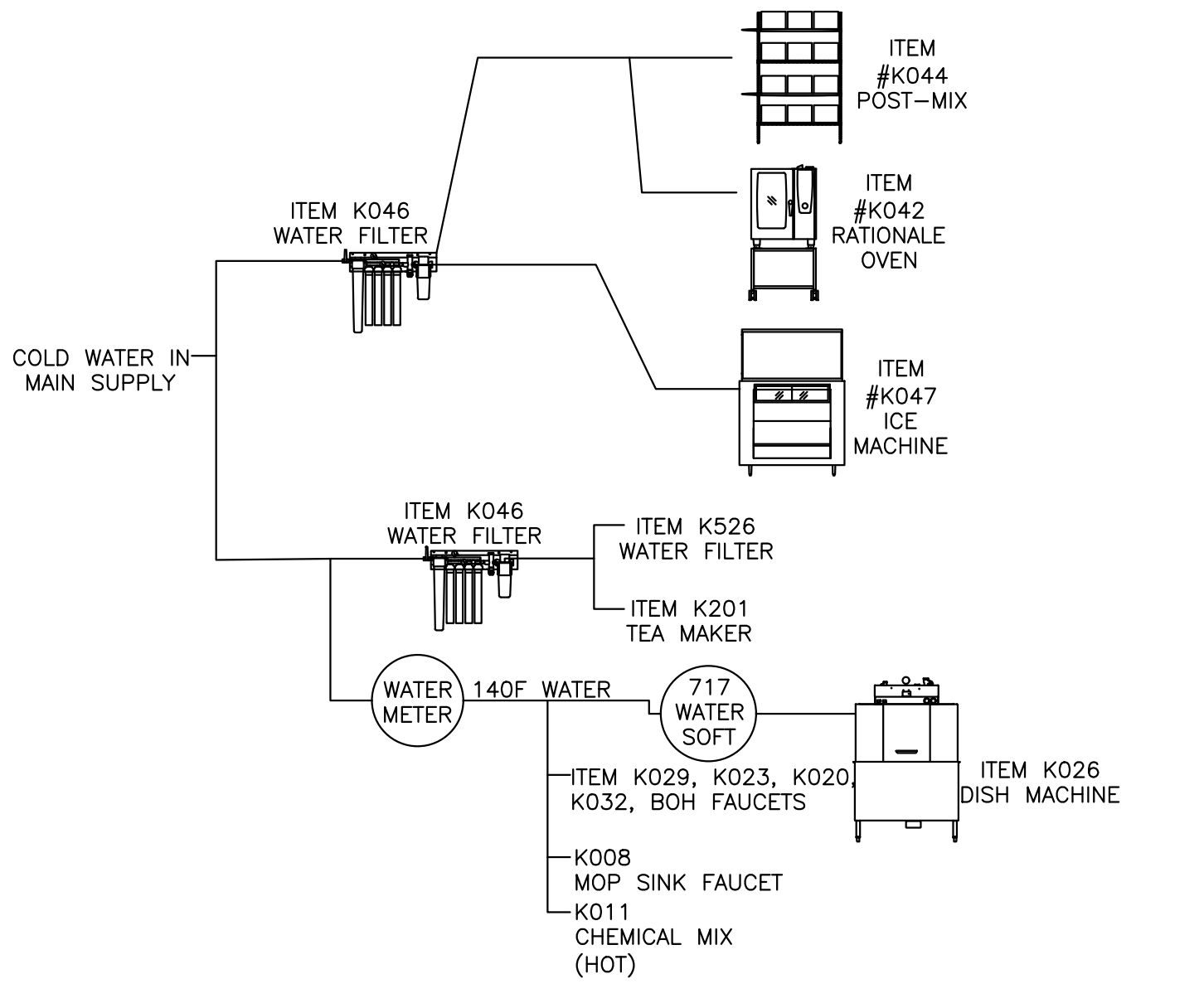
④ ROOF PENETRATION DETAIL
SCALE: N.T.S



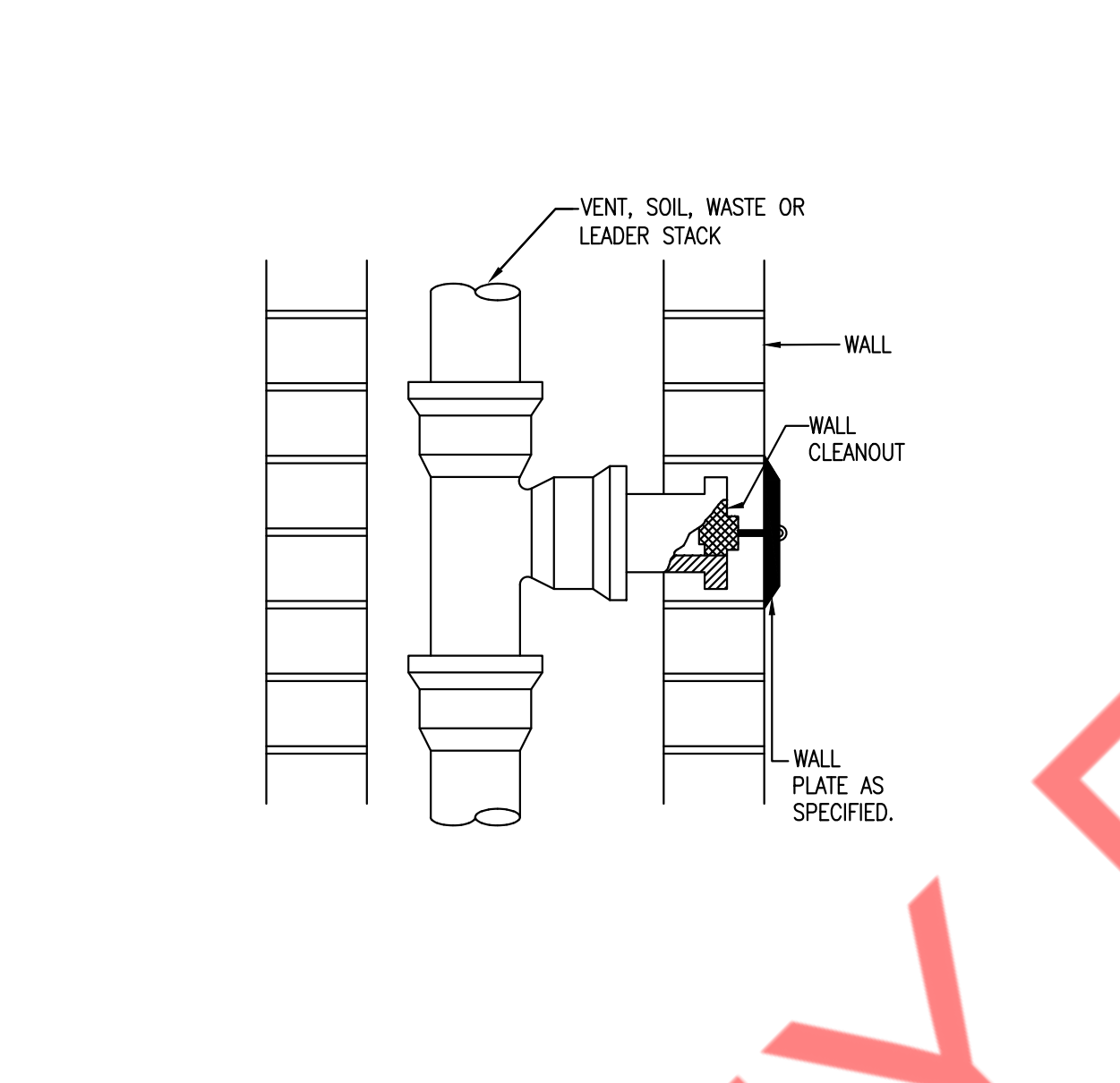
⑤ AUTOMATIC GAS SHUT-OFF VALVE DETAIL
SCALE: N.T.S



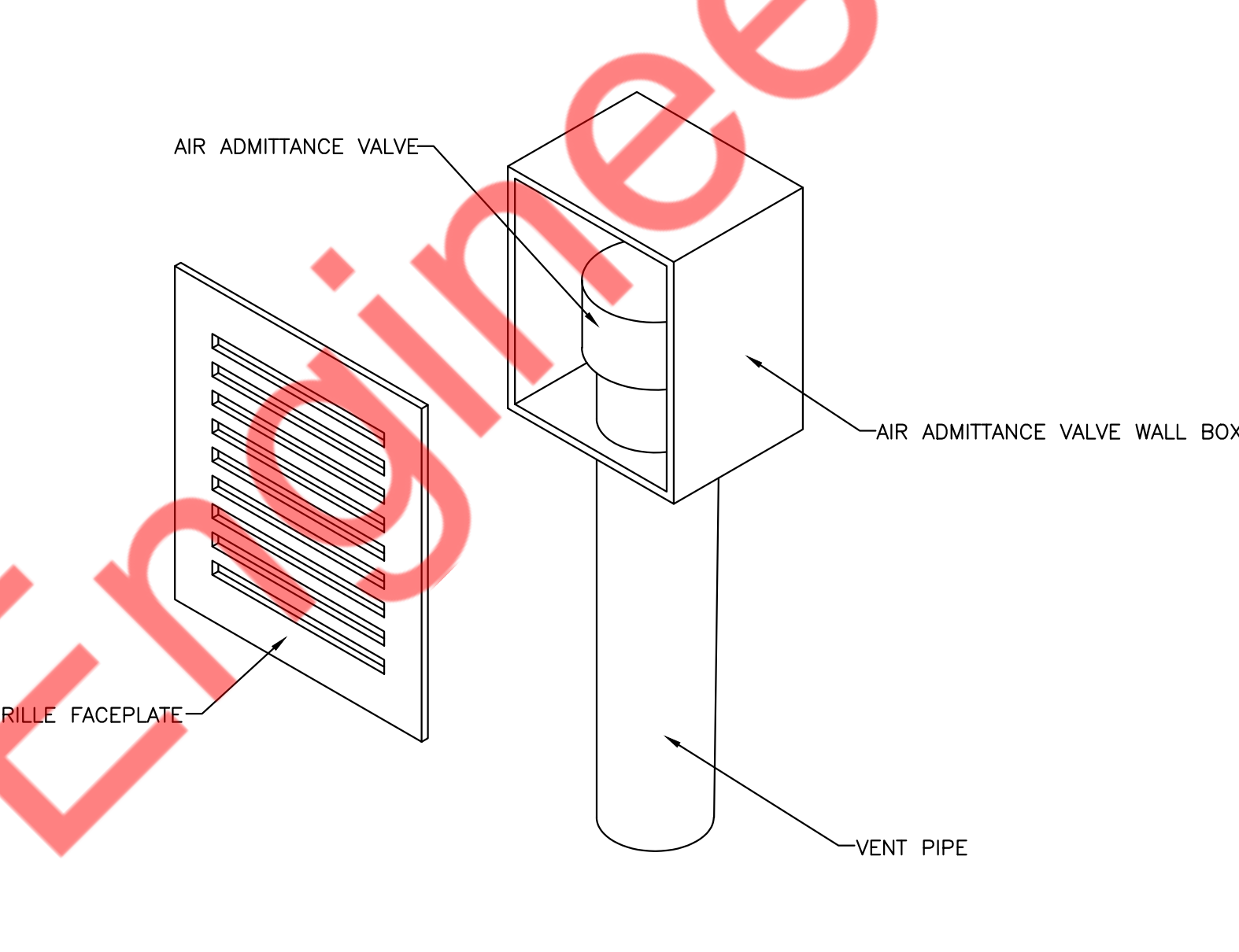
⑥ INDIRECT DRAIN DETAIL
SCALE: N.T.S



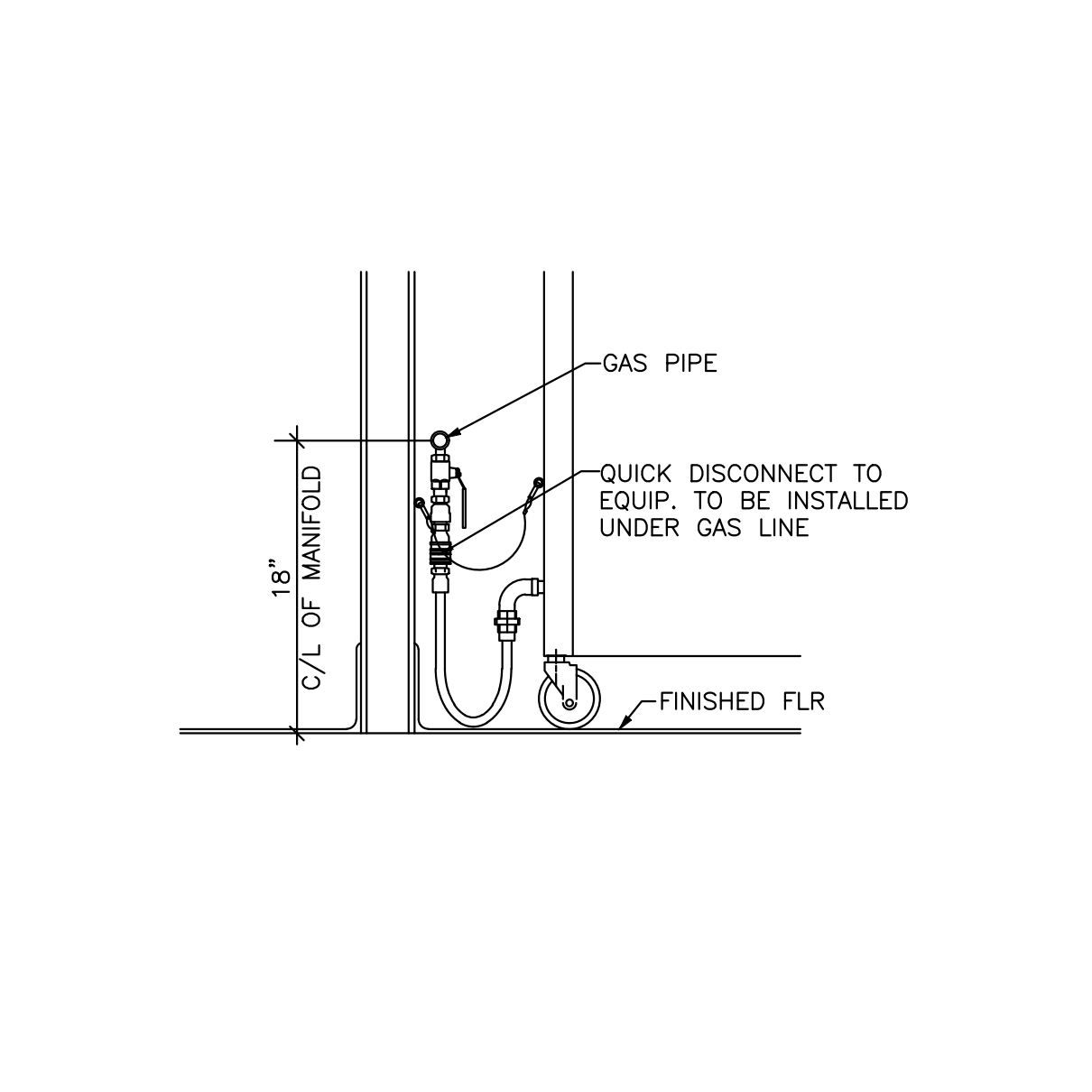
⑦ FILTER WATER CONNECTION SCHEMATIC DETAIL
SCALE: N.T.S



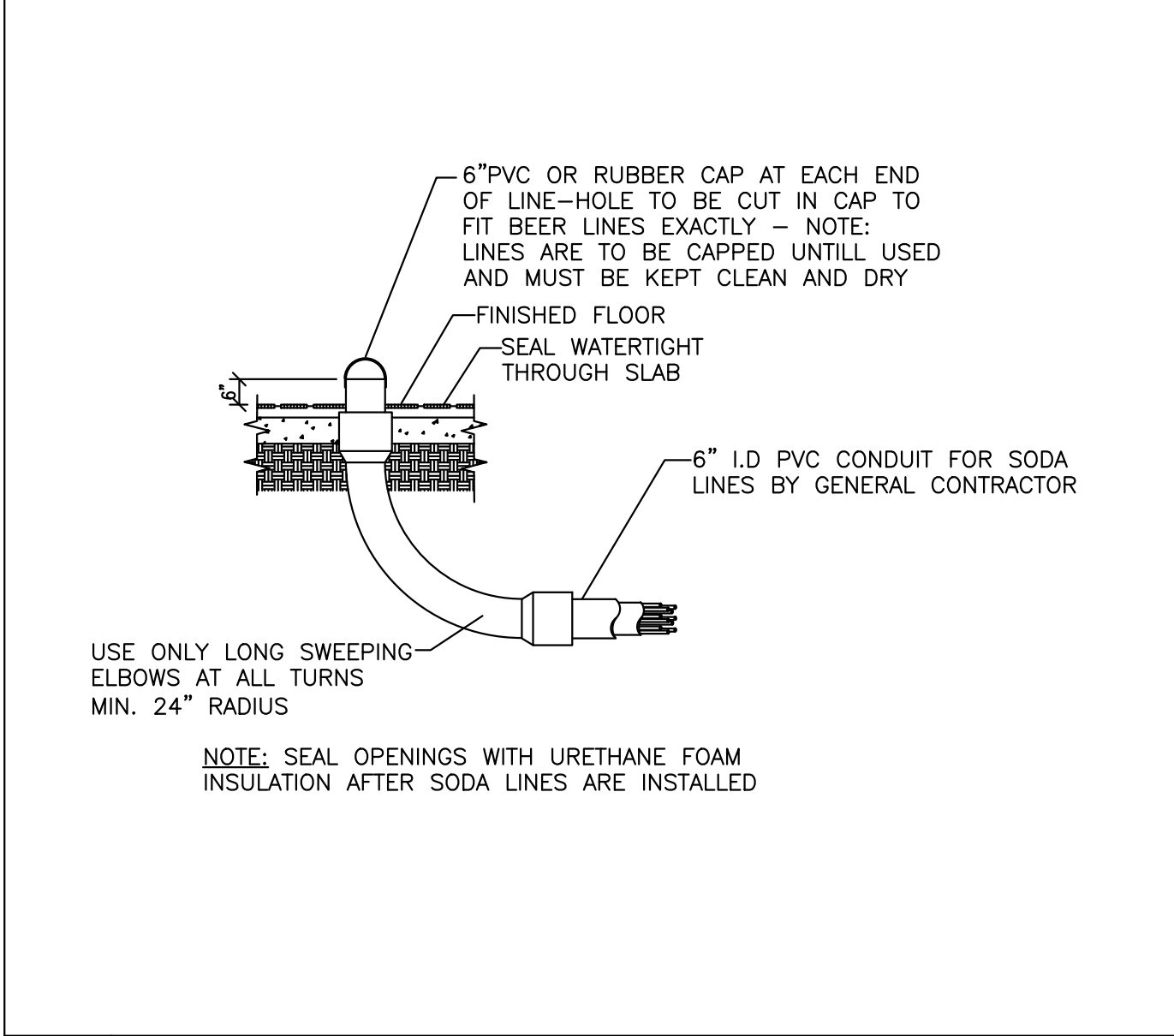
