Installation, Operation, and Maintenance

Performance Climate Changer™ 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 2025

CLCH-SVX021A-EN

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.**

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⚠ 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.

Additional Environmental Information

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

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Factory Training

Factory training is available through Trane University™ to help you learn more about the operation and maintenance of your equipment. To learn about available training opportunities, contact Trane University™.

Online: www.trane.com/traneuniversity

Email: traneuniversity@trane.com

Table of Contents

General Information

Use this manual to install, start up, operate, and maintain the Performance Climate Changer™ 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 Performance Climate Changer™ 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 -40ºF to 140ºF (40ºC to 60ºC).

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

Unit Description

The Performance Climate Changer custom 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, refer to the following manuals:

- Programmable Symbio™ 500 controllers – Symbio™ 500 Programmable Controller Installation, Operation, and Maintenance (*BAS-SVX090*-EN*)
- Installing the Tracer TD7 Display (*X39641191-01**)

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.

☐ Check to ensure that the shipment is complete. Small components may ship inside the unit or ship separately. Check the parts list to ensure all materials are present. If any component is missing, contact your local Trane sales office.
☐ 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.
☐ If a unit is damaged, make specific notations concerning the damage on the freight bill of lading. Do not refuse delivery.
☐ 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 longer periods of storage, allow proper clearance around the unit to perform periodic inspections and maintenance on the equipment. While the unit is in storage:

- Every two weeks, rotate the fan and motor shaft 30 revolutions by hand. Check for free rotation.
- Check the motor lubrication; remove and clean grease plugs and check for the presence of moisture in the grease. If moisture is present, remove the motor and send it to an authorized repair shop for bearing inspection/replacement. If no moisture if present, refer to the motor manufacturer's lubrication recommendation for proper lubrication.

Site Preparation

- Ensure the installation site can support the total weight of the unit; refer to the unit submittals for weights.
- Allow sufficient space for adequate free air and necessary service access. Refer to submittals for specific minimums.
- Allow room for supply and return piping, ductwork, electrical connections, and coil removal.
- Ensure 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. Refer to the unit submittals for section weights. Test the unit for proper balance before lifting.

⚠ WARNING

Heavy Objects!

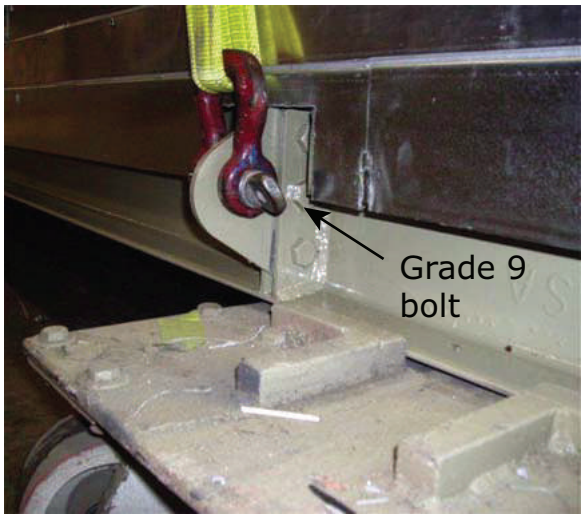
Failure to follow instructions below or properly lift unit could result in unit dropping and possibly crushing operator/technician which could result in death or serious injury, and equipment or property-only damage.

- **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 or helicopter 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.

Unit Placement and Assembly

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

Prior to unit assembly, refer to 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, ductwork, 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 roofcurb, 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.

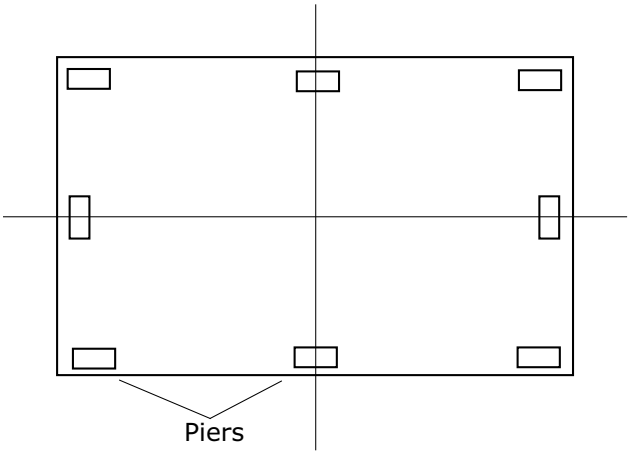
Removing the Shipping Skid

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.

