## GENERAL NOTES

1. PREP AREA COLUMNS TO BE WRAPPED WITH STAINLESS STEEL FROM FLOOR TO CEILING, WHERE APPLICABLE. SEE PANEL DRAWINGS FOR ADDITIONAL DETAILS/REQUIREMENTS.
2. ALL 2'-0" CLEARANCE ABOVE NOTED EXTERIOR COOLER HEIGHT FOR STRUCTURAL STEEL.
3. STEEL C-CHANNEL BUMPERS TO BE INSTALLED IN FRONT AND/OR NEXT TO ALL REFRIGERATED CASES AND HOT CASES. SEE DETAIL 2 THIS SHEET. ISLAND BUMPERS ARE TO HAVE NO GAPS IN THE CENTER.
4. SEE COSTCO INSTALLATION SPECIFICATION FOR PROPER INSTALLATION METHODOLOGY.
5. ALL MECHANICAL AND ELECTRICAL SYSTEMS MUST MEET ALL LOCAL AND NATIONAL CODES.

## SHEET NOTES

(1) EXTERIOR OF POS BOXES TO HAVE C-CHANNEL BUMPERS, CONCRETE AROUND VENT ONLY. SEE ARCHITECTURAL DRAWINGS FOR DETAILS.

(2) INTERIOR AND EXTERIOR OF PRODUCE AND DAIRY COOLERS TO HAVE 3" X 3" ANGLE IRON. SEE ARCHITECTURE DRAWING FOR DETAILS. .

(3) NOT USED - WATER HOLDING TANK. LOCATED ON TOP OF BAKERY COOLER. INSTALL PER OEM SPECS. STRAP TO STRUCTURALLY SOUND LOCATION.

(4) PREP AREA AIR HANDLING UNITS (AHU) MOUNTED ON SUPPORT STEEL LOCATED ON TOP OF COOLER BOX. SEE R5.0 FOR DUCT DETAILS.

(5) MOUNT EVAC SYSTEM ON I-BEAM PLATFORM.

(6) BAKERY PREP TO BE ENCLOSED WITH METAL INSULATED PANELS (MIP). INSTALL STAINLESS STEEL COVE BASE FOR BAKERY FREEZER AND COOLER. SEE ARCHITECTURAL DRAWINGS DETAILS.

(7) PREP AREA ANTHONY WINDOWS TO BE INSTALLED ON LOW HEIGHT MIP WALL, SEE ARCHITECTURAL DRAWINGS FOR DETAILS.

(8) POS & BAKERY FREEZERS: HCR AIR-DOORS MODEL: PCAV, SUPPLIED BY HCR, INSTALLED BY INSULATED PANEL OEM. RC RESPONSIBLE FOR FINAL CONNECTION.

(9) SHOP-IN DAIRY & PRODUCE COOLERS: HCR AIR-CURTAIN, MODEL: HCR AC-CS. SUPPLIED BY HCR, INSTALLED BY INSULATED PANEL OEM. RC RESPONSIBLE FOR FINAL CONNECTION.

(10) RACK OEM TO PROVIDE DUAL TEMP KEY SWITCH TO CHANGE BETWEEN LOW AND MEDIUM TEMP OPERATION. SEE SHEET R7.3 FOR DETAIL.

(11) PUMP SKID: CO2 TO GLYCOL HEAT EXCHANGER (HX), LOCATED ON TOP OF COOLER BOXES. SEE R2.0 AND R5.0 FOR DETAILS.

## ANTHONY PREP WINDOWS

REFRIGERATION INSTALLATION CONTRACTOR TO COORDINATE THE PREP AREA HEADER SUPPORT POST INSTALLATION WITH THE G.C. SEE SHEET R8.0 FOR DETAIL.

[1] 60" HEATED NON-SLIDING PREP WINDOWS. (REFER TO PANEL MANUFACTURER DRAWINGS FOR EXACT LOCATION).

[2] 51" HEATED NON-SLIDING PREP WINDOWS. (REFER TO PANEL MANUFACTURER DRAWINGS FOR EXACT LOCATION).

[3] HEADER OPENING HEIGHT FOR CASES AND WINDOWS IS 8' - 2 1/4".

## DIAMOND PLATE / STAINLESS STEEL LEGEND

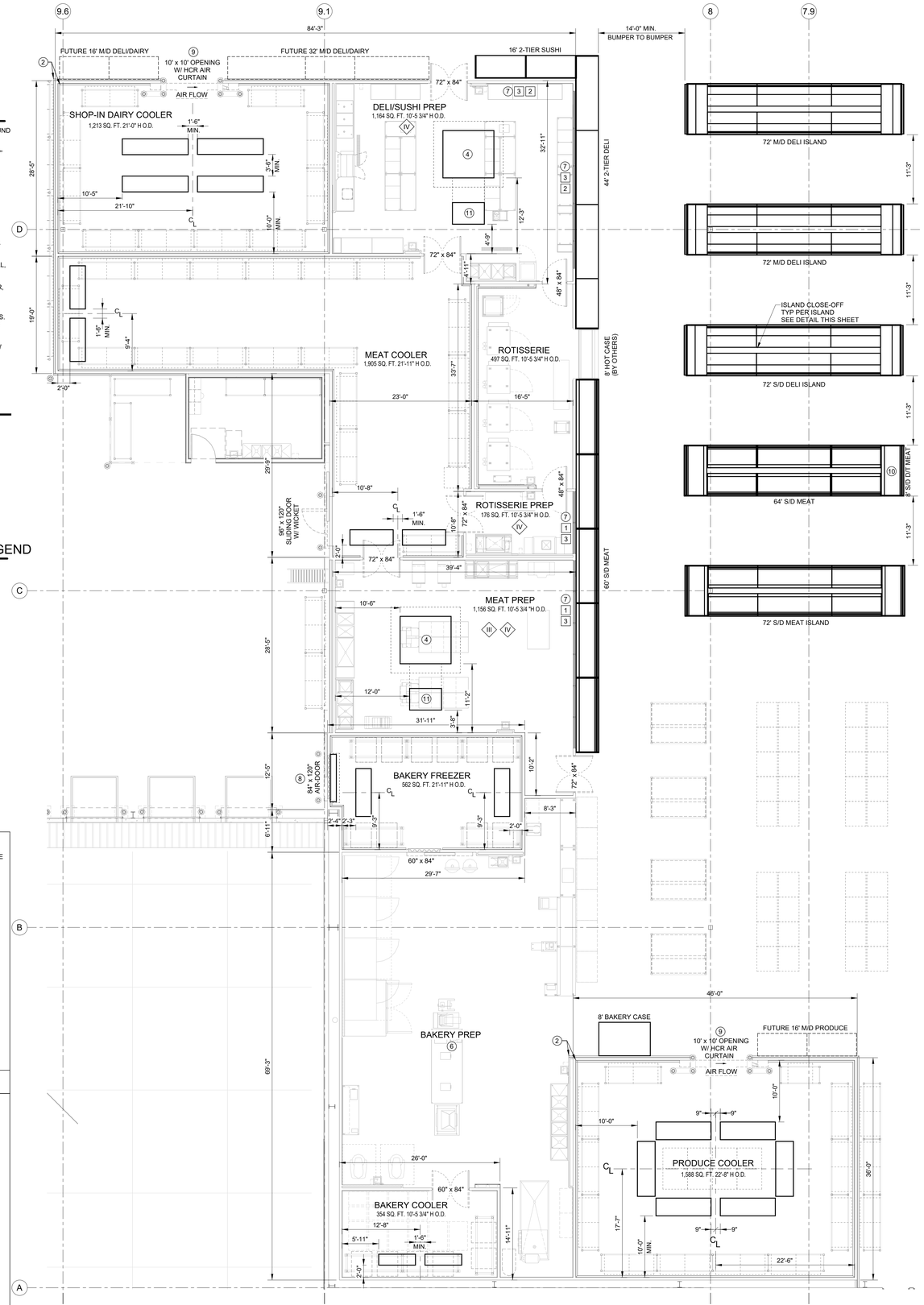
ALL DIAMOND PLATE FOR POINT OF SALES AND PREP AREAS ARE SUPPLIED BY PANEL MANUFACTURER. INSTALLED BY WALK-IN PANEL INSTALLER.

◇I DIAMOND PLATE 4' x LENGTH OF BOX END WALL. SEE PANEL DRAWINGS FOR EXACT LOCATION.

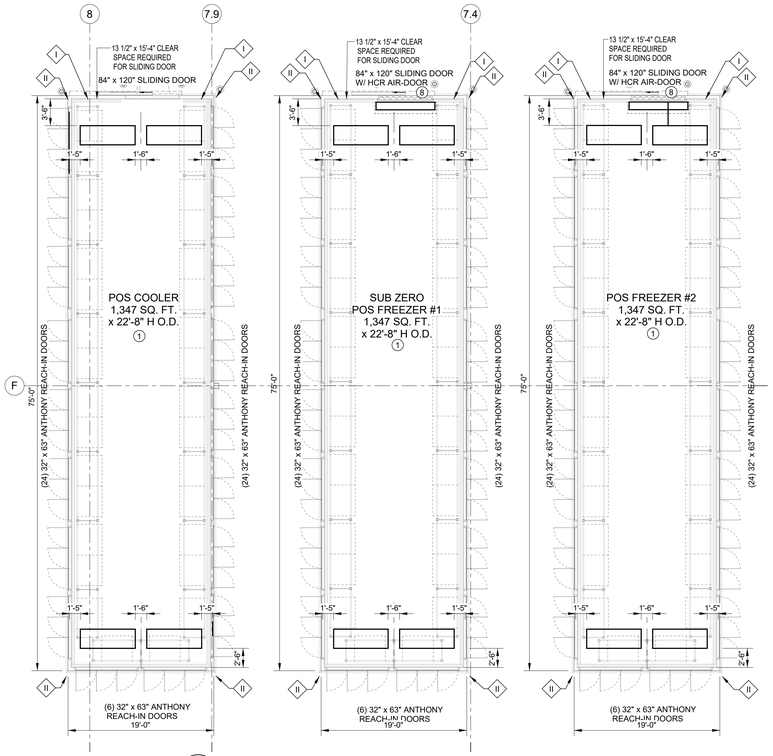
◇II 4" TALL DIAMOND PLATE CORNER GUARD SUPPLIED BY PANEL MANUFACTURER AND FIELD INSTALLED BY PANEL REFRIGERATION CONTRACTOR.

◇III STAINLESS STEEL BEHIND SKEWERS (SEE MEAT MANAGER). FIELD VERIFY SIZES.

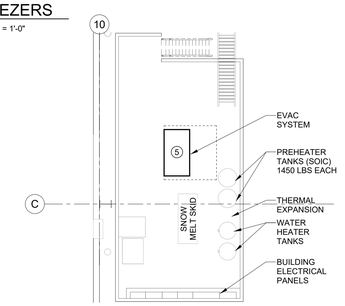
◇IV STAINLESS STEEL PANEL SKIN ON EXPOSED PANELS ON ROTISSERIE / MEAT / DELI PREP BY PANEL MANUFACTURER. FLOOR TO CEILING.



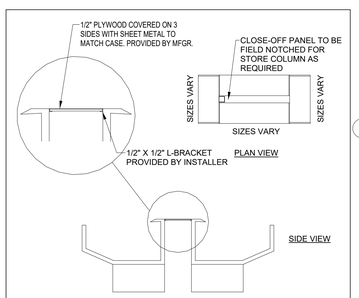

5 R1.0 FRESH LINE FLOOR PLAN
1/8" = 1'-0"



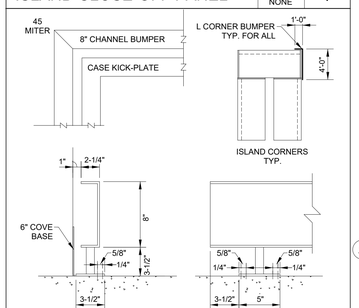

7 R1.0 POS COOLERS & FREEZERS
1/8" = 1'-0"




3 R1.0 RECIEVING AREA MEZZANINE
1/8" = 1'-0"

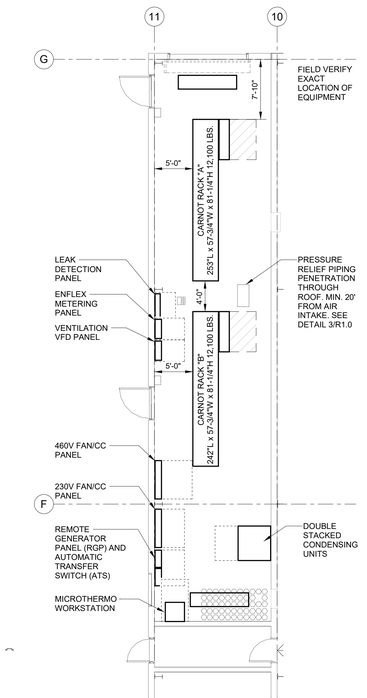



ISLAND CLOSE-OFF PANEL | SCALE NONE | 1

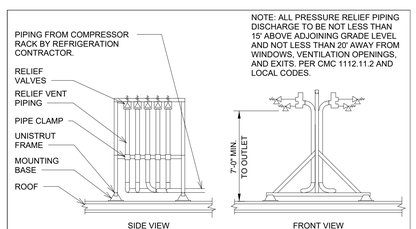



"C" CHANNEL CASE BUMPERS | SCALE NONE | 2

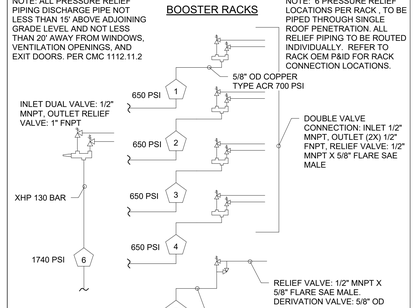
EACH CONTRACTOR IS RESPONSIBLE FOR HAVING A THOROUGH KNOWLEDGE OF ALL DRAWINGS AND SPECIFICATIONS IN THEIR RELATED FIELD. THE FAILURE TO FAMILIARIZE THEMSELVES WITH THIS KNOWLEDGE DOES NOT RELIEVE THE CONTRACTOR OF RESPONSIBILITY TO PERFORM THE WORK AND ENSURE THE EQUIPMENT OPERATES PROPERLY. ADDITIONAL COMPENSATION SHALL NOT BE PERMITTED DUE TO CONDITIONS RESULTING FROM FAILURE TO FAMILIARIZE WORKERS WITH THIS KNOWLEDGE. REFRIGERATION CONTRACTOR TO ADHERE TO ALL EPA GUIDELINES.




6 R1.0 MECHANICAL ROOM
1/8" = 1'-0"




RACK PRESSURE RELIEF PIPING FRAME DETAIL | SCALE NONE | 3




RACK PRESSURE RELIEF PIPING | SCALE NONE | 4

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REFRIGERATION
COSTCO WHOLESALE
**LEE'S SUMMIT, MO**

12.23.2025

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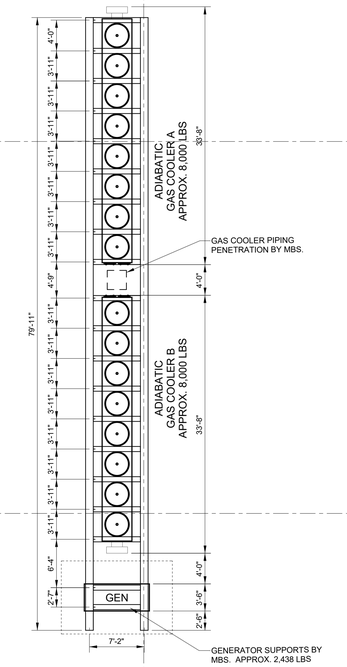
12.22.2025
DESIGNED BY | K. WHEELER
DRAWN BY | K. WHEELER
REVISIONS

REFRIGERATION FIXTURE PLAN

R1.0




1 / R1.1 REFRIGERATION ROOFTOP PLAN
1/8" = 1'-0"

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REFRIGERATION
COSTCO WHOLESALE
# LEE'S SUMMIT, MO

STATE OF MISSOURI
NICHOLAS P. [illegible]
NUMBER PE-2016017218
PROFESSIONAL ENGINEER

12.23.2025

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12.22.2025
DESIGNED BY | K. WHEELER
DRAWN BY | K. WHEELER
REVISIONS

REFRIGERATION
ROOFTOP PLAN

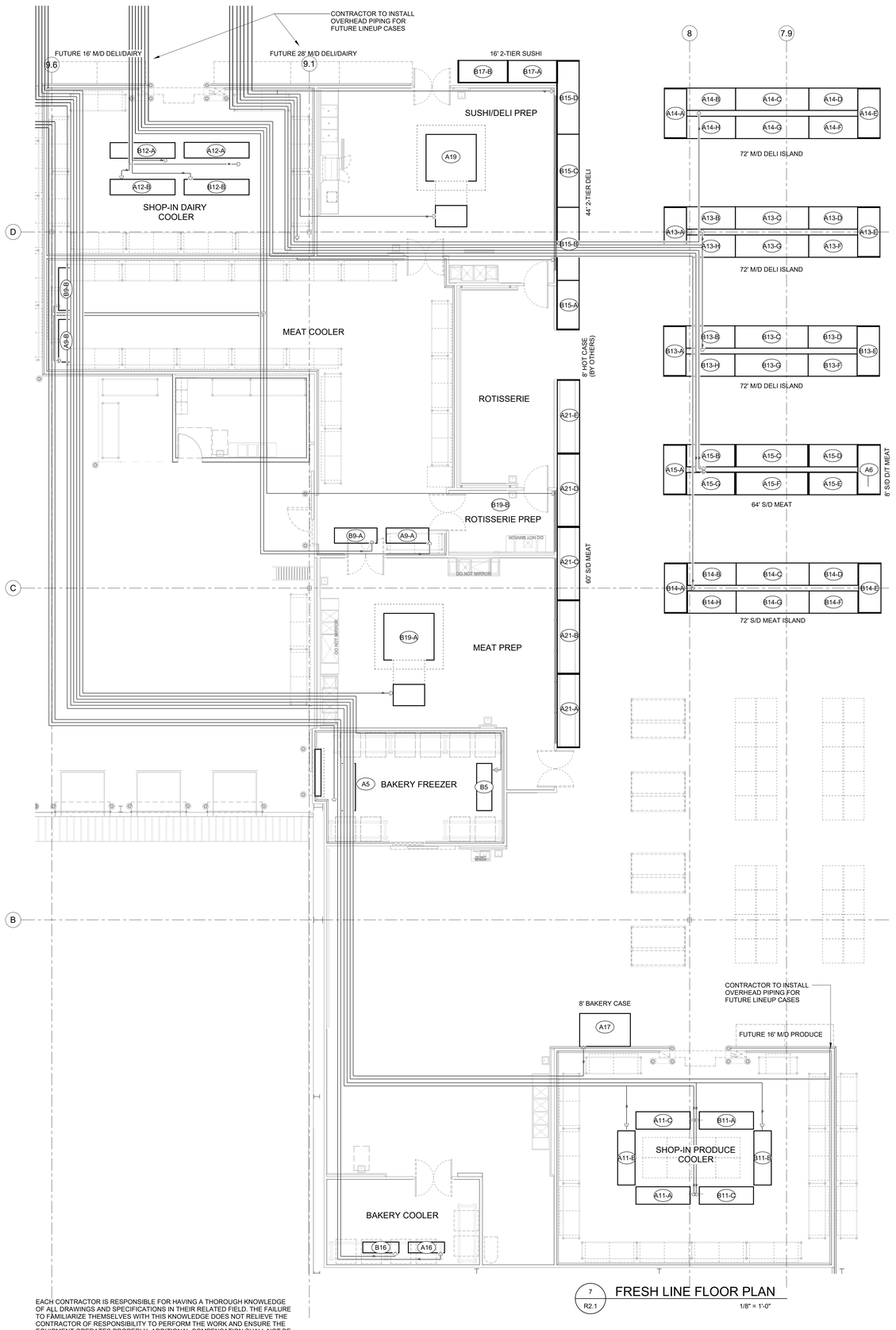
R1.1

**COSTCO WAREHOUSE - LEE'S SUMMIT, MO** | **2021 ASHRAE DATA:** 0.4% DB: 95.5°F / ANNUAL MEAN DB: 99.6°F / 5yr MAX DB: 102.1°F / ALTITUDE: 997' | **DESIGN INFO:** DRY BULB: 100°F / WET BULB: 80°F

## AL SYSTEM GROUP / R744 REFRIGERANT / -27 °F SUCTION / +35°F LIQUID

### SYSTEM OVERVIEW

| SYS. | SYSTEM DESCRIPTION | MANUFACTURER | MODEL | # | SIF | SZF | UNI / SEP | UNI-SPY | BTU PER | TOTAL BTU LOAD | FUTURE BTU LOAD | EVAP TEMP | DESIGN AIR TEMP | SYS. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| A1 | 1/4 POS FREEZER #1 | REFRIUS | EJR-08907-B-25P | | | | 1,347 | 1 | | 62,000 | | -25 | -15 | A1 |
| A2 | 1/4 POS FREEZER #2 | REFRIUS | EJR-08907-B-25P | | | | 1,347 | 1 | | 62,000 | | -25 | -15 | A2 |
| A3 | 1/4 POS FREEZER #2 | REFRIUS | EJR-08907-B-25P | | | | 1,347 | 1 | | 55,000 | | -15 | -5 | A3 |
| A4 | 1/2 POS FREEZER #2 | REFRIUS | EJR-08907-B-25P | | | | 1,347 | 1 | | 55,000 | | -15 | -5 | A4 |
| A5 | 1/2 BAKERY FREEZER | REFRIUS | EMR-04007-Z | | | | 562 | 1 | | 35,000 | | -15 | -5 | A5 |
| A6 | 53'I ENDCAP | ARMSG | 01G000167 | 1 | | | 8 | | 310 | 2,480 | | -15 | -11 | A6 |
| A7 | SPARE | | | | | | | | | | | | | A7 |
| A8 | SPARE | | | | | | | | | | | | | A8 |
| | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |

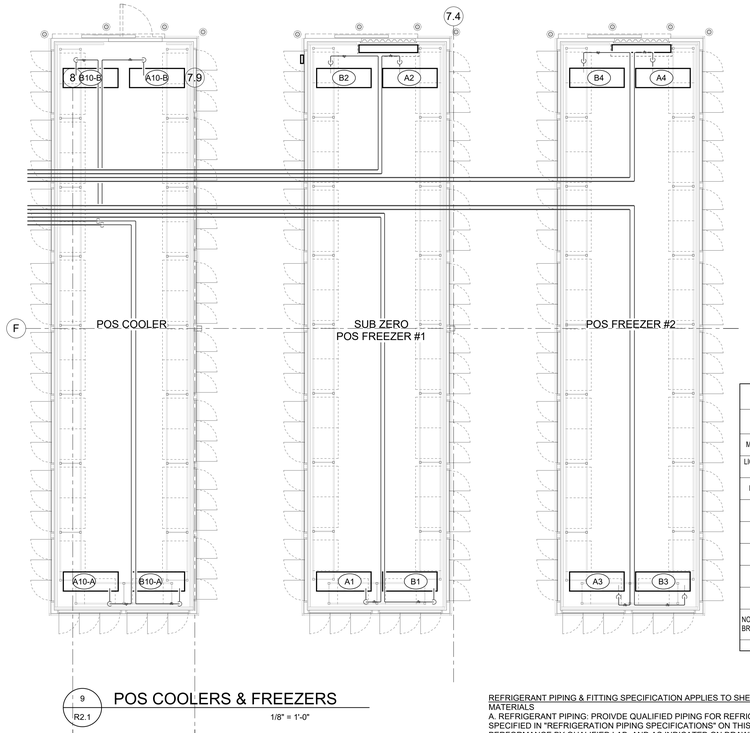



7 R2.1 FRESH LINE FLOOR PLAN

1/8" = 1'-0"

EACH CONTRACTOR IS RESPONSIBLE FOR HAVING A THOROUGH KNOWLEDGE OF ALL DRAWINGS AND SPECIFICATIONS IN THEIR RELATED FIELD. THE FAILURE TO FAMILIARIZE THEMSELVES WITH THIS KNOWLEDGE DOES NOT RELIEVE THE CONTRACTOR OF RESPONSIBILITY TO PERFORM THE WORK AND ENSURE THE EQUIPMENT OPERATES PROPERLY. ADDITIONAL COMPENSATION SHALL NOT BE PERMITTED DUE TO CONDITIONS RESULTING FROM FAILURE TO FAMILIARIZE WORKERS WITH THIS KNOWLEDGE. REFRIGERATION CONTRACTOR TO ADHERE TO ALL EPA GUIDELINES.






