

### SPECIFICATIONS

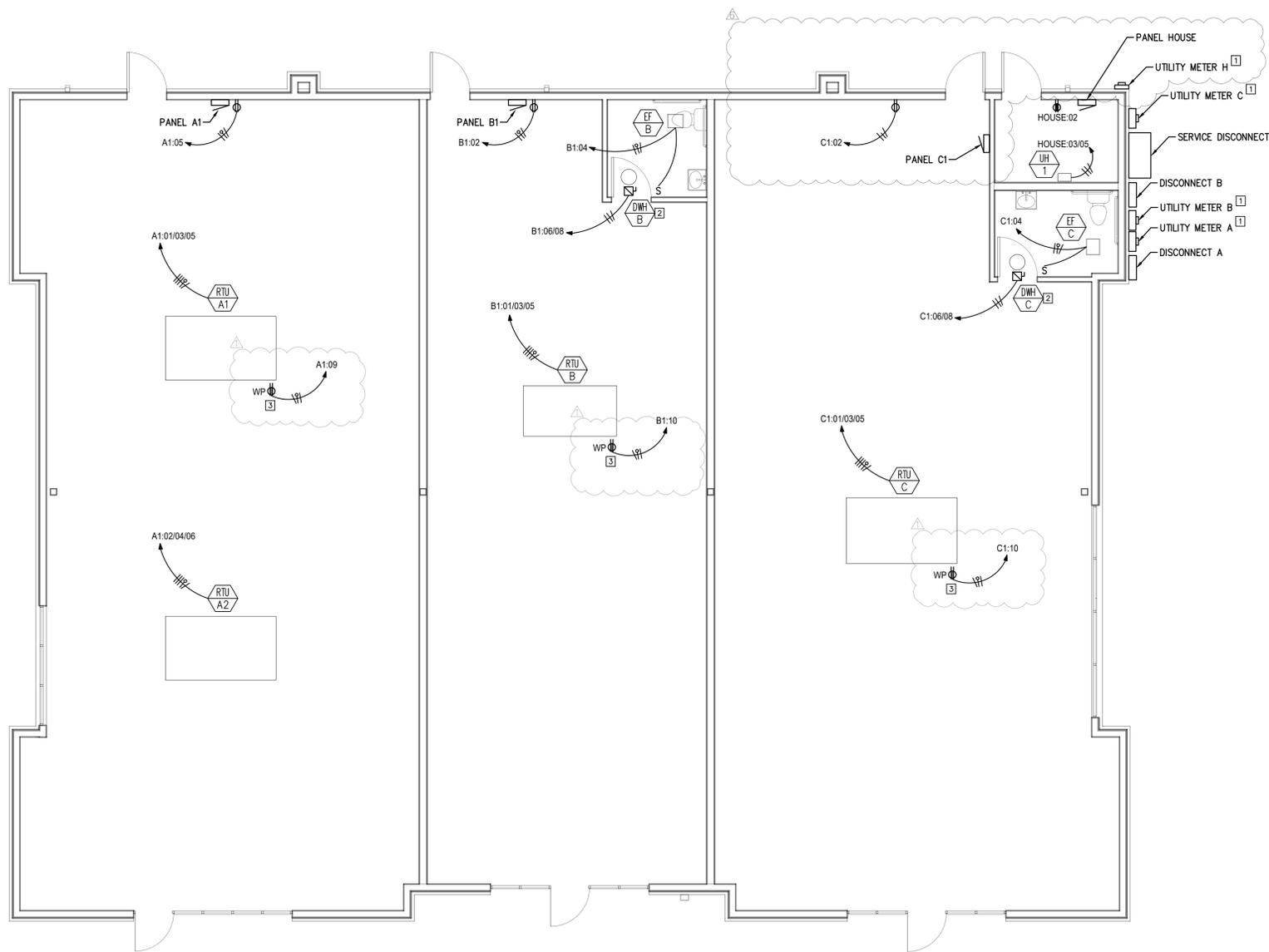
- GENERAL**
- FOR ITEMS NOT COVERED BY THIS SPECIFICATION, REFER TO LATEST VERSION OF MASTERSPEC FOR REQUIREMENTS.
  - COORDINATION OF WORK: THE ELECTRICAL CONTRACTOR SHALL PLAN ALL WORK SUCH THAT IT PROCEEDS WITH A MINIMUM OF INTERFERENCE WITH OTHER TRADES. THE CONTRACTOR SHALL BE RESPONSIBLE TO COORDINATE THE INSTALLATION OF WORK WITH LIGHTING PLANS, REFLECTED CEILING PLANS, STRUCTURAL, AND ALL OTHER TRADES. THE INSTALLATION OF ALL EQUIPMENT, DEVICES AND MATERIALS REQUIRING ACCESS SHALL BE MADE IN SUCH A MANNER AS TO MAKE THE EQUIPMENT, DEVICES AND MATERIALS READILY ACCESSIBLE FOR OPERATION, MAINTENANCE AND REPAIRS.
  - SUBSTITUTIONS FOR MATERIAL SPECIFIED: MATERIAL AND ITEMS OF EQUIPMENT FURNISHED MUST MEET THE REQUIREMENTS OF THE DRAWINGS AND SPECIFICATIONS AS TO QUALITY, PERFORMANCE, SUITABILITY, AND APPEARANCE. THIS IS AN "OR EQUAL" SPECIFICATION. ALTERNATE MATERIALS AND EQUIPMENT MAY BE SUBMITTED EQUAL TO THE PRODUCT OF THE MANUFACTURER SPECIFIED, GIVEN PRIOR APPROVAL OF THE DESIGN ENGINEER, AND SHALL BE SUPPLIED AT NO ADDITIONAL COST.
  - ALL MATERIALS SHALL BE NEW, UNUSED, AND THE BEST OF THEIR RESPECTIVE KINDS AND FREE OF DEFECTS.
  - DRAWINGS ARE DIAGRAMMATIC ONLY, INTENDING TO SHOW GENERAL ROUTING AND LOCATIONS OF THE WORK AND ARE NOT INTENDED TO BE RIGID IN SPECIFIC DETAIL.
  - THE CONTRACTOR SHALL BE RESPONSIBLE FOR EXAMINING THE SITE IN RELATION TO THEIR WORK PRIOR TO INSTALLATION. NO ADDITIONAL COMPENSATION WILL BE ALLOWED FOR LACK OF COORDINATION DURING THE COURSE OF THIS CONTRACT.
  - THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING ALL MEASUREMENTS AT THE SITE.
  - ALL WORK WITHIN THE CONTRACT AREA FURNISHED AND INSTALLED UNDER THE CONTRACT SHALL BE CLEANED TO THE SATISFACTION OF THE OWNER PRIOR TO TURNING OVER TO THE OWNER.
  - CONNECT NEW WORK TO EXISTING IN A NEAT AND WORKMAN LIKE MANNER.
  - PROVIDE ALL NECESSARY FLASHING AND COUNTER FLASHING TO MAINTAIN THE WATERPROOFING INTEGRITY OF THE BUILDING AS REQUIRED BY THE INSTALLATION OR REMOVAL OF PIPES, DUCTS, CONDUIT, AND EQUIPMENT.
- ELECTRICAL**
- GENERAL:** ALL WORK SHALL BE INSTALLED IN ACCORDANCE WITH LOCAL AND STATE CODES AND UTILITY COMPANY REGULATIONS. ALL FEES AND PERMITS SHALL BE PAID FOR BY THE CONTRACTOR.
  - WORKMANSHIP:** ALL MATERIALS SHALL BE INSTALLED PER MANUFACTURERS RECOMMENDATIONS AND IN ACCORDANCE WITH ACCEPTED GOOD PRACTICE OF THE INDUSTRY.
  - PROVIDE ACCESS PANELS IN HARD CEILINGS BELOW EQUIPMENT THAT REQUIRES ACCESS.
  - FIELD VERIFY AVAILABLE SPACE ABOVE CEILING BEFORE FABRICATION AND INSTALLATION OF DUCTWORK.
  - REFER TO ARCHITECTURAL PLANS AND INTERIOR ELEVATIONS FOR FINAL RECEPTACLE AND DEVICE PLACEMENT. COORDINATE ALL RECEPTACLE MOUNTING LOCATIONS WITH FIXTURES, APPLIANCES, FURNITURE, CABINETS, AND OTHER EQUIPMENT PRIOR TO ROUGH-IN.
  - REFER TO MECHANICAL EQUIPMENT SCHEDULE FOR CIRCUIT, DISCONNECT, AND CONDUCTORS FOR MECHANICAL EQUIPMENT.
