

GENERAL MECHANICAL NOTES

1. THE CONTRACTOR SHALL FURNISH ALL LABOR, MATERIALS, AND EQUIPMENT NECESSARY FOR THE INSTALLATION OF A COMPLETE SYSTEM IN ACCORDANCE WITH THESE DRAWINGS, THE APPLICABLE BUILDING CODE AND ALL OTHER APPLICABLE STATE, COUNTY AND LOCAL ORDINANCES AND THE LATEST ADDITION OF THE FOLLOWING PUBLICATIONS: SMACNA, ASHRAE, NFPA 90A, 90B, 91 & ANSI B-9.1 ALL DUCTWORK SHALL BE FABRICATED, INSTALLED AND SUPPORTED AS PER SMACNA STANDARDS.
2. THE CONTRACTOR SHALL PAY ALL COSTS OF PERMIT, INSPECTIONS AND ALL OTHER COSTS INCIDENTAL TO THE COMPLETION AND TESTING OF THIS WORK.
3. THE CONTRACTOR SHALL VISIT THE SITE AND COORDINATE WORK WITH OTHER TRADES TO INSURE AN ORDERLY PROGRESS OF THIS WORK.
4. THE CONTRACTOR SHALL SUPPLY THE OWNER WITH ONE SET OF "AS-BUILT" DRAWINGS UPON COMPLETION OF THIS PROJECT. CONTRACTOR SHALL ALSO LEAVE FOR ONE AT LEAST ONE SET OF THE MANUFACTURER'S INSTALLATION AND OPERATIONS MANUALS FOR ALL EQUIPMENT PROVIDED ON THE PROJECT.
5. ALL PROVIDED MATERIALS SHALL BE NEW OF GOOD QUALITY. ALL WORK SHALL BE PERFORMED IN A WORKMANLIKE MANNER BY SKILLED WORKMAN.
6. CONTRACTOR SHALL SUBMIT, FOR APPROVAL FIVE (5) COPIES OF MANUFACTURER'S DRAWINGS FOR EACH PIECE OF EQUIPMENT AND CONTROLS INCLUDED IN CONTRACT. IT IS STRONGLY PREFERRED THAT THE SUBMITTALS BE MADE IN THE FORM OF AN ELECTRONIC SUBMITTAL IN A PDF TYPE FORMAT.
7. ALL SUPPLY AND RETURN AIR DUCTWORK SHALL BE GALVANIZED SHEET STEEL EXTERNALLY WRAPPED WITH WITH A MIN. OF R5 INSULATION OR R8 IF DUCTWORK IS LOCATED EXTERIOR TO BLDG INSULATION ENVELOPE. ALL FLEX DUCT SHALL BE "THERMOFLEX" OR APPROVED EQUAL AND SHALL HAVE EQUIVALENT INSULATION. ALL EXPOSED ROUND DUCTWORK SHALL BE "SPIROSAFE" NON-INSULATED SINGLE WALL SPIRAL DUCTS AS MANUFACTURED BY LINDAB, INC. <http://www.lindabusa.com> OR APPROVED EQUAL.
8. ALL EXHAUST DUCTS AND OUTSIDE AIR DUCTS SHALL BE GALVANIZED SHEET METAL WITH SEALED SEAMS AND JOINTS.
9. DUCT SIZES SHOWN ARE INSIDE DIMENSIONS.
10. ALL AIR DEVICES (DIFFUSERS, REGISTERS AND GRILLES) SHALL BE ALL ALUMINUM CONSTRUCTION WITH EXPOSED SURFACE OFF WHITE BAKED ENAMEL FINISH OR AS SPECIFIED BY ARCHITECT. DEVICES SHALL BE TITUS, METALAIR, AIRGUIDE. PROVIDE OPPOSED BLADE DAMPERS AT ALL DIFFUSERS AND REGISTERS.
11. THERMOSTAT SHALL BE COMBINATION COOLING/HEATING, WITH SYSTEM "COOL-AUTO-HEAT-OFF" AND FAN "ON-AUTO" SELECTOR SWITCHES. PROVIDE PROGRAMMABLE TYPE THERMOSTAT. * CONTRACTOR SHALL FULLY INSTRUCT OWNER ON HOW TO PROPERLY PROGRAM INSTALLED THERMOSTATS. * PROGRAMMABLE THERMOSTAT SHALL BE BY MANUFACTURER OF INSTALLED AIR HANDLING UNIT. IT IS RECOMMENDED THAT DURING OCCUPIED HOURS, THE FANS BE SET TO "ON" IN LIEU OF "AUTO". * THERMOSTATS SHALL BE MOUNTED A MAX. OF 48" A.F.F.
12. REFRIGERANT LINES SHALL BE COPPER, TYPE "L" HARD DRAWN WITH WROUGHT COPPER SOLDER-JOINT TYPE FITTINGS, USE 95/5 SOLDER. REFRIGERANT LINES SHALL SIZED AS PER MANUFACTURER RECOMMENDATIONS.
13. SPLIT SYSTEMS (IF APPLICABLE) SHALL HAVE ARMAFLEX 3/4" INSULATION (OR APPROVED EQUAL) USED FOR SUCTION LINES. INSTALLATION SHALL BE AS PER MANUFACTURERS INSTRUCTIONS. PRE-INSULATED LINES SETS ARE ACCEPTABLE.
14. ALL BRANCH TAKE-OFFS TO BE PROVIDED W/MANUAL VOLUME DAMPERS AND TAPS AS PER PLANS REQUIREMENTS.
15. PROVIDE NEW FILTERS FOR ALL AIR CONDITIONING EQUIPMENT BEFORE STARTING THEM. REPLACE THEM PRIOR TO FINAL ACCEPTANCE BY OWNER.
16. PROVIDE SMOKE DETECTORS WITH ACCESS DOORS IN ALL SUPPLY AIR DUCTS FOR FANS AND AHU'S SERVING A COMMON DESIGN SUPPLY OR RETURN PLENUM OF ABOVE 2000 CFM. ALL SMOKE DETECTORS SHALL BE BY ONE MANUFACTURER, COORDINATE VOLTAGE ETC. WITH ELECTRICAL CONTRACTOR. FIRE ALARM SYSTEM BEFORE ORDERING. UPON DETECTION, SMOKE DETECTORS SHUT DOWN ASSOCIATED AIR MOVING EQUIPMENT AND ALL AIR MOVING EQUIPMENT SERVING THAT COMMON PLENUM.
17. HVAC CONTRACTOR SHALL PROVIDE A TEST AND BALANCE REPORT FOR ALL MECHANICAL EQUIPMENT, AIR DEVICES, DAMPERS, AHU'S AND FANS. THE T & B SHALL BE IN ACCORDANCE WITH THE AIR BALANCE COUNCIL STANDARDS, AND SHALL INCLUDE AIR QUANTITIES FOR ALL QUANTITY GRILLS, RETURN GRILLS, AND EXHAUST GRILLS, AND THE LEAVING AND ENTERING AIR TEMPERATURE (°F) FROM SUPPLY GRILLS AND EVAPORATORS.
18. THERMOSTAT LOCATION SHALL BE APPROVED BY OWNER BEFORE INSTALLATION.
19. ALL INSULATION SHALL HAVE FIRE/SMOKE RATING LESS THAN 25/50.
20. MECHANICAL PLANS ARE DIAGRAMMATIC IN NATURE AND ARE TO BE READ IN CONJUNCTION WITH ARCH. PLUMBING, ELECTRICAL AND STRUCTURAL PLANS AND SHALL BE CONSIDERED AS ONE SET OF DOCUMENTS. DUCT AND PIPING OFFSETS, BENDS AND TRANSITIONS WILL BE REQUIRED TO PROVIDE AND INSTALL A COMPLETE FUNCTIONAL SYSTEM AND SHALL BE PROVIDED BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER.
21. CONTRACTOR SHALL INSTALL ALL OUTDOOR EQUIPMENT TO WITHSTAND WIND LOADING FORCES AS REQUIRED BY LOCAL CODES. REFER TO STRUCTURAL PLANS BY OTHERS FOR STRUCTURAL DETAILS.
22. PROVIDE ALL NECESSARY CONTACTORS, RELAYS, ETC., FOR A COMPLETE OPERATING SYSTEM.
23. THROUGHOUT THE COURSE OF THE WORK, MINOR CHANGES AND ADJUSTMENTS TO THE PLANS AND SPECIFICATIONS MAY BE REQUESTED BY THE TENANT. THE CONTRACTOR SHALL MAKE SUCH ADJUSTMENTS WITHOUT ADDITIONAL COST TO THE TENANT, WHERE SUCH ADJUSTMENTS ARE NECESSARY FOR THE PROPER INSTALLATION AND OPERATION OF THE SYSTEMS, AND WITHIN THE INTENT OF THE CONTRACT DOCUMENTS.
24. NOTWITHSTANDING ANY OTHER PROVISIONS OF THE CONTRACT DOCUMENTS, THE CONTRACTOR BEARS ULTIMATE RESPONSIBILITY FOR COMPLIANCE OF THE INSTALLATION WITH THE REQUIREMENTS OF THE LOCAL AUTHORITY HAVING JURISDICTION.
25. IF ANY ERRORS, DISCREPANCIES OR OMISSIONS APPEAR IN THE DRAWINGS, SPECIFICATIONS OR OTHER CONTRACT DOCUMENTS, THE CONTRACTOR SHALL NOTIFY THE ENGINEER IN WRITING OF SUCH ERROR OR OMISSION. IN THE EVENT OF THE CONTRACTOR FAILING TO GIVE SUCH NOTICE BEFORE CONSTRUCTION AND/OR FABRICATION OF THE WORK, HE WILL BE HELD RESPONSIBLE FOR THE RESULTS OF ANY SUCH ERRORS, DISCREPANCIES OR OMISSIONS AND THE COST OF RECTIFYING SAME.

SPECIFIC MECHANICAL NOTES

- 1 EXPOSED SPIRAL DUCTWORK SHALL HOLD TIGHT TO UNDERSIDE OF FLOOR STRUCTURE ABOVE.
- 2 DUCT SHALL OFFSET BELOW EXISTING BEAM IN THIS AREA.
- 3 DUCT SHALL OFFSET BELOW EXISTING BEAM AND FIRE SPRINKLER PIPE IN THIS AREA.
- 4 DUCT SHALL OFFSET BELOW EXISTING FIRE SPRINKLER PIPE IN THIS AREA.
- 5 AHU SHALL BE MOUNTED AS TIGHT TO UNDERSIDE OF FLOOR STRUCTURE ABOVE AS POSSIBLE.
- 6 RETURN AIR DUCT PLENUM SHALL BE FULL SIZE OF AHU RETURN AIR OPENING.
- 7 REFER TO WOOD-BURNING OVEN EXHAUST SYSTEM DETAIL ON SHEET M-2 FOR PIZZA OVEN EXHAUST SYSTEM DETAILS.
- 8 EXISTING GAS METER SHALL REMAIN AS CONNECTED. CONNECT NEW 1/2" GAS PIPING TO EXISTING GAS PIPING JUST OUTSIDE EXTERIOR WALL AT METER.
- 9 22 GA. STAINLESS STEEL BACKING ON WALL BEHIND, LEFT & RIGHT OF PIZZA OVENS. FULL HEIGHT FROM FLOOR TO CEILING.

SUPPLY DIFFUSER SCHEDULE

DESIGNATES LABEL FOR DIFFUSER TYPE		ALL DIFFUSERS ARE TO BE PROVIDED WITH OPPOSED BLADE DAMPERS UNLESS OTHERWISE SPECIFIED ON PLANS.		
DESIGNATES CFM QUANTITY FOR DIFFUSER				
LABEL	MANUFACTURER & MODEL NO.	NECK SIZE	CFM RANGE	REMARKS
A	TITUS TDC-AA	6"ø	0 - 125	12X12 LOUVERED FACE
B	TITUS TDC-AA	6"ø	0 - 125	24X24 LOUVERED FACE
C	TITUS TDC-AA	10"ø	205 - 325	24X24 LOUVERED FACE
D	TITUS TMSA	15"ø	0 - 1000	24X24 LOUVERED FACE
E	TITUS S300FS	10X6	0 - 250	DIRECT SPIRAL MOUNTED REGISTER
F	TITUS S300FS	18X6	255 - 400	DIRECT SPIRAL MOUNTED REGISTER
G	TITUS S300FS	18X8	405 - 600	DIRECT SPIRAL MOUNTED REGISTER