9 R2.1 POS COOLERS & FREEZERS

1/8" = 1'-0"

REFRIGERANT PIPE LABELING

REFRIGERANT PIPE LABELING TO BE IN ACCORDANCE WITH ANSI / ASME A13.1

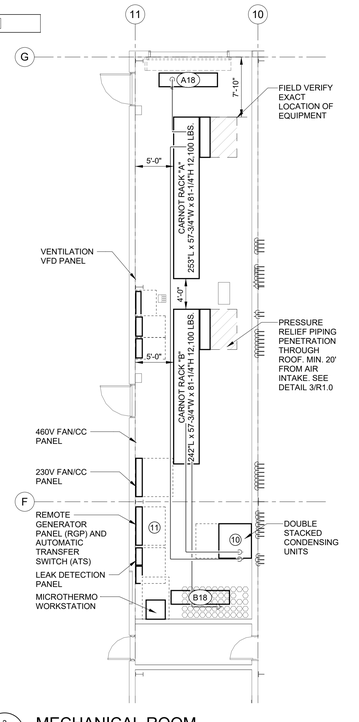
- ALL REFRIGERANT PIPING TO USE WHITE LABELS WITH BLACK LETTERING
- PLACEMENT OF LABEL IS TO BE BELOW THE HORIZONTAL CENTERLINE OF THE PIPE FOR VISIBILITY.
- FLOW DIRECTION TO BE LABELED USING AN ARROW IN DIRECTION OF FLOW.
- FOR PIPES WITH O.D. (INCLUDING INSULATION) 0.7" TO 1.3"
  - MARKER LENGTH: 8"
  - LEGEND HEIGHT: 0.5"
- FOR PIPES WITH O.D. (INCLUDING INSULATION) 1.4" TO 2.4"
  - MAKER LENGTH: 8"
  - LEGEND HEIGHT: 0.7"
- FOR PIPIES WITH O.D. (INCLUDING INSULATION) 2.5" TO 6.7"
  - MARKER LENGTH: 12"
  - LEGEND HEIGHT: 1.3"

EXAMPLES:

REFRIGERANT SUCTION PIPES

REFRIGERANT LIQUID PIPES

REFRIGERANT DISCHARGE PIPES




3 R2.1 MECHANICAL ROOM

1/8" = 1'-0"

## GENERAL NOTES

1. REFER TO COSTCO PIPING INSTALLATION SPECIFICATIONS FOR PROPER INSTALLATION OF ALL PIPING.
2. PIPING INSTALLATION MUST COMPLY WITH ALL LOCAL AND NATIONAL CODES.
3. A SINGLE LINE REPRESENTS BOTH LIQUID AND SUCTION PIPING FOR EACH SYSTEM. LINE SPACING ACCOUNTS FOR BOTH PIPE RUNS WITH INSULATION AND SADDLES.
4. SEE PIPE SIZING ON R2.0 LEGEND.
5. CASE/ COIL OEM TO CONFIRM, RACK OEM, METHOD OF HG DEFROST BEFORE ORDERING EQUIPMENT.
6. BALL VALVES WITH INTEGRAL PRESSURE RELIEF TO BE INSTALLED AT COILS ON ALL MULTI-CIRCUIT SYSTEMS. INSTALL SPORLAN EBV(T)-PR (OR EQUIVALENT) ON BOTH LIQUID AND SUCTION SIDE OF COILS.
7. BALL VALVES WITH INTEGRAL PRESSURE RELIEF TO BE FACTORY INSTALLED IN EACH CASE OF MULTI-CASE SYSTEMS.

## LEGEND

- (#) REFRIGERATION SYSTEM
- OVERHEAD DX LINE
- (#) PIPING RISER/ DROP
- UNIT CONNECTION
- (#) LINE SIZE CALLOUT
- BALL VALVE W/ INTEGRAL PRESSURE RELIEF

## REFRIGERATION PIPING SPECIFICATIONS

| PIPING SECTION | MAX OPERATING PRESSURE PSI (BAR) | MAX OPERATING TEMP F (C) | PIPE MATERIAL |
|---|---|---|---|
| MT DISCHARGE TO HPV INLET | 1740 (120) | +320 (+160) | 130 BAR RATED TUBES MUELLER XHP |
| LIQUID/ VAPOR SEPARATOR TO EEV | 655 (45) | +51 (+10.5) | 700 PSI STREAMLINE RATED TYPE "K" |
| LIQUID/ VAPOR SEPARATOR | 655 (45) | +51 (+10.5) | |
| MTSUCTION | 655 (45) | +51 (+10.5) | |
| MT LIQUID | 655 (45) | +51 (+10.5) | |
| LT SUCTION | 435 (30) | +20 (-6.6) | |
| LT LIQUID | 655 (45) | +51 (+10.5) | |
| INTERCOOLER | 655 (45) | +51 (+10.5) | |

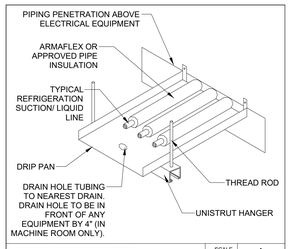
NOTE: CONNECTION OF XHP COPPER WITH STAINLESS STEEL MUST BE IN ACCORDANCE WITH MANUFACTURER SPECIFICATION. BRAZETECH 5800, 3876 OR 3076 SILVER BRAZING FILLER W/ BRAZETECH PASTE FLUX

REFRIGERANT PIPING & FITTING SPECIFICATION APPLIES TO SHEETS R2.1 AND R2.2

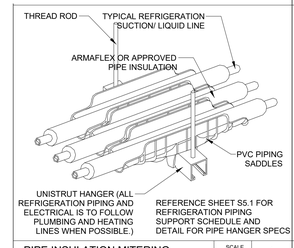
MATERIALS

A. REFRIGERANT PIPING: PROIVDE QUALIFIED PIPING FOR REFRIGERATION SYSTEMS AS SPECIFIED IN "REFRIGERATION PIPING SPECIFICATIONS" ON THIS SHEET, LISTED BASED ON PERFORMANCE BY QUALIFIED LAB, AND AS INDICATED ON DRAWINGS & SPECIFICATIONS.

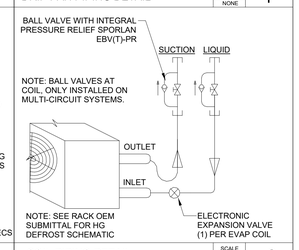
1. COPPER TUBING AND FITTINGS: ASTM B280, TYPE ACR, HARD DRAWN TEMPER TUBING SHALL BE:
   a. FACTORY CLEANED, PURGED WITH NITROGEN, ENDS PLUGGED TO PROTECT CLEANLINESS PRIOR TO SHIPPING AND READY FOR INSTALLATION.
   b. TUBE MUST BE QUALIFIED FOR PRESSURE HANDLING BY ONGOING TESTING AS DEFINED IN UL207, MEETING EITHER:
      - BURST OF FIVE-TIMES OPERATING PRESSURE
      - BURST OF THREE-TIMES OPERATING PRESSURE AND FATIGUE TESTING.
      - TUBE SHALL BE MARKED WITH THIRD-PARTY CERTIFICATION TESTING AGENCY'S LOGO OR TRADEMARK, ALONG WITH MAX OPERATING PRESSURE
2. COPPER ALLOY TUBING AND FITTINGS: ASTM B1018 SHALL BE:
   a. FACTORY CLEANED, PURGED WITH NITROGEN, ENDS PLUGGED TO PROTECT CLEANLINESS PRIOR TO SHIPPING AND READY FOR INSTALLATION.
   b. TUBE MUST BE QUALIFIED FOR PRESSURE HANDLING BY ONGOING TESTING AS DEFINED IN UL207, MEETING EITHER:
      - BURST OF FIVE-TIMES OPERATING PRESSURE
      - BURST OF THREE-TIMES OPERATING PRESSURE AND FATIGUE TESTING.
      - TUBE SHALL BE MARKED WITH THIRD-PARTY CERTIFICATION TESTING AGENCY'S LOGO OR TRADEMARK, ALONG WITH MAX OPERATING PRESSURE



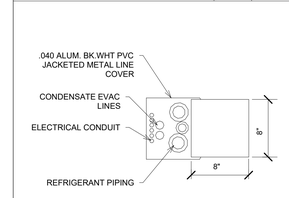

DRIP PAN PIPING DETAIL — SCALE NONE — 1



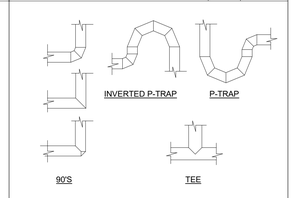

PIPE INSULATION MITERING — SCALE NONE — 4




COIL PIPING DETAIL — SCALE NONE — 2




FALSE COLUMN PIPE CHASE — SCALE NONE — 5

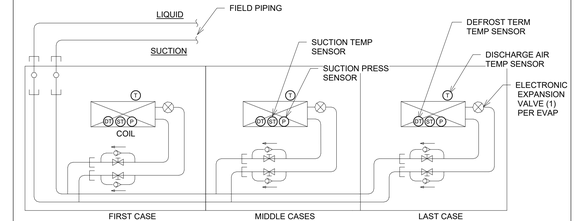



ALL INSULATION AROUND FITTINGS TO BE MITERED (i.e. 90's, Tees, P-traps, etc..) CONSULT MANUFACTURER DATA FOR PROPER MITERING SPECS

PIPE INSULATION MITERING — SCALE NONE — 3

NOTE: BALL VALVES W/ INTEGRAL PRESSURE RELIEF SPORLAN EBV(T)-PR, 1 PER CASE. VALVE MUST BE INSTALLED W/ RELIEF AWAY FROM COIL

NOTE: SEE RACK OEM SUBMITTAL FOR HG DEFROST SCHEMATIC




CO2 CASE LINE-UP PIPING DETAIL — SCALE NONE — 6

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REFRIGERATION
COSTCO WHOLESALE
**LEE'S SUMMIT, MO**

12.22.2025

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12.22.2025
DESIGNED BY | K. WHEELER
DRAWN BY | K. WHEELER
REVISIONS

REFRIGERATION DX SUCTION & LIQUID LINES

R2.1

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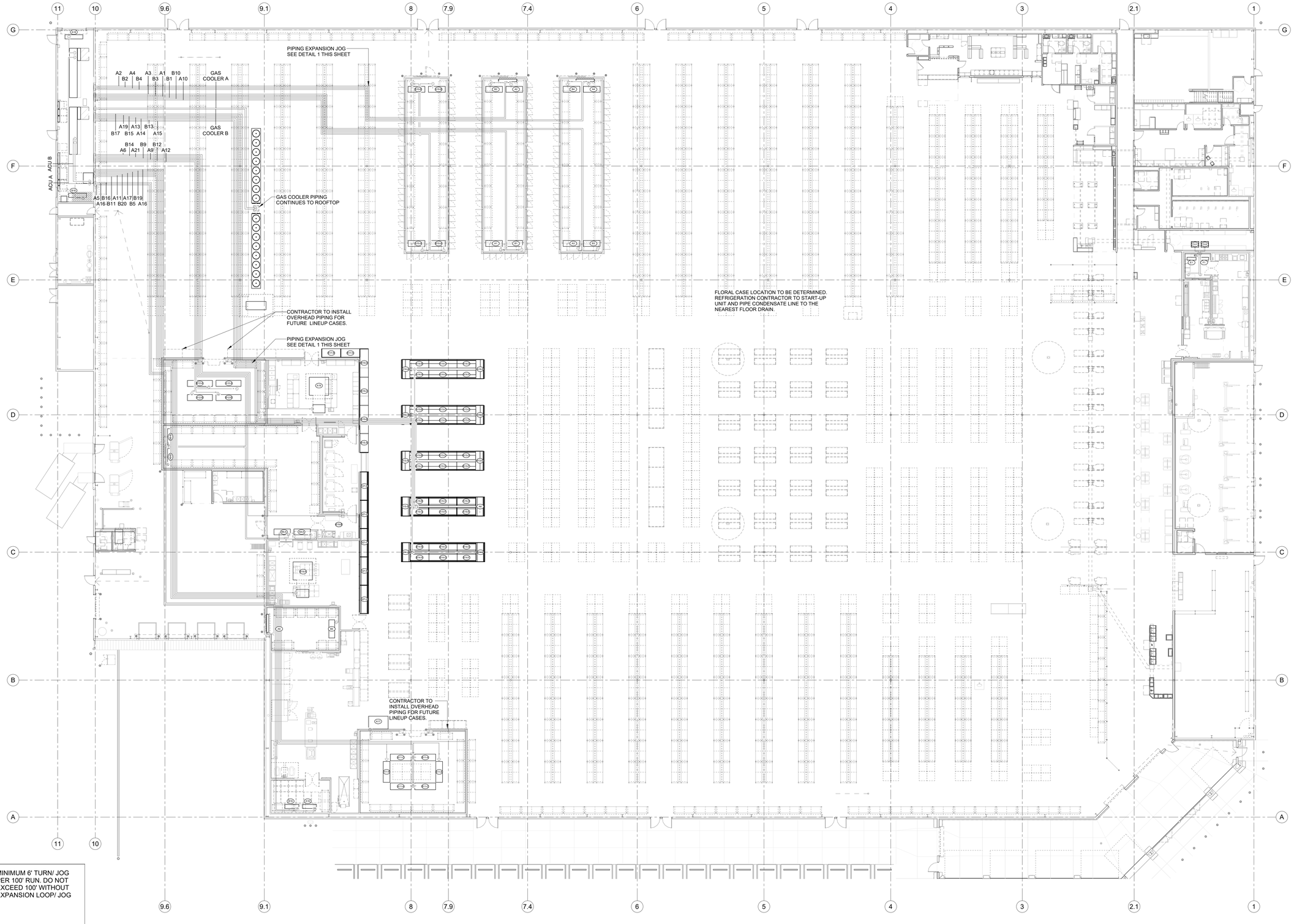
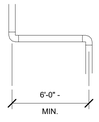



MINIMUM 6' TURN/ JOG PER 100' RUN. DO NOT EXCEED 100' WITHOUT EXPANSION LOOP/ JOG




TYP. EXPANSION PIPING DETAIL | SCALE NTS | 1

EACH CONTRACTOR IS RESPONSIBLE FOR HAVING A THOROUGH KNOWLEDGE OF ALL DRAWINGS AND SPECIFICATIONS IN THEIR RELATED FIELD. THE FAILURE TO FAMILIARIZE THEMSELVES WITH THIS KNOWLEDGE DOES NOT RELIEVE THE CONTRACTOR OF RESPONSIBILITY TO PERFORM THE WORK AND ENSURE THE EQUIPMENT OPERATES PROPERLY. ADDITIONAL COMPENSATION SHALL NOT BE PERMITTED DUE TO CONDITIONS RESULTING FROM FAILURE TO FAMILIARIZE WORKERS WITH THIS KNOWLEDGE. REFRIGERATION CONTRACTOR TO ADHERE TO ALL EPA GUIDELINES.

REFRIGERATION
COSTCO WHOLESALE
# LEE'S SUMMIT, MO

STATE OF MISSOURI
NICHOLAS P. [illegible]
NUMBER PE-2010017218
PROFESSIONAL ENGINEER

12.23.2025

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PERMIT

12.22.2025
DESIGNED BY | K. WHEELER
DRAWN BY | K. WHEELER
REVISIONS

REFRIGERATION
OVERALL PIPING PLAN

R2.2

## GENERAL NOTES

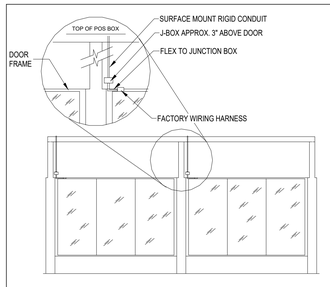
1. REFER TO COSTCO INSTALLATION SPECIFICATIONS FOR PROPER INSTALLATION OF ALL ELECTRICAL WORK ON THIS SHEETS.
2. ALL JUNCTION BOXES FOR REACH-IN DOOR LIGHTS TO BE LOCATED ON MULLIONS. SEE DETAIL THIS SHEET.
3. SEE SHEET R2.0 FOR MISCELLANEOUS & CONTROLS NOTE LEGENDS ('M' & 'C').
4. MOUNT CONDENSER CONTROL/ POWER PANELS FACING OUTSIDE OF PLATFORM.
5. COSTCO I.T. TO RUN CAT5 FROM MT WORKSTATION TO MANAGERS OFFICE.
6. SEE RE3.0 FOR ELECTRICAL POWER PLAN, CIRCUITS, AND WIRE SIZES
7. ALL ELECTRICAL SYSTEMS MUST MEET ALL LOCAL AND NATIONAL CODES.
8. NO MOTION SENSORS ON ANY LIGHTS.

## SHEET NOTES

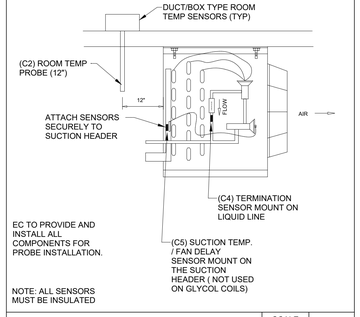
1. EVAC SYSTEM W/ RISER BEAMS (REFRIGERATION ELECTRICAL CONTRACTOR TO CONNECT TO MT ALARM BOARD. #30 COMMON, #31 CRITICAL ALARM, #32 NON-CRITICAL ALARM)
2. AHU CONTROL PANEL FOR CONTROL OF FANS & REHEAT. AHU OEM TO COORDINATE PURCHASE AND SHIPMENT WITH MICRO-THERMO. SEE R5.0 FOR CONTROL DETAILS.
3. MOUNT ALARM AND (2) STROBE LIGHTS ON SALES SIDE OF MEAT PREP WALL
4. RC TO MOUNT RH SENSOR IN MEAT & DELI PREP AREAS FROM AHU HG SOLENOID CONTROL.
5. AUTOMATIC TRANSFER SWITCH (ATS) AND REMOTE GENERATOR PANEL (RGP) FOR STANDBY POWER OF RECEIVER AUXILIARY CONDENSING UNITS (ACU), RACK CONTROLS, FAN PANEL CONTROLS, AND MT WORKSTATION. SEE RE3.2 FOR PANEL SCHEDULE.
6. STANDBY GENERATOR TO PROVIDE BACKUP POWER FOR REMOTE GENERATOR PANEL (RGP). INSTALL PER OEM SPECS.
7. CASE OEM TO PROVIDE: CASE CONTROLLER, ELECTRONIC EXPANSION VALVE, SUCTION TEMP, PRESSURE, DISCHARGE AIR TEMP & DEFROST TERMINATION SENSORS FOR EACH CASE.
8. AUXILIARY CONDENSING UNIT RUN ON HIGH PRESSURE SWITCH. FIELD WIRE RELAY CONTACTS FROM RACK PANEL.
9. NOT USED - SELF CONTAINED BAKERY WATER CHILLER. CONTROLS PRE-INSTALLED ON UNIT, SET-UP BY RC IN COORDINATION W/ NEELANDS.
10. RACK OEM TO PROVIDE LIQUID LINE SOLENOIDS AT RACK FOR DEFROST. RUN (3) CONDUCTOR #16 AWG SHIELDED (BELDEN OR EQUIVALENT) FROM FAN PANEL TO REFRIGERATION RACK CONTROL PANEL PER RACK LIQUID LINE SOLENOID

## ELECTRICAL LEGEND

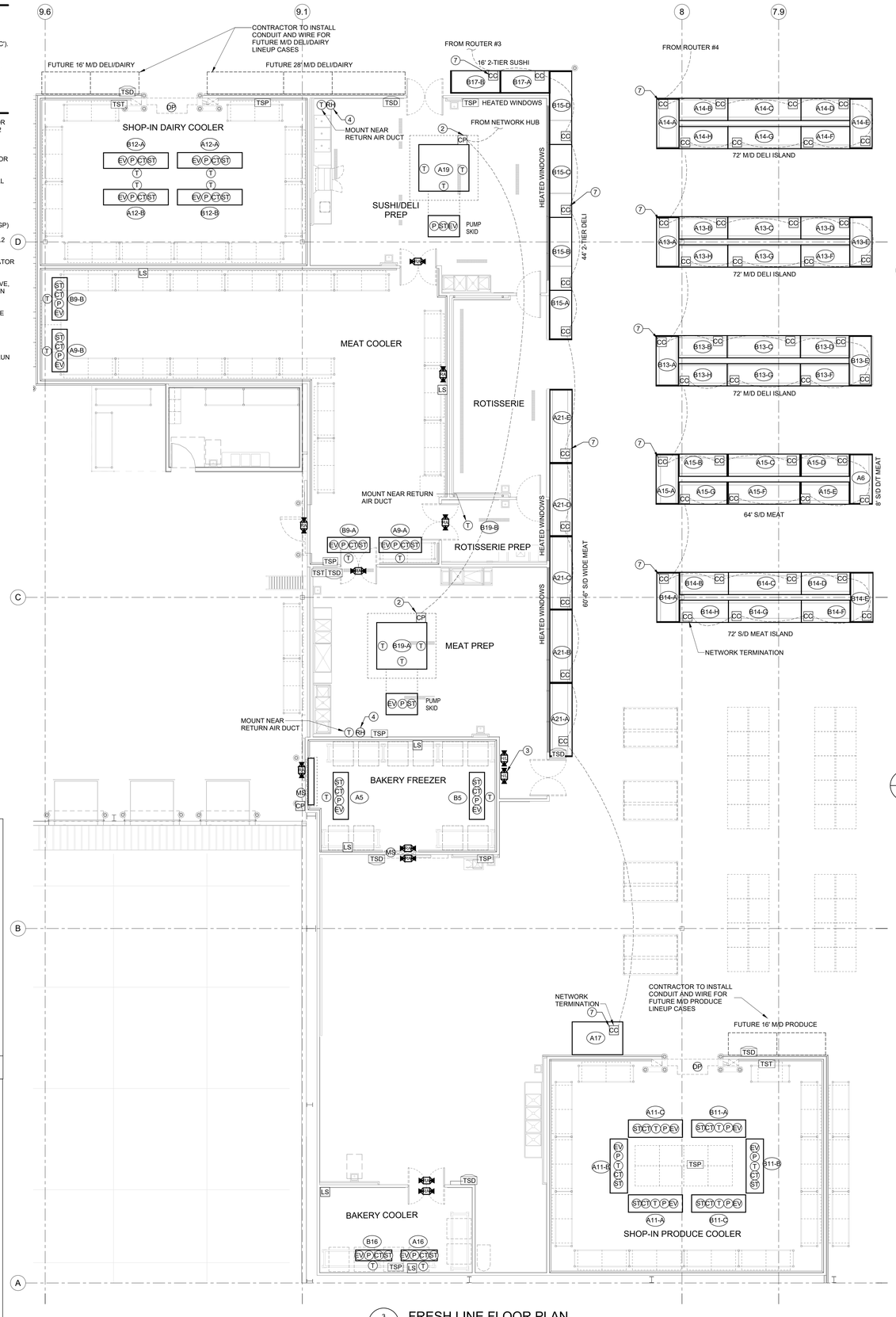
- xR — ELECTRICAL CALL-OUT - SEE REFRIGERATION SCHEDULE R2.0 MISCELLANEOUS ELECTRICAL FOR DISCRIPTION
- x# — REFRIGERATION SYSTEM NUMBER - SEE REFRIGERATION SCHEDULE FOR REFERENCE
- ELECTRICAL CONNECTION POINT
- CS — CURRENT SENSING PROOF 2) CONDUCTOR BELDEN #8761 TO ASSIGNED INPUT
- CT — COIL TEMPERATURE SENSOR SEE R2.0 MISC. CONTROLS 'C4'
- DP — DIFFERENTIAL PRESSURE SWITCH/ PROOF 'C14'
- J — JUNCTION BOX
- MS — MAGNETIC SWITCH 'C6'
- T — TEMPERATURE SENSOR 'C2'
- ST — SUCTION LINE TEMPERATURE SENSOR 'C5'
- P — SUCTION LINE PRESSURE TRANSDUCER 'C1'
- RH — RELATIVE HUMIDITY SENSOR
- EV — ELECTRONIC EXPANSION VALVE 'C9'
- GFI — CONVENIENCE OUTLET WITH GROUND FAULT INTERRUPTER
- TSD — THERMO-SIMPLE DISPLAY UNIT CONNECT TO TRANSFORMER ADN PROBE
- TST — THERMO-SIMPLE TRANSFORMER 120V-24V FIELD INSTALL ON TOP OF WALK-INS
- TSP — THERMO-SIMPLE PROBE MOUNT ADJACENT TO MT PROBES IN RETURN AIR
- CP — CONTROL PANEL
- CC — MICRO-THERMO CASE CONTROLLER
- LS — REFRIGERANT LEAK DETECTOR 'C8'
- RA — REFRIGERANT LEAK ALARM & STROBE
- HA — HIGH/LOW PRIORITY ALARM AND STROBE PROVIDED BY MICRO-THERMO



