



# Installation, Operation, and Maintenance

## Fan Coil Wall for Data Centers



**Model:** TCDC

### **⚠ SAFETY WARNING**

Only qualified personnel should install and service the equipment. The installation, starting up, and servicing of heating, ventilating, and air-conditioning equipment can be hazardous and requires specific knowledge and training. Improperly installed, adjusted or altered equipment by an unqualified person could result in death or serious injury. When working on the equipment, observe all precautions in the literature and on the tags, stickers, and labels that are attached to the equipment.

July 2026

**CLCH-SVX021D-EN**

**TRANE**  
TECHNOLOGIES™



# Introduction

Read this manual thoroughly before operating or servicing this unit.

## Warnings, Cautions, and Notices

Safety advisories appear throughout this manual as required. Your personal safety and the proper operation of this machine depend upon the strict observance of these precautions.

The three types of advisories are defined as follows:



### WARNING

Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.



### CAUTION

Indicates a potentially hazardous situation which, if not avoided, could result in minor or moderate injury. It could also be used to alert against unsafe practices.

### NOTICE

Indicates a situation that could result in equipment or property-damage only accidents.

## Important Environmental Concerns

Scientific research has shown that certain man-made chemicals can affect the earth's naturally occurring stratospheric ozone layer when released to the atmosphere. In particular, several of the identified chemicals that may affect the ozone layer are refrigerants that contain Chlorine, Fluorine and Carbon (CFCs) and those containing Hydrogen, Chlorine, Fluorine and Carbon (HCFCs). Not all refrigerants containing these compounds have the same potential impact to the environment. Trane advocates the responsible handling of all refrigerants.

### ⚠ WARNING

#### Proper Field Wiring and Grounding Required!

Failure to follow code could result in death or serious injury.

All field wiring **MUST** be performed by qualified personnel. Improperly installed and grounded field wiring poses **FIRE** and **ELECTROCUTION** hazards. To avoid these hazards, you **MUST** follow requirements for field wiring installation and grounding as described in NEC and your local/state/national electrical codes.

### ⚠ WARNING

#### Personal Protective Equipment (PPE) Required!

Failure to wear proper PPE for the job being undertaken could result in death or serious injury.

Technicians, in order to protect themselves from potential electrical, mechanical, and chemical hazards, **MUST** follow precautions in this manual and on the tags, stickers, and labels, as well as the instructions below:

- Before installing/servicing this unit, technicians **MUST** put on all PPE required for the work being undertaken (Examples; cut resistant gloves/sleeves, butyl gloves, safety glasses, hard hat/bump cap, fall protection, electrical PPE and arc flash clothing). **ALWAYS** refer to appropriate Safety Data Sheets (SDS) and OSHA guidelines for proper PPE.
- When working with or around hazardous chemicals, **ALWAYS** refer to the appropriate SDS and OSHA/GHS (Global Harmonized System of Classification and Labelling of Chemicals) guidelines for information on allowable personal exposure levels, proper respiratory protection and handling instructions.
- If there is a risk of energized electrical contact, arc, or flash, technicians **MUST** put on all PPE in accordance with OSHA, NFPA 70E, or other country-specific requirements for arc flash protection, **PRIOR** to servicing the unit. **NEVER** PERFORM ANY SWITCHING, DISCONNECTING, OR VOLTAGE TESTING WITHOUT PROPER ELECTRICAL PPE AND ARC FLASH CLOTHING. **ENSURE** ELECTRICAL METERS AND EQUIPMENT ARE PROPERLY RATED FOR INTENDED VOLTAGE.

### ⚠ WARNING

#### Follow EHS Policies!

Failure to follow instructions below could result in death or serious injury.

- All Trane personnel must follow the company's Environmental, Health and Safety (EHS) policies when performing work such as hot work, electrical, fall protection, lockout/tagout, refrigerant handling, etc. Where local regulations are more stringent than these policies, those regulations supersede these policies.
- Non-Trane personnel should always follow local regulations.

### **⚠ WARNING**

#### **Cancer and Reproductive Harm!**

This product can expose you to chemicals including lead and bisphenol A (BPA), which are known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to [www.P65Warnings.ca.gov](http://www.P65Warnings.ca.gov).

### **⚠ WARNING**

#### **Safety Hazard!**

Failure to follow instructions below could result in death and/or serious injury.  
Choose a safe site to install a unit. Do not install the unit where it is accessible to the general public.

### **⚠ WARNING**

#### **Electrical Shock Hazard!**

Failure to follow instructions below could result in death or serious injury.  
Properly connect the system's oversized protective earthing (grounding) terminal(s).

### **⚠ WARNING**

#### **Electrical Shock Hazard!**

Failure to follow instructions below could result in death or serious injury.  
System contains oversized grounding terminal. All field wiring **MUST** be performed by qualified personnel. Improperly installed and grounded field wiring poses **FIRE** and **ELECTROCUTION** hazards. To avoid these hazards, you **MUST** follow requirements for field wiring installation and grounding as described in NEC and your local/state/national electrical codes.

## **Additional Environmental Information**

Air handler foamed panels rely on a foam system that utilizes water and R-1233zd as blowing agents.

## **Product Safety Information**

This appliance is not intended for use by persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction concerning use of the appliance by person responsible for their safety. Children should be supervised to ensure that they do not play with the appliance.

Maximum altitude of use 3000 meters.

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## **Revision History**

- Updated Long-Term Storage section in Pre-Installation chapter.
- Updated Installation - Mechanical chapter.
- Updated Installing the Filters section in Component Installation Requirements chapter.
- Updated General Recommendations section in Piping and Connections chapter.
- Added Coil Piping section in Piping and Connections chapter.
- Updated Fan Inlet Airflow Measuring System and Maintenance sections in Start-Up chapter.
- Updated Routine Maintenance chapter.



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# General Information

Use this manual to install, start-up, operate, and maintain the fan coil wall model TCDC. Carefully review the procedures discussed in this manual to minimize installation and start-up difficulties.

## Nameplate

Each unit includes a nameplate which identifies the serial number and model number.

**Note:** *The serial number is required when requesting service or parts.*

## Operating Environment

The fan coil wall model TCDC is a custom fan coil wall engineered for your specific indoor applications. When considering the placement of the fan coil wall, it is important to consider the operating environment. The acceptable ambient temperature range for unit operation is -20°F to 104°F (-29°C to 40°C).

**Note:** *Units with UL approval have a maximum ambient temperature requirement of 104°F. The customer should provide adequate freeze protection for the coils. See "Routine Maintenance," p. 24 for more information.*

## Unit Description

The TCDC fan coil wall is designed for a variety of controlled-air applications. A typical unit consists of a fan, cooling coils, and filters. See unit submittals for detailed descriptions.

Trane fan coil walls ship as complete assemblies or in sub-assemblies if shipping splits are required. Some assembly is required when the unit ships in subassemblies.

Your Trane sales team can make recommendations on component selection based on pre-tested performance data gathered in our labs, helping you to make a more informed decision when designing your HVAC system. Though not limited to pre-tested Trane components, validated performance is available for many options, including Trane coils with high-efficient fin design to optimize coil to the nearest fin-per-foot.

Years of research data help us accurately predict specific unit performance for coils, casing, air leakage, thermal performance, acoustics and energy recovery compliance.

## Factory-Mounted Controls

Trane fan coil walls are available with a wide selection of factory-mounted controls, including controllers.

Most control components are mounted inside the unit. Depending on the system configuration, this may include dirty filter switches, averaging temperature sensors. Controllers, control transformers, static pressure transducers, DC power supplies, and customer interface

relays will be in enclosures mounted on the inside of the unit.

Small items that cannot be factory-mounted, such as a rope leak detector, will ship inside the control panel. Larger items are shipped inside the fan section.

For more information on controls, see the following manuals:

- Programmable Symbio™ 500 controllers – *Symbio™ 500 Programmable Controller Installation, Operation, and Maintenance* (BAS-SVX090\*-EN)
- Installing the *Tracer® TD-7 Display Installation Instructions* (BAS-SVN112\*-EN)



# Pre-Installation

## Receiving and Handling

### Inspection

Upon delivery, thoroughly inspect all components for any shipping damage that may have occurred, and confirm that the shipment is complete. See “Receiving Checklist,” p. 6 for detailed instructions.

**Note:** *Delivery cannot be refused. All units are shipped F.O.B. factory. Trane is not responsible for shipping damage.*

### Packaging/Shipping

As standard, fan coil walls ship as a complete unit or in individual sections to be field assembled. All fan coil wall sections are stretch-wrapped or shrink-wrapped before shipping. All factory shipping protection should be removed upon delivery. This wrapping is for transit protection only.

Smaller components and hardware may be shipped separately, or shipped inside the unit. This hardware is typically packaged in a clear plastic envelope or cardboard box, and can be found inside the control panel.

### Handling

Fan coil walls have an integral base frame designed with the necessary number of lift points for safe installation. See “Lifting and Rigging,” p. 8.

### Receiving Checklist

Complete the following checklist immediately after receiving shipment to detect possible shipping damage.

|                                                                                                                                                                                                                                                                                                                                                                                                  |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <input type="checkbox"/> Check to confirm that the shipment is complete. Small components may ship inside the unit or ship separately. Check the parts list to confirm all materials are present. If any component is missing, contact your local Trane sales office.                                                                                                                            |
| <input type="checkbox"/> Check all units, components, connections, and piping. Check fan wheel for free rotation by spinning manually. Check all doors, latches and hinges. Inspect interior of each unit or section. Inspect coils for damage to fin surface and coil connections. Check for rattles, bent corners, or other visible indications of shipping damage. Tighten loose connections. |
| <input type="checkbox"/> If a unit is damaged, make specific notations concerning the damage on the freight bill of lading. Do not refuse delivery.                                                                                                                                                                                                                                              |
| <input type="checkbox"/> Notify the carrier's terminal of the damage immediately by phone and mail. Request an immediate joint inspection of the damage by the carrier and consignee.                                                                                                                                                                                                            |

☐ Notify your Trane sales representative of the damage and arrange for repair. Do not attempt to repair the unit without consulting the Trane representative.