RETURN GRILLE SCHEDULE

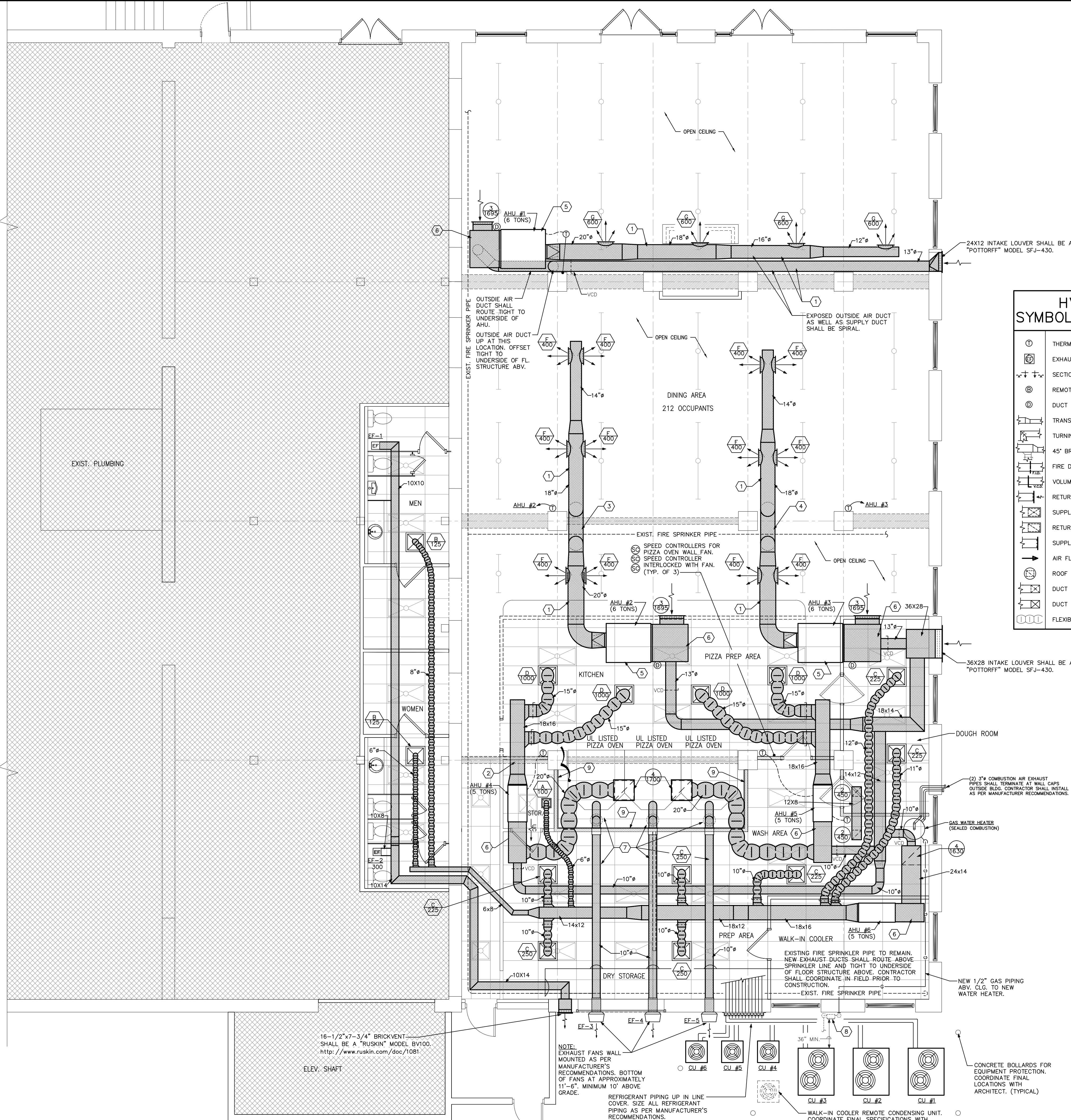
DESIGNATES LABEL FOR GRILLE TYPE		FILTER SHALL BE PROVIDED AT UNIT.		
DESIGNATES CFM QUANTITY FOR GRILLE				
LABEL	MANUFACTURER & MODEL NO.	NECK SIZE	CFM RANGE	REMARKS
1	TITUS 355FL	10X10	0 - 300	LOUVER FACE
2	TITUS 355FL	12X12	305 - 600	LOUVER FACE
3	TITUS 50FF	30X18	0 - 2400	EGGCRATE FACE
4	TITUS 50FF	24X24	0 - 3000	EGGCRATE FACE

H.V.A.C. ABBREVIATION LEGEND

A/C	AIR CONDITIONER	REV.	REVISION	A.H.U.	AIR HANDLING UNIT
DN.	DOWN	N.T.S.	NOT TO SCALE	D.G.	DOOR GRILLE
EXH.	EXHAUST	MFG.	MANUFACTURER	F.I.D.	FIRE DAMPER
EXT.	EXTERIOR	R/A	RETURN AIR	DISP.	DISPOSABLE
E.F.	EXHAUST FAN	GR.	GRILLE	V.C.D.	VOLUME CONTROL DAMPER
A.F.F.	ABOVE FINISH FLOOR	C.D.	CEILING DIFFUSER	F/A	FRESH AIR
F.F.	FINISH FLOOR	REG.	REGISTER	S.P.	SAFE PAN
TYP.	TYPICAL	C.U.	CONDENSING UNIT	CD.	CONDENSATE DRAIN

HVAC SYMBOLS LEGEND

①	THERMOSTAT, MTD +60" AFF
⊞	EXHAUST FAN
↔ ↔	SECTION "A"- "A"
ⓑ	REMOTE BULB SENSOR
ⓓ	DUCT SMOKE DETECTOR
↗	TRANSITION
↖	TURNING VANE
↗↖	45° BRANCH DUCT TAKE-OFF
⌞	FIRE DAMPER
⌞	VOLUME CONTROL DAMPER
⌞	RETURN REGISTER
⌞	SUPPLY DIFFUSER
⌞	RETURN AIR GRILLE
⌞	SUPPLY REGISTER
→	AIR FLOW DIRECTION
⌞	ROOF MTD. EXH. FAN
⌞	DUCT TURN DOWN
⌞	DUCT TURN UP
⌞	FLEXIBLE DUCT



1 FLOOR PLAN - MECHANICAL
SCALE: 3/16"=1'-0"

M-1.0

AIR COOLED HEAT PUMP SCHEDULE

AIR COOLED HEAT PUMP SCHEDULE											AIR HANDLING UNIT							INTEGRATED ELECTRIC HEATING						
HEAT PUMP																								
CU LABEL(S)	MANUFACTURER & MODEL NO.	TOTAL CAPACITY COOLING	SENSIBLE CAPACITY COOLING	TOTAL CAPACITY HEATING	COMP. RLA	FAN FLA	VOLTAGE	MOCP	EER/SEER	WEIGHT	AHU LABEL(S)	MANUFACTURER & MODEL NO.	TOTAL CFM	O/A CFM	E.S.P.	BLOWER SPEED	FAN HP	VOLTAGE	WEIGHT	HEATER KW	VOLTAGE	NOTES		
CU #1-3	CARRIER 38AUQ07A0A5	72,900	56,100	48,000	19.0	(2)Ø1.5	208V/3ø	45A	11.0	444 lbs.	AHU #1-3	CARRIER 40RUQA07A1A6	2,400	SEE SCH	.4"	622	1 HP	208V/3ø	381 lbs.	10 KW	208V/3ø	1 THRU 6		
CU #4-5	CARRIER 25HBC360A005	59,260	44,220	43,770	15.9	1.2	208V/3ø	30A	13.0	295 lbs.	AHU #4-5	CARRIER FX4DNF06115	2,000	SEE SCH	.25"	HIGH	3/4 HP	208V/1ø	168 lbs.	-	208V/1ø	1 THRU 6		
CU #6	CARRIER 25HBC360A005	59,260	44,220	43,770	15.9	1.2	208V/3ø	30A	13.0	295 lbs.	AHU #6	CARRIER FX4DNF06115	2,000	SEE SCH	.25"	HIGH	3/4 HP	208V/1ø	168 lbs.	8 KW	208V/1ø	1 THRU 6		
GENERAL NOTES: * ALL RATINGS ARE AT ARI ENTERING CONDITIONS UNLESS OTHERWISE NOTED. * EXTERNAL STATIC PRESSURE DOES NOT INCLUDE COIL OR FILTER PRESSURE DROP. * CONTRACTOR MAY SUBSTITUTE MANUFACTURER FOR APPROVED EQUAL. IT SHALL BE THE CONTRACTORS RESPONSIBILITY TO VERIFY THAT ANY CLEARANCE REQUIREMENTS ARE MET FOR ANY SUBSTITUTIONS.					ABBREVIATION LEGEND: O/A – OUTSIDE AIR HP – HORSE POWER RLA – RUNNING LOAD AMPS FLA – FULL LOAD AMPS					MOCP – MAX. OVERCURRENT PROTECTION (DUAL ELEMENT TYPE FUSE) E.S.P. – EXTERNAL STATIC PRESSURE EER – ENERGY EFFICIENCY RATIO SEER – SEASONAL ENERGY EFF. RATIO					SPECIFIC NOTES: 1) SIZE AND RUN REFRIGERANT PIPING AS PER MANUFACTURERS PUBLISHED RECOMMENDATIONS. 2) INSULATE REFRIGERANT SUCTION LINE WITH 3/4" ARMAFLEX OR APPROVED EQUAL. 3) INSTALL FILTER OR DRIER AND STRAINER IN REFRIGERANT LIQUID LINE. 4) PROVIDE FIELD INSTALLED ACCESSORIES, AND 5 MINUTE TIME DELAY SWITCH. 5) PROVIDE 5 YEAR WARRANTY ON COMPRESSOR AND 1 YEAR WARRANTY ON ALL PARTS AND LABOR. 6) PROVIDE SINGLE POINT POWER CONNECTION WITH INTEGRAL OVERCURRENT PROTECTION DEVICE.					SEQUENCE OF OPERATION FOR HEATING FIRST STAGE WHEN THE THERMOSTAT CALLS FOR HEATING, THE INDOOR FAN MOTOR, OUTDOOR FAN MOTORS AND THE COMPRESSOR (FULLY LOADED) ARE ENERGIZED. THE REVERSING VALVE SOLENOID IS ENERGIZED IN THE HEATING MODE. SECOND STAGE IF ADDITIONAL HEAT IS REQUIRED, THE ELECTRIC HEAT SHALL BE ENERGIZED.				

LABEL	TYPE OF UNIT – AREA SERVED	MANUFACTURER & MODEL NO.	CFM	SP	MOUNTING ARRANGEMENT	MOTOR H.P.	ENCLOSURE TYPE	RPM	VOLTAGE	NOTES
EF-1	CABINET FAN – REFER TO PLANS	PENN ZEPHYR Z81	300	.125"	CEILING MOUNTED	124 WATTS	OPEN DRIP PROOF	1115	115V/1ø	1
EF-2	CABINET FAN – REFER TO PLANS	PENN ZEPHYR Z81	300	.125"	CEILING MOUNTED	124 WATTS	OPEN DRIP PROOF	1115	115V/1ø	1
EF-3,4,5	AXIAL WANE FAN – REFER TO PLANS	ENERVEQ GSV 012 (HI-TEMP)	500	.4"	ROOF MOUNTED	1/7	OPEN DRIP PROOF	1600	120V/1ø	1,2,3

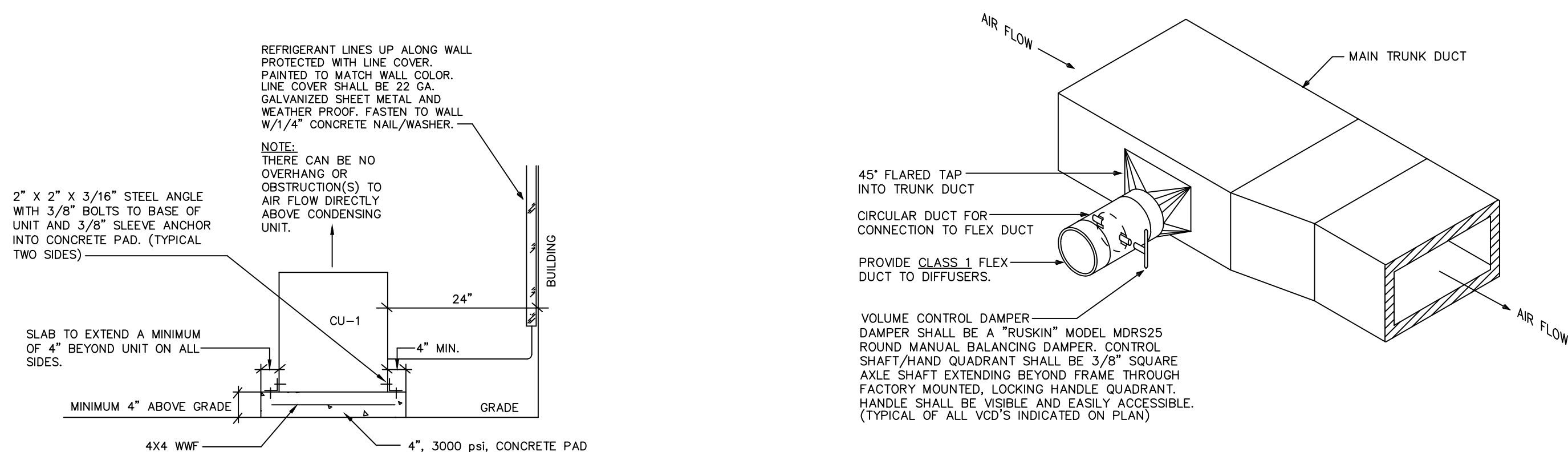
NOTES: 1.) REFER TO ELECTRICAL PLANS FOR CONTROL.
2.) PIZZA OVEN FAN PRODUCT INFORMATION FOR THIS FAN: <http://www.enervefansource.com/media/GSVprodinfo.pdf>
EXHAUST FAN ETL listed to:
UL705 – Standard for Power Ventilators
UL762 – Standard for Power Roof Ventilators for Restaurant Exhaust Appliances.
ULC–S645–93 – Standard for Power Roof Ventilators and Commercial and Institutional Kitchen Exhaust Systems.
3.) FAN TO BE PROVIDED WITH OPTIONAL 5 AMP SPEED CONTROLLER. SEE PLANS FOR LOCATION. INSTALL AS PER MANUFACTURER'S RECOMMENDATIONS.

OUTSIDE AIR CALCULATIONS

OUTSIDE AIR CALCULATIONS						
THE FOLLOWING IS BASED ON 2012 NCMC TABLE 403.3 MINIMUM VENTILATION RATES FOR OUTSIDE AIR REQUIREMENTS						
UNIT LABEL	OCCUPANCY CATEGORY	AREA	ESTIMATED MAX. OCCUPANCY	OUTSIDE AIR REQUIRED (CFM)	E _z	TOTAL
AHU #1-3	DINING	2,400	70 PEOPLE PER 1,000 S.F./7.5 CFM PER PERSON	$\left(\frac{168 \times 7.5}{\text{PEOPLE AREA}} \right) + (2,400 \times .18) = 1,692 \text{ TOTAL}$	0.8	1,692/0.8 = 2,115
AHU #4-5	KITCHEN	500	0.7 CFM PER S.F.	$\left(\frac{N/A}{\text{PEOPLE AREA}} \right) + (500 \times .7) = 350 \text{ TOTAL}$	0.8	350/0.8 = 438
AHU #6	KITCHEN	350	0.7 CFM PER S.F.	$\left(\frac{N/A}{\text{PEOPLE AREA}} \right) + (350 \times .7) = 245 \text{ TOTAL}$		
AHU #6	STORAGE	425	0.12 CFM PER S.F.	$\left(\frac{N/A}{\text{PEOPLE AREA}} \right) + (425 \times .12) = 51 \text{ TOTAL}$		
				AHU #6 TOTAL = 296	0.8	296/0.8 = 370