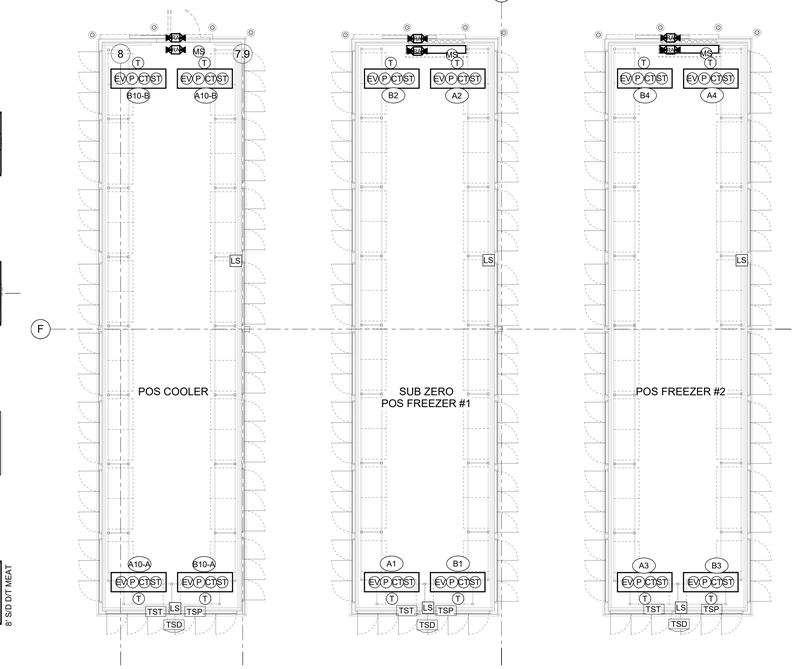

POS J-BOX MOUNTING | SCALE: NONE | 1



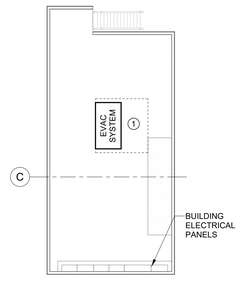

COIL TEMP SENSOR LOCATIONS | SCALE: NONE | 2



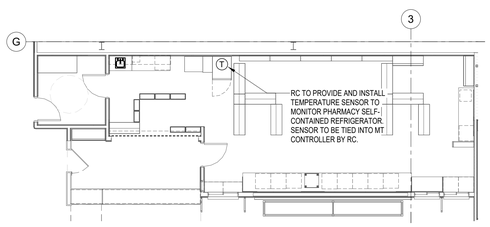

3 R3.0 FRESH LINE FLOOR PLAN
1/8" = 1'-0"



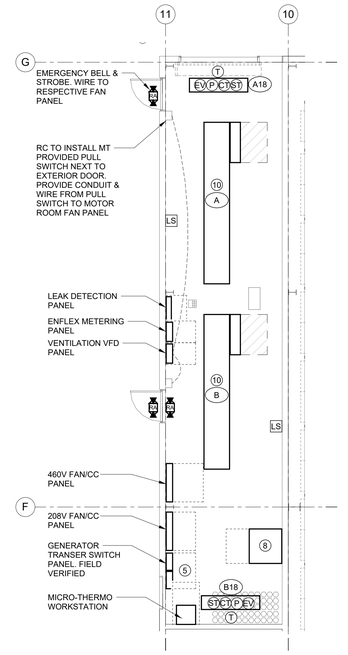

5 R3.0 POS COOLERS & FREEZERS
1/8" = 1'-0"



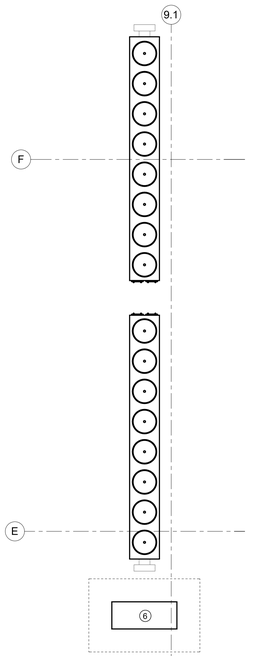

1 R3.0 RECIEVING AREA MEZZANINE
1/8" = 1'-0"




6 R3.0 PHARMACY PLAN
1/8" = 1'-0"




4 R3.0 MECHANICAL ROOM
1/8" = 1'-0"



7 R3.0 REFRIGERATION ROOFTOP EQUIPMENT
1/8" = 1'-0"

EACH CONTRACTOR IS RESPONSIBLE FOR HAVING A THOROUGH KNOWLEDGE OF ALL DRAWINGS AND SPECIFICATIONS IN THEIR RELATED FIELD. THE FAILURE TO FAMILIARIZE THEMSELVES WITH THIS KNOWLEDGE DOES NOT RELIEVE THE CONTRACTOR OF RESPONSIBILITY TO PERFORM THE WORK AND ENSURE THE EQUIPMENT OPERATES PROPERLY. ADDITIONAL COMPENSATION SHALL NOT BE PERMITTED DUE TO CONDITIONS RESULTING FROM FAILURE TO FAMILIARIZE WORKERS WITH THIS KNOWLEDGE. REFRIGERATION CONTRACTOR TO ADHERE TO ALL EPA GUIDELINES.


Cushing Terrell
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REFRIGERATION
COSTCO WHOLESALE
**LEE'S SUMMIT, MO**

STATE OF MISSOURI
NICHOLAS P. LAMPERT
NUMBER PE-2016017218
PROFESSIONAL ENGINEER

12.23.2025


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PERMIT

12.22.2025
DESIGNED BY | K. WHEELER
DRAWN BY | K. WHEELER
REVISIONS

REFRIGERATION CONTROLS PLAN

**R3.0**

## GENERAL NOTES

1. REFER TO COSTCO INSTALLATION SPECIFICATIONS FOR PROPER INSTALL OF ALL PLUMBING EQUIPMENT ON THIS SHEET.
2. ALL PLUMBING WORK ON THIS SHEET TO COMPLY WITH INTERNATIONAL AND LOCAL PLUMBING CODES
3. SEE ARCHITECTURAL AND PLUMBING SHEETS FOR EXACT LOCATIONS OF DRAINS.
4. ALL WATER CONNECTIONS, VALVES AND PIPING PROVIDED AND INSTALLED BY GENERAL (PLUMBING) CONTRACTOR.
5. ALL ABOVE GRADE CONDENSATE LINES PROVIDED AND INSTALLED BY REFRIGERATION CONTRACTOR.

## SHEET NOTES

(1) ADD INSULATED P-TRAP ONCE DRAIN LINE IS OUTSIDE OF OR HAS LEFT THE FREEZER/COOLER.

(2) DRIP PANS FOR REFRIGERATION RACKS SUPPLIED BY RACK OEM, INSTALLED BY RC.

(3) RUN CONDENSATE DRAINS ALONG WALL TO NEAREST UNDERSINK DRAIN

(4) NOT USED

(5) ALL EVAC RISERS FROM CASES TO BE RUN INSIDE OF ADJACENT COOLER, THROUGH ROOF, AND CONNECT TO EVAC MAIN LINE.

(6) INSULATE PRODUCE & DAIRY COOLER CONDENSATE PIPE WITH 1/2" INSULATION

(7) STANDYBY GENERATOR, NATURAL GAS CONSUMPTION @ 100% LOADED (805 SCFH)

## PLUMBING SCHEDULE

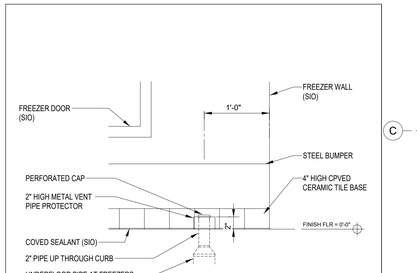
P4 VENT & DRAIN AT POS FREEZER
SEE ARCHITECTURAL DRAWINGS AND MECHANICAL SHEETS FOR DETAILS.

P5 EVAC BUFFER BOX LOCATIONS.
SEE DETAIL 3, THIS SHEET. SEE SHEET R4.1 FOR ADDITIONAL INFO.

PVC PIPE WRAP.
ALL PREP AREAS WITH CONDENSATE DRAIN LINES TO RECEIVE PROTECTIVE WRAP OR OTHER COSTCO APPROVED WRAP. MOUNTED WITH STAINLESS STEEL HANGERS/UNISTRUTS/CLAMPS.

## PLUMBING LEGEND

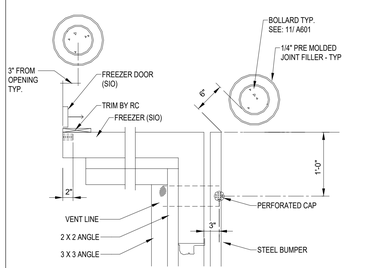
- PLUMBING CALL-OUT
- PLUMBING STUB-UP
- COIL/CASE CONNECTION
- A 1 1/8" COPPER CONDENSATE LINE
- EVAC RISER LOCATION




NOTE: SEE ADDITIONAL DETAILS ON A501.5

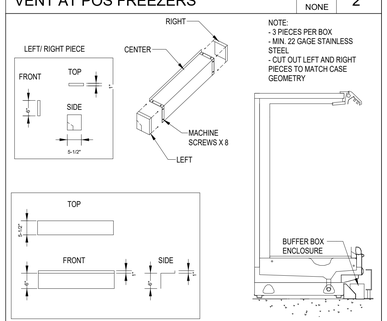
NOTE: CONDENSATE FOR POS FREEZERS TO BE ROUTED THROUGH EVAC SYSTEM.

FREEZERS VENT | SCALE NONE | 1



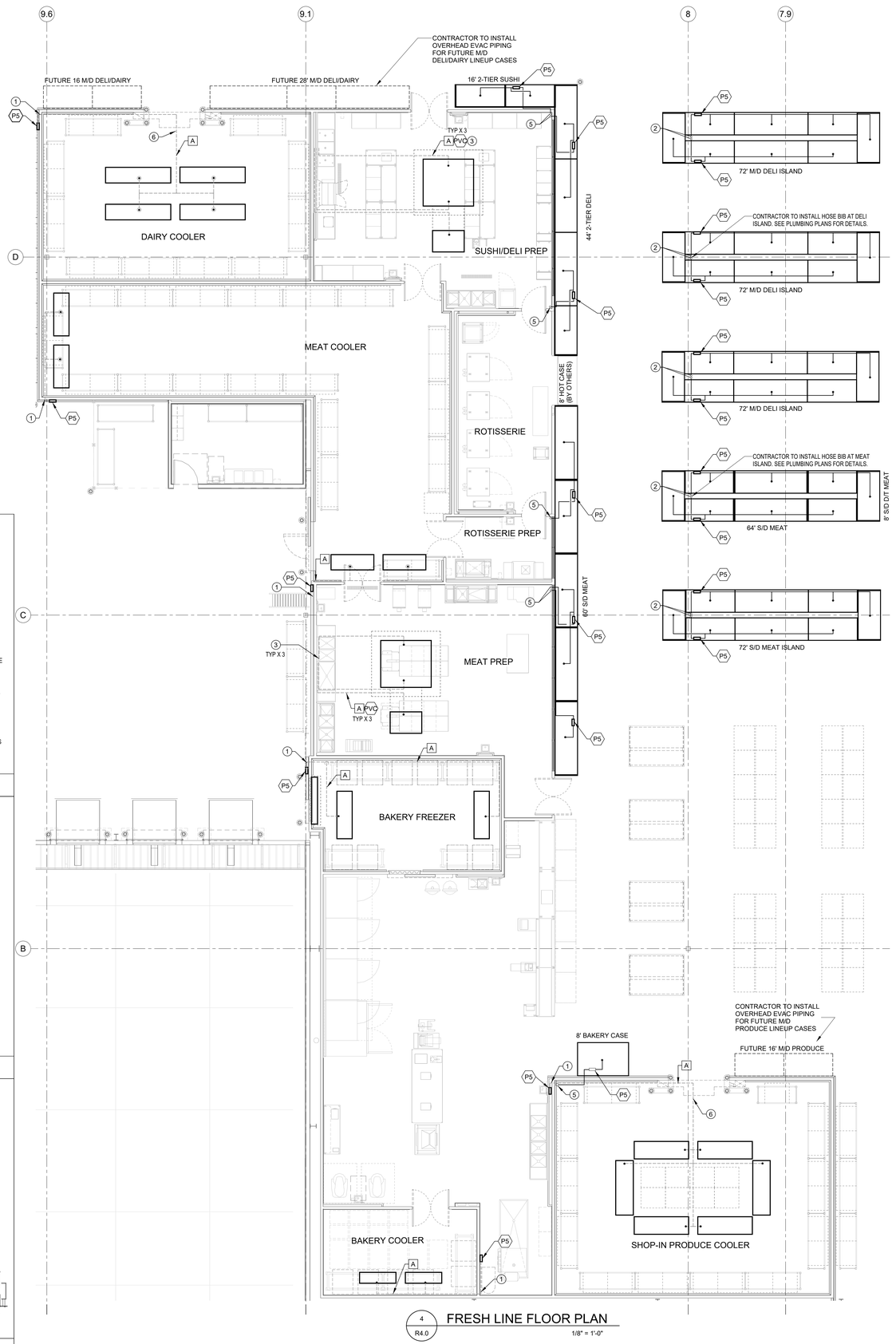

NOTE: SEE ADDITIONAL DETAILS ON A501.5

VENT AT POS FREEZERS | SCALE NONE | 2



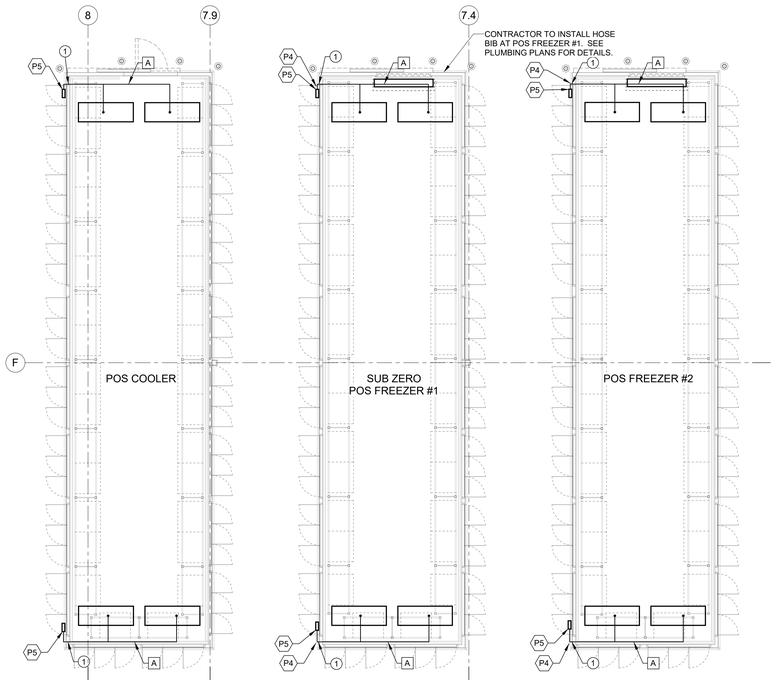

NOTE:
- 3 PIECES PER BOX
- MIN. 22 GAGE STAINLESS STEEL
- CUT OUT LEFT AND RIGHT PIECES TO MATCH CASE GEOMETRY

BUFFER BOX ENCLOSURE AT CASES | SCALE NONE | 3

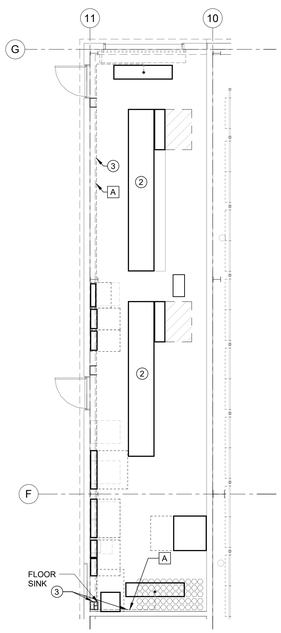



4 R4.0 FRESH LINE FLOOR PLAN
1/8" = 1'-0"

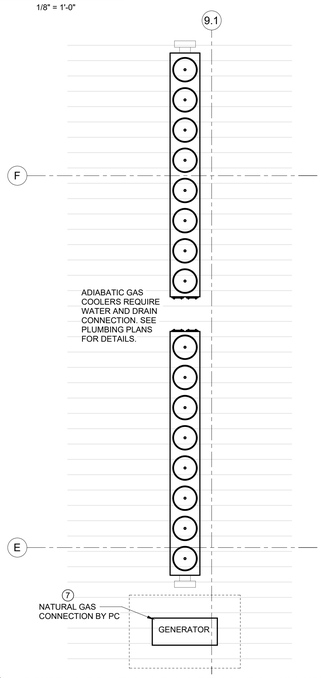


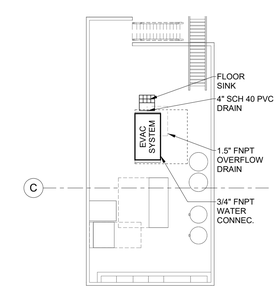

6 R4.0 POS COOLERS & FREEZERS
1/8" = 1'-0"




1 R4.0 MECHANICAL ROOM
1/8" = 1'-0"




5 R4.0 REFRIGERATION ROOFTOP EQUIPMENT
1/8" = 1'-0"




3 R4.0 RECIEVING AREA MEZZANINE
1/8" = 1'-0"

DRAIN PIPE LABELING

CONDENSATE DRAIN PIPE LABELING TO BE IN ACCORDANCE WITH ANSI / ASME A13.1
- ALL CONDENSATE DRAIN PIPING TO USE GREEN LABELS WITH WHITE LETTERING
- PLACEMENT OF LABEL IS TO BE BELOW THE HORIZONTAL CENTERLINE OF THE PIPE FOR VISIBILITY.
- FLOW DIRECTION TO BE LABELED USING AN ARROW IN DIRECTION OF FLOW.
- FOR PIPES WITH O.D. (INCLUDING INSULATION) 0.7" TO 1.3"
  - MARKER LENGTH: 8"
  - LEGEND HEIGHT: 0.5"
- FOR PIPES WITH O.D. (INCLUDING INSULATION) 1.4" TO 2.4"
  - MAKER LENGTH: 8"
  - LEGEND HEIGHT: 0.7"
- FOR PIPIES WITH O.D. (INCLUDING INSULATION) 2.5" TO 6.7"
  - MARKER LENGTH: 12"
  - LEGEND HEIGHT: 1.3"

EXAMPLES:

CONDENSATE DRAIN PIPES

EACH CONTRACTOR IS RESPONSIBLE FOR HAVING A THOROUGH KNOWLEDGE OF ALL DRAWINGS AND SPECIFICATIONS IN THEIR RELATED FIELD. THE FAILURE TO FAMILIARIZE THEMSELVES WITH THIS KNOWLEDGE DOES NOT RELIEVE THE CONTRACTOR OF RESPONSIBILITY TO PERFORM THE WORK AND ENSURE THE EQUIPMENT OPERATES PROPERLY. ADDITIONAL COMPENSATION SHALL NOT BE PERMITTED DUE TO CONDITIONS RESULTING FROM FAILURE TO FAMILIARIZE WORKERS WITH THIS KNOWLEDGE. REFRIGERATION CONTRACTOR TO ADHERE TO ALL EPA GUIDELINES.


Cushing Terrell
cushingterrell.com
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REFRIGERATION
COSTCO WHOLESALE
**LEE'S SUMMIT, MO**

STATE OF MISSOURI
NICHOLAS P. DEWITT
NUMBER PE-2016017218
PROFESSIONAL ENGINEER
12.23.2025


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CUSHING TERRELL


PERMIT

12.22.2025
DESIGNED BY | K. WHEELER
DRAWN BY | K. WHEELER
REVISIONS

REFRIGERATION PLUMBING PLAN

R4.0

| EVAC EQUIPMENT SCHEDULE – SUPPLIED BY OWNER INSTALLED BY CONTRACTOR (S.O.I.C.) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| SYMBOL | DESCRIPTION | MFR./MODEL | WASTE | COLD W. | COMMENTS | DETAIL | SERVES | BACKFLOW PREVENTION |
| EVAC | EVAC SYSTEM | L235-40-HV | 4" | ¾" | EVAC SYSTEM VACUUM CENTRAL AND LIQUID RING PUMP WATER REFRESH SYSTEM. PROVIDE WITH WATTS #009 RPZ., 2870Lbs, 460V/3PH, 11A FLA. | THIS SHEET DETAIL 12 | EQUIPMENT PLATFORM OR MACHINE ROOM | HIGH HAZARD BACK PRESSURE RPZ |

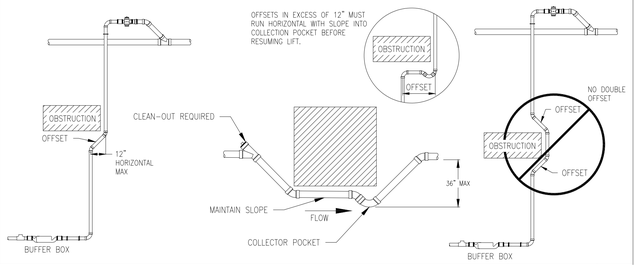
EVAC LEGEND

- VALVE
- BUFFER BOX
- CONNECTION TO CONDENSATE DRAIN LINE
- RISER

1. INSTALL ACTIVATOR PINCH VALVE IN A READILY ACCESSIBLE LOCATION FOR SERVICE
2. INSTALL MINI CHECK VALVE WITHIN 4" OF ANY VACUUM SOURCE PORT.
3. RUN OVERHEAD DRAIN LINES FROM ISLAND CASE DIRECTLY OVER TO FRESHLINE BEFORE CONNECTING TO OTHER DRAIN LINES
4. PIPING TO RUN IN TRUSS SPACE OR AS HIGH AS POSSIBLE. TOP OF RISER ELEVATION TO BE MAXIMUM OF 24" A.F.F. PIPING TO HAVE MINIMUM ELEVATION OF 22" A.F.F. IF PIPING DROPS BELOW MINIMUM HEIGHT, PROVIDE SLOPE MAKE UP RISER PER DETAIL 10

## EQUIPMENT SCHEDULE, LEGEND, AND PLAN NOTES

SCALE: NTS | VERSION: 2023.09.21 | 1




## ROUTING AROUND HORIZONTAL & VERTICAL OBSTRUCTIONS

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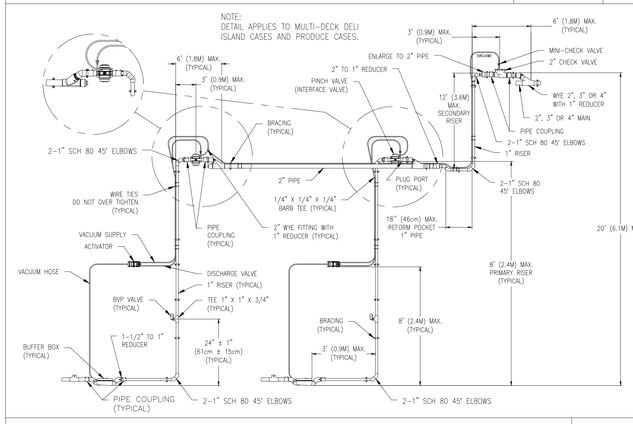


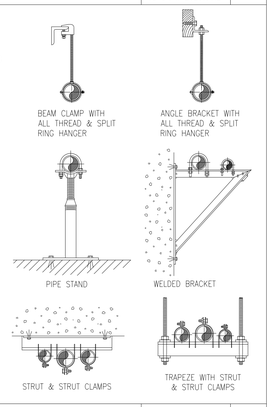

## TYPICAL GANG LIFT DETAIL

SCALE: NTS | VERSION: 2023.09.21 | 5

## GENERAL INSTALLATION NOTES

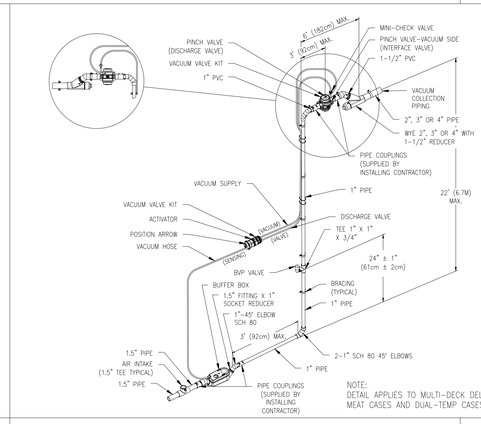
SCALE: NTS | VERSION: 2023.09.21 | 2

1. ALL PIPING MUST BE SUPPORTED, BRACED ANDS ECURED TO RESIST THRUSTING FORCES AND MINIMIZED MOVEMENT.
2. ALL PIPING MUST BE BRACED PER EVAC SPECS OR PER LOCAL CODE REQUIREMENTS WHICHEVER IS MORE RESTRICTIVE.
3. ALL BRACING ASSEMBLIES MUST BE ATTACHED TO STRUCTURAL STEEL, RIGID STUDS, OR WOODEN BACKINGS. DRYWALL, THIN SHEET METAL CASE BACKING, AND HVAC DUCT WORK ARE NOT ACCEPTABLE ANCHOR POINTS.
4. BRACING OF HORIZONTAL PIPING SHOULD BE IN FIVE FOOT INTERVALS WHEN INSTALLATION IS DONE IN PVC, AND EIGHT FOOT INTERVALS FOR COPPER, OR AS REQUIRED BY LOCAL CODE.
5. SAGGING OF THE PIPING BETWEEN SUPPORT IS NOT PERMITTED; ¼" PER FOOT OF SLOPE IS TO BE MAINTAINED AT ALL TIMES.
6. LATERAL OR SEISMIC BRACING SHOULD BE ADDED EVERY 25' WHEN THE HANGER ASSEMBLY IS GREATER THAN 36" LONG, OR AS REQUIRED BY LOCAL CODE.
7. WHEN A UNI-STRUT TRAPEZE IS USED, PIPING MUST BE CLAMPED DOWN SECURELY.
8. VERTICAL LIFTS ARE TO BE SECURED IN SIX FOOT INTERVALS.
9. BRACING IS REQUIRED AT THE TOP OF ALL VERTICAL LIFTS.
10. AN APPROVED BRACING ASSEMBLY MUST BE INSTALLED WITHIN ONE FOOT OF EVERY DIRECTIONAL CHANGE, ON BOTH SIDES OF THE FITTING.
11. AN APPROVED BRACING ASSEMBLY MUST BE INSTALLED WITHIN ONE FOOT OF EVERY INTERFACE/ PINCH VALVE, ON BOTH THE INLET AND THE OUTLET SIDE.




