CROMWELL

1300 East 6th Street | Little Rock, AR 72202
Phone: 501.372.2900
Fax: 501.372.0482

# Submittal Review Form

**Job Title: Anduril**

**Job No: 2023-047**

**Submittal No: 237413-1 Package unit- Air Handler**

**By: JDG**

**Date:02-15-2024**

Reviewing is only for conformance with the design concepts of the Project and compliance with the information given in the contract documents. The Contractor is responsible for dimensions to confirmed or correlated at the site; for information that pertains solely to the fabrication process, or the means, methods, techniques, sequences, and procedures of construction; and for the coordination of the work of all other trades.

| Item No. | Description | No Exception Taken | Make Corrections Noted | Revise and Resubmit | Not Accepted | Comments |
|---|---|---|---|---|---|---|
| 1 | DHU-1 Fan | X | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |

*Quality People. Building Solutions.*

Comfort Systems USA (Arkansas), Inc.
P.O. Box 16620
Little Rock, AR 72231
Phone 501-834-3320
Fax 501-834-5416

**Date:** 2/14/2024
**Return Request:** 2/22/2024
**Project:** Anduril Industries – Bldgs. 301, 400, 600
**Supplier:** Comfort Systems USA (Arkansas), Inc.
**Manufacturer:** Climate By Design
**Submittal:** Dehumidification AHU
**Submittal Number:** 23 00 00-02
**Drawing # and Installation:** Mechanical Drawings

**ARCHITECT**
William Thomas Moore, AIA
1300 E. 6th Street
Little Rock, AR 72202
501-372-2900

**ENGINEER**
Cromwell
1300 E. 6th Street
Little Rock, AR 72202
501-372-2900

**GENERAL CONTRACTOR**

**MECHANICAL SUBCONTRACTOR**
Comfort Systems USA (Arkansas), Inc.
9924 Landers Rd.
N. Little Rock, AR 72117
501-834-3320

Notes:

tad@comfortar.com

# *Submittal*

Harrison
Energy Partners

***Prepared For:***
*Cromwell*

***Date:***
*February 14, 2024*

***Sold To:***
*Comfort Systems USA*

***Job Name:***
*Anduril Building 400*

---

Harrison Energy Partners is pleased to provide the enclosed submittal for your review and approval.

| **Qty.** | **Product Summary** |
|---|---|
| 1 | Dehumidification Air Handling Unit |

**Brynn Lea** , New Systems Sales Engineer
m. 501.539.0515
harrisonenergy.com

*The attached information describes the equipment we propose to furnish for this project and is submitted for your approval.*


# Revision Submittal

## for

# Anduril - McHenry MS

## MODEL#:CDH-154-10.5-EF7ELOCE

**CLIMATE BY DESIGN INTERNATIONAL, INC.**

**SO# 029400-001**

# CLIMATE BY DESIGN INTERNATIONAL, INC.

**WARNING**

**Improper installation, adjustment, alteration, service or maintenance can cause property damage, injury or death. Read the installation, operating and maintenance instructions thoroughly before installing or servicing this equipment.**

**FOR YOUR SAFETY**

**The use and storage of gasoline or other flammable vapors and liquids in open containers in the vicinity of this appliance is hazardous.**

**FOR YOUR SAFETY**

**If you smell gas:**

1. **Open Windows.**
2. **Don't touch electrical switches**
3. **Extinguish any open flames**
4. **Immediately call your gas supplier.**

# CONTRACTOR/OWNER RESPONSIBILITY
# Requirements before Startup

**Project: Anduril - McHenry MS  Sales Order:  029400-001**

## The contractor/owner is responsible for proper preparation before startup, including but not limited to the following items;

It is the contractor‘s responsibility to ensure that all equipment and auxiliary components are installed and conform to all local, city, and state or provincial codes.

**Field assembly of unit:** See recommended handling instructions included in this document.

Remove any shipping/storage coverings on all air openings and any other connections.

Refer to the recommended p-trap assembly instructions included with this submittal for details and specific requirements in regards to drain pan plumbing recommendations.

**Ship Loose Components:** There is a list on the electrical cabinet door that provides the location of the ship loose components.

- Filter
- Filter Clips
- Outside and React Hoods
- Remote user interface

**Mechanical**:

1. Install the unit curb assembly, curb gasket and provide any necessary insulation and flashing
    a. Maximum support structure allowable deflection to be L/360 criteria with a maximum 0.5” overall
    b. Maximum deviation from true flat to be 0.25” rise per 10 feet with a maximum of 0.5” overall.

2. Provide and install ladders and/or platforms required for accessing the electrical disconnect, filters and other access doors according to any applicable codes
    a. See the unit drawing for filter and access doors on the air handler.

3. Provide and install all necessary ductwork.
    a. Insulated ducting is suggested to help control transmitted noise from the air handler.
    b. It is required that all supply ducting shall be sealed with a vapor barrier.

4. Install outside air hood.

5. Install reactivation discharge damper/hood. Ensure the adjustment handle is accessible from the side of the unit.

6. Ensure that all damper linkage (If provided) are free to move and that no binding will occur. **NOTE:** Air dampers which operate in normally open position are shipped in closed position.

7. All DX piping is complete, functional and in accordance with design specifications (if applicable).

8. Refer to the assembly instructions document 029400-001 P-Trap for minimum P-Trap plumbing requirements.

9. Install filters along with filter clips provided. See Unit Detail Schedule for filter sizing and unit drawing for location. **IMPORTANT!** Never run Unit without Supply and React Air filters. Operating Unit without filters will damage the heaters, desiccant wheel, and reduce efficiency. Failure to install filters prior to operating will void all warranties.

10. Remove shipping blocks from the fan assembly base.
    a. See label attached to base for details.

11. Remove the bolts and "Z" clips from the supply fan isolation springs. See the separate ISO spring removal document.

12. Check fan assembly to ensure:
    a. Fan wheel spins freely

**Electrical Connections**:

1. Provide and connect:
    a. The power ground to the chassis ground on the control panel of the unit
    b. Power to the main panel disconnect

2. See the unit drawing for the power connection location and the name plate for the FLA/MCA/MCP values.

3. Provide and connect a 20 amp, 120 volt circuit to:
    a. Interior services light circuit
    b. Ground fault service receptacle
    c. Service light switch

4. Mount in desired location:
    a. Remote user interface

5. Provide and install interconnection wiring per the electrical schematics for:
    a. Remote user interface
    b. Customer run/stop contact (remove jumper from terminal block first)
    c. Customer general alarm contact (if desired)
    d. Customer external fault contact (if desired)
    e. BACnet MS/TP to DDC Controller
    f. Condensing unit for the pre cooling coil to the unit control panel
    g. Condensing unit for the post cooling coil to the unit control panel

6. Seal all conduit connections which penetrate the unit exterior walls and all conduit entering the electrical enclosure with the duct seal provided.

7. Check all electrical connections in the main control panel and the remote control panel for tightness.

8. Verify all fuses are installed and match the schematics.

9. Measure supply voltage and verify with the unit nameplate.
    a. Voltage Measure at the unit is _____**V**_.

10. ACCU power must be on to the compressor heaters for a minimum of 24 hours before unit startup or starting the compressors.

**Piping Connections**:

1. Provide and install a condensing unit, liquid lines, suction lines, expansion valve and all other necessary refrigeration components for the Pre DX cooling coil
    a. leak test and fully charge the system
    b. See the Unit Detail Schedule for load requirements and connection sizes
    c. **Refrigeration system design is the responsibility of the installing contractor.**

2. Provide and install a condensing unit, liquid lines, suction lines, expansion valve and all other necessary refrigeration components for the Post DX cooling coil
    d. leak test and fully charge the system
    e. See the Unit Detail Schedule for load requirements and connection sizes
    f. **Refrigeration system design is the responsibility of the installing contractor.**

**Final Preparations for Startup**:

1. Work in supply area, testing or other activities will not prevent prolonged operation of the unit at a wide range of supply conditions.

2. Verify unit's air inlets and outlets are clear of any obstructions.

   ***☐ Yes  ☐ No***

3. Clean interior of the unit, close and secure access doors.

4. In your opinion, if required, the switch could be thrown and the unit would operate with little or no complications. ***BUT DO NOT START!!!***

5. If specialized contractors are required to be onsite for the unit Startup are they going to be available at time of startup? ***(Such as Air Balancer, Controls personnel, etc.)***

   ***☐ Yes  ☐ No***

***When all of the above items have been completed/checked:***

- *Please sign, date this form and email to customerservice@cdihvac.com, or fax to 507-451-1177.*
- *Contact the CDI Techinican to coordinate and schedule the startup.*

- ***Note:** If any items within this Contractor/Owner Resposiblity document are not completed and extends the time beyond what was quoted and agreed upon, additional charges will apply.*

Signed:_____ Title:_____

Date:_____/_____/_____

# REQUIRED GENERAL INFORMATION
# TO SCHEDULE THE STARTUP OF YOUR EQUIPMENT

| Contact Information | |
|---|---|
| **Job Site Name:** | |
| **Job Site Address:** | |
| **Job Site City, State and ZIP Code:** | |
| **1. Contact Name:** | **Company:** |
| **Phone Number:** | **Email:** |
| **2. Contact Name:** | **Company:** |
| **Phone Number:** | **Email:** |
| **3. Contact Name:** | **Company:** |
| **Phone Number:** | **Email:** |
| **Personal Protective Equipment (PPE) Required:** | |
| **Any Safety Training Required For CDI Technician?** | |
| **If So Where & When:** | |
| **Description Of Location and Accessibility of the Units, i.e. Ground Level, Rooftop (Including Floor Numbers), Requires Climbing Ladders or Stairs, Requires Escort or Keycard Access, etc.:** | |
| **Will any equipment necessary to access the unit (ladders etc.) be available onsite for the technician to use?** | |
| **NOTE!** If units are placed on an elevated steel frame or otherwise elevated and permanently installed walkway or scaffolding is not in place at the time of startup, the person requesting the trip must ensure that temporary scaffolding is in place in front of the electrical panels for safety reasons. Climate by Design International (CDI) reserves the right to refuse to work on elevated units that do not have scaffolding in place at the electrical panels. Ladders must be provided for other access points such as doors or access panels. | |

If you have any questions please contact the
Customer Service department at 507-451-2198 or
by email: customerservice@cdihvac.com

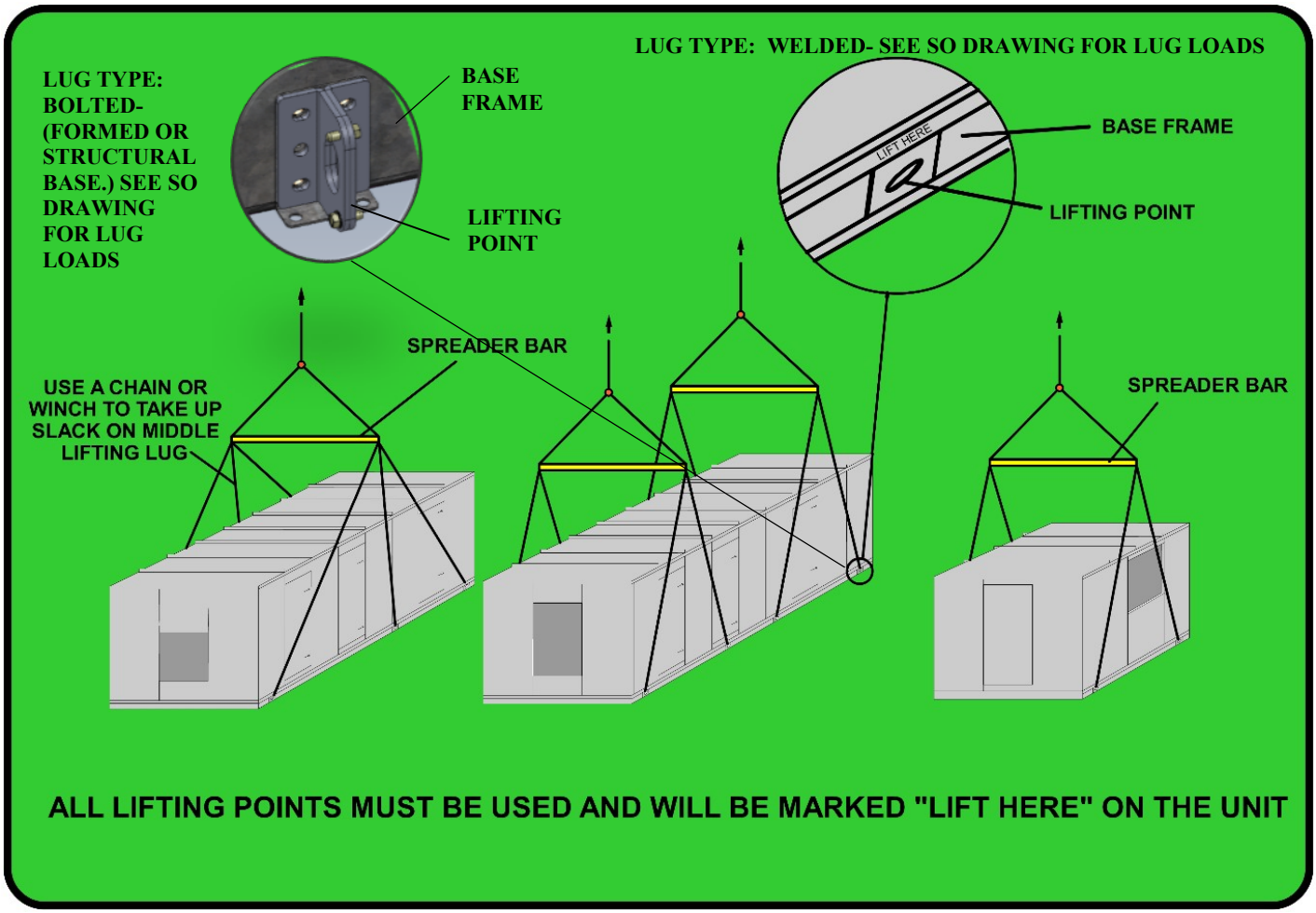
# Handling of CDI Units

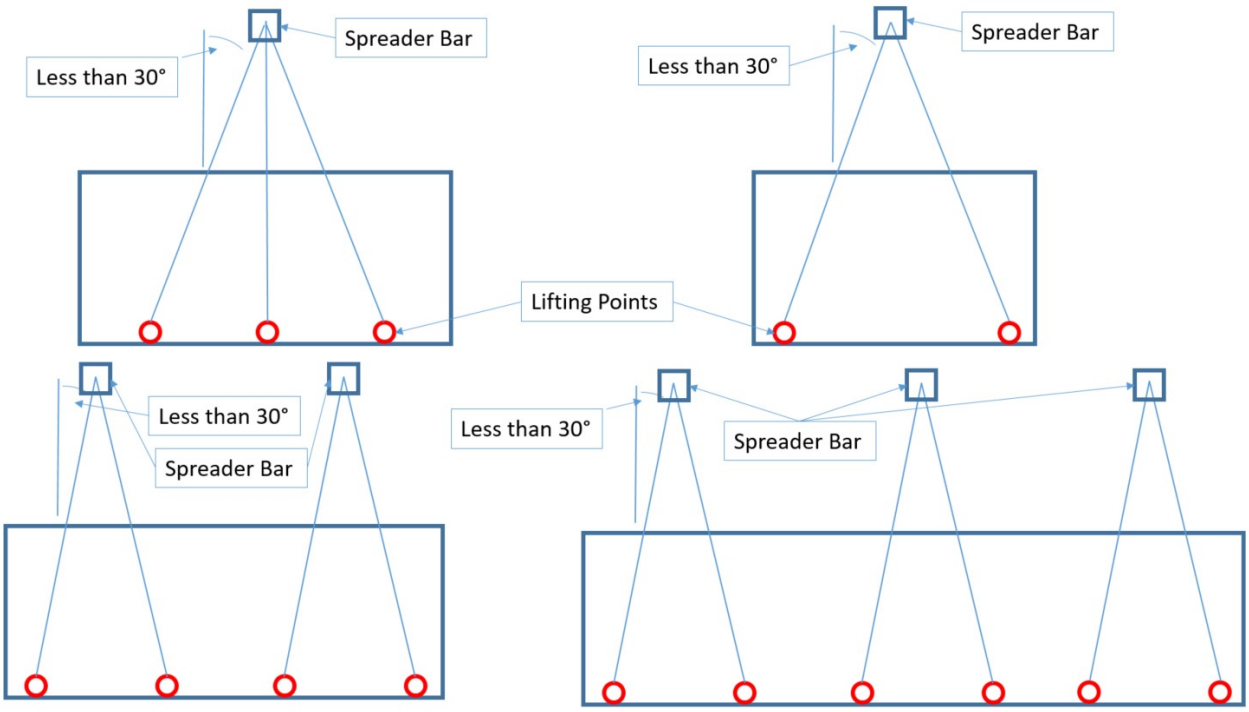
Climate by Design International, Inc. units are designed for handling by two methods. In both cases, it is lifted from the bottom in a fashion that holds it level and keeps it from tipping, falling or twisting. It is not to be lifted from the top unless the optional top lifting or suspension package has been provided. It is the installer's responsibility to verify the handling equipment's ability to safely handle the unit.

**IMPORTANT: If the CDI unit is severely twisted during handling, permanent damage may occur.**

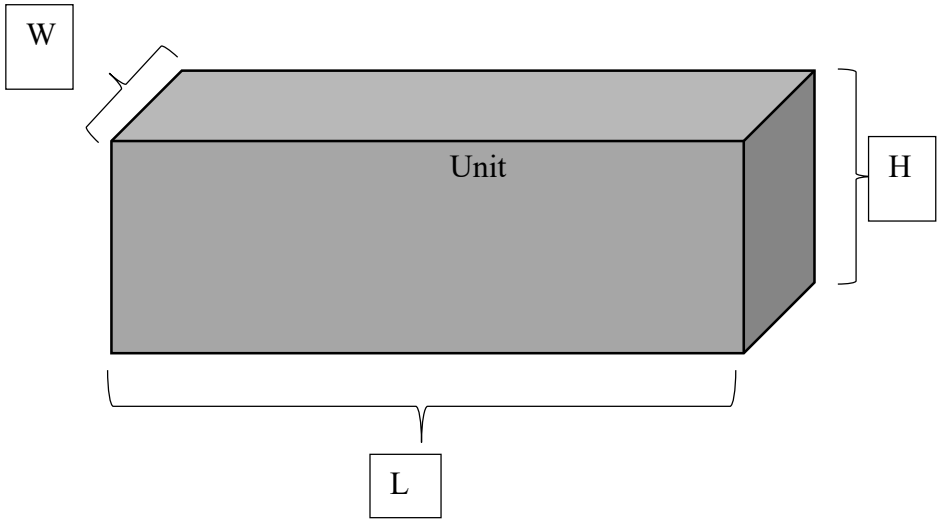
The **preferred method** of handling is through the unit's frame and/or special lifting lug hooks installed on the unit. All lifting operations must be accomplished with a load spreader of sufficient width to ensure that the lifting cables clear the side of the unit. If this type of spreader is not available, wood strips should be inserted between the cables and unit where necessary.

**IMPORTANT: All lifting points, marked "LIFT HERE" on the unit, must be used.**

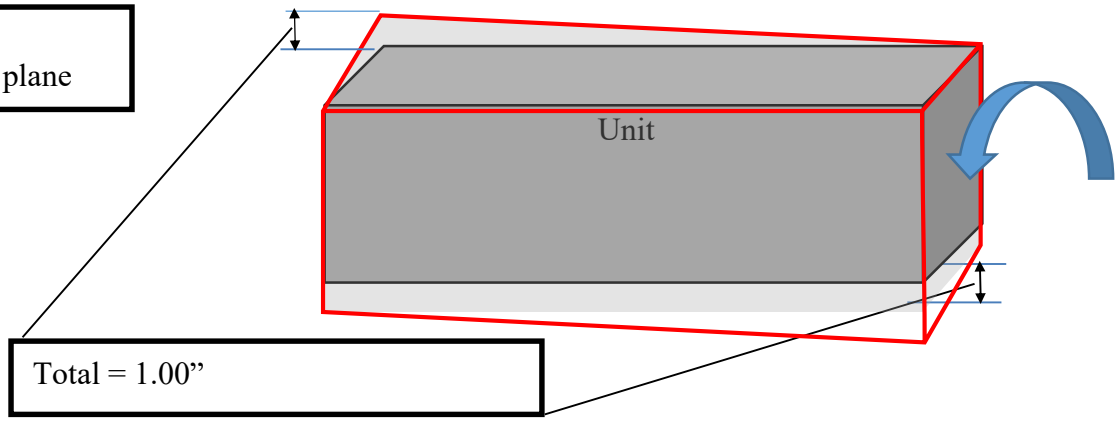





**The alternative method of lifting would be by forklift. This is only possible if forks extend across the bottom of the entire unit and the unit is less than 100" long. Forks that do not extend across the entire unit could cause it to tip resulting in unsafe conditions or damage to the unit. If forklifting units ensure deflection is within the total maximum allowable or damage to the unit may result. Bending and twisting deflections should not exceed a total of 1.00" when lifting.**

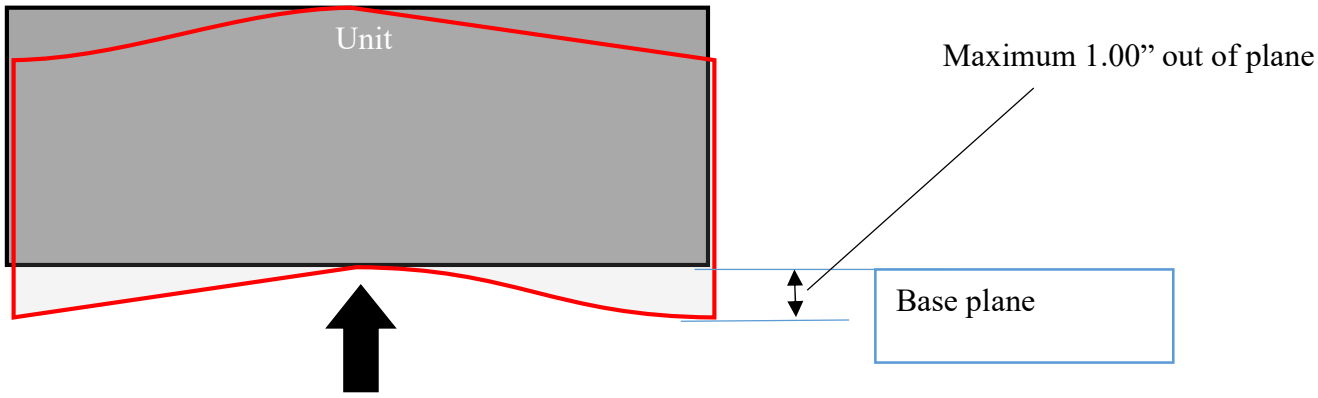


**Torsional Deflection:**
Maximum 1.00” out of plane

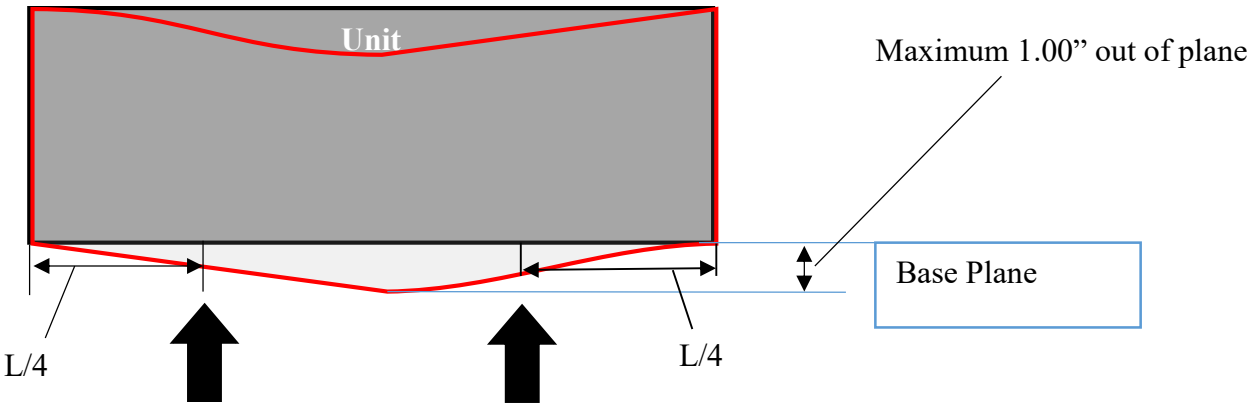



**Bending Deflection:** Maximum 1.00” out of plane

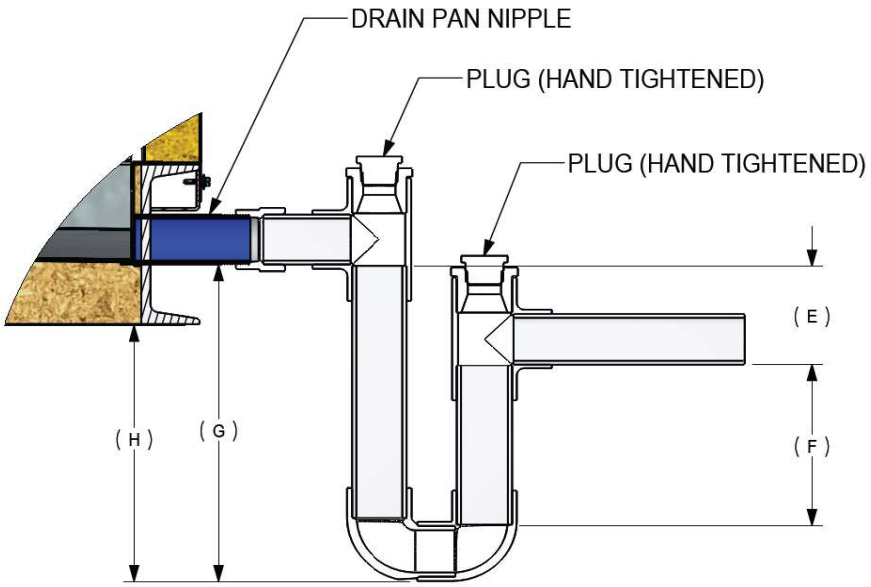
**Lifting the unit from the middle is <u>not recommended.</u>**




**Lifting the unit from each end is preferred. Recommended that lifting points are L/4 from each end.**



# Recommended P-TRAP DIMENSIONS




**Negative Pressure Coil**

| | |
|---|---|
| E = 1.5 + Maximum Operating Pressure | E = 4.18" |
| F = 1/2 * E | F = 2.09" |
| G = E + F + 1.9 | G = 8.17" |
| | H = 6" |

**Positive Pressure Coil**

| | |
|---|---|
| E = 1.5 | E = 1.5" |
| F = 1.5 + Maximum Operating Pressure | F = 1.5" |
| G = E + F + 1.9 | G = 4.9" |
| | H = 2.73" |

**Assumptions:**

1) All positive traps are downstream of a fan and all negative traps are upstream of a fan.
2) If there is a ducted inlet and outlet, the ESP is assumed to be evenly split between them. Site verification of this is by others.
3) There is a 1.9" bending radius for 1" drain pipe.