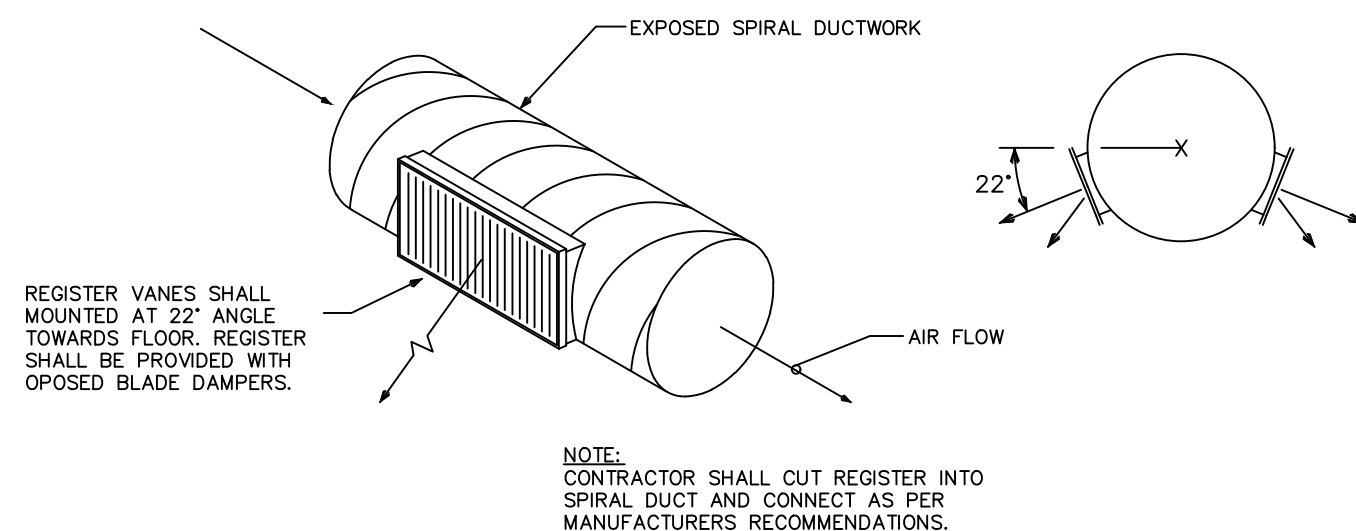
* (SYSTEM VENTILATION EFFICIENCY) AS PER 2012 NCMC TABLE 403.3.2.3.2

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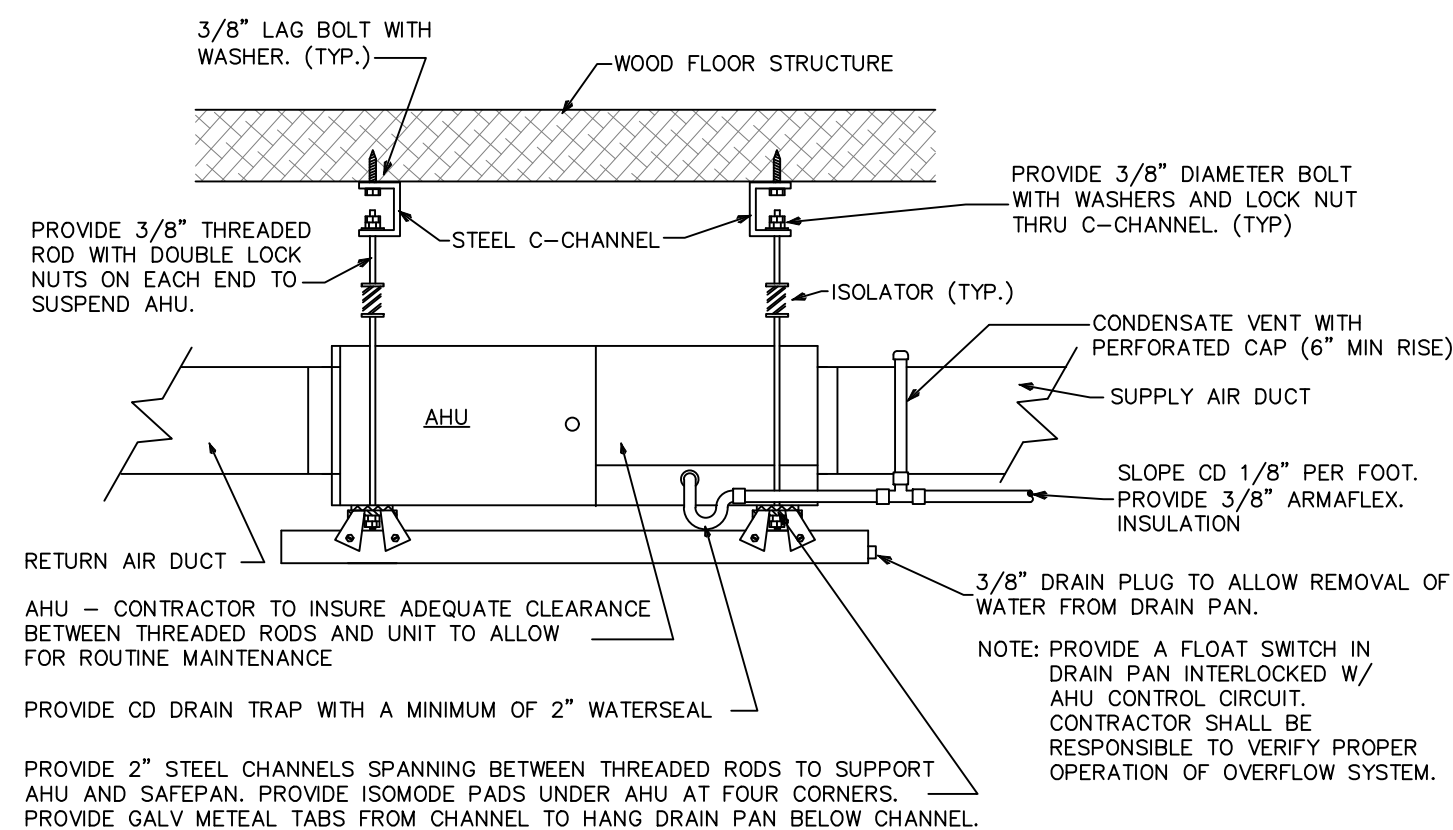
AIR BALANCE SCHEDULE

OUTSIDE	OUTSIDE AIR	RETURN AIR	SUPPLY AIR	EXHAUST	RESULTING PRESSURES
AHU #1	705 (29%)	1695	2400		+705
AHU #2	705 (29%)	1695	2400		+705
AHU #3	705 (29%)	1695	2400		+705
AHU #4	300 (15%)	1700	2000		+300
AHU #5	300 (15%)	1700	2000		+300
AHU #6	370 (18%)	1630	2000		+370
EF-1 (T.LT. RM.)				300	-300
EF-2 (T.LT. RM.)				300	-300
EF-3 (PIZZA OVEN EXH.)				900	-900
EF-4 (PIZZA OVEN EXH.)				900	-900
EF-5 (PIZZA OVEN EXH.)				900	-900
TOTAL	3,085	10,115	13,200	3300	+215



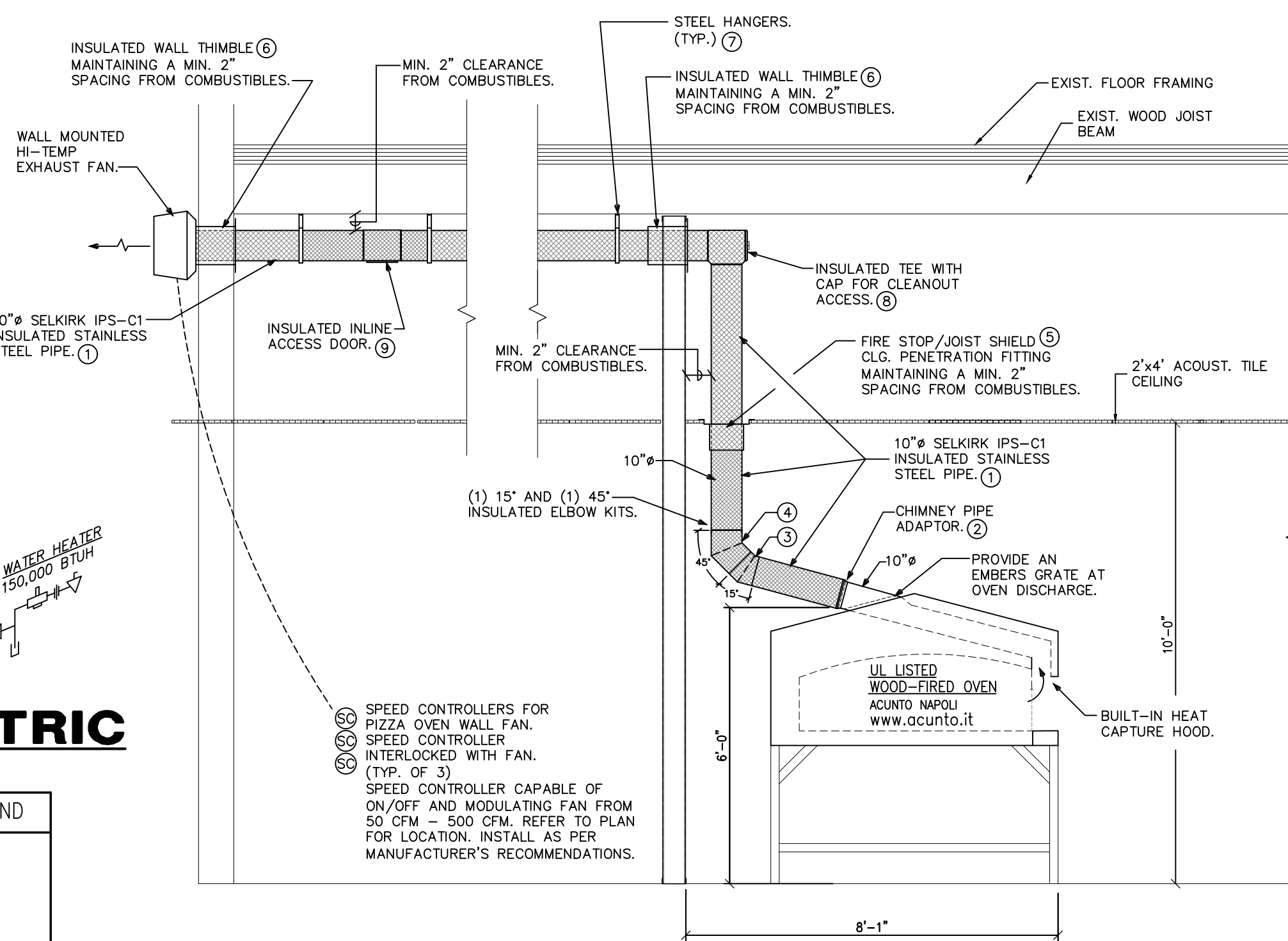
SPIRAL DUCT / REGISTER CONNECTION DETAIL

UNIT MTG. DETAIL

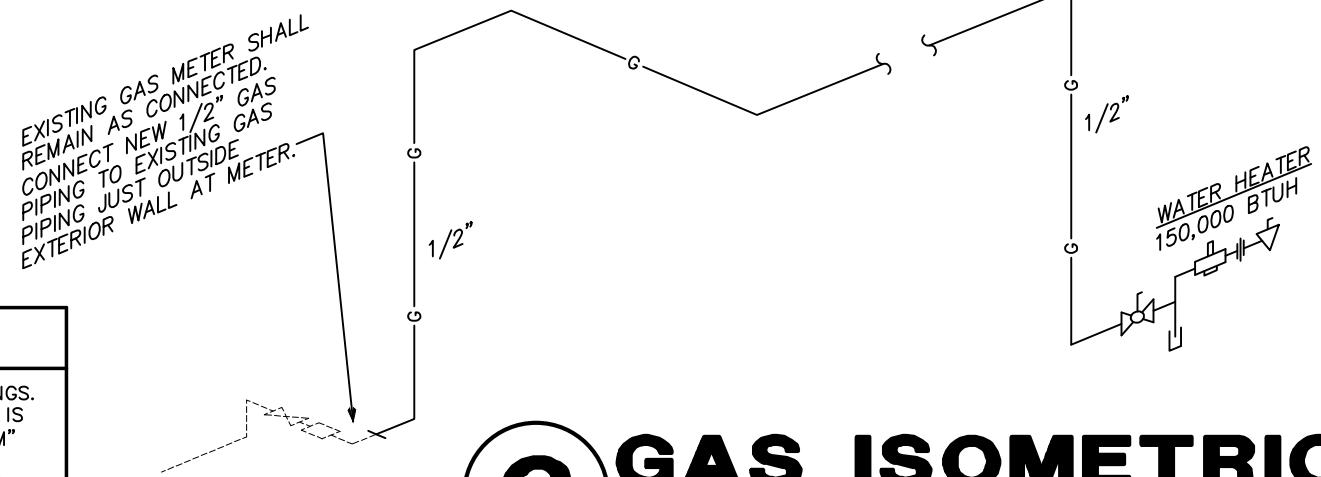


BRANCH DUCT DETAIL

NO SCALE



AHU MOUNTING DETAIL



6 GAS ISOMETRIC

GAS PIPE LEGEND	
	BALL VALVE
	DRIP LEG
	REGULATOR/OPD AS REQUIRED
	UNION
	QUICK DISCONNECT

NOTE:
ALL NATURAL GAS PIPING IS SIZED BASED ON GAS PIPING WITH AND INITIAL PRESSURE OF 2 PSI. GAS PIPING IS SIZED AS PER 2012 NCFGC TABLE 402.4(3).
* CONTRACTOR SHALL VERIFY FINAL GAS PRESSURES AND CONNECTIONS IN FIELD WITH LOCAL GAS COMPANY.

GENERAL GAS PIPING NOTES

1. GAS PIPING AND FITTINGS SHALL BE SEAMLESS BLACK STEEL WITH MALLEABLE IRON FITTINGS. DIELECTRIC COUPLERS OR UNIONS SHALL BE UTILIZED WHEN PIPING OF DISSIMILAR METAL IS CONNECTED. EXTERIOR GAS PIPING ON ROOF SHALL BE PAINTED WITH YELLOW "RUSTOLEUM" TYPE PAINT. GAS PIPING ON WALLS SHALL BE PAINTED WITH YELLOW "RUSTOLEUM" TYPE PAINT. GAS PIPING CONNECTIONS SHALL BE THREADED UNLESS OTHERWISE REQUIRED BY THE MANUFACTURER.
2. GAS PIPING SYSTEM SHALL BE INSTALLED TO THE REQUIREMENTS OF THE AGA PAMPHLET "INSTALLATION OF GAS APPLIANCES AND GAS PIPING" AND THE NFPA STANDARD #54H, THE CONTENTS OF WHICH SHALL BE INCORPORATED BY REFERENCE WITH THE "LOCAL" GAS CODE FOR THE INSTALLATION OF THE GAS METER, GAS SERVICE, AND ITS ACCESSORIES NECESSARY FOR A COMPLETE SYSTEM.
3. GAS PIPING SHALL BE INSTALLED IN ACCORDANCE WITH THE PROCEDURES DESCRIBED IN NFPA #54, AND ANY OTHER TESTS REQUIRED BY THE LOCAL BUILDING DEPARTMENT AND/OR THE LOCAL GAS UTILITY COMPANY.
4. THE INSTALLING SUBCONTRACTOR SHALL BE LICENSED BY THE STATE FOR THE INSTALLATION OF GAS PIPING.
5. RUNOUT PIPING FROM THE MAIN PIPING TO APPLIANCES, SHALL BE WITH AN INVERTED TRAP CONNECTION TO THE MAIN.
6. A 12" DIRT LEG, AND A GAS COCK, SHALL BE PROVIDED AT ALL GAS APPLIANCES.
7. ALL EXPOSED GAS PIPING SHALL BE IDENTIFIED BY A YELLOW LABEL MARKED "GAS" IN BLACK LETTERS. THE MARKERS SHALL BE AT INTERVALS NOT EXCEEDING 5'.
8. ALL GAS BURNING EQUIPMENT SHALL BE INSTALLED PER NFPA #58, NFPA #54 (L.P.G.) OR NFPA #59 (C.O.D.) COOKING EQUIPMENT SHALL BE INSTALLED PER NFPA #58.
9. GAS PIPE SIZES 2-1/2" AND GREATER SHALL BE WELDED, IF REQUIRED BY CODE.
10. GAS CONNECTIONS PER ANSI Z21.69.