## TYPICAL BRACING NOTES AND DETAILS

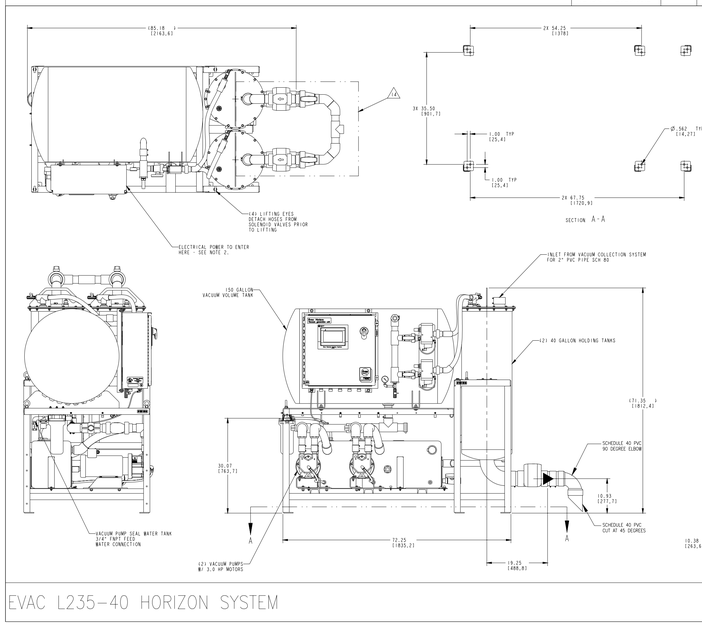
SCALE: NTS | VERSION: 2023.09.21 | 4




NOTE:
DETAIL APPLIES TO MULTI-DECK DELI MEAT CASES AND DUAL-TEMP CASES.

## TYPICAL LIFT DETAIL

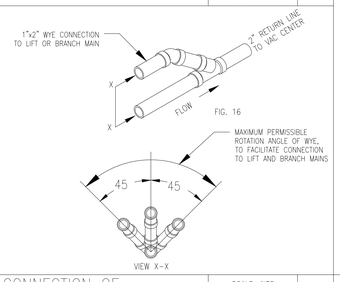
SCALE: NTS | VERSION: 2023.09.21 | 6




NOTES:
1. APPROXIMATE WEIGHT OF UNIT: 1250 LBS DRY. 2039 LBS. WET
2. UNIT ELECTRICAL REQUIREMENTS: 460V AC, 3PH, 60Hz, 11 AMPS 230V AC, 3PH, 60Hz, 20 AMPS 208V AC, 3PH, 60Hz, 23 AMPS
3. FLOOR DRAIN SPEC: 24"x24x16" MFG: STAINLESSDRAINS.COM PART# CSDSUMP; 12 GA, TYPE 304 STAINLESS. 2"x2" DOME STRAINER 12GA WITH ¾" GRATES.
4. IF FLOOR DRAIN IS NOT RECESSED, VACUUM UNIT TO SIT ON RISER BEAMS.
5. MOUNT ON I-BEAM PLATFORM & TO BE SUPPLIED BY REFRIGERATION CONTRACTOR FROM SCHAPER.

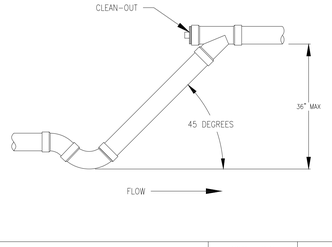
## EVAC L235-40 HORIZON SYSTEM

SCALE: NTS | VERSION: 2023.09.21 | 9



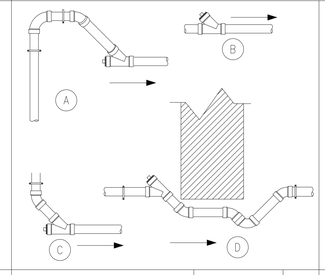

## CONNECTION OF LIFT/BRANCH TO MAIN

SCALE: NTS | VERSION: 2023.09.21 | 7



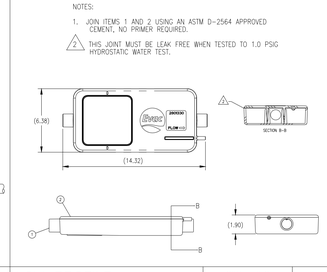

## SLOPE MAKE UP

SCALE: NTS | VERSION: 2023.09.21 | 10




## TYPICAL CLEAN OUT

SCALE: NTS | VERSION: 2023.09.21 | 11




## LOW PROFILE BUFFER BOX

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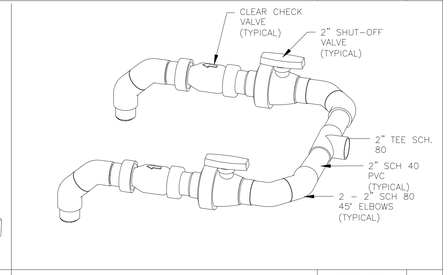
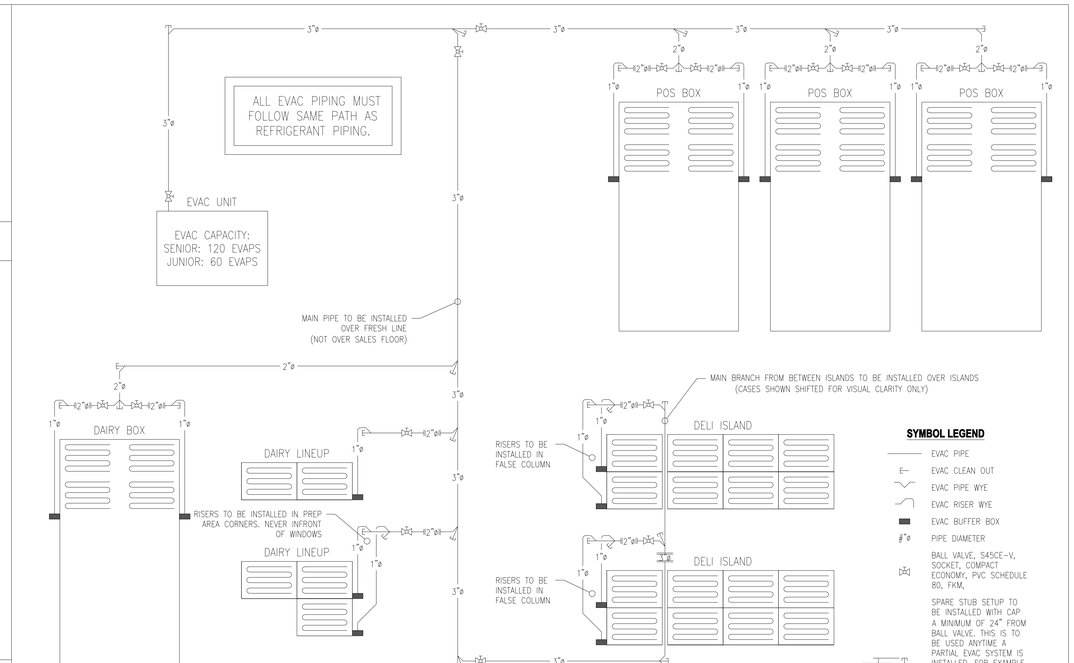



## INLET PIPING DETAIL

SCALE: NTS | VERSION: 2025.08.14 | 13




SYMBOL LEGEND

- EVAC PIPE
- EVAC CLEAN OUT
- EVAC PIPE WYE
- EVAC RISER WYE
- EVAC BUFFER BOX
- #"ø PIPE DIAMETER
- BALL VALVE, 545CE-V, SOCKET, COMPACT ECONOMY, PVC SCHEDULE 80, FKM,
  SPARE STUB SETUP TO BE INSTALLED WITH CAP A MINIMUM OF 24" FROM BALL VALVE. THIS IS TO BE USED ANYTIME A PARTIAL EVAC SYSTEM IS INSTALLED. FOR EXAMPLE A POS ONLY INSTALLATION SHALL HAVE THE TEE WITH BALL VALVE AND CAP INSTALLED TO ALLOW FOR FUTURE EXPANSION INTO FRESHLINE AREA.
- EVAPORATOR UNIT

GENERAL NOTES

A. ***THIS DETAIL IS FOR REFERENCE ONLY.***
B. REFER TO THE REFRIGERATION CONDENSATE DRAWING FOR BUFFER BOX LOCATIONS.
C. CONDENSATE FROM NON REFRIGERATED EQUIPMENT, INCLUDING BUT NOT LIMITED TO SINKS, STEAM OVENS, ECT SHALL NOT BE ADDED TO EVAC SYSTEM WITHOUT APPROVAL FROM EVAC.
D. THE CASE / EVAPORATOR COUNT IS A GENERAL GUIDELINE. REFER TO EVAC FOR FURTHER INFORMATION.

## REFERENCE EVAC SYSTEM LAYOUT

SCALE: NTS | VERSION: 2023.09.21 | 8


EVAC NORTH AMERICA CONTACT:
CODY BOWERS
1445 HUNTWOOD DRIVE
CHERRY VALLEY, IL 61016
TEL: (815) 639-7723
CODY.BOWERS@EVAC.COM
WWW.EVAC.COM


Cushing Terrell

cushingterrell.com
800.757.9522

REFRIGERATION
COSTCO WHOLESALE
**LEE SUMMIT, MO**

NICHOLAS P. CROMWELL, NUMBER PE-2010037218, STATE OF MISSOURI, PROFESSIONAL ENGINEER

12.23.2025

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12.22.2025
PROJECT# | COSTCO
DESIGNED BY | K. WHEELER
DRAWN BY | K. WHEELER
REVISIONS

EVAC DETAILS

R4.1

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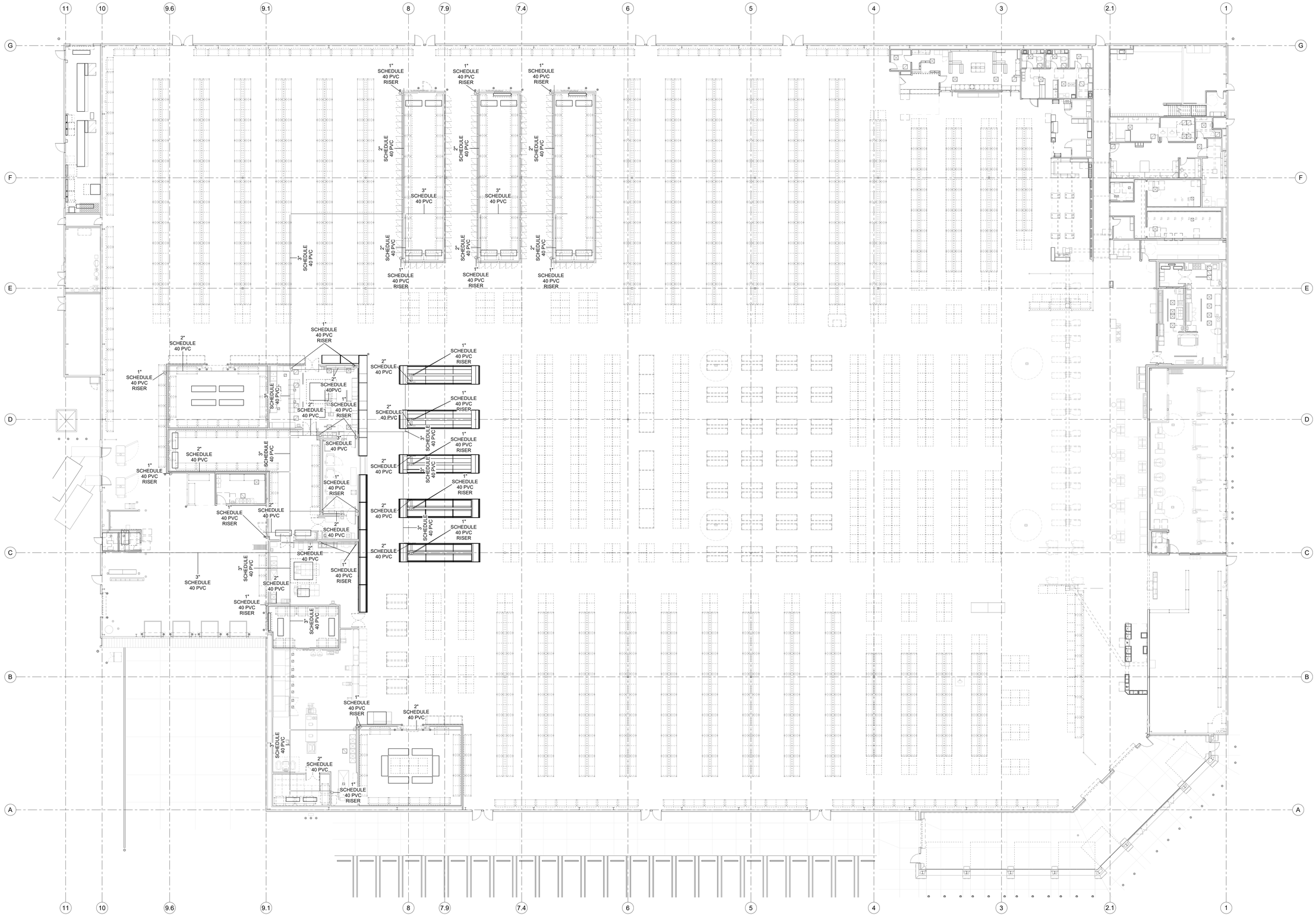


1 R4.2 OVERALL PLUMBING PLAN
1/16" = 1'-0"

REFRIGERATION
COSTCO WHOLESALE
# LEE'S SUMMIT, MO

STATE OF MISSOURI
NICHOLAS P. DEBERRY
NUMBER PE-2010017218
PROFESSIONAL ENGINEER

12.23.2025

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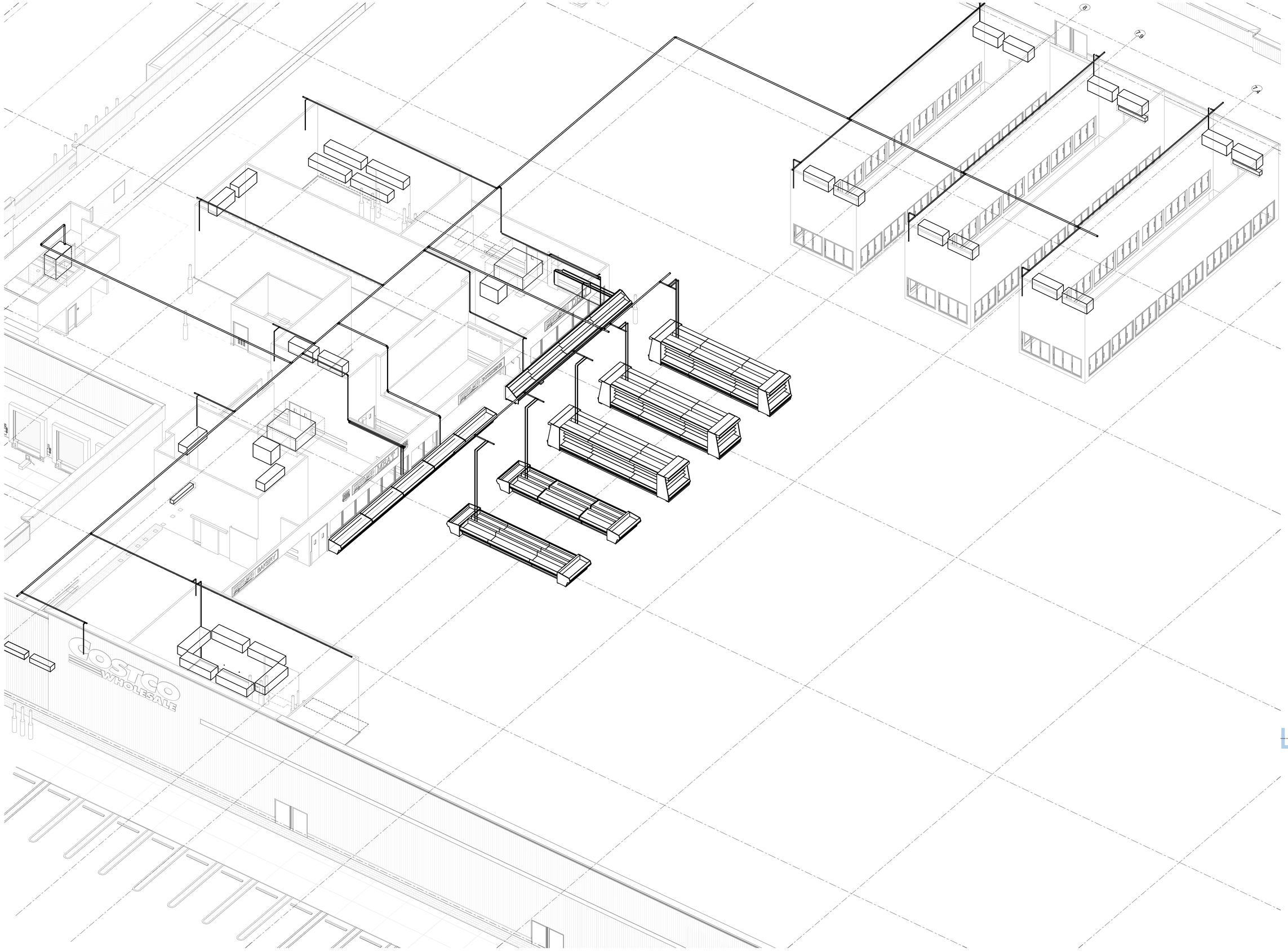
12.22.2025
DESIGNED BY | K. WHEELER
DRAWN BY | K. WHEELER
REVISIONS

REFRIGERATION
OVERALL PLUMBING PLAN

R4.2




1 R4.3 RIFRIGERATION ISOMETRIC OVERALL PLUMBING PLAN

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REFRIGERATION
COSTCO WHOLESALE
**LEE'S SUMMIT, MO**

STATE OF MISSOURI
NICHOLAS F. [illegible]
NUMBER PE-2016017218
PROFESSIONAL ENGINEER

12.23.2025

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12.22.2025
DESIGNED BY | K. WHEELER
DRAWN BY | K. WHEELER
REVISIONS

REFRIGERATION
ISOMETRIC OVERALL
PLUMBING PLAN

R4.3

## AIR TERMINAL SCHEDULE

(SUPPLIED AND INSTALLED BY REFRIGERATION CONTRACTOR)

| SYMBOL | MANUFACTURER | SERVICE | MODEL US - MEXICO | MODEL CANADA | DESCRIPTION | NOTES |
|---|---|---|---|---|---|---|
| SD-1 | EGER PRODUCTS INC. | SUPPLY | 6082 | 4287 | WHITE PLASTIC SUPPLY DIFFUSER. 24" x 24". SEE DRAWING FOR COLLAR SIZES. INCLUDES SS HARDWARE. | REFRIGERATION CONTRACTOR TO SUPPLY / INSTALL |
| RG-1 | EGER PRODUCTS INC. | RETURN | 6083 | 4288 | WHITE PLASTIC RETURN GRILLE. 24" x 24". SEE DRAWING FOR COLLAR SIZES. INCLUDES SS HARDWARE. SUPPLY / INSTALL FILTER | REFRIGERATION CONTRACTOR TO SUPPLY / INSTALL |
| FILTER FOR ALL RG-1 | EGER PRODUCTS INC. | RETURN FILTER | 6084 | 4289 | WASHABLE AIR FILTER FOR AIR RETURN | REFRIGERATION CONTRACTOR TO SUPPLY / INSTALL |
| FRAME FOR ALL SD-1 & RG-1 | EGER PRODUCTS INC. | FRAME | 6085 | 4290 | 24" x 24" WHITE PLASTIC FRAME FOR SUPPLY & RETURN | REFRIGERATION CONTRACTOR TO SUPPLY / INSTALL |
| RG-1 REPLACEMENT GRILLE | EGER PRODUCTS INC. | REPLACEMENT GRILLE | 6119 | 4318 | WHITE PLASTIC AIR RETURN REPLACEMENT FRONT GRILLE (NOT WHOLE UNIT) | WHEN REQUIRED |

## HVAC EQUIPMENT SCHEDULE

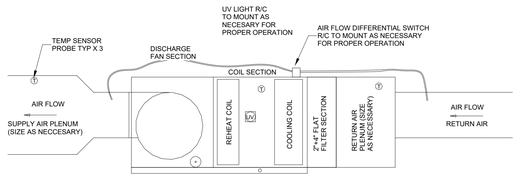
| SYMBOL | ITEM | SERVES | MFR. / # | ELECTRICAL | WEIGHT | REMARKS |
|---|---|---|---|---|---|---|
| A19 | COOLING COIL | DELI PREP | SEE R2.0 | SEE R2.0 | 3010 LBS | HORIZONTAL DISCHARGE |
| B19 | COOLING COIL | MEAT/ROTISSERIE PREP | SEE R2.0 | SEE R2.0 | 3010 LBS | HORIZONTAL DISCHARGE |