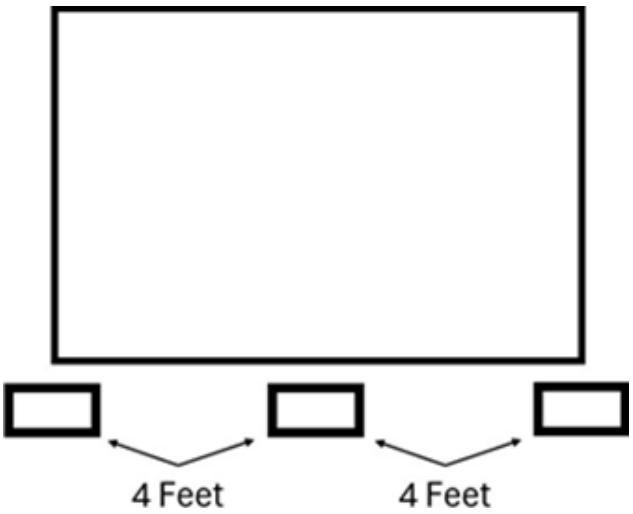
When mounting the unit on a pier mount, locate one pier at each corner **as a minimum**, directly underneath any shipping split (ensure full support under each side) and then every four feet at equally spaced intervals around the perimeter of the unit. The unit should be supported by their base around the entire perimeter. See Figure 2, p. 9 and Figure 3, p. 10.

Figure 2. 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 3. 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. For vertical discharge units, allow space under the unit for supply air ductwork connections.

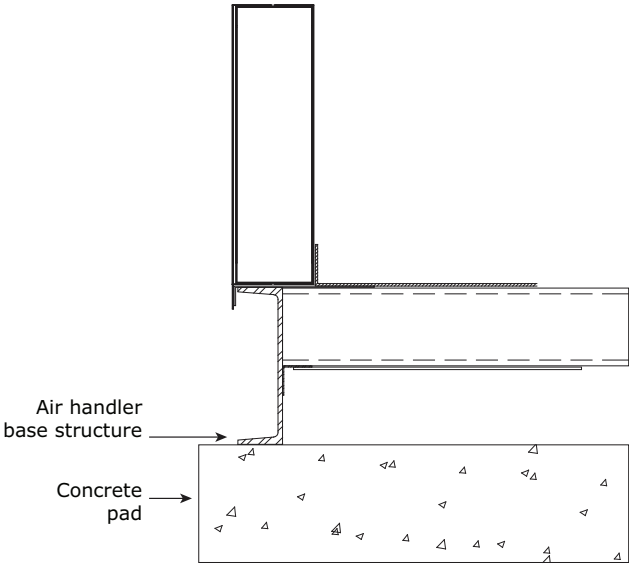
Assembly Instructions

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 4. Flat concrete pad mount



Stacked Unit

1. Install and assemble all lower sections as described in typical assembly.
2. Lift first piece of upper section into place assuring proper alignment with lower unit.
3. Install 10 gauge 12-inch angle clips as shown inFigure 5, p. 11 and secure with grade 5 self-tapping screws placed 4-inches on center.
4. Lift next upper piece into place and secure shipping split with appropriate hardware then anchor to lower section as described above.
5. Continue until all sections are installed and anchored properly.
6. 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.