WOOD-BURNING OVEN EXHAUST SYSTEM COMPONENT SPECIFICATIONS

- ① 10" IPS-C1 INSULATED STAINLESS STEEL EXHAUST PIPE - SHALL BE AS MANUFACTURED BY "SELKIRK". DOUBLE WALL S.S. INSULATED PIPE WITH W/1" SOLID PACK INSULATION, 2" OF AIRSPACE TO COMBUSTIBLES, COORDINATE ADJUSTABLE LENGTHS WITH MANUFACTURER PRIOR TO CONSTRUCTION. INSTALL AS PER MANUFACTURER'S RECOMMENDATIONS.
- ② SEAL RING - SHALL BE A "SELKIRK" MODEL SR. CONTRACTOR SHALL INSURE AN AIRTIGHT CONNECTION FROM EXHAUST PIPE TO OVEN FUELE CONNECTION. INSTALL AS PER MANUFACTURER'S RECOMMENDATIONS.
- ③ S.S. 15' INSULATED ELBOW - SHALL BE A "SELKIRK" MODEL EL15 FOR IPS-C1 DUCT. INSTALL AS PER MANUFACTURER'S RECOMMENDATIONS.
- ④ S.S. 45' INSULATED ELBOW - SHALL BE A "SELKIRK" MODEL EL45 FOR IPS-C1 DUCT. INSTALL AS PER MANUFACTURER'S RECOMMENDATIONS.
- ⑤ LAY-IN TILE CEILING THIMBLE MAINTAINING A MIN. 2" SPACING FROM COMBUSTIBLES SHALL BE A "SELKIRK" MODEL THB FOR IPS-C1 DUCT. INSTALL AS PER MANUFACTURER'S RECOMMENDATIONS.
- ⑥ INSULATED WALL THIMBLE MAINTAINING A MIN. 2" SPACING FROM COMBUSTIBLES SHALL BE A "SELKIRK" MODEL THB FOR IPS-C1 DUCT. INSTALL AS PER MANUFACTURER'S RECOMMENDATIONS.
- ⑦ STEEL HANGERS - CEILING MOUNTED STEEL HANGER BRACKETS SHALL MAINTAIN A MINIMUM 2" CLEARANCE FROM COMBUSTIBLES.
- ⑧ S.S. INSULATED GREASE DUCT TIE W/C/D TIE CAP SHALL BE A "SELKIRK" MODEL GMT FOR IPS-C1 DUCT. INSTALL AS PER MANUFACTURER'S RECOMMENDATIONS.
- ⑨ S.S. INSULATED INLINE ACCESS DOOR SHALL BE A "SELKIRK" MODEL IAD FOR IPS-C1 DUCT. INSTALL AS PER MANUFACTURER'S RECOMMENDATIONS.

* ENTIRE UL LISTED FACTORY BUILT GREASE DUCT SYSTEM SHALL BE AS MANUFACTURED BY SELKIRK AND SHALL CONSIST OF THE COMMERCIAL IPS-C1 DUCT SYSTEM.

SELKIRK PRODUCT CATALOG INFORMATION HERE:

http://www.selkirkcorp.com/commercial-and-industrial/product.aspx?id=226
http://www.selkirkcorp.com/WorkArea/showcontent.aspx?id=2356
http://www.selkirkcorp.com/WorkArea/showcontent.aspx?id=7982

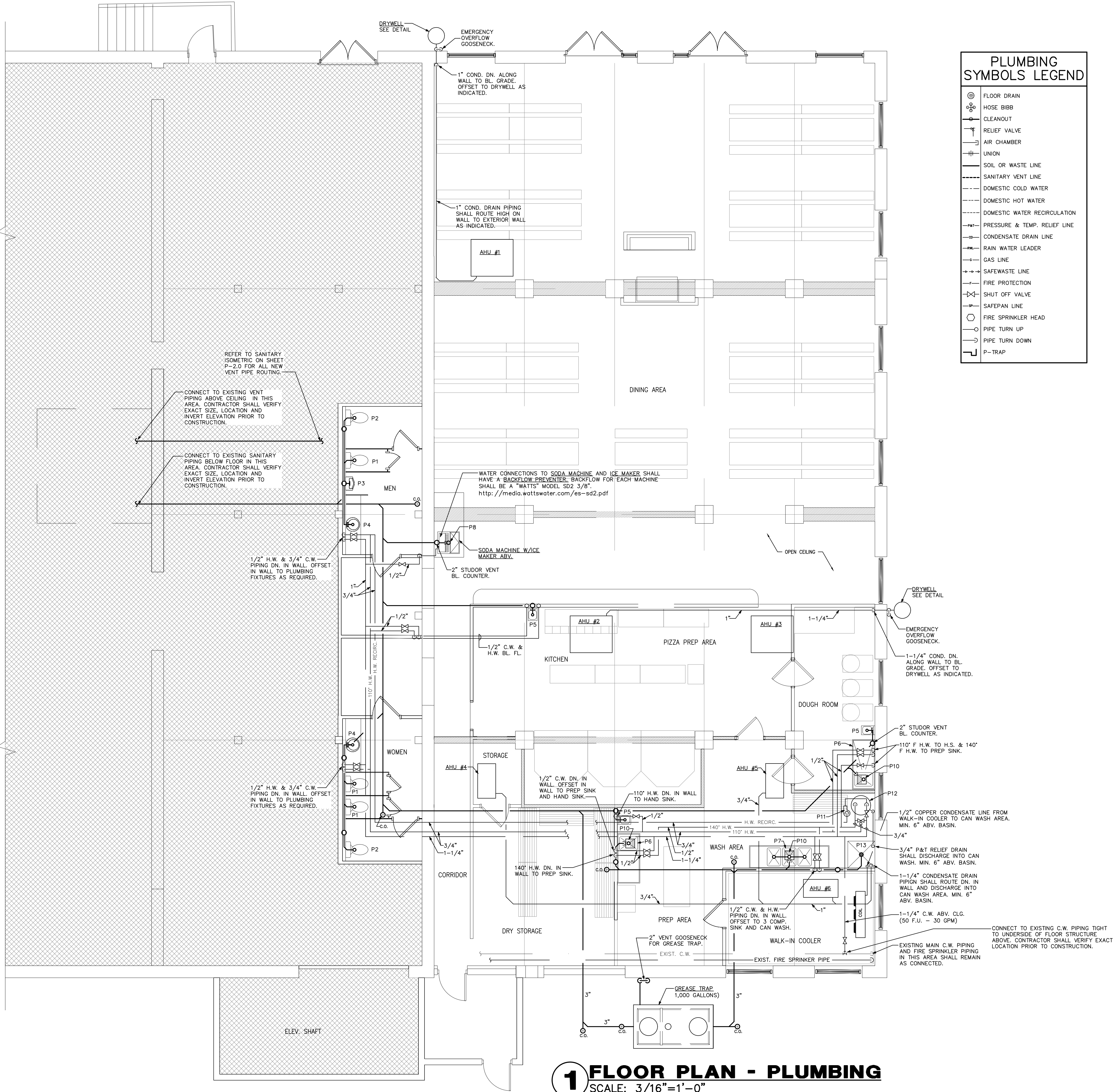
* SELKIRK MODEL IPS S.S. GREASE DUCT IN SIZES 5" THROUGH 48" DIAMETERS HAVE BEEN TESTED AND LISTED (SAFETY CERTIFIED) BY UNDERWRITERS LABORATORIES, INC. (ULI) AND BEARS THE UL AND/OR C-UL LOGO SIGNIFYING COMPLIANCE WITH U.S. AND/OR CANADIAN STANDARDS. UL LISTING PRODUCT CATEGORIES INCLUDE: (USA) GREASE DUCT (UL1978), TYPE L VENT (UL641) AND (INDUSTRIAL) 1400° F CHIMNEY (UL103)

1 WOOD-BURNING OVEN EXHAUST SYSTEM DETAIL

(TYPICAL FOR EACH OVEN)

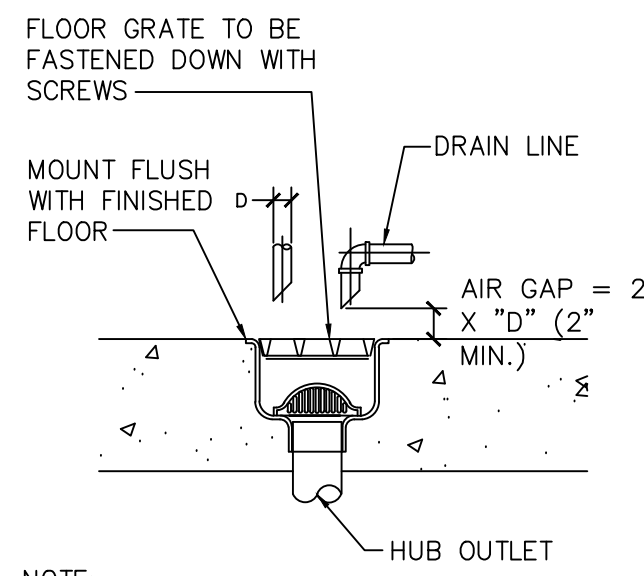
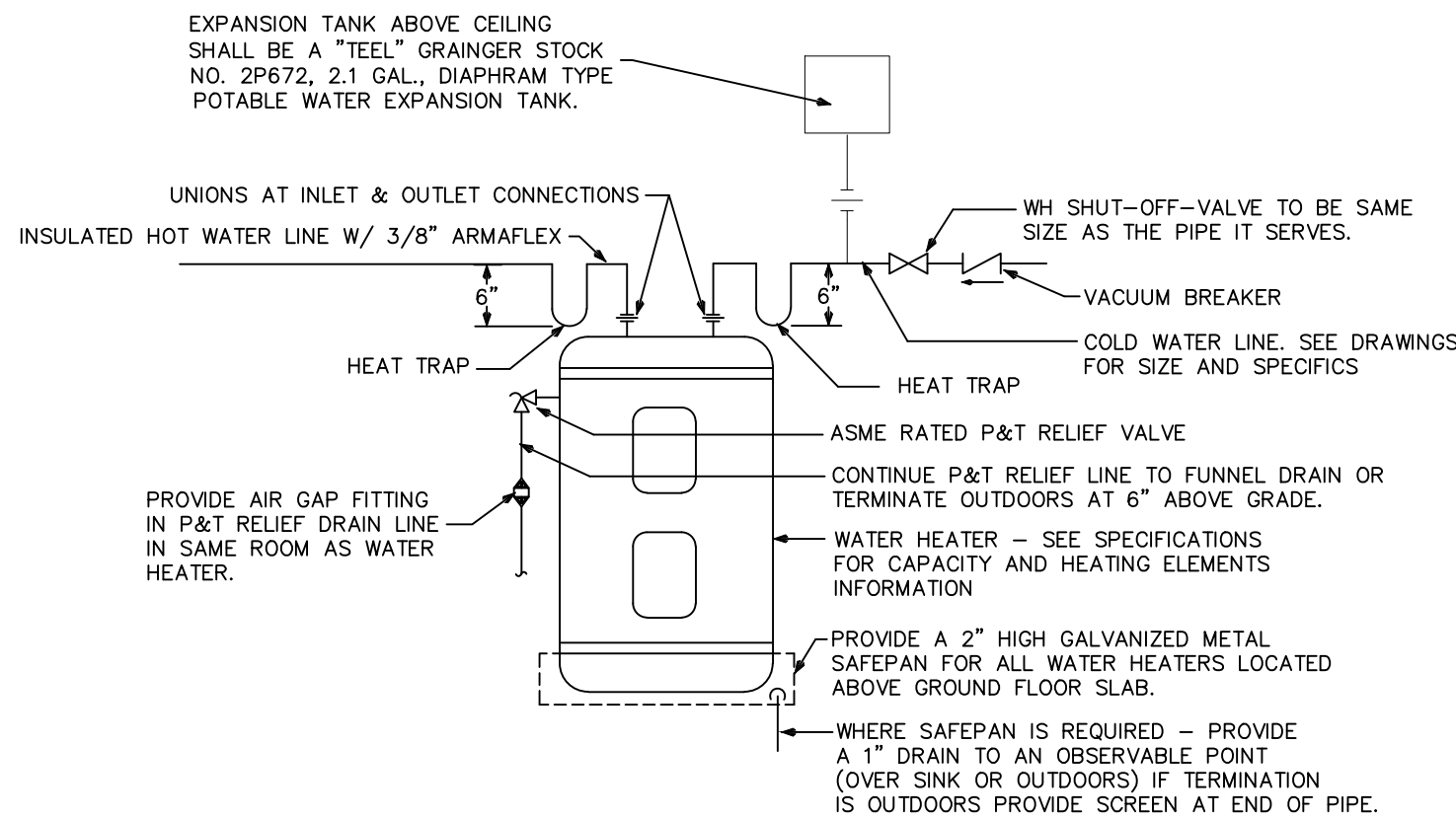
Storage Tank Water Heater Sizing Calculator										
Developed by the Plan Review Unit of the Environmental Health Services Section NC Division of Environmental Health										
Facility Name:										
Address:										
EQUIPMENT						GPH CALCULATED				
Enter the description, and number and size of compartments for each sink below		Description	Number of compartments	(inches) Length Width Depth		Gallons Per Hour (GPH)				
Largest Sink #1		3 Comp. Sink	3	24	18	68				
Sink #2						0				
Sink #3						0				
Bar sink						0				
Sinks are calculated at 75% capacity						Total 68				
Enter type of prep sink and number of sink compartments for each sink below		Type of prep sink (vegetable, meat, seafood)	Number of compartments			Gallons Per Hour (GPH)				
Prep sink #1		Prep Sink	1			5				
Prep sink #2						0				
Prep sink#3						0				
Prep sinks are calculated at 5 gallons per compartment						Total 5				
Enter the quantity of equipment below		Quantity				Gallons Per Hour (GPH)				
Hand sinks		3				15				
Can wash		1				10				
Mop sink						0				
Hot water						0				
Clothes washer						0				
Enter a description and estimated gallon per hour (GPH) usage for other equipment below		Description	Estimated gallons per hour (GPH) usage			Gallons Per Hour (GPH)				
Other Equipment		(2) Lavatory	6			6				
Other Equipment						0				
Other Equipment						0				
Other Equipment						0				
Hand sinks and mop sinks are calculated at 5 GPH each, can washes at 10 GPH each. Hot water, are calculated at 5 GPH, clothes washers at 15 GPH, other equipment at the usage entered						Total 31				
Enter the make, model and Final Rinse Usage (GPH) for dishmachines		Make	Model	Final Rinse Usage (GPH) Found in "Dishmachine Specs" sheet below or on manufacturer's spec sheet		Gallons Per Hour (GPH)				
Dishmachine #1						0				
Dishmachine #2						0				
Enter the quantity of pre-rinse units		Quantity				Gallons Per Hour (GPH)				
Pre-rinse						0				
Dishmachines are calculated at 70% of the final rise usage specified by the manufacturer. Pre-rinses are calculated at 45 GPH						Total 0				
Recovery Rate Needed (GPH):						104				
Water Heater Input (BTU or kW) Needed:										
Gas Water Heater			Electric Water Heater							
91,000 BTU at 80°F rise			20 kW at 80°F rise							
102,000 BTU at 90°F rise			23 kW at 90°F rise							
113,000 BTU at 100°F rise			25 kW at 100°F rise							