☐ Inspect the unit for concealed damage as soon as possible after delivery. Report concealed damage to the freight line. It is the receiver's responsibility to provide reasonable evidence that concealed damage did not occur after delivery. Take photos of damaged material if possible.

**Note:** *Concealed damage must be reported within 15 days of receipt.*

### Jobsite Storage

Fan coil walls and field-installed accessories must be protected from the elements. A controlled indoor environment is recommended for proper storage.

**Note:** *All factory shipping protection should be removed. This wrapping is for transit protection only.*

The unit controller and all other electrical/electronic components should be stored in conditions of -20°F to 120°F and 5 to 95 percent relative humidity, non-condensing. Electrical components are not moisture-tolerant.

### Outdoor Storage

#### NOTICE

##### Unit Corrosion Damage!

**Plastic tarps can cause condensation to form in and on the equipment, which could result in corrosion damage or wet storage stains.**

**Use only canvas tarps to cover equipment.**

Outdoor storage is not recommended for units that will be installed indoors. However, when outdoor storage is necessary, several things must be done to prevent damage:

**Note:** *Keep the equipment on the original wooden blocks/skid for protection and ease of handling.*

- Select a well-drained area, preferably a concrete pad or blacktop surface.
- Place the unit on a dry surface or raised off the ground to assure adequate air circulation beneath the unit and to assure no portion of the unit will contact standing water at any time.
- Cover the unit securely with a canvas tarp.
- Do not stack units.
- Do not pile other material on the unit.

### Long-Term Storage

For long-term storage (greater than 3 months), allow proper clearance around the unit to perform periodic inspections and maintenance on the equipment. While the unit is in storage:

- Check for free rotation.

## Site Preparation

- Confirm the installation site can support the total weight of the unit; see the unit submittals for weights.
- Allow sufficient space for adequate free air and necessary service access. See submittals for specific minimums.
- Allow room for supply and return piping, inlet interface to building wall, electrical connections, and coil removal.
- Confirm there is adequate height for condensate drain requirements. See [“Drain Pan Trapping,” p. 16](#).

**Note:** *If unit is installed in a mechanical room on a pad, inadequate height may necessitate core-drilling the floor to attain proper trap height. Insufficient height could inhibit condensate drainage and result in flooding the unit and/or equipment room.*

### **NOTICE**

#### **Microbial Growth!**

**Failure to follow instructions below could result in odors and damage to the equipment and building materials.**

**The floor or foundation must be level and the condensate drain at the proper height for proper drainage and condensate flow. Standing water and wet surfaces inside the equipment can become an amplification site for microbial growth (mold). If there is evidence of microbial growth on the interior insulation, it should be removed and replaced prior to operating the system.**

- Provide adequate lighting for maintenance personnel to perform maintenance duties.
- Provide permanent power outlets in close proximity to the unit for installation and maintenance.
- Wiring for the fan coil walls must be provided by the installer and must comply with all national and local electrical codes.



# Installation - Mechanical

## Lifting and Rigging

### General Lifting Considerations

#### ⚠ WARNING

##### Risk of Unit Dropping!

Failure to follow instructions below could result in death or serious injury, and equipment damage. Inspect the suspension and/or support system to ensure all fasteners are tight and the unit is secure before working underneath the unit.

#### ⚠ WARNING

##### Improper Unit Lift!

Failure to properly lift unit in a **LEVEL** position could result in unit dropping and possibly crushing operator/technician which could result in death or serious injury, and equipment or property-only damage.

Test lift unit approximately 24 inches (61 cm) to verify proper center of gravity lift point. To avoid dropping of unit, reposition lifting point if unit is not level.

#### NOTICE

##### Equipment Damage!

Premature skid removal could result in equipment damage.

**Keep skid in place until unit is ready to set. Do not move the unit or subassembly without the skid in place as shipped from the factory.**

Before preparing the unit for lifting, estimate the approximate center of gravity for lifting safety. Because of placement of internal components, the unit weight may be unevenly distributed, with more weight in the coil and fan areas. See the unit submittals for section weights. Test the unit for proper balance before lifting.

#### ⚠ WARNING

##### Heavy Objects!

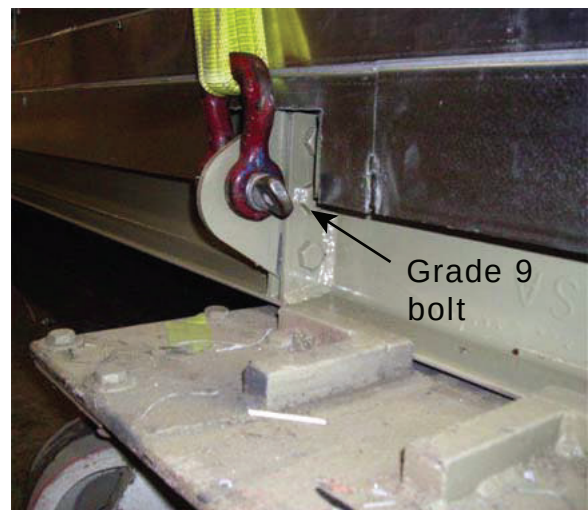
Failure to follow instructions below or properly lift unit could result in unit dropping and possibly crushing operator/technician which could result in death or serious injury, and equipment or property-only damage.

- Equipment is top heavy. Use caution when lifting/ moving equipment to prevent unit from tipping.
- Ensure that all the lifting equipment used is properly rated for the weight of the unit being lifted. Each of the cables (chains or slings), hooks, and shackles used to lift the unit must be capable of supporting the entire weight of the unit. Lifting cables (chains or slings) may not be of the same length. Adjust as necessary for even unit lift.
- The high center of gravity on this unit requires the use of an anti-rolling cable (chain or sling). To prevent unit from rolling, attach cable (chain or sling) with no tension and minimal slack around compressor suction pipe as shown.
- Do not use forklift to move or lift unit unless unit has lifting base with base rail forklifting option.

See the unit submittal drawings for correct placement of sections. Always rig subassemblies or sections as they ship from the factory. Never bolt sections together before rigging.

- Lift all sections individually using **all** lifting lugs provided. See specific instructions for handling the pipe cabinet if shipped separately.

**Figure 1. Recommended attachment to lifting lugs**

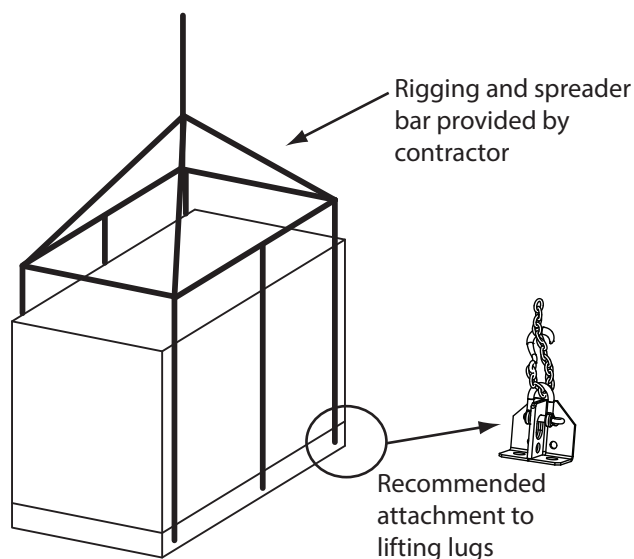




- When hoisting the unit into position, use the proper rigging method, such as straps, slings, spreader bars, or lifting lugs for protection and safety.
- Make the loop of the sling parallel to the direction of airflow whenever possible.
- Each of the cables used to lift the unit must be capable of supporting the entire weight of the unit.
- Fan coil walls are not designed to be lifted, rigged or ceiling suspended from the top of the unit.
- Never lift units in windy conditions. Personnel should be positioned overhead and on the ground to guide the crane operator in positioning the sections.
- All shipping supports and crating on the face of the sections must be removed to permit proper fit-up and sealing of the surfaces. Dispose of properly.

**Note:** Use all lifting lugs provided. See submittal documentation for unit lifting lug size. Use field provided spreader bars and slings to rig units and subassemblies as shown in [Figure 2, p. 9](#). The air handler is not designed to be lifted or rigged from the top of the unit.

**Figure 2. Typical four-point lift**



## Unit Placement and Assembly

If the fan coil walls ship in subassemblies or in individual sections, some assembly is required.

Prior to unit assembly, see the unit submittal drawings and unit tagging for correct placement of sections. Failure to review the submittal drawings could result in performance or assembly problems. If there are any discrepancies, contact your local Trane sales representative before proceeding.

Provide clearance around the unit to allow adequate free air and necessary service access. Also, allow room for supply and return piping, inlet interface to building wall, electrical connections, and coil removal.

## Unit Placement

### **⚠ WARNING**

#### **Risk of Roof Collapsing!**

Failure to ensure proper structural roof support could cause the roof to collapse, which could result in death or serious injury and property damage.

Confirm with a structural engineer that the roof structure is strong enough to support the combined weight of the roof curb, the unit, and any accessories.

### **⚠ WARNING**

#### **Risk of Unit Dropping!**

Failure to follow instructions below could result in death or serious injury, and equipment damage.

Inspect the suspension and/or support system to ensure all fasteners are tight and the unit is secure before working underneath the unit.

### **NOTICE**

#### **Microbial Growth!**

Failure to follow instructions below could result in odors and damage to the equipment and building materials.

The floor or foundation must be level and the condensate drain at the proper height for proper drainage and condensate flow. Standing water and wet surfaces inside the equipment can become an amplification site for microbial growth (mold). If there is evidence of microbial growth on the interior insulation, it should be removed and replaced prior to operating the system.

