



Installation Instructions

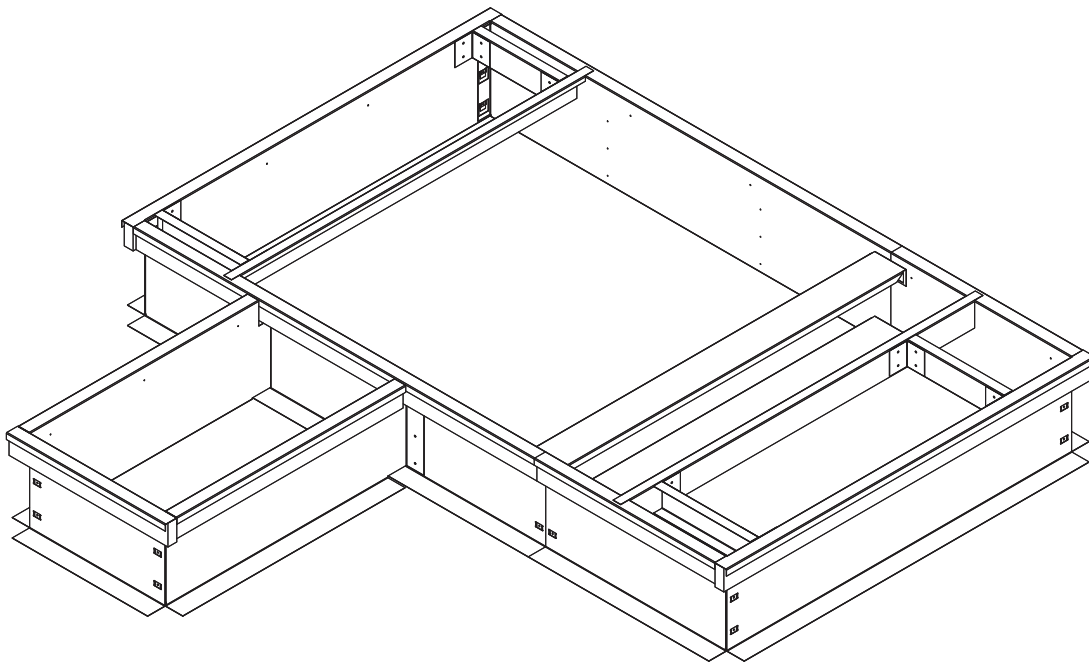
Roof Curbs

For Performance Climate Changer™

Air Handlers

Model UCCA for Outdoor Applications

Sizes 3-30



X39003983001

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.



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

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

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 Labeling 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.**

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Revision History

New cross bars added.



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Introduction



Performance Climate Changer™ air handlers may be mounted on the roof with a roof curb or pier mount. This manual includes the assembly instructions for Performance air handler model UCCA roof curbs. Before proceeding with the installation, refer to the unit submittal drawings and unit tagging for correct placement of air handler sections. Failure to review the submittal drawings could result in performance or assembly problems. If there are any discrepancies, contact your local Trane sales engineer before proceeding. Carefully review the procedures discussed in this manual to minimize installation and startup difficulties.

Nameplate

Each Performance air handler section shipped includes at least one nameplate/label (see Figure 1), which identifies the type of section and functional components, customer tagging information, the unit serial number, the unit order number, the section, and the unit model number. Refer to this information when ordering replacement parts or requesting service.

Note: The unit serial number and order number is required when ordering parts or requesting service for a Trane air handler

Figure 1. Performance air handler section nameplate

		Performance Climate Changer™ Air Handler		
Trane order number	ORDER NO. / BL	A1B234A / A		
Unit level serial number	SERIAL NO.	K15E39697		
Service model number	UNIT MODEL NO.	UCCAG03C1A0E0001000000AB857DA0A00D00		
Unit tagging	TAG ID	UCCA-1		
Section	SHIP SECTION	1 OF 1		
	FILTER DATA	2 X 16 X 25 - 2		
Functional section type	FAN DATA			
	UNIT VOLTAGE:	460/60/3		
	MOTOR HORSEPOWER:	1		
	MOTOR FLA:	2.10		
	UNIT FLA:	2.10		
	UNIT MCA:	2.62		
Notes and additional section information	MAXIMUM OVERCURRENT PROTECTIVE DEVICE:	15		
	INVERTER FREQUENCY:	57		
	SHORT-CIRCUIT CURRENT: 5KA RMS SYMMETRICAL, 460V MAXIMUM			
	EXTERNAL MOTOR OVERLOAD DEVICE IN ACCORDANCE WITH THE NATIONAL ELECTRIC CODE (OR CEC) IS REQUIRED.			
	FOR OUTDOOR USE			
	THIS UNIT CONTAINS ECONOMIZER THAT MEETS OR EXCEEDS ALL MANDATORY REQUIREMENTS PRESCRIBED BY TITLE 24, INCLUDING BUT NOT LIMITED TO:			
	5 YR PARTS ONLY WARRANTY, SUCCESSFULLY TESTED TO 60,000 ACTUATIONS			
	LESS THAN 10 CFM/SQ.FT. OF DAMPER LEAKAGE AT 1" WG PER AMCA 500L			
Agency listings and/or agency certifications				

General Information

As-built submittals show the intended layout of the various air handler sections to meet job site requirements. Installation information (unit dimensions, clearances, weights, curb location and roof opening dimensions and locations) may vary with special equipment and applications. For exact information, always refer to the specific unit submittals, which can be obtained from your local Trane sales office.

Roof curbs for Performance air handlers are shipped "knocked down" for assembly at the job site.

Preparing the Unit Site

Ensure the installation site can support the total weight of the air-handling unit, including accessories and the roof curb. For approximate air handler section weights, refer to CLCH-SVX009*-EN Performance Climate Changer Air Handler Model UCCA IOM. Units with special options or arrangements will differ in dimensions, clearances, weights and roof opening dimensions and locations. Always refer to unit submittals before marking off the dimensions of the unit roof curb, pipe cabinet curb (if pipe cabinet is ordered), and roof openings. For roof curbs supplied by Trane, approximate roof curb weights are in Table 1.