⑧ WALL CLEAN-OUT DETAIL
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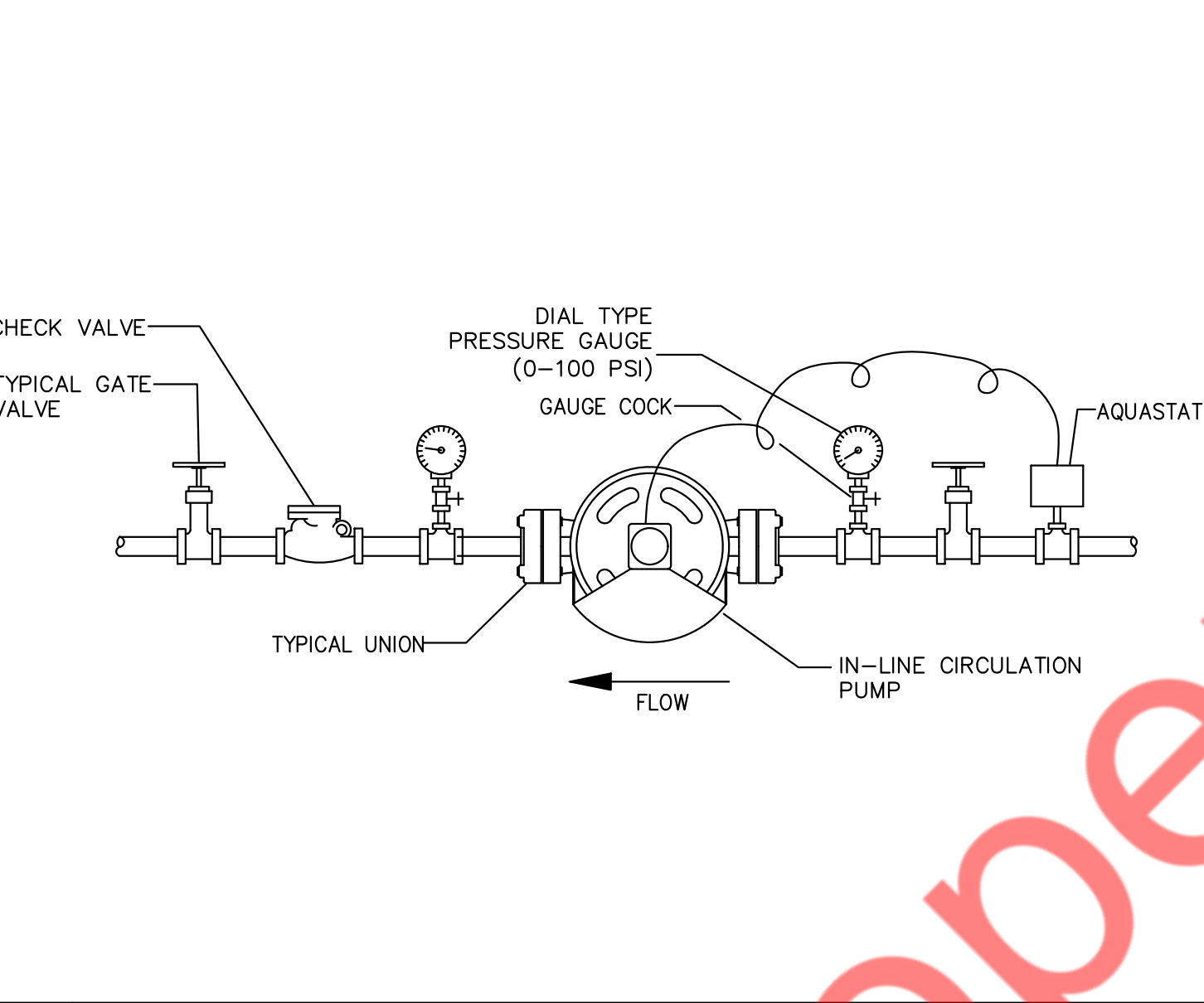
⑨ RECESSED AIR ADMITTING VALVE DETAIL
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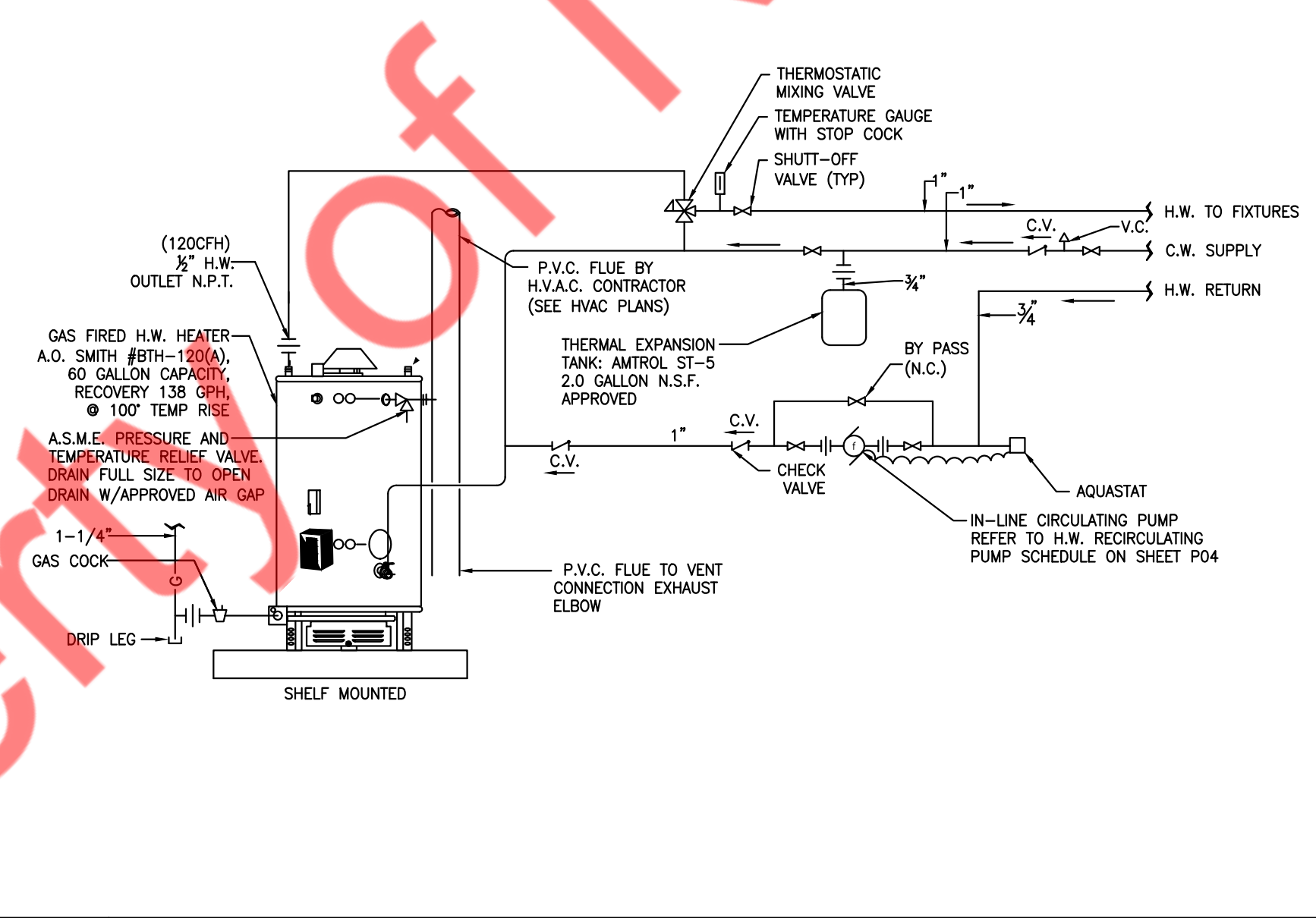
⑩ TYPICAL GAS CONNECTION DETAIL
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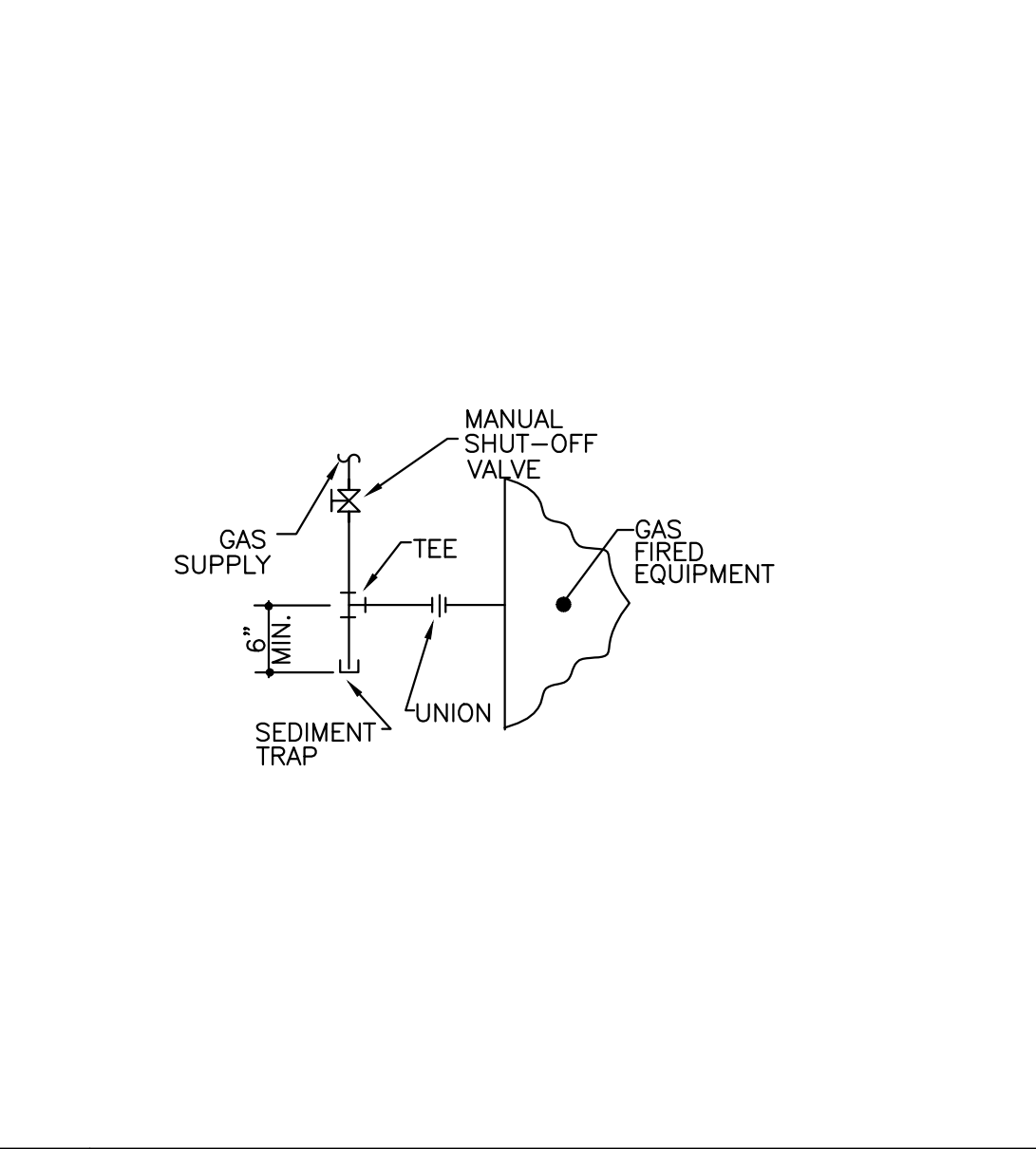
⑪ SODA LINE PVC ELBOW DETAIL
SCALE: N.T.S