Figure 5. Stacked unit trim assembly

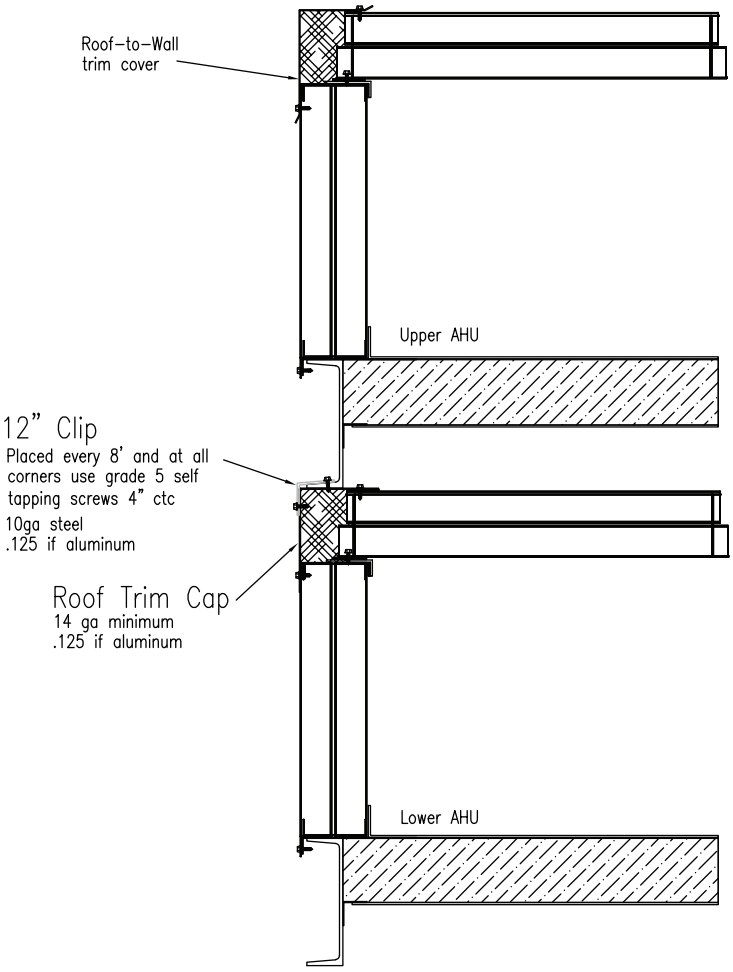
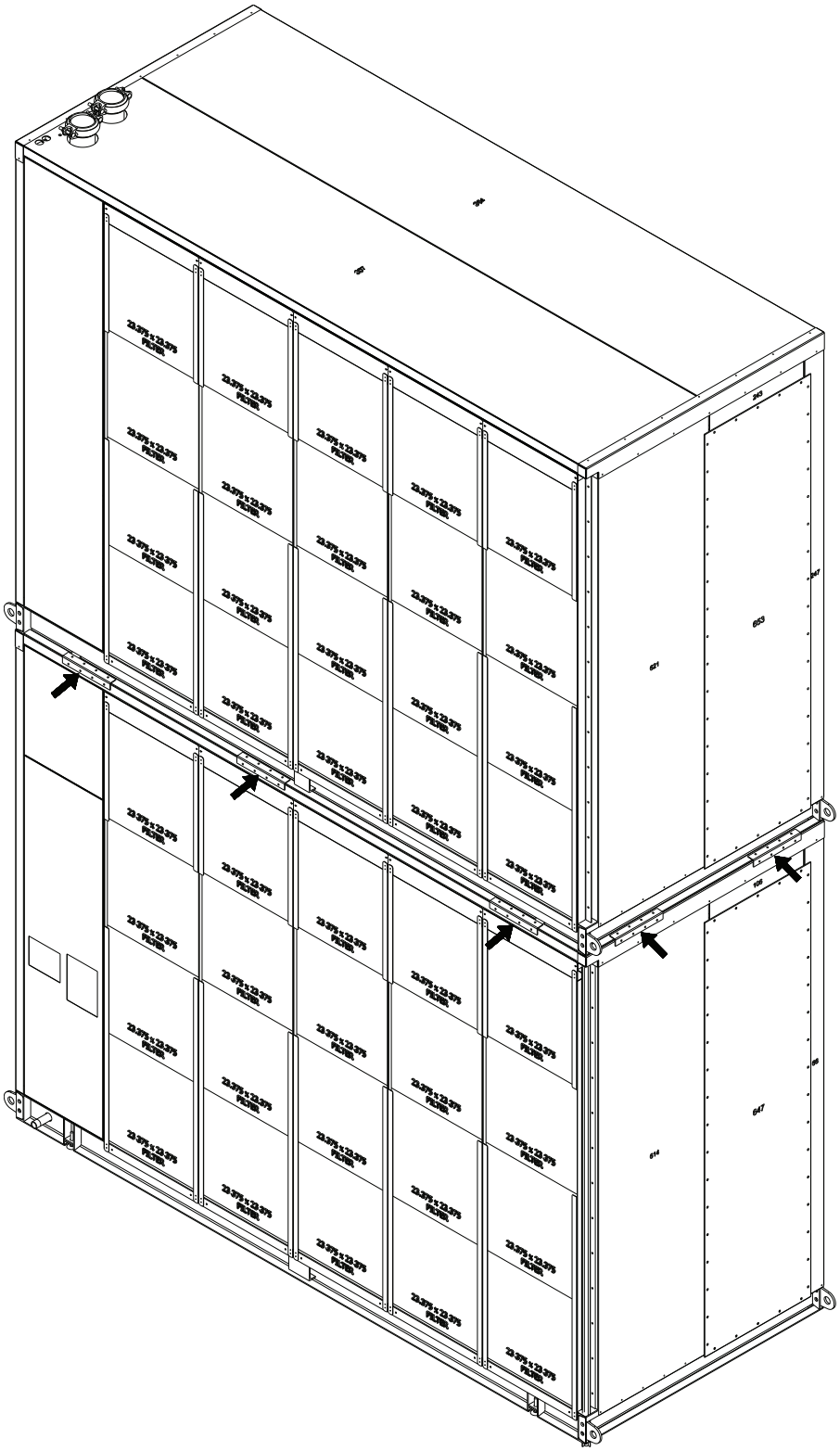