**Notes:**

1) Pipe insulation is the responsibility of others.
2) Trap will extend below the bottom of the unit's base frame. Providing clearance is the responsibility of others.
3) Recommended drain pitch is 1/8 inch per foot.
4) Use UV resistant piping for outdoor units.
5) To avoid air leakage and water evaporation, use mineral oil in dry traps.

| | | |
|---|---|---|
| DATE<br>1/11/2024 | TITLE<br>DRAIN PAN ASSEMBLY<br>RECOMMENDED P-TRAP LAYOUT | Climate by Design INTERNATIONAL |
| DRAWN BY<br>ARW | DWG. NO.<br>029400-001 P-TRAP | |

# Unit Detail Schedule

| | |
|---|---|
| Project: | **Anduril - McHenry MS** |
| Location: | **McHenry, MS** |
| Salesperson: | **Brynn Lea** |
| **Tag:** | **400-DHU-1** |
| **Model:** | **CDH-154** |
| **Options:** | **10.5-EF7ELOCE** |

## 0. Unit Details

| | | | |
|---|---|---|---|
| **SO Number** | 029400-001 | **Roof** | 16 Ga G-90 |
| **Revision** | 001 | **Roof Liner** | 16 Ga G-90 |
| **Location** | Outdoor | **Base Frame** | 6" 12 Ga G-90 Galv. Type-U Formed Base |
| **Mounting Style** | Curb By CDI | **Base Liner** | 20 Ga G-90 |
| **Service Platform** | Not Included | **Floor** | 16 Ga G-90 |
| **Unit Delivery Date** | / / | **Supply Volume** | 10,500 CFM |
| **Curb Delivery Date** | N/A | **Supply ESP** | 3.0" W.C. |
| **Orientation** | Left Hand | **Supply TSP** | 8.3" W.C. |
| **Construction Type** | 2.5" NTM | **Approximate Weight** | 10,116 lbs. |
| **Insulation** | 2.5" Urethane Foam | **Voltage** | 460/3/60 |
| **Exterior Finish** | Air Dried Enamel | **Approx. Full Load Amps:** | 358.2 |
| **Paint Color** | Beige | **Approximate Minimum Circuit Ampacity** | 448 |
| **Wall** | 16 Ga G-90 | **MOP** | 450 Amps |
| **Wall Liner** | 20 Ga G-90 | **SCCR** | 5KA RMS, 480V Symmetrical |
| **Closure** | 16 Ga G-90 | | |

## 1. Outside Air Inlet Hood

| | | | |
|---|---|---|---|
| **Face Area (Sq. Ft.)** | 24.8 | **Galvanized Bird Screen** | Included |
| **Face Velocity** | 423 FPM | **Static Pressure Drop** | 0.05" W.C. |

## 2. Outside Air Damper

| | | | |
|---|---|---|---|
| **Location** | End | **Damper Dimensions** | 36” W x 36” H |
| **Type** | VCD-23, Galvanized, Low Leakage, Parallel Blade | **Face Velocity** | 1,167 FPM |
| **Damper Control Type** | 2-Position | **Static Pressure Drop** | 0.10" W.C. |
| **Actuator (Qty) Model** | (1) M9220-BAC-3 | **Drive Type** | End Drive |

## 3. Pre-Filters

| | | | |
|---|---|---|---|
| **Quantity and Size** | (6) 24x24x2 | **Face Area (Sq. Ft.)** | 24 |
| **Filter Type** | MERV 8 Aeropleat III Pre-Filters | **Face Velocity** | 437.5 FPM |
| **Quantity of extra sets of filters** | 0 | **Static Pressure Drop** | 1.0" W.C. Based On Dirty Filters |
| **Mounting Type** | Clipped to Intermediate Filters | | |

## 4. Intermediate Filters

| | | | |
|---|---|---|---|
| **Quantity and Size** | (6) 24x24x4 | **Face Area (Sq. Ft.)** | 24 |
| **Filter Type** | MERV 13 Opti-pac Int. Filters | **Face Velocity** | 437.5 FPM |
| **Quantity of extra sets of filters** | 0 | **Static Pressure Drop** | 1.0" W.C. Based On Dirty Filters |
| **Galvanized Type 8 Gasketed Clip In Frames** | Included | **Filter Differential Pressure Transmitter MSX-W12-LCD 0-5” W.C.** | Included Senses Combined Differential Pressure Across Both Pre & Intermediate Filter Banks |

## 5. Dual Circuit Interlaced Pre-Cooling Coil

| | | | |
|---|---|---|---|
| **Entering Db** | 95° F | **Rows** | 6 |
| **Entering Wb** | 78.9° F | **FPI** | 12 |
| **Leaving Db** | 55.0° F | **Tube Size** | 5/8" |
| **Leaving Wb** | 54.9° F | **Tube Matl.** | CU |
| **Sens. Heat** | 880 MBH Total | **Tube Thick.** | 0.02" |
| **Total Heat** | 457 MBH Total | **Fin Type** | Waffle |
| **Face Velocity** | 409.1 FPM | **Fin Matl.** | AL |
| **Static Pressure Drop** | 0.75" W.C. | **Fin Thick.** | 0.008" |
| **Coil Type** | DX | **Fluid Type** | R-410A |
| **Fin Height** | 33" | **Suction Temp.** | 47° F |
| **Fin Length** | 56" | **Liquid Temp.** | 110° F |
| **Coils Per Bank** | 2 | **Distributor Connections** | (2) TBD |
| **Galvanized Steel Coil Casing** | Included | **Suction Connections** | (2) 1.625 |
| **304 Stainless Steel Condensate Drain Pan** | Included | | |

## 6. Pre Cool UVGI Emitters

| | | | |
|---|---|---|---|
| **UVGI System Rows High** | 2 | **UVGI System tubes** | (2) 48” Bulb |
| **UVGI System Columns Wide** | 1 | **Voltage** | 120/1/60 |
| **UVGI Door Interlock Safety Switch** | Included | **FLA** | 4.6 |
| **Lexan Viewport In Access Door** | Included | | |

## 7. DH Face and Bypass Dampers

| | | | |
|---|---|---|---|
| **Face Damper 1 Dimensions** | 27” W x 27” H | **Face Damper Face Velocity** | 592 FPM |
| **Face Damper 2 Dimensions** | 54” W x 27” H | **Face Damper Static Pressure Drop** | 0.03” W.C. |
| **Bypass Damper Dimensions** | 54” W x 16” H | **Bypass Damper Face Velocity** | 1,500 FPM |
| **Damper Type** | VCD-23, Galvanized, Low Leakage, Opposed Blade | **Bypass Damper Static Pressure Drop** | 0.2” W.C. |
| **Damper Actuator (Qty) Type** | (1) Modulating, M9220-GGA-2 | **Initial Bypass Adjustable Opening** | 42.0” W x 7.0” H |

## 8. Desiccant Dehumidifier

| | | | |
|---|---|---|---|
| **Rotor Model** | DH-154<br>1375x200 PF | | |
| **Size** | 54" | | |
| **Material** | Silica Gel | | |
| **Rotor RPH** | 16.2 | | |
| **SUMMER CONDITION** | | | |
| **Process Volume** | 9,000 CFM | **Reactivation Entering DB** | 95 F |
| **Process Velocity** | 807 fpm | **Reactivation Entering Grains** | 124.3 |
| **Process SPD** | 1.39” W.C. | **Reactivation Leaving DB** | 133.1 F |
| **Process Leaving DB** | 98.3 F | **Reactivation Leaving Grains** | 298 |
| **Process Leaving Grains** | 17.8 | **Reactivation Heater Temp** | 290 F |
| **Reactivation Volume** | 2500 CFM | **Bypass Volume** | 1,500 CFM |
| **Reactivation Velocity** | 673 fpm | **Initial Fixed Bypass Adjustable Opening** | 2.0” W x 23.0” H |
| **Reactivation SPD** | 1.64” W.C. | **Adsorbed H2O** | 267 lb H2O/h |
| | | **Adsorption Heat** | 1,574 BTU/lb H2O |

## 9. Electric Reactivation

| | | | |
|---|---|---|---|
| **KW** | 192 | **Quantity** | 6 |
| **Voltage** | 460/3/60 | **Electric Heater Model** | CDH22-32.0-460-3-1 |
| **Electric Control Type** | 6-Stages, First SCR | **Full Load Amps** | 241.3 |
| | | **Static Pressure Drop** | 0.60” W.C. |

## 10. Reactivation Filters

| | | | |
|---|---|---|---|
| **Quantity and Size** | (4) 16x16x2 | **Face Area (Sq. Ft.)** | 7.1 |
| **Filter Type** | MERV 8 Aeropleat III Pre-Filters | **Face Velocity** | 351 FPM |
| **Quantity of extra sets of filters** | 0 | **Static Pressure Drop** | 0.65" W.C. Based On Mean Filters |
| **Mounting Type** | Galvanized Drop In | **Filter Differential Pressure Transmitter MSX-W12-LCD 0-2” W.C.** | Included |

## 11. Reactivation Fan

| | | | |
|---|---|---|---|
| **Wheel Type** | AF | **Total BHP** | 4.68 |
| **Housing Style** | Direct Drive Plug | **Motor HP** | 5 (NP0052) |
| **Construction** | Class 2 | **Premium Efficiency TEFC** | Included |
| **Fan Model** | 15” ECF-9 | **Motor Speed** | Constant Speed |
| **Wheel Width** | 73% | **Motor Frame** | 184T |
| **Wheel Diameter** | 100% | **Motor Configuration** | F2 |
| **Fan Quantity** | 1 | **Voltage** | 460/3/60 |
| **Fan RPM** | 3480 | **FLA** | 5.72 |
| **Piezometer Ring & Connections** | Included For Initial Balancing Only | **Maximum ESP** | 0" W.C. |
| **Piezometer Ring P.D. @ 133.1 F** | 4.2" W.C. | **Reactivation Air Discharge Temp** | 133.1°F |

## 12. Supply Fan

| | | | |
|---|---|---|---|
| **Wheel Type** | AF | **Total BHP** | 18.7 |
| **Housing Style** | Plenum | **Motor HP** | 25 (NP0254) |
| **Construction** | Class 3 | **Premium Efficiency TEFC** | Included |
| **Fan Model** | 30" ECF-9 | **Motor Speed** | Variable |
| **Wheel Width** | 70% | **Motor Frame** | 284T |
| **Wheel Diameter** | 100% | **Motor Configuration** | F1 |
| **Fan Quantity** | 1 | **Schneider ATV630D18N4** | Included For Constant Pressure Control |
| **Fan RPM** | 1,757 | **Voltage** | 460/3/60 |
| **Fan CFM** | 10,500 | **FLA** | 29.1 |
| **Piezometer Ring P.D. @ 92.1 F** | 4.3" W.C. | **Maximum ESP** | 1" W.C. |
| **Piezometer Ring & Differential Pressure Transmitter MSX-W13-LCD 0-10” W.C.** | Included For Monitoring | **1” Internal Vibration Isolation with Thrust Restraints** | Included |
| **Fan Guard** | Included | **Inlet Screen** | Included |

## 13. Electric Post Heat

| | | | |
|---|---|---|---|
| **KW** | 60 | **Quantity** | 2 |
| **Voltage** | 460/3/60 | **Electric Heater Model** | CDH22-30.0-460-3-1 |
| **Electric Control Type** | 2-Stages, First SCR | **Full Load Amps** | 75.4 |
| | | **Static Pressure Drop** | 0.10” W.C. |

## 14. Dual Circuit Interlaced Post Cooling Coil

| | | | |
|---|---|---|---|
| **Entering Db** | 97.1° F | **Rows** | 6 |
| **Entering Wb** | 61.4° F | **FPI** | 12 |
| **Leaving Db** | 52.6° F | **Tube Size** | 5/8" |
| **Leaving Wb** | 42.6° F | **Tube Matl.** | CU |
| **Sens. Heat** | 506.2 MBH Total | **Tube Thick.** | 0.02" |
| **Total Heat** | 506.2 MBH Total | **Fin Type** | Waffle |
| **Face Velocity** | 409.1 FPM | **Fin Matl.** | AL |
| **Static Pressure Drop** | 0.42" W.C. | **Fin Thick.** | 0.008" |
| **Coil Type** | DX | **Fluid Type** | R-410A |
| **Fin Height** | 33" | **Suction Temp.** | 47° F |
| **Fin Length** | 56" | **Liquid Temp.** | 110° F |
| **Coils Per Bank** | 2 | **Distributor Connections** | (2) TBD |
| **Galvanized Steel Coil Casing** | Included | **Suction Connections** | (2) 1.375” |
| **304 Stainless Steel Condensate Drain Pan** | Included | | |

## 15. Post Cool UVGI Emitters

| | | | |
|---|---|---|---|
| **UVGI System Rows High** | 2 | **UVGI System tubes** | (2) 48” Bulb |
| **UVGI System Columns Wide** | 1 | **Voltage** | 120/1/60 |
| **UVGI Door Interlock Safety Switch** | Included | **FLA** | 4.6 |
| **Lexan Viewport In Access Door** | Included | | |

## 16. Discharge Plenum

| | | | |
|---|---|---|---|
| **Discharge Connection Location** | End | **Dimensions** | 28” W x 28” L |
| **Face Area (Sq. Ft.)** | 5.44 | **Static Pressure Drop** | 0.25" W.C. |
| **Face Velocity** | 1,928 FPM | | |

## 17. Options & Controls

| | | | |
|---|---|---|---|
| **Temperature and Dew Point Controls** | DDC with BACnet MS/TP Communication Card | **Outside Air Temperature Sensor** | Included RTD |
| **User Interface** | Unit Mounted | **Pre Cooling Air Temperature Leaving Sensor** | Included RTD |
| **NEMA 4 ABS Remote User Interface** | Included (Shipped Loose) | **Post Heat Entering Air Temperature Sensor** | Included RTD |
| **Pre Cool Temperature Control** | Included 6-Stages | **Discharge Temperature and RH Transmitter HMD90** | Included (Unit Mounted) |
| **Post Heat Temperature Control** | Included 2-Stages, First SCR | **(1) 20 Amp GFI Service Receptacle** | As Indicated On Unit Drawing (115 VAC Power Supply Provided By Others) |
| **Post Cool Temperature Control** | Included 4-Stages With 0-10 VDC Digital Scroll | **(5) 15 Watt LED Service Lights Including Lexan Globes With Guards And a Single Light Switch** | As Indicated On Unit Drawing (115 VAC Power Supply Provided By Others) |
| **Discharge Duct Differential Pressure Transmitter MS2-W103-LCD (0-10" W.C.)** | Included (Shipped Loose) | | |

## 18. Clarifications and Exceptions

This equipment will meet or exceed the capacity, at the conditions, stated herein. However, CDI assumes no responsibility that the actual loads might exceed that stated capacity.

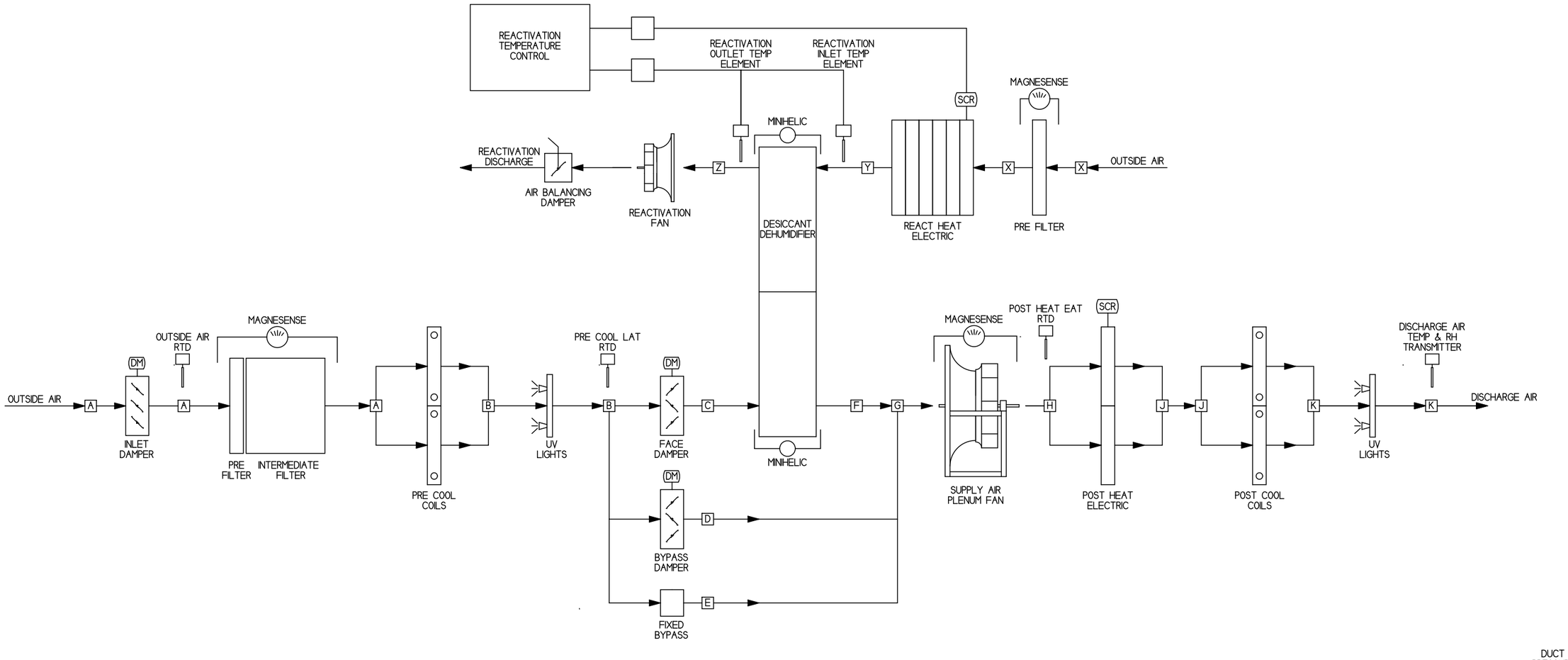
**The stated performance is based on:**
Summer Outside Air 95.0 FDB / 78.9 FWB / 124.3 Gr/Lb
Winter Outside Air 25.0 FDB / 21.5 FWB / 11.4 Gr/Lb

# SUMMER OPERATING CONDITIONS

| STATE POINTS | A | B | C | D | E | F | G | H | J | K | | | | | | | | | | | X | Y | Z |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| VOLUME SCFM | 10,500 | 10,500 | 9,000 | 0 | 1,500 | 9,000 | 10,500 | 10,500 | 10,500 | 10,500 | | | | | | | | | | | 2,500 | 2,500 | 2,500 |
| TEMPERATURE F | 95.0 | 55.0 | 55.0 | - | 55.0 | 98.3 | 92.1 | 97.1 | 97.1 | 52.6 | | | | | | | | | | | 95.0 | 290 | 133.1 |
| MOISTURE Gr/Lb | 124.3 | 64.0 | 64.0 | - | 64.0 | 17.8 | 24.4 | 24.4 | 24.4 | 24.4 | | | | | | | | | | | 124.3 | 124.3 | 298 |

# WINTER OPERATING CONDITIONS

| STATE POINTS | A | B | C | D | E | F | G | H | J | K | | | | | | | | | | | X | Y | Z |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| VOLUME SCFM | 10,500 | 10,500 | 0 | 9,000 | 1,500 | 9,000 | 10,500 | 10,500 | 10,500 | 10,500 | | | | | | | | | | | 0 | 0 | 0 |
| TEMPERATURE F | 25.0 | 25.0 | - | 25.0 | 25.0 | 25.0 | 25.0 | 30.0 | 47.1 | 47.1 | | | | | | | | | | | - | - | - |
| MOISTURE Gr/Lb | 11.4 | 11.4 | - | 11.4 | 11.4 | 11.4 | 11.4 | 11.4 | 11.4 | 11.4 | | | | | | | | | | | - | - | - |




| DATE | REV | REVISION DESCRIPTION | BY |
|---|---|---|---|
| 1/11/2023 | 001 | MOVED UV LIGHTS TO AFTER POST COOL COIL AND DUCT TRANSMITTER | ARW |
| - | - | - | - |
| - | - | - | - |
| - | - | - | - |
| - | - | - | - |


Climate by Design INTERNATIONAL

200 Festal PL NW
Owatonna, MN 55060
Phone: 507-451-2198
Fax: 507-451-1177
www.cdihvac.com


PROJECT NAME: ANDURILI - MCHENRY MS

FLOW DIAGRAM

DRAWN BY: ARW

CHECKED BY: -

DATE: 12/11/2023

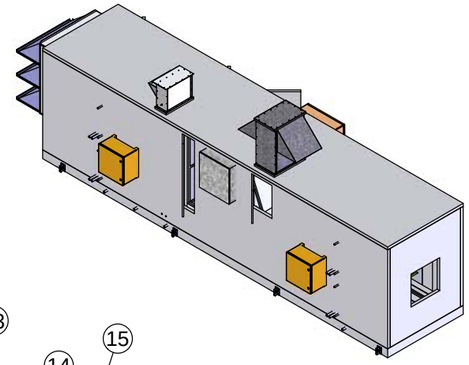
☐ SETS OF DRAWINGS
☐ FOR APPROVAL ☐ FOR RECORD