PLUMBING ABBREVIATION LEGEND					
DN.	DOWN	C.C.	CENTER TO CENTER	F.U.	FIXTURE UNITS
EXT.	EXTERIOR	N.T.S.	NOT TO SCALE	H.B.	HOSE BIBBS
F.D.	FLOOR DRAIN	MFG.	MANUFACTURER	C.O.	CLEANOUT
F.F.	FINISH FLOOR	S.O.V.	SHUT OFF VALVE	E.W.H.	ELECTRIC WATER HEATER
A.F.F.	ABOVE FINISH FLOOR	W.C.	WATER CLOSET	JAN.SK.	JANITOR SINK
V.T.R.	VENT THRU ROOF	LAV.	LAVORATORY	P & T	PRESSURE & TEMPERATURE
TYP.	TYPICAL	SK.	SINK	RWL.	RAIN WATER LEADER
R.D.	ROOF DRAIN	D.W.	DISH WASHER		
REV.	REVISION	E.D.F.	ELECTRIC DRINKING FOUNTAIN		
O.C.	ON CENTER	UR.	URINAL		



PLUMBING SYMBOLS LEGEND	
	FLOOR DRAIN
	HOSE BIBB
	CLEANOUT
	RELIEF VALVE
	AIR CHAMBER
	UNION
	SOIL OR WASTE LINE
	SANITARY VENT LINE
	DOMESTIC COLD WATER
	DOMESTIC HOT WATER
	DOMESTIC WATER RECIRCULATION
	PRESSURE & TEMP. RELIEF LINE
	CONDENSATE DRAIN LINE
	RAIN WATER LEADER
	GAS LINE
	SAFEWASTE LINE
	FIRE PROTECTION
	SHUT OFF VALVE
	SAFEPAN LINE
	FIRE SPRINKLER HEAD
	PIPE TURN UP
	PIPE TURN DOWN
	P-TRAP

1 FLOOR PLAN - PLUMBING
SCALE: 3/16"=1'-0"



PLUMBING FIXTURE CONNECTION SIZES				
FIXTURE	C.W. CONN. SIZE	H.W. CONNECTION SIZE	SANITARY BRANCH SIZE	F.U. LOAD VALUES
WATER CLOSET (P1,P2)	1/2"	-	3"	5.0
URINAL (P3)	3/4"	-	2"	5.0
LAVATORY (P4)	1/2"	1/2"	1-1/4"	2.0
HAND, PREP AND 3 COMP. SK. (P5-P7)	1/2"	1/2"	1-1/2"	4.0
CAN WASH (P13)	1/2"	1/2"	2"	4.0

NOTE: F.U. LOAD VALUES BASED ON IPC 2012 - APPENDIX E TABLE E103.3(2)

2 FLOOR SINK CONN. DETAIL

NO SCALE

3 WATER HEATER DETAIL

NO SCALE

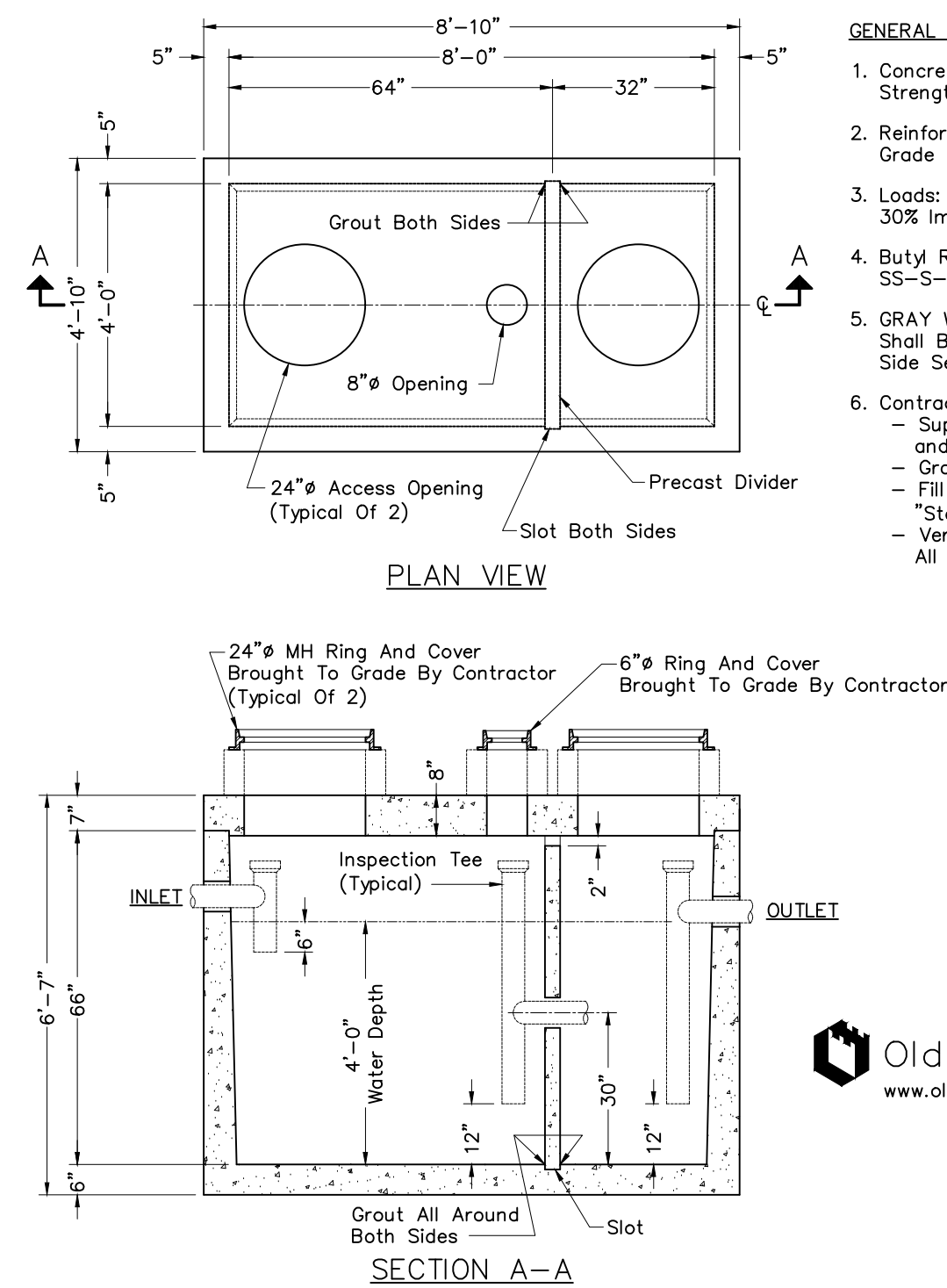
PLUMBING FIXTURE SCHEDULE

P-1 (FLOOR MOUNTED FLUSH TANK WATER CLOSET) SHALL BE AN AMERICAN STANDARD MODEL 2333.100 ELONGATED 1.6 GPF, VITREOUS CHINA, PRESSURE-ASSISTED SIPHON ACTION BOWL, CLOSE-COUPLED TANK, FLOOR MOUNTED, FLOOR OUTLET, SPEED CONNECT TANK/BOWL COUPLING SYSTEM, WITH AMERICAN STANDARD OPEN FRONT SEAT WITH COVER MODEL 5325.024. * http://www.americanstandard-us.com/assets/documents/amstd/spec/SpecSheet_722.pdf
P-2 (HANDICAPPED FLOOR MOUNTED FLUSH TANK WATER CLOSET) SHALL BE AN AMERICAN STANDARD MODEL CADET RIGHT HEIGHT 16-1/2" 2377.100 ELONGATED 1.6 GPF, VITREOUS CHINA, PRESSURE-ASSISTED SIPHON ACTION BOWL, CLOSE-COUPLED TANK, FLOOR MOUNTED, FLOOR OUTLET, SPEED CONNECT TANK/BOWL COUPLING SYSTEM, WITH AMERICAN STANDARD OPEN FRONT SEAT WITH COVER MODEL 5325.024. * http://www.americanstandard-us.com/assets/documents/amstd/spec/SpecSheet_1006.pdf
P-3 (HANDICAPPED URINAL) SHALL BE AN AMERICAN STANDARD LYMBROOK MODEL 6601.012 TOP SPUD, 0.83 GPF, FLUSH VALVE SHALL BE SLOAN ROYAL MODEL 180-1. * http://www.americanstandard-us.com/assets/documents/amstd/spec/SpecSheet_190.pdf
P-4 (HANDICAPPED COUNTER TOP LAVATORY) SHALL BE AN AMERICAN STANDARD MODEL RONALYN MODEL 0490.011 VITREOUS CHINA SELF-RIMMING FAUCET SHALL BE A "BRADLEY" AERADA 90-75 SERIES METERING FAUCET" MODEL S53-053 WITH 4" CENTERS. UNIT IS ADA COMPLIANT AND 0.5 GPM WITH A 10 SECOND OPERATING CYCLE PRODUCING UNDER 250 GALLONS PER CYCLE. PROVIDE A BRADLEY VERNATHERM THERMOSTATIC MIXING VALVE TO DELIVER TEMPERED WATER AT A TEMPERATURE NOT TO EXCEED 105 DEGREES. GRID DRAIN: OFFSET PERFORATED WHEELCHAIR LAVATORY DRAIN ASSEMBLY WITH 1-1/2" TAILPIECE, MCQUIRE #155WC. PROVIDE PROTECTIVE INSULATION ON DRAIN AND HOT WATER LINE TO MEET HANDICAP CODE REQUIREMENTS ON ALL INSTALLATIONS WITH EXPOSED PIPING. * http://www.americanstandard-us.com/assets/documents/amstd/spec/SpecSheet_90.pdf * http://www.bradleycorp.com/products/techdata/3000.pdf
P-5 (S.S. HAND SINK W/FAUCET) COORDINATE FINAL SPECIFICATIONS WITH OWNER/ARCHITECT PRIOR TO CONSTRUCTION.
P-6 (S.S. 1 COMP. PREP SINK W/FAUCET) COORDINATE FINAL SPECIFICATIONS WITH OWNER/ARCHITECT PRIOR TO CONSTRUCTION.
P-7 (S.S. 3 COMPARTMENT SINK W/FAUCET) COORDINATE FINAL SPECIFICATIONS WITH OWNER/ARCHITECT PRIOR TO CONSTRUCTION.
P-8 (HUB DRAIN - INDIRECT WASTE FUNNEL) SHALL BE A "TURN" 2326, 2" PIPE CONNECTION, DURA-COATED CAST IRON BODY AND BOTTOM OUTLET. CONTRACTOR SHALL VERIFY FINAL HEIGHT OF FUNNEL WITH EQUIPMENT THAT IS UTILIZING FUNNEL DRAIN AND VERIFY PROPER CLEARANCE PRIOR TO CONSTRUCTION. COORDINATE WITH EQUIPMENT MANUFACTURER. * http://www.turn.com/operations/specdrain/pdfs/specsheets/58975.pdf
P-9 (FLOOR DRAIN WITH TRAP SEAL) SHALL BE A JOSAM 30000-WT-A-49 SERIES COATED CAST IRON FLOOR DRAIN. TWO PIECE BODY WITH DOUBLE DRAINAGE FLANGE, WELOCO INVERTIBLE NON- PUNCTURING FLASHING COLLAR, WEEPHOLES, BOTTOM OUTLET, INSIDE CAULK CONNECTION AND ADJUSTABLE SATIN NIKALOY ROUND SUPER-FLO STRAINER. * http://www.josam.com/Images/josammk/sbmt/s06_30000-WT-A.pdf FLOOR DRAIN TRAP SEAL SHALL BE A "SURE SEAL" MODEL SS3000 PREASSEMBLED INLINE FLOOR DRAIN TRAP SEALER. 5 PIECES. COMMERCIAL GRADE ABS PLASTIC HOUSING AND KEEPER PIN, PROPRIETARY NEOPRENE RUBBER DIAPHRAGM, WITH 2 SOFT RUBBER SEALING GASKETS. FLOOR RATING ASSE -1072 AF-CW. * http://www.thesureseal.com/Portals/49321/docs/pitch_sheet_ss3000.pdf
P-10 (FLOOR SINK W/SEDIMENT BUCKET) SHALL BE A JOSAM 49340A-3-31 SERIES SQUARE CAST IRON 8" DEEP SUPER-FLO-SEPTOR FLOOR SINK WITH PORC-COATED INTERIOR, DOUBLE DRAINAGE FLANGE WITH WEEPHOLES, BOTTOM OUTLET, ALUMINUM INTERNAL DOME STRAINER, AND CAST IRON, NON-TRAFFIC, PORC-COATED, ANTI-TILTING GRATE WITH HALF GRATE AND ALUMINUM SEDIMENT BUCKET. * http://www.josam.com/catalog/JOS/pl=FS/49340A
P-11 (HOT WATER RECIRCULATING PUMP) SHALL BE A "BELL & GOSSETT" MODEL #PL-36B, GRAINGER STOCK #5JPC3, INLINE CIRCULATOR PUMP, OPEN LOOP SYSTEM, 1/2 HP, 1 PHASE, VOLTAGE 115, INLET/OUTLET FLANGED, HOUSING MATERIAL BRONZE, MAX. TEMP. 225 F, MAX. WORKING PRESSURE 150 PSI, SHUT-OFF 37 FT., 3300 RPM, IMPELLER MATERIAL NORYL, THERMAL PROTECTION, MECHANICAL SEAL CARBON/SILICON CARBIDE, ADDITIONAL FEATURES MAINTENANCE-FREE, WARRANTY LENGTH 3 YEARS. * http://www.grainger.com/Grainger/BELL-GOSSETT-Circulator-Pump-5JPC3P1d-search
P-12 (GAS WATER HEATER - DIRECT VENT - SEALED COMBUSTION) SHALL BE A STATE "ULTRA FORCE" MODEL SUF-100-NE GAS FIRED COMMERCIAL WATER HEATER. 150,000 BTU INPUT TO PRODUCE 173 GALLONS PER HOUR OF HOT WATER AT 100 DEGREE RISE, INSULATED GLASSLINED 100 GALLON STORAGE TANK. WATER HEATER SHALL MEET OR EXCEED ALL APPLICABLE SECTIONS OF ASHRAE SECTIONS 90-BXA AND NAECA REQUIREMENTS FOR ENERGY CONSERVATION. * http://www.statewaterheaters.com/lit/spec/comm-gas/SCGSS00207.pdf
P-13 (FLOOR MOUNTED INTERIOR CANWASH/MOP RECEPTOR) SHALL BE A FLORESTONE #50 36X36X6" MOLDED MOP BASIN WITH 3" OUTLET. PROVIDE WITH MR-371 THREADED FAUCET WITH WALL BRACE, PAIL HOOK AND APPROVED VACUUM BREAKER, MR-370 HOSE & HOSE BRACKET, MR-372 MOP HANGER, MR-373 BUMBER GUARDS AND MR-377 STAINLESS STEEL WALL GUARD. * http://www.florestone.com/mop_sinks/model_50-70.html * http://www.florestone.com/mop_sinks/ms_accessories.html
NOTES: 1.) ALL PLUMBING FIXTURES SHALL BE AS SPECIFIED OR APPROVED EQUAL. 2.) PROVIDE ANGLE STOPS ON ALL WATER SERVICE LINES TO FIXTURES FOR INDIVIDUAL SHUT-OFF.