## Removing the Shipping Skid

If a unit arrives in sections, then each section must be individually hoisted, set on the housekeeping pad, or pier mount and then assembled.

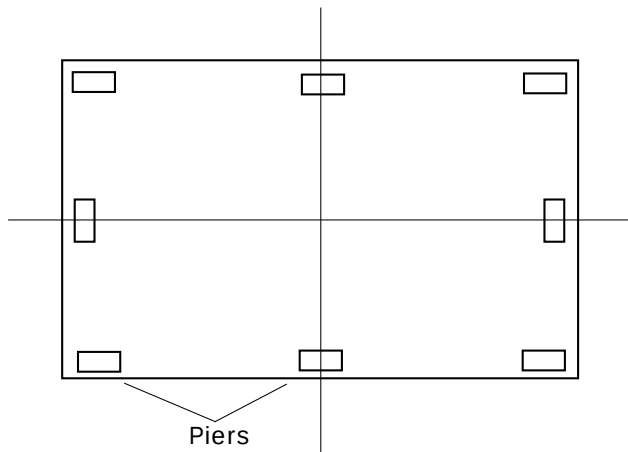
Following the order of the sections on the unit submittals and tagging, individually place each unassembled section or subassembly in the appropriate installation location.

When mounting the unit on a pier mount, locate one pier at each corner **as a minimum**, directly underneath any shipping split (confirm full support under each side) and then every four feet at equally spaced intervals around the perimeter of the unit. The unit should be supported by their base around the entire perimeter. See [Figure 3, p. 10](#) and [Figure 4, p. 10](#).



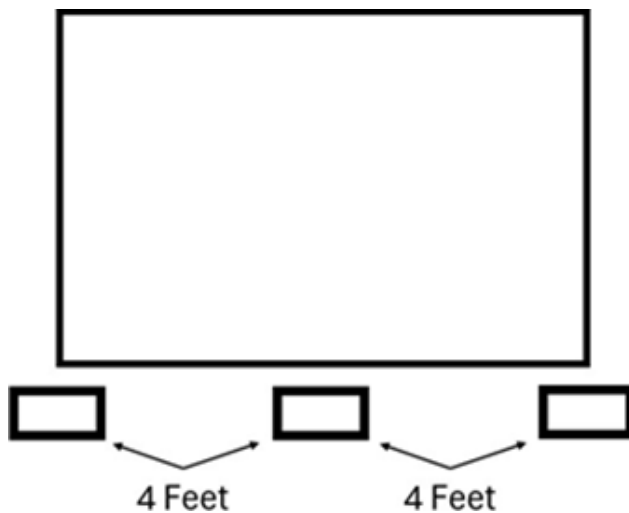
## Installation - Mechanical

**Figure 3. Piers located in each corner and spaced evenly every four feet**



**Note:** Piers beneath shipping splits must be structurally sound to support the weight of the unit.

**Figure 4. Side view with one shipping split – locate one pier directly under the shipping split**

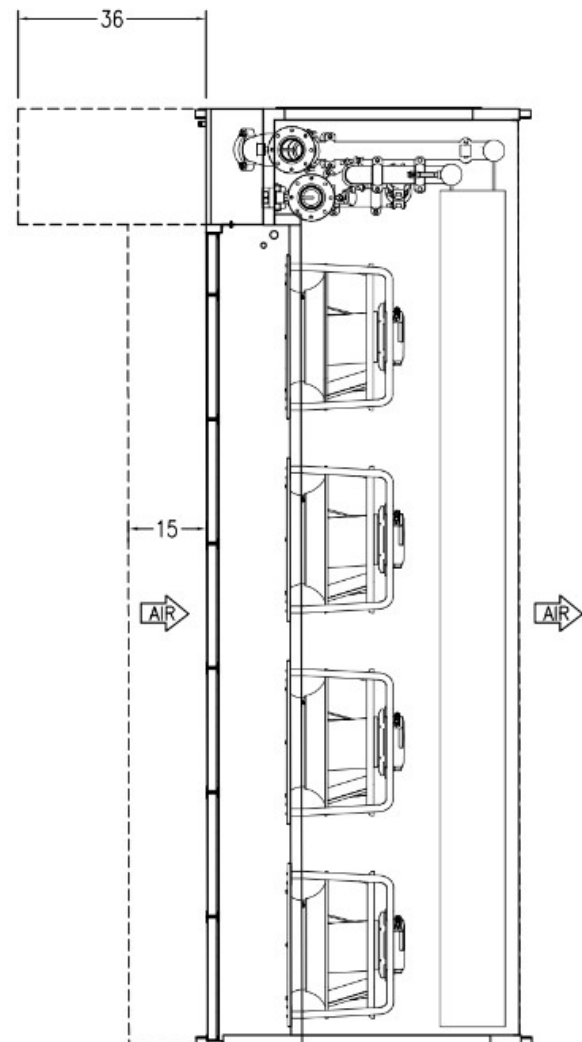


**Note:** Piers beneath shipping splits must be structurally sound to support the weight of the unit.

For proper operation, the unit must be installed level (zero tolerance) in both horizontal axes.

## Placement

**Figure 5. Service clearance**



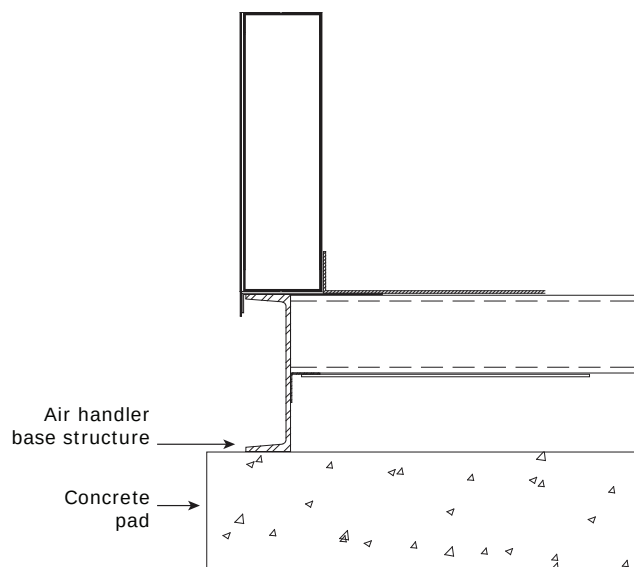
## Assembly Instructions

The base is constructed for specific installation requirements.

### Flat Concrete Pad

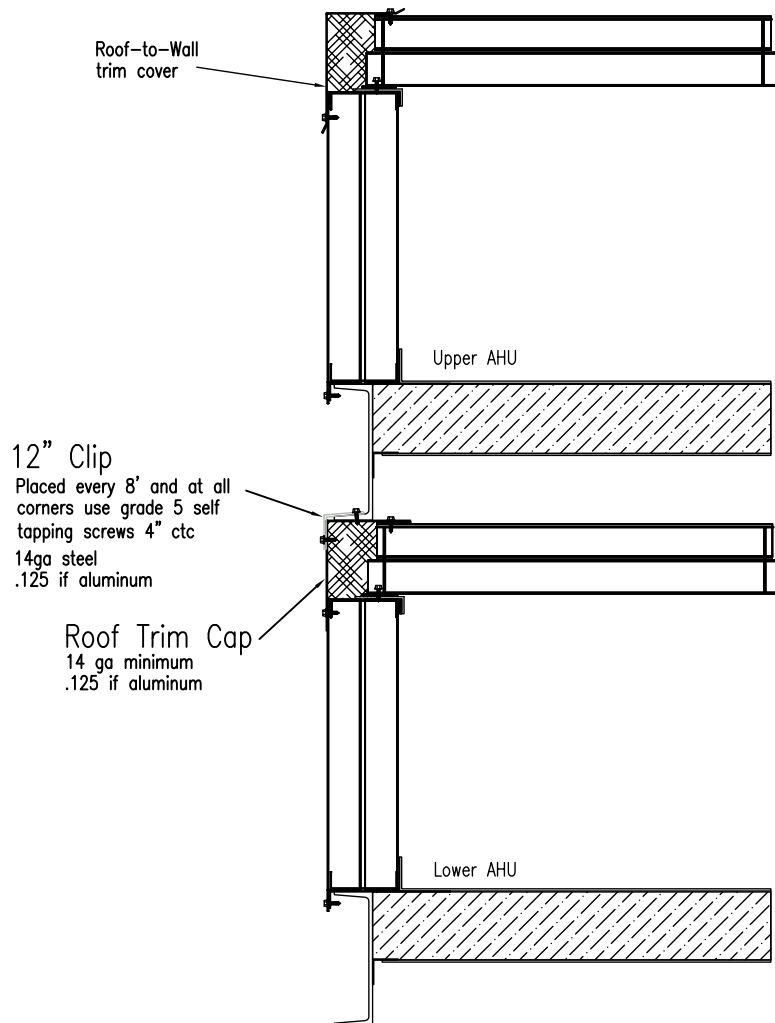
The base for concrete is designed to sit flat on the concrete with full perimeter contact. Concrete pads should be perfectly level, flat, and sized to the minimum exterior base channel measurements.