## LEGEND

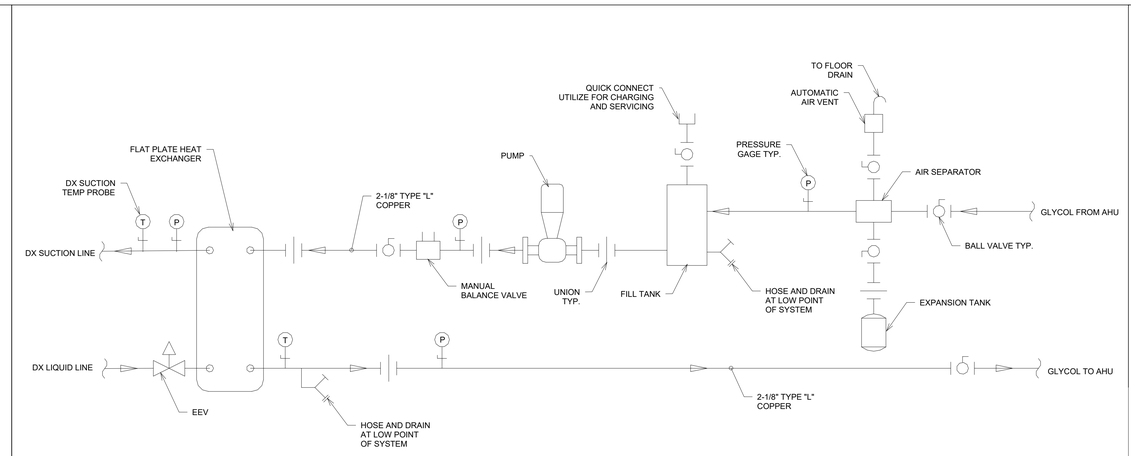
- 24" x 24" SUPPLY GRILL
- 24" x 24" GRILL RETURN
- AIR HANDLER UNIT
- OPPOSED BLADE DAMPER

## GENERAL NOTES:

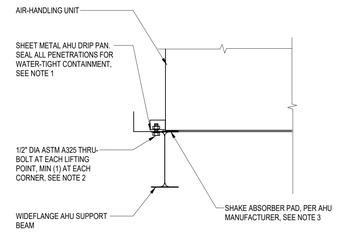
1. COORDINATE AHU SUPPORT FRAME LOCATIONS PRIOR TO OTHER TRADES RUNNING ELECTRICAL CONDUIT, SPRINKLER LINES, ETC. RC TO FASTEN AHU TO SUPPORTS PER OEM SPECIFICATIONS.
2. AIR HANDLER DUCT RUNS TO BE COORDINATED WITH GC. GC TO PROVIDE ANY PENETRATIONS THROUGH WALLS IF NECESSARY.
3. ALL DUCT INSULATION PER CODE AND COSTCO REFRIGERATION INSTALL SPECIFICATIONS PART 2.2 & 3.4C
4. (WHERE REQUIRED BY JURISDICTION) AHU SMOKE DETECTORS SUPPLIED BY FIRE ALARM CONTRACTOR, RC TO INSTALL AND WIRE, LOCATED PER CODE.
5. BELDEN #8761 AIR DIFFERENTIAL SWITCH TO BE HOOKED UP TO NORMALLY OPEN CONTACTS.
6. UVC LIGHT KIT TO BE INSTALLED WITH CONTACT SWITCHES AT EACH ACCESS PANEL(S) TO BE WIRED IN SERIES TO SHUT OFF UV LIGHT WHEN ANY ACCESS PANEL IS OPENED.
7. TEMPERATURE AND HUMIDITY SENSORS TO BE LOCATED PER R3.0 AND DETAIL 1, THIS SHEET.
8. INSTALL (2) SEPARATE DRAIN LINES PER HANDLER TO DRAIN (DO NOT TIE TOGETHER).




PREP AREA AHU'S SENSOR DETAIL — SCALE NTS — 1

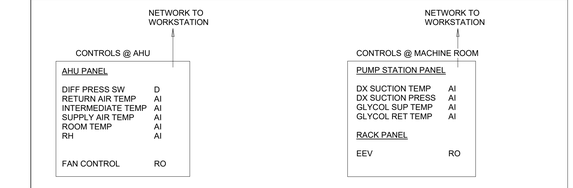



TYPICAL DX TO GLYCOL HX PUMP SKID — SCALE NTS — 4




NOTES:
1. SEAL ALL PENETRATIONS WITH BUTYL RUBBER CAULK IN THE FOLLOWING MANNER:
   A. ONE BEAD BETWEEN DRIP PAN AND I-BEAM
   B. ONE BEAD BETWEEN WASHER AND DRIP PAN
   C. AROUND THE NUT/WASHER ASSEMBLY AFTER IT IS TIGHTENED SO NO BOLT, NUT, OR WASHER IS VISIBLE.
2. WASHERS TO BE USED ON BOLT HEAD AND NUT SIDE OF CONNECTION. NUT IS TO BE NYLOC TYPE LOCKING NUT.
3. KELLETT ENTERPRISES, INC. ITEM 4x4-50NA38, LP-13 SHAKE ABSORBER PAD OR EQUIVALENT.
4. DETAIL AND ANALYSIS IS ADEQUATE FOR SEISMIC DESIGN CRITERA OF Sds < OR = EQUAL TO 2.25G
5. DETAIL AND ANALYSIS IS ADEQUATE FOR AHU WITH MAXIMUM WEIGHT OF 3,000 LBS
6. DETAIL AND ANALYSIS IS ADEQUATE FOR AHU WITH MAXIMUM WIDTH OF 63" MAXIMUM HEIGHT OF 44"

PREP AREA AHU SEISMIC RESTRAINT DETAIL — SCALE NTS — 5




INPUTS (PER UNIT):
1. RH SENSOR
2. AIR TEMP SENSOR (RETURN, INTERMEDIATE, SUPPLY, ROOM)
3. DIFFERENTIAL PRESSURE SWITCH

OUTPUTS (PER UNIT):
1. ELEC REHEAT (3 STAGE CONTROL)
2. PUMP RELAY
3. EEV
4. FAN RELAY

CONTROL STRATEGY:
- IF DRY BULB (DB) TEMP IS ABOVE 50F OR DEW POINT (DP) ABOVE 42 F THEN COOLING RUNS (EEV SOLENOID OPEN) UNTIL DP IS SATISFIED.
- IF SPACE DB TEMP DROPS BELOW 48F THEN REHEAT IS ENABLED (ELEC COIL). TERMINATE REHEAT AT 50F.
- SHUT DOWN PUMP FOR 2 HOUR, TIME-OFF, DEFROST DURING STORE CLOSED HOURS.

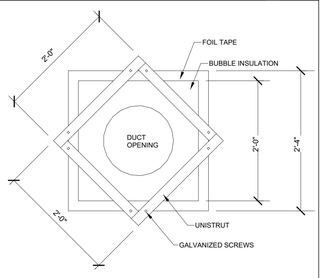
AHU CONTROL DIAGRAM — SCALE NTS — 2

MATERIAL LIST FOR 24" X 24" ACCESS OPENING:

- (1) 28" X 28" BUBBLE INSULATION
- 10' OF FOIL TAPE
- 10' OF UNISTRUT
- (8) #10 X 1" GALVANIZED SCREWS WITH
- FLAT WASHERS

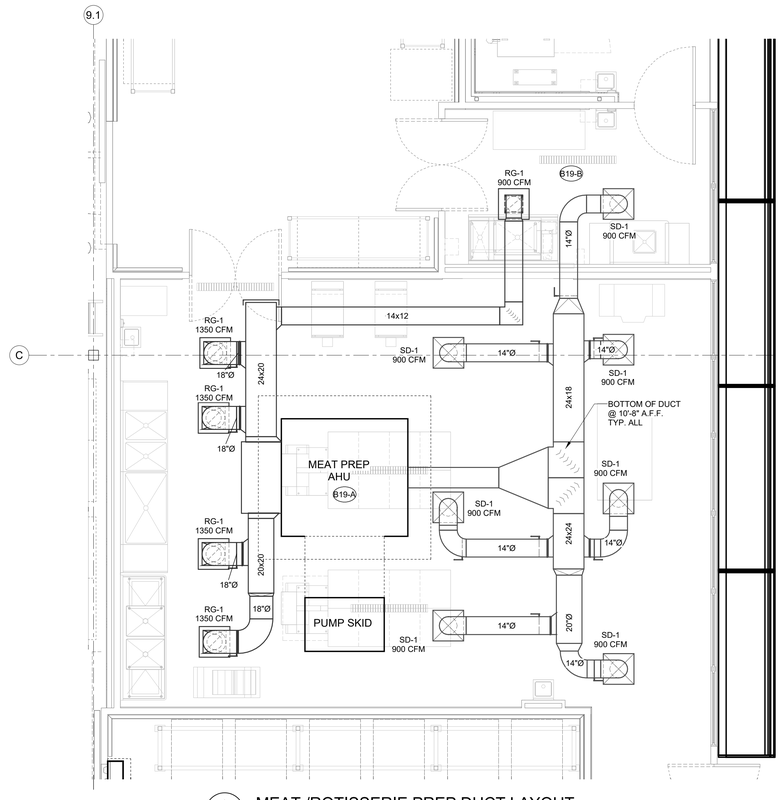
INSTALLATION INSTRUCTIONS:

1. COVER HOLE WITH BUBBLE INSULATION AND TAPE EDGES WITH FOIL TAPE (DEBRIS CATCH)
2. CUT DIAMETER HOLE FOR DUCT DIFFUSER
3. 24" LONG UNISTRUT SCREWED TO PANEL TO PREVENT FOOT PASSAGE INTO OPENING.

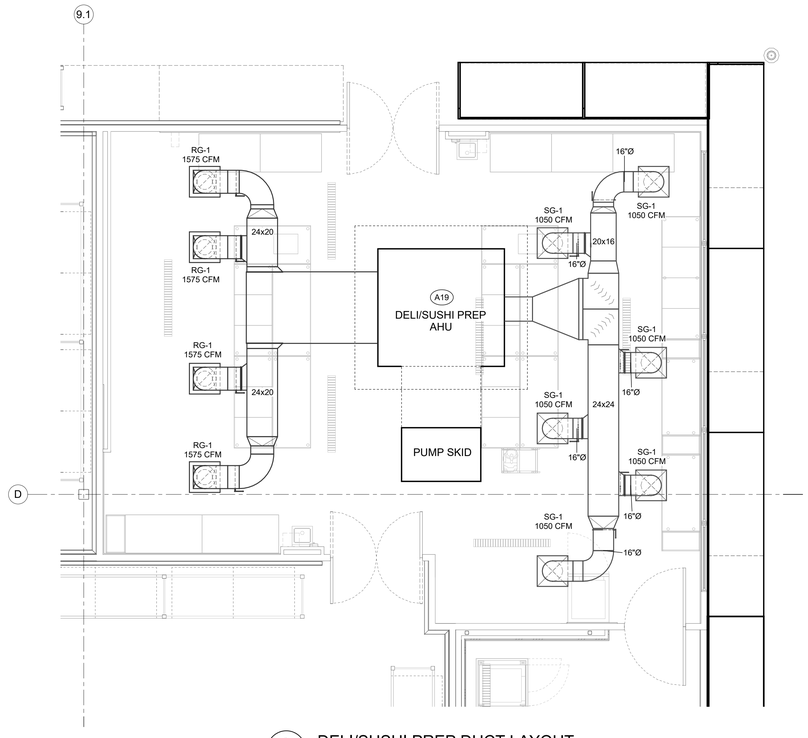



NOTE: DIMENSIONS CAN CHANGE DEPENDING ON EXISTING DUCT OPENING SIZE (FOR REMODELS).

DUCT ACCESS OPENING DETAIL — SCALE NTS — 3




6 R5.0 MEAT /ROTISSERIE PREP DUCT LAYOUT
1/4" = 1'-0"




7 R5.0 DELI/SUSHI PREP DUCT LAYOUT
1/4" = 1'-0"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REFRIGERATION
COSTCO WHOLESALE
**LEE'S SUMMIT, MO**

NICHOLAS P. CHENEY NUMBER PE-2010017218 STATE OF MISSOURI PROFESSIONAL ENGINEER
12.23.2025

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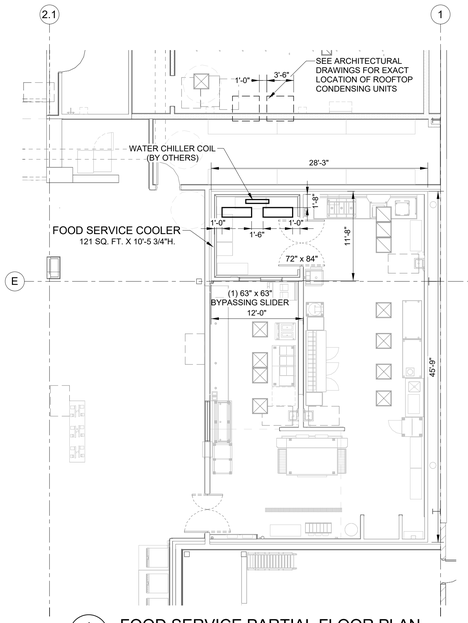
12.22.2025
DESIGNED BY | K. WHEELER
DRAWN BY | K. WHEELER
REVISIONS

PREP AREA AHU PLAN AND DETAILS

R5.0

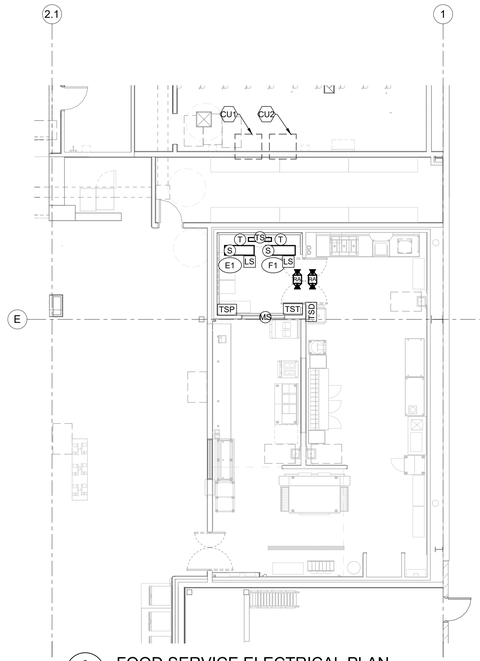



1 R6.0 FOOD SERVICE PARTIAL FLOOR PLAN

1/8" = 1'-0"

## NOTES

1. DO NOT INSTALL FRONT STAY ROLLER OPPOSITE OF DOOR SLIDE. THIS PERTAINS TO FOOD SERVICE BOXES ONLY.
2. CONDENSING UNIT TO BE SET LEVEL IN BOTH DIRECTIONS.
3. LEAVE CLEARANCE FOR WATER CHILLER COIL WHEN PIPING REFRIGERATION COILS.
4. DURING ROOF MOUNTING IF PARAPET IS BELOW 43" TALL, THEN CONDENSING UNITS TO BE PLACED 10'-0" MIN. FROM EDGE OF PARAPET, OR/OTHERWISE PLACE UNITS DIRECTLY ABOVE COOLER DURING ROOF MOUNTING WHEN PARAPET ALLOWS.
5. DURING ROOF MOUNTING, CONDENSING UNITS MUST NOT BE PLACED LESS THAN 20' FROM ANY BUILDING AIR INTAKE.



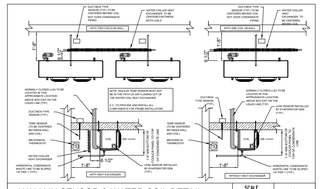

2 R6.0 FOOD SERVICE ELECTRICAL PLAN

1/8" = 1'-0"

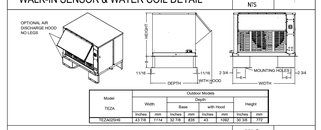
## LEGEND

- REFRIGERATION SYSTEM
- ELECTRICAL CALLOUT
- (J) JUNCTION BOX
- (S) SOLENOID - RUN WIRES TO RESPECTIVE FAN
- (T) TEMPERATURE PROBE
- (MS) MAGNETIC SWITCH
- (TS) THERMOSTAT
- (LS) LEAK SENSOR
- (REN) REFRIGERANT LEAK ALARM
- TSD — THERMO SIMPLE DISPLAY - 5 VDC POWERED VIA CAT-5 CABLE RUN TO TRANSFORMER (WIRED IN SERIES)
- TSP — THERMO SUMPLE PROBE TO BE MOUNTED 8' AFF
- TST — THERMO SIMPLE TRANSFORMER - 120V/1 - 2.0A TO BE MOUNTED ON TOP OF FOOD SERVICE COOLER

SEE RE PLANS FOR LIGHTING

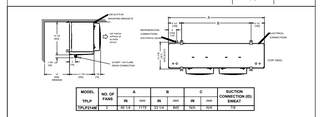


WALK-IN SENSOR & WATER COIL DETAIL — SCALE: NTS — 1



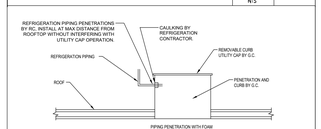

| Model | Outdoor Models | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | Width | | Depth | | | | Height | |
| | | | Base | | with Hood | | | |
| TEZA | Inches | mm | Inches | mm | Inches | mm | Inches | mm |
| TEZA2024B | 41 7/8 | 1114 | 32 7/8 | 859 | 43 | 1092 | 69 3/8 | 762 |

CONDENSING UNITS — SCALE: NTS — 2

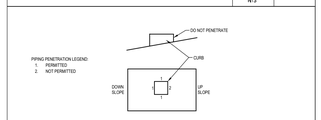



| MODEL | NO. OF FANS | A | | B | | C | | SUCTION CONNECTION (ID) |
|---|---|---|---|---|---|---|---|---|
| | | IN | mm | IN | mm | IN | mm | SWEAT |
| TPLP | 1 | 48 1/4 | 1226 | 23 1/8 | 600 | N/A | N/A | 1 5/8 |
| TPLP-LOW | 1 | 48 1/4 | 1226 | 23 1/8 | 600 | N/A | N/A | 1 5/8 |

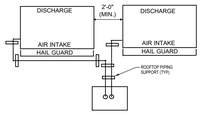
EVAPORATOR COILS — SCALE: NTS — 3



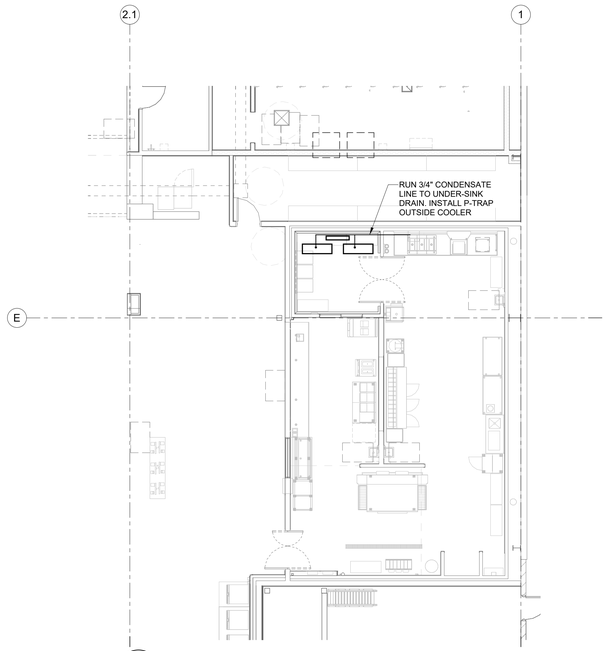

TYPICAL CURB PENETRATION — SCALE: NTS — 4




CURB PIPING ORIENTATION — SCALE: NTS — 5




ROOFTOP PIPING LAYOUT — SCALE: NTS — 6

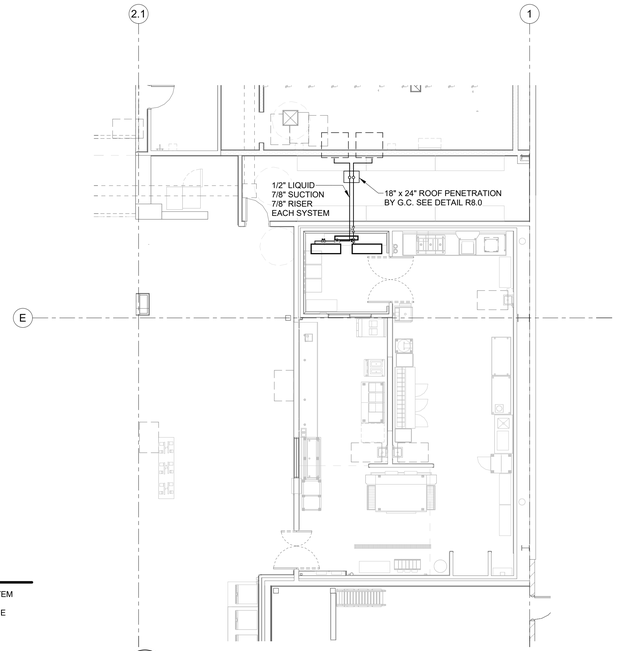



## PLUMBING LEGEND

- PLUMBING CALL-OUT
- PLUMBING STUB-UP
- COIL/CASE CONNECTION
- A — 1 1/8" COPPER CONDENSATE LINE

3 R6.0 FOOD SERVICE PLUMBING PLAN

1/8" = 1'-0"




## LEGEND

- (#) REFRIGERATION SYSTEM
- OVERHEAD LIQUID LINE
- UNIT CONNECTION
- HAND VALVE
- LIQUID LINE SOLENOID

4 R6.0 FOOD SERVICE REFRIGERATION PLAN

1/8" = 1'-0"

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REFRIGERATION
COSTCO WHOLESALE
**LEE'S SUMMIT, MO**

STATE OF MISSOURI
NICHOLAS P. GENTRY
NUMBER PE-2010017218
PROFESSIONAL ENGINEER

12.23.2025

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12.22.2025
DESIGNED BY | K. WHEELER
DRAWN BY | K. WHEELER
REVISIONS

REFRIGERATION FOOD SERVICE PLAN

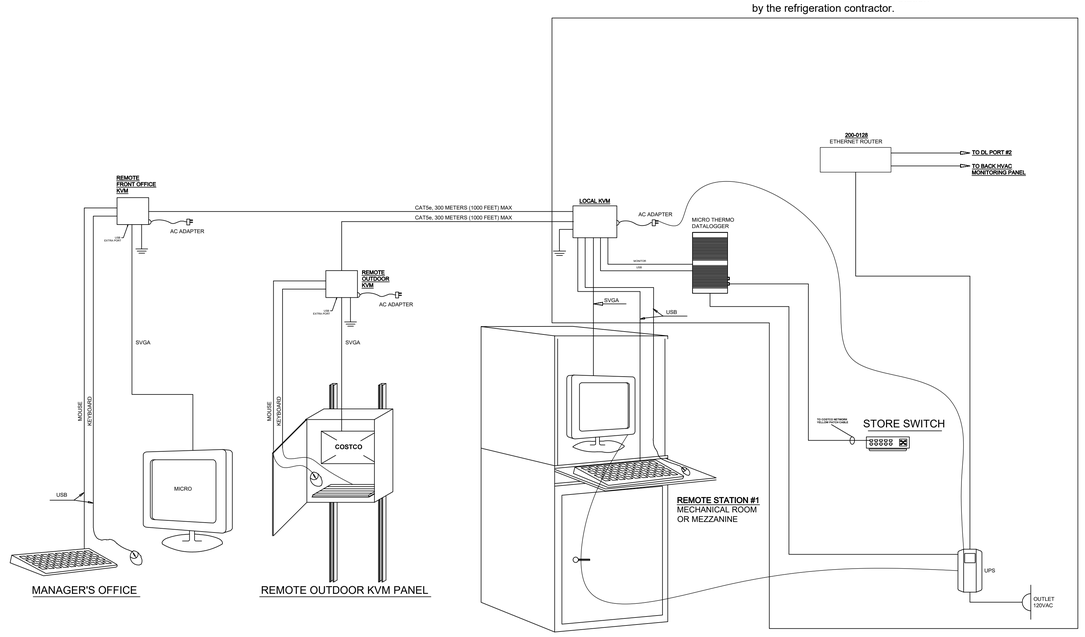
R6.0

The XTENDEX (NTI) base kit (MT # 200-0099) allows access to a computer system from an additional remote console (keyboard, monitor, and mouse). It includes a local unit, a remote unit, 1 cable kit and two power adapters.
This kit does not include the required additional cable, mouse, keyboard, and monitor.