Figure 6. Locations for angle clips



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.*

Seismic Requirements

Air handling equipment manufactured by Trane is capable of structurally and operationally withstanding the seismic response criteria as required by the International Building Codes (IBC) 2000,2003, 2006, 2009, 2012, and CBC 2007, 2010. Trane has third-party certification for IBC compliance for seismic applications.

Note: *If seismic isolation has been specified, the following requirements must be adhered to for installation. Failure to follow these instructions would void the warranty.*

Anchor Requirements

1. Single wide<164 inches – grade to roof mounted (0<= Sds<=1.85) non-isolated:
   a. On 4000 psi concrete:
      - 3/4-in. dia. Hilti Kwik bolt TZ carbon steel concrete anchors at 24 in. o.c.
      - 4 3/4-in. min. anchor embedment
      - 9-in. min. distance to the nearest edge
      - 8-in. min. concrete slab thickness

   b. On steel dunnage/steel curb:
      - 3/4-in. dia ASTM A325 or SAE grade 5 bolts at 24 in. o.c.

        or
      - 1-in. long 3/16-in. welds at 24-in. o.c.
2. Stacked single-wide<164 in. – grade to roof mounted (0<=Sds<=1.85) non-isolated:
   a. On 4000 psi concrete:
      - 3/4-in. dia. Hilti Kwik bolt TZ carbon steel concrete anchors at 24-in. o.c.
      - 4 3/4-in. min. anchor embedment
      - 9-in. min. distance to the nearest edge
      - 8-in. min. concrete slab thickness

   b. On steel dunnage/steel curb:
      - 3/4-in. dia. ASTM A325 or SAE grade 5 bolts at 24-in. o.c.

        or
      - 1-in. long 3/16-in. welds at 24-in. o.c.
3. Double-wide 164 in. - 328 in. – grade to roof mounted (0<=Sds<=1.85) non-isolated:
   a. On 4000 psi concrete:
      - 3/4-in. dia. Hilti Kwik bolt TZ carbon steel concrete anchors at 24-in. o.c.
      - 4 3/4-in. min. anchor embedment
      - 9-in. min. distance to the nearest edge
      - 8-in. min. concrete slab thickness

   b. On steel dunnage/steel curb:
      - 3/4-in. dia. ASTM A325 or SAE grade 5 bolts at 24-in. o.c.

        or
      - 1-in. long 3/16-in. welds at 24-in. o.c.
4. Stacked double-wide 164 in. - 328 in. – grade to roof mounted (0<=Sds<=1.85) non-isolated:
   a. On 4000 psi concrete:
      - 3/4-in. dia. Hilti Kwik bolt TZ carbon steel concrete anchors at 24-in. o.c.
      - 4 3/4-in. min. anchor embedment
      - 9-in. min. distance to the nearest edge
      - 8-in. min. concrete slab thickness

   b. On steel dunnage/steel curb:
      - 3/4-in. dia. ASTM A325 or SAE grade 5 bolts at 24-in. o.c.

        or
      - 1-in. long 3/16-in. welds at 24-in. o.c.
5. Ultra wide 328 in. - 600 in. – grade to roof mounted (0<=Sds<=1.85) non-isolated:
   a. On 4000 psi concrete:
      - 3/4-in. dia. Hilti Kwik bolt TZ carbon steel concrete anchors at 24-in. o.c.