**Figure 6. Flat concrete pad mount**

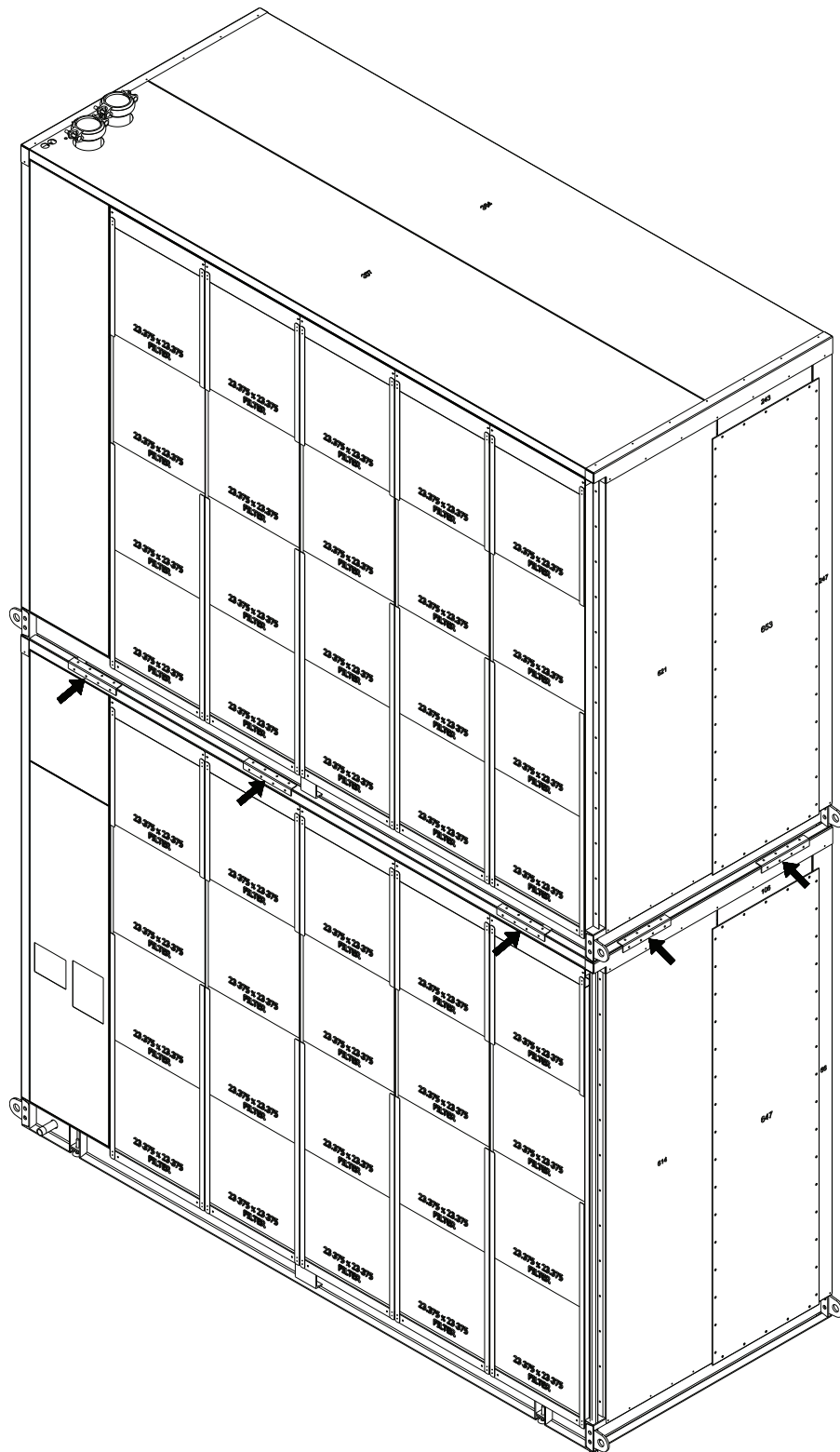


## Stacked Unit

1. Install and assemble all lower sections as described in the typical assembly.
2. Install the 1/4-in. gasket between the top and bottom sections as specified in the ship-loose sheet. Confirm the gasket is properly aligned and secured to prevent leaks.
3. Lift the first piece of the upper section into place, ensuring proper alignment with the lower unit.
4. Install the stacking clips securing section 2 to section 1. Using the provided screws, attach all provided stacking brackets securing the base rail of section 2 to the roof of section 1. Confirm stacking clips are installed before disconnecting section 2 from the crane.
5. Lift the next upper piece into place and secure the shipping split with appropriate hardware, then anchor it to the lower section as described above. Repeat the steps for additional sections.
6. Torque flexible connector bolts to 60 ft-lb.
7. Measure the distance between the upper and lower pipe connections and adjust the flex connector to the required length.
  - a. To shorten the flex connector, tighten the control rod bolts.
  - b. To lengthen, remove and reinstall the bolts so one is positioned on top of the bottom plate and the other is positioned underneath the top plate.
8. Install the Victaulic coupling gasket to the flexible connector. Remove the gasket from the Victaulic couplings and install them on the ends of the flexible connector.
9. Place the flexible connector between the pipe from section 1 and section 2, completing the piping circuit. Adjust the coupling gasket so it is straddling the connection point between the pipes to prevent leaks during operation.
10. Disassemble the coupling and place the back half onto the pipe with the bolts facing you, then install the front half. Tighten the bolts to the required torque.
11. Continue until all sections are installed and anchored properly. Repeat the steps for the remaining connection points.
12. For the two-section tall fan coil wall, connect the power and control harnesses from the top section to the mating connectors in the bottom section.
13. Connect the drain hose from the top section to the bottom section. Confirm the hose is properly secured and routed to facilitate proper drainage.
14. Connect the electrical connections from the top section to the bottom section. Follow the provided instructions to confirm proper power and control harness connections.

**Figure 7. Stacked unit trim assembly**


**Figure 8. Locations for angle clips**





# Component Installation Requirements

## ⚠ WARNING

### Hazardous Voltage w/Capacitors!

Failure to disconnect power and discharge capacitors before servicing could result in death or serious injury.

Disconnect all electric power, including remote disconnects and discharge all motor start/run capacitors before servicing. Follow proper lockout/tagout procedures to ensure the power cannot be inadvertently energized. For variable frequency drives or other energy storing components provided by Trane or others, refer to the appropriate manufacturer's literature for allowable waiting periods for discharge of capacitors. Verify with a CAT III or IV voltmeter rated per NFPA 70E that all capacitors have discharged.

Each component in the custom fan coil wall may have installation requirements that could affect the unit's performance.

**Note:** For components included in the unit but not included in this manual, reference the component manufacturers specific Installation, Maintenance, and Operation manual. Copies of these manuals are either included in the package with this unit IOM or are attached to the components mounted in the unit.

## Filters

## ⚠ WARNING

### Hazardous Voltage w/Capacitors!

Failure to disconnect power and discharge capacitors before servicing could result in death or serious injury.

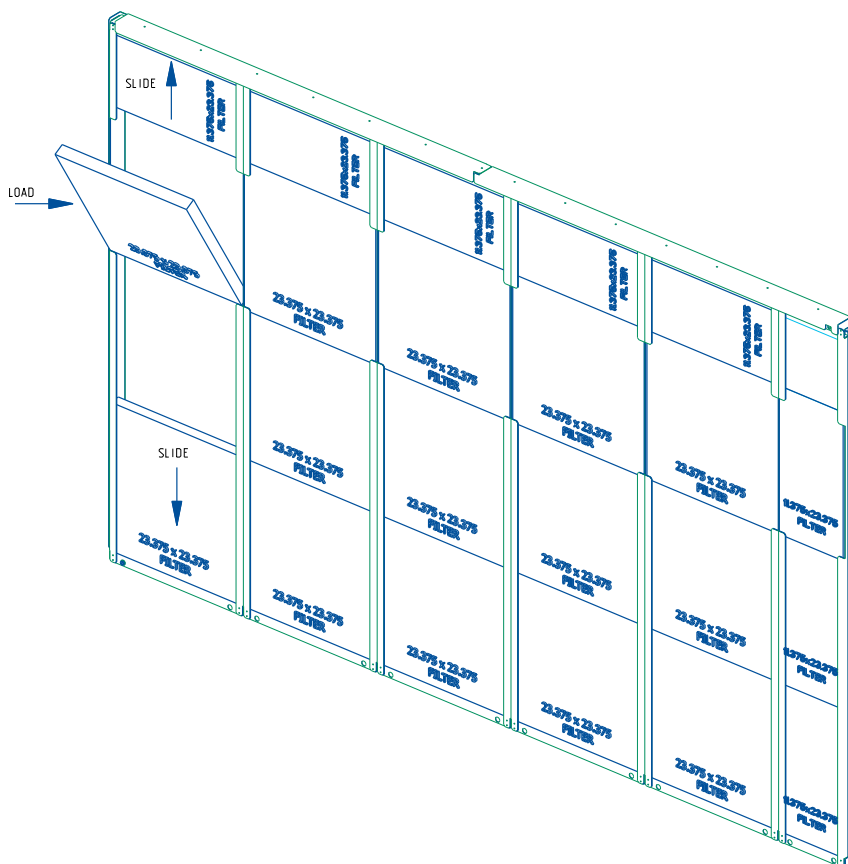
Disconnect all electric power, including remote disconnects and discharge all motor start/run capacitors before servicing. Follow proper lockout/tagout procedures to ensure the power cannot be inadvertently energized. For variable frequency drives or other energy storing components provided by Trane or others, refer to the appropriate manufacturer's literature for allowable waiting periods for discharge of capacitors. Verify with a CAT III or IV voltmeter rated per NFPA 70E that all capacitors have discharged.

## Installing the Filters

Most filters in custom units are installed in sheet metal frames. Filter columns are secured together with metal clips.

1. Disconnect the power to the unit.
2. Remove the filter clip.
3. Load the filter from the front of the rack.
4. Slide the filter into the filter track opening, then load any additional filters until the column is filled.
5. Install the filter clip.

**Figure 9. Front load filter assembly**



## Connections Upstream of Unit Inlet

All connections to the fan coil wall should be installed in accordance with the standards of the National Fire Protection Association (NFPA):

- NFPA 90A for installing air conditioning and ventilating systems other than residence type.
- NFPA 90B for residence-type warm air heating and air-conditioning systems.





## Piping and Connections

### NOTICE

#### Connection Leaks!

Failure to follow instructions below could result in damage to the coil header and cause connection leaks.