The cable used to interconnect the two control units must be of Category 5 UTP.
(4 pairs of wires connected to RJ45 connectors, pin to pin).
The maximum length of the cable is 1000 ft or 300 meters away.
Screen resolution can be increased on shorter distance.

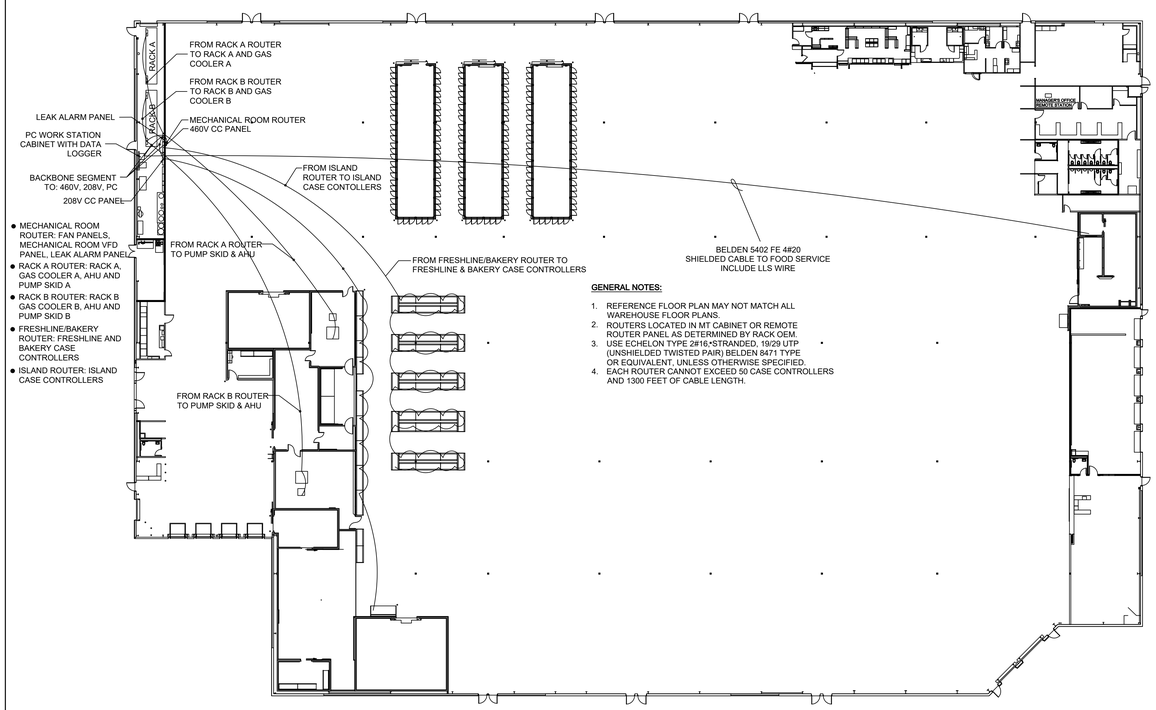
**Each VIP USB KIT (MT #209-0056) includes the following:**
2 x 201-0020 Network 10' (3m) cables with RJ45 connectors
2 x 201-0009 Bix Junction Boxes
1 x 200-0055 USB keyboard
1 x 200-0056 USB mouse

To be installed in the MT work station
by the refrigeration contractor.




MICRO THERMO DATA LOGGER AND KVM DETAIL

| SCALE | 1 |
|---|---|
| NONE | |



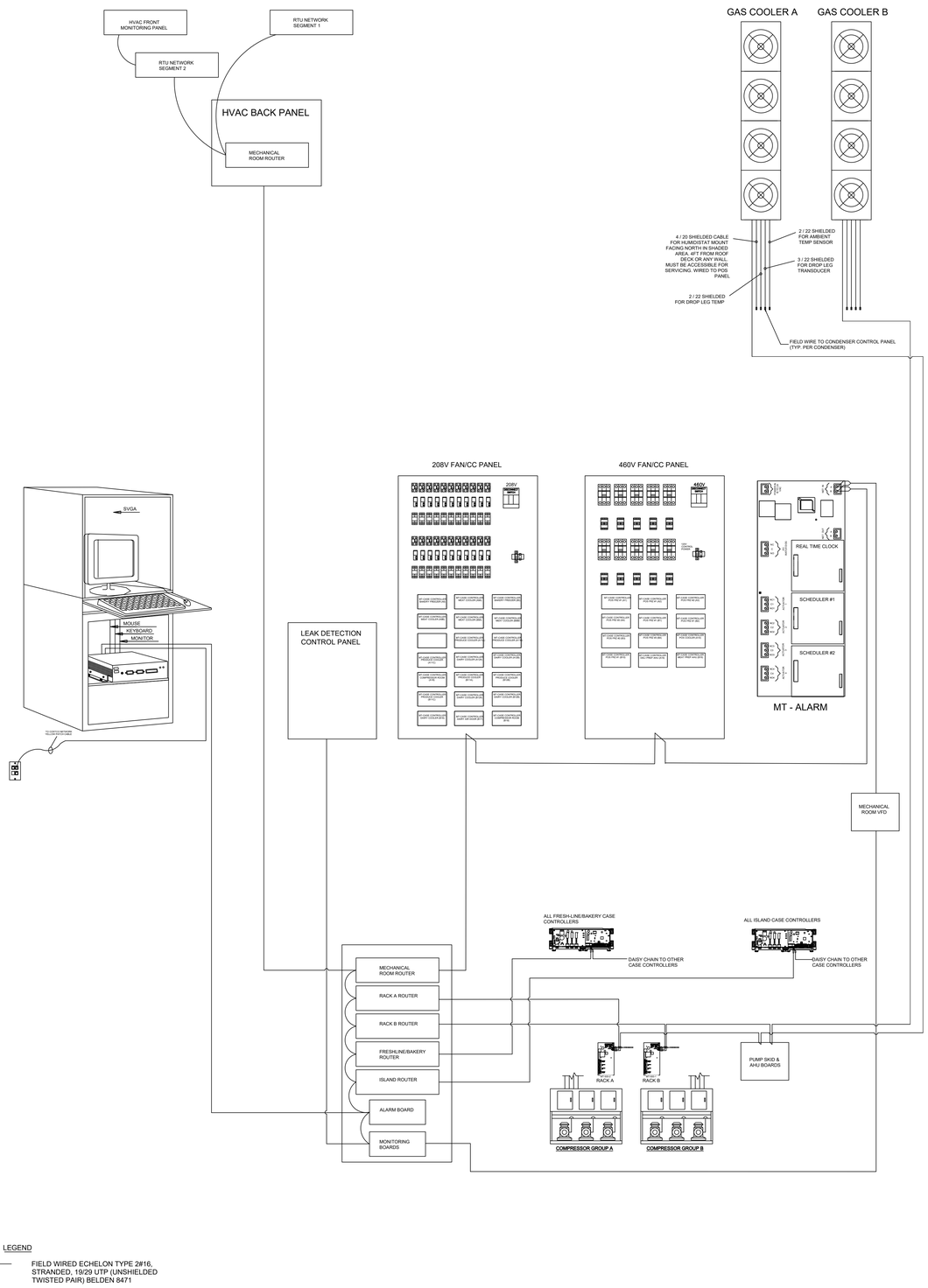

**GENERAL NOTES:**

1. REFERENCE FLOOR PLAN MAY NOT MATCH ALL WAREHOUSE FLOOR PLANS.
2. ROUTERS LOCATED IN MT CABINET OR REMOTE ROUTER PANEL AS DETERMINED BY RACK OEM.
3. USE ECHELON TYPE 2#16-STRANDED, 19/29 UTP (UNSHIELDED TWISTED PAIR) BELDEN 8471 TYPE OR EQUIVALENT, UNLESS OTHERWISE SPECIFIED.
4. EACH ROUTER CANNOT EXCEED 50 CASE CONTROLLERS AND 1300 FEET OF CABLE LENGTH.

MICRO THERMO REFERENCE FLOOR PLAN CABLE DETAIL

| SCALE | 2 |
|---|---|
| NONE | |

**NOTE:**
APPROXIMATE LAYOUT




LEGEND

FIELD WIRED ECHELON TYPE 2#16, STRANDED, 19/29 UTP (UNSHIELDED TWISTED PAIR) BELDEN 8471

MICRO THERMO NETWORK WIRING DETAIL

| SCALE | 3 |
|---|---|
| NONE | |

Cushing Terrell

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REFRIGERATION
COSTCO WHOLESALE
**LEE SUMMIT, MO**

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12.23.2025

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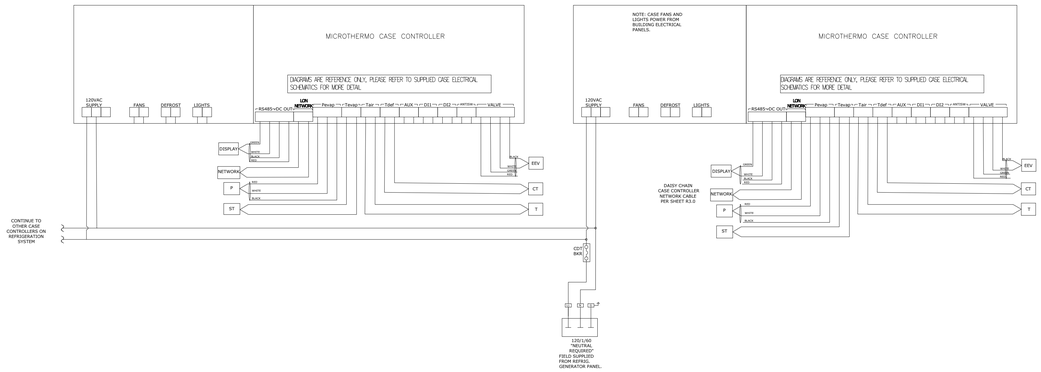
PROJECT# | COSTCO
DESIGNED BY | K. WHEELER
DRAWN BY | K. WHEELER
REVISIONS

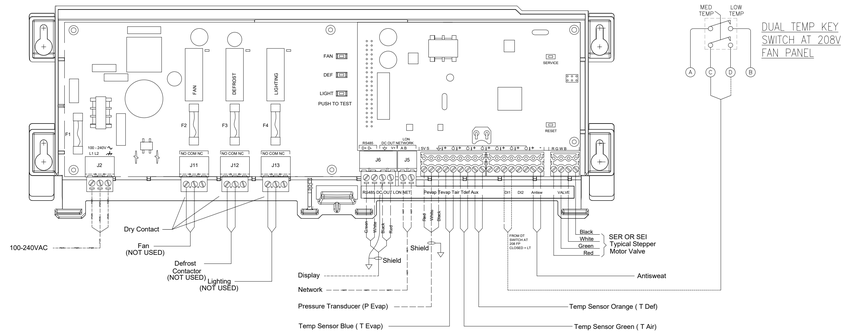
MICRO THERMO DETAILS

R7.2




CASE LINE-UP CONTROLLERS WIRED IN SERIES

| SCALE | |
|---|---|
| NONE | 1 |

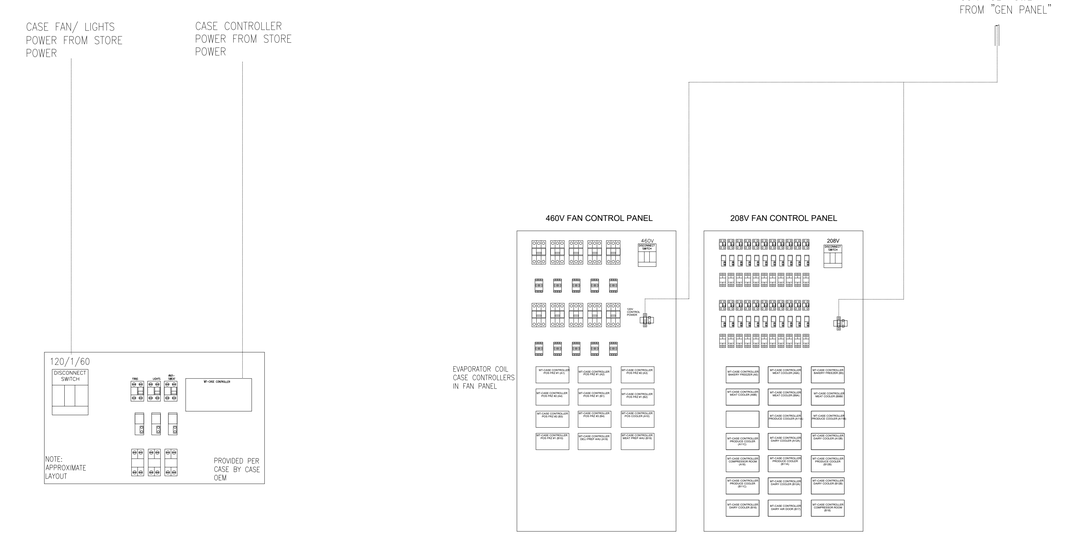



NOTE: THIS IS A GENERIC DETAIL PROVIDED BY MICRO THERMO

MICRO-THERMO CASE CONTROLLER DETAIL (GENERIC DETAIL PROVIDED BY MICRO THERMO)

| SCALE | |
|---|---|
| NONE | 2 |

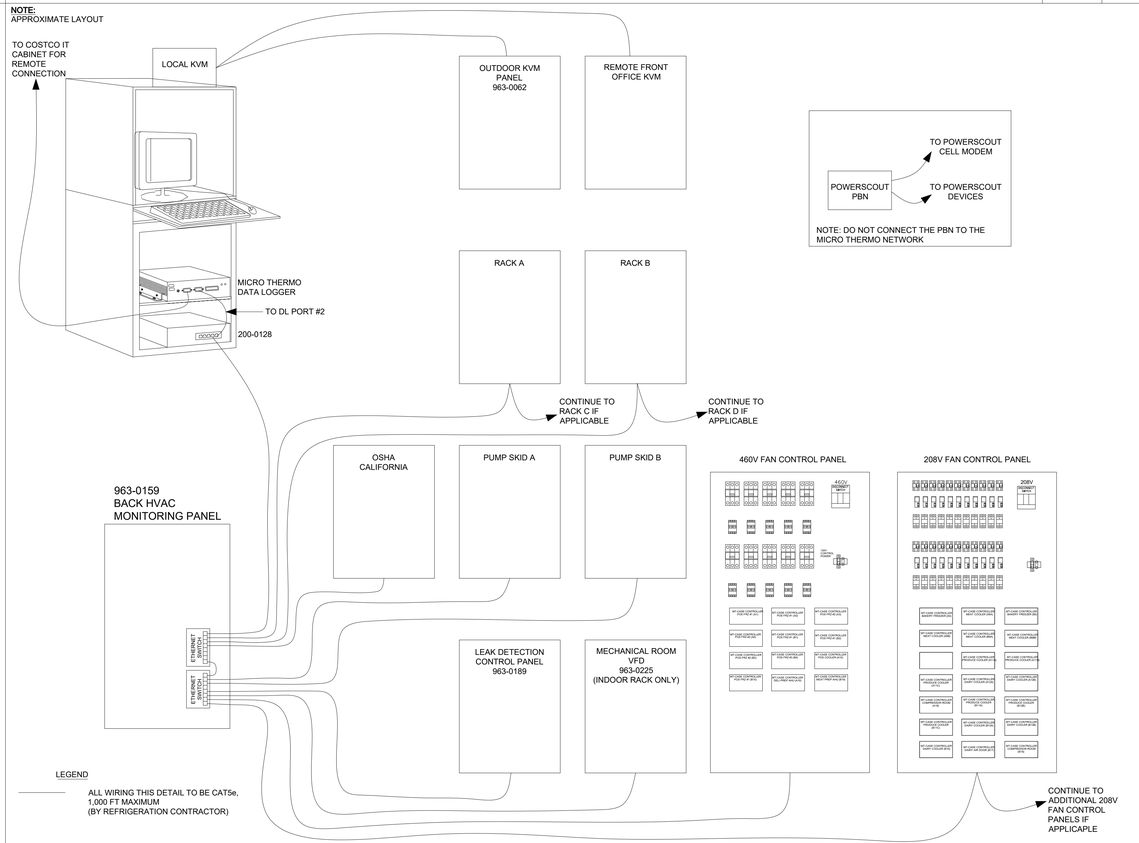
NOTE:
APPROXIMATE LAYOUT




GENERAL NOTES:
1. SEE RACK OEM SUBMITTALS FOR INTERIOR PANEL NETWORK AND POWER WIRING DIAGRAMS.
2. DAISY CHAIN POWER FOR ALL ISLAND/ FRESH-LINE/ BAKERY CASE CONTROLLERS ON A SINGLE CIRCUIT. MAXIMUM 10W PER CC.

FAN PANEL & CASE CONTROLLER LAYOUT

| SCALE | |
|---|---|
| NONE | 3 |




MICRO THERMO CAT5 WIRING DETAIL

| SCALE | |
|---|---|
| NONE | 4 |

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REFRIGERATION
COSTCO WHOLESALE
**LEE SUMMIT, MO**

STATE OF MISSOURI
NICHOLAS P. [illegible]
NUMBER PE-2016017218
PROFESSIONAL ENGINEER

12.23.2025

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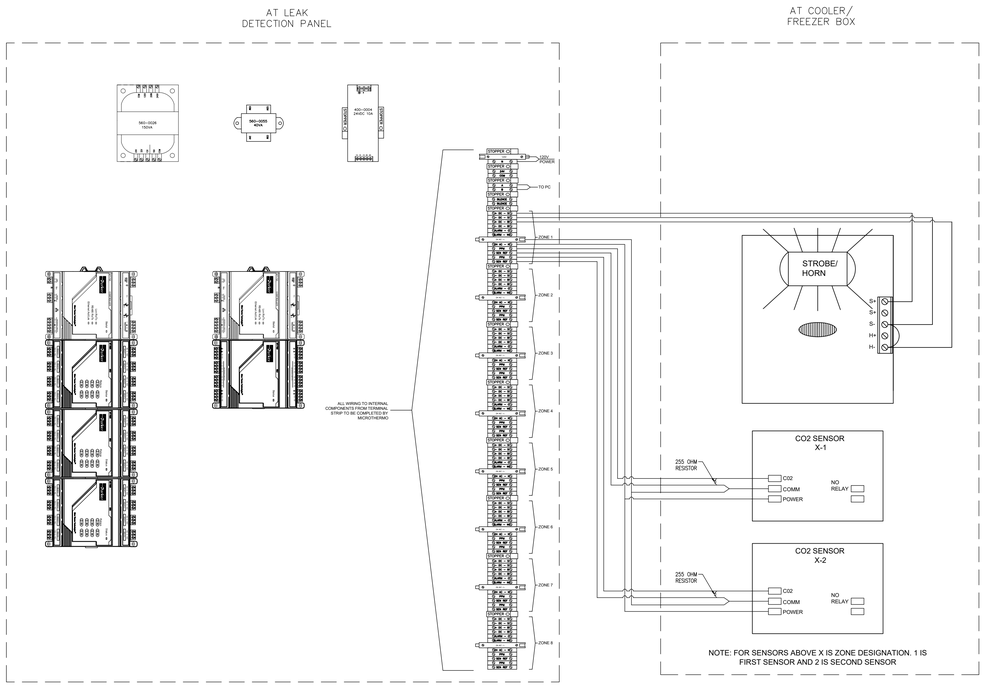
MICRO THERMO DETAILS

R7.3

GENERAL NOTES

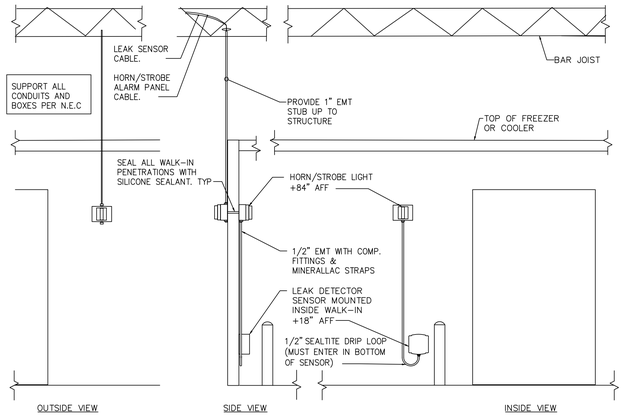
1. USE DEDICATED TRANSFORMER FOR SENSORS AND BOARDS.
2. 255 OHM RESISTOR MUST BE INSTALLED AT SENSOR NODE.



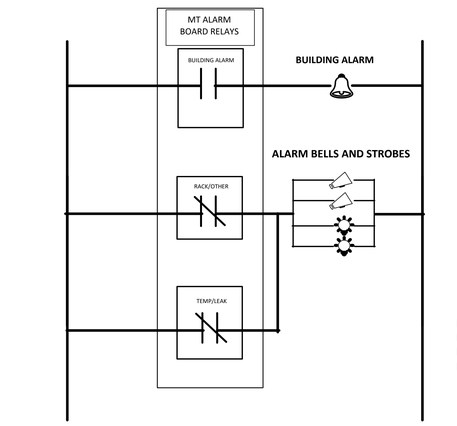

LEAK DETECTION DETAILS | SCALE NONE | 1

SIGN AT COOLERS/FREEZERS:

IF BLUE LIGHT AND HORN ACTIVATE, DO NOT ENTER. UNSAFE OXYGEN LEVEL MAY EXIST, EVACUATE AREA IMMEDIATELY.