Table 1. Curb weights (pounds)

Curb height	Description	Unit size									
		3	6	8	10	12	14	17	21	25	30
14-inch	Fan, coil, mixing box	96.90	116.10	118.20	133.70	142.00	145.60	157.30	157.30	164.50	183.40
14-inch	Fan, coil, economizer	122.50	136.10	140.00	157.30	166.20	167.00	185.40	181.50	187.30	210.40
14-inch	Fan coil, mixing box, plenum	110.30	129.50	131.60	147.00	155.30	158.90	170.60	170.60	177.80	196.80
14-inch	Fan coil, economizer, plenum	135.90	149.50	153.30	170.70	179.60	180.40	198.80	194.90	200.70	250.00
14-inch	Pipe cabinet	30.60	30.60	30.60	30.60	30.60	30.60	30.60	30.60	30.60	30.60

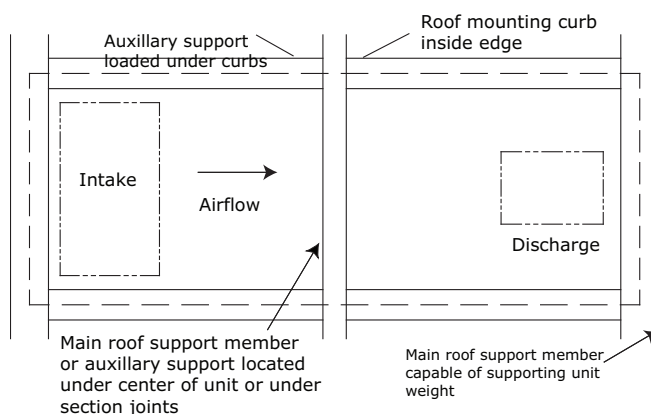
Installation Considerations

Isolation rails should not be installed on top of Trane roof curbs. If isolation rails or isolation curbs are required, the entire curb system should be supplied by a specialty curb company.

Note: For proper operation, the unit must be supported around the entire unit base perimeter.

The roof curb must be supported along its entire perimeter. The curb may be set parallel or at right angles to roof support members. If at right angles to the support members, there must be adequate supporting roof cross members between the ends (in the direction of airflow). Be sure the cross members do not interfere with the connection of supply and return ducts to the unit. See Figure 2 for details.

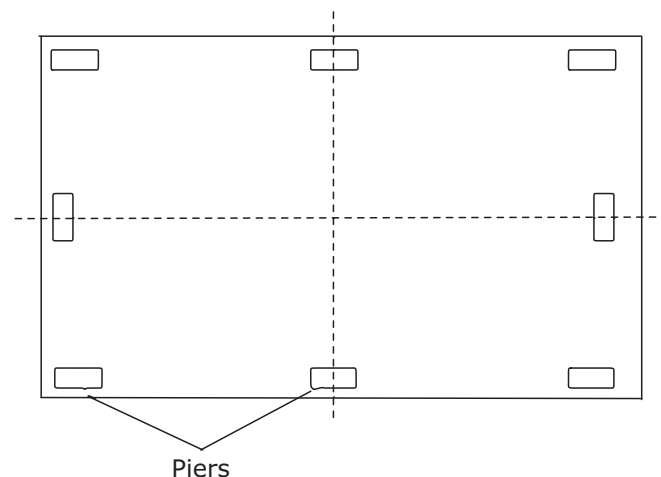
Figure 2. Unit set perpendicular to roof curb members



When mounting the unit on its roof curb, make sure that the gasketing between the roof curb and unit base provides an airtight seal.

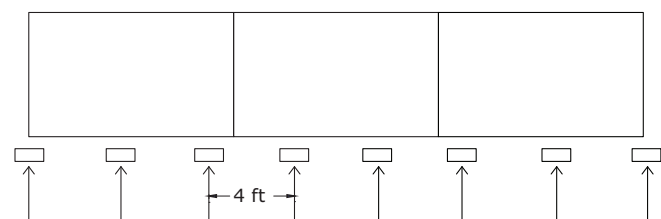
If a unit is pier-mounted, at a minimum, locate one pier at each corner and then every four feet at equally spaced intervals around the perimeter of the unit. Both the unit and the pipe cabinet should be supported by their base channel around the entire perimeter (see Figure 3 and Figure 4).

Figure 3. Pier locations (typical)



Note: Piers must be structurally sound to support the weight of the unit.

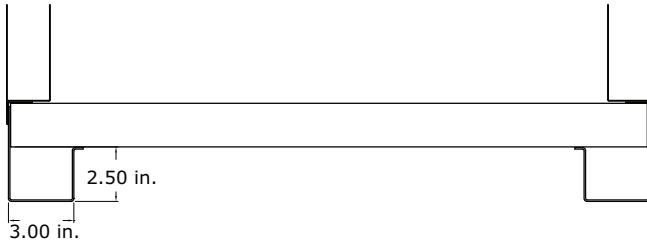
Figure 4. Side view



Installation Considerations

See [Figure 5](#) for typical cross section for pier- or slab-mounted base.

Figure 5. Typical cross section for pier-mount



For new building construction, the roof curb may be installed as soon as the roof support members are in place. Trane recommends that the roof curb be placed directly on the roof support members and welded into place. If the curb is mounted on the roof deck, additional support is necessary directly below the curb flanges to minimize vibration.

Do not overlap counter flashing over the top of the roof curb. Counter flashing should extend to the bottom of the roof curb drip lip. Attach counter flashing with fastener through the wooden nailer. [Figure 6](#), [Figure 7](#) and [Figure 8](#) show typical roof curb installations and detail.

Note: Materials that attach to the roof curb are supplied by the installer, including flashing, insulating material and cant. Gasket and 2 x 4 nailer are supplied by Trane.