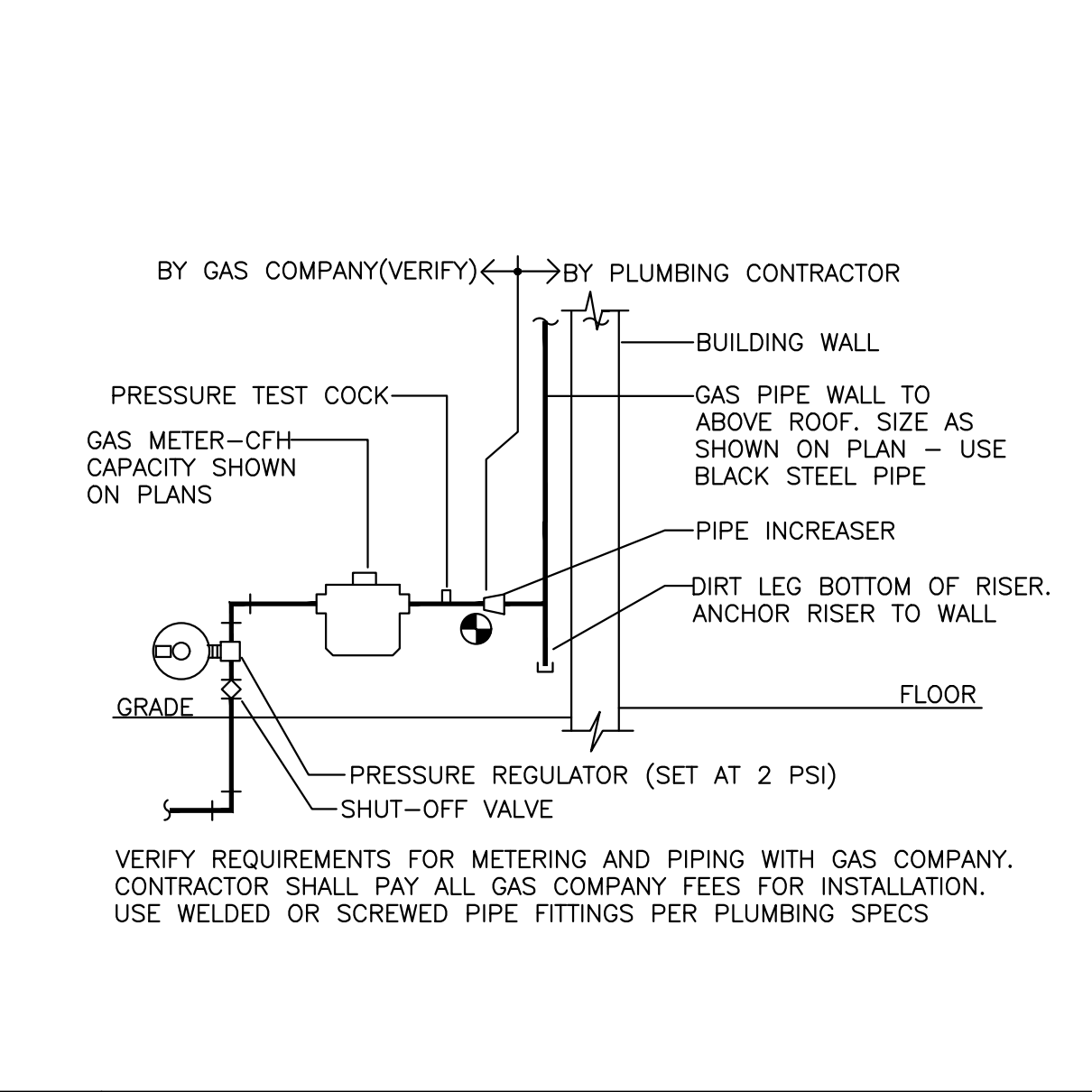
⑫ INLINE RECIRCULATING PUMP DETAIL
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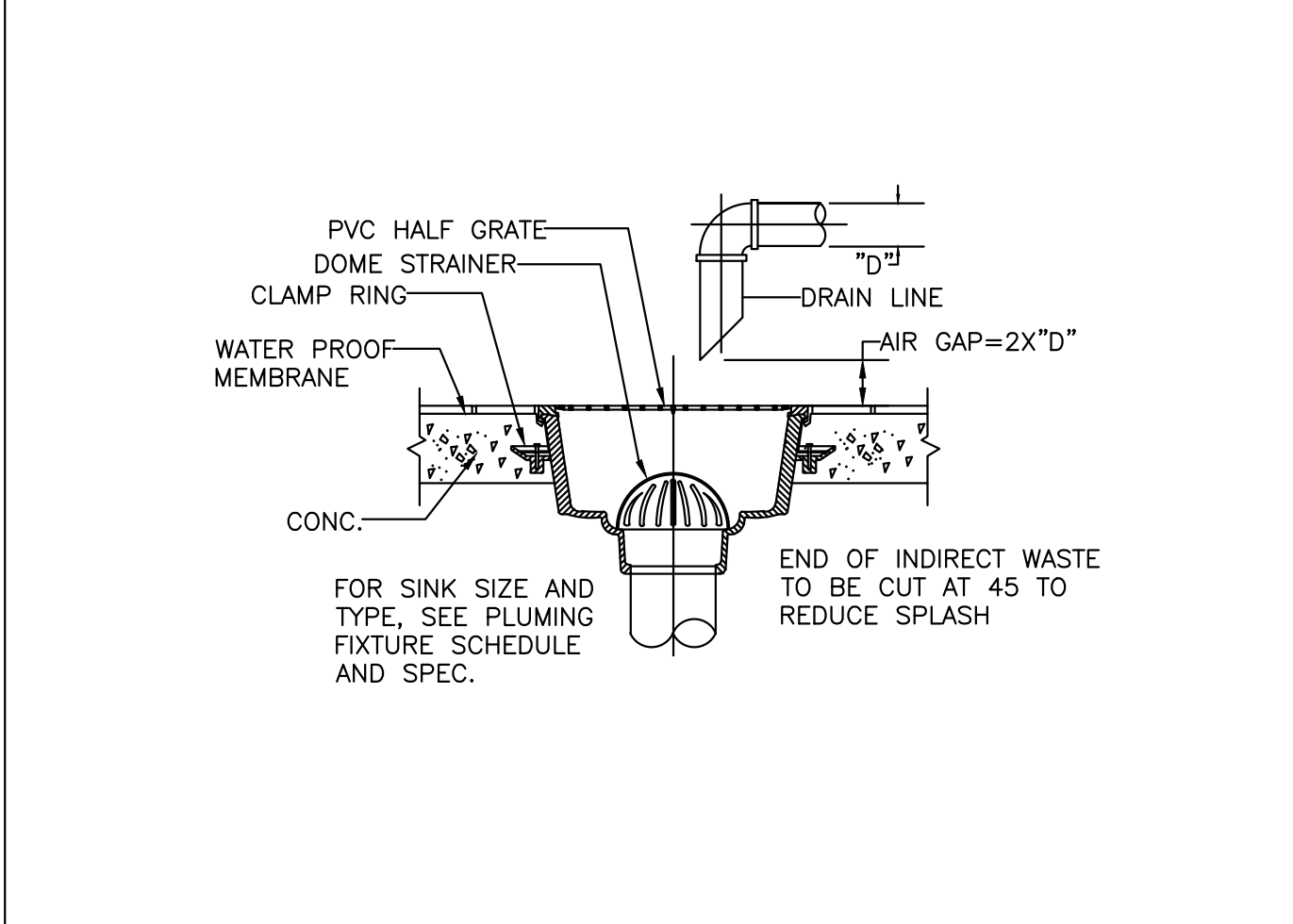
⑭ GAS FIRED WATER HEATER DETAIL
SCALE: N.T.S