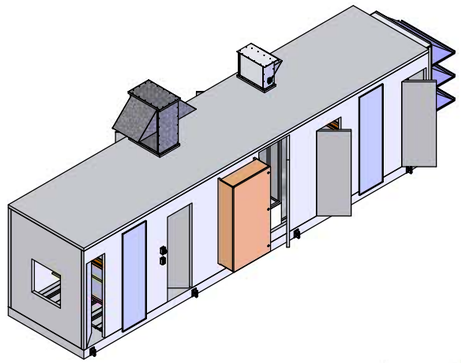
DRAWING #: 029400-001-F01

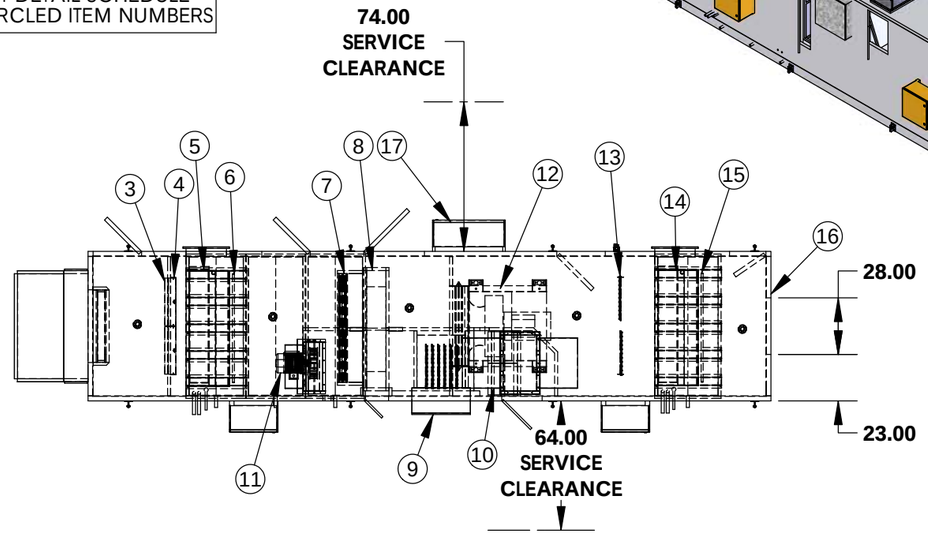
001

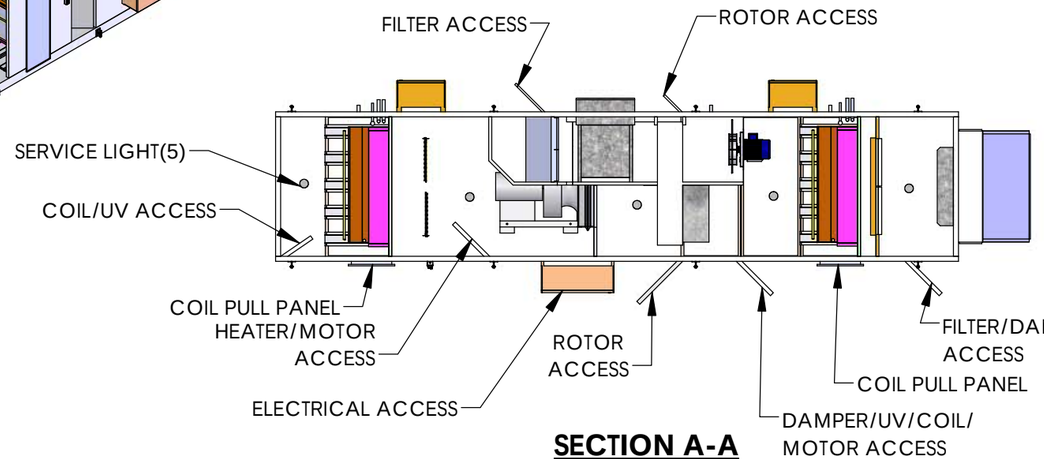
| DATE | REV | REVISION DESCRIPTION | BY |
|---|---|---|---|
| 12/11/23 | 001 | ELECTRICAL IS NOW ON THE LEFT SIDE OF THE UNIT | NK |
| 10/11/24 | 002 | REVISED COILS AND FANS | NK |
| - | - | - | - |
| - | - | - | - |
| - | - | - | - |
| - | - | - | - |

SEE UNIT DETAIL SCHEDULE
FOR CIRCLED ITEM NUMBERS

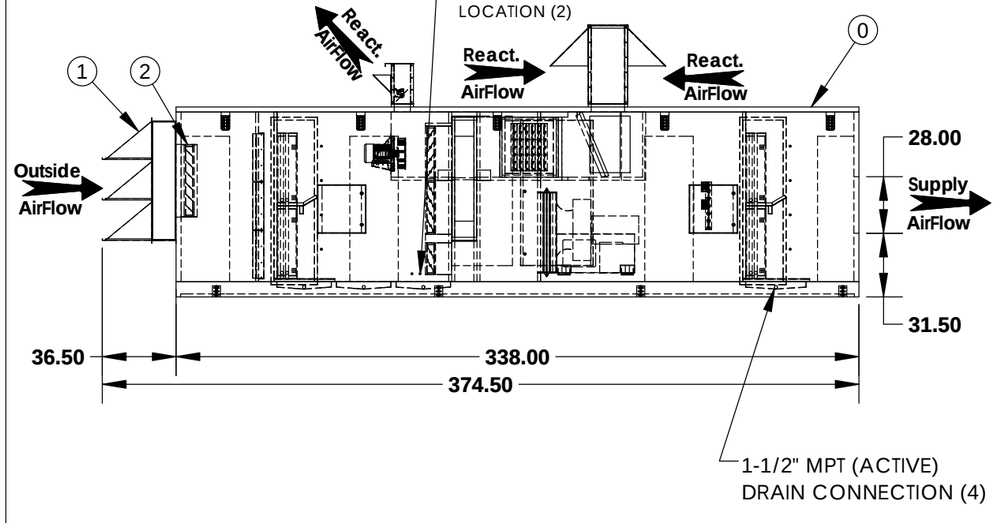


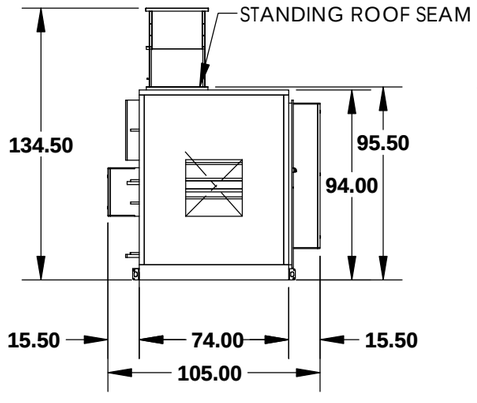


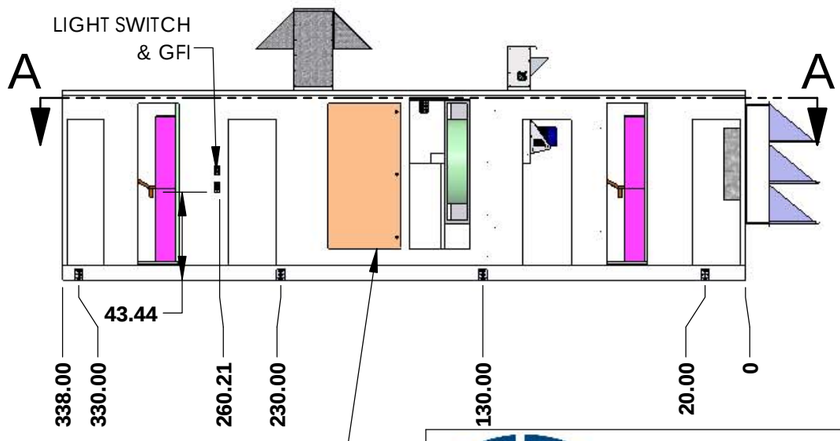



**SECTION A-A**





Climate by Design INTERNATIONAL
200 Festal Place NW
Owatonna, MN 55060
phone: 507.451.2198
fax: 507.451.1177
www.cdihvac.com


PROJECT: ANDURIL-MCHENRY MS
LOCATION: -
TAG (S): 400-PAC-3
MODEL: CDH-154
DWG. NO. 029400-001
SIZE B | REV. 002
SHEET 1 OF 1

CAD GENERATED DRAWING,
DO NOT MANUALLY UPDATE

| APPROVALS | DATE |
|---|---|
| DRAWN NK | 12/06/23 |
| CHECKED | |

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES

*OPENING TOLERANCES ARE:*

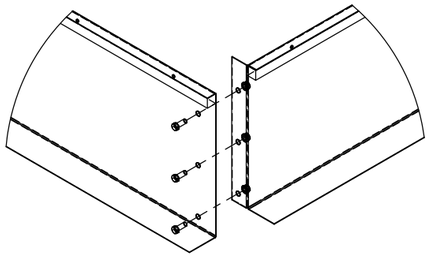
| FRACTIONS | DECIMALS | ANGLES |
|---|---|---|
| ± 1/4" | ± .25" | ± 2° |

*UNIT TOLERANCES ARE:*

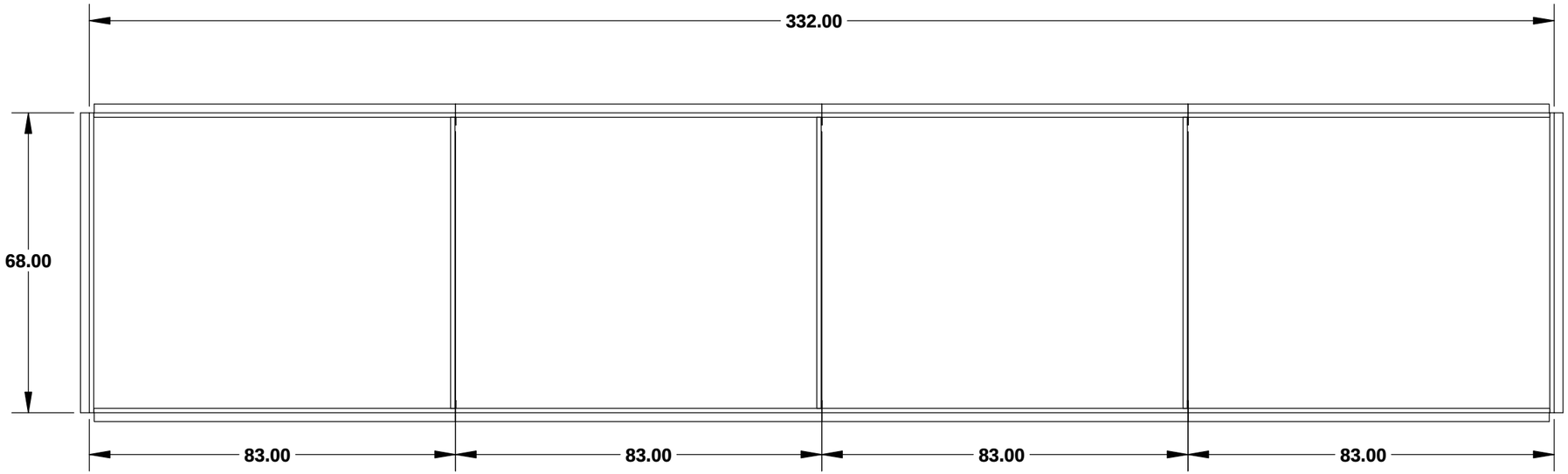
| FRACTIONS | DECIMALS | ANGLES |
|---|---|---|
| ± 1/2" | ± .50" | ± 2° |

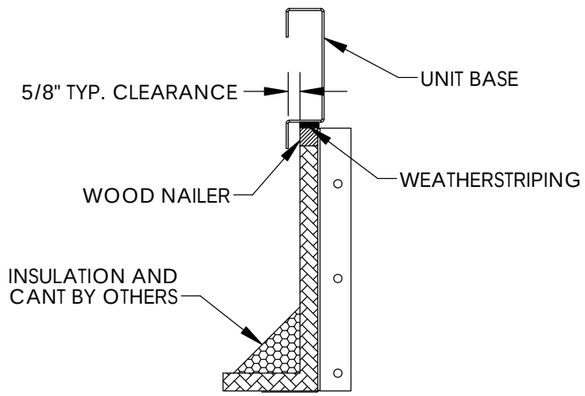
| DATE | REV | REVISION DESCRIPTION | BY |
|---|---|---|---|
| 10/11/24 | 001 | REVISED LENGTH | NK |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |

SEE UNIT DETAIL SCHEDULE
FOR CIRCLED ITEM NUMBERS

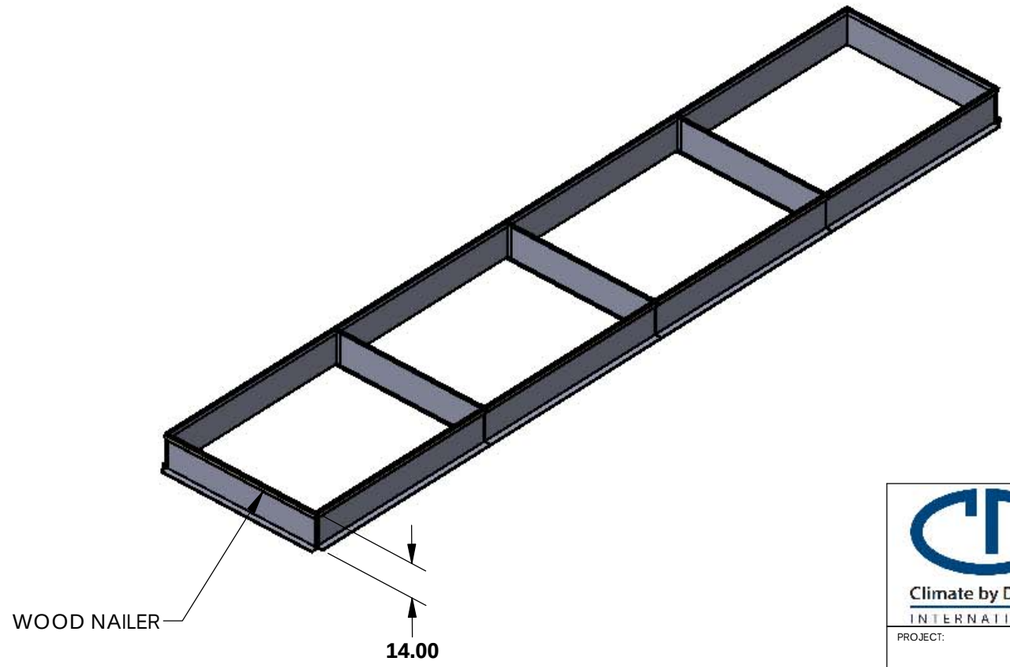


**CORNER ASSY DETAIL - TYP.**




**CURB CROSS SECTION - TYP.**




## NOTES:

1. Curb is G-90 galvanized steel, and include a wood nailer. If curb is supplied by CDI. the weather striping seal is shipped with the unit. All hardware required for assembly is shipped with curb.
2. Curb is designed to support the weight of the unit only.
3. Discharge openings do not include field tolerances or clearance for duct.
4. 12 gauge outer walls and intermediate support.



| OPENING TOLERANCES ARE: | | |
|---|---|---|
| FRACTIONS | DECIMALS | ANGLES |
| ± 1/4" | ± .25" | ± 2° |
| UNIT TOLERANCES ARE: | | |
| FRACTIONS | DECIMALS | ANGLES |
| ± 1/2" | ± .50" | ± 2° |

CAD GENERATED DRAWING,
DO NOT MANUALLY UPDATE

| APPROVALS | DATE |
|---|---|
| DRAWN NK | 12/07/23 |
| CHECKED | |

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES

Climate by Design INTERNATIONAL
200 Festal Place NW
Owatonna, MN 55060
phone: 507.451.2198
fax: 507.451.1177
www.cdihvac.com

PROJECT: ANDURIL-MCHENRY MS

LOCATION:

TAG (S): 14" CURB

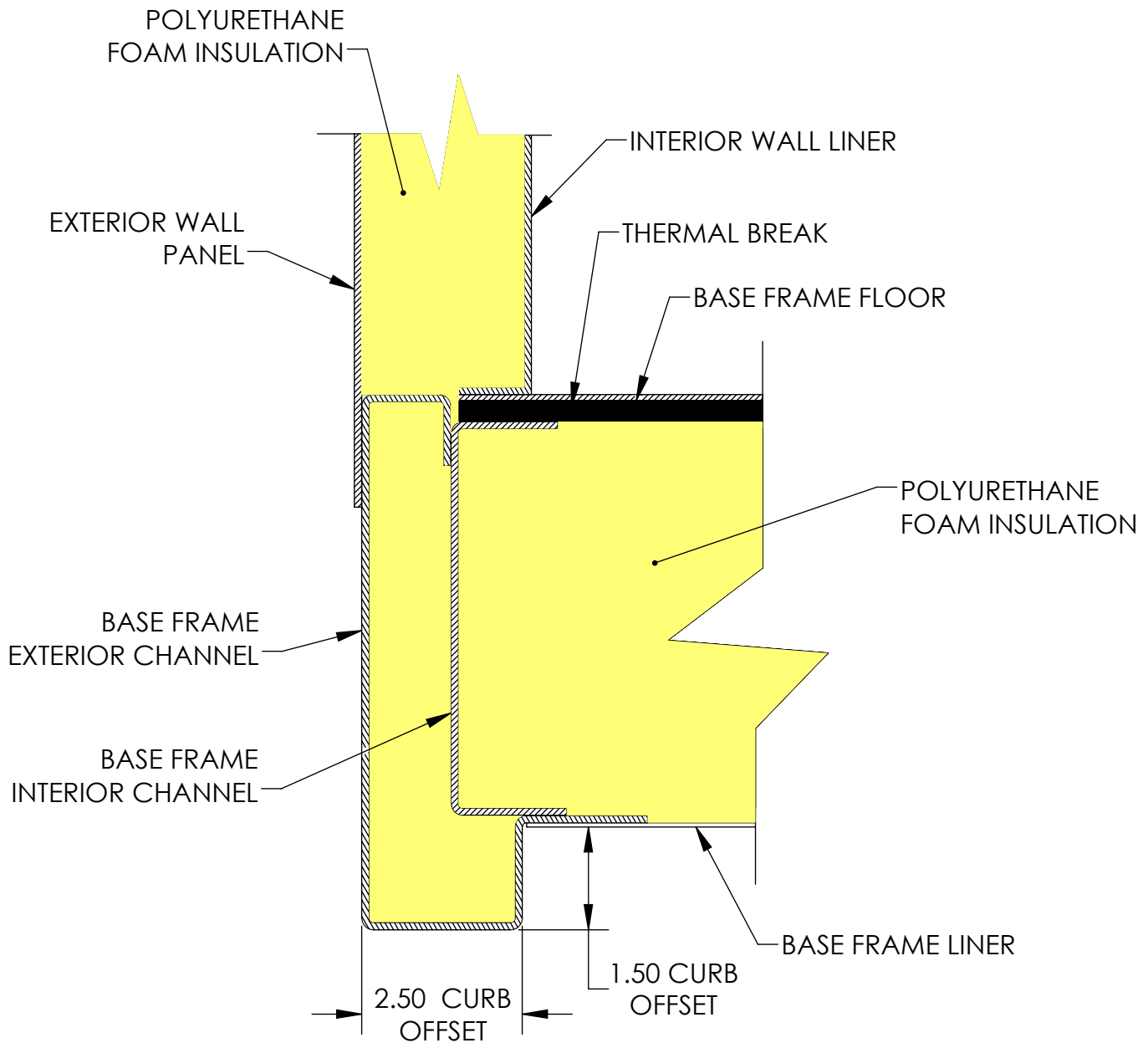
MODEL: 14" SINGLE WALL CURB

DWG. NO. 029400-002

SIZE B | REV. 001

SHEET 1 OF 1

| REVISIONS | | |
|---|---|---|
| REV. | DESCRIPTION | DATE |
| 001 | Revised bottom brakes f/2.25 & 1.5 To 2.38 & 1.38. | 10/18/2022 |
| 002 | Revised bottom brakes F/2.38 & 1.38 To 2.50 & 1.50. | 1/3/2023 |





Climate by Design INTERNATIONAL

2100 Park Drive NW
Owatonna, MN 55060
phone: 507.451.2198
fax: 507.451.1177
www.cdihvac.com


CAD GENERATED DRAWING, DO NOT MANUALLY UPDATE

| APPROVALS | DATE |
|---|---|
| DRAWN TJ | 11/18/2021 |
| CHECKED | |

TOP LEVEL ASSY #

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES

TITLE: TYPE-U NTM FORMED BASE FRAME W/SIDE WALL

TAG (S):

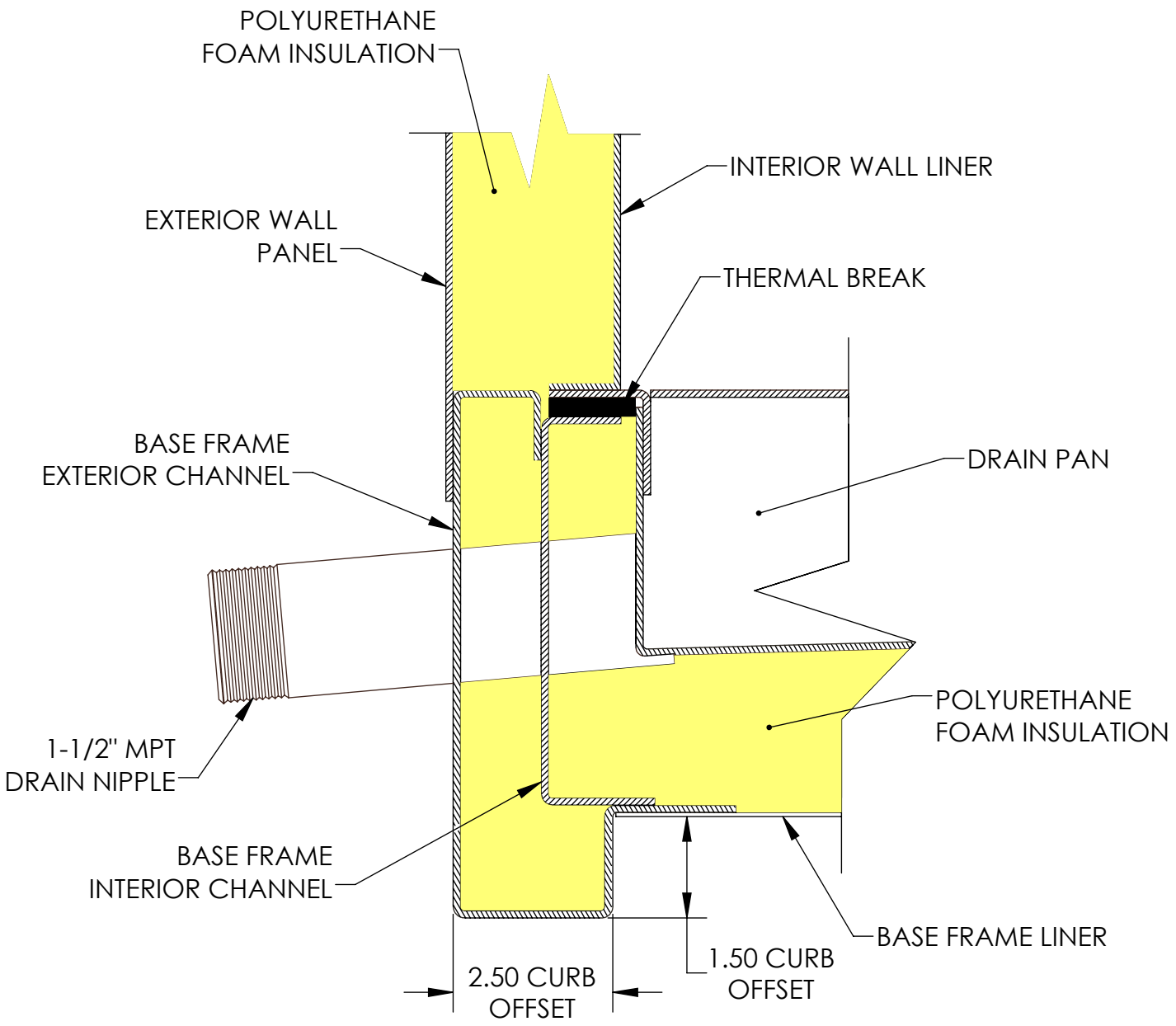
MODEL:

DWG. NO. F-1700-11

SIZE A | REV. 002

SHEET 1 OF 1

| REVISIONS | | |
|---|---|---|
| REV. | DESCRIPTION | DATE |
| 001 | Revised bottom brakes f/2.25 & 1.5 To 2.38 & 1.38. | 10/18/2022 |
| 002 | Revised bottom brakes F/2.38 & 1.38 To 2.50 & 1.50. | 1/3/2023 |