Use a backup wrench when attaching piping to coils with copper headers. Do not use brass connectors because they distort easily.

### NOTICE

#### Overtightening!

Failure to follow instructions below could result in damage to the coil header.

Do not use teflon-based products for any field connections because their high lubricity could allow connections to be overtightened.

### NOTICE

#### Leakage!

Failure to follow instructions below could result in equipment damage.

Properly seal all penetrations in unit casing from inner to outer panel in order to prevent unconditioned air from entering the module, as well as prevent water from infiltrating the insulation.

## General Recommendations

Proper installation, piping, and trapping is necessary for satisfactory coil operation and to prevent operational damage:

- The bottom coil assembly provides critical structural support for the second level of the unit. Unstack the second level before replacing the bottom level coil.
- Support all piping independently of the coils.
- If extended drains and vents are required on other water coils, they must be field-installed or ordered as specials from the factory.

- Piping is factory-installed with flanged field connection in roof.
- See submittal for supply and return locations.

## Drain Pan Trapping

### ⚠ WARNING

#### No Step Surface!

Failure to follow instruction below could result in death or serious injury.

Do not walk on the sheet metal drain pan. Walking on the drain pan could cause the supporting metal to collapse and result in the operator/technician falling.

### NOTICE

#### Water Damage!

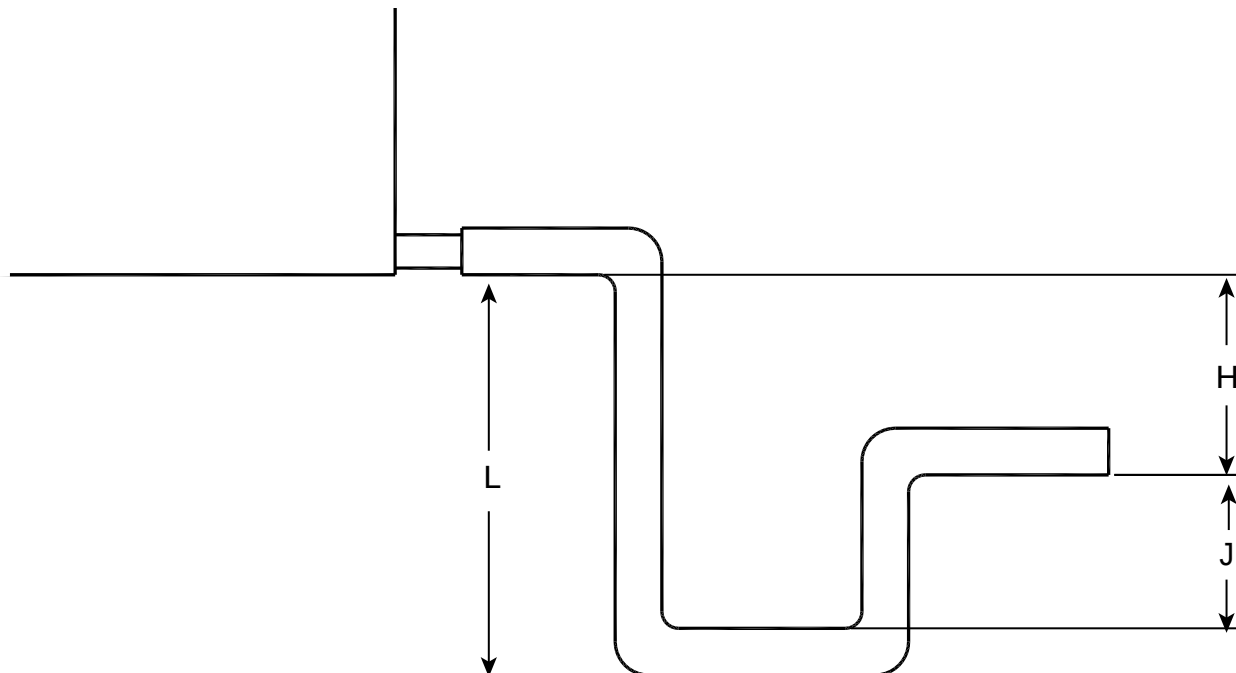
Failure to follow instructions below could result in water damage.

When more than one section has a drain pan, trap each section individually. Connecting multiple drains to a common line with only one trap could result in condensate retention and water damage to the air handler or adjoining space.

Threaded condensate drain connections are provided on only one side of the coil section. Pitch the connection lines horizontal or downward toward an open drain. Trane recommends installing a plug to facilitate cleaning of the trap.

Figure 10, p. 17 illustrates the proper trapping, piping, and operation of the trap. Use the formula under the figure to determine the correct minimum depth for the condensate trap. If a section has a drain pan for cleaning purposes only, it does not need a trap; however, a cap or shutoff valve should be installed on the drain connection. Only sections handling condensate, such as a cooling coil section or moisture eliminator section, require a trap.

**Figure 10. Drain pan trapping for positive pressure applications**



**Section under positive pressure**

$L = H + J + \text{pipe diameter where:}$

$H = 1/2 \text{ inch (minimum)}$

$J = 1/2 \text{ inch plus the unit positive static pressure at coil discharge (loaded filters)}$

## Coil Piping

### Water Coil Piping

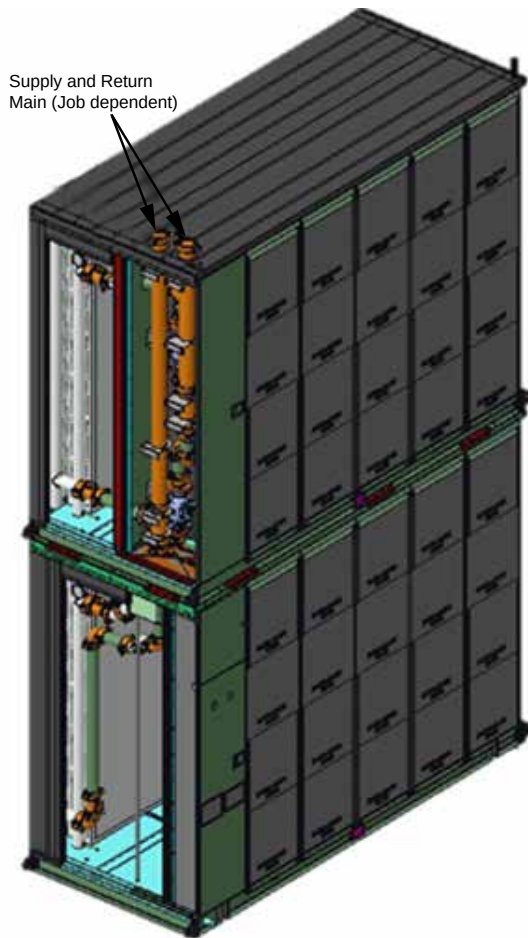
Figure 11, p. 18 illustrates typical water coil piping configurations.

Water coils are self-venting only if the water velocity exceeds 1.5 feet per second (fps) in the coil tubes. See the unit submittals for coil water velocity. If the water velocity is below these minimums, vent the coil by one of the following methods:

1. Install an air vent in the top pipe plug tapping of the return header.
2. When the return line rises above the top of the coil, vent from the top of the return header horizontally to the return piping.

See the equipment submittal for unit-specific dimensions and piping options.

Figure 11. Typical piping for water coil



**Note:** See submittal for piping locations.

### Standard Piping Package and Coil Design Pressure and Temperature

Coils to be designed to withstand 225 psi maximum operating pressure and a maximum fluid temperature of 230°F. Minimum design operating pressure and temperature is determined by each application. See unit submittal documentation for additional details.

# Installation – Electrical

## ⚠ WARNING

### Hazardous Voltage w/Capacitors!

Failure to disconnect power and discharge capacitors before servicing could result in death or serious injury.

Disconnect all electric power, including remote disconnects and discharge all motor start/run capacitors before servicing. Follow proper lockout/tagout procedures to ensure the power cannot be inadvertently energized. For variable frequency drives or other energy storing components provided by Trane or others, refer to the appropriate manufacturer's literature for allowable waiting periods for discharge of capacitors. Verify with a CAT III or IV voltmeter rated per NFPA 70E that all capacitors have discharged.

## NOTICE

### Use Copper Conductors Only!

Failure to use copper conductors could result in equipment damage as the equipment was not designed or qualified to accept other types of conductors.

## NOTICE

### Leakage!

Failure to follow instructions below could result in equipment damage.

Properly seal all penetrations in unit casing from inner to outer panel in order to prevent unconditioned air from entering the module, as well as prevent water from infiltrating the insulation.

Units intended for indoor use are available with cabinet-mounted single controls so that it is flush with the unit casing. The following are included in the cabinet:

- Motorized impeller control panel
- Automatic transfer switch (optional)
- Harmonic mitigation (optional)
- Unit controller
- Uninterrupted power supply (optional)

The electrical cabinet door is shown in [figure Figure 12, p. 19](#). The unit display, automatic transfer switch controller, motorized control selection switch, motorized control potentiometer, and circuit breaker extended handle rotary switches are mounted to the door for easy access and disconnecting HV power to the unit before accessing the cabinet.

The motorized control selection switch allows automatic fan control (auto position) or manual (hand position) with control through the potentiometer mounted on the door.

Figure 12. Electrical cabinet door



Inside the cabinet, the automatic transfer switch, harmonic mitigation, motor protection circuit breakers, unit controller, and other supporting devices are mounted to a panel as shown in [Figure 13, p. 20](#) and [Figure 14, p. 20](#).

See the equipment submittal for the detailed electrical diagram.

**Figure 13. Typical electrical panel****Figure 14. Low-voltage electrical panel**





# Start-Up

## Pre-Startup Checklist

After assembling and installing the fan coil walls, individual components must be inspected for proper operation. Before operating the unit, complete the pre-startup checklist.