Figure 6. Typical roof curb installation - existing building

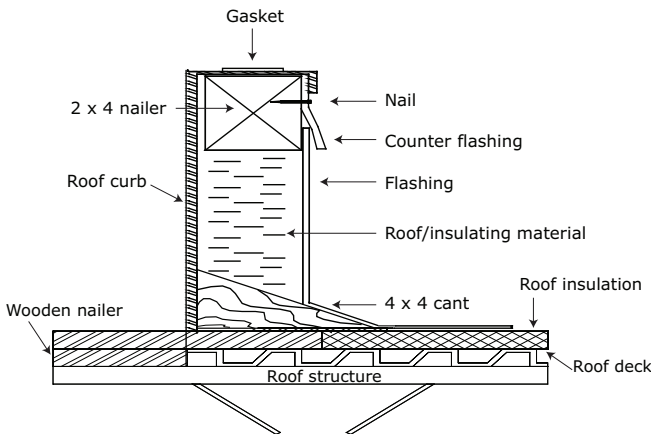


Figure 7. Typical roof curb installation - new construction

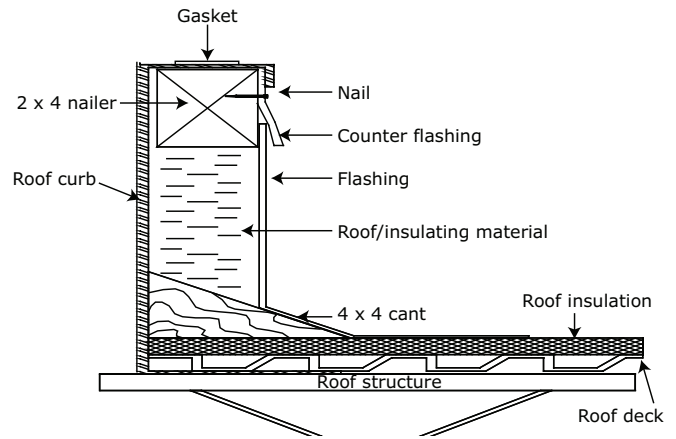
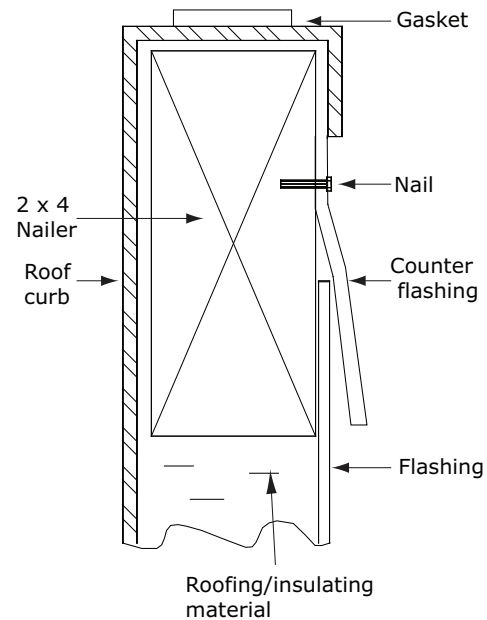


Figure 8. Detail of installation



Assembly and Installation

⚠ WARNING

Risk of Collapse!
 Curb span joist space must be supported. Failure to do so could cause the supporting metal to collapse. Failure to follow instruction could result in death, serious injury, or equipment damage.

The following procedure explains how to assemble and install a typical roof curb provided by Trane.

In order to properly locate the duct supports (if required) and external piping cabinet (if ordered), it is recommended that you have a copy of the as-built curb drawings from the submittal package.

For specialty or field-fabricated roof curbs, please see ["Specialty Roof Curbs"](#) on page 11.

Figure 9. Typical roof curb provided by Trane

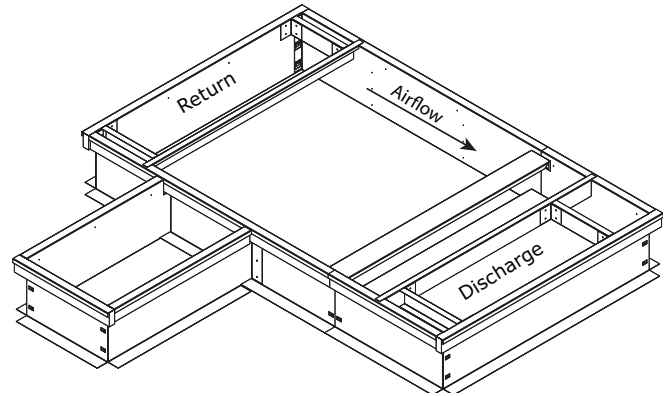


Figure 10. Typical as-built curb detail plan view (inches) from submittal package