Climate by Design INTERNATIONAL

2100 Park Drive NW
Owatonna, MN 55060
phone: 507.451.2198
fax: 507.451.1177
www.cdihvac.com


CAD GENERATED DRAWING, DO NOT MANUALLY UPDATE

| APPROVALS | DATE |
|---|---|
| DRAWN TJ | 11/18/2021 |
| CHECKED | |

TOP LEVEL ASSY #

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES

TITLE: TYPE-U NTM FORMED BASE FRAME W/SIDE WALL & DRAIN PAN

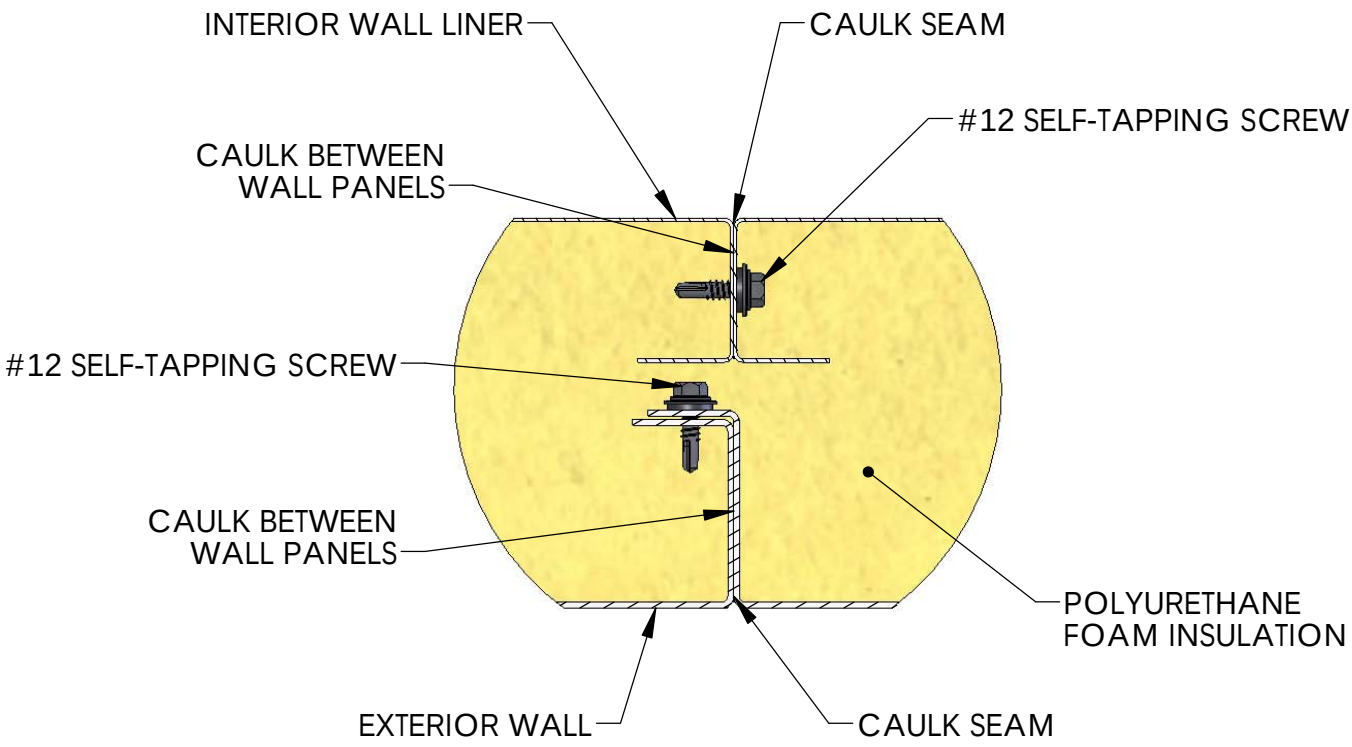
TAG (S):

MODEL:

DWG. NO. F-1700-12

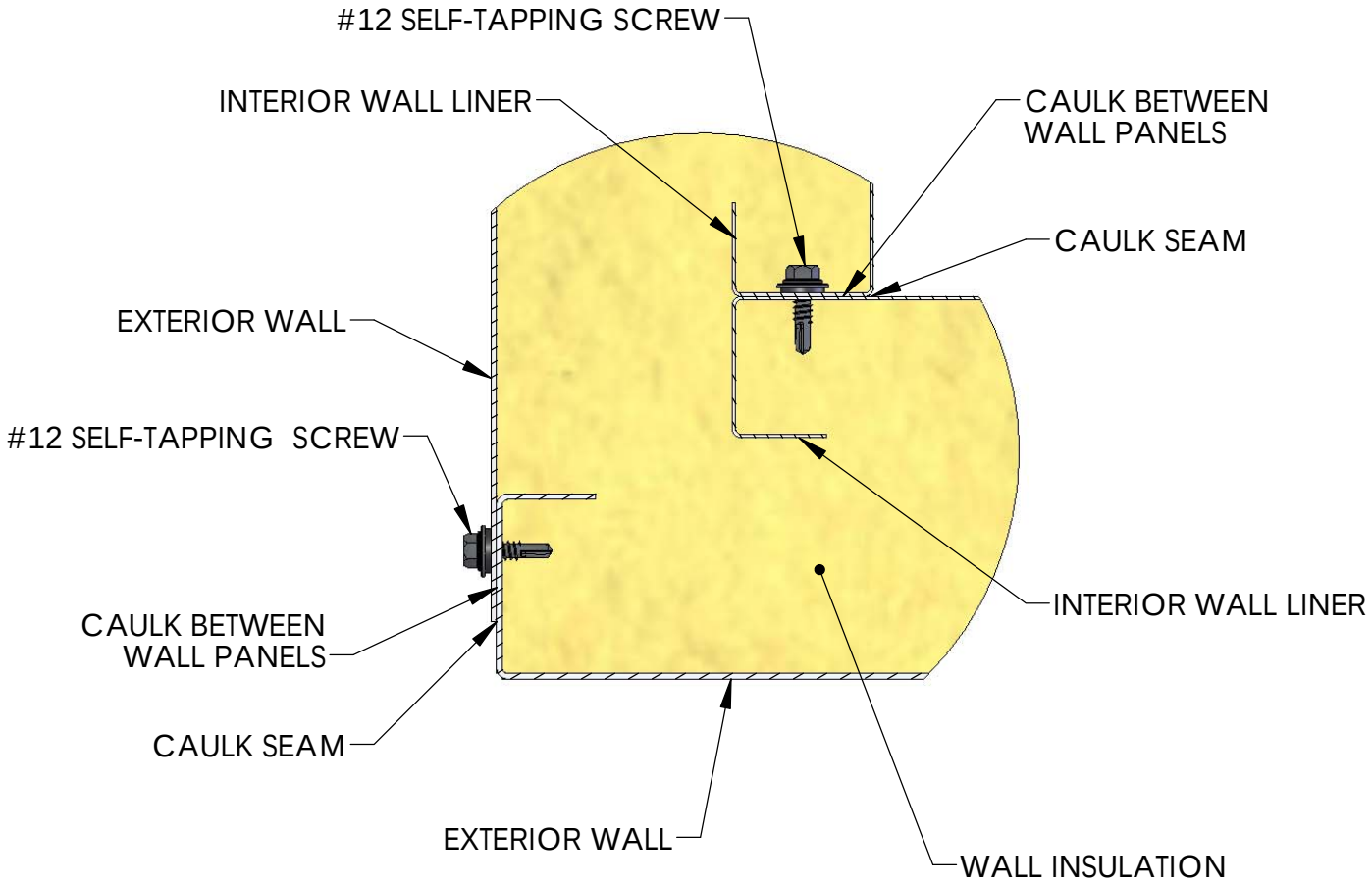
SIZE A | REV. 002

SHEET 1 OF 1



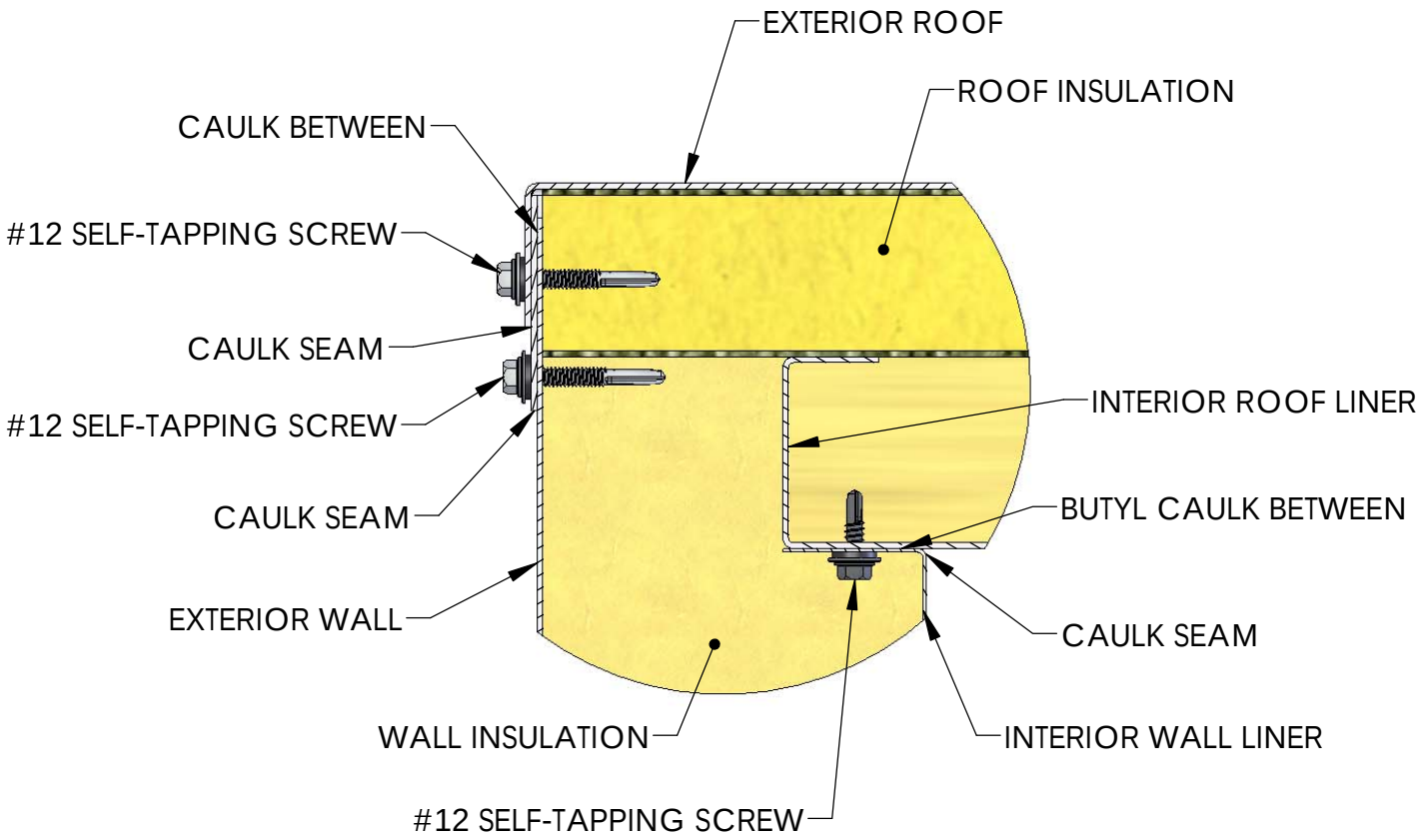

SEE UNIT DETAIL SCHEDULE FOR JOB SPECIFIC INFORMATION

| | | |
|---|---|---|
| MATL. - | THIS DRAWING IS THE PROPERTY OF CLIMATE BY DESIGN INTERNATIONAL. THE INFORMATION HEREON IS TO BE TREATED AS CONFIDENTIAL.IT IS NOT TO BE USED, COPIED, OR DISCLOSED TO OUTSIDE PARTIES WITHOUT THE EXPRESSED WRITTEN CONSENT OF CLIMATE BY DESIGN INTERNATIONAL. | Climate by Design INTERNATIONAL |
| UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES. TOLERANCES ARE: FRACTIONS ± 1/32 DECIMALS .XX ±.03 .XXX ±.010 ANGLES ±1/2° WELDMENT ±.12 | TITLE NO-THRU METAL CONSTRUCTION DETAIL WALL PANELS | |
| | RAW MATERIAL PART NO. / DRAWN BY TROY / DATE - | |
| | DWG. NO. F-1610-00 | REV. - |
| | | SHEET 1 OF 1 |



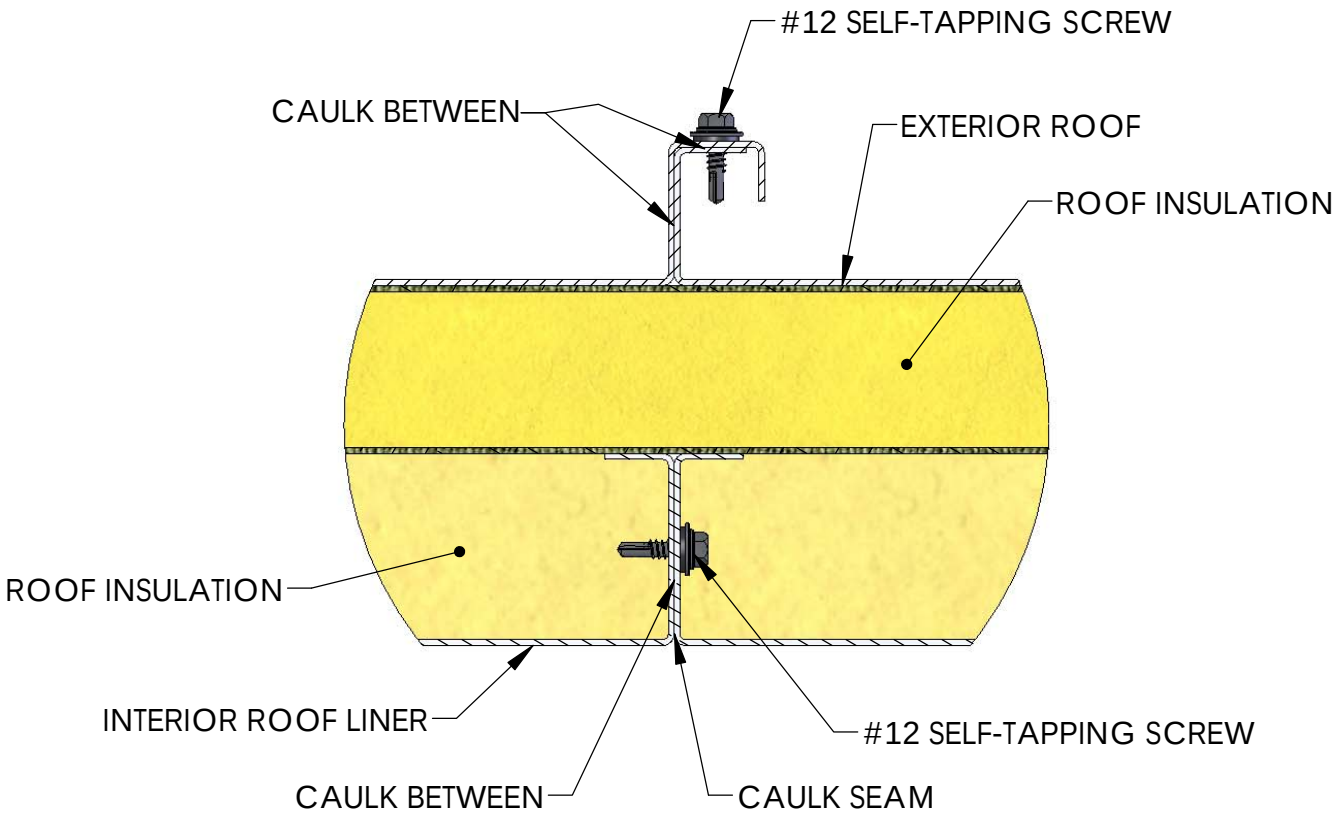

SEE UNIT DETAIL SCHEDULE FOR JOB SPECIFIC INFORMATION

| | | |
|---|---|---|
| MATL. - | THIS DRAWING IS THE PROPERTY OF CLIMATE BY DESIGN INTERNATIONAL. THE INFORMATION HEREON IS TO BE TREATED AS CONFIDENTIAL.IT IS NOT TO BE USED, COPIED, OR DISCLOSED TO OUTSIDE PARTIES WITHOUT THE EXPRESSED WRITTEN CONSENT OF CLIMATE BY DESIGN INTERNATIONAL. | Climate by Design INTERNATIONAL |
| UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES. TOLERANCES ARE: FRACTIONS ± 1/32 DECIMALS .XX ±.03 .XXX ±.010 ANGLES ±1/2° WELDMENT ±.12 | TITLE NO THRU METAL CONSTRUCTION DETAIL CORNER WALL PANELS | |
| | RAW MATERIAL PART NO. / DRAWN BY TROY / DATE - | |
| | DWG. NO. F-1610-01 | REV. - |
| | | SHEET 1 OF 1 |



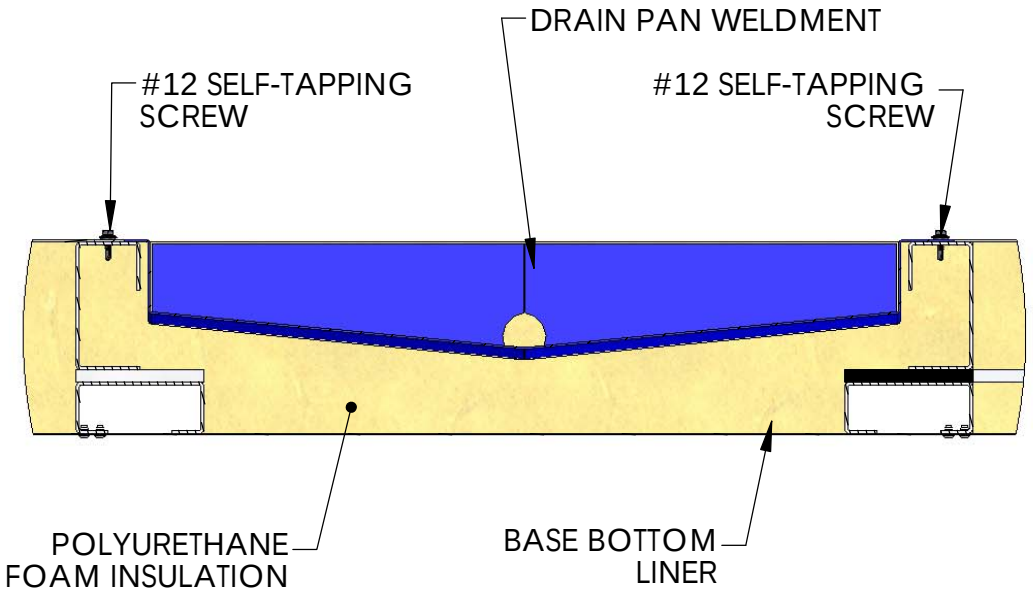

SEE UNIT DETAIL SCHEDULE FOR JOB SPECIFIC INFORMATION

| | | |
|---|---|---|
| MATL. - | THIS DRAWING IS THE PROPERTY OF CLIMATE BY DESIGN INTERNATIONAL. THE INFORMATION HEREON IS TO BE TREATED AS CONFIDENTIAL.IT IS NOT TO BE USED, COPIED, OR DISCLOSED TO OUTSIDE PARTIES WITHOUT THE EXPRESSED WRITTEN CONSENT OF CLIMATE BY DESIGN INTERNATIONAL. | Climate by Design INTERNATIONAL |
| UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES. TOLERANCES ARE: FRACTIONS ± 1/32 DECIMALS .XX ±.03 .XXX ±.010 ANGLES ±1/2° WELDMENT ±.12 | TITLE NO-THRU METAL CONSTRUCTION DETAIL WALL TO ROOF | |
| | RAW MATERIAL PART NO. / DRAWN BY TROY / DATE - | |
| | DWG. NO. F-1615-00 | REV. - |
| | | SHEET 1 OF 1 |




SEE UNIT DETAIL SCHEDULE FOR JOB SPECIFIC INFORMATION

| | | |
|---|---|---|
| MATL. - | THIS DRAWING IS THE PROPERTY OF CLIMATE BY DESIGN INTERNATIONAL. THE INFORMATION HEREON IS TO BE TREATED AS CONFIDENTIAL.IT IS NOT TO BE USED, COPIED, OR DISCLOSED TO OUTSIDE PARTIES WITHOUT THE EXPRESSED WRITTEN CONSENT OF CLIMATE BY DESIGN INTERNATIONAL. | Climate by Design INTERNATIONAL |
| UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES. TOLERANCES ARE: FRACTIONS ± 1/32 DECIMALS .XX ±.03 .XXX ±.010 ANGLES ±1/2° WELDMENT ±.12 | TITLE NO-THRU METAL CONSTRUCTION DETAIL ROOF PANELS | |
| | RAW MATERIAL PART NO. / DRAWN BY TROY / DATE - | |
| | DWG. NO. F-1620-00 | REV. - |
| | | SHEET 1 OF 1 |




SEE UNIT DETAIL SCHEDULE FOR JOB SPECIFIC INFORMATION

| | | |
|---|---|---|
| MATL. - | THIS DRAWING IS THE PROPERTY OF CLIMATE BY DESIGN INTERNATIONAL. THE INFORMATION HEREON IS TO BE TREATED AS CONFIDENTIAL.IT IS NOT TO BE USED, COPIED, OR DISCLOSED TO OUTSIDE PARTIES WITHOUT THE EXPRESSED WRITTEN CONSENT OF CLIMATE BY DESIGN INTERNATIONAL. | Climate by Design INTERNATIONAL |
| UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES. TOLERANCES ARE: FRACTIONS ± 1/32 DECIMALS .XX ±.03 .XXX ±.010 ANGLES ±1/2° WELDMENT ±.12 | TITLE: NO-THRU METAL BASE WITH DRAIN PAN | |
| | RAW MATERIAL PART NO. | DRAWN BY: KAY / DATE: 6/04/2009 |
| | DWG. NO. F-1630-00 | REV. - |
| | | SHEET 1 OF 1 |

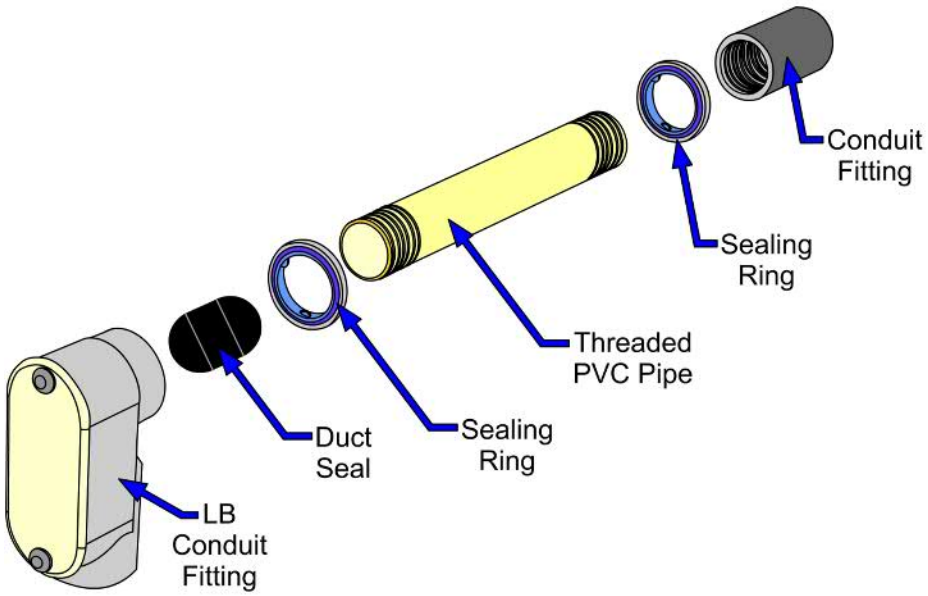
Climate by Design INTERNATIONAL

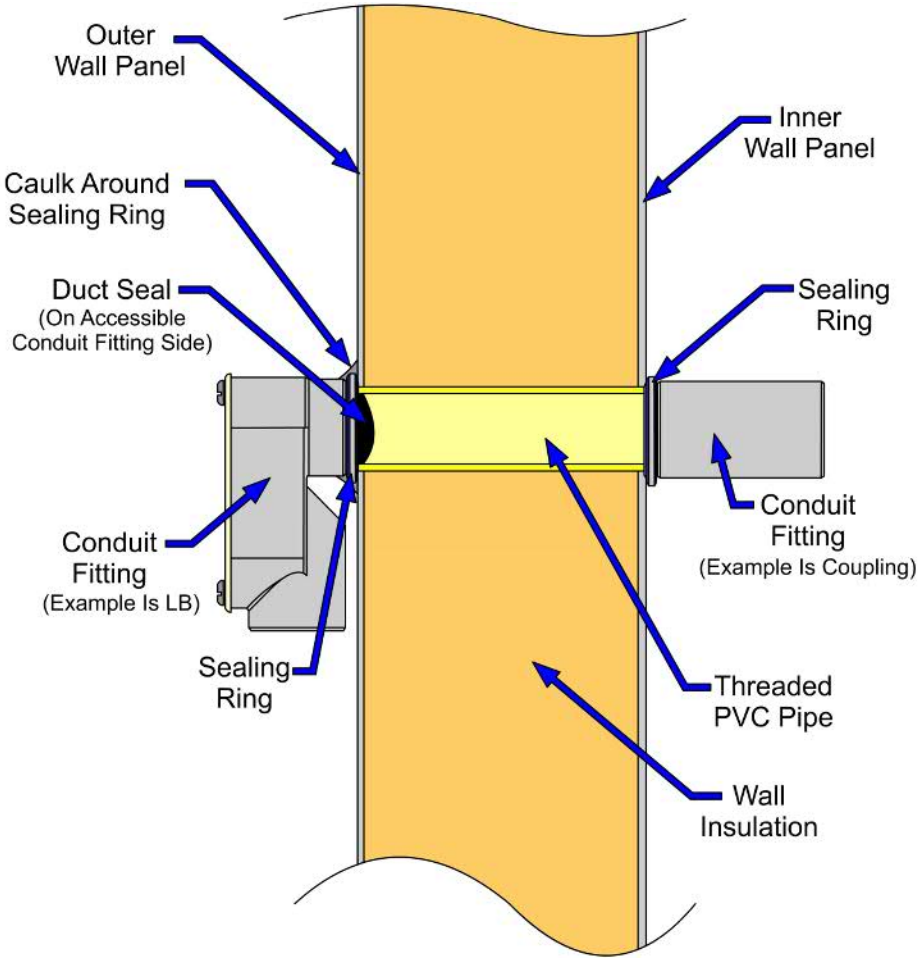
2100 Park Drive NW
Owatonna, MN 55060
Phone: 507-451-2198
Fax: 507-451-1177
www.cdihvac.com

| Form: F-2610-00 | June 20, 2017 |
|---|---|

# Construction Details

For Electrical Penetrations Through The Outer Wall Casing On
(NTM) No Through Metal Units