  - ELECTRICAL CONTRACTOR IS RESPONSIBLE FOR FIELD COORDINATING THE LOCATION OF ELECTRICAL EQUIPMENT JUNCTION BOXES, DISCONNECTS, ETC. EC SHALL BE RESPONSIBLE FOR COORDINATION AND THE ROUTING OF FEEDERS, AND BRANCH CIRCUITS. COORDINATE POWER CONNECTIONS FOR OWNER-PROVIDED EQUIPMENT AND APPLIANCES, AND ALL OTHER EQUIPMENT PROVIDED BY OTHER DIVISIONS WITH SUBMITTAL DATA CUT SHEETS, WIRING DIAGRAMS, AND MANUFACTURER'S WRITTEN INSTALLATION INSTRUCTIONS.
  - FIELD COORDINATE FINAL LOCATIONS OF EQUIPMENT AND POWER CONNECTIONS WITH GENERAL CONTRACTOR AND OTHER DIVISIONS/CONTRACTORS PRIOR TO ROUGH-IN.
  - PROVIDE READILY ACCESSIBLE GROUND-FAULT CIRCUIT-INTERRUPTER (GFCI) PROTECTION FOR RECEPTACLES FOR APPLIANCES LISTED AND IN LOCATIONS REQUIRED IN NEC 210.8.
  - ELECTRICAL CONTRACTOR SHALL SIZE BRANCH CIRCUIT WIRING TO ACCOMMODATE FOR VOLTAGE DROP.
- LIGHTING:**
- CIRCUIT ALL EMERGENCY LIGHTING AND EXIT SIGNS TO THE NEAREST LIGHTING BRANCH CIRCUIT AHEAD OF LOCAL SWITCH LEG.
  - LIGHT FIXTURES THAT APPEAR TO BE CENTERED IN A SPACE OR CEILING PANEL SHALL BE CENTERED UNLESS OTHERWISE NOTED.
  - CONTRACTOR IS RESPONSIBLE FOR PROVIDING MOUNTING HARDWARE AND TRIMS REQUIRED FOR INSTALLING ALL LIGHT FIXTURES.
  - VERIFY ALL CEILING FINISHES, CEILING TYPES, AND CEILING THICKNESS PRIOR TO FINAL FIXTURE PURCHASE AND PROCUREMENT.
  - ALL CONDUIT SHALL BE CONCEALED IN WALLS, FLOOR SLAB, OR ABOVE CEILING, WHERE POSSIBLE. ROUTE CONDUIT AS CLOSE TO STRUCTURAL SLAB OR DECK AS POSSIBLE, AND SUPPORT CONDUIT AND JUNCTION BOXES DIRECTLY FROM THE STRUCTURAL SLAB, DECK OR FRAMING PROVIDED FOR THAT PURPOSE.
  - CONTRACTOR SHALL COORDINATE THE EXACT LOCATION OF ALL EXPOSED CONDUIT WITH ARCHITECT PRIOR TO ROUGH-IN.
  - REFER TO ARCHITECTURAL AND INTERIORS PACKAGE FOR FIXTURE INSTALLATION REQUIREMENTS, INCLUDING MOUNTING HEIGHTS AND MILLWORK DETAILS.
  - INTERRUPT POWER SUPPLY TO DEMONSTRATE PROPER OPERATION OF ALL EMERGENCY LIGHTING PRIOR TO JOB COMPLETION.
  - ALL DIMMED LIGHTING CIRCUITS ARE TO RECEIVE DEDICATED NEUTRALS. DO NOT SHARE NEUTRALS ON DIMMED LIGHTING CIRCUITS.
  - CONTRACTOR TO PROVIDE OWNER WITH A COMPLETE LISTING OF ALL LAMPS UTILIZED ON THE PROJECT INCLUDING MANUFACTURER AND CATALOG INFORMATION. PROVIDE A SUGGESTED SOURCE, INCLUDING CONTACT NAME AND PHONE NUMBER, FOR RE-ORDERING.
  - ALL LIGHT SWITCHES SHALL BE SPECIFICATION GRADE, QUIET OPERATION RATED 120/277VOLT, 20 AMPS, UNLESS OTHERWISE NOTED.
  - ALL CONCEALED FIXTURES AND ASSOCIATED WIRING MUST BE CONCEALED FROM VIEW.
  - FOR TRACK LIGHTING FIXTURES AND LINEAR LED SYSTEMS, ELECTRICAL CONTRACTOR MUST PROVIDE ALL NECESSARY COMPONENTS FOR A FULLY FUNCTIONING SYSTEM.
  - EXIT SIGNS SHALL HAVE INTEGRAL EMERGENCY BATTERY BACK-UP.
  - PROVIDE LUMINAIRES SHOWN WITH EM INDICATOR WITH EMERGENCY BATTERY BALLASTS/DRIVERS.
  - EMERGENCY LUMINAIRES SHALL SENSE UNSWITCHED POWER TO THE SPACE AND OPERATE AUTOMATICALLY UPON LOSS OF NORMAL POWER.
  - ALL EMERGENCY LUMINAIRES SHALL HAVE ONE (1) 90 MINUTE EMERGENCY BALLAST.
  - ALL EMERGENCY LUMINAIRES SHALL HAVE INTEGRAL TEST SWITCHES AND VISIBLE INDICATING LIGHTS. CONNECT THE EMERGENCY BATTERY BALLAST TO THE UN-SWITCHED LEG OF THE LIGHTING CIRCUIT INDICATED.