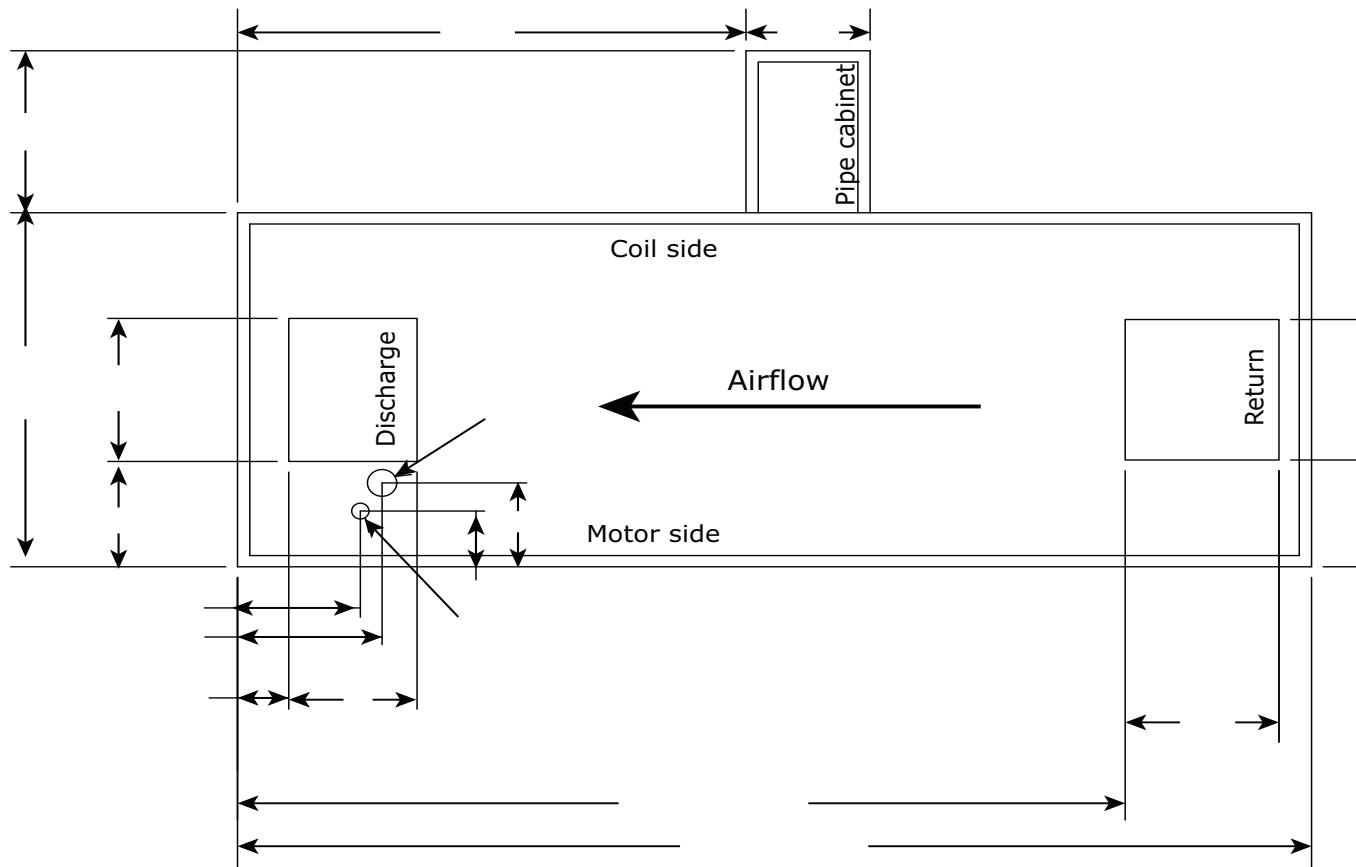
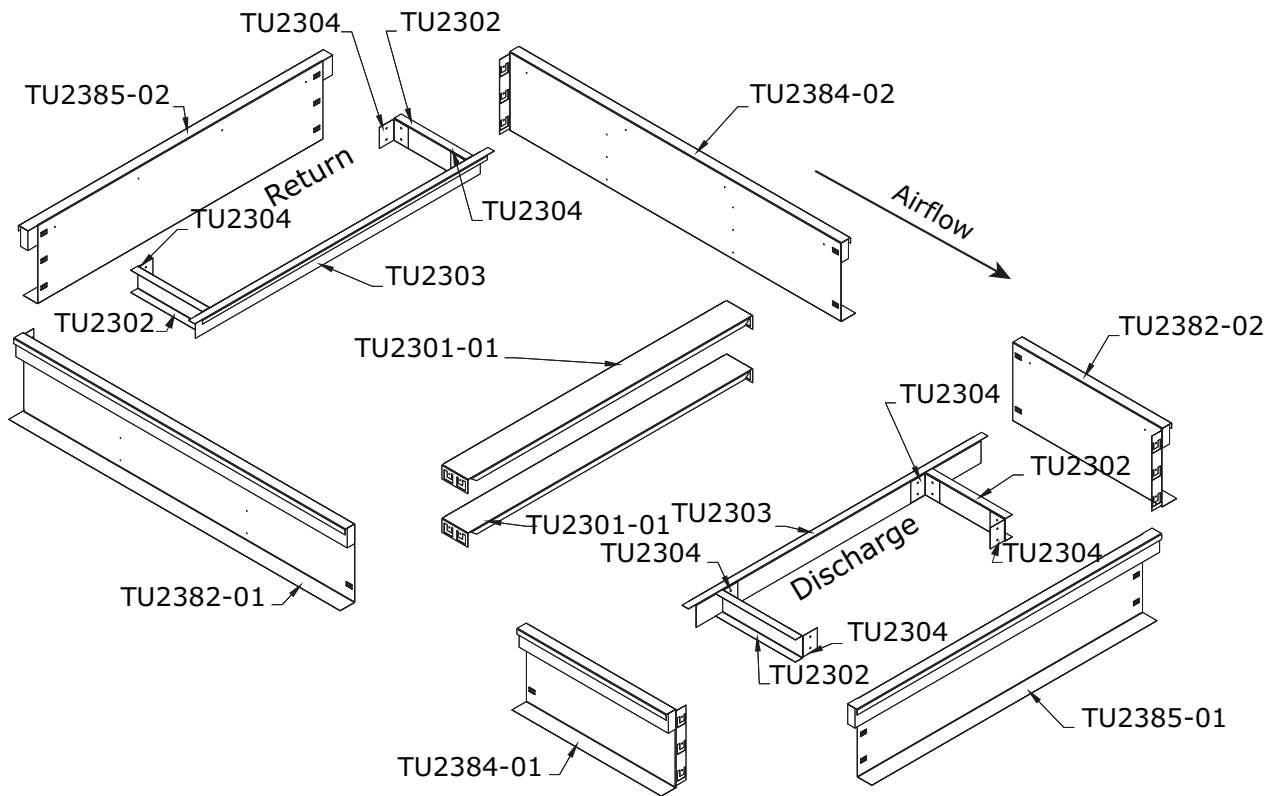
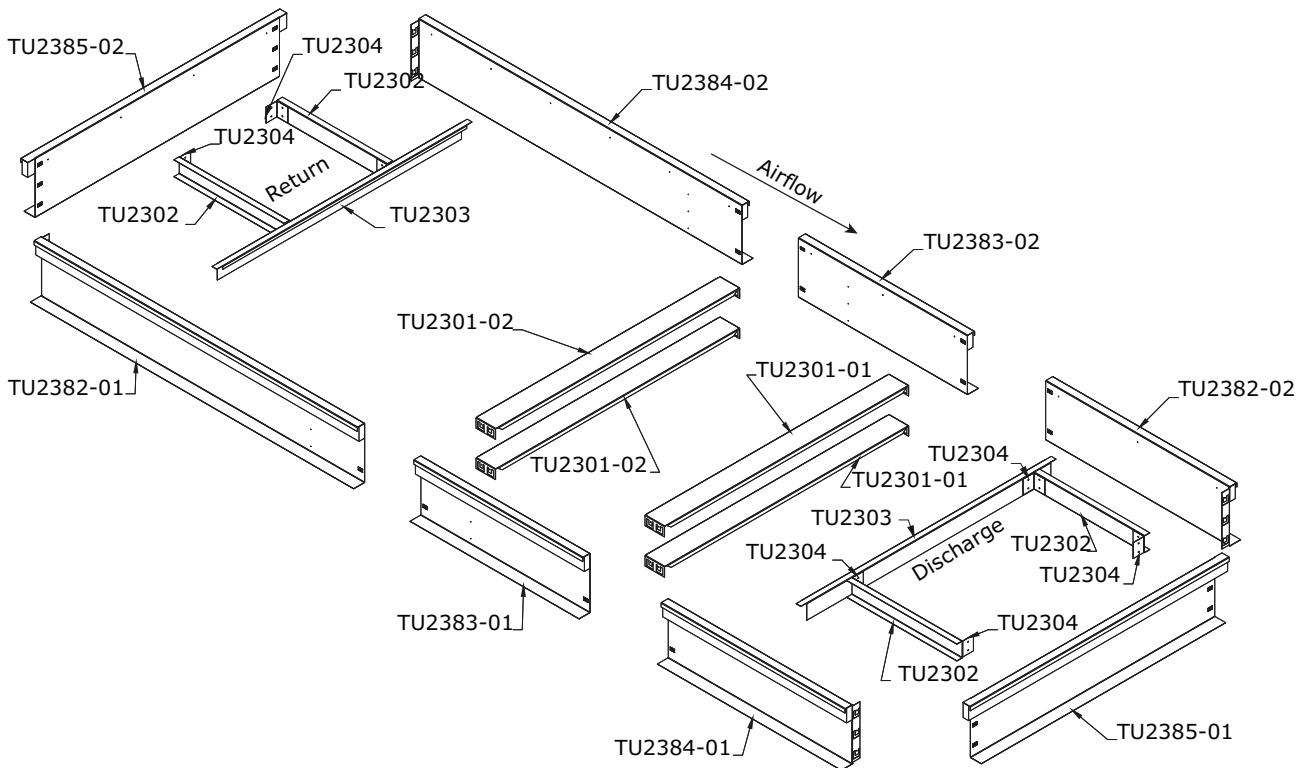
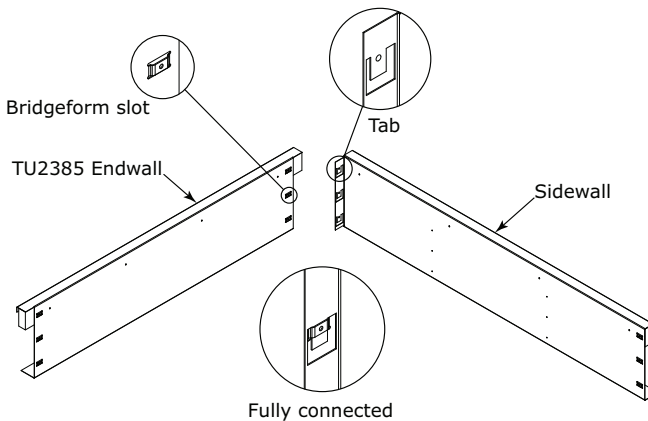