### ⚠ WARNING

#### **Hazardous Voltage w/Capacitors!**

**Failure to disconnect power and discharge capacitors before servicing could result in death or serious injury.**

**Disconnect all electric power, including remote disconnects and discharge all motor start/run capacitors before servicing. Follow proper lockout/tagout procedures to ensure the power cannot be inadvertently energized. Verify with a CAT III or IV voltmeter rated per NFPA 70E that all capacitors have discharged.**

### General Checks

- Verify the unit installation is level. Use leveling feet if necessary.
  - Adjustable leveling bolts/feet are provided for initial positioning and leveling.
  - Make small adjustments to each leveling foot until the unit is leveled and in the desired position. After each adjustment, engage the jam nut into the top horizontal plate of each leveling foot. Tighten the jam nut by hand and then tighten an additional minimum full half turn with a wrench.
  - After final positioning, the unit must be fully supported by the base/frame or floor.
  - Shims or grout are recommended for permanent leveling and load distribution.
  - Leveling feet shall NOT carry the long-term operational load.
- Check that air filters are in place and positioned properly.
- Remove any debris from the unit interior.
- Remove all foreign material from the drain pan and check drain pan opening and condensate line for obstructions.
- Close and secure all unit access doors.
- If differential pressure switch is provided on filter rack, adjust per system requirements.
- Inspect electrical connections to the unit and unit controllers.
  - Connections should be clean and secure.
  - Compare the actual wiring with the unit diagrams.
- For the two-section tall fan coil wall, connect the power, control and ground strap harnesses from the top section to the mating connectors in the bottom section.
- Reference the appropriate controller manual for more details about starting units with factory-mounted controls.
- Check piping and valves for leaks. Open or close the valves to check for proper operation. Drain lines should be open.
- Leave this manual with the unit.

### Fan-Related Checks

- Rotate all fan wheels manually to confirm they turn freely in the proper direction.
- Inspect fan motor and bearings for proper lubrication.

### Coil-Related Checks

#### **NOTICE**

#### **Proper Water Treatment Required!**

**The use of untreated or improperly treated water could result in scaling, erosion, corrosion, algae or slime.**

**Use the services of a qualified water treatment specialist to determine what water treatment, if any, is required. Trane assumes no responsibility for equipment failures which result from untreated or improperly treated water, or saline or brackish water.**

- Verify coil and condensate drain piping connections are complete.
- Check the piping and valves for leaks.
  - Open or close the valves to check operation.
  - The drain lines should be open.
- Remove all foreign material from the drain pan and check the pan opening and condensate line for obstructions.

## Fan Inlet Airflow Measuring System

A fan inlet airflow measuring system (piezometer) is available on plenum fans. Trane's system determines airflow using a static pressure differential.

**Note:** *This type of system is different than a total pressure or thermal dispersion system. As such, the calculations will be different.*

Each system comes with a differential pressure transmitter. The tubing connected at the throat of the fan is connected to the LO port of the transmitter and the tubing connected at the fan inlet wall is connected to the HI port of the transmitter.

## ⚠ WARNING

### Pressurized Coil and Piping!

Failure to follow instructions below could result in death or serious injury or equipment damage.

Coil is pressurized with 15 psig of dry air. Do not stand directly in front of the coil connections when sealing plugs are removed. If no pressure is released, check for leaks.

**Figure 15. Fan inlet airflow measuring system**



## Wiring

The transmitter requires 24 Vdc/24 Vac power on terminals 1 (+) and 2 (ground) of the transmitter. When the airflow measurement system is ordered with a factory-mounted Symbio™ controller, the 24 Vdc power will be supplied.

In the absence of a factory-mounted Symbio controller, the installing contractor must confirm the transmitter has 24 Vdc/24 Vac power.

## Transmitter Sizing

The Trane specification requires that the flow meter option have a total accuracy of 5 percent. The total accuracy is a combination of:

- How accurately the flow meter itself is in sensing airflow.
- How accurately the transmitter senses the differential pressure.
- How accurately the controller translates the signal from the transmitter to a differential pressure.

Selecting the proper transmitter is critical in order to get accurate airflow measurements. How accurately the transmitter senses the differential pressure is dependent on:

- The pressure range selected
- The accuracy of the selected transmitter

Trane air handlers use a 0 to 5-inch, 0 to 10-inch, or 0 to 25-inch w.g. range transmitter as standard. To sufficiently cover VAV turndown on the smallest fans with the above range, a transmitter with an accuracy of 0.25 percent (full scale) is used as standard. If a field-provided transmitter with a lower accuracy is selected, the range should be chosen closer to the actual, maximum pressure differential expected for the application.

The transmitter outputs a signal that represents the differential pressure which is used to calculate airflow. To adequately calculate and display the airflow for the smaller fans, verify the analog input is programmed with enough decimal places to sufficiently represent the pressure differential being measured.

**Note:** The transmitter is factory-calibrated to the range selected and cannot be significantly adjusted to tighten the range closer to the pressure being read for the given application.

## Transmitter Calibration

The transmitter is factory-calibrated to a specific pressure range with a 0 to 5 inch, 0 to 10 inch, or 0 to 25 inch w.g. range being used in most cases. To check calibration and to adjust if necessary, consult the transmitter manufacturer or the factory for specific procedures.

The transmitter outputs a linear, 2 to 10 Vdc signal representing a differential pressure measurement. With this measurement, the airflow through the fan can be calculated using the following equation:

$$CFM = K * \text{SQRT} (DP)$$

Where:

CFM = Airflow (ft<sup>3</sup>/min.) assuming a standard air density of 0.075 lbm/ft<sup>3</sup>.

K = A constant factor that is unique for each fan. See "Constant K Factor," p. 23 for more information.

DP = Differential pressure (inches w.g.) being measured by the transmitter.

Significant differences in elevation and/or temperature will affect the density of air. For air at a constant, non-standard density, a field-obtained K factor can be used. Alternatively, the following equation can be used to continuously correct the equation above:

$$ACFM = CFM * \text{SQRT}(0.075/\rho)$$

Where:

ACFM = Actual airflow (ft<sup>3</sup>/min.) corrected for non-standard air density.

$\rho$  = Density (lbm/ft<sup>3</sup>) of the air at the inlet to the fan.

**Note:** Alternative units, including SI, can be used in place of the IP units above although the K-factor must be converted appropriately.

## Maintenance

For a typical HVAC environment - especially with upstream filtration - there should be little to no required maintenance.

In the unlikely case that the flow meter gets clogged, it is easily cleanable. Simply disconnect each side of the transmitter and blast air in a reverse direction through the system.

## Constant K Factor

The constant K factor is unique for each fan and is primarily a function of the area and other geometric properties of the fan inlet. Pre-engineered factors are available from the factory for fan types where the airflow measurement system is available.

**Table 1. Constant K factors**

| Fan Size (inches)/Type        | Fan Class | Fan Name | K-Factor |
|-------------------------------|-----------|----------|----------|
| 17.70 Full-Width Impeller Fan | Any       | 17FM     | 2231     |
| 19.70 Full-Width Impeller Fan | Any       | 19FM     | 2612     |
| 22.00 Full-Width Impeller Fan | Any       | 22FM     | 3233     |
| 24.80 Full-Width Impeller Fan | Any       | 24FM     | 4071     |

**Note:** This table to be used for the updated tap design - mid-2014 and beyond. See prior editions of this publication for the previous design.

When a single transmitter is supplied in a multiple fan system, one or more fans will be brought back to the transmitter as a manifold and the airflow will represent the total airflow for the system. In this case, the factor should be adjusted as follows:

$K = N * K\text{-Factor from Table 1, p. 23.}$

Where:

K = The final factor to be used for controller programming.

N = The number of active\* fans in the system.

ACFM = Actual airflow (ft<sup>3</sup>/min.) being measured at the air density being measured.

DP = Differential pressure (inches w.g.) being measured by the transmitter.

\*If a fan fails in a multiple fan system where only one transmitter is being supplied, and if the remaining fans will continue to run, the factor should be reduced accordingly. Additionally, if the inactive fan was included in the manifold back to the transmitter, the tubes from the inactive fan should be temporarily removed and replaced with tubes from an active fan (or simply plugged).

When a transmitter is supplied for each fan, the factor does not need to be adjusted. The resulting airflow will represent single-fan airflow. At the controller level, the individual airflows should be summed to get the total airflow. If a field-provided K-factor is to be used (see below), the measured airflow for the system should be divided by the number of active fans to get a single-fan K-factor.

Field-obtained factors can provide maximum accuracy. To obtain the factor in the field, measure the differential pressure output from the transmitter while measuring the airflow through the system. Once these two values have been measured, simply solve for K using the following equation:

$K = ACFM / \sqrt{DP}$

Where:

K = Field-provided constant factor.



## Routine Maintenance

### ⚠ WARNING

#### Hazardous Service Procedures!

Failure to follow all precautions in this manual and on the tags, stickers, and labels could result in death or serious injury.

Technicians, in order to protect themselves from potential electrical, mechanical, and chemical hazards, **MUST** follow precautions in this manual and on the tags, stickers, and labels, as well as the following instructions: Unless specified otherwise, disconnect all electrical power including remote disconnect and discharge all energy storing devices such as capacitors before servicing. Follow proper lockout/tagout procedures to ensure the power can not be inadvertently energized. When necessary to work with live electrical components, have a qualified licensed electrician or other individual who has been trained in handling live electrical components perform these tasks.

### ⚠ WARNING

#### Rotating Components!

Failure to disconnect power before servicing could result in rotating components cutting and slashing technician which could result in death or serious injury.

Disconnect all electric power, including remote disconnects before servicing. Follow proper lockout/tagout procedures to ensure the power can not be inadvertently energized.

The bottom coil assembly provides critical structural support for the second level of the unit. Remove the second level coil or unstack the second level before replacing the bottom level coil.