### LEGEND

SYMBOL	DESCRIPTION
	DEMOLITION
	20 AMP, 120V, NEMA 5-20R, DUPLEX RECEPTACLE
	20 AMP, 120V, NEMA 5-20R, QUAD RECEPTACLE
	20 AMP, 120V, GFCI RECEPTACLE
	50 AMP, 240V, SIMPLEX RECEPTACLE
	20 AMP, 120V, DEDICATED DUPLEX RECEPTACLE
	UTILITY METER
	DISCONNECT SWITCH, NON-FUSED, 250V, U.N.O.
	FUSED DISCONNECT, SEE NOTATION
	JUNCTION BOX, WALL MOUNTED
	JUNCTION BOX, CEILING MOUNTED
	TRANSFORMER
	SURFACE MOUNTED ELECTRICAL PANEL
	RECESSED ELECTRICAL PANEL
	SURFACE-MOUNTED DOWNLIGHT
	WALL-MOUNTED LUMINAIRE
	EXIT SIGN, DIRECTIONAL ARROWS SHOW DIRECTION
	EMERGENCY LIGHT FIXTURE
	CEILING-MOUNTED OCCUPANCY SENSOR
	SINGLE POLE SWITCH
	THREE WAY SWITCH
	SWITCH: OCCUPANCY SENSOR
	SWITCH: COMPATIBLE DIMMER
	2' X 4' LUMINAIRE, DIAGONAL INDICATES EM FUNCTION
	LUMINAIRE TYPE (REFERENCE LUMINAIRE SCHEDULE) WATTAGE, IF SHOWN, REFERENCES ADJUSTABLE OUTPUT LOWER CASE ID, IF SHOWN, REF. WALL SWITCH/CONTROL
	SLD: ELECTRICAL PANEL
	SLD: TRANSFORMER, RATING AS SHOWN
	SLD: METER
	SLD: CURRENT TRANSFORMER
	SLD: SWITCH, RATING AS SHOWN
	SLD: CIRCUIT BREAKER, RATING AS SHOWN
	SLD: SAFETY SWITCH, NON-FUSED, 250V, U.N.O.
	SLD: FUSED DISCONNECT
	EQUIPMENT TAG
	CIRCUIT HOMERUN - PANEL NAME: CIRCUIT NUMBER
	CONDUIT AND WIRE CONCEALED U.N.O.
	CONDUIT AND WIRE BELOW GRADE
	STRAIGHT HASH MARKS: CURRENT-CARRYING CONDUCTORS EMPTY DOT: GROUNDED CONDUCTOR (NEUTRAL) ANGLED HASH: EQUIPMENT GROUNDING CONDUCTOR
	KEY NOTE DESIGNATOR
	CONTINUED, BUT NOT SHOWN