Figure 11. Typical exploded view of curb with part numbers

Figure 12. Exploded view of curb with three side panels on side


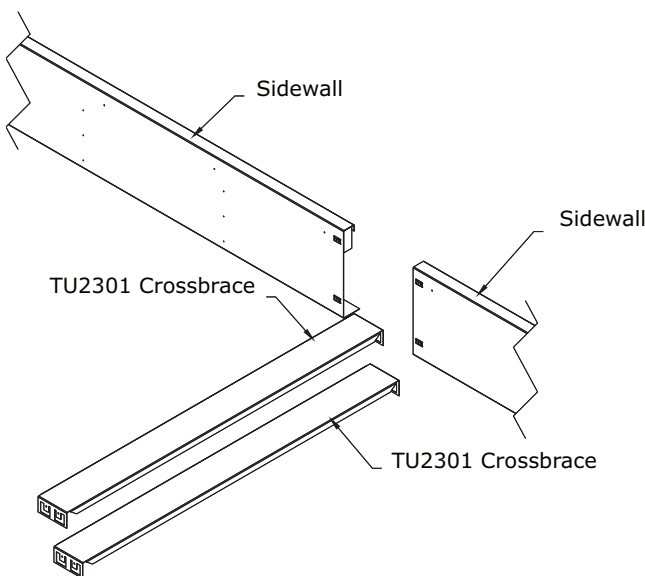
1. Attach side pieces (TU2382 and TU2384) to end wall (TU2385) by inserting tab into bridgeform slot as shown in [Figure 13](#).