- 4 3/4-in. min. anchor embedment
- 12-in. min. distance to the nearest edge
- 14-in. min. concrete slab thickness

b. On steel dunnage/steel curb:

- 3/4-in. dia. ASTM A325 or SAE grade 5 bolts at 24-in. o.c.
  or
- 2 1/2-in. long 3/16-in. welds at 24-in. o.c.

Anchor selection meets or exceeds IBC 2000, 2003, 2006, and 2009 compliance requirements.

Special inspection per IBC Section 1704 is required on all installations. All anchors listed above must be installed to meet compliance.

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.

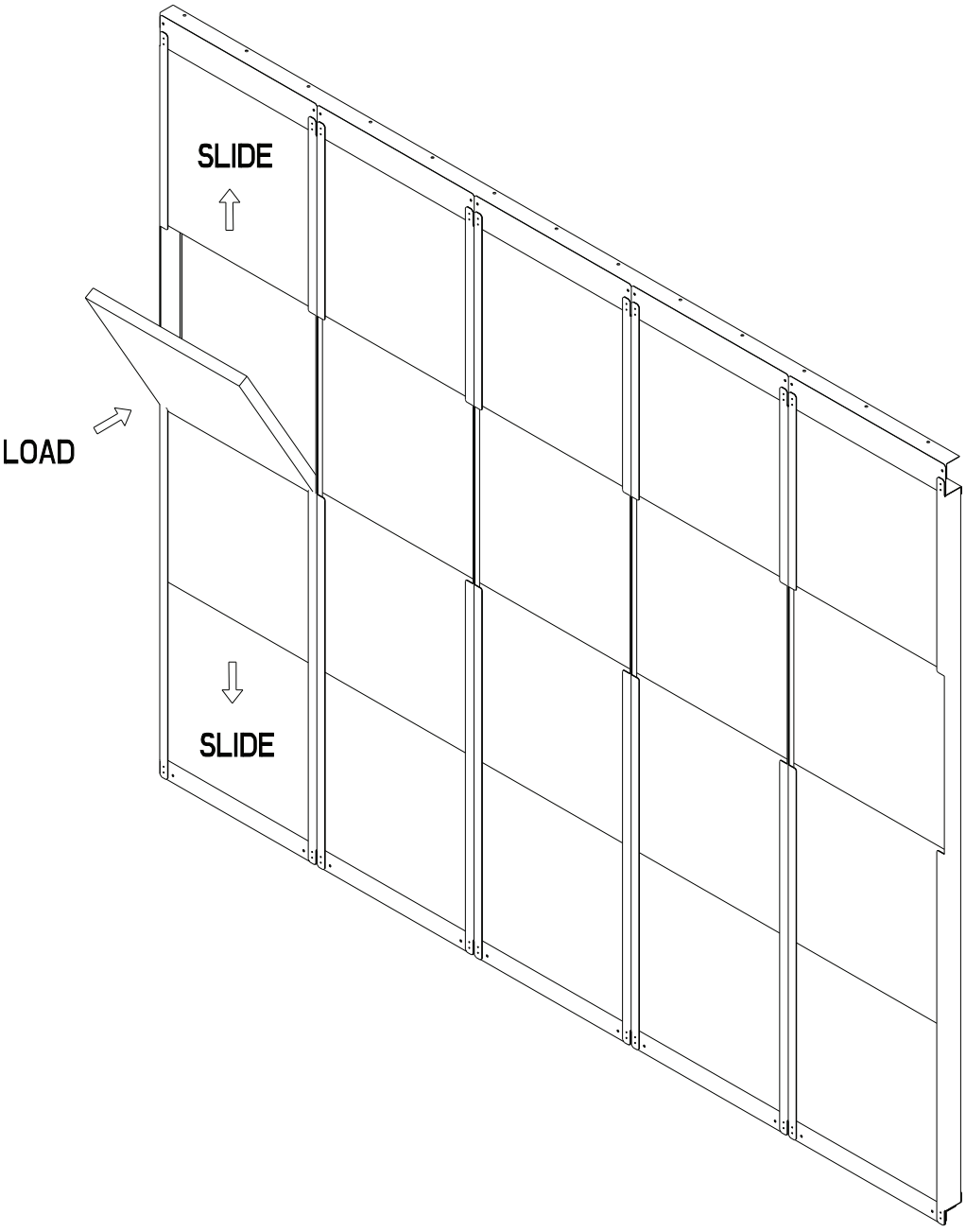
Installing the Filters

Most filters in custom units are installed in sheet metal frames. Filters are secured with a metal clip. There are several different styles.