### GENERAL NOTES

- THE FOLLOWING NOTES APPLY TO ELECTRICAL DRAWINGS TO THE EXTENT APPLICABLE.
- NOT ALL CONDUCTORS, CONDUIT, EQUIPMENT, AND ACCESSORIES ARE SHOWN ON PLANS. REFER TO ALL PLANS, SECTION DETAILS, SCHEDULES, AND SPECIFICATIONS FOR COMPLETE SYSTEM REQUIREMENTS.
- CONTRACTOR SHALL PROVIDE ALL REQUIRED OFFSETS, TRANSITIONS, AND FITTINGS TO COMPLETE THE SYSTEMS.
- MANY AREAS OF CONSTRUCTION WILL BE VERY CONGESTED. INSTALLATION OF MATERIALS AND EQUIPMENT SHALL BE COORDINATED WITH ALL OTHER TRADES AND EXISTING CONDITIONS TO ENSURE THAT THERE IS ADEQUATE ROOM FOR ALL OTHER MATERIALS AND EQUIPMENT TO BE INSTALLED UNDER THIS CONTRACT. INSTALLATION OF MATERIALS AND EQUIPMENT WHICH DOES NOT ALLOW FOR INSTALLATION OF REMAINING MATERIALS AND EQUIPMENT WILL BE REMOVED AND RELOCATED AT NO COST TO THE OWNER OR DESIGN TEAM.
- COORDINATE LOCATION OF ALL CONDUIT, EQUIPMENT, LUMINAIRES, SWITCHES, AND ACCESSORIES WITH ALL OTHER TRADES BEFORE FABRICATION OR INSTALLATION.
- CONTRACTOR SHALL FIELD VERIFY EXISTING CONDITIONS BEFORE ORDERING MATERIALS OR PERFORMING WORK. DEVIATIONS FROM CONDITIONS SHOWN ON PLANS SHALL BE REPORTED TO THE A/E AND A RESOLUTION SHALL BE FOUND BEFORE BEGINNING ASSOCIATED WORK. SITE CONDITIONS DIFFERING FROM THOSE SHOWN ON THESE PLANS WILL NOT GENERALLY BE CONSIDERED A BASIS FOR CONTRACT MODIFICATIONS AS THE CONTRACTOR SHALL TAKE INTO ACCOUNT WORST CASE SITE CONDITIONS.
- UNLESS INDICATED OTHERWISE, BRANCH CIRCUITS ARE SINGLE-POLE, 120V, 20A.
- ALL PENETRATIONS THROUGH FIRE/SMOKE RATED CONSTRUCTION SHALL BE SEALED TO MEET THE REQUIREMENTS OF THE FIRE RATING. PROVIDE FIRE AND/OR SMOKE DAMPERS AT PENETRATIONS PER CODE.
- PRODUCTS LISTED ON THE SCHEDULE SHEETS ARE TO BE CONSIDERED BASIS OF DESIGN. OTHER MATERIALS MAY BE ALLOWED AS SUBSTITUTIONS PROVIDED THEY MEET OR EXCEED ALL PERFORMANCE/SPECIFICATION CHARACTERISTICS AND RECEIVE APPROVAL FROM THE DESIGN ENGINEER.
- FINAL PRODUCT SHALL BE A COMPLETE AND FUNCTIONING SYSTEM, AND SHALL CONFORM TO ALL APPLICABLE FEDERAL, STATE, AND LOCAL CODES.
- ROOF MOUNTED EQUIPMENT SHALL BE A MINIMUM 10' FROM EDGE OF ROOF.
- PROVIDE SLEEVES AND/OR OPENINGS TO RUN PIPES AND DUCTS THROUGH FOUNDATIONS, FLOORS, WALLS, AND ROOF.
- MAINTAIN CLEAR ACCESS TO SERVICE EQUIPMENT AND OTHER ACCESSORIES REQUIRING SERVICE. VISUAL INSPECTION OR HAND OPERATION, WHERE INDICATED OR REQUIRED, PROVIDE ACCESS PANELS.
- INSTALL ALL EQUIPMENT IN ACCORDANCE WITH THE RESPECTIVE MANUFACTURER'S WRITTEN INSTALLATION INSTRUCTIONS.
- INSTALL EXPOSED PIPING AND CONDUIT AS HIGH AS PRACTICAL IN ROOMS WITHOUT CEILINGS.
- PRIOR TO STARTING WORK, SUBMIT SHOP DRAWINGS FOR ALL ELECTRICAL EQUIPMENT.
- CONTRACTOR SHALL OBTAIN AND PAY FOR ALL NECESSARY PERMITS AND SHALL ARRANGE FOR ALL INSPECTIONS AS REQUIRED.
- PROVIDE LIQUIDTITE OR FLEXIBLE METAL CONDUIT FOR CIRCUITS CONNECTED TO VIBRATING EQUIPMENT.
- LOCATIONS OF ITEMS SHOWN ON DRAWINGS ARE APPROXIMATE. DO NOT SCALE DRAWINGS.
- RUNS OF FLEXIBLE CONDUIT SHALL NOT EXCEED 6 FEET.
- HVAC CIRCUITS SHALL PENETRATE THE ROOF INSIDE THE EQUIPMENT CURB IF POSSIBLE.
- SLEEVE AND SEAL EXTERIOR WALL AND ROOF PENETRATIONS TO A WEATHER TIGHT CONDITION, SLEEVE AND SEAL INTERIOR FLOOR PENETRATIONS TO A WATER TIGHT CONDITION.
- PROVIDE 4" HOUSEKEEPING PAD FOR FLOOR/GRADE MOUNTED EQUIPMENT.



**ELECTRICAL FLOOR PLAN**  
 SCALE: 3/16" = 1'-0" (36"x24" SHEET)

### ELECTRICAL POWER KEYNOTES

- CONSULT LOCAL UTILITY FOR METER CAN REQUIREMENTS.
- DWH AND DISCONNECT MOUNTED OVERHEAD.
- INSTALL WEATHERPROOF GFCI RECEPTACLE FOR HVAC EQUIPMENT MAINTENANCE PER NEC 210.63.

### GENERAL POWER NOTES

- CONTRACTOR SHALL INSPECT SITE THOROUGHLY TO FAMILIARIZE THEMSELVES WITH THE AREA OF WORK. ANY DISCREPANCIES BETWEEN THESE DOCUMENTS AND ACTUAL CONDITIONS SHALL BE REPORTED TO THE GC/ENGINEER FOR RESOLUTION PRIOR TO BID PRICING.
- COORDINATE EQUIPMENT INSTALLATION WITH PLUMBING, MECHANICAL, FIRE PROTECTION, AND STRUCTURAL CONDITIONS. DUCTWORK AND REFRIGERATION LINE LOCATIONS SHALL TAKE PRECEDENCE OVER ELECTRICAL CONDUIT/CABLE TRAYS.
- CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING A COMPLETE AND WORKING SYSTEM.

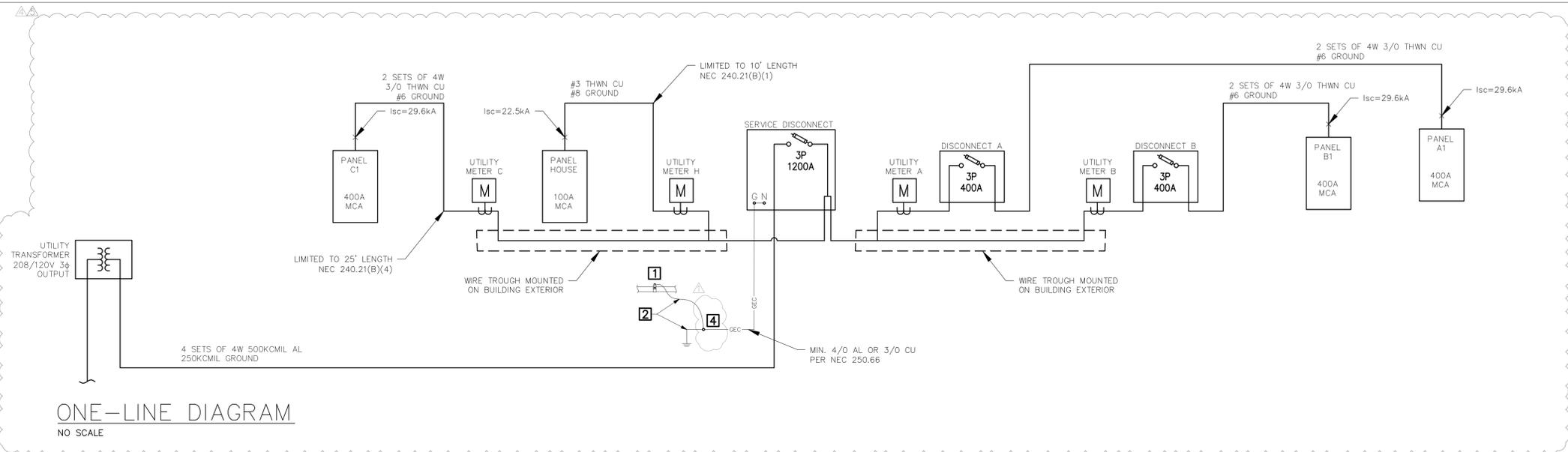
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NEW BUILDING FOR  
**SUMMIT ORCHARDS**  
 LEES SUMMIT, MO