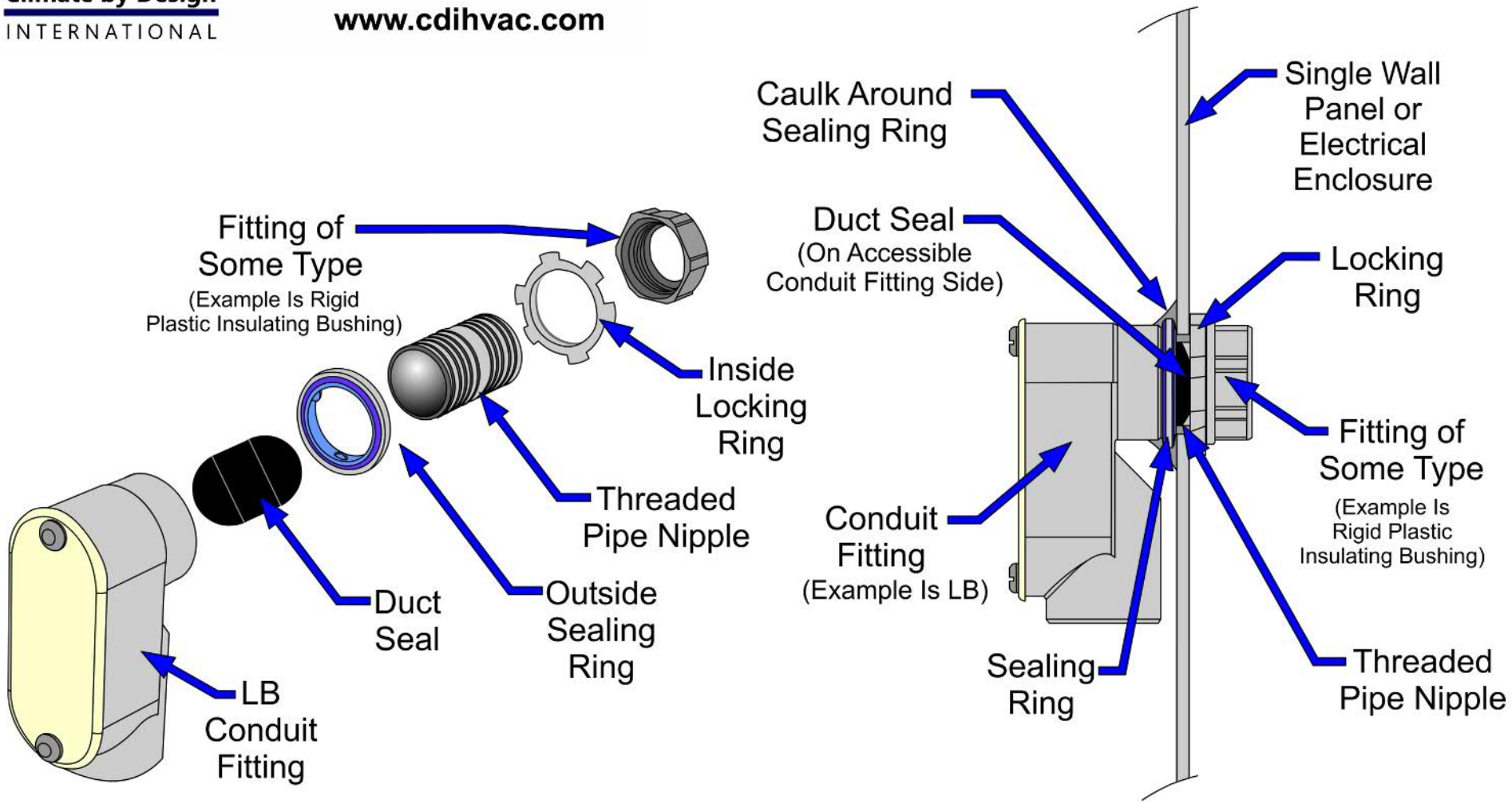
Climate by Design
INTERNATIONAL

2100 Park Drive NW
Owatonna, MN 55060
Phone: 507-451-2198
Fax: 507-451-1177
www.cdihvac.com

| Form: F-2610-02 | May 11, 2017 |
|---|---|

# Construction Details

For Electrical Penetrations Through All Single Wall Casing Or Exterior Electrical Enclosures




F-2610-02 - Electrical Single Wall Penetrations

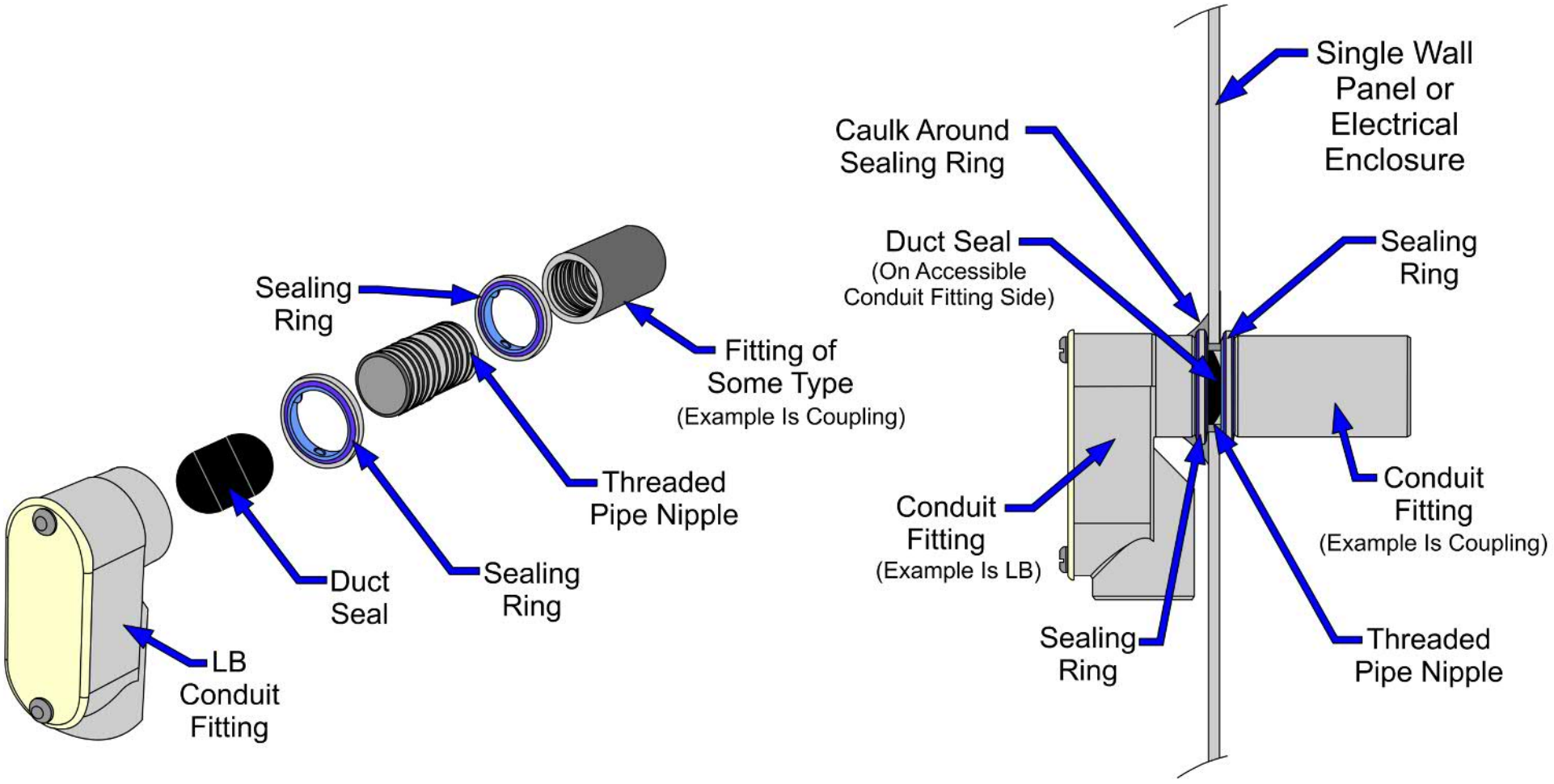
Climate by Design INTERNATIONAL

2100 Park Drive NW
Owatonna, MN 55060
Phone: 507-451-2198
Fax: 507-451-1177
www.cdihvac.com

| Form: F-2610-02 | May 11, 2017 |
|---|---|

# Construction Details

For Electrical Penetrations Through All Single Wall Casing Or Exterior Electrical Enclosures




F-2610-02 - Electrical Single Wall Penetrations

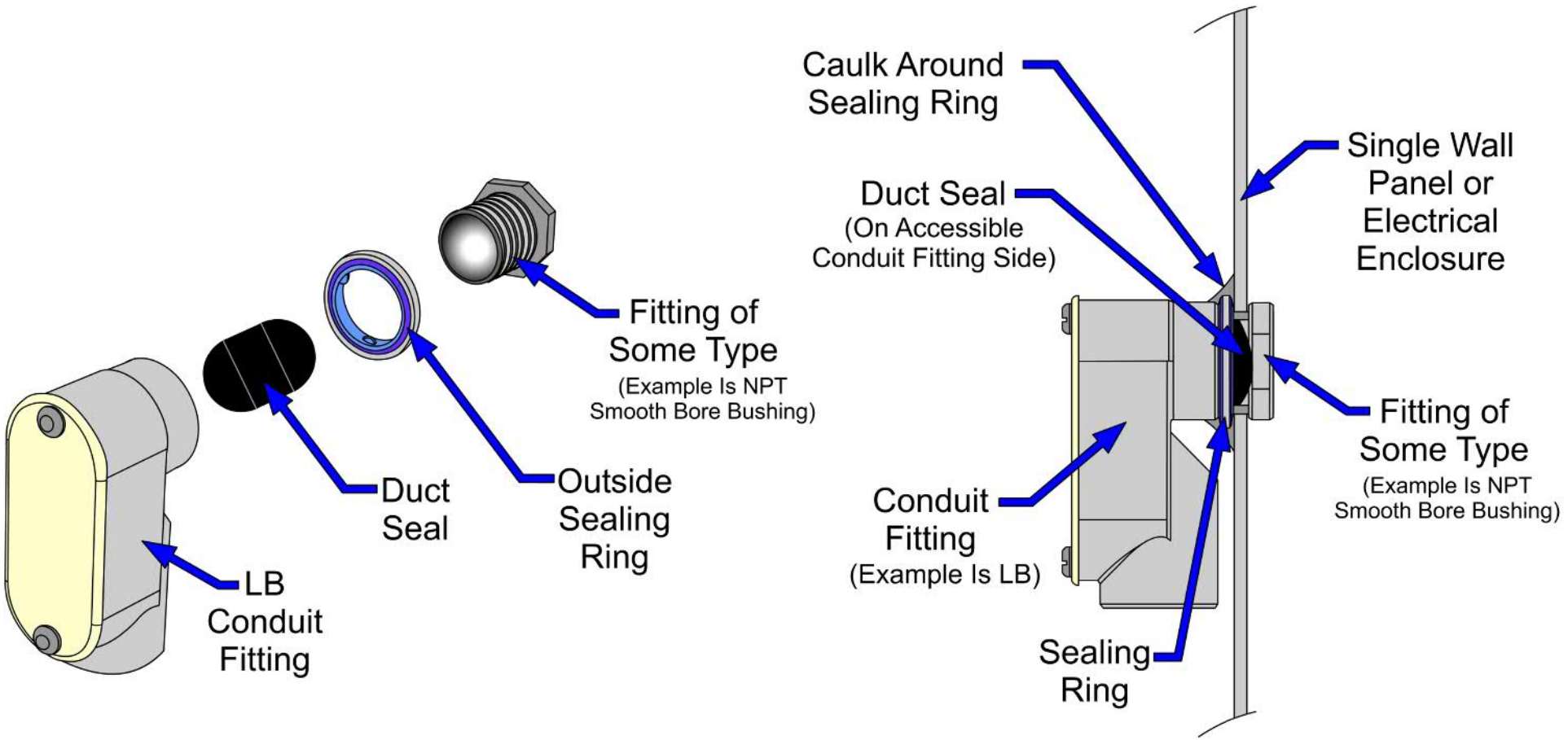
Climate by Design INTERNATIONAL

2100 Park Drive NW
Owatonna, MN 55060
Phone: 507-451-2198
Fax: 507-451-1177
www.cdihvac.com

| Form: F-2610-02 | May 11, 2017 |
|---|---|

# Construction Details

For Electrical Penetrations Through All Single Wall Casing Or Exterior Electrical Enclosures




F-2610-02 - Electrical Single Wall Penetrations

Rev 0 on 06/20/2017

# SEQUENCE OF OPERATION

## Anduril - McHenry MS
## 400-DHU-1

**WARNING: To minimize exposure to electrical and mechanical hazards when servicing this unit, the unit Main Disconnect Switch should be placed in the OFF position.**

1) **Standby:**
   - Power supplied to the unit
   - Main Disconnect Switch in the **ON** position
   - Manual-Off-Auto** selector switch in the **OFF** position
   - Controller is powered and the sensors are activated
   - OA (outside air) damper fully closed (Normally Closed, Fail Closed)

2) **Airflow Modes:**
   - With the Manual-Off-Auto selector switch in the **MANUAL** or **AUTO**** position, one of the following airflow modes may be selected via BMS or user interface.

3) **Supply Air Pressure Control:**
   - Duct pressure transmitter
   - Supply fan VFD(s) modulated to maintain pressure set point 5 W.C. (adj)

****For the AUTO mode to function, the customer supplied Run/Stop Contact must be closed and the jumper installed in place of the Run/Stop Contact must be removed**.

Temperature and humidity set points are adjusted via User Interface and BMS Interface.

4) **Discharge Air Humidity - Dew Point Control-RH Transmitter:**
   - DA relative humidity
     - Discharge air temperature and relative humidity converted into a dew point value
   - With supply airflow proven
   - When sensed dew point exceeds the set point by 2° (adj)
     - Dehumidification is enabled
     - React fan proven
     - React heat source is enabled
   - Face and Bypass Dampers
     - When React heat source is enabled
     - Dampers are modulated to maintain the set point
     - When damper modulation is below 10% (adj), dehumidification is disabled
   - Dehumidification Disable
     - When the sensed dew point falls below the set point by 2° (adj)
     - And the calculated ROT set point is at minimum
     - React heat source is disabled
     - React fan continues to run for 2 minute (adj) cool down period
     - React fan and rotor disabled after cool down
     - Supply fan continues to run

# SEQUENCE OF OPERATION

- Pre-ignition interlocks include react airflow differential pressure proving switch and manual reset high temperature limit switch.

5) **React heat source energy is controlled by DDC controller as follows:**
   - (RIT) Reactivation Inlet Temperature
   - (ROT) Reactivation Outlet Temperature
   - **ROT Control:**
     - With react heat enabled
     - React heater command is set to 0% for 15 seconds (adj)
     - After react heater command delay,
     - Electric heater is modulated to maintain ROT set point of 135°F (adj)
       - Stage 2 is enabled when
         - Stage 1 is enabled
         - Interstage timer has elapsed (60 seconds, adj)
         - ROT is below set point
         - React heater command is at 100%
       - Stage 2 is disabled when
         - Interstage time has elapsed
         - ROT is above set point
         - React heater command is at 0%
       - Additional stages operate the same as previous stage
     - RIT is limited to 325°F to prevent over temp condition.
   - Failsafe Mode:
     - ROT or RIT sensor failure:
       - Electric heater is set to 50% capacity.

6) **Discharge Air Temp Control:**
   - Pre Cool LAT RTD
   - Discharge Transmitter
     - **Pre Cooling:**
       - When the temp goes above set point by 2° (adj)
       - Controller will enable and modulate the pre cool coil as needed to maintain set point.
       - Stage 2 is enabled when
         - Stage 1 is enabled
         - Interstage timer has elapsed (60 seconds, adj)
         - Temperature is above set point
         - Pre cool command is at 100%
         - PID loop is reset
       - Stage 2 is disabled when
         - Interstage time has elapsed
         - Temperature is above set point
         - Pre cool command is at 0%
         - PID loop is reset
       - Additional stages operate the same as previous stage

# SEQUENCE OF OPERATION

- **Post Heating:**
  - When the DA temp falls below set point by 2° (adj)
  - If cooling has been staged off for at least 2 minutes (adj)
  - Controller will enable and modulate the post heat coil as needed to maintain set point.
  - Stage 2 is enabled when
    - Stage 1 is enabled
    - Interstage timer has elapsed (60 seconds, adj)
    - Temperature is below set point
    - Post heater command is at 100%
    - PID loop is reset
  - Stage 2 is disabled when
    - Interstage time has elapsed
    - Temperature is above set point
    - Post heater command is at 0%
    - PID loop is reset
  - Additional stages operate the same as previous stage
- **Post Cooling:**
  - When the DA temp rises above set point by 2° (adj)
  - If heating is at 0% modulation for at least 2 minutes (adj)
  - Controller will enable and modulate the post cool coil as needed to maintain set point.
  - Stage 2 is enabled when
    - Stage 1 is enabled
    - Interstage timer has elapsed (60 seconds, adj)
    - Temperature is above set point
    - Pre cool command is at 100%
    - PID loop is reset
  - Stage 2 is disabled when
    - Interstage time has elapsed
    - Temperature is above set point
    - Pre cool command is at 0%
    - PID loop is reset
  - Additional stages operate the same as previous stage

7) **Unit Alarms**

Alarms will occur with each fault and will be displayed on the HMI and available to the BMS.

**ROT sensor Fault:** Occurs when the sensor failure is detected. The unit will continue to run. Auto Resets.

**RIT sensor Fault:** Occurs when the sensor failure is detected. The unit will continue to run. Auto Resets.

# SEQUENCE OF OPERATION

**React Low Temp Fault:** Occurs when the ROT fails to achieve or falls below 90°F over a 15 minute period. The unit will continue to run. The React Low Limit Fault contact will close.

**Desiccant Rotor Rotation Fault:** Occurs when rotation is not detected within the programmed time. Reactivation process is disabled. The unit will continue to run. The Desiccant Rotation Failure contact will close.

**External Faults:** Other customer or factory provided devices may be installed to initiate unit shut down via “External Faults” input. Unit shut down occurs upon closing of customer contacts, or installed factory contacts.

**RIT Over Temp Fault (Manual Reset):** Occurs when RIT exceeds 350°F. Reactivation process is disabled. The unit will continue to run. Visual inspection of the machine and manual reset is required, at the control panel (push button reset) and the DDC controller. The React High Limit Fault contact will close.

**RIT Over Temp Fault (Programmed):** Occurs when the RIT senses a temperature greater than 340°F. Reactivation process is disabled. The unit will continue to run.

**ROT Over Temp Fault (Programmed):** Occurs when the ROT senses a temperature greater than 200°F. Reactivation process is disabled. The unit will continue to run.

**React Airflow Restriction Fault:** Occurs when RIT exceeds 325°F and the react energy modulation is at 0%. Reactivation process is disabled. The unit will continue to run.

**Discharge Air High Temp Fault:** Occurs when the DAT rises above 100°F over a 5 minute period. The unit will shut down.

**Discharge Air Low Temp Fault:** Occurs when the DAT falls below 40°F over a 5 minute period. The unit will shut down.

**Supply Air Flow Fault:** Occurs when airflow is not sensed within 120 seconds of the run command or loss of air flow during operation. The unit will shut down.

**React Air Flow Fault:** Occurs when airflow is not sensed within 60 seconds of the react enable command or loss of air flow during operation. React is disabled. The supply fan will continue to run. The React Fan Fault contact will close.

**Intermediate Filter Clogged Warning:** Warning occurs when the differential air pressure drop across the filter bank exceeds set point. The supply fan will continue to run.

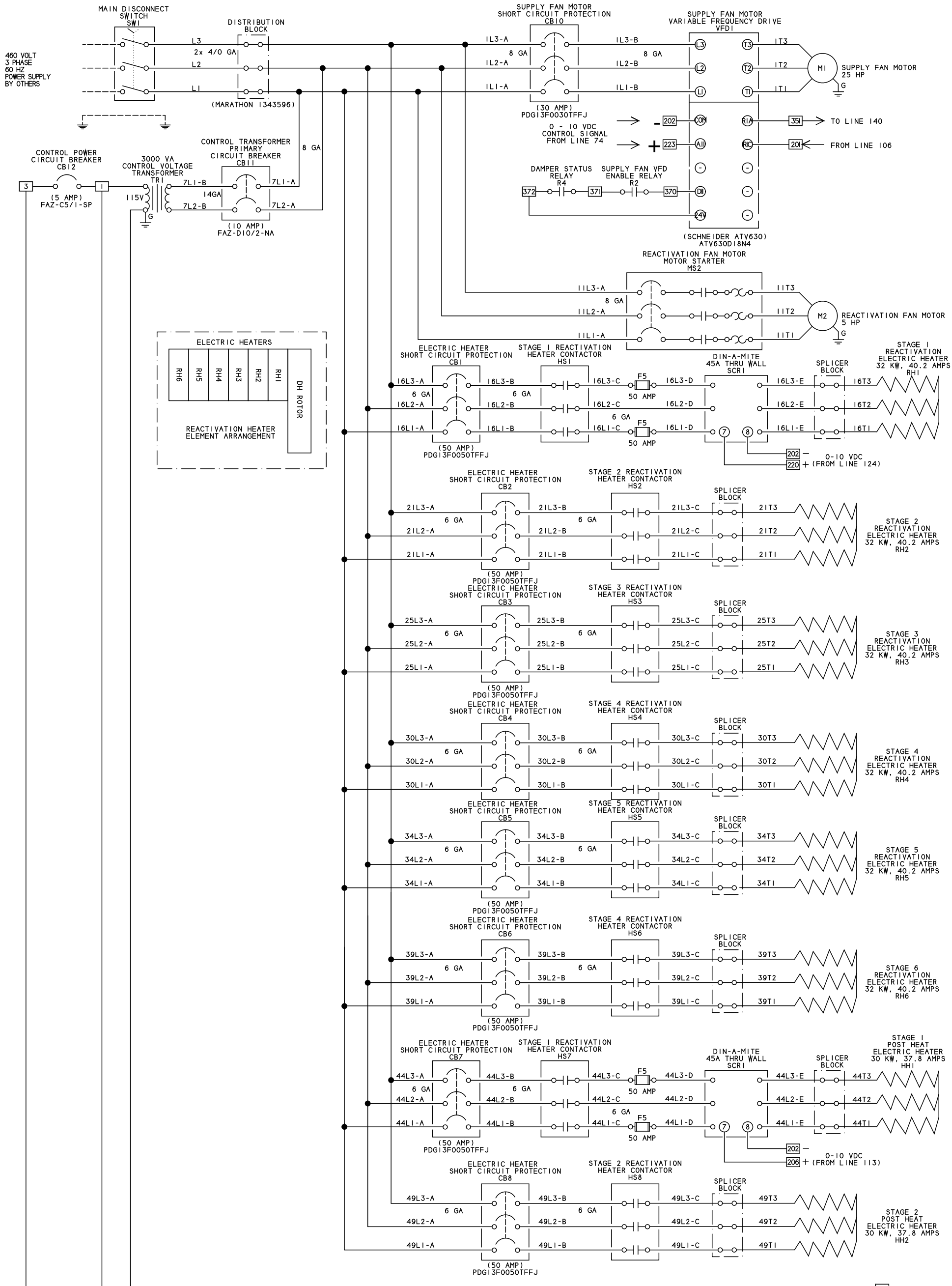
**React Filter Clogged Warning:** Warning occurs when the differential air pressure drop across the filter bank exceeds set point. The supply fan will continue to run.