GENERAL PLUMBING NOTES

- 1.) DRAWINGS ARE DIAGRAMMATIC AND SHALL NOT BE SCALED. REFER TO ARCHITECTURAL PLANS AND ELEVATIONS FOR EXACT LOCATION OF ALL PLUMBING FIXTURES, EQUIPMENT, ETC.. PLUMBING CONTRACTOR SHALL FURNISH AND INSTALL ALL ITEMS REQUIRED FOR A COMPLETE AND ACCEPTABLE WORKING INSTALLATION. CONTRACTOR IS RESPONSIBLE TO INSTALL ALL FIXTURES AND EQUIPMENT IN STRICT COMPLIANCE WITH THE MANUFACTURES INSTALLATION INSTRUCTIONS. THIS REQUIREMENT IS TO SUPERSEDE ANY DETAILS OR INFORMATION CONTAINED ON THESE DRAWINGS.
- 2.) ALL WORK AND MATERIALS SHALL COMPLY WITH THE LATEST EDITION OF THE NATIONAL, STATE, AND ALL LOCAL CODES AND ORDINANCES HAVING JURISDICTION.
- 3.) THE PLUMBING CONTRACTOR SHALL VISIT THE SITE AND THOROUGHLY FAMILIARIZE HIMSELF WITH ALL EXISTING CONDITIONS. ALL EXECUTION AND BACKFILL AS REQUIRED FOR THIS PHASE OF CONSTRUCTION SHALL BE A PART OF THIS CONTRACT.
- 4.) ALL MATERIAL SHALL BE NEW.
- 5.) ALL WORK SHALL BE PERFORMED BY A LICENSED PLUMBING CONTRACTOR IN A FIRST CLASS WORKMANLIKE MANNER. THE COMPLETED SYSTEM SHALL BE FULLY OPERATIVE AND ACCEPTED BY ENGINEER/ARCHITECT.
- 6.) ALL REQUIRED INSURANCE SHALL BE PROVIDED FOR PROTECTION AGAINST PUBLIC LIABILITY OR PROPERTY DAMAGE FOR THE DURATION OF THE WORK.
- 7.) THE PLUMBING CONTRACTOR SHALL SECURE AND PAY ALL PERMIT FEES, INSPECTIONS, AND TESTS.
- 8.) ALL WORK SHALL BE COORDINATED WITH OTHER TRADES TO AVOID INTERFERENCE WITH THE PROGRESS OF CONSTRUCTION.
- 9.) THE PLUMBING CONTRACTOR SHALL GUARANTEE ALL MATERIALS AND WORKMANSHIP FREE FROM DEFECTS FOR A PERIOD OF NOT LESS THAN (1) ONE YEAR FROM DATE OF ACCEPTANCE. CORRECTION OF ANY DEFECTS SHALL BE COMPLETED WITHOUT ADDITIONAL CHARGE AND SHALL INCLUDE REPLACEMENT OR REPAIR OF ANY OTHER PHASE OF THE INSTALLATION WHICH MAY HAVE BEEN DAMAGED THEREBY.
- 10.) VERIFY LOCATION, SIZE AND INVERTS OF ALL EXISTING UTILITIES PRIOR TO START OF CONSTRUCTION. ADVISE ARCHITECT/ENGINEER OF ANY DISCREPANCIES.
- 11.) ALL FIXTURES SHALL BE PROVIDED WITH READILY ACCESSIBLE STOPS.
- 12.) ALL BELOW FLOOR SLAB WATER PIPING SHALL BE FLEXIBLE "TEMPRITE PEX (CROSS-LINKED POLYETHYLENE)" INTALLED AS PER MANUFACTURERS RECOMMENDATIONS FOUND HERE: WWW.LUBRIZOL.COM. ALL ABOVE SLAB WATER PIPING SHALL BE "FLOWGUARD GOLD CPVC" INSTALLED AS PER MANUFACTURERS RECOMMENDATIONS FOUND HERE: WWW.FLOWGUARDGOLD.COM. ALL WATER PIPING AS SPECIFIED OR APPROVED EQUAL. ALL WATER PIPING LARGER THAN 1" SHALL BE CPVC.
- 13.) SOIL, WASTES AND VENT PIPING SHALL BE PVC #40 DMV. WASTE AND VENT PIPING ABOVE SLAB SHALL BE PVC, IF APPROVED BY LOCAL AUTHORITIES HAVING JURISDICTION, OTHERWISE CAST IRON. PVC SHALL NOT BE INSTALLED IN A/C RETURN AIR PLENUM OR PENETRATE FIRE RATED WALLS OR FLOORS.
- 14.) AIR CONDITIONING CONDENSATE DRAIN PIPING SHALL BE PVC #40 OR COPPER DRAIN WASTE AND VENT PIPE AND FITTINGS. INSULATE ALL CONDENSATE PIPING EXCEPT EXTERIOR PIPING. INSTALL ALL CONDENSATE PIPING FOR AIR CONDITIONING UNITS AS REQUIRED PER LOCAL CODES.
- 15.) FURNISH AND INSTALL APPROVED WATER HAMMER ARRESTORS AT EACH GROUP OF FIXTURES. INSTALLATION OF WATER HAMMER ARRESTORS SHALL CONFORM TO THE MANUFACTURER'S RECOMMENDATIONS. PROVIDE AND INSTALL AN APPROVED WATER HAMMER ARRESTOR AT EACH FIXTURE OR DEVICE THAT HAS A SOLENOID WATER CONTROL VALVE.
- 16.) PROVIDE CHROME PLATED COMBINATION COVERED PLATE AND CLEANOUT PLUG FOR ALL WALL CLEANOUTS. JOSAM 58890.
- 17.) INSULATE LINES AS FOLLOWS:
 - A.) 1" THICK ARMAFLEX PREFORMED INSULATION SHALL BE PROVIDED ON BOTH C.W. & H.W. WHEN PIPING IS LOCATED OUTSIDE OF THE INSULATED BUILDING ENVELOPE.
 - B.) 1/2" THICK ARMAFLEX PREFORMED INSULATION SHALL BE PROVIDED ON HW PIPING & H.W. RECIRC. PIPING, ONLY WHEN THERE IS A H.W. RECIRCULATING PIPING SYSTEM.
 - C.) CONDENSATE PIPING: 1/2" THICK ARMAFLEX PREFORMED OR APPROVED EQUAL.
- 18.) STORM DRAIN PIPING SHALL BE SCHED. 40 PVC.

48-1000-GA GREASE INTERCEPTOR 1,000 GALLON CAPACITY



(1,000 GALLONS)

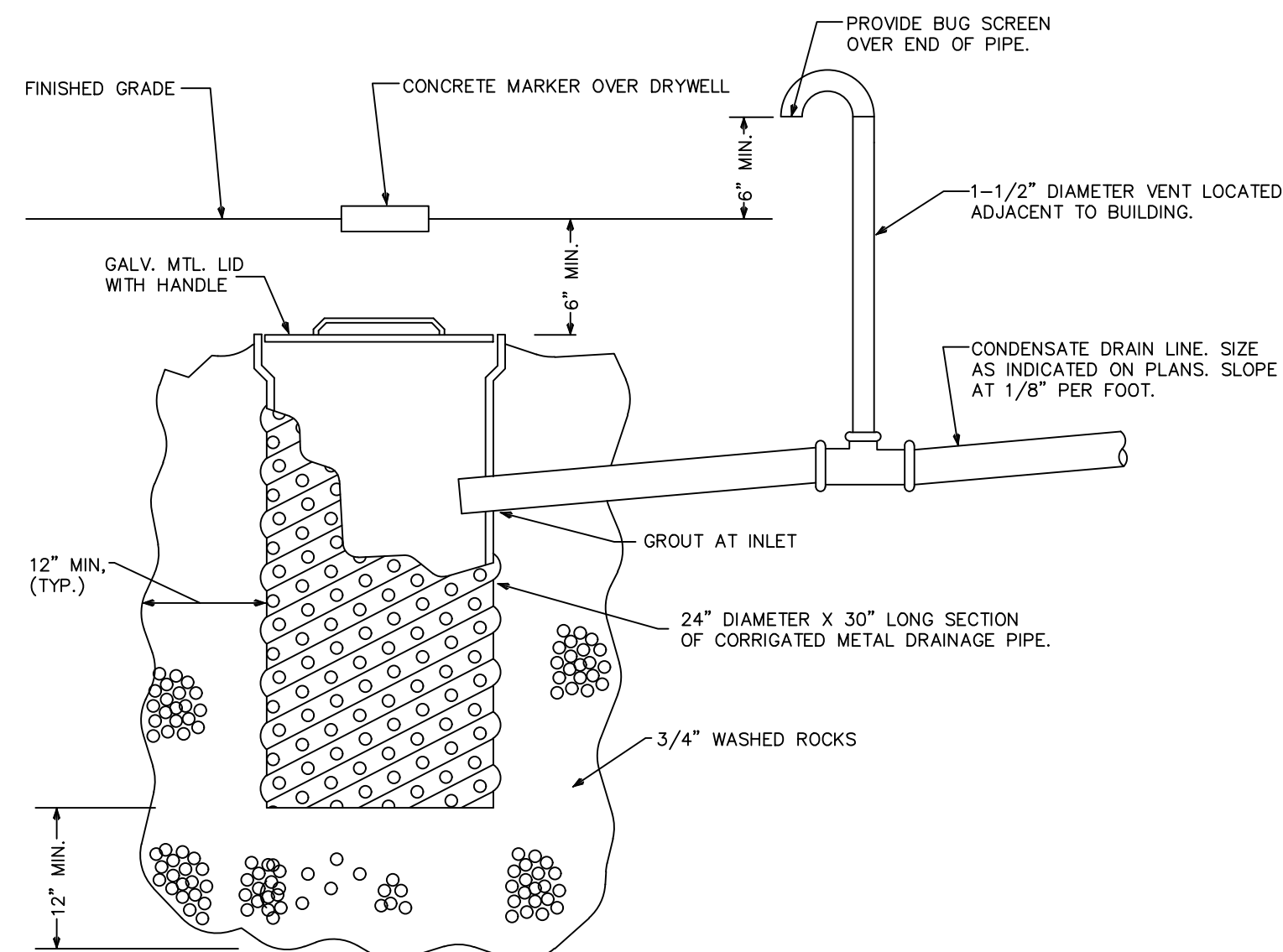
4 GREASE TRAP DETAIL

NO SCALE

1 SANITARY ISOMETRIC

NO SCALE

- GENERAL NOTES:
1. Concrete: 28 Day Compressive Strength $f_c = 4,500$ psi
 2. Reinforcement: ASTM A-615, Grade 60
 3. Loads: H-20 Truck Wheel With 30% Impact Per AASHTO
 4. Butyl Rubber Joint Sealant SS-5-00210
 5. GRAY WATER ONLY Black Water Shall Be Carried By Separate Side Sewer.
 6. Contractor To:
 - Supply and Install All Piping and Sampling Tees
 - Grout In All Pipes and Weirs
 - Fill w/ Clean Water Prior to "Start-Up" Of System
 - Verify Size and Location Of All Openings



5 DRYWELL DETAIL

NO SCALE

ELECTRICAL NOTES:

1. GENERAL: ALL WORK SHALL CONFORM TO THE LATEST APPROVED EDITION OF THE NATIONAL ELECTRICAL CODE (NEC) AND ALL LOCAL JURISDICTIONAL CODES.
- THE CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE DRAWINGS AND ANY APPLICABLE SPECIFICATIONS. IF A PROBLEM IS ENCOUNTERED IN COMPLYING WITH THIS REQUIREMENT, THE CONTRACTOR SHALL NOTIFY THE OWNER OR HIS REPRESENTATIVE AS SOON AS POSSIBLE AFTER DISCOVERY OF THE PROBLEM, AND SHALL NOT PROCEED WITH THAT PORTION OF THE WORK UNTIL THE OWNER HAS DIRECTED THE CORRECTIVE ACTION TO BE TAKEN.
- THE CONTRACTOR SHALL COORDINATE THE PROPOSED LOCATIONS OF ALL ELECTRICAL MATERIALS AND EQUIPMENT WITH THE REPRESENTATIVES OF THE OTHER TRADES INVOLVED BEFORE STARTING INSTALLATION OF THOSE ITEMS.
- COORDINATE THE INSTALLATION OF REQUIRED SUPPORTING DEVICES, CONDUIT, AND SLEEVES TO BE SET IN CAST-IN-PLACE CONCRETE AND OTHER STRUCTURAL COMPONENTS, AS THEY ARE CONSTRUCTED.
- UNLESS OTHERWISE SPECIFIED ON THE PLANS, ALL SPECS ARE NOT INTENDED TO BE PROPRIETARY, SUBSTITUTIONS WILL BE ACCEPTABLE FOR EQUAL RATED AND LISTED UNITS.
2. SCOPE: EXCEPT WHERE OTHERWISE SPECIFICALLY INDICATED ON THE DRAWINGS BY "FUTURE," "BY OTHERS," OR BY A SIMILAR NOTATION, IT IS THE INTENT THAT THE CONTRACTOR FURNISH ALL LABOR, MATERIALS, EQUIPMENT AND TOOLS NECESSARY TO PROVIDE ALL SYSTEMS IN COMPLETE AND OPERATING CONDITION.
3. EXCAVATE AS NECESSARY FOR THE INSTALLATION OF ELECTRICAL MATERIALS AND EQUIPMENT. VERIFY THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES OR STRUCTURES BEFORE EXCAVATING AND EXERCISE CARE TO AVOID DAMAGE TO SUCH ITEMS DURING EXCAVATION. BACKFILL WITH EARTH FREE OF LARGE CLODS, LARGE STONES AND FOREIGN DEBRIS, DEPOSITED IN 6" LAYERS AND COMPACTED TO A DENSITY OF NOT LESS THAN THAT OF THE SURROUNDING UNDISTURBED MATERIAL.
4. MATERIALS: THE MATERIALS AND EQUIPMENT FURNISHED SHALL BE AS INDICATED ON THE DRAWINGS; SUBSTITUTIONS SHALL NOT BE MADE EXCEPT WHERE EXPRESSLY APPROVED BY THE OWNER OR HIS REPRESENTATIVE PRIOR TO STARTING INSTALLATION OF THE ITEMS. THE ELECTRICAL MATERIALS AND EQUIPMENT FURNISHED SHALL BE LISTED OR LABELED BY UNDERWRITERS LABORATORIES OR OTHER RECOGNIZED TESTING ORGANIZATION, AND SHALL BE ACCEPTABLE TO THE LOCAL BUILDING AUTHORITY.
5. GROUNDING: GROUNDING SHALL BE IN ACCORDANCE WITH ARTICLE 250, NEC.
6. SHARED NEUTRAL CONDUCTORS SHALL NOT BE ALLOWED UNLESS INSTALLED IN ACCORDANCE WITH NEC-210.4
7. CONDUITS: PROVIDE CONDUITS WHERE CALLED FOR ON PANEL SCHEDULES. ELECTRICAL METALLIC TUBING (EMT) SHALL BE INSTALLED ONLY IN DRY LOCATIONS, IN CONCRETE ABOVE GRADE, AND WHERE NOT SUBJECT TO PHYSICAL DAMAGE.
- CONDUITS INSTALLED UNDERGROUND SHALL BE POLYVINYLCHLORIDE (PVC) AND SHALL NOT BE SMALLER THAN 3/4" TRADE SIZE. WHERE PVC CONDUIT IS INSTALLED UNDERGROUND, ELBOWS TURNING UP AND CONDUIT EMERGING ABOVE GRADE SHALL BE RSC. THE TOPS OF CONDUITS SHALL NOT BE LESS THAN 24" BELOW FINISHED GRADE. PVC CONDUIT INSTALLED ABOVE GRADE OR DIRECT-BURIED IN EARTH SHALL BE NEMA TC2 TYPE EPC-40-PVC (SCHEDULE 40) EXCEPT THAT WHERE UNDER AREAS SUBJECT TO HEAVY VEHICULAR TRAFFIC, IT SHALL BE NEMA TC2 TYPE EPC-80-PVC (SCHEDULE 80).
- ALL ARMOR CLAD CABLE (AC CABLE) WIRING SHALL MEET OR EXCEED ALL NEC, OSHA AND HUD STANDARDS.
8. CONDUCTORS: CONDUCTORS SHALL BE AS SCHEDULED ON PANEL SCHEDULES. ALL POWER CONDUCTORS SHALL NOT BE SMALLER THAN #14 AWG (CU), OR #12 AWG (AL), CONTROL CIRCUIT CONDUCTORS SHALL NOT BE SMALLER THAN #18 AWG CU. CONDUCTORS SHALL BE CONTINUOUS FROM OUTLET TO OUTLET WITHOUT SPLICES EXCEPT WITHIN WIREWAY OR JUNCTION BOXES. MARK CONDUCTORS IN PANELS, PULL BOXES OR WIREWAYS AND TERMINAL STRIP TERMINALS FOR IDENTIFICATION OF CIRCUITS.
- CONDUCTORS SHALL BE JOINED USING COMPRESSION SPLICES, EXCEPT THAT CONDUCTORS #10 AND SMALLER MAY BE JOINED USING WIRE NUT TYPE CONNECTORS. CONDUCTORS SHALL BE TERMINATED USING COMPRESSION OR PRESSURE TYPE TERMINAL LUGS, OR IN PRESSURE TERMINALS. COMPRESSION SPLICES USED ON CONDUCTORS #10 AWG. AND SMALLER, SHALL BE THE SELF-INSULATED TYPE; OTHER SPLICES SHALL BE INSULATED USING 3M #3+ OR #8B PLASTIC TAPE. SPLICES IN WET LOCATIONS SHALL BE INSULATED WITH ELECTRICAL TAPE AND ENCAPSULATED WITH SCOTCHCAST OR EQUAL POTTING COMPOUND.
9. PROVIDE AND INSTALL JUNCTION AND PULL BOXES WHERE INDICATED AND WHERE NECESSARY TO TERMINATE, TAP OFF, OR REDIRECT MULTIPLE CONDUIT RUNS, OF SIZE INDICATED OR AS REQUIRED BY NEC. WHERE FEEDER SPLICES ARE TO BE MADE, INSTALL BOXES LARGE ENOUGH TO PROVIDE AMPLE WORK SPACE.
10. LIGHTING FIXTURES: LIGHTING FIXTURES SHALL BE AS INDICATED ON THE DRAWINGS, AND SHALL BE INSTALLED COMPLETE WITH LAMPS. FIXTURES WITH ADJUSTMENTS AFFECTING LIGHT DISTRIBUTION SHALL BE SET TO PROVIDE THE REQUIRED LIGHT PATTERNS PRIOR TO THE FINAL DEMONSTRATION TEST.
11. TESTS: AFTER EACH SYSTEM HAS BEEN COMPLETED, A FUNCTIONAL TEST SHALL BE PERFORMED TO DEMONSTRATE THAT THE SYSTEM OPERATES IN ACCORDANCE WITH THE REQUIREMENTS OF THE DRAWINGS. THE TEST SHALL BE PERFORMED BY THE CONTRACTOR IN THE PRESENCE OF THE OWNER OR HIS REPRESENTATIVE.
12. TERMINALS: ALL ELECTRICAL EQUIPMENT FURNISHED ON THIS PROJECT IS TO HAVE TERMINALS RATED FOR 75° C. OPERATION.

ELECTRICAL SYMBOLS LEGEND			
SYMBOLS	DESCRIPTION	SYMBOLS	DESCRIPTION
	DUPLEX RECEPTACLE, MTD. +18" AFF		TRANSFORMER - SIZE AS NOTED
	240 VOLT RECEPTACLE (HT. AS REQ.)		PANEL - SIZE AS NOTED
	QUADRUPLUX RECEPTACLE, MTD. +18"		MOMENTARY CONTACT PUSH BUTTON
	COUNTERTOP HT. RECEPTACLE +42"		F-FAN; M-MOTOR; P-PUMP
	SINGLE POLE SWITCH, MTD +47"		SPECIAL OUTLET - AS REQUIRED
	THREE-WAY SWITCH, MTD +47"		CKT. HOMERUN (B INDICATES PANEL)
	MANUAL STARTER SWITCH		EXIT SIGN; ONE SIDED, OR TWO SIDED
	DIMMER SWITCH, MTD +47"		EMERGENCY LIGHTING
	SWITCH W/ ILLUM WHEN ON MTD +47"		RECESSED MOUNTED LIGHTING FIXTURE B DESIGNATES FIXTURE TYPE
	THREE-WAY SWITCH W/ OCCU SENSOR MTD. +47"		OVERHEAD OCCUPANCY SENSOR
	SWITCH W/ OCCU SENSOR, MTD. +47"		HIGHBAY HID LIGHTING FIXTURE B DESIGNATES FIXTURE TYPE
	JUNCTION BOX, FLUSH IF POSSIBLE		FLUORESCENT LIGHTING FIXTURE B DESIGNATES FIXTURE TYPE
	TELEPHONE / DATA OUTLET +18"		FLUORESCENT LIGHTING NIGHT LIGHT B DESIGNATES FIXTURE TYPE
	DED. COMPUTER TERM. OUTLET +18"		FLUORESCENT STRIP LIGHTING FIXTURE B DESIGNATES FIXTURE TYPE
	DISCONNECT SWITCH W/ STARTER		ISOLATED GROUND
	DISCONNECT SWITCH		WEATHER-PROOF
	FLR. MTD. FLUSH DUPLEX RECEPTACLE		BELOW COUNTER
	FLR. MTD. FLUSH QUAD. RECEPTACLE		TIME CLOCK - 24 HOUR
	FLR. MTD. FLUSH PHONE/DATA OUTLET		GROUND FAULT INTERRUPTER
	FLR. MTD. FLUSH COMPUTER OUTLET		ABOVE FINISHED FLOOR
	AREA SMOKE DETECTOR		ELECTRIC WATER COOLER
	HEAT DETECTOR		ABOVE SHOW WINDOW
	DUCT SMOKE DETECTOR		BELOW SHOW WINDOW
	FIRE ALARM MAN. PULL STATION +47"		FIRE ALARM CONTROL PANEL
	HORN WITH STROBE LIGHT, MTD. +80" # BESIDE DEVICE IS CANDELLA RATING		FIRE ALARM ANNUNCIATOR PANEL
	STROBE LIGHT ONLY, MTD. +80" # BESIDE DEVICE IS CANDELLA RATING		

ELECTRICAL SYSTEM AND EQUIPMENT

METHOD OF COMPLIANCE

PREScriptive ☒ PERFORMANCE ☐ ENERGY COST BUDGET ☐

PROVIDE A STANDARD RISER DIAGRAM WHICH INDICATES DESIGNATED POINTS FOR CHECK METERING. PROVIDE A STANDARD PANEL SCHEDULE DESCRIPTION WHICH IDENTIFIES DIFFERENT ENDUSE LOADS.

LIGHTING SCHEDULE
LAMP TYPE REQUIRED IN FIXTURE _____ SEE SCHEDULE ON DRAWINGS
NUMBER OF LAMPS IN FIXTURE _____ SEE SCHEDULE ON DRAWINGS
BALLAST TYPE USED IN FIXTURE _____ SEE SCHEDULE ON DRAWINGS
NUMBER OF BALLASTS IN FIXTURE _____ SEE SCHEDULE ON DRAWINGS
TOTAL WATTAGE PER FIXTURE _____ SEE SCHEDULE ON DRAWINGS
TOTAL INTERIOR WATTAGE SPECIFIED VS ALLOWED 6100 VS 6230
TOTAL EXTERIOR WATTAGE SPECIFIED VS ALLOWED N/A

EQUIPMENT SCHEDULES WITH MOTORS (NOT USED FOR MECHANICAL SYSTEMS)
MOTOR HORSEPOWER _____ N/A
NUMBER OF PHASES _____ N/A
MINIMUM EFFICIENCY _____ N/A
MOTOR TYPE _____ N/A
NUMBER OF POLES _____ N/A

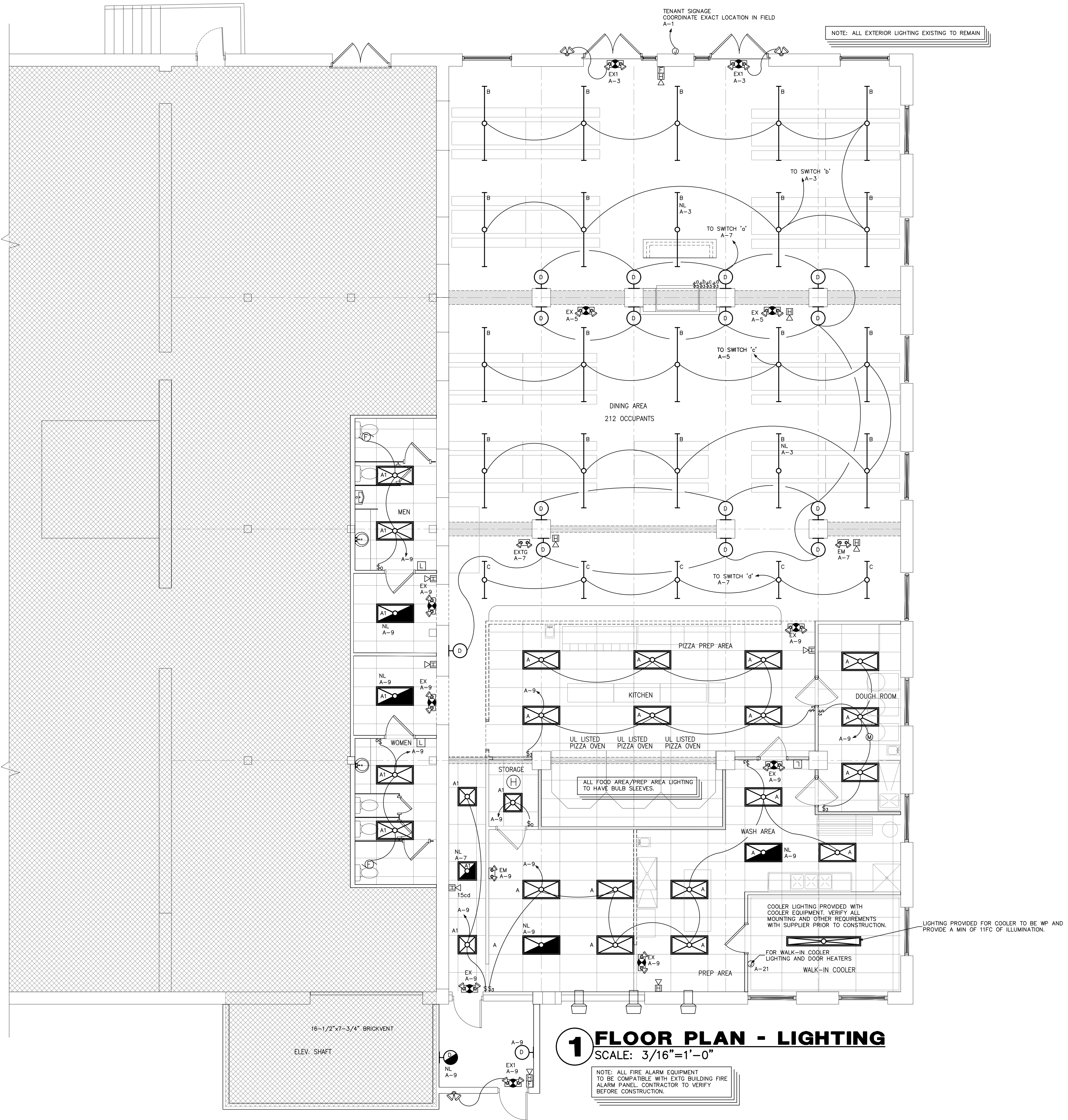
DESIGNER STATEMENT:

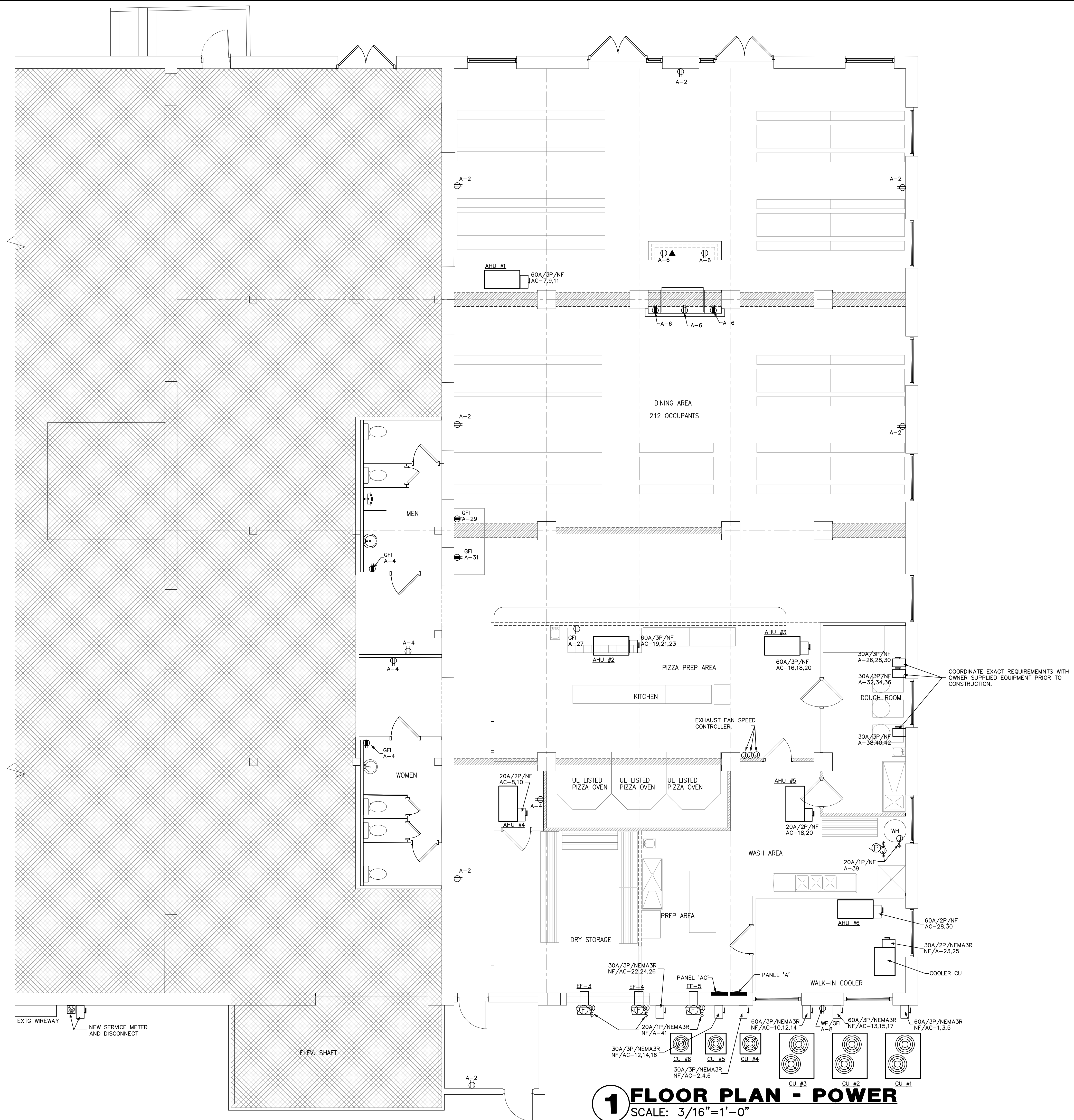
TO THE BEST OF MY KNOWLEDGE AND BELIEF, THE DESIGN OF THIS BUILDING COMPLIES WITH THE ELECTRICAL SYSTEM AND EQUIPMENT REQUIREMENTS OF THE NORTH CAROLINA ENERGY CODE 2009, CHAPTER 5.

SIGNED: _____

NAME: _____

TITLE: _____





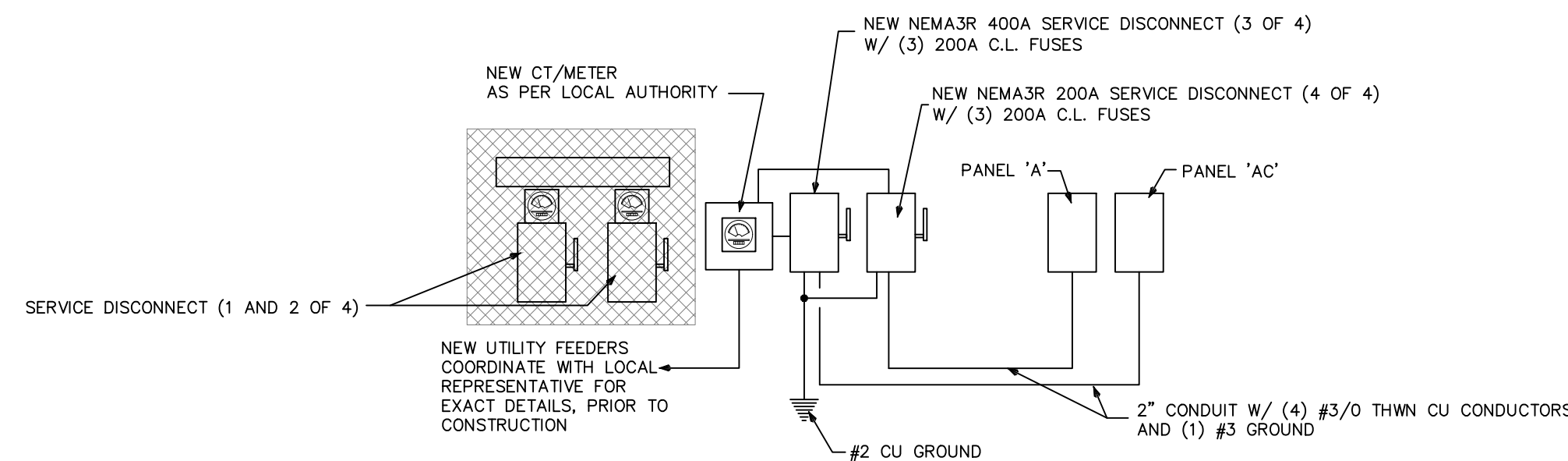
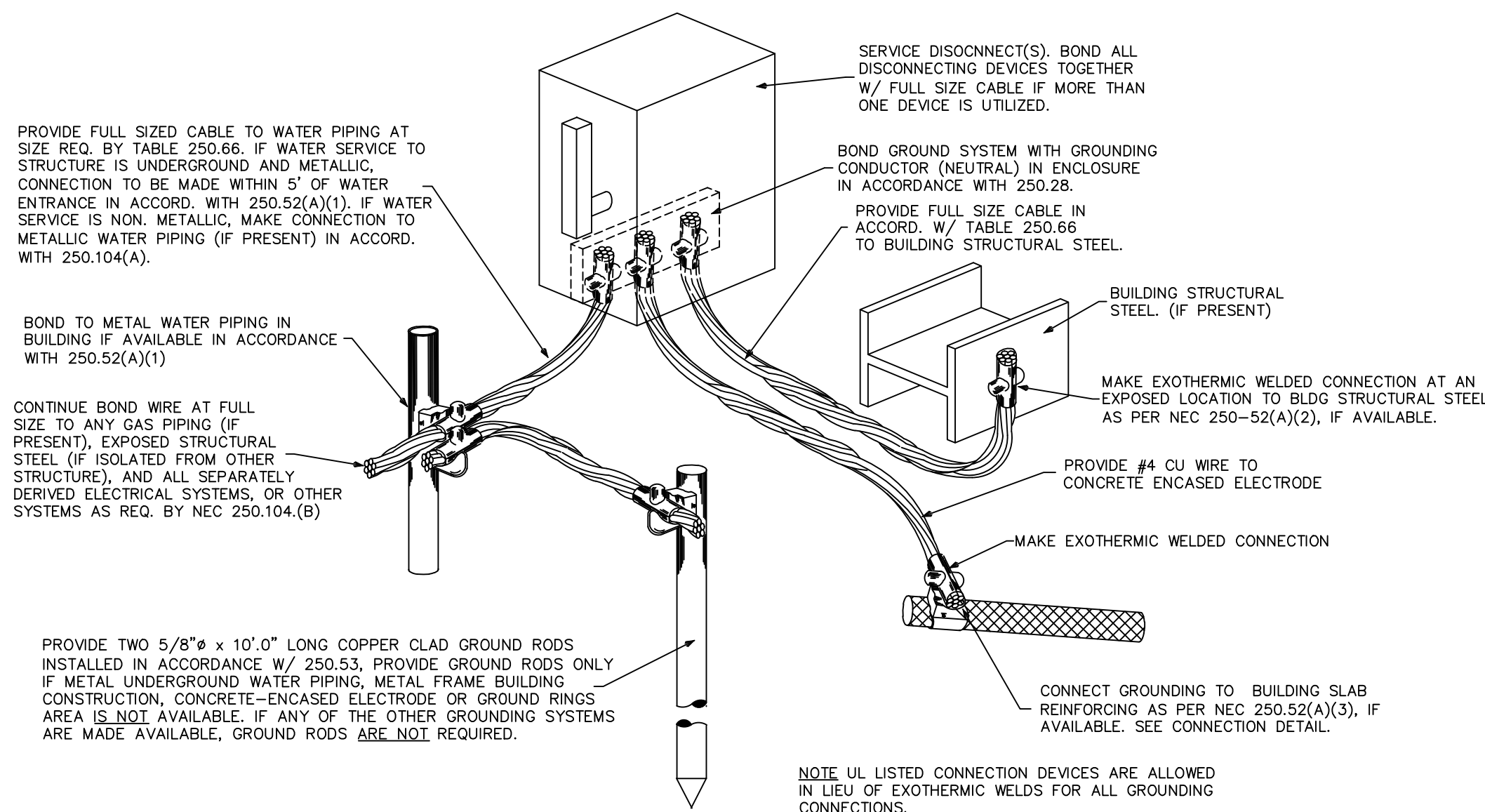
1 FLOOR PLAN - POWER
SCALE: 3/16"=1'-0"

PANEL NOTES:
* - CIRCUIT TO BE CONTROLLED VIA TIMECLOCK

PANEL A DIVERSIFICATION CALCULATIONS		
RECEPTACLES (13) -	2340 VA TOTAL	
FIRST 10 KVA AT 100% -	2340	
LIGHTING -	6108 X 125% -	7635
HVAC LOAD AT 100% -		19576
MOTOR LOADS AT 100% -		680
PLUS 25% OF THE LARGEST MOTOR		1710
MISC. CONTINUOUS LOADS AT 125% -		
1500 X 1.25		1875
KITCHEN EQUIPMENT (15)		
18998 X 0.65		12349
TOTAL DIVERSIFIED PANEL LOAD		46165
LOAD AT 120/208V/3-PHASE/4-WIRE		128.2A

PANEL AC DIVERSIFICATION CALCULATIONS		
HVAC LOAD AT 100%	-	67201
PLUS 25% OF THE LARGEST MOTOR	-	1710
TOTAL DIVERSIFIED PANEL LOAD	-	68911
LOAD AT 120/208V/3-PHASE/4-WIRE	-	191.4A

LIGHTING FIXTURE SCHEDULE							
LABEL	TYPE OF FIXTURE	FINISH	LENS TYPE	VOLTAGE	LAMP	MANUFACTURER & MODEL NO.	REMARKS
A	RECESSED 2'x4' TROFFER	WHITE	PRISMATIC	120	(3) 32W T8	LITHONIA 2SPB8-332-FWA12-MVOLT	MTD 12" A.F.F.
A1	RECESSED 2'x4' TROFFER	WHITE	PRISMATIC	120	(2) 32W T8	LITHONIA 2SPB8-232-FWA12-MVOLT	
B	UP/DN STRIP LIGHT	WHITE		120	(2) 59W T8	LITHONIA AF-296T8-MVOLT	
C	UP/DN STRIP LIGHT	WHITE		120	(2) 32W T8	LITHONIA AF-232-MVOLT	
D	INSIDE WALL LIGHT			120	75W MAX	TO BE SELECTED BY OWNER	
EM	EMERGENCY EGRESS	WHITE		120	INCLUDED	LITHONIA ELM2	W/ BATTERY BACKUP
EX	EXIT SIGN	WHITE	RED	120	INCLUDED	LITHONIA LHQM	W/ BATTERY BACKUP
EX1	EMERG COMBO w/ REM HEAD	WHITE		120	INCLUDED	LITHONIA LHQM-HO	W/ MODEL NX DUAL REMOTE HEAD. 90 MIN BATTERY



1 ELECTRICAL SERVICE RISER