**NICHOLAS PEDERSEN**  
 PE-2013019095  
 PROFESSIONAL ENGINEER

No.	Description	Date
<b>Revision Schedule</b>		
7-2-25	REVISION	
7-22-25	REVISION	
2-26-26	REVISION	
3-12-26	REVISION	
3-17-26	REVISION	
3-24-26	REVISION	
Project number	2491	
Date	05.08.2025	

**E101**



**ELECTRICAL KEYNOTES**

- BOND TO METAL WATER PIPING PER NEC 250.104
- GROUNDING CONDUCTORS SHALL BE #3AWG OR LARGER
- NOT USED
- BOND ALL STRUCTURAL STEEL, METAL IN-GROUND SUPPORT STRUCTURES, AND OTHER GROUNDING ELECTRODES PRESENT IN THE BUILDING ACCORDING TO NEC 250.50.

**GENERAL ELECTRICAL NOTES**

- CONTRACTOR SHALL INSPECT SITE THOROUGHLY TO FAMILIARIZE THEMSELVES WITH THE AREA OF WORK. ANY DISCREPANCIES BETWEEN THESE DOCUMENTS AND ACTUAL CONDITIONS SHALL BE REPORTED TO THE ARCHITECT/ENGINEER FOR RESOLUTION PRIOR TO BID PRICING.
- COORDINATE ELECTRICAL INSTALLATION WITH PLUMBING, MECHANICAL, FIRE PROTECTION, AND STRUCTURAL CONDITIONS.
- CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING A COMPLETE AND WORKING SYSTEM.

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**VUE Engineering LLC**  
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Kansas City MO 64111

**PANEL: A1**

SUPPLIED FROM: UTILITY  
BUS RATING: 400A MCB  
MAIN SIZE/PHASE: 400A-3P

VOLTS/PHASE: 208Y/120V, 3PH, 4W + G  
FAULT CURRENT (I<sub>sc</sub>):  
MIN AIC RATING:

LOCATION: UNIT A  
SERVES: GENERAL POWER  
ENCL.: NEMA 1

CKT	DESCRIPTION	CB AMP	P	VOLTSAMPS/PHASE						P	CB AMP	DESCRIPTION	CKT
				A	B	C	A	B	C				
1	RTU-A1	50	3	4,744			4,744			3	50	RTU-A2	2
3	---				4,744			4,744				---	4
5	---					4,744			4,744			---	6
7	RECEPTACLE	20	1	180			142			1	20	EMERGENCY LIGHTING	8
9	ROOFTOP MAINT. RECPT.	20	1	180			150			1	20	AMBIENT LIGHTING	10
11	SPACE	0	1	0			0			0	1	SPACE	12
13	SPACE	0	1	0			0			0	1	SPACE	14
15	SPACE	0	1	0			0			0	1	SPACE	16
17	SPACE	0	1	0			0			0	1	SPACE	18
19	SPACE	0	1	0			0			0	1	SPACE	20
21	SPACE	0	1	0			0			0	1	SPACE	22
23	SPACE	0	1	0			0			0	1	SPACE	24
25	SPACE	0	1	0			0			0	1	SPACE	26
27	SPACE	0	1	0			0			0	1	SPACE	28
29	SPACE	0	1	0			0			0	1	SPACE	30
31	SPACE	0	1	0			0			0	1	SPACE	32
33	SPACE	0	1	0			0			0	1	SPACE	34
35	SPACE	0	1	0			0			0	1	SPACE	36
37	SPACE	0	1	0			0			0	1	SPACE	38
39	SPACE	0	1	0			0			0	1	SPACE	40
41	SPACE	0	1	0			0			0	1	SPACE	42
SUBTOTAL				4,924	4,924	4,744	4,886	4,894	4,744	SUBTOTAL			

TOTAL PHASE A - VA:	LOAD TYPE	CONN. VA	DF	LOAD TYPE	CONN. VA	DF
9,809	COOLING	28,461	1.00	REFRIGERATION	0	1.00
9,817	HEATING	0	1.00	SIGN/DISPLAY	0	1.25
27	LIGHTING	292	1.25	KITCHEN	0	1.00
9,487	RECEPTACLES	360	1.00/0.50	EXISTING	0	1.00
26	MOTORS	0	1.00	LARGE MOTOR	0	1.25
29,113	SUPP HEAT	0	1.00	SHOW WINDOW	0	1.25
81	MISC EQUIP	0	1.00	LTG TRACK	0	1.25
<b>TOTAL DEMAND</b>						
<b>29,186 VA</b>						
<b>81 A</b>						

**PANEL: B1**

SUPPLIED FROM: UTILITY  
BUS RATING: 400A MCB  
MAIN SIZE/PHASE: 400A-3P

VOLTS/PHASE: 208Y/120V, 3PH, 4W + G  
FAULT CURRENT (I<sub>sc</sub>):  
MIN AIC RATING:

LOCATION: UNIT B  
SERVES: GENERAL POWER  
ENCL.: NEMA 1

CKT	DESCRIPTION	CB AMP	P	VOLTSAMPS/PHASE						P	CB AMP	DESCRIPTION	CKT
				A	B	C	A	B	C				
1	RTU-B	40	3	2,906			180			1	20	RECEPTACLE	2
3	---				2,906			18		1	15	EXHAUST FAN EF-B	4
5	---					2,906		1,500		2	20	WATER HEATER DHW-B	6
7	EMERGENCY LIGHTING	20	1	142			1,500			1	20	---	8
9	AMBIENT LIGHTING	20	1	166			180			1	20	ROOFTOP MAINT. RECPT.	10
11	SPACE	0	1	0			0			0	1	SPACE	12
13	SPACE	0	1	0			0			0	1	SPACE	14
15	SPACE	0	1	0			0			0	1	SPACE	16
17	SPACE	0	1	0			0			0	1	SPACE	18
19	SPACE	0	1	0			0			0	1	SPACE	20
21	SPACE	0	1	0			0			0	1	SPACE	22
23	SPACE	0	1	0			0			0	1	SPACE	24
25	SPACE	0	1	0			0			0	1	SPACE	26
27	SPACE	0	1	0			0			0	1	SPACE	28
29	SPACE	0	1	0			0			0	1	SPACE	30
31	SPACE	0	1	0			0			0	1	SPACE	32
33	SPACE	0	1	0			0			0	1	SPACE	34
35	SPACE	0	1	0			0			0	1	SPACE	36
37	SPACE	0	1	0			0			0	1	SPACE	38
39	SPACE	0	1	0			0			0	1	SPACE	40
41	SPACE	0	1	0			0			0	1	SPACE	42
SUBTOTAL				3,048	3,072	2,906	1,680	198	1,500	SUBTOTAL			