## Maintenance Checklist

| Frequency                 | Maintenance                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|---------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Every week                | Observe unit weekly for any change in running condition and unusual noise.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Every month               | <ul style="list-style-type: none"> <li>Clean or replace air filters if clogged or dirty; See "Installing the Filters," p. 14 for more information.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Every three to six months | <ul style="list-style-type: none"> <li>Inspect and clean drain pans. See "Drain Pans," p. 25 for more information.</li> <li>Tighten electrical connections.</li> <li>Inspect coils for dirt build-up. See "Water Coils," p. 24 for more information.</li> </ul>                                                                                                                                                                                                                                                                                                                                              |
| Every year                | <ul style="list-style-type: none"> <li>Inspect the unit casing for corrosion. If damage is found, clean and repaint.</li> <li>Clean the fan wheels and shaft. See "Fans," p. 26 for more information.</li> <li>Inspect and clean drain pans.</li> <li>Inspect electrical components and insulation.</li> <li>Inspect wiring for damage.</li> <li>Rotate the fan wheel and check for obstructions. The wheel should not rub.</li> <li>Check condition of gasketing and insulation around unit and door.</li> <li>Examine flex connections for cracks or leaks. Repair or replace damaged material.</li> </ul> |

## Water Coils

All coils should be kept clean to maintain maximum performance.

### ⚠ WARNING

#### Hazardous Voltage!

Failure to disconnect power before servicing could result in death or serious injury.

Disconnect all electric power, including remote disconnects before servicing. Follow proper lockout/tagout procedures to ensure the power can not be inadvertently energized. Verify that no power is present with a voltmeter.

### ⚠ WARNING

#### Hazardous Chemicals!

Failure to follow this safety precaution could result in death or serious injury. Coil cleaning agents can be either acidic or highly alkaline and can burn severely if contact with skin or eyes occurs.

Handle chemical carefully and avoid contact with skin. **ALWAYS** wear Personal Protective Equipment (PPE) including goggles or face shield, chemical resistant gloves, boots, apron or suit as required. For personal safety refer to the cleaning agent manufacturer's Materials Safety Data Sheet and follow all recommended safe handling practices.

To clean the water coils:

1. Disconnect all electrical power to the unit.
2. Wearing the appropriate personal protective equipment, use a soft brush to remove loose debris from both sides of the coil.
3. Install a block-off to prevent spray from going through the coil and into a dry section of the unit and/or system.
4. Mix a high-quality coil cleaning detergent with water according to the manufacturer's instructions.

**Note:** *If the detergent is strongly alkaline after mixing (PH 8.5 or higher), it must contain an inhibitor. Follow the cleaning solution manufacturer's instructions regarding the use of the product.*

5. Place the mixed solution in a garden pump-up sprayer or high-pressure sprayer. If a high pressure sprayer is to be used:
  - Maintain minimum nozzle spray angle of 15 degrees.
  - Spray perpendicular to the coil face.
  - Keep the nozzle at least 6-inches from the coil.
  - Do *not* exceed 600 psi.
6. Spray the leaving air side of the coil first, then the entering air side.
7. Thoroughly rinse both sides of the coil and the drain pan with cool, clean water.
8. Repeat step 6 and step 7 as necessary.
9. Straighten any coil fins that may have been damaged during the cleaning process.
10. Confirm the drain line is open following the cleaning process.
11. Allow the unit to dry thoroughly before putting it back into service.
12. Replace all panels and parts and restore electrical power to the unit.
13. Be careful any contaminated material does not contact other areas of the unit or building. Properly dispose of all contaminated materials.
2. Wearing the appropriate personal protective equipment, use a brush for sheet metal surfaces or a soft sponge on a foil face or closed cell foam surface to mechanically remove the microbial growth.
 

**Note:** *Be careful not to damage the non-porous surface of the insulation.*
3. Install a block-off to prevent spray from going into a dry section of the unit and/or system.
4. Thoroughly clean the contaminated area(s) with an EPA-approved sanitizer specifically designed for HVAC use.
5. Rinse the affected surfaces thoroughly with fresh water and a fresh sponge to prevent potential corrosion of the drain pan and drain line
6. Repeat [Step 4](#) and [Step 5](#) as necessary.
7. Confirm the drain line is open following the cleaning process.
8. Allow the unit to dry thoroughly before putting it back into service.
9. Replace all panels and parts and restore electrical power to the unit.
10. Be careful any contaminated material does not contact other areas of the unit or building. Properly dispose of all contaminated materials and cleaning solution.

## Cleaning Non-Porous Surfaces

### **⚠ WARNING**

#### **Hazardous Voltage!**

Failure to disconnect power before servicing could result in death or serious injury. Disconnect all electric power, including remote disconnects before servicing. Follow proper lockout/tagout procedures to ensure the power can not be inadvertently energized. Verify that no power is present with a voltmeter.

If microbial growth on a non-porous insulating surface (closed cell insulation or sheet metal surface) is observed:

1. Disconnect all electrical power to the unit.

## Drain Pans

### **⚠ WARNING**

#### **Hazardous Chemicals!**

Failure to follow this safety precaution could result in death or serious injury. Coil cleaning agents can be either acidic or highly alkaline and can burn severely if contact with skin or eyes occurs.

Handle chemical carefully and avoid contact with skin. **ALWAYS** wear Personal Protective Equipment (PPE) including goggles or face shield, chemical resistant gloves, boots, apron or suit as required. For personal safety refer to the cleaning agent manufacturer's Materials Safety Data Sheet and follow all recommended safe handling practices.

### **⚠ WARNING**

#### **No Step Surface!**

Failure to follow instruction below could result in death or serious injury.

Do not walk on the sheet metal drain pan. Walking on the drain pan could cause the supporting metal to collapse and result in the operator/technician falling.

The condensate drain pan and drain line must be checked to assure the condensate drains as designed. This inspection should occur a minimum of every six months or more often as dictated by operating experience.



## Routine Maintenance

If evidence of standing water or condensate overflow exists, identify and remedy the cause immediately. See "Troubleshooting," p. 27 for possible causes and solutions.

To clean the drain pans:

1. Disconnect all electrical power to the unit.
2. Wearing the appropriate personal protective equipment, remove any standing water.
3. Scrape solid matter off of the drain pan.
4. Vacuum the drain pan with a vacuum device that uses high efficiency particulate arrestance (HEPA) filters with a minimum efficiency of 99.97 percent at 0.3 micron particle size.
5. Thoroughly clean any contaminated area(s) with a mild bleach and water solution or an EPA-approved sanitizer specifically designed for HVAC use.
6. Immediately rinse the affected surfaces thoroughly with fresh water and a fresh sponge to prevent potential corrosion of metal surfaces.
7. Allow the unit to dry completely before putting it back into service.
8. Be careful any contaminated material does not contact other areas of the unit or building. Properly dispose of all contaminated materials and cleaning solution.
9. Check filters. Dirty filters will raise static pressure drop and may affect the operation of the drain pan p-trap.

## Fans

### ⚠ WARNING

#### Rotating Components!

Failure to disconnect power before servicing could result in rotating components cutting and slashing technician which could result in death or serious injury.

Disconnect all electric power, including remote disconnects before servicing. Follow proper lockout/tagout procedures to ensure the power can not be inadvertently energized.

## Inspecting and Cleaning Fans

Fan sections of air handlers should be inspected every six months at a minimum or more frequently if operating experience dictates. If evidence of microbial growth (mold)

is found, identify and remedy the cause immediately. See "Troubleshooting," p. 27 for possible causes and solutions. To clean the fan section:

1. Disconnect all electrical power to the unit.
2. Wearing the appropriate personal protective equipment, remove any contamination.
3. Vacuum the section with a vacuum device that uses high-efficiency particulate arrestance (HEPA) filters with a minimum efficiency of 99.97 percent at 0.3 micron particle size.
4. Thoroughly clean any contaminated area(s) with a mild bleach and water solution or an EPA-approved sanitizer specifically designed for HVAC use.
5. Immediately rinse the affected surfaces thoroughly with fresh water and a fresh sponge to prevent potential corrosion of metal surfaces.
6. Allow the unit to dry completely before putting it back into service.
7. Be careful any contaminated material does not contact other areas of the unit or building. Properly dispose of all contaminated materials and cleaning solution.

## Filters

### ⚠ WARNING

#### Rotating Components!

Failure to disconnect power before servicing could result in rotating components cutting and slashing technician which could result in death or serious injury.

Disconnect all electric power, including remote disconnects before servicing. Follow proper lockout/tagout procedures to ensure the power can not be inadvertently energized.

**Note:** Dirty filters will increase static pressure drop and may effect operation of p-trap drain lines.

## Throwaway Filters

When replacing throwaway filters, install new filters with the directional arrows pointing in the direction of airflow.

If using non-Trane-supplied filters, apply foam gasketing to the vertical edges of the filter to prevent air bypass.



# Troubleshooting

This section is intended to be used as a diagnostic aid only. For detailed repair procedures, contact your local Trane service representative.

- To safely service and remove the bottom section coil from the stacked unit, the top section must be fully removed from the stacked orientation. The coil assembly is critical to the overall structural integrity of the unit and must be present in the stacked assembly.
- In order to safely service the coil on the bottom section, the stacked unit must be fully unstacked.

## ⚠ WARNING

### Hazardous Service Procedures!

Failure to follow all precautions in this manual and on the tags, stickers, and labels could result in death or serious injury.

Technicians, in order to protect themselves from potential electrical, mechanical, and chemical hazards, **MUST** follow precautions in this manual and on the tags, stickers, and labels, as well as the following instructions: Unless specified otherwise, disconnect all electrical power including remote disconnect and discharge all energy storing devices such as capacitors before servicing. Follow proper lockout/tagout procedures to ensure the power can not be inadvertently energized. When necessary to work with live electrical components, have a qualified licensed electrician or other individual who has been trained in handling live electrical components perform these tasks.