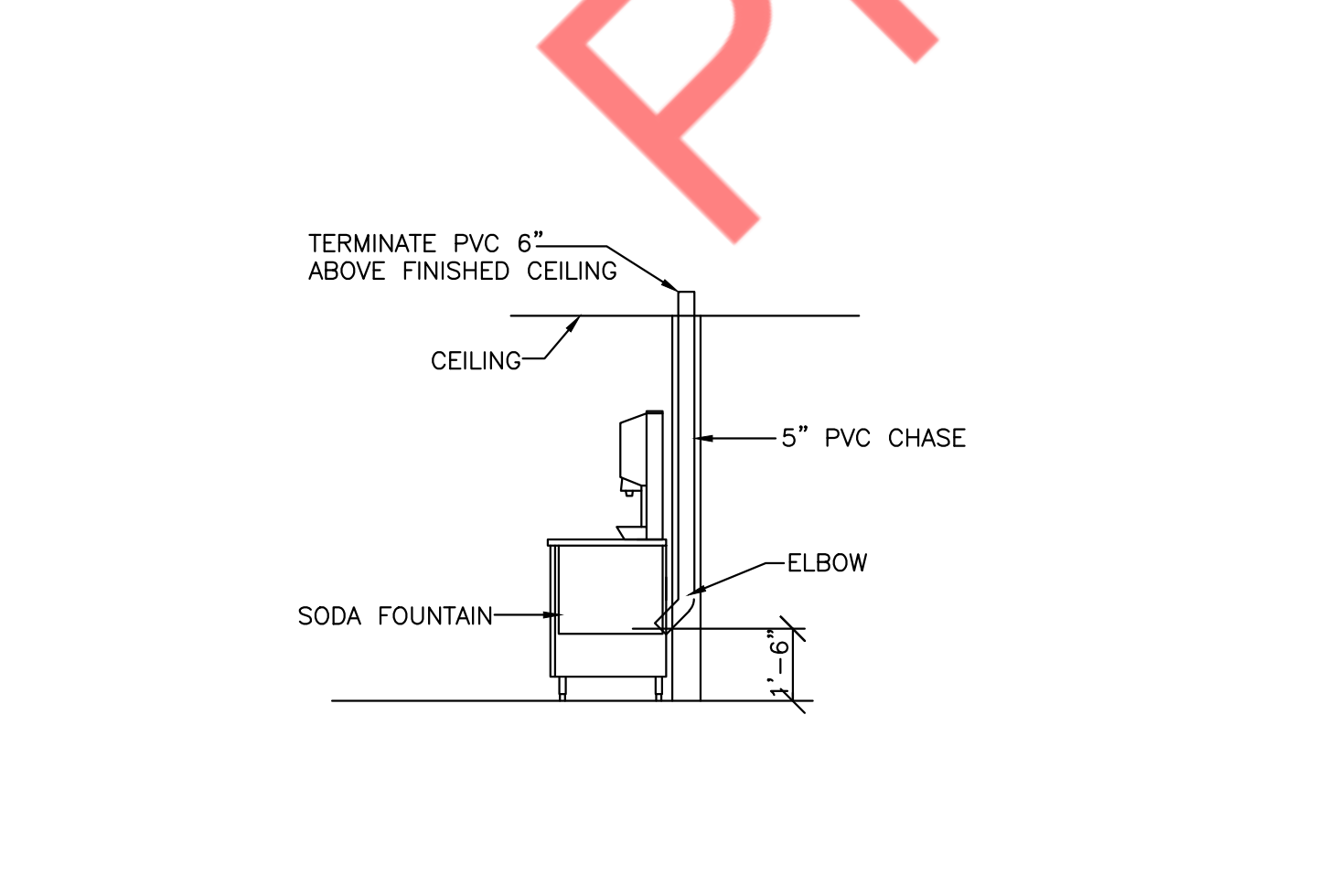
⑮ GAS CONNECTION DETAIL
SCALE: N.T.S



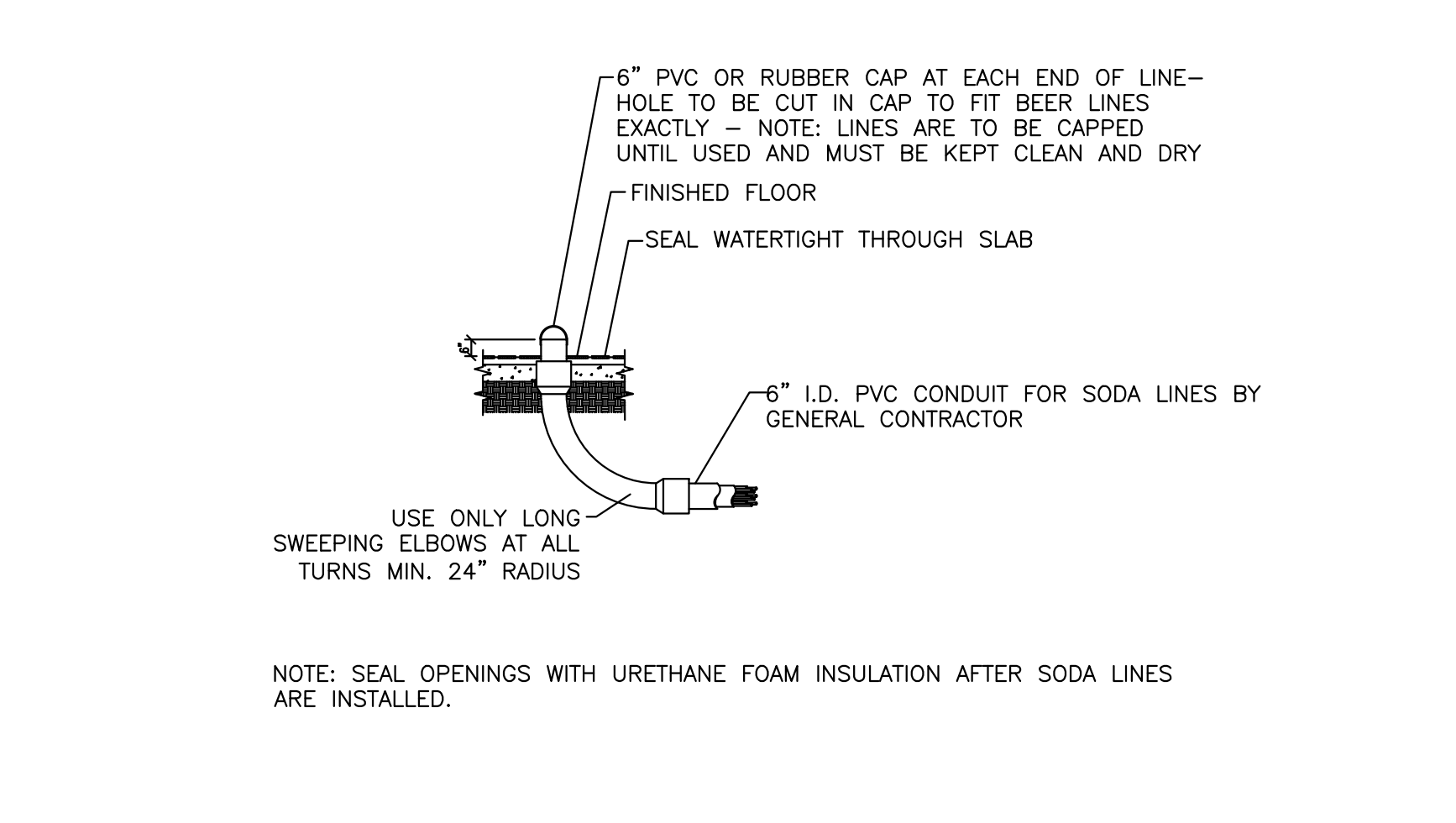
⑯ GAS SERVICE DETAIL
SCALE: N.T.S



⑰ INDIRECT WASTE DRAIN DETAIL
SCALE: N.T.S



⑱ SODA LINE CHASE DETAIL
SCALE: N.T.S



⑲ SODA LINE PVC ELBOW DETAIL
SCALE: N.T.S

PLUMBING SUPPLY SCHEDULE

#	DESCRIPTION	ROUGH-IN HEIGHTS	SUPPLY		GAS		REMARK
			COLD	HOT	DIA	LOAD	
K007	MOP SINK	33"	1/2"	1/2"			MIN 140% WATER CONNECTION FOR HOT WATER
K011	CHEMICAL MIX	48"	1/2"	1/2"			
K016	HAND SINK, WALL MOUNTED	18"	1/2"	1/2"			
K022	AUTO FAUCET	18"	1/2"	1/2"			
K023	FAUCET	18"	1/2"	1/2"			
K026	DISH MACHINE - HI TEMP	60"		3/4"			MIN 140% WATER CONNECTION FOR HOT WATER
K029	PRE-RINSE FAUCET	18"	1/2"	1/2"			
K032	FAUCET	18"	1/2"	1/2"			
K042	COMBI OVEN (GAS)	18"	3/4"		3/4"	49.5	CONNECT TO WATER FILTER
K044	BAG-N-BOX SYSTEM	90"	1/2"				CONNECT TO WATER FILTER
K046	WATER FILTER	90"	1/2"				CONNECT TO ITEM #K044, K047, K201, K042
K047	ICE CUBER	60"	1/2"				FROM K046 WATER FILTER
K105	CLAM SHELL GRILL (GAS)	12"			VFY	75	
K112	FRYER ASSEMBLY (GAS)	12"			3/4"	225	
K114	HAND SINK, WALL MOUNTED	18"	1/2"	1/2"			
K201	ICE TEA BREWER	42"	1/2"				THRU COUNTER MROM K046 WATER FILTER
K503	DRIVE-THRU BEVERAGE COUNTER	24"	1/2"	1/2"			CONNECT TO BUILT-IN HAND SINK