**General Alarm:** Optional customer contact closes when any alarm is activated. Auto Resets.

After corrective action is taken, faults may be reset by:

# SEQUENCE OF OPERATION

- Manual Reset is accomplished at the device include:
    - High Limit Stat (on main control enclosure door)
- The DDC controller fault condition(s) may be reset via:
    - User Interface
    - BMS Interface




PAGE 1

| DATE | REV | REVISION DESCRIPTION | BY |
|---|---|---|---|
| 1/8/24 | 001 | CHANGES ON PAGE 4 | ARW |
| - | | | - |
| - | | | - |
| - | | | - |
| - | | | - |


Climate by Design INTERNATIONAL

200 Festal PL NW
Owatonna, MN 55060
Phone: 507-451-2198
Fax: 507-451-1177
www.cdihvac.com


PROJECT NAME: ANDURIL - MCHENRY MS

ELECTRICAL SCHEMATIC

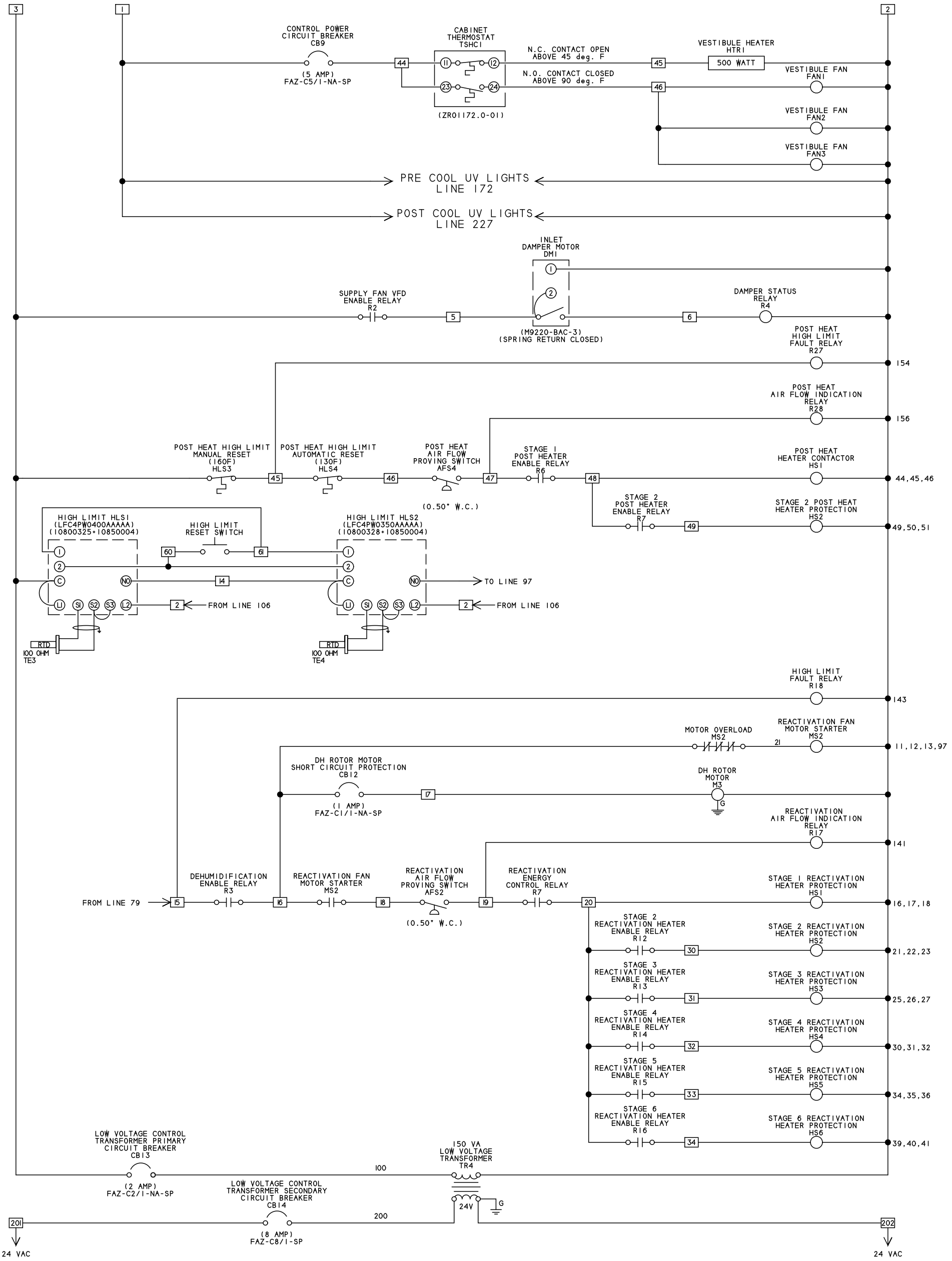
DRAWN BY: ARW

CHECKED BY: -

DATE: 12/11/2023

☐ SETS OF DRAWINGS ☐ FOR APPROVAL ☐ FOR RECORD

DRAWING #: 029400-001-E01 000




NOTES:

ALL WIRES TAGGED AT BOTH ENDS WITH TERMINAL OR WIRE DESIGNATION

TERMINAL 1 - 199 = 115 VAC
TERMINALS 200+ = 24V OR LESS

WIRE COLORS

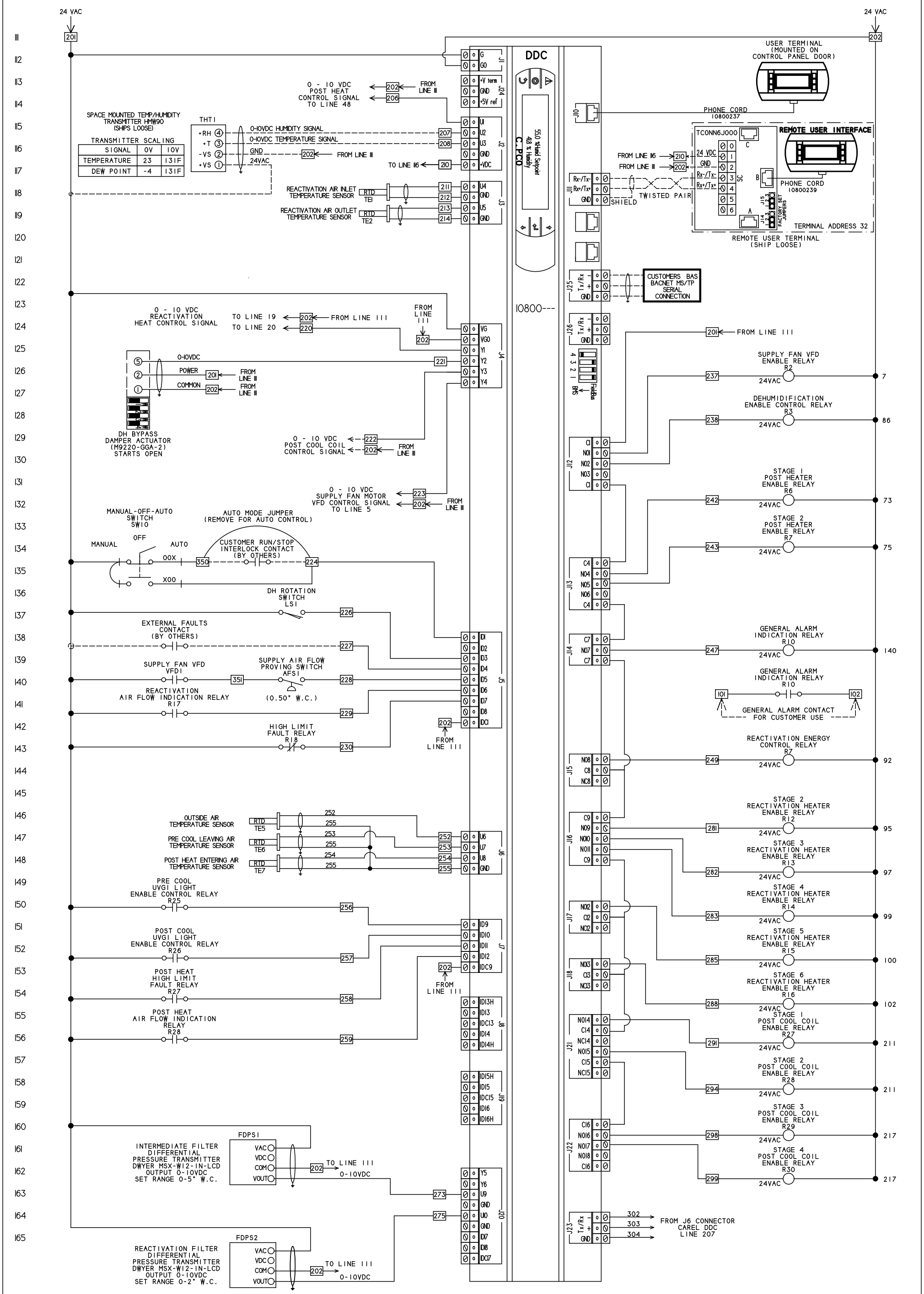
| | |
|---|---|
| BLACK | HIGH VOLTAGE |
| RED | 115V CONTROL |
| WHITE | 115V NEUTRAL |
| YELLOW | 24V OR LESS CONTROL |



| DATE | REV | REVISION DESCRIPTION | BY |
|---|---|---|---|
| 1/8/24 | 001 | CHANGES ON PAGE 4 | ARW |
| - | | | - |
| - | | | - |
| - | | | - |
| - | | | - |

Climate by Design INTERNATIONAL
200 Festal PL NW
Owatonna, MN 55060
Phone: 507-451-2198
Fax: 507-451-1177
www.cdihvac.com

| | |
|---|---|
| PROJECT NAME: | ANDURIL - MCHENRY MS |
| | ELECTRICAL SCHEMATIC |
| DRAWN BY: | ARW |
| CHECKED BY: | - |
| DATE: | 12/11/2023 |
| ☐ SETS OF DRAWINGS | |
| ☐ FOR APPROVAL ☐ FOR RECORD | |
| DRAWING #: | 029400-001-E02 000 |




PAGE 3

| DATE | REV | REVISION DESCRIPTION | BY |
|---|---|---|---|
| 1/8/24 | 001 | CHANGES ON PAGE 4 | ARW |
| - | | | - |
| - | | | - |
| - | | | - |
| - | | | - |


Climate by Design INTERNATIONAL

200 Festal PL NW
Owatonna, MN 55060
Phone: 507-451-2198
Fax: 507-451-1177
www.cdihvac.com


PROJECT NAME: ANDURIL - MCHENRY MS

ELECTRICAL SCHEMATIC

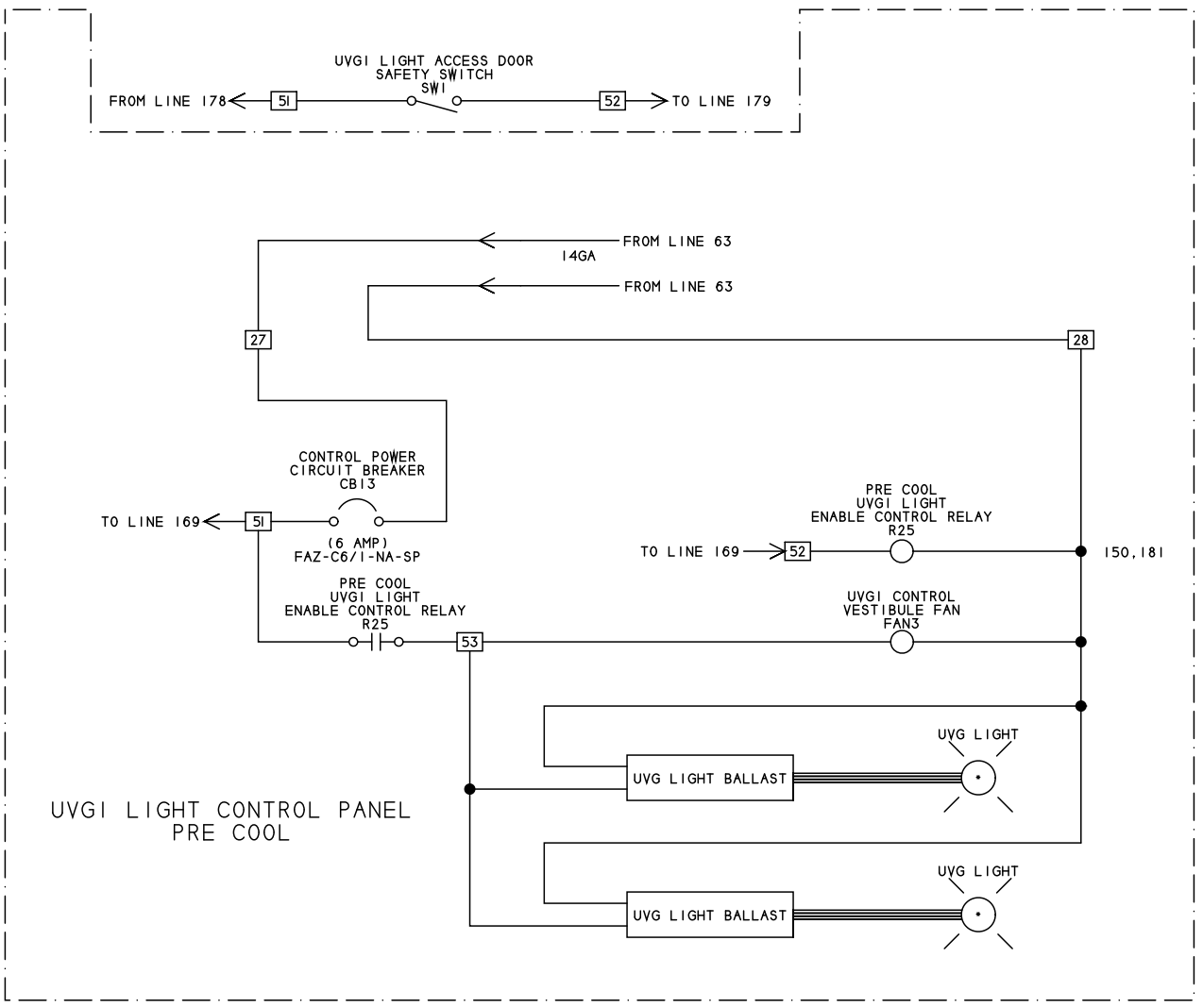
DRAWN BY: ARW

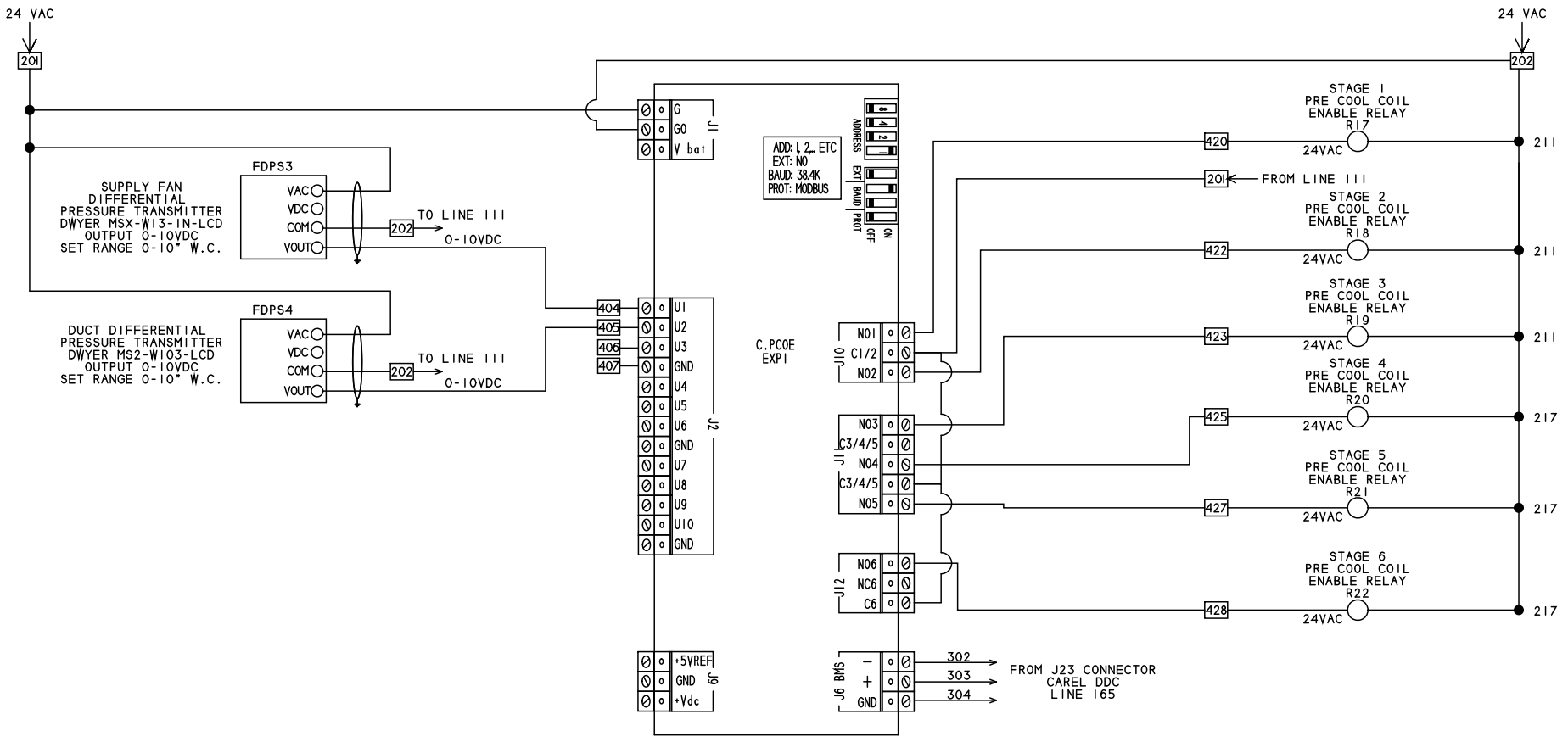
CHECKED BY: -

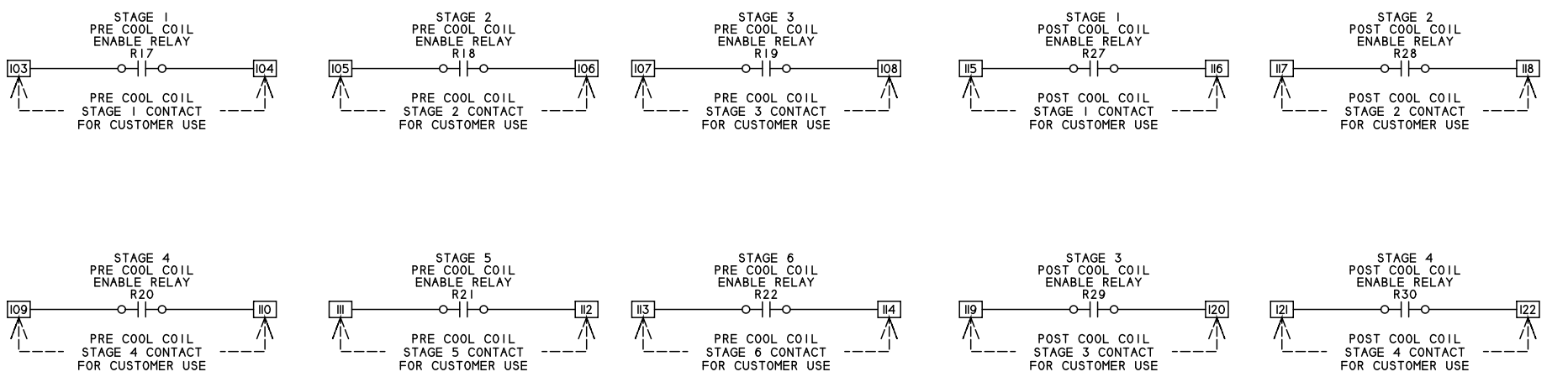
DATE: 12/11/2023

☐ SETS OF DRAWINGS ☐ FOR APPROVAL ☐ FOR RECORD

DRAWING #: 029400-001-E03 000






| DATE | REV | REVISION DESCRIPTION | BY |
|---|---|---|---|
| 1/8/24 | 001 | ADDED DUCT PRESSURE TRANSMITTER | ARW |
| - | | | - |
| - | | | - |
| - | | | - |
| - | | | - |

Climate by Design INTERNATIONAL
200 Festal PL NW
Owatonna, MN 55060
Phone: 507-451-2198
Fax: 507-451-1177
www.cdihvac.com

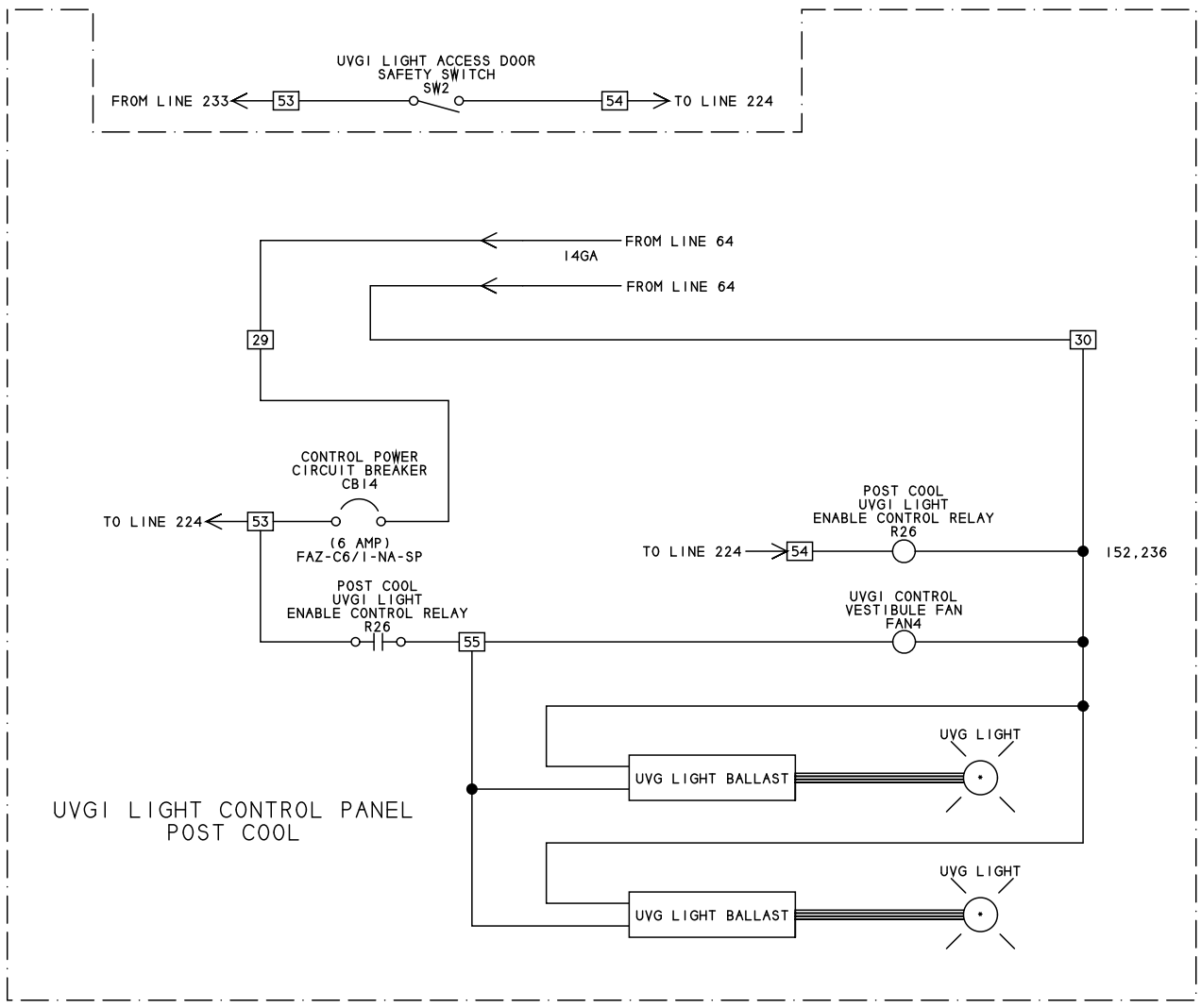
PROJECT NAME: ANDURIL - MCHENRY MS

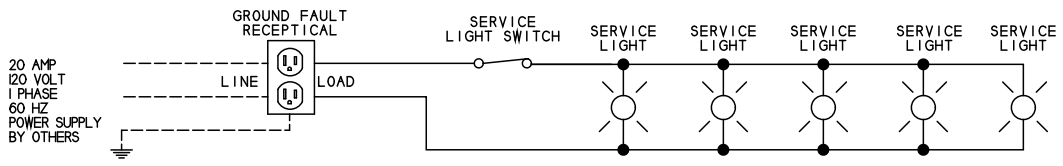
ELECTRICAL SCHEMATIC

DRAWN BY: ARW
CHECKED BY: -
DATE: 12/11/2023

☐ SETS OF DRAWINGS
☐ FOR APPROVAL ☐ FOR RECORD

DRAWING #: 029400-001-E04 000






| DATE | REV | REVISION DESCRIPTION | BY |
|---|---|---|---|
| 1/8/24 | 001 | CHANGES ON PAGE 4 | ARW |
| - | | | - |
| - | | | - |
| - | | | - |
| - | | | - |

Climate by Design INTERNATIONAL
200 Festal PL NW
Owatonna, MN 55060
Phone: 507-451-2198
Fax: 507-451-1177
www.cdihvac.com

PROJECT NAME: ANDURIL - MCHENRY MS

ELECTRICAL SCHEMATIC

DRAWN BY: ARW
CHECKED BY: -
DATE: 12/11/2023

[ ] SETS OF DRAWINGS
[ ] FOR APPROVAL [ ] FOR RECORD

DRAWING #: 029400-001-E05 000

# The New York Blower Company
## Fan-to-Size
## Fan Selection Detail

### Fan Design

**Calculation Mode: Find Width (Direct)**

| | | | |
|---|---|---|---|
| Product: | EZ Plenum | Drive Type: | Direct |
| Type: | Backward-Inclined (Unhoused) | Arrangement: | 4 |
| Size: | 30 | Outlet Velocity: | 1453 ft/min |
| Fan Class: | 3 | Static Efficiency: | 76.43% |
| Wheel Type: | Backward Inclined (airfoil: ACF/ECF) - ECF-9 | Total Efficiency: | 77.6% |
| Wheel Material: | Aluminum | Operating Temp: | 90° F |
| Wheel Weight: | 42.0 lb | Maximum Temp: | 100° F |
| Wheel WR²: | 41.6 lb-ft2 | Maximum Speed: (1) | 2607 RPM |
| Percent Width: | 70% | Velocity Pressure: | 0.126 in wg |
| Percent Diameter: | 100.0% | Fan Static Pressure: | 8.3 in wg |
| Outlet Area: | 7.53 sq. ft. | Fan Total Pressure: | 8.43 in wg |
| Options: | None | Altitude: | 0 ft |
| Fan 'M': | N/A | NW Delta: | 3.375 in |

Operating cost is $16716.16 for 8760 hours with a 95% efficient motor when energy unit per kW-hr is $0.13.