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, then load any additional filters until the column is filled.

   The block-off is permanently installed and will create a seal when the access door is closed.
5. Install the filter clip.

Figure 7. Top-load filter assembly



Duct Connections

All duct 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.

To ensure the highest fan efficiency, duct turns and transitions must be made carefully, minimizing air friction losses and turbulence. Proper duct work installation by such organizations as SMACNA (Sheet Metal and Air Conditioning Contractors National Association, Inc.) should be adhered to.

See unit submittal documentation for additional duct mounting information.

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

Over Tightening!

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 over tightened.

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 to ensure satisfactory coil operation and to prevent operational damage:

- Support all piping independently of the coils.
- Provide swing joints or flexible fittings on all connections that are adjacent to heating coils to absorb thermal expansion and contraction strains.
- For best results, use a short pipe nipple on the coil headers prior to making any welded flange or welded elbow type connections.
- If extended drains and vents are required on other water coils, they must be field-installed or ordered as specials from the factory.
- Pipe coils counterflow to airflow.
- When attaching the piping to the coil header, make the connection only tight enough to prevent leaks.

  Note: *Do not exceed 200 ft-lb of torque on supply and return connections. Do not exceed 25 ft-lb of torque on drain and vent connections.*
- Use pipe sealer on all thread connections.
- After completing the piping connections, seal around pipe from inner panel to outer panel.

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!

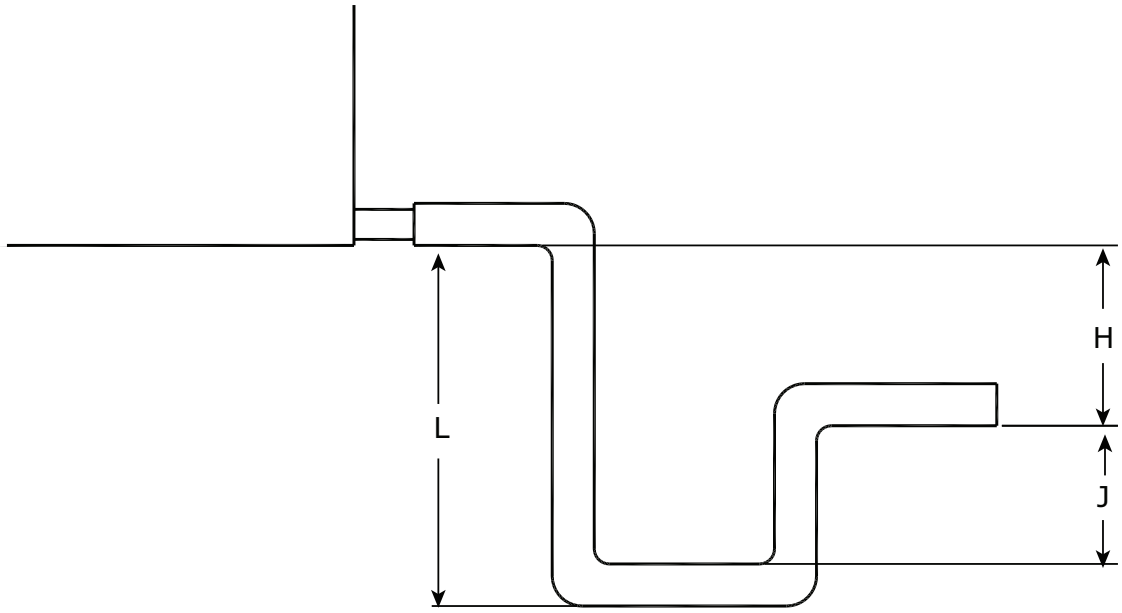
Failure to follow instructions below could result in water damage.