TOTAL PHASE A - VA:	LOAD TYPE	CONN. VA	DF	LOAD TYPE	CONN. VA	DF
4,728	COOLING	8,718	1.00	REFRIGERATION	0	1.00
3,270	HEATING	0	1.00	SIGN/DISPLAY	0	1.25
9	LIGHTING	308	1.25	KITCHEN	0	1.00
4,406	RECEPTACLES	360	1.00/0.50	EXISTING	0	1.00
12	MOTORS	0	1.00	LARGE MOTOR	0	1.25
12,404	SUPP HEAT	0	1.00	SHOW WINDOW	0	1.25
34	MISC EQUIP	3,018	1.00	LTG TRACK	0	1.25
<b>TOTAL DEMAND</b>						
<b>12,481 VA</b>						
<b>35 A</b>						

**PANEL: C1**

SUPPLIED FROM: UTILITY  
BUS RATING: 400A MCB  
MAIN SIZE/PHASE: 400A-3P

VOLTS/PHASE: 208Y/120V, 3PH, 4W + G  
FAULT CURRENT (I<sub>sc</sub>):  
MIN AIC RATING:

LOCATION: UNIT A  
SERVES: GENERAL POWER  
ENCL.: NEMA 1

CKT	DESCRIPTION	CB AMP	P	VOLTSAMPS/PHASE						P	CB AMP	DESCRIPTION	CKT
				A	B	C	A	B	C				
1	RTU-C	80	3	6,521			180			1	20	RECEPTACLE	2
3	---				6,521			18		1	15	EXHAUST FAN EF-C	4
5	---					6,521		1,500		2	20	WATER HEATER DHW-C	6
7	EMERGENCY LIGHTING	20	1	142			1,500			1	20	---	8
9	AMBIENT LIGHTING	20	1	166			180			1	20	ROOFTOP MAINT. RECPT.	10
11	SPACE	0	1	0			0			0	1	SPACE	12
13	SPACE	0	1	0			0			0	1	SPACE	14
15	SPACE	0	1	0			0			0	1	SPACE	16
17	SPACE	0	1	0			0			0	1	SPACE	18
19	SPACE	0	1	0			0			0	1	SPACE	20
21	SPACE	0	1	0			0			0	1	SPACE	22
23	SPACE	0	1	0			0			0	1	SPACE	24
25	SPACE	0	1	0			0			0	1	SPACE	26
27	SPACE	0	1	0			0			0	1	SPACE	28
29	SPACE	0	1	0			0			0	1	SPACE	30
31	SPACE	0	1	0			0			0	1	SPACE	32
33	SPACE	0	1	0			0			0	1	SPACE	34
35	SPACE	0	1	0			0			0	1	SPACE	36
37	SPACE	0	1	0			0			0	1	SPACE	38
39	SPACE	0	1	0			0			0	1	SPACE	40
41	SPACE	0	1	0			0			0	1	SPACE	42
SUBTOTAL				6,663	6,687	6,521	1,680	198	1,500	SUBTOTAL			

TOTAL PHASE A - VA:	LOAD TYPE	CONN. VA	DF	LOAD TYPE	CONN. VA	DF
8,343	COOLING	19,562	1.00	REFRIGERATION	0	1.00
23	HEATING	0	1.00	SIGN/DISPLAY	0	1.25
6,884	LIGHTING	308	1.25	KITCHEN	0	1.00
8,021	RECEPTACLES	360	1.00/0.50	EXISTING	0	1.00
22	MOTORS	0	1.00	LARGE MOTOR	0	1.25
23,248	SUPP HEAT	0	1.00	SHOW WINDOW	0	1.25
65	MISC EQUIP	3,018	1.00	LTG TRACK	0	1.25
<b>TOTAL DEMAND</b>						
<b>23,325 VA</b>						
<b>65 A</b>						

**SHORT-CIRCUIT FAULT CALCULATIONS**

Distances are for calculation purposes only and shall not be used for contractor takeoffs nor bidding - Contractor shall notify Engineer of any field condition that results in a change of 10% or greater circuit distance.

The following calculations are based on the "Point-by-Point" method where:

$$I_{sc}(2) = I_{sc}(1) \times M(1) \quad M = 1/(1+f) \quad \text{Feeder: } f(3\Phi) = \frac{1.732 \times L \times I_{sc}}{C \times E} \quad \text{XFMR: } f(3\Phi) = \frac{I_p(sca) \times V_p \times 1.732 \times \%Z}{100,000 \times kVA} \quad I_s(sca) = \frac{V_p \times M \times I_p(sca)}{V_s}$$

Where:  
 $I_{sc}(1)$  - short circuit current at fault point 1  
 $I_{sc}(2)$  - short circuit current at fault point 2

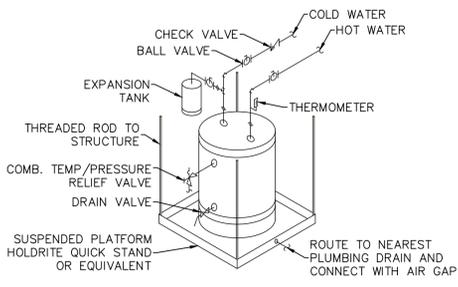
L - Length of Conductor  
 C - "C" Factor from Bussman table where "C" = 1 / impedance per lineal foot

E - Line to line volts  
 Ip - Primary voltage  
 Vs - Secondary short circuit current  
 Vs - Secondary voltage

Feeder Types:  
 NM - Non Magnetic Conduit, M - Magnetic Conduit, FB - Feeder Busway, PB - Plug-in Busway, HI - High Impedance Busway, TX - Transformer