PLUMBING WASTE SCHEDULE

#	DESCRIPTION	WASTE		REMARK
		DIRECT	INDIRECT	
K001	WALK-IN COOLER / FREEZER		1"	STUB OUT TO PLANTER
K007	MOP SINK	2"		SEE PLUMBING FIXTURE SCHEDULE
K016	HAND SINK, WALL MOUNTED	1-1/2"		
K020	3 COMPARTMENT SINK		(3)1"	RUN TO FLOOR SINK WITH 1/2 OPEN GRATE
K026	DISH MACHINE - HI TEMP		1-1/2"	RUN TO FLOOR SINK
K029	PRE-RINSE FAUCET		2"	RUN TO FLOOR SINK
K031	TABLE WITH 1 COMP PREP SINK		1"	RUN TO FLOOR SINK WITH 1/2 OPEN GRATE
K042	COMBI OVEN (GAS)		2"	
K047	ICE CUBER		1/2"	RUN TO FLOOR SINK WITH 1/2 OPEN GRATE
K048	ICE BIN		3/4"	RUN TO FLOOR SINK WITH 1/2 OPEN GRATE
K049	FLOOR TROUGH	2"		
K115	SOAP & TOWEL DISPENSER	1/2"		
K304	COKE DISPENSER		3"	RUN TO FLOOR SINK WITH 1/2 OPEN GRATE
K503	DRIVE-THRU BEVERAGE COUNTER	1-1/2"		

PLUMBING SUPPLY SCHEDULE

NOTE: ALL FIXTURES MAY NOT BE USED IN THESE DRAWINGS

PLUMBING SUPPLY SCHEDULE						
PLUMBING FIXTURES						
MARK	DESIGNATION & SPECIFICATION	HOT WATER	COLD WATER	TEMPERED WATER	TRAP/WASTE	
WC-1	WATER CLOSET: AMERICAN STANDARD, MADERA "FLOWISE" 3461.660, . 16 1/2" HEIGHT, 12" HEIGHT, ELONGATED SIPHON JET WITH WHITE VITREOUS CHINA EVER-CLEAN SURFACE, SELECTRONIC BATTERY POWERED SENSOR FLUSHOMETER, 1.6 GAL. PER FLUSH, PROVIDE WITH OPEN FRONT SEAT/NO COVER SEAT: OLSONITE #10 HEAVY DUTY, OPEN FRONT, LESS COVER	-	1"	-	-	4"
LAV-1	LAVATORY: AMERICAN STANDARD "LUCERNE" 0355.012 WALL HUNG TYPE, 20 1/2"x18 1/4" VITREOUS CHINA, FOR CONCEALED ARM SUPPORT, 05 GPM FLOW RESTRICTOR/AERATOR & CHROME PLATED SUPPLIES W/STOPS, CP ESCUTCHEONS, CP GRID DRAIN, CP TRAP W/ INTEGRAL CLEANOUT, ADA APPROVED OFFSET TAILPIECE, TRIM: AMERICAN STANDARD 6053.205 BATTERY POWERED SENSOR FAUCET, CHROME PLATED BRASS GRID DRAIN, WALL CARRIER: ZURN Z-1231, MOUNT RIM @ HANDICAP HEIGHT.	-	1/2"	1/2"	1/2"	1/2"
MS-1	MOP SINK, FIAT MSB-2424 MOP BASIN, 1453BB STAINLESS STEEL STRAINER, VACUUM BREAKER & HOSE THREADED SPOUT. PROVIDE TRAP, SUPPLIES, STOPS, ETC FOR COMPLETE INSTALLATION.	3/4"	3/4"	-	-	3"
WATER HEATERS						
GW	GAS WATER HEATER A.O. SMITH MODEL BTH-120(A). 60 GALLON STORAGE, 120 CFH, RECOVERY RATE 138 GALLONS PER HOUR AT 100 DEGREE F RISE	1"	1"	-	-	3"
ET-1	EXPANSION TANK: AMTROL ST SERIES THERM-X-TROL ASME MODEL ST-5, 3/4" CONNECTION, MAX. WORKING PRESSURE 150 PSI. 2.1 GALLON TOTAL VOLUME.	-	-	-	-	-
SANITARY FIXTURES						
FD-1	FLOOR DRAIN: ZURN ZS415BS-AR-Y, EPOXY COATED ACID RESISTANT CAST IRON BODY ASSEMBLY, MEMBRANE CLAMP, ADJUSTABLE COLLAR, 6" STAINLESS STEEL STRAINER, SEDIMENT BUCKET. FOR 3" OR 4" OUTLET PIPING. TRAP PRIMER CONNECTION WHERE REQUIRED BY CODE.	-	-	-	-	3",4"
FD-2	FLOOR DRAIN: ZURN ZB415B, CAST IRON BODY ASSEMBLY, MEMBRANE CLAMP, ADJUSTABLE COLLAR, 6" TYPE "B" POLISHED BRONZE STRAINER, SEDIMENT BUCKET. FOR 3" OR 4" OUTLET PIPING. ADD " TRAP PRIMER CONNECTION WHERE REQUIRED BY CODE.12" TRAP PRIMER CONNECTION WHERE REQUIRED BY CODE.	-	-	-	-	3",4"
FS-1	FLOOR SINK: SIOUX CHIEF FAT MAX PVC FLOOR SINK 860-WP3Z PVC BODY WITH 860-RGS2 STAINLESS STEEL HALF STRAINER, 860-UM DEBRIS BASKET, FOR WATER TEMPS UP TO 180°F.COORDINATE DRAIN SIZE WITH PLANS.	-	-	-	-	3",4"
FS-2	FLOOR SINK: SIOUX CHIEF SQUARE MAX PVC FLOOR SINK 861 SERIES PVC BODY WITH 861-51 NICKEL BRONZE HALF STRAINER, SEDIMENT SCREEN, FOR WATER TEMPS UP TO 180°F.COORDINATE DRAIN SIZE WITH PLANS.	-	-	-	-	3",4"
MISCELLANEOUS						
T.P.	TRAP PRIMER: ZURN Z1021 WATER SAVER TRAP PRIMER W/BRAIDED S.S. HOSE OUTLET AT LEFT SIDE OF TRAP. PROVIDE CHROME PLATED ESCUTCHEONS, COORDINATE WITH ADA TRAP WRAP. CONNECT INDIRECT WASTE PIPING FROM TRAP PRIMER TO FLOOR DRAIN CONNECTION AS REQUIRED.	-	-	-	-	INDIRECT WASTE
WCO	WALL CLEANOUT: SIOUX CHIEF 870 SERIES, 20 GAUGE STAINLESS STEEL, INSTALL 18" AFF.	-	-	-	-	BRANCH SIZE
FCO	FLOOR CLEANOUT: SIOUX CHIEF, 834-P3NR, FINISH LINE ADJUSTABLE ROUND TOP, PVC BODY. CLEANOUTS IN TILE FLOORS SHALL HAVE SQUARE TOPS.	-	-	-	-	BRANCH SIZE
MV-1	BRADLEY NAVIGATOR MODEL S59-4000BY (OR EQUAL) FOR 1 TO 4 HAND SINK APPLICATIONS. SEE DETAIL, SHEET P5.	1/2"	1/2"	1/2"	-	-
CROSS CONTAMINATION						
BFP-1	REDUCED PRESSURE ZONE: WATTS SERIES 009QT HEALTH HAZARD CROSS CONNECTION IN PLUMBING SYSTEM OR FOR CONTAINMENT AT THE SERVICE LINE ENTRANCE. (ASSE 1013)	-	-	-	-	-
BFP-2	DOUBLE CHECK VALVE: WATTS SERIES SD-3 ASSE 1022 HEALTH HAZARD, CONTINUOUS OR INTERMITTENT PRESSURE. APPROVED DUAL CHECK W/ ATMOSPHERIC VENT. (CARBONATED BEVERAGE)	-	-	-	-	-
BFP-3	ATMOSPHERIC VACUUM BREAKER: WATTS N9 SERIES HEALTH HAZARD, CONTINUOUS PRESSURE. (COMMERCIAL DISHWASHER, JANITOR'S SINK)	-	-	-	-	-
BFP-4	DOUBLE CHECK VALVE: WATTS SERIES SD-2 ASSE 1032 HEALTH HAZARD, CONTINUOUS OR INTERMITTENT PRESSURE. APPROVED DUAL CHECK W/ ATMOSPHERIC VENT. (COFFEE MAKER, TEA BREWER, ICE MACHINE)	-	-	-	-	-

GENERAL NOTES TO PLUMBERS

- A. PLUMBING CONTRACTORS TO OBTAIN ALL NECESSARY PERMITS AND INSTALLATION IS TO BE IN PLUMBING CONTRACTORS TO OBTAIN ALL NECESSARY PERMITS AND INSTALLATION IS TO BE IN COMPLETE ACCORDANCE WITH ALL NATIONAL, STATE, AND LOCAL CODES.
- B. PLUMBING CONTRACTORS SHALL FURNISH ALL LABOR AND MATERIALS TO MAKE ALL FINAL PLUMBING CONTRACTORS SHALL FURNISH ALL LABOR AND MATERIALS TO MAKE ALL FINAL CONNECTIONS AND SHALL INCLUDE ALL ITEMS REQUIRED BY APPLICABLE LAW.
- C. A CATALOG OF MANUFACTURERS EQUIPMENT SPECIFICATION SHEETS IS INCLUDED AS AN INTEGRAL CATALOG OF MANUFACTURERS EQUIPMENT SPECIFICATION SHEETS IS INCLUDED AS AN INTEGRAL PORTION OF THIS SUBMITTAL. WE SUGGEST THEREFORE THAT ALL TRADES REVIEW THE REQUIREMENTS AS INDICATED REGARDING EACH MANUFACTURER.
- D. PLUMBING CONTRACTORS TO CROSS REFERENCE ROUGH-IN DRAWINGS, STAINLESS STEEL PLUMBING CONTRACTORS TO CROSS REFERENCE ROUGH-IN DRAWINGS, STAINLESS STEEL FABRICATION DRAWINGS, WALK-IN DRAWINGS, EXHAUST HOOD DRAWINGS, AND MILLWORK DETAIL DRAWINGS.
- E. ALL VENT LOCATIONS AND RUNS TO BE LOCATED BY PLUMBER.
- F. ALL FLOOR DRAINS, FLOOR SINKS, AND OR FLOOR DRAINS UTILIZED FOR THE DRAINAGE OF FOOD SERVICE EQUIPMENT SHALL BE SELF-PRIMING.
- G. PLUMBING CONTRACTOR TO PROVIDE ALL INDIRECT DRAINS FROM EQUIPMENT TO FLOOR SINK PLUMBING CONTRACTOR TO PROVIDE ALL INDIRECT DRAINS FROM EQUIPMENT TO FLOOR SINK DRAINS.
- H. ALL PLUMBING TO BE INSTALLED AS TO PRECLUDE ANY POSSIBILITY OF BACK SIPHON. ALL PLUMBING TO BE INSTALLED AS TO PRECLUDE ANY POSSIBILITY OF BACK SIPHON.
- I. ALL INDIRECT DRAINS ARE TO BE AIR-GAPPED 2" ABOVE FLOOR DRAINS (OR PER LOCAL CODE). ALL INDIRECT DRAIN LINES ARE TO BE COPPER LINES (OR PER LOCAL CODE). THE END OF THE LINES ARE TO BE CUT AT 45°.
- J. PLUMBING CONTRACTOR TO PROVIDE REQUIRED PRESSURE REGULATING VALVES FOR HOT WATER PLUMBING CONTRACTOR TO DISHWASHER RINSE CONNECTION AND ALL OTHER EQUIPMENT REQUIRING REGULATORS.
- K. PLUMBER IS NOT RESPONSIBLE FOR SUPPLYING FAUCETS UNLESS NOTED OTHERWISE.
- L. PLUMBER TO PROVIDE MIXING VALVE AT WATER HEATER SO THAT A MINIMUM OF 140° WATER IS PLUMBER DELIVERED TO BOOSTER HEATER.
- M. GAS SUPPLY TO ALL COOKING EQUIPMENT, WHERE REQUIRED, SHALL BE PROVIDED WITH A MECHANICAL VALVE FOR FIRE-FUEL SHUT-OFF. VALVE TO BE SUPPLIED BY THE "K.E.C." AND INSTALLED BY THE PLUMBING CONTRACTOR. K.E.C. SHALL CONNECT VALVE TO THE HOOD FIRE PROTECTION SYSTEM FOR AUTOMATIC SHUT-OFF.
- N. PLUMBING CONTRACTOR TO SUPPLY GREASE TRAP AS REQUIRED BY CODE.PLUMBING CONTRACTOR TO SUPPLY GREASE TRAP AS REQUIRED BY CODE.