LEAK DETECTION EQUIPMENT LAYOUT | SCALE NONE | 2




**NOTE:**
**BUILDING ALARM SHOULD BE TERMINATED ON THE N.O. CONTACTS OF THE RELAY. THE RELAY SHOULD BE IN AN ENERGIZED STATE DURING NORMAL OPERATION AND DE-ENERGIZED STATE FOR AN ALARM CONDITION OR COMMUNICATION LOSS.**

ALARM WIRING DETAIL | SCALE NONE | 3

| | LEAK DETECTION SYSTEM OUTPUTS | | | |
|---|---|---|---|---|
| SYSTEM INPUTS | DISPLAY THE ALARM ON ALLIANCE | START THE HORN & STROBE IN THE STORE | CALL THE MONITORING CENTER | TRIGGER THE BUILDING ALARM RELAY |
| 1 LEAK DETECTION SYSTEM HIGH LEVEL (GREATER THAN 2,500 PPM) | x | x | x | X |
| 2 LEAK DETECTION SYSTEM LOW LEVEL (GREATER THAN 1,500 PPM) | X | X | X | X |
| 3 LEAK DETECTION SYSTEM - TROUBLE | X | | X | X |

| System | Description | System/Refrigerant |
|---|---|---|
| Zone 1 | POS Freezer #1 | SEE REFRIGERATION SCHEDULE |
| Zone 2 | POS Freezer #2 | SEE REFRIGERATION SCHEDULE |
| Zone 3 | POS Cooler | SEE REFRIGERATION SCHEDULE |
| Zone 4 | Meat Cooler | SEE REFRIGERATION SCHEDULE |
| Zone 5 | Bakery Cooler | SEE REFRIGERATION SCHEDULE |
| Zone 6 | Bakery Freezer | SEE REFRIGERATION SCHEDULE |
| Zone 7 | Machine Room | SEE REFRIGERATION SCHEDULE |
| **Zone 8** | **<Add additional Zone>** | |

LEAK DETECTION SYSTEM DESIGNATIONS & ALARM SEQUENCE | SCALE NONE | 4

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REFRIGERATION
COSTCO WHOLESALE
**LEE SUMMIT, MO**

STATE OF MISSOURI
NICHOLAS P. DeMATTEI
NUMBER PE-2016017218
PROFESSIONAL ENGINEER
12.23.2025

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PROJECT# | COSTCO
DESIGNED BY | K. WHEELER
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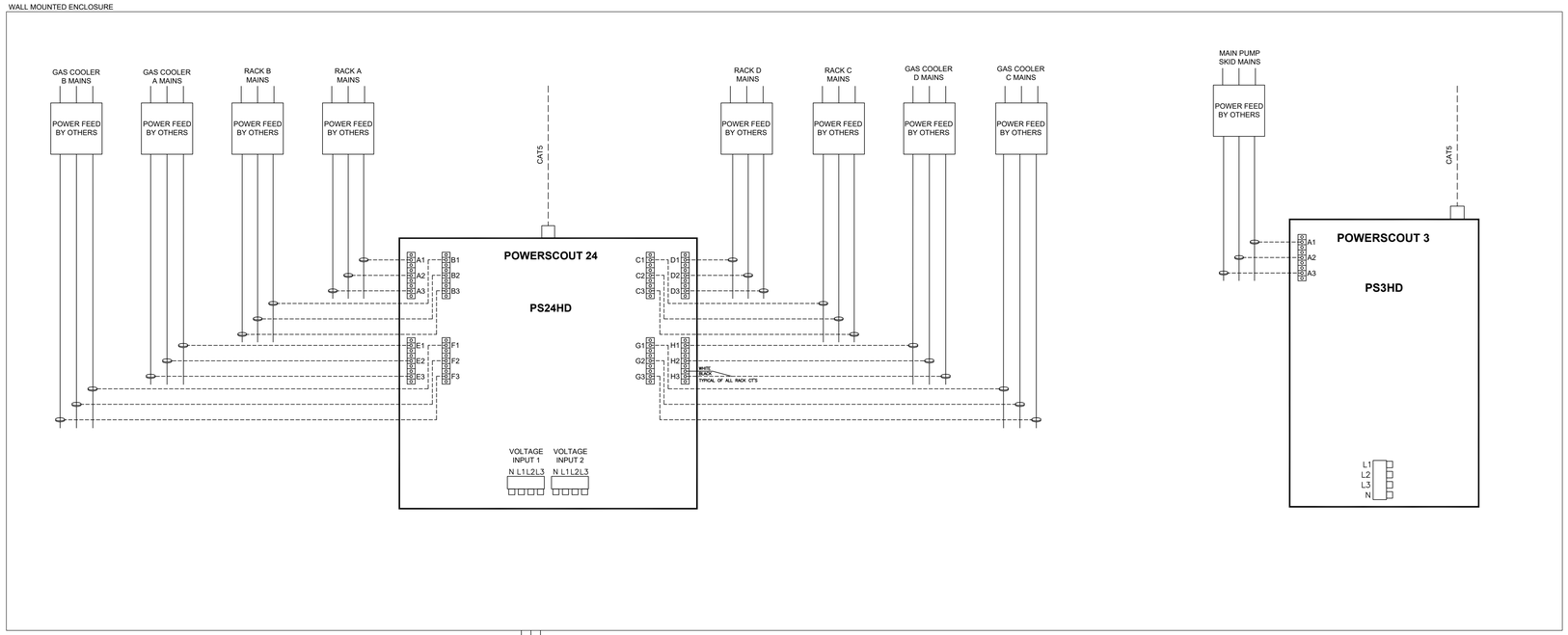
REVISIONS

LEAK DETECTION DETAILS

R7.4

WALL MOUNTED ENCLOSURE




---------- DENOTES FIELD WIRING
USE COPPER CONDUCTORS ONLY.

CHECK AND TIGHTEN ALL ELECTRICAL CONNECTIONS BEFORE ENERGIZING EQUIPMENT.

WALL MOUNTED ENFLEX METERING PANEL DETAIL

SCALE NONE 1

NOT USED

SCALE NONE 2

NOT USED

SCALE NONE 3

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REFRIGERATION
COSTCO WHOLESALE
**LEE SUMMIT, MO**

STATE OF MISSOURI
NICHOLAS P. DIETERT
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12.23.2025

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POWERSCOUT DETAILS

R7.5

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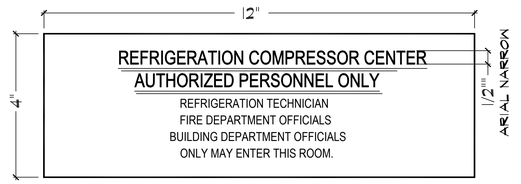
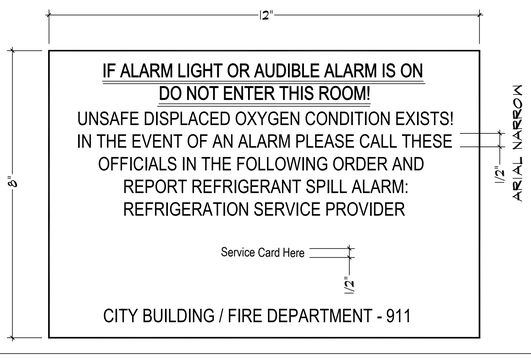
PLACARD 1

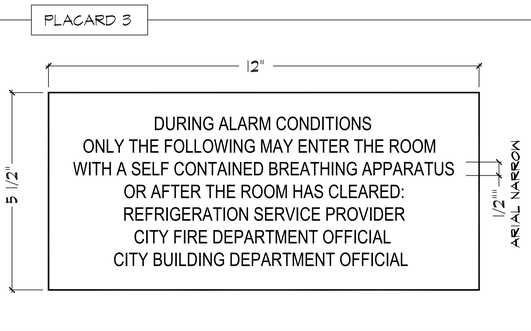
WHITE LETTERING ON RED BACKGROUND (TYPICAL)



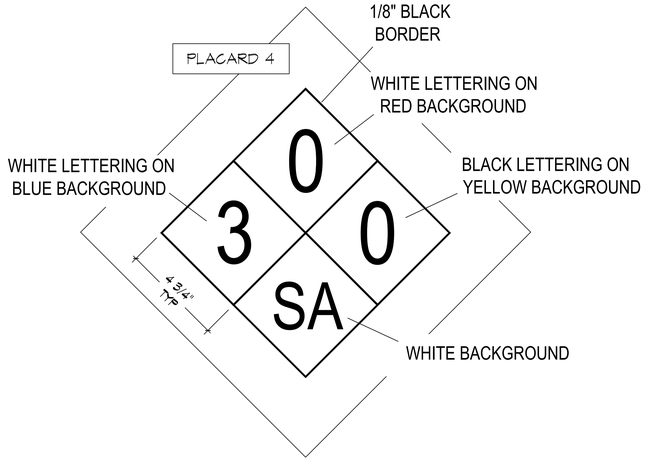

PLACARD 2



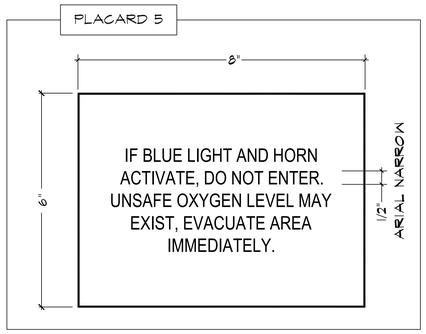

PLACARD 3



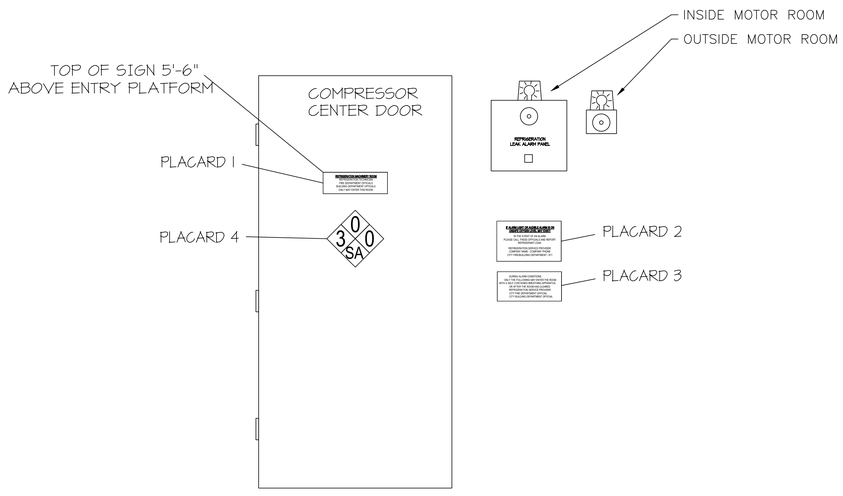

PLACARD 4




PLACARD 5




NOTE: PLACARD 5 TO BE INSTALLED AT EVERY COOLER/FREEZER WITH LEAK DETECTION. BOTTOM OF PLACARD TO BE 8" ABOVE DOOR JAMB, CENTER OF OPENING. BLUE LIGHT TO BE CENTERED ABOVE PLACARD. PLACARD TO BE 1/16" THICK AND PROVIDED WITH PRE-DRILLED HOLES.




NOTE: ALL REFRIGERATION SIGNAGE BY REFRIGERATION CONTRACTOR.

## COMPRESSOR CENTER ENTRANCE

SCALE: N/A

REFRIGERATION
COSTCO WHOLESALE
**LEE SUMMIT, MO**

STATE OF MISSOURI
NICHOLAS P. LIEBERT
NUMBER PE-2010037218
PROFESSIONAL ENGINEER

12.23.2025

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REFRIGERATION ALARM PLACARD DETAILS

R7.6

NOT USED

SCALE 1/8"=1'-0" | 1

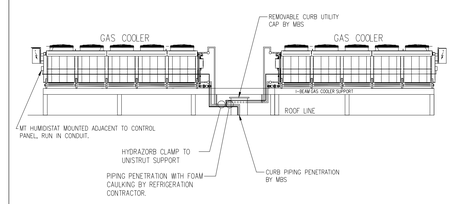
NOT USED

SCALE 1/8"=1'-0" | 2

NOT USED

SCALE 1/8"=1'-0" | 3

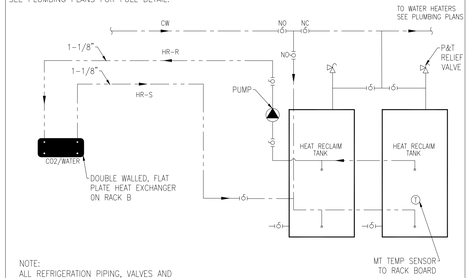
NOTE:
- ALL DISCHARGE REFRIGERATION LINES WILL BE PAINTED WITH "SILVER SEAL" OR APPROVED EQUAL.
- ALL LIQUID LINES INSULATED AND WRAPPED.
- ALL GAS COOLERS MUST BE MOUNTED LEVEL AND TRUE IN BOTH DIRECTIONS.
- GAS COOLER MUST BE BOLTED TO ROOF CURBS.




GAS COOLER PLATFORM LAYOUT

SCALE NONE | 4

THIS DETAIL FOR COORDINATION ONLY.
SEE PLUMBING PLANS FOR FULL DETAIL.




NOTE:
ALL REFRIGERATION PIPING, VALVES AND THERMOSTATS PROVIDED AND INSTALLED BY RC.
HEAT RECLAIM TANKS SET BY RC.

ALL WATER PIPING, VALVES, PUMP AND CONNECTIONS PROVIDED AND INSTALLED BY PLUMBING CONTRACTOR

HEAT RECLAIM TANK PIPING (2 TANKS)

SCALE NONE | 5

NOT USED

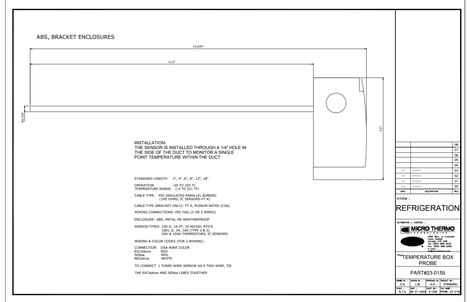
SCALE 1/8"=1'-0" | 6

NOT USED

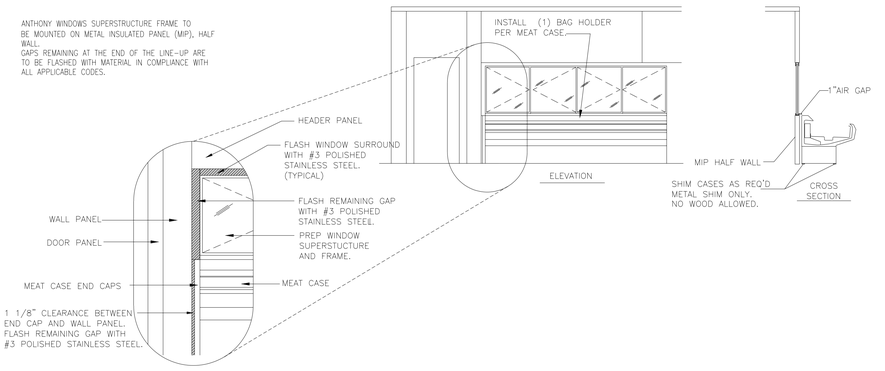
SCALE 1/8"=1'-0" | 7

TYP. WALK-IN TEMPERATURE PROBE

SCALE 1/8"=1'-0" | 8




ANTHONY WINDOWS SUPERSTRUCTURE FRAME TO BE MOUNTED ON METAL INSULATED PANEL (MIP), HALF WALL.
GAPS REMAINING AT THE END OF THE LINE-UP ARE TO BE FLASHED WITH MATERIAL IN COMPLIANCE WITH ALL APPLICABLE CODES.

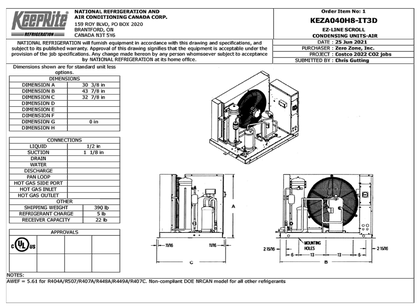



PREP WINDOWS SUPERSTRUCTURE MOUNTING DETAIL

SCALE NONE | 9

NOT USED

SCALE 1/8"=1'-0" | 10

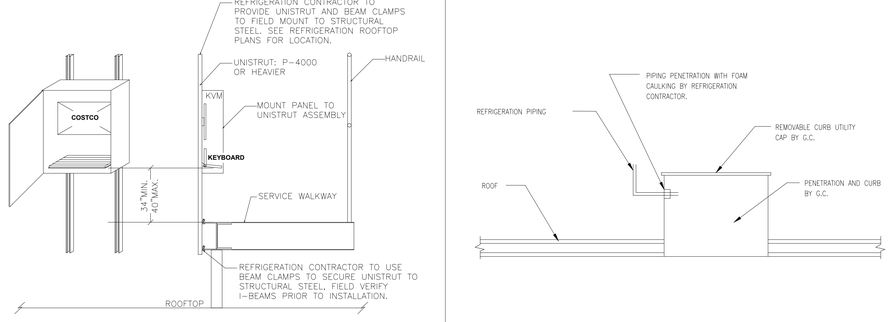



KEEPRITE KEZA CONDENSING UNIT

SCALE 1/8"=1'-0" | 10

NOT USED

SCALE 1/8"=1'-0" | 7



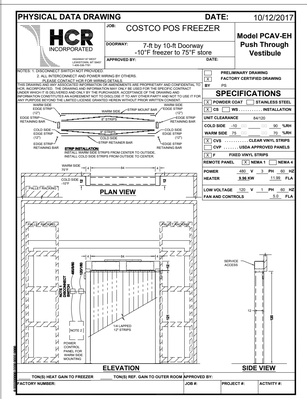

ROOFTOP KVM MOUNTING DETAIL

SCALE NONE | 11

TYPICAL CURB PENETRATION

SCALE NONE | 12




THE CONTRACTOR WILL SEAL THE OUTSIDE AND OUTER TOP GAP BETWEEN THE HCR AIR DOOR FRAME AND THE COOLER PANEL. THE FOLLOWING STEPS WILL BE PERFORMED:

**SURFACE PREPARATION:**

INSPECT THE GAP BETWEEN THE HCR AIR DOOR FRAME AND THE COOLER PANEL TO ENSURE IT IS CLEAN AND FREE OF DEBRIS. CLEAN AND PREPARE THE SURFACES TO ENSURE PROPER ADHESION OF THE SEALING MATERIALS.

GAP SEALING:

INSERT FOAM BACKER ROD INTO THE GAP TO PROVIDE SUPPORT FOR THE SEALING MATERIALS. APPLY A HIGH-QUALITY BUTYL CAULK WITHIN THE GAP, ENSURING COMPLETE COVERAGE TO CREATE AN AIRTIGHT AND MOISTURE-RESISTANT SEAL.

COVER INSTALLATION:

INSTALL A WHITE ANGLE METAL COVER OVER THE SEALED GAP. SECURE THE METAL COVER TO CONCEAL THE SEAM AND PROVIDE A CLEAN, FINISHED APPEARANCE.

INSPECTION AND CLEANUP:

INSPECT THE SEALED AREA TO ENSURE PROPER ADHESION AND COVERAGE. CLEAN UP ANY EXCESS CAULK OR DEBRIS FROM THE INSTALLATION PROCESS.

**MATERIALS TO BE USED:**

FOAM BACKER ROD, BUTYL CAULK & WHITE ANGLE METAL COVER

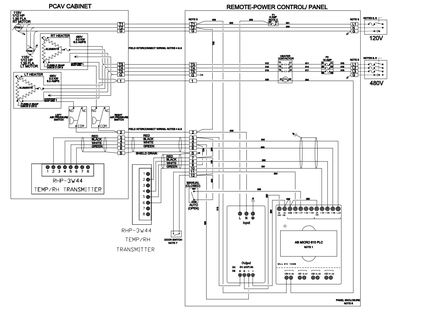
ENSURE GAP IS FULLY SEALED AND CONCEALED. CLEAN, PROFESSIONAL FINISH WITH NO VISIBLE GAPS OR CAULK RESIDUE.

DATE: 02.2025

POS FREEZER HCR-PCAV AIR DOOR

SCALE NONE | 13

MODEL PCAV-ST-PLC-EH WIRING DIAGRAM (480V/120V)
PATENT PENDING




HCR-PCAV AIR DOOR WIRING DIAGRAM

SCALE NONE | 14

CHILLED WATER CIRCULATION PUMP SCHEDULE
PROVIDED BY CONTRACTOR / INSTALLED BY CONTRACTOR

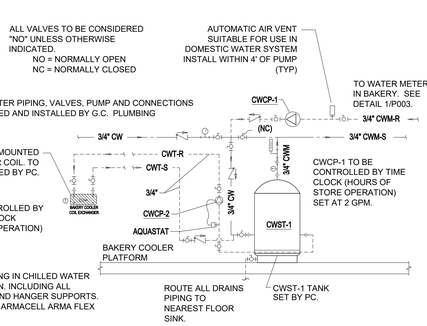
| PLAN CODE | TYPE | MFGR | MODEL | GPM | HEAD (FT W.C.) | RPM | HP | POWER | REMARKS |
|---|---|---|---|---|---|---|---|---|---|
| CWCP-1 | CENTRIFUGAL | TACO | 009-F5 | 2 | 10 | 3250 | 1/8 | 115/1/60 | 1,3,4 |
| CWCP-2 | CENTRIFUGAL | TACO | 009-F5 | 2 | 10 | 3250 | 1/8 | 115/1/60 | 1,2,3,4 |

REMARKS:
1) PROVIDE WITH 7 DAY, DIGITAL PROGRAMMABLE TIMER OR TIMER AND AQUASTAT. SEE DETAIL 8/P003.
2) AQUASTAT CONTROL FOR CIRC. PUMP SETTINGS: ON -42°F OFF -40°F DURING OCCUPIED HOURS.
3) TIMER CONTROL FOR CIRC. PUMP: OFF DURING UNOCCUPIED HOURS.
4) DEVICE TO BE LISTED FOR USE IN POTABLE WATER SYSTEMS.

CHILLED WATER STORAGE TANK

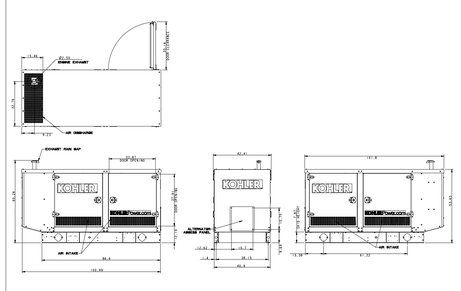
| PLAN CODE | SERVICE | MFGR | MODEL | LOCATION | FUEL TYPE | FUEL INPUT (MBH) | STOR. (GAL.) | EFF. % | RECOVERY (GPH) | POWER (V/PH/Hz) | WEIGHT (LBS) | NOTES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CWST-1 | BAKERY METER | TACO | BTL0050 | BAKERY COOLER PLATFORM | N/A | N/A | 50 | N/A | N/A | N/A | 610 | 1,2 |

NOTES:
1) 50 GALLON CARBON STEEL STORAGE TANK TO BAKERY COOLER PLATFORM.
2)TANK TO BE PROVIDED BY PLUMBING CONTRACTOR.
3) SHIPPING WEIGHT = 190 LBS. WATER WEIGHT = 420 LBS. TOTAL WEIGHT = 610 LBS.




BAKERY WATER CHILLER DETAIL AND EQUIPMENT SCHEDULES

SCALE NONE | 17

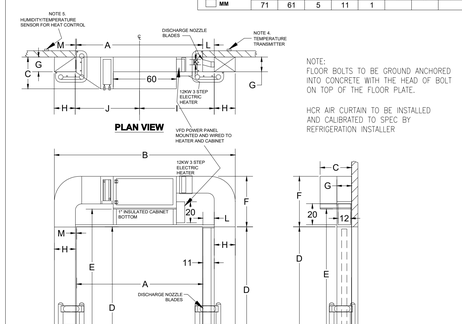



UNIT WEIGHT: 2,438 LBS MAXIMUM

KOHLER KG45 DETAILS

SCALE NONE | 18

| DIMENSIONS: | A | B | C | D | E | F | G | H |
|---|---|---|---|---|---|---|---|---|
| X INCHES | 120 | 168 | 30 | 120 | 137 | 48 | 14 | 18 |
| MM | I | J | K | L | M | N | O | P |
| | 71 | 61 | 5 | 11 | 1 | | | |




NOTE:
FLOOR BOLTS TO BE GROUND ANCHORED INTO CONCRETE WITH THE HEAD OF BOLT ON TOP OF THE FLOOR PLATE.

HCR AIR CURTAIN TO BE INSTALLED AND CALIBRATED TO SPEC BY REFRIGERATION INSTALLER

HCR-AC-CS AIR CURTAIN DETAIL

SCALE NONE | 19

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REFRIGERATION
COSTCO WHOLESALE
**LEE SUMMIT, MO**

STATE OF MISSOURI
NICHOLAS P. KOSTER
NUMBER PE-2010017218
PROFESSIONAL ENGINEER
12.23.2025

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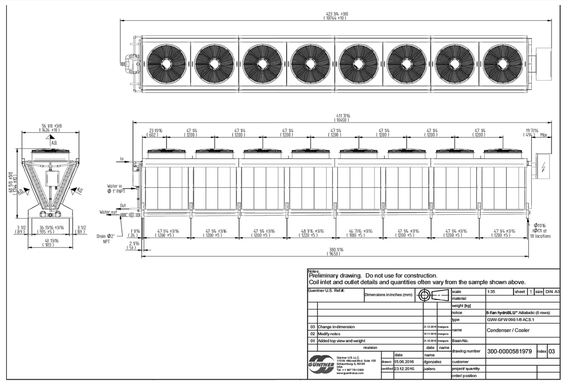
12.22.2025
PROJECT# | COSTCO
DESIGNED BY | K. WHEELER
DRAWN BY | K. WHEELER
REVISIONS

REFRIGERATION DETAILS

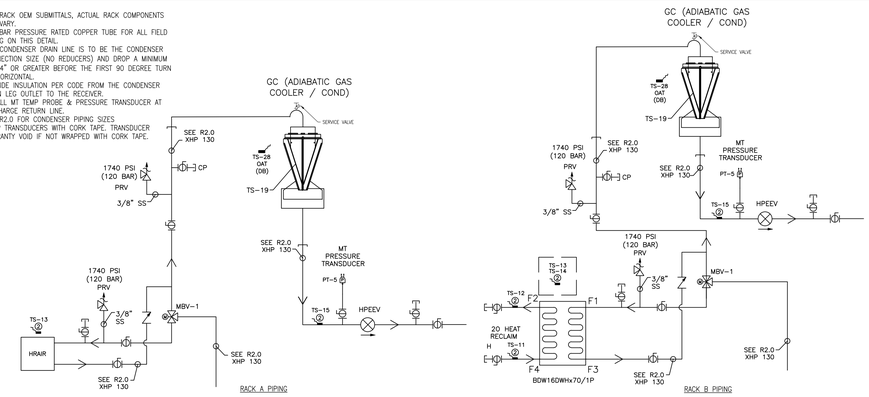
R8.0




GUNTNER ADIABATIC GAS COOLER

| SCALE | |
|---|---|
| NTS | 1 |

NOTES:
1. SEE RACK OEM SUBMITTALS, ACTUAL RACK COMPONENTS MAY VARY.
2. 120 BAR PRESSURE RATED COPPER TUBE FOR ALL FIELD PIPING ON THIS DETAIL.
3. THE CONDENSER DRAIN LINE IS TO BE THE CONDENSER CONNECTION SIZE (NO REDUCERS) AND DROP A MINIMUM OF 14" OR GREATER BEFORE THE FIRST 90 DEGREE TURN TO HORIZONTAL.
4. PROVIDE INSULATION PER CODE FROM THE CONDENSER DRAIN LEG OUTLET TO THE RECEIVER.
5. INSTALL MT TEMP PROBE & PRESSURE TRANSDUCER AT DISCHARGE RETURN LINE.
6. SEE R2.0 FOR CONDENSER PIPING SIZES
7. WRAP TRANSDUCERS WITH CORK TAPE. TRANSDUCER WARRANTY VOID IF NOT WRAPPED WITH CORK TAPE.