**Table 2. Fan coil walls troubleshooting recommendations**

| Symptom                         | Probable Cause                                                       | Recommended Action                                                                                                          |
|---------------------------------|----------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------|
| Motor fails to start            | No voltage at the motor                                              | Check for voltage at the motor.                                                                                             |
|                                 | No speed signal at the motor                                         | Check for speed signal at the motor.                                                                                        |
|                                 | Incorrect control configuration (modbus or analog communication)     | Verify motor is in correct control configuration (modbus or analog communication) using manufacturer software (EC control). |
|                                 | Fan status or alarms indicated by manufacturer software (EC control) | Use manufacturer software (EC control) to verify fan status and any alarms.                                                 |
| Motor stalls                    | Open phase                                                           | Check line for an open phase.                                                                                               |
|                                 | Overloaded motor                                                     | Reduce load or replace with larger motor.                                                                                   |
|                                 | Low line voltage                                                     | Check across AC line. Correct voltage if possible.                                                                          |
| Motor runs and then dies down   | Partial loss of line voltage                                         | Check for loose connections. Determine adequacy of main power supply.                                                       |
| Motor does not come up to speed | Insufficient supply voltage                                          | Confirm proper supply voltage.                                                                                              |
|                                 | Speed or power limits programmed in the motor                        | Check and adjust speed or power limits programmed in the motor.                                                             |
|                                 | High amperage compared to Full Load Amps (FLA)                       | Check amperage with clamp on hand held and compare to FLA.                                                                  |
| Motor overheats/shuts down      | Overloaded motor                                                     | Reduce the load.                                                                                                            |
|                                 | Motor fan is clogged with dirt preventing proper ventilation         | Remove the fan cover, clean the fan, and replace the cover.                                                                 |
|                                 | Ambient condition exceeds rated ambient condition                    | Check ambient condition compared to the rated ambient condition.                                                            |
|                                 | Obstructions preventing airflow over the motor driver                | Remove any obstructions preventing airflow over the motor driver.                                                           |

## Troubleshooting

**Table 2. Fan coil walls troubleshooting recommendations (continued)**

| Symptom                     | Probable Cause                                              | Recommended Action                                                                                                                                                     |
|-----------------------------|-------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Excessive motor noise       | Rubbing of wheel on inlet funnel                            | Check for rubbing of wheel on inlet funnel.                                                                                                                            |
|                             | Obstructions or sharp air turns around the inlet of the fan | Remove any obstructions or sharp air turns around the inlet of the fan.                                                                                                |
|                             | Excessive play in the rotor due to damaged bearings         | With the motor de-energized and locked out, check for excessive play in the rotor. If there is play, it is likely due to damaged bearings; replace fan/motor assembly. |
| Rapid motor bearing wear    | Operation in stall condition                                | Adjust the operating point out of stall condition.                                                                                                                     |
|                             | Operation in structural resonance                           | Adjust the operating point to a different speed.                                                                                                                       |
| Bearing noise               | Failed bearing                                              | Replace the fan/motor assembly.                                                                                                                                        |
| Low water coil capacity     | Incorrect airflow                                           | Check fan operating condition.                                                                                                                                         |
|                             | Incorrect water flow                                        | Inspect the water pumps and valves for proper operation and check the lines for obstructions.                                                                          |
|                             | Incorrect water temperature                                 | Adjust the chiller or boiler to provide the proper water temperature.                                                                                                  |
|                             | Coil is piped incorrectly                                   | Verify coil piping (see <a href="#">"Piping and Connections," p. 16</a> ).                                                                                             |
|                             | Dirty fin surface                                           | Clean the fin surface (see <a href="#">"Water Coils," p. 24</a> ).                                                                                                     |
|                             | Incorrect glycol mixture                                    | Verify glycol mixture and adjust if necessary.                                                                                                                         |
| Drain pan is overflowing    | Plugged Drain Line                                          | Clean drain line.                                                                                                                                                      |
|                             | Unit not level                                              | Level the unit.                                                                                                                                                        |
|                             | Improper trap design                                        | Design trap per unit installation instructions.                                                                                                                        |
| Standing water in drain pan | Improper trap design                                        | Design trap per unit installation instructions.                                                                                                                        |
|                             | Unit not level                                              | Level the unit.                                                                                                                                                        |
|                             | Plugged drain line                                          | Clean the drain line.                                                                                                                                                  |
| Excess dirt in unit         | Missing filters                                             | Replace the filters.                                                                                                                                                   |
|                             | Filter bypass                                               | Reduce filter bypass by confirming all blockoffs are in place.                                                                                                         |



# Fan Coil Wall Unit – Commissioning Checklist and Log

Project Name: \_\_\_\_\_  
Location: \_\_\_\_\_  
Unit Trane Number: \_\_\_\_\_  
Unit Serial Number: \_\_\_\_\_  
Motor Information: \_\_\_\_\_  
Commissioned By: \_\_\_\_\_  
Date: \_\_\_\_\_

Check boxes if the task is complete or if the answer is "yes".

## 1. Pre-start checks

- ☐ Verify the unit is level.
- ☐ Verify all ship-loose items are installed (clips, flex conduit connection, wiring).
- ☐ Disconnect all high-voltage power and perform proper lock-out/tag-out procedures.
- ☐ Inspect the unit interior for debris or obstructions.
- ☐ Inspect exterior for damage, paint condition, and proper door operation.
- ☐ Verify wiring connections at the motor and disconnect are tight.
- ☐ Confirm incoming voltage on all three legs and check phasing.
  - a. Voltage: \_\_\_\_\_
- ☐ Verify all unit filters are installed and oriented correctly.
- ☐ Verify all drain lines/traps are installed, sized properly, leak-free, and operational.
- ☐ Inspect drip pans, openings, and lines for obstructions; confirm proper pan drainage.
- ☐ Visually inspect piping and valves for leakage.
- ☐ Inspect and straighten coil fins as needed.
- ☐ Inspect fan wheels; confirm rotation direction and free rotation.
- ☐ Verify incoming voltage imbalance < 2% (check motor nameplate).
  - a. % Imbalance: \_\_\_\_\_
- ☐ Close and secure all doors and panels.

## 2. Start-Up

- ☐ Observe for vibration or unusual noise.
- ☐ Verify automatic transfer switch is set to correct source.
- ☐ Start the unit.
  - a. Start Time: \_\_\_\_\_
- ☐ Verify fan amperages are within nameplate specs.
  - a. Amps: \_\_\_\_\_

## 3. Post-start checks

- ☐ Inspect unit for all required installation hardware.
- ☐ Complete the operating log.
- ☐ Record all Trane number, serial, sales numbers, and motor info.
- ☐ Record filter sizes and quantities.
  - a. Sizes/qty: \_\_\_\_\_
- ☐ Take photos of any damage or warranty issues.

## 4. Additional Notes

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## Fan Coil Wall AHU Startup

### 1. FAN COIL WALL AHU

Job Name \_\_\_\_\_  
Job Address \_\_\_\_\_  
Dispatch # \_\_\_\_\_  
PO# \_\_\_\_\_  
Unit Tag \_\_\_\_\_

### 2. AHU information

Trane # \_\_\_\_\_  
Serial # \_\_\_\_\_  
Line Power \_\_\_\_\_  
Current \_\_\_\_\_  
Design CFM \_\_\_\_\_  
Unit Location \_\_\_\_\_

### 3. Fan/motor information

Fan Model # \_\_\_\_\_  
Fan Part # \_\_\_\_\_  
Motor Volts \_\_\_\_\_  
Motor Amps \_\_\_\_\_  
Motor RPM \_\_\_\_\_

- a. Motor readings – recorded at startup
  - Voltage
    - T1-T2: \_\_\_\_\_
    - T2-T3: \_\_\_\_\_



## Fan Coil Wall Unit – Commissioning Checklist and Log

T3-T1: \_\_\_\_\_

Rated: \_\_\_\_\_

- Amps

T1: \_\_\_\_\_

T2: \_\_\_\_\_

T3: \_\_\_\_\_

FLA: \_\_\_\_\_

- Source #: \_\_\_\_\_

Utility or generator: \_\_\_\_\_

#### 4. Filter information

Qty \_\_\_\_\_ Size \_\_\_\_\_

Qty \_\_\_\_\_ Size \_\_\_\_\_

**Table 3. Additional information**

|                                 |                                     |                                  |                                 |                                |
|---------------------------------|-------------------------------------|----------------------------------|---------------------------------|--------------------------------|
| Coil Type                       | <input type="checkbox"/> CHW        | —                                | EDB Temp: _____                 | LDB Temp: _____                |
| Fan Type                        | <input type="checkbox"/> ECM        | —                                | <input type="checkbox"/> Other  | —                              |
| Controls                        | <input type="checkbox"/> Symbio 500 | —                                | <input type="checkbox"/> Other  | —                              |
| Harmonic Filter                 | <input type="checkbox"/> Mirus      | —                                | <input type="checkbox"/> Other  | N/A                            |
| Automatic Transfer Switch (ATS) | <input type="checkbox"/> ABB        | —                                | <input type="checkbox"/> Other  | N/A                            |
| Valve Actuator                  | <input type="checkbox"/> Victaulic  | <input type="checkbox"/> Danfoss | <input type="checkbox"/> Belimo | <input type="checkbox"/> Other |

For additional information on pre-installation, installation, routing maintenance, and troubleshooting, see *Performance Climate Changer™ Fan Coil Wall for Data Centers* (CLCH-SVX021\*-EN) and relevant submittals.

This is to certify that the Trane® equipment has been properly and completely installed, and that the applicable items listed above have been satisfactorily completed.

Technician \_\_\_\_\_

Customer \_\_\_\_\_

Completion Date: \_\_\_\_\_

#### Additional Comments/Instructions:

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