FIXTURE SCHEDULE NOTES:

1. APPROVED MANUFACTURERS OF FIXTURES ARE AMERICAN STANDARD, KOHLER & ELJER.
2. APPROVED MANUFACTURERS OF FAUCETS ARE AMERICAN STANDARD, DELTA, T&S & CHICAGO.
3. APPROVED MANUFACTURERS OF FLOOR DRAINS & CLEANOUTS ARE J.R. SMITH, JOSAM, WATTS, SIOUX CHIEF & ZURN.
4. APPROVED MANUFACTURER OF WATER HEATERS IS RINNAI.
5. ALL SUPPLIES SHALL BE PROVIDED W/ CHROME PLATED ANGLE STOPS & TUBING EQUAL TO EASTMAN, BRASS-CRAFT OR EQUAL.

Property of [Redacted]

DIVISION 22: PLUMBING SPECIFICATIONS

220500 GENERAL PROVISIONS

A. PROVIDE ALL MATERIALS AND EQUIPMENT AND PERFORM ALL LABOR PROVIDE ALL MATERIALS AND EQUIPMENT AND PERFORM ALL LABOR REQUIRED TO INSTALL A PLUMBING SYSTEM, COMPLETE AS INDICATED ON THE DRAWINGS, AS REQUIRED BY CODE AND AS SPECIFIED HEREIN.

B. WITHOUT RESTRICTING THE GENERALITY OF THE FIRST STATEMENT, THE WORK TO BE PERFORMED UNDER THIS DIVISION SHALL INCLUDE, BUT IS NOT LIMITED TO, THE FOLLOWING:

1. PLUMBING WORK AS DESCRIBED IN SECTIONS 220500 THROUGH 224000.

C. THE ELECTRICAL CONTRACTOR, UNLESS OTHERWISE NOTED, IS TO PROVIDE POWER WIRING FOR EACH ITEM OF ELECTRICAL EQUIPMENT AND MAKE FINAL CONNECTIONS TO MOTORS.

D. ALL FINISH PAINTING IS TO BE PERFORMED BY THE GENERAL CONTRACTOR, EXCEPT AS NOTED ELSEWHERE. THIS CONTRACTOR SHALL RESTORE TO ORIGINAL CONDITION ANY PAINTING DEFACED BY THIS CONTRACTOR AFTER THE ORIGINAL PAINTING.

E. ALL WORK SHALL CONFORM TO CODES, RULES, AND REGULATIONS:

1. STATE PLUMBING CODE.
2. LOCAL BUILDING CODE.
3. NATIONAL FIRE PROTECTION ASSOCIATION
4. CERTAIN CODES AND STANDARDS AS SET UP BY VARIOUS TECHNICAL SOCIETIES SUCH AS ASME, ASHRAE, ASTM, SMACNA, ARI, AABC, OR IEEE.
5. FEDERAL OCCUPATIONAL SAFETY AND HEALTH STANDARDS.
6. LOCAL INSPECTOR'S REQUIREMENTS.
7. STATE INDUSTRIAL COMMISSION REQUIREMENTS.
8. BUILDING INSURING AGENCY REQUIREMENTS.

F. ALL PERMITS REQUIRED BY LAWS, ORDINANCES AND BUILDING CODES HAVING JURISDICTION SHALL BE OBTAINED AT THE PROPER TIME BY AND AT THE EXPENSE OF THIS CONTRACTOR.

G. THIS CONTRACTOR SHALL OBTAIN ALL INSPECTIONS REQUIRED BY ALL LAWS, ORDINANCES AND PUBLIC AUTHORITY HAVING JURISDICTION AND SHALL OBTAIN CERTIFICATES OF SUCH INSPECTIONS AND SUBMIT SAME TO THE ARCHITECT AND SHALL PAY ALL FEES, CHARGES, ASSESSMENTS AND OTHER EXPENSES IN CONNECTION THEREWITH.

H. PIPING AND EQUIPMENT LAYOUT IS SCHEMATIC. EXACT LOCATIONS ARE DETERMINED BY STRUCTURAL AND OTHER CONDITIONS. THE DESIGN OF SYSTEM MAY NOT BE CHANGED. ONLY THE EXACT LOCATION OF PIPING MAY BE REVISED TO SUIT CONSTRUCTION CONDITIONS AND AID IN COORDINATION WITH WORK OF OTHER CONTRACTORS.

I. THE MATERIALS AND EQUIPMENT INSTALLED IN THE WORK SHALL MEET THE REQUIREMENTS OF THE CONTRACT DOCUMENTS AND NO MATERIALS OR EQUIPMENT SHALL BE ORDERED UNTIL REVIEWED BY THE ENGINEER AND/ OR ARCHITECT.

J. THIS CONTRACTOR SHALL SUBMIT SHOP DRAWINGS PER THE DOCUMENTS

- PROVIDED BY THE OWNER/ARCHITECT/CONTRACTOR.
1. EXPANSION TANK
 2. DRAINS AND CLEANOUTS
 3. VALVES
 4. ALL PLUMBING FIXTURES, FAUCETS AND FITTINGS
 5. WATER HEATER
 6. PIPE INSULATION PIPE INSULATION
 7. GREASE INTERCEPTOR

K. CATALOG DATA FOR EQUIPMENT REVIEWED BY THE ARCHITECT SHALL NOT SUPERSEDE THE ENGINEER'S CONTRACT DOCUMENTS. THE REVIEW OF THE ENGINEER SHALL NOT RELIEVE THE CONTRACTOR FROM RESPONSIBILITY FOR DEVIATIONS FROM DRAWINGS OR SPECIFICATIONS, PROVIDING PROPER CLEARANCE FABRICATION PROCESS AND COORDINATION WITH OTHER TRADES.

L. WHEN SUBMITTED FOR THE ARCHITECT'S REVIEW, SHOP DRAWINGS SHALL BEAR THE CONTRACTOR'S CERTIFICATION THAT THEY HAVE REVIEWED, CHECKED AND APPROVED THE SHOP DRAWINGS, THAT THEY ARE IN HARMONY WITH THE REQUIREMENTS OF THE PROJECT AND WITH THE PROVISIONS OF THE CONTRACT DOCUMENTS AND THAT THEY HAVE VERIFIED ALL FIELD MEASUREMENTS AND CONSTRUCTION CRITERIA, MATERIALS, CATALOG NUMBERS AND SIMILAR DATA. CONTRACTOR SHALL ALSO CERTIFY THAT THE WORK REPRESENTED BY THE SHOP DRAWINGS IS RECOMMENDED BY THE CONTRACTOR AND THE CONTRACTOR'S GUARANTEE WILL FULLY APPLY.

M. ALL CONTRACTORS SUBMITTING PROPOSALS FOR THIS WORK SHALL FIRST EXAMINE THE SITE AND ALL CONDITIONS THEREIN. ALL PROPOSALS SHALL TAKE INTO CONSIDERATION ALL SUCH CONDITIONS AS MAY AFFECT THE WORK UNDER THIS CONTRACT. THE SUBMITTING OF A BID AUTOMATICALLY IMPLIES THAT THIS EXAMINATION OF SITE HAS BEEN DONE.

N. CONTRACTOR SHALL VERIFY LOCATION OF UTILITIES AND NOTE CONDITIONS WHICH WOULD AFFECT THE WORK. ALL DISCREPANCIES SHALL THEN BE REPORTED PRIOR TO THE BID AWARD.

O. PROVIDE INSTRUCTION TO OWNER'S OPERATING PERSONNEL AS NECESSARY, SHOWING LOCATIONS AND PROPER OPERATION OF MAJOR ITEMS OF EQUIPMENT AND SYSTEM COMPONENTS AND REFERRING TO THE OPERATING INSTRUCTION MANUAL DESCRIBED BELOW AS A GUIDE.

P. COMPILE A WRITTEN MANUAL OF OPERATING INSTRUCTIONS INCLUDING COPIES OF SHOP DRAWINGS, AND A LISTING OF EQUIPMENT SUPPLIERS. ASSEMBLE IN 8-1/2" X 11" HARD BACKED INDEXED BINDER. MATERIAL SHALL BE AS FOLLOWS:

1. TITLE PAGE, TITLE OF JOB, TENANT, ADDRESS, DATE OF SUBMISSION, CONTRACTOR AND ENGINEER.
2. INDEX.
3. LIST OF MAJOR EQUIPMENT USED IN PROJECT ACCOMPANIED BY CONTRACTOR PURCHASE ORDER NUMBERS AND SUPPLIER'S NAMES AND ADDRESSES.
4. ONE COPY OF EACH SHOP DRAWING GROUPED BY TYPES OF EQUIPMENT, I.E., PLUMBING FIXTURES, VALVES, ETC.
5. SECTION FOR EACH SYSTEM INCLUDING:
 - 5.1. BRIEF DESCRIPTION OF SYSTEM OPERATION WITH LOCATION OF MAJOR COMPONENTS.
 - 5.2. LIST OF ITEMS IN SYSTEM REQUIRING PERIODIC SERVICE.

Q. SUBMIT A COMPLETED COPY TITLED "PLUMBING OPERATING INSTRUCTION" ON THE BINDING EDGE OF BINDER TO THE ARCHITECT FOR APPROVAL. AFTER ARCHITECT'S REVIEW AND ANY CORRECTIONS REQUIRED ARE COMPLETED, SUBMIT A COPY OF THE MANUAL, TO THE OWNER.

220502 FIRESTOPPING

A. EACH CONTRACTOR SHALL BE RESPONSIBLE FOR FIRESTOPPING AROUND ALL OPENINGS FOR PIPES, DUCTS, CONDUITS ETC., INSTALLED BY CONTRACTOR AT ALL FIRE WALLS. FIRESTOPPING SHALL BE PERFORMED BY AN INSTALLER WHO HAS BEEN TRAINED BY THE MANUFACTURER, OR MANUFACTURER'S REPRESENTATIVE, IN THE INSTALLATION PROCEDURES BASED ON PUBLISHED UL TESTED FIRE STOP SYSTEMS.

B. FIRESTOPPING SHALL MEET THE REQUIREMENTS OF ASTM E-814 OR UL 1479 FIRE TESTS BY A RECOGNIZED TESTING AGENCY. FIRESTOPPING SHALL ALSO CONFORM TO THE FOLLOWING GOVERNING CODES: INTERNATIONAL BUILDING CODE, NFPA 101- LIFE SAFETY CODE & NFPA 70 - NATIONAL ELECTRIC CODE.

C. PENETRATION

1. CLEAN PENETRATION HOLES OF DIRT, LOOSE MATERIALS AND FOREIGN MATTER WHICH MAY AFFECT BOND OR INSTALLATION.
2. REMOVE COATINGS SUCH AS PAINT, CURING COMPOUNDS, WATER REPELLENT & SEALERS AS REQUIRED.
3. INSTALL BACKING MATERIALS TO PREVENT LIQUID MATERIAL LEAKAGE.

D. APPLICATION

1. PREPARE AND APPLY PENETRATION SEALING SYSTEMS IN ACCORDANCE WITH THE MANUFACTURER'S PRINTED INSTRUCTIONS.

2. EMPLOY INSTALLATION TECHNIQUES WHICH WILL ENSURE THAT FIRESTOPPING IS DEPOSITED TO FILL AND SEAL HOLES AND OPENINGS.

3. TOOL EXPOSED SURFACES OF APPLIED SEALANT TO SMOOTH FINISH.

4. PROTECT MATERIALS FROM DAMAGE ON SURFACES SUBJECTED TO TRAFFIC.

E. PROVIDE INTUMESCENT SEALANTS AND COLLARS AT OPENINGS INVOLVING PLASTIC OR INSULATED PIPE SIMILAR TO THE METACALK SERIES 880 AND 950.

F. FIRESTOPPING BY DOW CORNING, 3M, HILTI OR METACALK MAY FURNISHED AT THE CONTRACTOR'S OPTION.

220529 PIPE ANCHORS, HANGERS AND SUPPORTS

A. ALL PIPING SHALL BE SEPARATELY HUNG AND SUPPORTED FROM APPROVED STRUCTURAL MEMBERS OR CONCRETE OVERHEAD STRUCTURE ONLY. NO PIPE SHALL BE HUNG FROM ROOF DECK, PIPE, DUCTS OR OTHER COMPONENTS OR EQUIPMENT OF OTHER TRADES.