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 8, 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 8. Drain pan trapping for negative and positive pressure applications



Section under negative pressure

L = H + J + pipe diameter where:
H = 1 inch for each inch of negative pressure plus 1 inch with loaded filters
J = 1/2 H

Section under positive pressure

L = H + J + pipe diameter where:
H = 1/2 inch (minimum)
J = 1/2 inch plus the unit positive static pressure at coil discharge (loaded filters)

Water Coil Piping

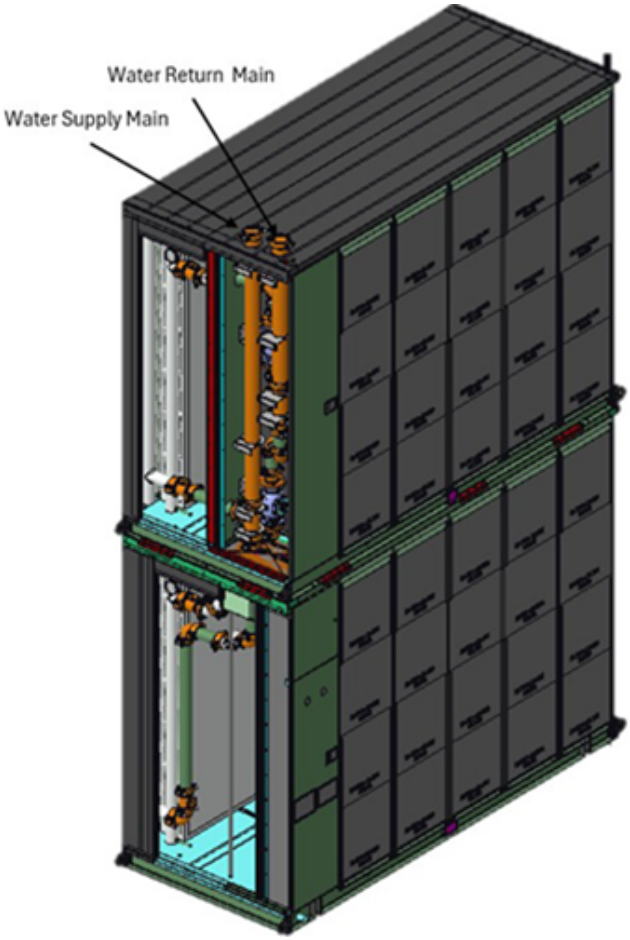
Figure 9, p. 18 illustrates typical water coil piping configurations.

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.

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

Figure 9. Typical piping for water coil



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 10, 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 10. 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 11, p. 20 and Figure 12, p. 20.

Refer to the equipment submittal for the detailed electrical diagram.

Figure 11. Electrical panel

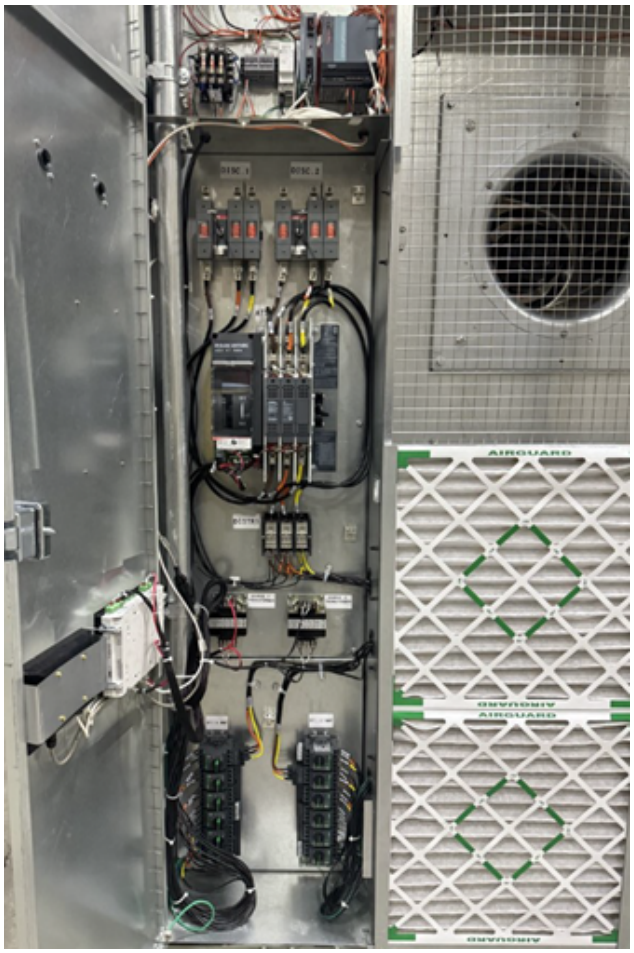
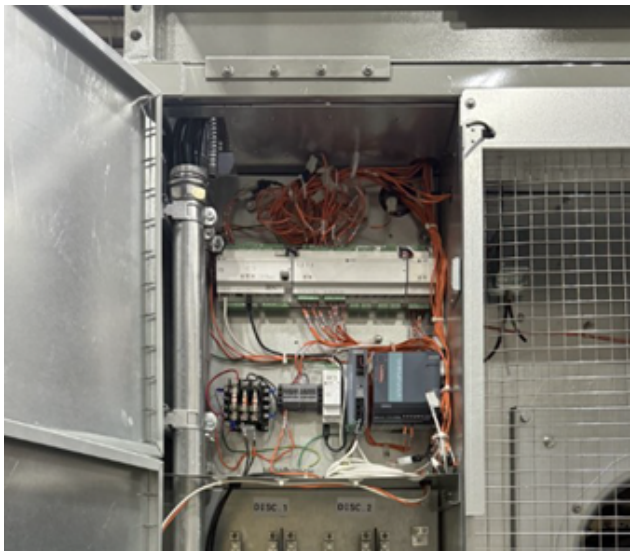