Axial thrust load is 573 lbf.

***This configuration is compliant with CEC regulations (suitable for use in California). FEI: 1.41.**

### Conditions (Standard Volume; Fan Static Pressure)

| | Flow | Pressure | Power | Speed | Speed Limit (2) | Density | Altitude | Inlet Temp. | FEI |
|---|---|---|---|---|---|---|---|---|---|
| | SCFM | in wg (FSP) | bhp | rpm | rpm | lb/ft3 | ft | f | |
| **Operating** | 10500 | 8.3 | 18.7 | 1757 | 2613 | 0.0720 | 0 | 90 | 1.41 |
| **Coldstart** | 10500 | 9.12 | 19.4 | 1757 | 2623 | 0.0776 | 0 | 50 | 1.39 |
| **Standard** | 10500 | 8.75 | 19.1 | 1757 | 2623 | 0.0750 | 0 | 70 | 1.4 |

(1) Speed Limit at Maximum Temperature (2) Speed Limit at indicated Inlet Temperature

### Speed Limit Derates By Temperature

| Temperature | Derate | Wheel Limit | Fan Limit |
|---|---|---|---|
| 70 | 1.0000 | 2623 | 2623 |
| 120 | 0.9900 | 2597 | 2597 |
| 200 | 0.9800 | 2571 | 2571 |

The New York Blower Company certifies that the EZ Plenum Fan is licensed to bear the AMCA Sound & Air Performance Seal. The ratings shown are based on tests and procedures performed in accordance with AMCA Publication 211 and 311 and comply with the requirements of the AMCA Certified Ratings program. AMCA Licensed for Sound and Air Performance without Appurtenances (Accessories) or Plenum Effect. Power HP (bhp) excludes drives. The data presented is not certified, and was modified from AMCA licensed performance data. It was modified to account for ** installation, appurtenances, or accessories, etc, Non-standard impeller width **, which were not included in the licensed ratings. This modified performance is not AMCA licensed but is provided to aid in selection and application of the product. Performance certified is for installation type: A - free inlet, free outlet. dBA levels are not licensed by AMCA International.

# The New York Blower Company
## Fan-to-Size
## Fan Selection Detail

## Sound Power Level Ratings

Sound power and sound pressure levels are shown in decibels. (Power levels reference 10-12 watts and pressure levels reference 2x10-7 microbar.) Sound power ratings are calculated per AMCA Standard 301. Ratings do not include the effects of duct end correction. Sound levels do not include motors or drives. Pressure levels are estimated. A-weighing is per ANSI S.1.42-2001 (R2011).

### Fan Sound

| Center Freq (Hz) | 63 | 125 | 250 | 500 | 1000 | 2000 | 4000 | 8000 | Overall |
|---|---|---|---|---|---|---|---|---|---|
| Octave | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | |
| Inlet Total Power, dB | 91 | 92 | 102 | 94 | 95 | 94 | 90 | 83 | **104** |
| A-Weighting | -26.2 | -16.1 | -8.6 | -3.2 | 0 | 1.2 | 1 | -1.1 | |
| Convert To Pressure | -11.5 | -11.5 | -11.5 | -11.5 | -11.5 | -11.5 | -11.5 | -11.5 | |
| Inlet Total Pressure, dBA | 53 | 64 | 82 | 79 | 84 | 84 | 80 | 70 | **89** |
| | | | | | | | | | |
| Outlet Total Power, dB | 99 | 99 | 106 | 101 | 101 | 101 | 95 | 87 | **110** |
| A-Weighting | -26.2 | -16.1 | -8.6 | -3.2 | 0 | 1.2 | 1 | -1.1 | |
| Convert To Pressure | -11.5 | -11.5 | -11.5 | -11.5 | -11.5 | -11.5 | -11.5 | -11.5 | |
| Outlet Total Pressure, dBA | 61 | 71 | 86 | 86 | 90 | 91 | 85 | 74 | **95** |

Directivity/Reflection is a hemispherical radiation (Q = 2); Distance is 5 ft.
The estimated sound pressure level outside the fan due to inlet noise is 89 dBA at 5 ft.
The estimated sound pressure level outside the fan due to outlet noise is 95 dBA at 5 ft.

The sound power and pressure levels displayed here are estimated values based on tests and ratings conducted in accordance with AMCA standards 300 and 301. AMCA does not certify any of these ratings. The inlet and outlet powers were separately tested.

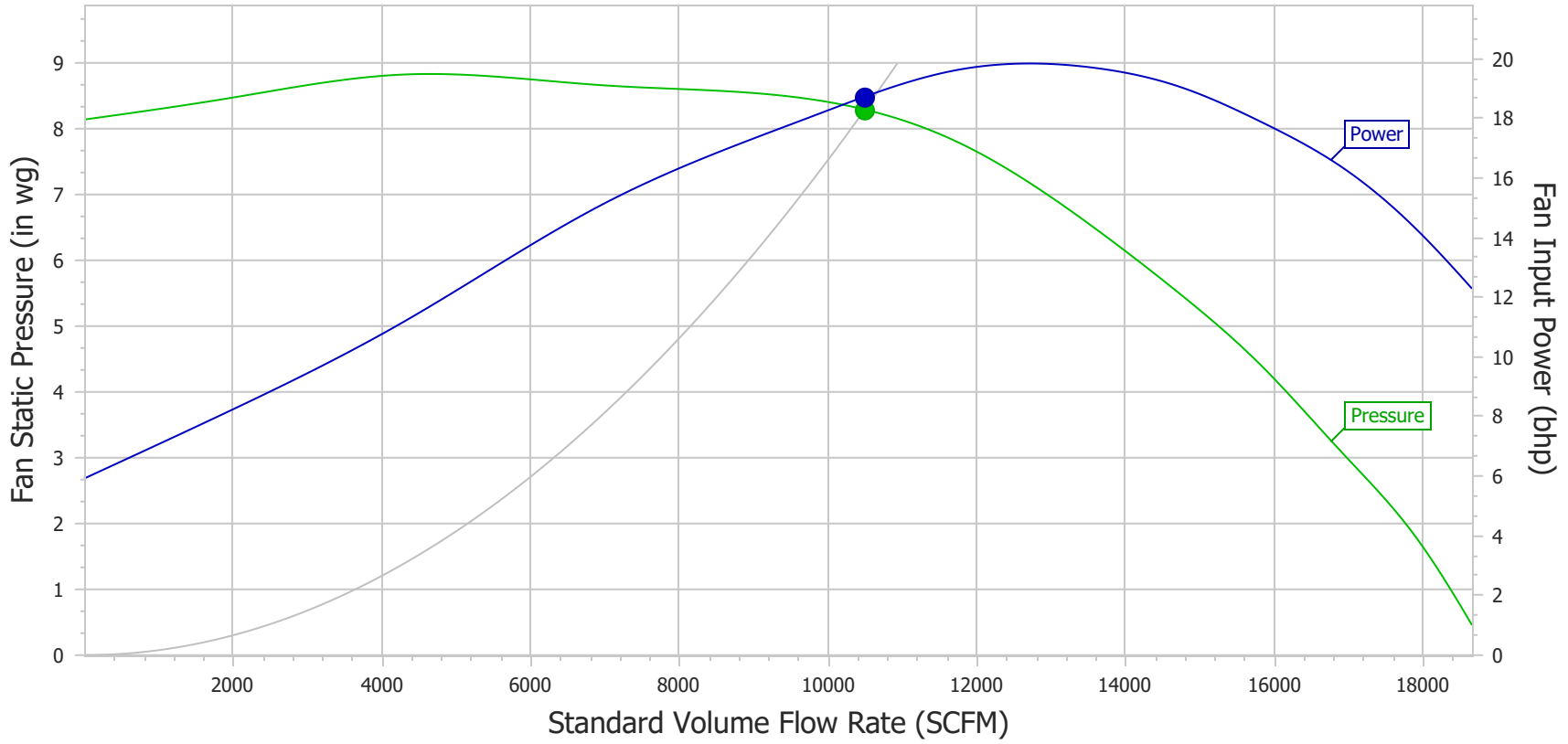
**Project: Anduril - McHenry MS**
**Tagging: Supply**

# The New York Blower Company
## Fan-to-Size
## Fan Selection Detail

Product: EZ Plenum
Material: Aluminum
Fan Size: 30, Fan Class: 3
Arrangement: 4
Wheel Type: Backward Inclined (airfoil: ACF/ECF) - ECF-9, Width: 70%
Options: None

Standard Volume Flow Rate: 10500 SCFM
Fan Static Pressure: 8.3 in wg
Speed: 1757 rpm
Power: 18.7 bhp

Inlet Temperature: 90 °f
Altitude: 0 ft
Density: 0.0720 lb/ft3
Outlet Velocity: 1453 ft/min




***This configuration is compliant with CEC regulations (suitable for use in California). FEI: 1.41.**

AMCA Licensed for Sound and Air Performance without Appurtenances (Accessories) or Plenum Effect. Power HP (bhp) excludes drives. The data presented is not certified, and was modified from AMCA licensed performance data. It was modified to account for ** installation, appurtenances, or accessories, etc, Non-standard impeller width **, which were not included in the licensed ratings. This modified performance is not AMCA licensed but is provided to aid in selection and application of the product. Performance certified is for installation type: A - free inlet, free outlet. dBA levels are not licensed by AMCA International.

# The New York Blower Company
## Fan-to-Size
## Fan Selection Detail

### Fan Design

**Calculation Mode: Find Width (Direct)**

| | | | |
|---|---|---|---|
| Product: | BI Wheel for Plenum | Drive Type: | Direct |
| Type: | Backward-Inclined (Unhoused) | Arrangement: | 4 |
| Size: | 15 | Outlet Velocity: | 1560 ft/min |
| Fan Class: | 2 | Static Efficiency: | 56.09% |
| Wheel Type: | Backward Inclined (airfoil: ACF/ECF) - ECF-9 | Total Efficiency: | 57.4% |
| Wheel Material: | Aluminum | Operating Temp: | 120° F |
| Wheel Weight: | 15.0 lb | Maximum Temp: | 120° F |
| Wheel WR²: | 2.85 lb-ft2 | Maximum Speed: (1) | 3670 RPM |
| Percent Width: | 73% | Velocity Pressure: | 0.132 in wg |
| Percent Diameter: | 100.0% | Fan Static Pressure: | 5.8 in wg |
| Outlet Area: | 1.84 sq. ft. | Fan Total Pressure: | 5.93 in wg |
| Options: | None | Altitude: | 0 ft |
| Fan 'M': | N/A | NW Delta: | 1.5 in |

Operating cost is $4183.51 for 8760 hours with a 95% efficient motor when energy unit per kW-hr is $0.13.

Axial thrust load is 90 lbf.

***This configuration is compliant with CEC regulations (suitable for use in California). FEI: 1.13.**

### Conditions (Actual Volume; Fan Static Pressure)

| | Flow | Pressure | Power | Speed | Speed Limit (2) | Density | Altitude | Inlet Temp. | FEI |
|---|---|---|---|---|---|---|---|---|---|
| | ACFM | in wg (FSP) | bhp | rpm | rpm | lb/ft3 | ft | f | |
| **Operating** | 2870 | 5.8 | 4.68 | 3480 | 3670 | 0.0653 | 0 | 120 | 1.13 |
| **Coldstart** | 2870 | 6.62 | 5.34 | 3480 | 3670 | 0.0743 | 0 | 50 | 1.13 |
| **Standard** | 2870 | 6.69 | 5.39 | 3480 | 3670 | 0.0750 | 0 | 70 | 1.13 |

(1) Speed Limit at Maximum Temperature (2) Speed Limit at indicated Inlet Temperature

### Speed Limit Derates By Temperature

| Temperature | Derate | Wheel Limit | Fan Limit |
|---|---|---|---|
| 70 | 1.0000 | 4295 | 3670 |
| 130 | 0.9750 | 4188 | 3670 |

# The New York Blower Company
## Fan-to-Size
## Fan Selection Detail

## Sound Power Level Ratings

Sound power and sound pressure levels are shown in decibels. (Power levels reference 10-12 watts and pressure levels reference 2x10-7 microbar.) Sound power ratings are calculated per AMCA Standard 301. Ratings do not include the effects of duct end correction. Sound levels do not include motors or drives. Pressure levels are estimated. A-weighing is per ANSI S.1.42-2001 (R2011).

### Fan Sound

| Center Freq (Hz) | 63 | 125 | 250 | 500 | 1000 | 2000 | 4000 | 8000 | Overall |
|---|---|---|---|---|---|---|---|---|---|
| Octave | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | |
| Inlet Total Power, dB | 96 | 93 | 96 | 99 | 92 | 87 | 85 | 81 | **103** |
| A-Weighting | -26.2 | -16.1 | -8.6 | -3.2 | 0 | 1.2 | 1 | -1.1 | |
| Convert To Pressure | -11.5 | -11.5 | -11.5 | -11.5 | -11.5 | -11.5 | -11.5 | -11.5 | |
| Inlet Total Pressure, dBA | 58 | 65 | 76 | 84 | 81 | 77 | 75 | 68 | **87** |
| | | | | | | | | | |
| Outlet Total Power, dB | 101 | 104 | 106 | 107 | 102 | 100 | 98 | 92 | **112** |
| A-Weighting | -26.2 | -16.1 | -8.6 | -3.2 | 0 | 1.2 | 1 | -1.1 | |
| Convert To Pressure | -11.5 | -11.5 | -11.5 | -11.5 | -11.5 | -11.5 | -11.5 | -11.5 | |
| Outlet Total Pressure, dBA | 63 | 76 | 86 | 92 | 91 | 90 | 88 | 79 | **97** |

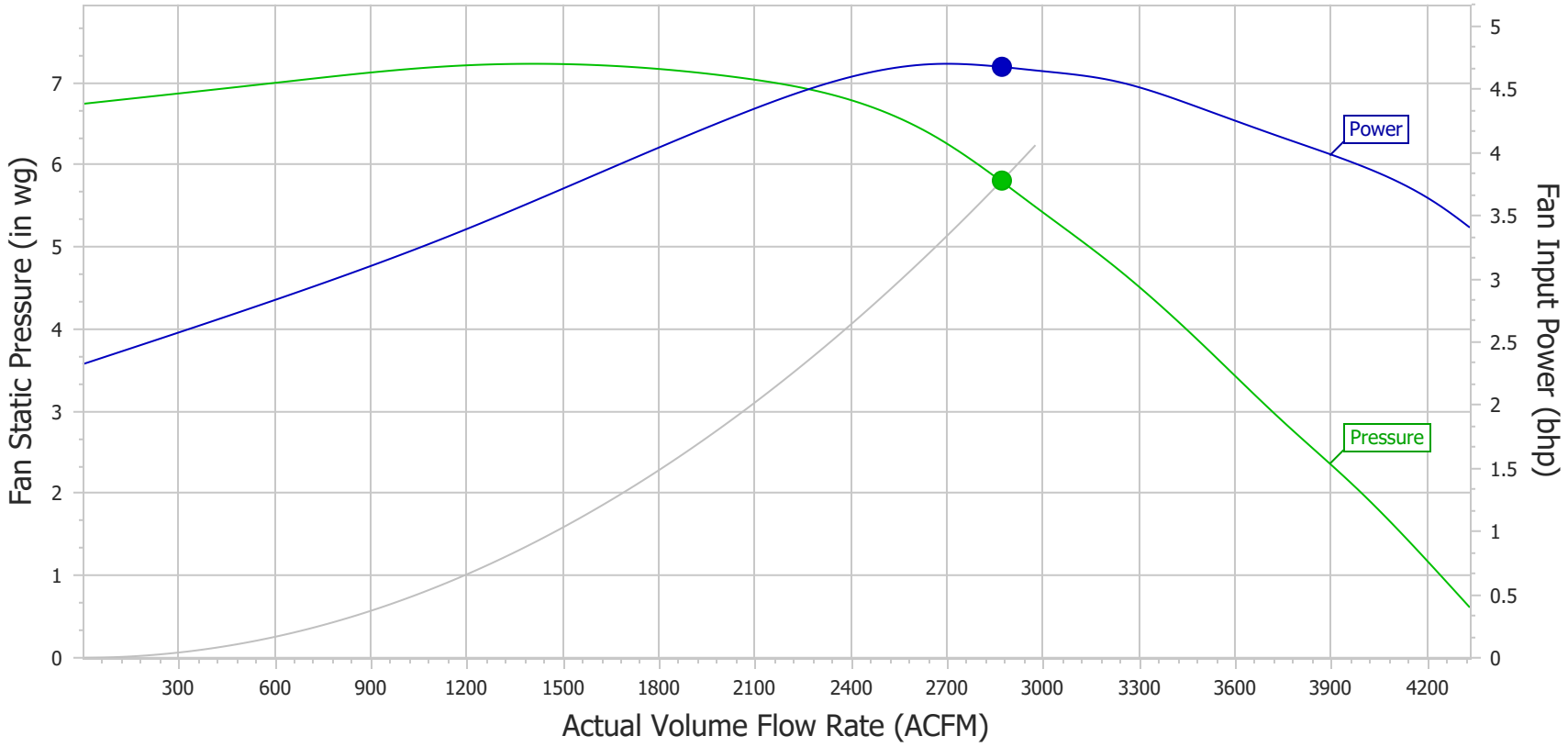
Directivity/Reflection is a hemispherical radiation (Q = 2); Distance is 5 ft.
The estimated sound pressure level outside the fan due to inlet noise is 87 dBA at 5 ft.
The estimated sound pressure level outside the fan due to outlet noise is 97 dBA at 5 ft.

# The New York Blower Company
## Fan-to-Size
## Fan Selection Detail

Product: BI Wheel for Plenum
Material: Aluminum
Fan Size: 15, Fan Class: 2
Arrangement: 4
Wheel Type: Backward Inclined (airfoil: ACF/ECF) - ECF-9, Width: 73%
Options: None

Actual Volume Flow Rate: 2870 ACFM
Fan Static Pressure: 5.8 in wg
Speed: 3480 rpm
Power: 4.68 bhp

Inlet Temperature: 120 °f
Altitude: 0 ft
Density: 0.0653 lb/ft3
Outlet Velocity: 1560 ft/min




*This configuration is compliant with CEC regulations (suitable for use in California). FEI: 1.13.

**Rating Sheet**

# Climate by Design International | CDI

**P.O. BOX 288 / OWATONNA, MN 550600000**
**Phone # - 5074512198 / Fax # - 5074511177**
**Aaron Walechka**

**Customer: Sell To Customer Company Name** **Job: Anduril - McHenry MS**
**Quote #: 1001063** **Item #: 1**

## 58D33X56-12-6-W-Z-R

**Pre Cool Coil**

| | | | |
|---|---|---|---|
| No. Coils: | 2 | Coil Type: | Direct Expansion |
| Fin Height (In.): | 33 | Fin Mat./Thickness/Type: | Aluminum/ 0.008/ Waffle |
| Fin Length (In.): | 56 | Tube Mat./Wall/OD: | Copper/ 0.020/ 5/8 Inch |
| Air Flow/Coil (ACFM)/SCFM) | 5498 / 5250 (S) | Tube Spacing: | 1.5 x 1.299 |
| Totals (ACFM)/SCFM): | 10996 / 10500 | Tube Surface: | Smooth |
| ACFM)/SCFM)Velocity (fpm): | 428.4 / 409.1 | Distributors per Coil: | 2 |
| EDB/EWB (°F): | 95 / 78.9 | Configuration: | Dual Circuit Intertwined |
| Suction Temperature (°F): | 47 | Casing Material: | Galv |
| Liquid Temperature (°F): | 110 | Refrigerant: | R-410A |
| Rows/FPI: | 6/12 | FF Inside*: | 0 |
| SuperHeat: | 8 | FF Outside*: | 0 |
| Circuiting: | 13/10/2/SE | | |

| | Per Coil | Total All Coils |
|---|---|---|
| LDB/LWB (°F): | 55.0 / 54.9 | |
| Total Heat (BTUH): | 440,392 | 880,785 |
| Sensible. Heat (BTUH): | 228,524 | 457,048 |
| Circuit Load : | 2.82 | |
| Refrigerant Pressure Drop (psi): | 4.21 | |
| Air Pressure Drop (in W.G.): | 0.75 | |
| Connection Size (In.): | 1.625 | |

Uncrated, Dry Coil Weight: 292.9

Coil is NOT certified by AHRI. Coil is outside the scope of the AHRI Forced-Circulation Air-Cooling and Air-Heating Coils Certification Program.
All ratings assume a standard coil orientation with horizontal tubes and a vertical coil face with horizontal airflow.