B. PROVIDE LISTED/APPROVED ADJUSTABLE HANGERS, INSERTS, BRACKETS, CLAMPS, SUPPLEMENTARY STEEL AND OTHER DEVICES REQUIRED FOR PROPER SUPPORT OF ALL PIPE LINES.

C. HANGERS SHALL BE DESIGNED TO ALLOW FOR EXPANSION AND CONTRACTION AND TO ALLOW INSULATION (WHERE APPLICABLE) TO RUN CONTINUOUSLY THROUGH HANGERS.

D. WIRE OR STRAP HANGERS ARE NOT PERMITTED. ADJUST HANGERS SO AS TO DISTRIBUTE WEIGHT LOAD EQUALLY ON ATTACHMENTS.

220548 PLUMBING SYSTEM TESTING

A. TEM TESTING SHALL PROVIDE FOR THE FOLLOWING:

1. TEST NEW INTERIOR DOMESTIC WATER SYSTEM.
2. TEST ALL SOIL, WASTE, AND VENT PIPING.

3. FURNISH ALL PUMPS FOR AIR AND WATER PRESSURE TESTS ALONG WITH GAUGES AND ANY OTHER REQUIRED TEST EQUIPMENT.

4. RGROUND LINES TO BE TESTED BEFORE BEING CONCEALED. CONTRACTOR SHALL REPAIR ANY LEAKS AND ALL DAMAGE RESULTING THEREFROM.

5. ANGLES IN AMBIENT TEMPERATURE WILL BE TAKEN INTO ACCOUNT WHEN TESTING UNDERGROUND PIPING. HOWEVER, THE VARIOUS SYSTEMS SHALL BE THOROUGHLY INSPECTED FOR LEAKS BEFORE HYDROSTATIC PRESSURE TESTS ARE CONCLUDED.

6. TERIOR WATER PIPING: HYDROSTATIC TEST AT 125 PSI AWWA PROCEDURES AND TO THE SATISFACTION OF LOCAL AUTHORITY HAVING JURISDICTION.

7. SOIL, WASTE, AND VENT PIPING SHALL BE WATER AND SMOKE OR AIR TIGHT (STATE PLUMBING CODE).

B. MEASURE LEAKAGE BY METERING WATER REQUIRED TO MAINTAIN LINE PRESSURE. REMOVE AIR BEFORE TESTING.

C. REPAIR ANY LEAKING JOINTS AND DEMONSTRATE ACCEPTABLE LEAKAGE TO SATISFACTION OF OWNER'S REPRESENTATIVE AND APPROVING AUTHORITY. FLUSH ALL PIPING BEFORE PLACING INTO OPERATION.

220550 STERILIZATION

A. STERILIZE NEW DOMESTIC WATER LINES AFTER INSTALLATION.

B. FURNISH A CERTIFICATE OF STERILIZATION AND APPROVAL FOR HUMAN CONSUMPTION TO BE SIGNED BY A PROFESSIONAL ENGINEER REGISTERED IN THIS STATE, REGULARLY EMPLOYED BY THE TESTING LABORATORY. CERTIFICATE MUST BE GIVEN TO THE ARCHITECT AND OWNER BEFORE FINAL PAYMENT WILL BE MADE.

C. STERILIZATION SHALL BE BY MEANS OF CHLORINE INJECTED INTO THE WATER SYSTEM NEAR THE SOURCE AND OUTLETS THROUGHOUT THE SYSTEM SHALL BE TESTED TO PROVE PRESENCE OF MINIMUM REQUIREMENTS. LEAVE CHLORINE IN FOR 24 HOURS AND FLUSH OUT SYSTEM UPON COMPLETION OF WORK. STERILIZATION PROCEDURE SHALL BE WITNESSED BY THE OWNER'S REPRESENTATIVE.

D. STERILIZATION SHALL BE PERFORMED UNDER THE IMMEDIATE SUPERVISION OF A WATER TESTING LABORATORY REGULARLY ENGAGED IN THE SERVICE AND SHALL BE DONE ACCORDING TO THEIR INSTRUCTIONS.

220553 EQUIPMENT IDENTIFICATION

C. STENCILS, LABELS, TAGS, AND COLOR CODES SHALL CONFORM TO ANSI A13.

D. PRODUCTS SHALL BE SETON. EQUAL PRODUCTS BY BRADY MAY BE FURNISHED AT CONTRACTOR'S OPTION.

E. STENCILS SHALL BE REUSABLE AND HAVE 1" HIGH CHARACTERS. CHARACTERS SHALL BE PAINTED WHITE OVER A BLACK BACKGROUND. INCLUDE ON PIPING A WHITE (OR BLACK) STENCILED ARROW IN FLOW DIRECTION NEXT TO STENCIL. STENCIL ONLY AFTER FINAL PAINTING IS COMPLETE. CHARACTERS SHALL BE LEGIBLE FROM FLOOR. APPLY CLEAR ACRYLIC, LACQUER, OR VARNISH OVER THE FINISHED STENCIL.

F. PREPRINTED FLEXIBLE VINYL LABEL WITH PERMANENT PRESSURE SENSITIVE ADHESIVE BACK MAY BE USED ON PIPE INSTEAD OF STENCIL. LABEL SHALL BE OF SUFFICIENT LENGTH TO ENCIRCLE THE PIPE (AND INSULATION WHEN APPLICABLE) AND OVERLAP ON ITSELF. EACH LABEL SHALL HAVE AT LEAST ONE FLOW DIRECTION ARROW AND SHALL BE PERMANENTLY LABELED WITH PIPE CONTENT.

G. PIPING, VALVES, DRAINS, CONTROL PANELS AND SIMILAR EQUIPMENT SHALL BE IDENTIFIED AS TO FUNCTION AND SYSTEM NUMBER AS DIRECTED BY THE OWNER'S REPRESENTATIVE AND AS LISTED BELOW:

IDENTIFICATION ITEM: TYPE PIPING: STENCIL OR PIPE LABEL

VALVES: TAG PIPING SPECIALITY: TAG WATER HEATER AND OTHER EQUIPMENT: STENCIL

H. IDENTIFY PIPE LINES WITH STENCIL OR PIPE LABEL WITH COLOR CODED BANDS AT THE FOLLOWING LOCATIONS:

1. AT EQUIPMENT CONNECTION AT EACH VALVE.
2. AT BOTH SIDES OF WALLS THROUGH WHICH PIPE PASSES.
3. AT EVERY 20 FT. INTERVAL ON CONTINUOUS PIPE LINES.
4. AT EACH BRANCH CONNECTION.
5. SHOW FLOW DIRECTION ARROWS AT EACH IDENTIFICATION POINT.

220700 INSULATION

A. PIPE INSULATION AND APPURTENANCES AND COVERINGS ON PIPES USED IN CHASES, SHAFTS OR OTHER CONCEALED SPACES IN TYPES 1 AND 2 CONSTRUCTION SHALL HAVE A FLAME SPREAD RATING NOT EXCEEDING TWENTY-FIVE (25) AND IN TYPE 3 AND 4 CONSTRUCTION NOT EXCEEDING SEVENTY-FIVE (75) AND A SMOKE DEVELOPED RATING NOT EXCEEDING FIFTY (50).

B. INSULATION SHALL BE RIDGE ONE-PIECE FIBERGLASS PIPE INSULATION WITH REQUIREMENTS COMPLYING WITH ASTM C 547, SELF-SEALING ADHESIVE LAP LONGITUDINAL JOINTS AND BUTT STRIPS FOR TRANSVERSE JOINTS. JACKETING SHALL CONFORM TO ASTM C 1136, TYPE I, MAXIMUM VAPOR TRANSMISSION RATING OF 0.02 PERM WHEN TESTED ACCORDING TO ASTM E 96, PROCEDURE (K VALVE) 0.25 BTU/IN./HR. * FT² * °F AT 75°F MEAN TEMPERATURE WITH A MINIMUM R-VALUE OF R4.

PROVIDE INSULATION THICKNESS AS INDICATED: DOMESTIC COLD WATER PIPING 1" AND SMALLER: 1/2" THICKNESS. DOMESTIC COLD WATER PIPING 1-1/4" - 1-1/2": 3/4" THICKNESS. DOMESTIC COLD WATER 2" AND LARGER: 1" THICKNESS. DOMESTIC HOT WATER PIPING 2" AND SMALLER: 1" THICKNESS. DOMESTIC HOT WATER RETURN PIPING: 1" THICKNESS. PLUMBING VENT PIPING WITHIN 6 FEET OF ROOF OUTLET: 1" THICKNESS. CONDENSATE PIPING: 1/2" THICKNESS.

C. GLUE IN PLACE WITH SCHULLER U-GLUE.

D. THE FITTINGS SHALL BE INSULATED WITH SCHULLER ZESTON INSULATION AND HAVE FACTORY PREMOLDED PVC COVERS. BUTT THE JOINTS TOGETHER AND WRAP WITH 3" WIDE STRIP TAPE, SEAL IN PLACE WITH SCHULLER U-GLUE.

E. INSULATION SHALL NOT BE APPLIED UNTIL THE GENERAL CONSTRUCTION HAS PROGRESSED SUFFICIENTLY TO INSURE AGAINST PHYSICAL OR VOISTURE DAMAGE TO THE INSULATION. ALL INSULATION DAMAGED THROUGH FAILURE TO OBSERVE THIS DIRECTIVE SHALL BE REPLACED AT PLUMBING CONTRACTOR'S EXPENSE.

F. INSTALL ALL INSULATION ACCORDING TO MANUFACTURER'S RECOMMENDATIONS.

G. INSULATION SHALL NOT BE APPLIED OVER FLANGES, JOINTS AND SEAMS IN PIPING.

H. INSULATION SHALL BE SCHULLER. EQUAL PRODUCT BY ARMSTRONG, CERTAINTEED, OWENS-CORNING OR KNAUF MAY BE FURNISHED AT THE CONTRACTOR'S OPTION.

221113 PLUMBING BASIC MATERIALS AND METHODS

A. PROVIDE AND ERECT THE FOLLOWING PIPING AS SHOWN ON THE DRAWINGS AND/OR AS REQUIRED.

1. SANITARY BUILDING DRAIN AND VENT PIPING SHALL BE SERVICE WEIGHT CAST IRON SOIL PIPE.

2. SCHEDULE 40 PVC PIPING MAY BE USED FOR SANITARY WASTE AND VENT PIPING AT THE CONTRACTOR'S OPTION IF CEILING SPACE IS NOT USED AS A RETURN AIR PLENUM SPACE.

3. DOMESTIC HOT AND COLD WATER USE TYPE "L" HARD COPPER PIPE.

4. CAST IRON - NON-COMBUSTIBLE PIPING REQUIRED IN WALL AT HOODS.

B. THIS CONTRACTOR IS TO BECOME INFORMED OF THE EXACT DIMENSIONS OF FINISHED WORK WHERE PIPES ARE TO BE PLACED AND WILL ARRANGE THE WORK ACCORDINGLY, ASSUMING ALL RESPONSIBILITY FOR PROPER LOCATION. IN THE ERECTION OF THE MAINS, SPECIAL CARE SHALL BE USED PROVIDING SUPPORT AND PROPER ALLOWANCES SHALL BE MADE FOR EXPANSION.

C. ALL PIPE LINES MUST BE PROVIDED WITH A SUFFICIENT NUMBER OF FITTINGS OR UNIONS TO MAKE POSSIBLE DISASSEMBLY WITHOUT BREAKAGE OF FITTINGS.

D. ALL EXPOSED PIPING SHALL BE NEAT AND CAREFULLY ALIGNED WITH THE STRUCTURAL ELEMENTS OF THE BUILDING. NO OFFSETS OR OBLIQUE BENDS WILL BE PERMITTED. DRAWINGS ARE DIAGRAMMATIC AND SHOULD NOT BE USED FOR LAYOUT WORK.

E. ALL LOW POINTS IN WATER PIPING TO HAVE DRAIN VALVES WITH STANDARD HOSE ATTACHMENTS. HOT AND COLD WATER PIPING IS TO FITCH TOWARD THE NEAREST DRAIN VALVE.