Figure 13. Corner detail



2. Attach cross brace (TU2301) to sidewalls by inserting tab into bridgeform slot, see [Figure 14](#).

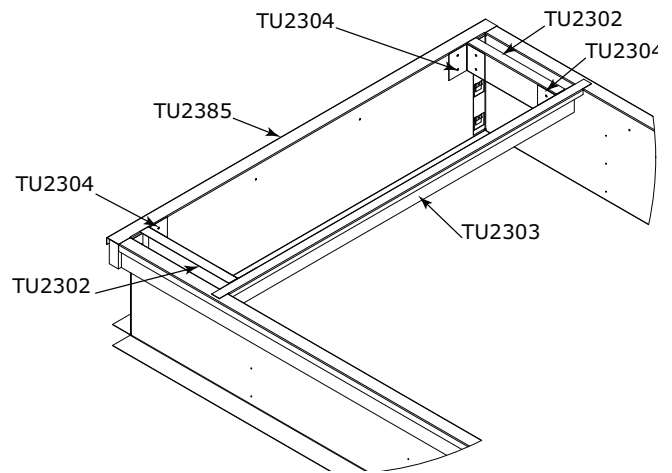
Figure 14. Cross brace detail



Check curb overall dimensions and diagonal to insure squareness. Diagonals should be within 1/8 inch of each other.

3. Install duct supports by laying TU2303 on top of curb. Use self-drillers (provided) and TU2304 to attach TU2302 piece to TU2303 and curb end wall (TU2385). See [Figure 15](#).

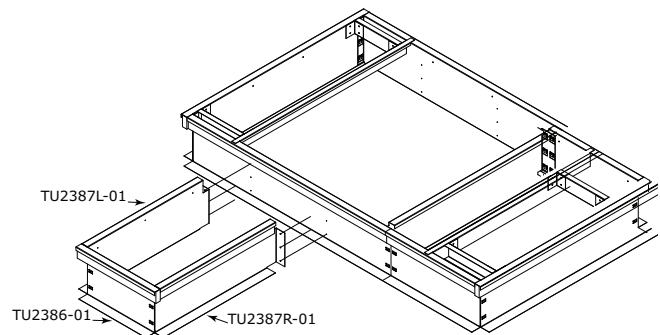
Figure 15. Duct support assembly



Note: TU2302 pieces will need to be field cut to length.

4. Assemble pipe cabinet by inserting tab into bridgeform. Attach pipe cabinet to side of curb with the self-drillers using pre-punched holes to locate. Check unit submittal to insure the pipe cabinet is installed on the correct side of the curb.

Figure 16. Pipe cabinet assembly



5. Install gasket along the perimeter of the pipe cabinet roof curb and unit roof curb. Gasketing is provided with the roof curb when ordered from Trane.
6. Install the curb. The curb may be set on structural framing (by others). This curb is designed to transfer the load to a continuous underlying structural frame. The structural members (by others) should span the perimeter of the curb.
7. Complete all ductwork, piping, and electrical connections only after mounting the unit. Refer to unit submittals.

Pipe Cabinet Roof Curbs

Pipe cabinets ordered from Trane for field installation require special attention with regard to joining the unit roof curb and pipe cabinet roof curb. A good joint will prevent any water management problems within the pipe cabinet.

The pipe cabinet roof curb should be three-sided as shown in [Figure 17](#). Dimensions are listed in [Table 2](#).

Dimension 'X' is from the outside of the unit roof curb to the outside of the pipe cabinet roof curb. Dimension 'L' is the outside-to-outside length dimension of the pipe cabinet roof curb.

Dimension 'Z' locates the pipe chase roof curb along the unit roof curb in the direction of airflow. This measurement is from the outside of the unit roof curb to the outside of the pipe cabinet roof curb.

Figure 17. Top view of unit and pipe cabinet roof curb

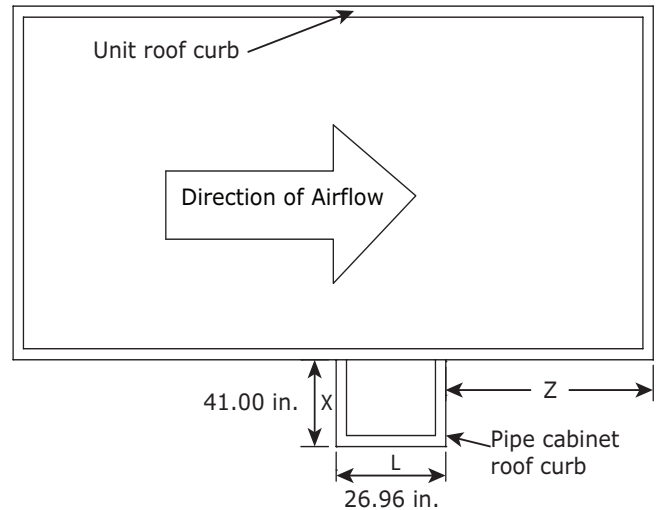


Table 2. Pipe cabinet roof curb dimensions (inches)

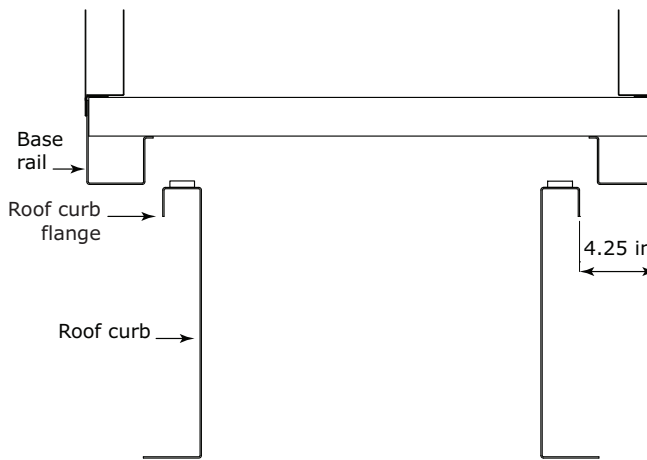
Unit Size	Z (Without Discharge Plenum)	Z (With Discharge Plenum)
3	50.77	74.90
6	53.77	77.90
8	51.17	75.30
10	53.47	77.60
12	53.47	77.60
14	54.97	79.10
17	59.07	83.20
21	59.07	83.20
25	61.77	85.90
30	68.37	92.50

Specialty Roof Curbs

Units to be mounted on a roof curb not supplied by Trane require special attention.