Printed on 1/10/2024 using Total Package II; program version 12.5.2022.2 - DLL/Data 1.0.5.91/20221209.1

* (Hr*ft^2*°F/Btu) Fouling Factor Units

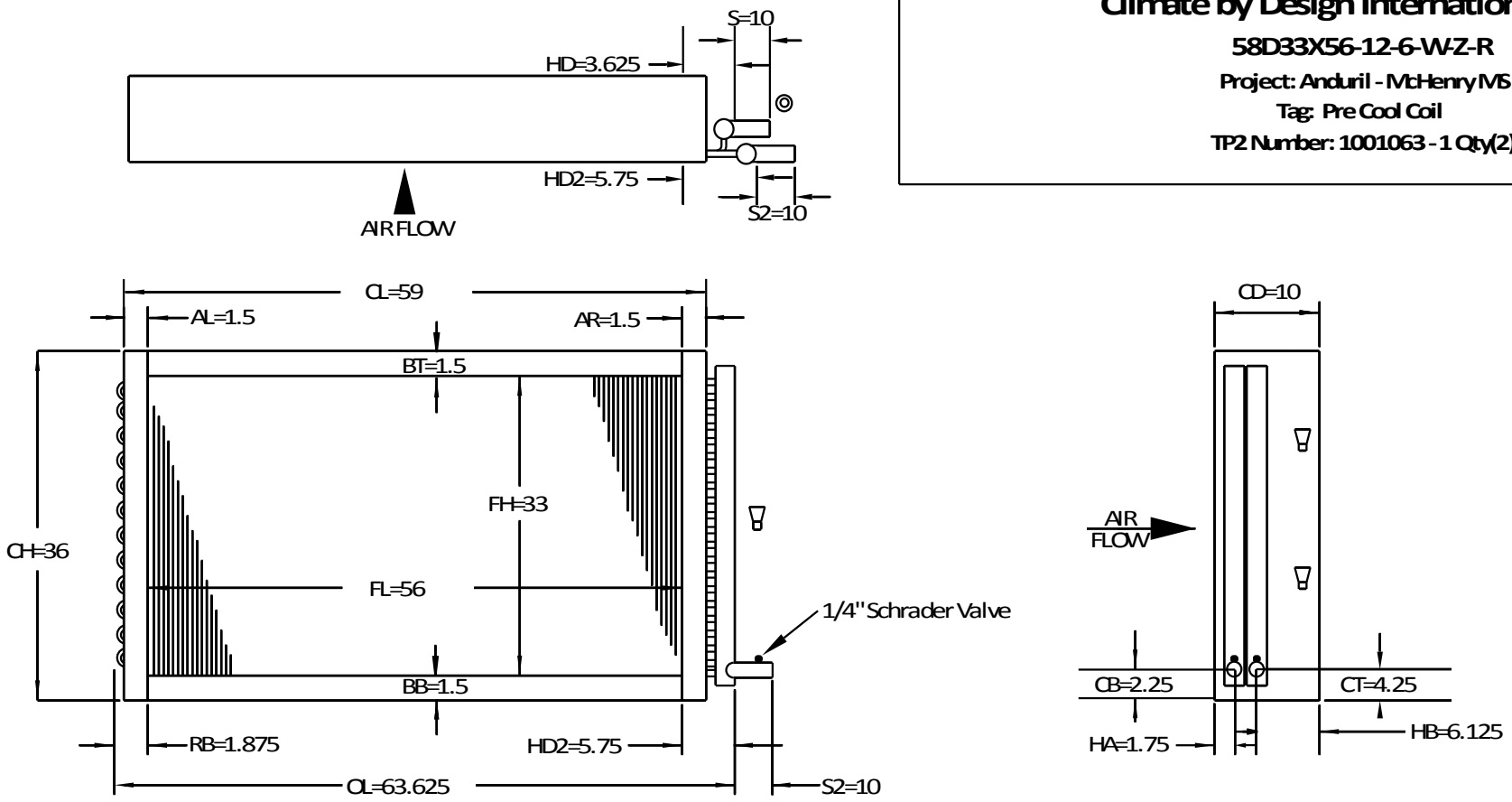
# Climate by Design International | CDI

**58D33X56-12-6-W-Z-R**

**Project: Anduril - McHenry MS**

**Tag: Pre Cool Coil**

**TP2 Number: 1001063 - 1 Qty(2)**




| | |
|---|---|
| **Fin Type:** | **Waffle** |
| **Fin Material:** | **Aluminum** |
| **Fin Thickness:** | **0.008** |
| **Rows/FPI:** | **6/12** |
| **Circuiting:** | **13/10/2/SE** |
| **Tube Type:** | **5/8 Inch / Copper / Smooth** |
| **Tube Thickness:** | **0.020** |
| **Casing: Galv Gages: TS=16/ SP=16** | |

| | |
|---|---|
| **Connection Material:** | **Copper** |
| **Liquid Connection Size:** | **0** |
| **Suction Connection Size:** | **1.625** |
| **Suction Header Dia.:** | **1.625** |
| **Connection Type:** | **ODS** |
| **App. weight (Uncrated each) : 292.9** | |

**Customer Notes: -NITROGEN CHARGE -INSTALL SCHROEDER VALVES ON END CAPS**
**-WRAP DISTRIBUTOR TUBES TO DOWNSTREAM SIDE OF COIL KEEPING THE TUBES WITHIN 6 INCHES OF COIL CASING**
**-SUCTION CONNECTION STUBS (TO END TOGETHER EVENLY) -Include Label Kit**
**Capacity = 440392 / Suction Temperature = 47 / Refrigerant = R-410A**
**Tube Sheet Flange Standard**
**Side Plate Flange: Stacking**
**** Hold Distributor tubes to within 6 Inches of casing ** Pull distributor and distributor tubes to air leaving side**

**Date: 1/10/2024 11:38:41 AM** **Program Version: 12.5.2022.2** **Sales Person: Aaron Walechka**


**RAE Corporation**

4492 Hunt St Pryor, OK 74361 Phone 918.825.7222 Fax 1.800.264.5329

**Rating Sheet**

# Climate by Design International | CDI

**P.O. BOX 288 / OWATONNA, MN 550600000**
**Phone # - 5074512198 / Fax # - 5074511177**
**Aaron Walechka**

**Customer: Sell To Customer Company Name** **Job: Anduril - McHenry MS**
**Quote #: 1001063** **Item #: 2**

## 58D33X56-12-6-W-Z-R

**Post Cool Coil**

| | | | |
|---|---|---|---|
| No. Coils: | 2 | Coil Type: | Direct Expansion |
| Fin Height (In.): | 33 | Fin Mat./Thickness/Type: | Aluminum/ 0.008/ Waffle |
| Fin Length (In.): | 56 | Tube Mat./Wall/OD: | Copper/ 0.020/ 5/8 Inch |
| Air Flow/Coil (ACFM)/SCFM) | 5519 / 5250 (S) | Tube Spacing: | 1.5 x 1.299 |
| Totals (ACFM)/SCFM): | 11037 / 10500 | Tube Surface: | Smooth |
| ACFM)/SCFM)Velocity (fpm): | 430 / 409.1 | Distributors per Coil: | 2 |
| EDB/EWB (°F): | 97.1 / 61.4 | Configuration: | Dual Circuit Intertwined |
| Suction Temperature (°F): | 47 | Casing Material: | Galv |
| Liquid Temperature (°F): | 110 | Refrigerant: | R-410A |
| Rows/FPI: | 6/12 | FF Inside*: | 0 |
| SuperHeat: | 8 | FF Outside*: | 0 |
| Circuiting: | 9/14/6/SE | | |

| | Per Coil | Total All Coils |
|---|---|---|
| LDB/LWB (°F): | 52.6 / 42.6 | |
| Total Heat (BTUH): | 253,092 | 506,184 |
| Sensible. Heat (BTUH): | 253,092 | 506,184 |
| Circuit Load : | 2.34 | |
| Refrigerant Pressure Drop (psi): | 4.31 | |
| Air Pressure Drop (in W.G.): | 0.42 | |
| Connection Size (In.): | 1.375 | |

Uncrated, Dry Coil Weight: 291.3

Coil is NOT certified by AHRI. Coil is outside the scope of the AHRI Forced-Circulation Air-Cooling and Air-Heating Coils Certification Program.
All ratings assume a standard coil orientation with horizontal tubes and a vertical coil face with horizontal airflow.

Printed on 1/11/2024 using Total Package II; program version 12.5.2022.2 - DLL/Data 1.0.5.91/20221209.1

* (Hr*ft^2*°F/Btu) Fouling Factor Units

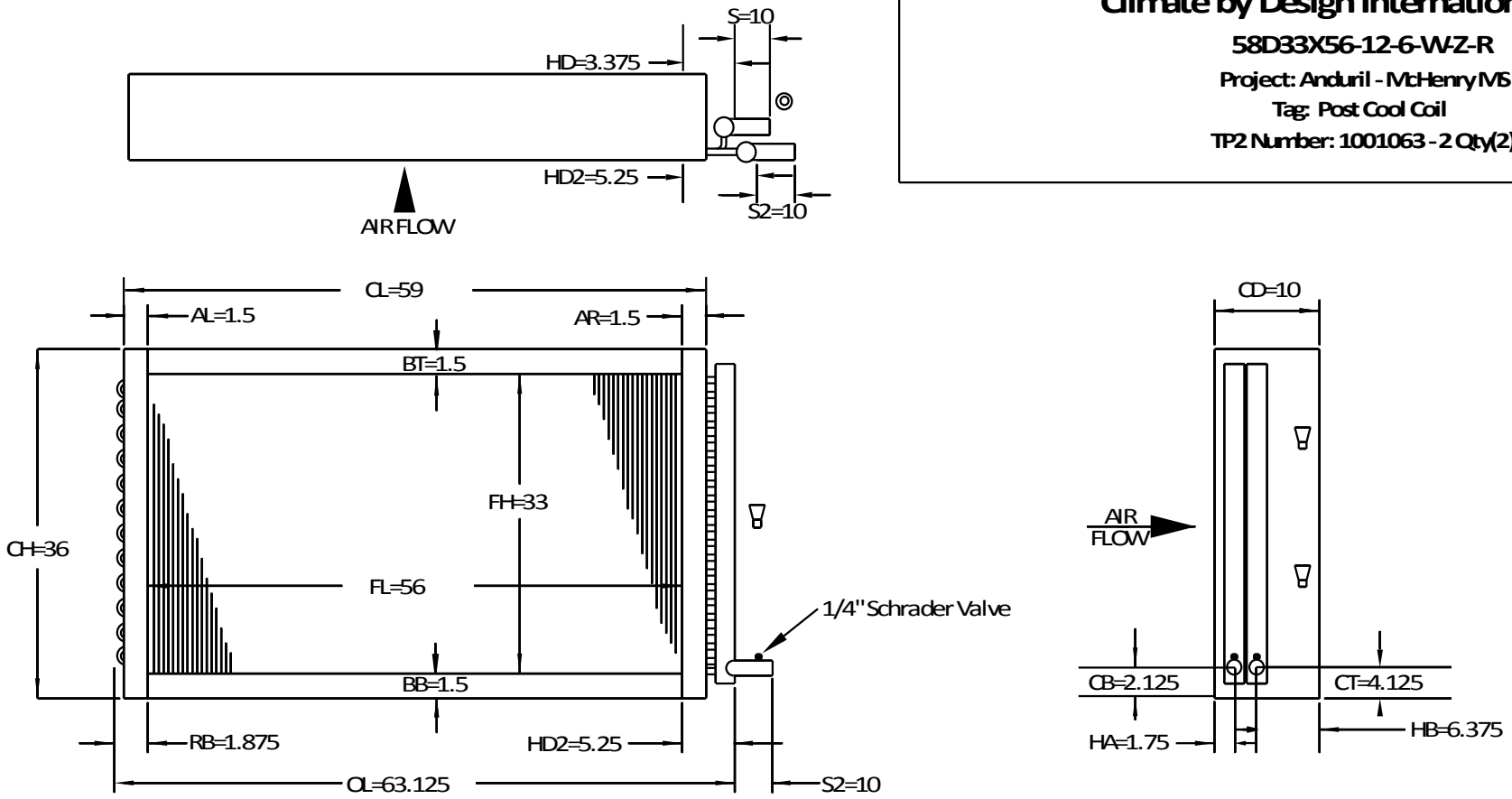
# Climate by Design International | CDI

**58D33X56-12-6-W-Z-R**

**Project: Anduril - McHenry MS**

**Tag: Post Cool Coil**

**TP2 Number: 1001063 - 2 Qty(2)**




| | |
|---|---|
| **Fin Type:** | **Waffle** |
| **Fin Material:** | **Aluminum** |
| **Fin Thickness:** | **0.008** |
| **Rows/FPI:** | **6/12** |
| **Circuiting:** | **9/14/6/SE** |
| **Tube Type:** | **5/8 Inch / Copper / Smooth** |
| **Tube Thickness:** | **0.020** |
| **Casing: Galv Gages: TS=16/ SP=16** | |

| | |
|---|---|
| **Connection Material:** | **Copper** |
| **Liquid Connection Size:** | **0** |
| **Suction Connection Size:** | **1.375** |
| **Suction Header Dia.:** | **1.375** |
| **Connection Type:** | **ODS** |
| **App. weight (Uncrated each) : 291.3** | |

**Customer Notes: -NITROGEN CHARGE -INSTALL SCHROEDER VALVES ON END CAPS**
**-WRAP DISTRIBUTOR TUBES TO DOWNSTREAM SIDE OF COIL KEEPING THE TUBES WITHIN 6 INCHES OF COIL CASING**
**-SUCTION CONNECTION STUBS (TO END TOGETHER EVENLY) -Include Label Kit**
**Capacity = 253092 / Suction Temperature = 47 / Refrigerant = R-410A**
**Tube Sheet Flange Standard**
**Side Plate Flange: Stacking**
**** Hold Distributor tubes to within 6 Inches of casing ** Pull distributor and distributor tubes to air leaving side**

**Date: 1/11/2024 9:19:29 AM** **Program Version: 12.5.2022.2** **Sales Person: Aaron Walechka**


**RAE Corporation**

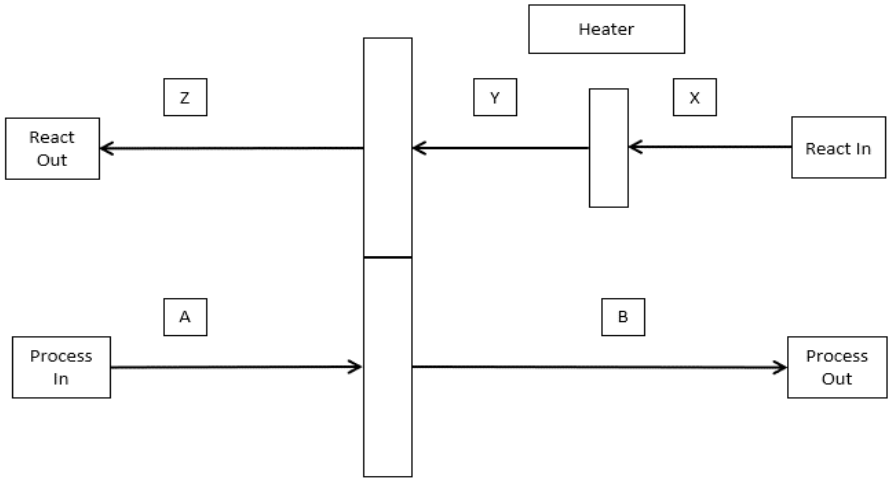
4492 Hunt St Pryor, OK 74361 Phone 918.825.7222 Fax 1.800.264.5329

# Desiccant Rotor Selection

| | |
|---|---|
| **Project Name:** | Anduril - McHenry MS |
| **Unit Tag:** | 400-PAC-3 |
| **Reference Number:** | 029400-001 |
| **Rotor Model:** | DH-154x200mm-16.2 |

| | A | B |
|---|---|---|
| | Process In | Process Out |
| Temperature (Fdb) | 55 | 98.3 |
| Humidity (gr/lb) | 64 | 17.8 |
| Flow (SCFM) | 9000 | 9000 |

| X | Y | Z |
|---|---|---|
| React In | Heater | React Out |
| 95 | 290 | 133.1 |
| 124.3 | 124.3 | 298 |
| 2500 | 2500 | 2500 |

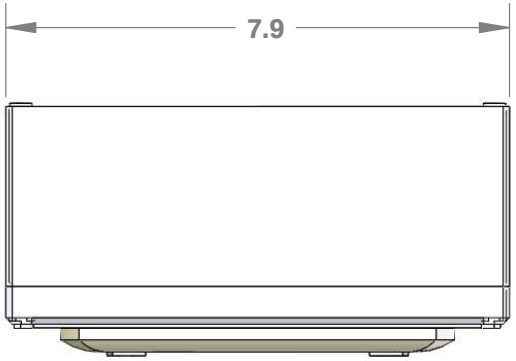


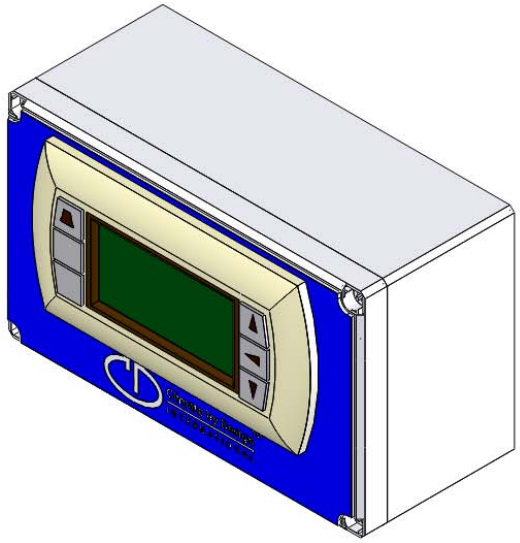

| **Air Performance** | Process | Reactivation |
|---|---|---|
| Pressure Drop (in.wc.) | 1.39 | 1.64 |
| Velocity (SFPM) | 807 | 672.75 |
| Elevation (ft) | 0 | |

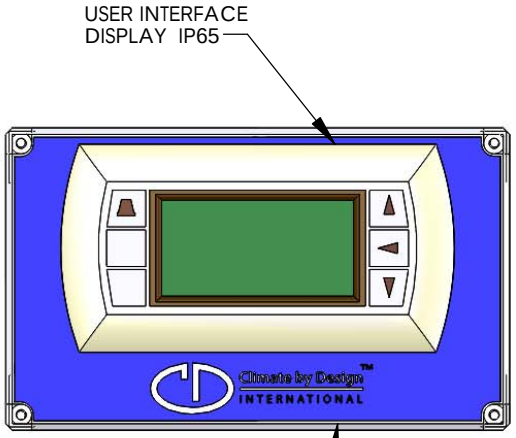
**Reactivation and Capacities**

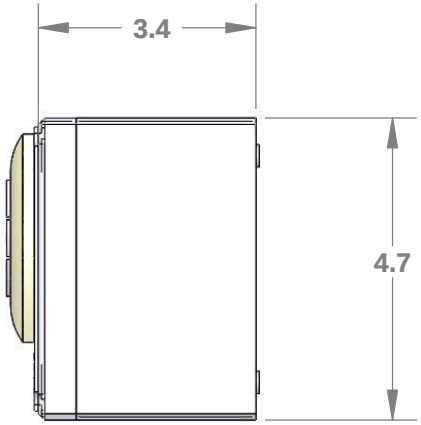
| | |
|---|---|
| Reactivation Type | Electric |
| Energy on Design Day (KW) | 154.31 |
| Energy on 50F Day (KW) | 189.92 |
| Total Heater (KW) | 192 |
| Total Current (Amps) | 241.27 |
| Number of Heater Circuits | 6 |
| Per Heater (KW) | 32 |
| Voltage (V) | 460 |
| H20 Removal (lbs/hr) | 267.32 |
| Specific Efficiency (BTU/lb) | 1574 |

03080002





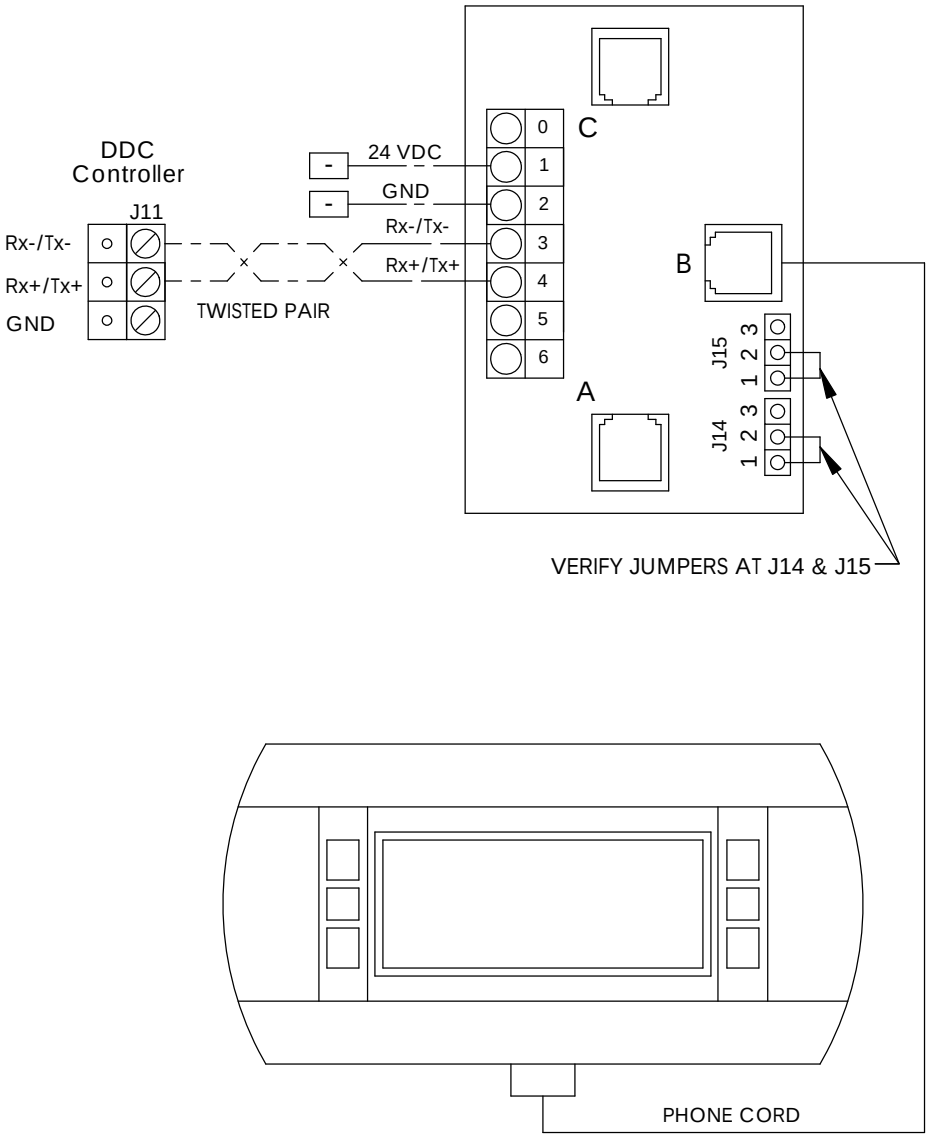



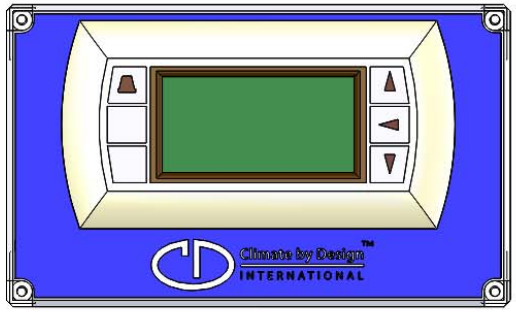

| | | | |
|---|---|---|---|
| MATL. - | THIS DRAWING IS THE PROPERTY OF CLIMATE BY DESIGN INTERNATIONAL. THE INFORMATION HEREON IS TO BE TREATED AS CONFIDENTIAL.IT IS NOT TO BE USED, COPIED, OR DISCLOSED TO OUTSIDE PARTIES WITHOUT THE EXPRESSED WRITTEN CONSENT OF CLIMATE BY DESIGN INTERNATIONAL. | | |
| UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES. TOLERANCES ARE: FRACTIONS ± 1/32 DECIMALS .XX ± .03 .XXX ± .010 ANGLES ±1/2° WELDMENT ±.12 | TITLE: REMOTE USER INTERFACE IP65 NEMA 4 POLY ENCLOSURE | | Climate by Design INTERNATIONAL |
| | Top Level Assy No. **03080002** | DRAWN BY JW | DATE 9/2/2008 |
| | DWG. NO. F-2620-00 | | REV. 002 |
| | | | SHEET 1 OF 2 |

03080002

## TERMINAL ADDRESS: 32

USER INTERFACE DISPLAY




NOTES:

- FACTORY CONNECTION
- FIELD CONNECTION
- FACTORY WIRING
- WIRING BY OTHERS
- REMOTE WIRE CONNECTION BY OTHERS
- 444 — UNIT PANEL WIRING TERMINAL
- 444 — REMOTE CONTROL PANEL WIRING TERMINAL
- COMPONENT WIRING TERMINAL

MATL.
-

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES. TOLERANCES ARE:

FRACTIONS ±1/32
DECIMALS .XX±.03 .XXX±.010
ANGLES ±1/2°
WELDMENT ±.12



TITLE

# REMOTE USER INTERFACE
# IP65 NEMA 4 POLY ENCLOSURE

Climate by Design INTERNATIONAL

| Top Level Assy No. | DRAWN BY | DATE |
|---|---|---|
| **03080002** | JW | 9/2/2008 |

DWG. NO. F-2620-00

REV. 002