F. ALL PIPES TO BE INSTALLED SHALL BE LOCATED AT UFFICIENT DISTANCE FROM WALLS, OTHER PIPES, CONDUIT, DUCTWORK AND OTHER OBSTACLES TO AVOID INTERFERENCE AND TO PERMIT THE APPLICATION OF FULL THICKNESS OF INSULATION SPECIFIED.

G. MECHANICAL JOINT TYPE PIPING SHALL BE INSTALLED PER MANUFACTURER'S RECOMMENDATIONS. THERMOMETERS BY TRERICE, ASHCROFT, MARSHALLTOWN, AND WEISS ARE ACCEPTABLE.

221116 PLUMBING SYSTEMS

A. SANITARY BUILDING DRAIN, SOIL, WASTE AND VENT LINES SHALL BE SERVICE WEIGHT CAST IRON HUBLESS PIPE WITH STAINLESS STEEL AT COUPLINGS. SCHEDULE 40 PVC MAY BE USED FOR SANITARY WASTE AND VENT PIPING IF CEILING SPACE IS NOT USED AS A RETURN AIR PLENUM. TYPE NO. S1110-4 MAY BE USED IN LIEU OF FIELD FABRICATED FLASHINGS.

B. VENT STACKS SHALL EXTEND THROUGH THE BUILDING, TERMINATING 12" ABOVE THE ROOF. STANDARD FLASHING SHALL BE EXTENDED 12" IN ALL DIRECTIONS FROM THE VENT TERMINAL AND TURNED DOWN INTO VENT. FLASHING UNITS AS MADE BY STONEMAN CAULK TYPE NO. S1110-4 MAY BE USED IN LIEU OF FIELD FABRICATED FLASHINGS.

C. HORIZONTAL RUNS SHALL BE GIVEN AS STEEP A PITCH TOWARD THE OUTLET AS CONDITIONS WILL PERMIT BUT NOT LESS THAN 1/8" PER FOOT.

D. FULL "Y" BRANCH FITTINGS AND EXTENSION WITH BRASS NIPPLES AND FINISHED SORW PLUGS FOR CLEANOUTS SHALL BE PLACED IN ACCESSIBLE POSITIONS AT ENDS OF HORIZONTAL LINES OF PIPE AND AT FOOT OF ALL VERTICAL LINES OF PIPE OR ELSEWHERE, AS MAY BE REQUIRED BY THE CODE.

E. WHERE CLEANOUTS OCCUR IN FINISHED AREAS, THEY SHALL BE RECESSED AND COVERS TO BE FLUSH WITH THE FLOOR OR WALL.

F. HOT AND COLD WATER PIPING, ABOVE GROUND, SHALL BE TYPE "L" HARD COPPER TUBE WITH SOLDER FITTINGS. EXPOSED PIPING AT FIXTURES SHALL BE CHROME PLATED BRASS.

G. ALL COPPER TUBING SHALL HAVE SWEAT JOINTS AND BE CLEAN OF SCALE AND FOREIGN MATTER BEFORE INSTALLATION. ALL ENDS OF TUBING TO BE SWEATED SHALL BE REAMED, CLEANED AND BURNISHED TO REMOVE DIRT AND OXIDE. HARD 95-5 LEAD-FREE SOLDER SHALL BE USED AND APPLIED TO THE JOINTS ACCORDING TO STANDARD PRACTICE AND/OR MANUFACTURER'S RECOMMENDATIONS. SUITABLE ADAPTERS SHALL BE USED AT CONNECTION TO EQUIPMENT.

H. EACH HOT AND COLD WATER BRANCH SHALL BE PROVIDED WITH A GATE EACH HOT AND COLD WATER BRANCH SHALL BE PROVIDED WITH A GATE VALVE SHUT-OFF.

I. GREASE INTERCEPTOR - SHALL BE AS SPECIFIED ON DRAWINGS.

221118 GAS PIPING

A. ASTM A-53 SCHEDULE 40 STEEL PIPE PAINTED WITH YELLOW ANTI-CORROSIIVE PAINT, SCREWED OR WELDED IN ACCORDANCE WITH CODE REQUIREMENT (FITTINGS FOR LINES LARGER THAN 2" SHALL BE WELDED STEEL. FITTINGS FOR LINES 2" AND SMALLER, EXCEPT WHEN LOCATED IN AIR PLENUMS, SHALL BE SCREWED. STANDARD WEIGHT BLACK MALLEABLE). NO VALVES ARE TO BE LOCATED IN AIR PLENUMS.

B. GAS COCK'S 1-1/2" AND SMALLER SHALL BE ALL BRONZE, SCREWED, FLAT HEAD, BRASS PLUG AND WASHER 200 LB. NOG. PROVIDE LINE SIZE 6" LONG DIRT LEG DOWN STREAM OF GAS COCK AT ALL EQUIPMENT CONNECTIONS.

C. PROVIDE AND INSTALL THE NATURAL GAS MANIFOLD FOR COOKING EQUIPMENT WHEN NATURAL GAS IS USED FOR FRYERS.

D. ALL EQUIPMENT SHALL SHALL BE CONNECTED WITH RIGID PIPING AS SPECIFIED ABOVE, FLEXIBLE CONNECTORS ARE NOT ACCEPTABLE.

E. PROVIDE UNION AT ALL EQUIPMENT CONNECTIONS.

F. PROVIDE GAS PIPE SUPPORTS IN ACCORDANCE WITH CODE REQUIREMENTS.

221120 DRAIN PIPING

A. FURNISH AND INSTALL A GRAVITY DRAIN PIPING SYSTEM FROM WATER HEATER, TERMINATING AT THE MOP SINK.

B. PIPING IS TO BE SCHEDULE 40 PVC WITH DRAINAGE PATTERN FITTINGS, BONDED ACCORDING TO THE MANUFACTURERS RECOMMENDATIONS.

C. PIPING IS TO BE SECURED TO PIPE HANGERS, USING PROPER SPACING AND THE APPROPRIATE HEIGHT TO ALLOW THE PIPE TO FITCH PROPERLY.

223300 WATER HEATER ELECTRIC WATER HEATERS:

A. PROVIDE WATER HEATER, SIZE, LOCATION AND CAPACITY AND MANUFACTURER AS INDICATED ON THE DRAWINGS.

B. TANK TYPE ELECTRIC WATER HEATER WITH GLASS-LINED TANK RATED AT 150 PSI WORKING PRESSURE, MAGNESIUM ANODE PROTECTION, BRONZE DRAIN VALVE, HIGH TEMPERATURE CUT-OFF SWITCH AND IMMERSION THERMOSTAT. TANK TO HAVE A MINIMUM R-VALUE OF 10.

D. FURNISH AND INSTALL A WATTS NO. 40L, 3/4" TEMPERATURE AND PRESSURE RELIEF VALVE AND EXTEND DISCHARGE PIPE, FULL SIZE, TO WITHIN 6" ABOVE THE MOP SINK OR FLOOR DRAIN.

D. PROVIDE AMTROL EXPANSION TANK AS SIZED ON THE DRAWINGS. EQUAL PRODUCTS BY BELL AND GOSSETT OR ADAMSON MAY BE PROVIDED AT THE CONTRACTOR'S OPTION.

FUEL FIRED WATER HEATERS

A. FURNISH AND INSTALL HIGH EFFICIENCY, 96% THERMAL EFFICIENCY OR BETTER, GAS FIRED, STORAGE WATER HEATER, SIZE, LOCATION AND CAPACITY AS INDICATED ON THE DRAWINGS.

B. WATER HEATER SHALL BE RHEEM RUUD WITH INTELLIGENT CONTROL SYSTEM/LCD DISPLAY. EQUAL HEATERS BY A.O. SMITH, OR LOCHINVAR MAY BE FURNISHED AT THE CONTRACTOR'S OPTION.

C. TANK-TYPE GAS-FIRED WATER HEATER WITH GLASS-LINED TANK RATED AT 150 PSI WORKING PRESSURE, POWERED ANODE PROTECTION, BRONZE DRAIN VALVE. TANK TO HAVE A MINIMUM R-VALUE OF 10.

D. FACTORY-INSTALLED TEMPERATURE AND PRESSURE RELIEF VALVE. EXTEND DISCHARGE PIPE, FULL SIZE, TO WITHIN 6" ABOVE THE MOP SINK OR FLOOR DRAIN.

E. PROVIDE WATTS, POTABLE WATER EXPANSION TANK AS SIZED ON THE DRAWINGS. EQUAL PRODUCTS BY AMTROL BELL & GOSSETT MAY BE PROVIDED AT THE CONTRACTOR'S OPTION.

224000 PLUMBING FIXTURES AND EQUIPMENT

A. WATER CLOSETS AND LAVATORIES SHALL BE VITREOUS CHINA AND SHALL ALL BE BY THE SAM MANUFACTURER.

B. ALL WALL HUNG LAVATORIES, FLUSH VALVES, ETC., SHALL BE PER DRAWINGS AND MOUNTED AT THE MANUFACTURER'S RECOMMENDED ROUGHING IN MEASUREMENTS, UNLESS NOTED OTHERWISE.

C. VALVES TO BE AS FOLLOWS: VALVES TO BE AS FOLLOWS: 125 LB. S.W.P. GATE, GLOBE AND CHECK VALVES:

1. GATE (2-1/2" AND SMALLER) - ALL BRONZE, SCREWED, TAPERED, SOLID WEDGE DISC, SCREWED BONNET, RISING STEM.
2. BALL (2-1/2" AND SMALLER) - ALL BRONZE, TEFLON STEM SEALS AND SEAT, 1/4 TURN SHUT-OFF, VINYL COVERED HANDLES.
3. GLOBE (2-1/2" AND SMALLER) - ALL BRONZE, SCREWED, TAPERED, SOLID WEDGE DISC, SCREWED BONNET, RISING STEM.
4. CHECK (2-1/2" AND SMALLER) - ALL BRONZE, SCREWED, HORIZONTAL SWING CHECK WITH BRONZE DISC.

C. VALVES SHALL BE MILWAUKEE. EQUAL PRODUCTS BY CRANE, HAMMOND, POWELL, WALWORTH, NORTHERN INDIANA BRASS COMPANY OR STOCKHAM MAY BE FURNISHED AT THE CONTRACTOR'S OPTION.

D. UNIONS TO BE AS FOLLOWS:

1. UNIONS FOR COPPER PIPE TO BE 150LB., ALL BRONZE, SOLDER END TYPE BY CHASE. EQUAL PRODUCTS BY CRANE, MUELLER OR NORTHERN INDIANA BRASS COMPANY MAY BE FURNISHED AT THE CONTRACTOR'S OPTION.

2. DIELECTRIC UNIONS BETWEEN FERROUS AND COPPER SHALL BE INSULATED TO PREVENT METAL-TO-METAL CONTACT AND SHALL BE MANUFACTURED BY CAPITAL MANUFACTURING COMPANY OF COLUMBUS, OHIO. EQUAL PRODUCTS BY PATROL OR PECCO SALES COMPANY.

E. CLEANOUTS TO BE AS FOLLOWS:

1. FLOOR TYPE TO BE ADJUSTABLE CAST IRON WITH NICKEL BRONZE TOP. TOP TO BE FLUSH WITH FLOOR. SEE DRAWINGS FOR MODEL AND MANUFACTURER.
2. WALL TYPE TO BE CAST IRON TEE WITH ROUND POLISHED STAINLESS STEEL ACCESS COVER AND THREADED PLUG. SEE DRAWINGS FOR MODEL AND MANUFACTURER.

F. FLOOR DRAINS TO BE AS FOLLOWS:

1. CAST IRON BODY SHALLOW SUMP DRAIN WITH DOUBLE DRAINAGE FLANGE AND WEEPHOLES, FLASHING CLAMP, BOTTOM OUTLET WITH NEOPRENE GASKET INSIDE CONNECTOR, 6" DIAMETER ADJUSTABLE GRATE. FRAME AND GRATE TO HAVE POLISHED NICKEL-BRONZE FINISH. SEE DRAWINGS FOR MODEL AND MANUFACTURER. EQUAL PRODUCT MAY BE SUPPLIED AT THE CONTRACTOR'S OPTION.