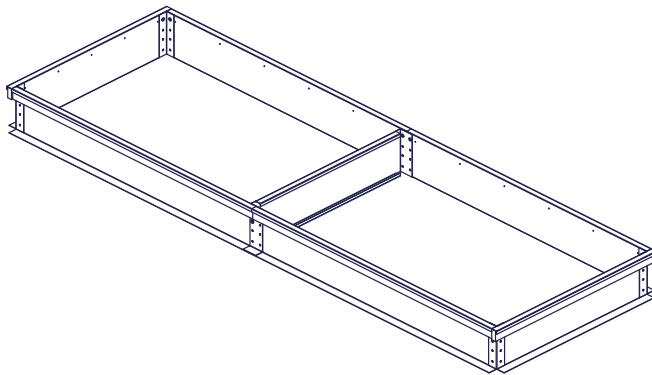
Center the unit base on the roof curb (see [Figure 18](#)).

Figure 18. Typical cross section for pier-mounted or slab-mounted base.



A typical unit roof curb and unit base cross-section without a pipe cabinet is shown in [Figure 19](#).

Figure 19. Roof curb with flashing



[Table 3](#) lists the outside-to-outside dimensions for over all width and length of the roof curb for each size unit. Length is dependent on the various unit options ordered. Refer to submittals for section lengths.

Note: Center the unit base panel on the roof curb.

Figure 20. Top view of unit and pipe cabinet roof curb

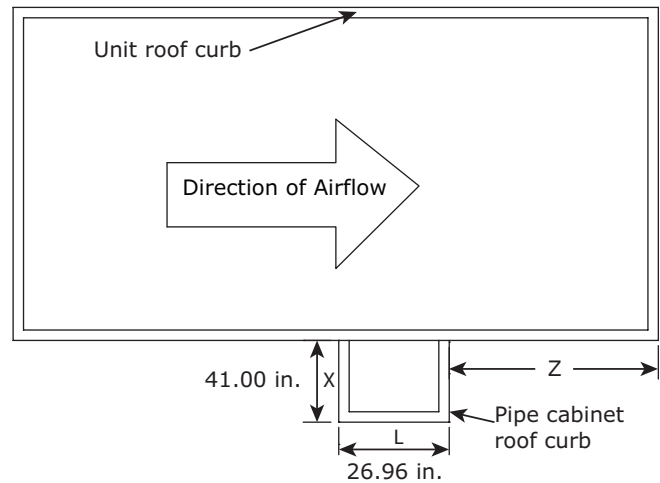


Table 3. Specialty roof curb dimensions (inches)

Unit Size	Curb Width	Curb Length
3	25.50	LS - 8.50
6	38.50	LS - 8.50
8	42.50	LS - 8.50
10	54.50	LS - 8.50
12	62.50	LS - 8.50
14	62.50	LS - 8.50
17	70.50	LS - 8.50
21	70.50	LS - 8.50
25	72.50	LS - 8.50
30	85.50	LS - 8.50

Note: LS = total unit length

Table 4. Pipe cabinet roof curb dimensions (inches)

Unit Size	Z (Without Discharge Plenum)	Z (With Discharge Plenum)
3	50.77	74.90
6	53.77	77.90
8	51.17	75.30
10	53.47	77.60
12	53.47	77.60
14	54.97	79.10
17	59.07	83.20
21	59.07	83.20
25	61.77	85.90
30	68.37	92.50

Ductwork Recommendations

Sound Attenuation

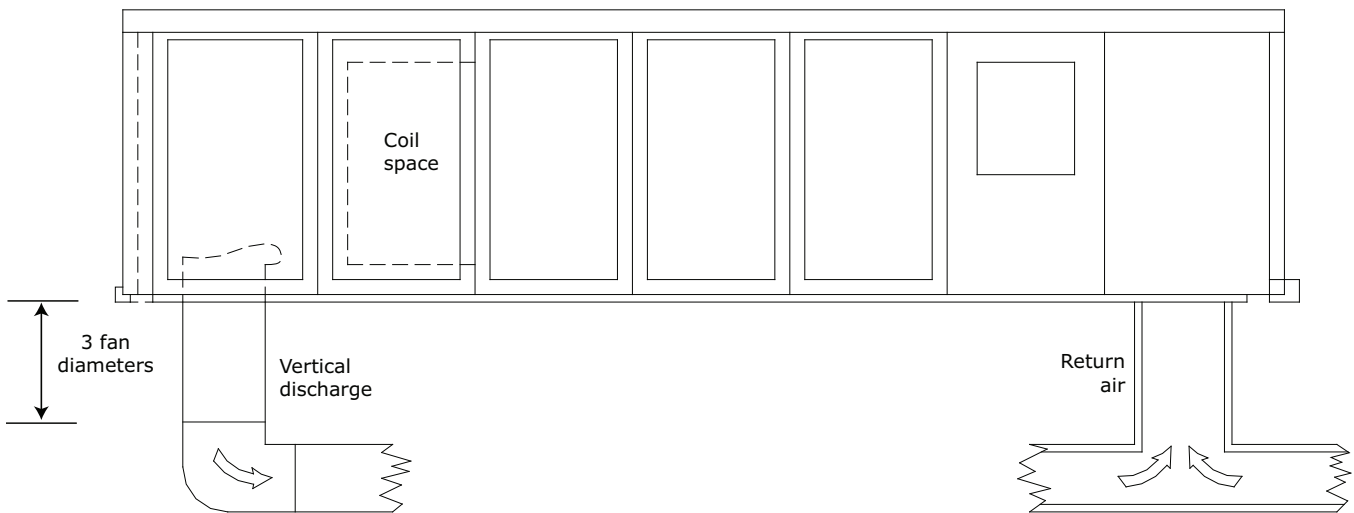
Noise is produced by unit supply fans, and exhaust fans. Supply fan noise is substantially attenuated by the ductwork, provided it is properly constructed.