Figure 12. Low-voltage electrical panel



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.
- 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 and control 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 many centrifugal and plenum fans. Tranes 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 minimum diameter is connected to the LO port of the transmitter and the reference pressure point is connected to (or actually is) the HI port of the transmitter.

Figure 13. 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 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 * SQRT (DP)

Where:
CFM = Airflow (ft^3/min.) assuming a standard air density of 0.075 lbm/ft^3.

K = A constant factor that is unique for each fan. See"Constant K Factor," p. 22 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 * SQRT(0.075/ρ)

Where:
ACFM = Actual airflow (ft^3/min.) corrected for non-standard air density.

ρ = Density (lbm/ft^3) 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 extreme cases or for mishaps (bearing grease in the taps for example), the flow meter is easily cleanable. The fan inlet airflow measuring system is extremely simple: a few pressure taps, a few fittings, and some tubing. Although unlikely, if any tap were to get clogged, 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

Table 1. Constant K factors (continued)

Fan Size (inches)/Type	Fan Class	Fan Name	K-Factor
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. Refer to 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. As a result, the factor should be adjusted as follows:

K = N * K-Factor from Table 1, p. 22.

Where:

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

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

*If a fan fails in a multiple fan system where only one transmitter is being supplied, and if the remaining fans will continue to be used, 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.

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

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

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.

Maintenance Checklist

Frequency	Maintenance
Every week	Observe unit weekly for any change in running condition and unusual noise.
Every month	• Clean or replace air filters if clogged or dirty; coat permanent filters with oil after cleaning; change bag filters when pressure drop is 1 in. w.g. See “Installing the Filters,” p. 14 for more information.
Every three to six months	• Check motor bracket torque. See for torque requirements. • Inspect and clean drain pans. See “Drain Pans,” p. 26 for more information. • Tighten electrical connections. • Inspect coils for dirt build-up. See “Water Coils,” p. 25 for more information.
Every year	• Inspect the unit casing for corrosion. If damage is found, clean and repaint. • Clean the fan wheels and shaft. See “Fans,” p. 26 for more information. • Inspect and clean drain pans. • Check damper linkages, set screws, and blade adjustment. Clean, but do not lubricate, the nylon damper rod bushings. • Clean damper operators. • Inspect electrical components and insulation. • Inspect wiring for damage. • Rotate the fan wheel and check for obstructions. The wheel should not rub. Adjust the center if necessary. • Check condition of gasketing and insulation around unit, door, and dampers. • Examine flex connections for cracks or leaks. Repair or replace damaged material.

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 ductwork.
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.

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.
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 ductwork.
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.

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.

If evidence of standing water or condensate overflow exists, identify and remedy the cause immediately. See "Troubleshooting," p. 28 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 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. 28 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. The increase may effect operation of p-trap drain lines.*

Throwaway Filters

To replace throwaway filters, install new filters with the directional arrows pointing in the direction of airflow.

Bag and cartridge filters must have an airtight seal to prevent air bypass. If using other than Trane-supplied filters, apply foam gasketing to the vertical edges of the filter.

Troubleshooting

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

⚠ WARNING

Hazardous Service Procedures!

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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.

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 “Piping and Connections,” p. 16).
	Dirty fin surface	Clean the fin surface (see “Water Coils,” p. 25).
	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.

Notes

Trane - by Trane Technologies (NYSE: TT), a global innovator - creates comfortable, energy efficient indoor environments for commercial and residential applications. For more information, please visit trane.com or tranetechnologies.com.

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Supersedes (New)

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