HEAT RECLAIM & CONDENSER PIPING DIAGRAMS

| SCALE | |
|---|---|
| NTS | 2 |

| SCALE | |
|---|---|
| NTS | 3 |

NOT USED

| SCALE | |
|---|---|
| NTS | 4 |

NOT USED

| SCALE | |
|---|---|
| NTS | 5 |

NOT USED

| SCALE | |
|---|---|
| NTS | 6 |

NOT USED

| SCALE | |
|---|---|
| NTS | 7 |

NOT USED

| SCALE | |
|---|---|
| NTS | 8 |

NOT USED

| SCALE | |
|---|---|
| NTS | 9 |

NOT USED

| SCALE | |
|---|---|
| NTS | 10 |

NOT USED

| SCALE | |
|---|---|
| NTS | 11 |

NOT USED

| SCALE | |
|---|---|
| NTS | 12 |

NOT USED

| SCALE | |
|---|---|
| NTS | 13 |

NOT USED

| SCALE | |
|---|---|
| NTS | 14 |

NOT USED

| SCALE | |
|---|---|
| NTS | 15 |

NOT USED

| SCALE | |
|---|---|
| NTS | 16 |

NOT USED

| SCALE | |
|---|---|
| NTS | 17 |

NOT USED

| SCALE | |
|---|---|
| NTS | 18 |

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REFRIGERATION
COSTCO WHOLESALE
**LEE SUMMIT, MO**

STATE OF MISSOURI
NICHOLAS P. [illegible]
NUMBER PE-2016017218
PROFESSIONAL ENGINEER

12.23.2025

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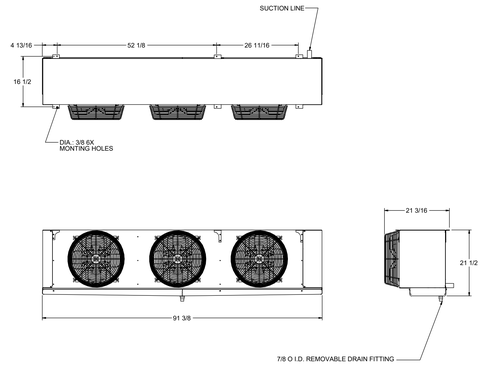
PERMIT

12.22.2025
PROJECT# | COSTCO
DESIGNED BY | K. WHEELER
DRAWN BY | K. WHEELER
REVISIONS

CONDENSER DETAILS

R8.1

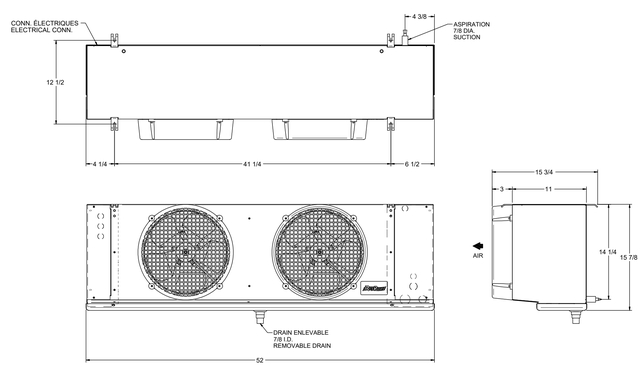
ELECTRICAL DATA
240V/1/60
9.10A PER UNIT




MOTOR ROOM AC

EKA–4207–2 276LBS | SCALE NTS | 1

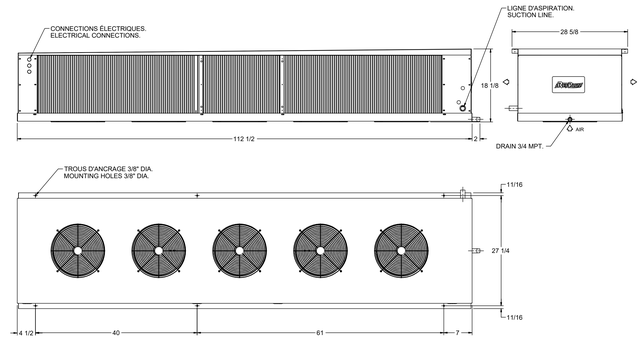
ELECTRICAL DATA
240V/1/60
1.8 AMPS PER UNIT




FOOD SERVICE

LSA1301–2 47LBS | SCALE NTS | 2

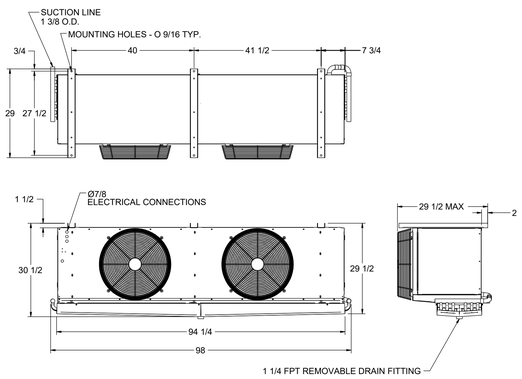
ELECTRICAL DATA
240V/1/60
3.41 AMPS PER UNIT (FAN)
8.34 AMPS PER UNIT (HEATER)




SHOP–IN PRODUCE COOLER

LAG–4007–2 327LBS | SCALE NTS | 3

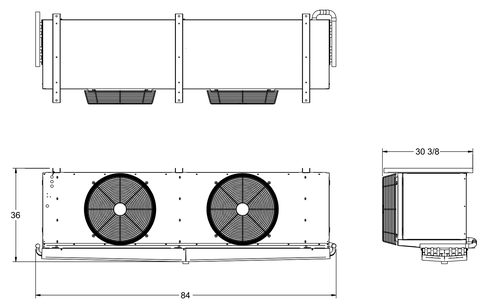
ELECTRICAL DATA
240V/1/60
11.92 AMPS PER UNIT




BAKERY FREEZER

EMR4800–2 430LBS | SCALE NTS | 4

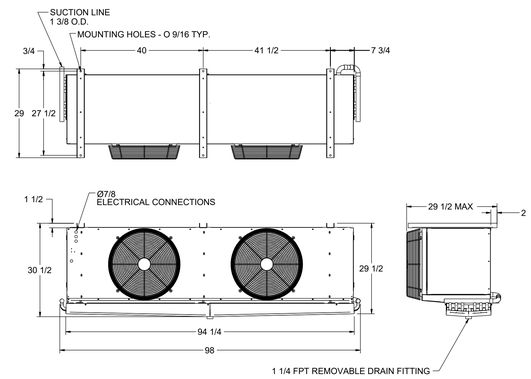
ELECTRICAL DATA
240V/1/60
11.93 AMPS PER UNIT




MEAT COOLER

EMR–4807–2 512LBS | SCALE NTS | 5

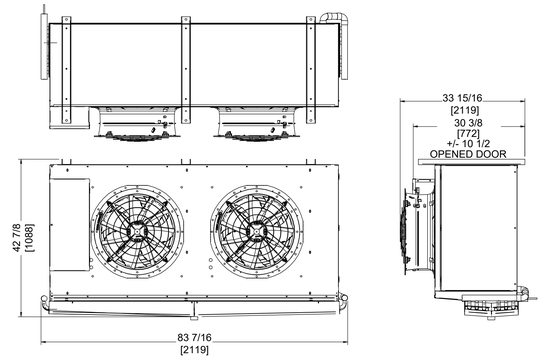
ELECTRICAL DATA
240V/1/60
11.92 AMPS PER UNIT




SHOP–IN DAIRY COOLER

EMR5800–2 482LBS | SCALE NTS | 6

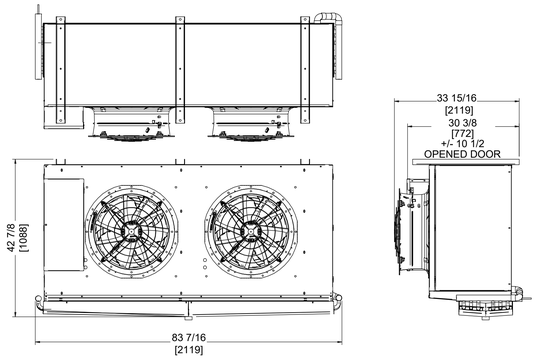
ELECTRICAL DATA
460V/3/60
4.28A PER UNIT




POS COOLER

EJR–5907–9–ZSP 637LBS | SCALE NTS | 7

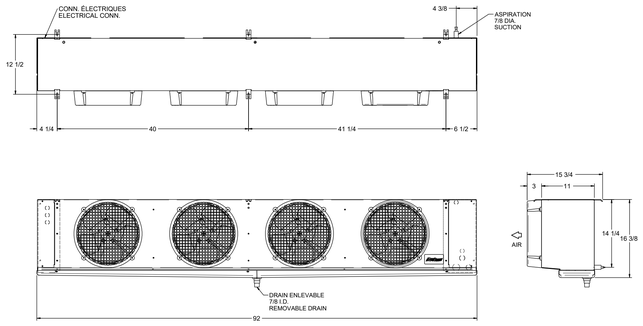
ELECTRICAL DATA
460V/3/60
4.28A PER UNIT




POS FREEZERS

EJR–8907–9–ZSP 702LBS | SCALE NTS | 8

ELECTRICAL DATA
240V/1/60
2.55 AMPS PER UNIT




BAKERY COOLER

LSR–2207–2 95LBS | SCALE NTS | 9

SCALE NTS | 10

SCALE NTS | 11

SCALE NTS | 12

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REFRIGERATION
COSTCO WHOLESALE
**LEE SUMMIT, MO**

STATE OF MISSOURI
NICHOLAS P
NUMBER
PE-2016037218
PROFESSIONAL ENGINEER

12.23.2025

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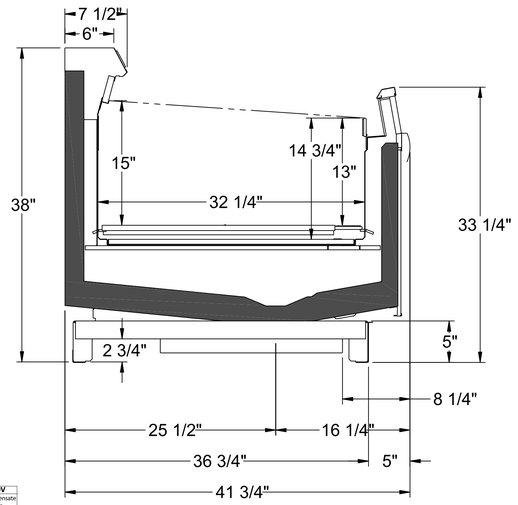
12.22.2025
PROJECT# | COSTCO
DESIGNED BY | K. WHEELER
DRAWN BY | K. WHEELER
REVISIONS

EVAPORATOR DETAILS

R8.2




MALMOE M1 (COSTCO)

| Lighting Characteristics @ 120V | | | | |
|---|---|---|---|---|
| Case Length | Fluorescent T5 Lighting | | AGL LED Lighting | |
| | Amps | Watts | Amps | Watts |
| 8' | N/A | N/A | N/A | N/A |
| 12' | N/A | N/A | N/A | N/A |

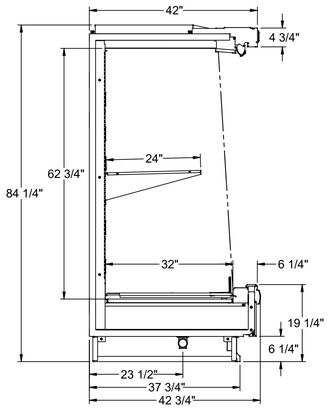
| Electrical Characteristics @ 120V | | | | | |
|---|---|---|---|---|---|
| Case Length | Fan Quantity | High-Efficiency Fans (ECM) | | Anti-Condensate Heaters | |
| | | Amps | Watts | Amps | Watts |
| 8' | 2 | 0.22 | 14 | 0.42 | 50 |
| 12' | 3 | 0.33 | 21 | 0.63 | 75 |

| Total Refrigeration Characteristics (Direct Expansion) | | | | | | | |
|---|---|---|---|---|---|---|---|
| Application | Total BTU/Hr | | SST (°F) | SuperHeat (°F) | Discharge Air (°F) | Discharge Air Velocity (FPM) | Fan Speed (RPM) |
| | Parallel | Conv. | | | | | |
| 8' - Medium Temperature | 2690 | 3070 | 22 | 6-8 | 27 | 300 | 800 |
| 12' - Medium Temperature | 4035 | 4605 | 22 | 6-8 | 27 | 300 | 800 |

| Defrost Settings (Direct Expansion) | | | | |
|---|---|---|---|---|
| Defrost Type | Defrosts (Day) | Fail Safe (Min.) | Termination Temperature (ºF) | Drip Time (Min) |
| Off Cycle | 4 | 45 | 42°F | 0 |

1. ArnegUSA refrigerated display cases for sale in the United States meet or exceed Department of Energy 2017 energy efficiency requirements.
2. Recommended Settings for Conventional Discharge Air Control: Cut-In Temp = Field Discharge Air +2°F, Cut-Out Temp = Field Discharge Air -2°F.
3. Average Discharge Air Velocity measure five minutes after defrost.
4. Amps are taken from electrical nameplate values, watts are actual recorded values from laboratory measurements.

ARNEG M1 – D2U00162 | SCALE NTS | 1




D5 105/205 (COSTCO)

| Lighting Characteristics @ 120V | | | | | | |
|---|---|---|---|---|---|---|
| Case Length | Arneg LED Lighting (Per Row) | | | | | |
| | Shelving | | Canopy (Normal) | | Canopy (Warm) | |
| | Amps | Watts | Amps | Watts | Amps | Watts |
| 4' | 0.08 | 10 | 0.16 | 20 | 0.16 | 20 |
| 6' | 0.13 | 15 | 0.26 | 30 | 0.26 | 30 |
| 8' | 0.16 | 20 | 0.33 | 40 | 0.33 | 40 |
| 12' | 0.24 | 30 | 0.5 | 60 | 0.5 | 60 |

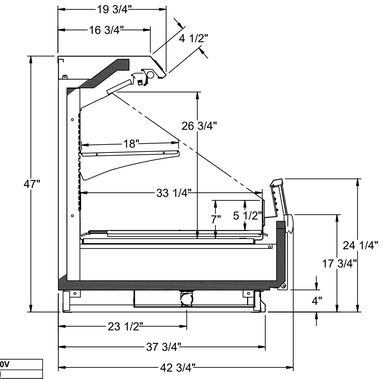
| Electrical Characteristics @ 120V | | | | | | | |
|---|---|---|---|---|---|---|---|
| Case Length | Fan Quantity | High-Efficiency Fans (ECM) | | | | | |
| | | Dairy/Deli (Total) | | | Meat (Total) | | |
| | | Amps | | Watts | Amps | | Watts |
| 4' | 2 | 0.92 | | 25 | 0.92 | | 39 |
| 6' | 3 | 1.38 | | 37 | 1.38 | | 59 |
| 8' | 4 | 1.84 | | 49 | 1.84 | | 78 |
| 12' | 6 | 2.76 | | 74 | 2.76 | | 117 |

| Refrigeration Characteristics | | | | | | | |
|---|---|---|---|---|---|---|---|
| Front Height | Application | BTUH/Ft | | Evaporator Temperature (°F) | Superheat (°F) | Discharge Air (°F) | Discharge Air Velocity (FPM) |
| | | Parallel | Conv. | | | | |
| High | Meat | 1415 | 1522 | 27 | 6-8 | 30 | 400 - 500 |
| High | Dairy/Deli/Cut Produce | 1286 | 1377 | 32 | 6-8 | 34 | 350 - 450 |

| Defrost Settings | | | | |
|---|---|---|---|---|
| Defrost Type | Defrosts (Day) | Fail Safe (Min.) | Termination Temperature (ºF) | Drip Time (Min) |
| Off Cycle / Meat | 6 | 30 | 48°F | 0 |
| Off Cycle / Dairy | 6 | 15 | 48°F | 0 |

NOTES
1. ArnegUSA refrigerated display cases for sale in the United States meet or exceed Department of Energy 2017 energy efficiency requirements.
2. Add 13 BTUH/Ft per row of additional LED canopy lighting. Add 10 BTUH/Ft per row of LED shelf lighting.
3. Variations on Lighting brands may be available upon request and Engineering review.
4. Recommended Settings for Conventional Discharge Air Control: Cut-In Temp = Field Discharge Air +2°F, Cut-Out Temp = Field Discharge Air -2°F.
5. Average Discharge Air Velocity measured five minutes after defrost.
6. Listed evaporator temperature indicates unlighted shelves. For lighted shelves and/or aftermarket merchandising accessories, reduce the listed evaporator temperature by 1°F.
7. Amps are taken from electrical nameplate values, watts are actual recorded values from laboratory measurements.
8. When using high glide refrigerants please use the refrigerant manufacturers instructions for measuring superheat.
9. Temperature and defrost settings listed above are recommended start up settings. Final operational settings may need to be adjusted based on store conditions.

ARNEG D5 – D2U20028 | SCALE NTS | 2




| Lighting Characteristics @ 120V | | | | | | |
|---|---|---|---|---|---|---|
| Case Length | Arneg LED Lighting (Per Row) | | | | | |
| | Shelving | | Canopy (Normal) | | Canopy (Warm) | |
| | Amps | Watts | Amps | Watts | Amps | Watts |
| 6' | 0.13 | 15 | 0.26 | 30 | 0.26 | 30 |
| 8' | 0.17 | 20 | 0.33 | 40 | 0.33 | 40 |
| 12' | 0.27 | 30 | 0.5 | 60 | 0.5 | 60 |

| Electrical Characteristics @ 120V | | | |
|---|---|---|---|
| Case Length | Fan Quantity | High-Efficiency Fans (ECM) | |
| | | Meat/Dairy (Total) | |
| | | Amps | Watts |
| 6' | 3 | 0.9 | 18 |
| 8' | 4 | 1.2 | 24 |
| 12' | 6 | 1.5 | 36 |

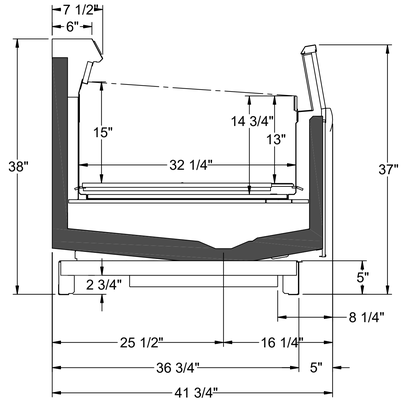
| Refrigeration Characteristics | | | | | | | |
|---|---|---|---|---|---|---|---|
| Front Height | Application | BTUH/Ft | | SST (°F) | SuperHeat (°F) | Discharge Air (°F) | Discharge Air Velocity (FPM) |
| | | Parallel | Conv. | | | | |
| Low w/Glass | Dairy | 780 | 813 | 32 | 6-8 | 35 | 200 - 400 |
| Low w/Glass | Meat | 845 | 946 | 27 | 6-8 | 30 | 200 - 400 |

| Defrost Settings | | | | |
|---|---|---|---|---|
| Defrost Type | Defrosts (Day) | Fail Safe (Min.) | Termination Temperature (ºF) | Drip Time (Min) |
| Off Cycle | 6 | 30 | 45°F | 0 |

NOTES
1. ArnegUSA refrigerated display cases for sale in the United States meet or exceed Department of Energy 2017 energy efficiency requirements.
2. Add 13 BTUH/ Ft per row of additional LED canopy lighting. Add 10 BTUH/Ft per row of LED shelf lighting.
3. Variations on Lighting brands may be available upon request and Engineering review.
4. Recommended Settings for Conventional Discharge Air Control: Cut-In Temp = Field Discharge Air +2°F, Cut-Out Temp = Field Discharge Air -2°F.
5. Average Discharge Air Velocity measured five minutes after defrost.
6. Listed evaporator temperature indicates unlighted shelves. For lighted shelves and/or aftermarket merchandising accessories, reduce the listed evaporator temperature by 2°F.
7. Amps are taken from electrical nameplate values, watts are actual recorded values from laboratory measurements.
8. When using high glide refrigerants please use the refrigerant manufacturers instructions for measuring superheat.
9. Temperature and defrost settings listed above are recommended start up settings. Final operational settings may need to be adjusted based on store conditions.

ARNEG D2 – D2U00178 | SCALE NTS | 3

NOT USED | SCALE NTS | 4




| Lighting Characteristics @ 120V | | | | |
|---|---|---|---|---|
| Case Length | Fluorescent T5 Lighting | | AGL LED Lighting | |
| | Amps | Watts | Amps | Watts |
| 8' | N/A | N/A | N/A | N/A |

| Electrical Characteristics @ 120V | | | | | |
|---|---|---|---|---|---|
| Case Length | Fan Quantity | High-Efficiency Fans (ECM) | | Anti-Condensate Heaters | |
| | | Amps | Watts | Amps | Watts |
| 8' | 2 | 0.22 | 14 | 0.94 | 113.25 |

| Total Refrigeration Characteristics (Direct Expansion) | | | | | | | |
|---|---|---|---|---|---|---|---|
| Application | Total BTU/Hr | | SST (°F) | SuperHeat (°F) | Discharge Air (°F) | Discharge Air Velocity (FPM) | Fan Speed (RPM) |
| | Parallel | Conv. | | | | | |
| 8' - Medium Temperature | 2690 | 3070 | 22 | 6-8 | 27 | 300 | 800 |
| 8' - Low Temperature | 3310 | 3440 | -20 | 6-8 | -12 | 300 | 600 |

| Defrost Settings (Direct Expansion) | | | | |
|---|---|---|---|---|
| Defrost Type | Defrosts (Day) | Fail Safe (Min.) | Termination Temperature (ºF) | Drip Time (Min) |
| Off Cycle | 4 | 45 | 42°F | 0 |
| Hot Gas | 4 | 45 | 42°F | 0 |

1. ArnegUSA refrigerated display cases for sale in the United States meet or exceed Department of Energy 2017 energy efficiency requirements.
2. Recommended Settings for Conventional Discharge Air Control: Cut-In Temp = Field Discharge Air +2°F, Cut-Out Temp = Field Discharge Air -2°F.
3. Average Discharge Air Velocity measure five minutes after defrost.
4. Amps are taken from electrical nameplate values, watts are actual recorded values from laboratory measurements.

ARNEG D/T ENCAP – D2U00167 | SCALE NTS | 5

BORGEN – P7508 | SCALE NTS | 6


Cushing Terrell

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REFRIGERATION
COSTCO WHOLESALE
**LEE SUMMIT, MO**

STATE OF MISSOURI
NICHOLAS P. GREMEL
NUMBER PE-2010017318
PROFESSIONAL ENGINEER

12.23.2025

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12.22.2025
PROJECT# | COSTCO
DESIGNED BY | K. WHEELER
DRAWN BY | K. WHEELER
REVISIONS

REFRIGERATED CASE DETAILS

R8.3