Fault Point (F#)	Bus/Feeder Description	Source (Fault Pnt)	Phase	Source I <sub>sc</sub> (Amps)	FEEDER Circuit Type	Material CU or AL	Wires # / Φ	Bus/Wire Size	Conductor C Value	Busway C Value	L-L Volts E	Circuit Lenth L (ft)	Load Power Factor (PF)	Circuit Load A	CONDUCTOR		Conductor Impedence Z / Φ	TRANSFORMER			FAULT CURRENT		Fault Point (F#)			
															Resistance R	Reactance X		Type	kVA	Z	Sec. Voltage V sec	f		M	I <sub>sc</sub>	I <sub>sc</sub> sym RMS
0	Utility Service Point	∞	3		TX						208	-	-	416	-	-	-	150	1.07	208Y/120V, 3PH	-	93.46	38,912	38,912	0	
1	Main Service Disconnect	0	3	38,912	NM	AL	4	Set(s) of #500	21391	N/A	208	100	0.9	188	0.000043	0.000039	0.45103	-	N/A	N/A	N/A	0.379	0.73	28,224	28,224	1
2	Disconnect H	0																								



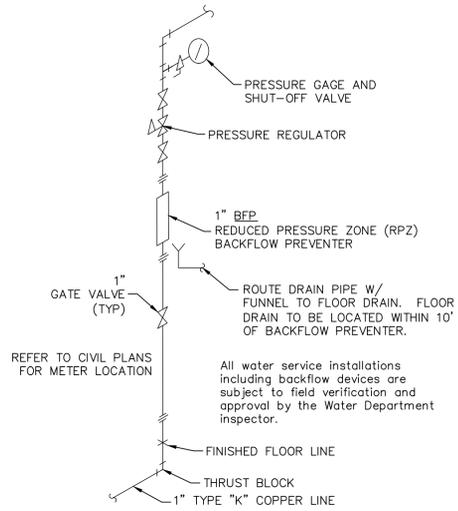


**ABOVE CEILING WATER HEATER DETAIL**

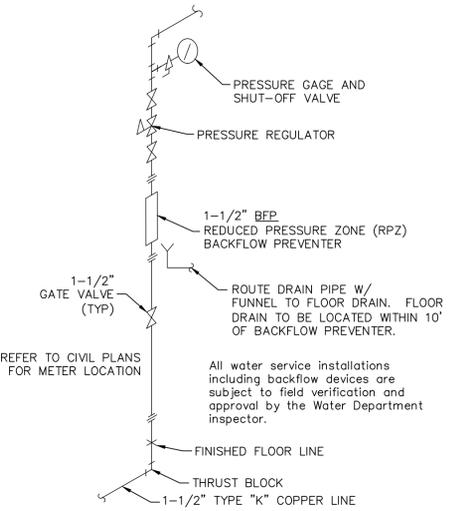
**ROOFTOP UNIT SCHEDULE**

MARK	TOTAL CFM	OA CFM	ESP (IN)	COOLING CAP. (MBH)		HEATING CAP. (MBH)		MIN EER/SEER	ELECTRICAL DATA				WEIGHT (LBS)	MANUFACTURER & MODEL NO.	REMARKS	
				EAT (F) DB/WB	TOTAL	SENSIBLE	INPUT		OUTPUT	VOLTAGE	HP	MCA				MOCP
RTU-A1	3000	600	0.75	80/67	93.0	74.4	180	146	12.3/15.7	208/3	3.75	43	50	1440	LENNOX LGT092	1,2,3,4,5,6,7,8,10,12,14
RTU-A2	3000	600	0.75	80/67	93.0	74.4	180	146	12.3/15.7	208/3	3.75	43	50	1440	LENNOX LGT092	1,2,3,4,5,6,7,8,10,12,14
RTU-B	2000	400	0.75	80/67	60.9	48.7	150	121	12.7/17.1	208/3	1.5	28	40	1070	LENNOX LGT060	1,2,3,4,5,6,7,8,12
RTU-C	5000	1000	0.75	80/67	141.0	112.8	240	194	10.8/14.6	208/3	3.75	64	80	1440	LENNOX LGT150	1,2,3,4,5,6,7,8,10,12,14

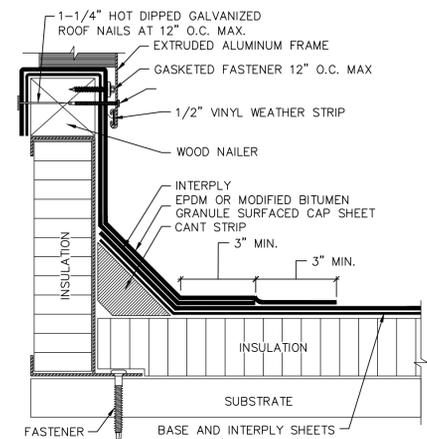
- LISTED CAPACITIES AT 1000 FT ELEVATION, AND 95°F AMBIENT TEMPERATURE.
- FURNISH WITH FACTORY INSTALLED DISCONNECT SWITCH.
- REFRIGERANT TYPE R410A.
- LISTED WEIGHT INCLUDES ROOF CURB.
- PROVIDE NEW PROGRAMMABLE THERMOSTAT.
- PROVIDE WITH HAIL GUARDS.
- PROVIDE WITH HOT GAS REHEAT HUMIDITY CONTROL.
- PROVIDE ECONOMIZER WITH DRY BULB CONTROL AND POWERED RELIEF.
- PROVIDE ECONOMIZER WITH DRY BULB CONTROL AND BAROMETRIC RELIEF.
- PROVIDE DEMAND CONTROL VENTILATION CONTROLS. LISTED MAX OA CFM IS SHALL BE UPPER SETPOINT, WHILE NOT IN ECONOMIZER, WHEN CO2 LEVELS ARE AT 800PPM OR HIGHER.
- PROVIDE WITH UV-C LAMP OR GPS PLASMA AIR PURIFIER.
- PROVIDE SMOKE DETECTORS IN SUPPLY AND RETURN DUCTWORK. DETECTOR IS TO BE PRE-WIRED TO SHUTDOWN THE FAN MOTOR UPON ACTIVATION. COORDINATE ANY REQUIRED INTERLOCKS AND INTERFACE WITH THE BUILDING FIRE ALARM SYSTEM. PROVIDE ALL REQUIRED SERVICE ACCESS TO NEW SMOKE DETECTOR PER CODE.
- CONNECT TO EXISTING ELECTRICAL CONNECTION. FIELD VERIFY THAT CIRCUIT BREAKER AND BRANCH CIRCUIT CONDUCTOR SIZE ARE SUFFICIENT FOR NEW UNIT OR UPGRADE AS REQUIRED.
- PROVIDE VARIABLE FAN SPEED THAT IS AUTOMATICALLY CONTROLLED BY HEATING/COOLING DEMAND.



**WATER SERVICE ENTRANCE DETAIL (1" ENTRANCE)**



**WATER SERVICE ENTRANCE DETAIL (1-1/2" ENTRANCE)**



**ROOFTOP UNIT CURB DETAIL**

**EXHAUST FAN SCHEDULE**

MARK	TYPE	MAKE & MODEL	CFM	E.S.P. (IN. WC.)	MAX SONES	DRIVE	ELEC. CHAR. VOLTAGE	HP	REMARKS
EF-B/C	CEILING	GREENHECK SP-A110	75	0.3	8	DIRECT	120/1	17.6 W	1,2,3,4,5

- LISTED CAPACITIES AT SEA LEVEL.
- PROVIDE WITH FACTORY MOUNTED DISCONNECT SWITCH.
- FAN SHALL BE INTERLOCKED WITH LIGHT SWITCH.
- PROVIDE WITH GRAVITY BACKDRAFT DAMPER.
- PROVIDE WITH 7"Ø ROOF CAP, GREENHECK RCC-7 OR EQUIVALENT, WITH CURB AND INSECT SCREEN.

**WATER HEATER (ELECTRIC)**

MARK	MAKE & MODEL	HTG. INPUT (KW)	RECOVERY @90F (GPH)	TEMP. RISE (F)	STORAGE (GAL)	ELECTRICAL	REMARKS
DWH-B	AO SMITH - EJC6	3	8	90	6	240V	1,2,3,4,5
DWH-C	AO SMITH - EJC6	3	8	90	6	240V	1,2,3,4,5

- PROVIDE DISCONNECT SWITCH.
- PROVIDE WITH HEAT TRAP FITTINGS ON COLD AND HOT WATER PIPING CONNECTIONS.
- FURNISH WITH AMTROL MODEL ST-12 THERMAL EXPANSION TANK, ET-1.
- PROVIDE T&P VALVE.
- SET WATER HEATER OUTLET TEMPERATURE AT 110°F.

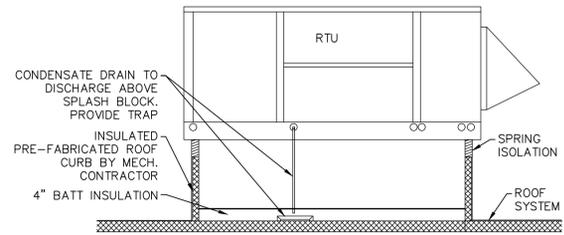
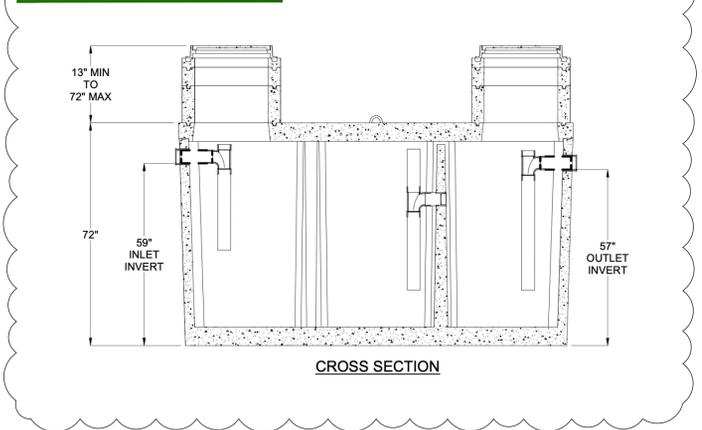
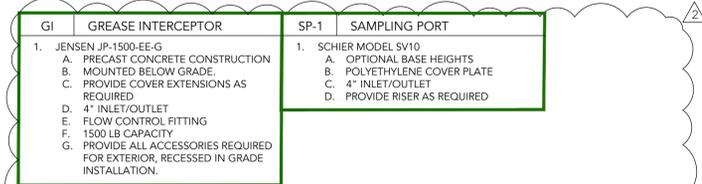
**ELECTRIC UNIT HEATER SCHEDULE**

MARK	MOUNTING	MFR.	MODEL	CFM	CAPACITY (KW)	ELECTRICAL VOLTAGE	AMPS	REMARKS
UH-1	UNIT HEATER	MARKEL	F1F5103N	400	3.3	208/1	15.9	1,2,3

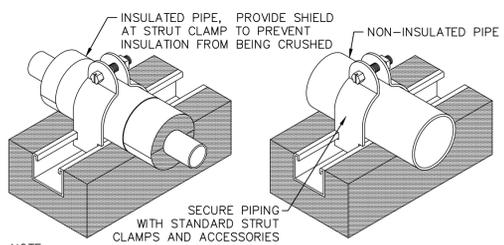
- FURNISH WITH INTEGRAL THERMOSTAT.
- FURNISH WITH FACTORY MOUNTED DISCONNECT SWITCH.
- FURNISH WITH WALL/CEILING BRACKET.

**Ventilation Spreadsheet (2018 IMC Table 403.3)**

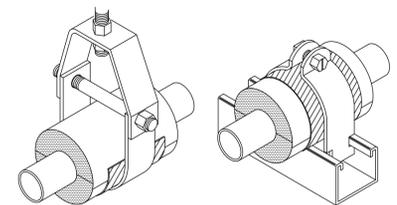
Zone	Room	Use/Classification	Area	People	CFM/Person	CFM/SF	Ventilation Effectiveness	OA
Tenant A	Tenant Space	Dining Rooms	1072	36	7.5	0.18	80%	463
	Tenant Space	Kitchen	700	6	7.5	0.12	80%	129
							Outdoor Air Required	592
							Outdoor Air Provided	2200
Tenant B	Tenant Space	Retail Sales	1249	19	7.5	0.12	80%	290
								Outdoor Air Required
							Outdoor Air Provided	440
Tenant C	Tenant Space	Retail Sales	1793	27	7.5	0.12	80%	417
								Outdoor Air Required
							Outdoor Air Provided	440



**ROOFTOP UNIT DETAIL**



**ROOF PIPE SUPPORT DETAIL**



**PIPE SUPPORT INSULATION DETAILS**

NEW BUILDING FOR  
**SUMMIT ORCHARDS**  
 LEES SUMMIT, MO



No.	Description	Date
<b>Revision Schedule</b>		

- 7-2-25 REVISION
- 11-13-25 REVISION

Project number 2491  
 Date 05.08.2025

**MP200**

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