SMACNA recommendations for metal gauge thickness and installation should be followed carefully. Lightly constructed ductwork can produce "oil canning"-a rapid in-and-out pulsating motion of the duct walls-resulting in sound problems.

Note: *If roof decking cannot be placed under the unit, an acoustical barrier can be installed.*

Corrugated steel decking is acoustically ideal for the installation of the roof curb and connecting ductwork. Closely toleranced holes must be cut in the roof deck for the supply and return ductwork. When the duct is installed,

Figure 21. Typical supply and return ductwork



Use lined duct for all returns (1-inch thick, 6-pound density fiberglass recommended).

caulking must be used to seal the decking to the duct. Even a small air leak between the duct and the deck will destroy most of the attenuation available from the steel decking.

In addition, special consideration may be required to ensure that the weight of the unit does not crush the roof deck at those points where the deck is between the curb and support joist. Poured insulation will usually add the required strength, while the use of rigid insulation may require placement of three-inch support channels on the decking.

As a general rule, exhaust fan noise is not a problem and can be adequately attenuated by the return ductwork. For critical applications where return ductwork is not required, however, installation of an acoustically-lined "return T" is recommended; see [Figure 21](#).

Supply and Return Air Ductwork

Ductwork for all units must be fabricated and installed by the installing contractor; to ensure proper duct construction and installation, SMACNA recommendations should be closely followed.

Below are several typically used guidelines for ductwork construction:

- Elbows with turning vanes or splitters are recommended to minimize air noise and resistance.
- The first elbow in the ductwork leaving the unit should be no closer than 3 fan diameters from the unit, thereby minimizing noise and resistance.

In those instances where the unit is installed over an acoustically critical area, additional treatment of the ductwork is recommended. Both supply and return ductwork should be lined internally with glass fiber duct liner 1-inch thick. The external surface of the supply duct should be covered with an acoustical barrier material such as one or two pound/sq. ft. sheet lead (1/64-inch or 1/32-inch) or loaded vinyl sheet or gypsum board for the first 10 ft. of ductwork. The lining should extend from the point where the duct penetrates the roof to a distance of 10 ft. beyond the vertical drop from the unit.

Parts List

Curb Part Numbers

Table 5. Curb part numbers

Description	Unit Size	Curb Part Number	Description	Unit Size	Curb Part Number
Fan, coil, mixing box	3	195009370001	Fan coil, mixing box, plenum	3	195009390001
	6	195009370002		6	195009390002
	8	195009370003		8	195009390003
	10	195009370004		10	195009390004
	12	195009370005		12	195009390005
	14	195009370006		14	195009390006
	17	195009370007		17	195009390007
	21	195009370008		21	195009390008
	25	195009370009		25	195009390009
	30	195009370010		30	195009390010
Fan, coil, economizer	3	195009380001	Fan, coil, economizer, plenum	3	195009400001
	6	195009380002		6	195009400002
	8	195009380003		8	195009400003
	10	195009380004		10	195009400004
	12	195009380005		12	195009400005
	14	195009380006		14	195009400006
	17	195009380007		17	195009400007
	21	195009380008		21	195009400008
	25	195009380009		25	195009400009
	30	195009380010		30	195009400010
Pipe cabinet	3-30	195009430001			



Parts List

Component Part Numbers

Table 6. Typical component parts list

Customer Parts List			
Thank you for purchasing the roof curb accessory for the Trane Performance Climate Changer™ air handler for this project. We at Trane appreciate your business, and strive constantly to improve products. To that end, we welcome any comments or suggestions you may have regarding this product.			
Job Number	1234-1-1	Project Name:	Test Curb
Length (I.D.)	166.50 inches	Tags:	UCCA-1
Width (I.D.)	21.50 inches	Gasket:	50.00
Weight (EST.):	143.52	Drillers	32.00
Part Description	Dimensions	Qty	
TU2301 Cross Brace			
TU2301-01 Cross Brace	21.50 X 2.50 X 2.50	1	
TU2301-02 Cross Brace	21.50 X 2.50 X 2.50	1	
TU2302 Duct Support			
TU2302-01 Duct Support		1	
TU2302-02 Duct Support		1	
TU2302-03 Duct Support		1	
TU2302-04 Duct Support		1	
TU2303 Duct Support Cross			
TU2303-01 Duct Support Cross		1	
TU2303-02 Duct Support Cross		1	
TU2303-03 Duct Support Cross		1	
TU2304 Duct Support Angle			
TU2304-01 Duct Support Angle		1	
TU2304-02 Duct Support Angle		1	
TU2304-03 Duct Support Angle		1	
TU2304-04 Duct Support Angle		1	
TU2304-05 Duct Support Angle		1	
TU2304-06 Duct Support Angle		1	
TU2304-07 Duct Support Angle		1	
TU2304-08 Duct Support Angle		1	
TU2382 Side Wall			
TU2382-01 Side Wall	75.00 X 14.00 X 14.00	1	
TU2382-02 Side Wall	75.00 X 14.00 X 14.00	1	
TU2384 Side Wall			
TU2384-01 Side Wall	91.25 X 14.00 X 14.00	1	
TU2384-02 Side Wall	91.25 X 14.00 X 14.00	1	
TU2385 End Wall Dog Ear Both			
TU2385-01 End Wall Dog Ear Both	25.50 X 14.00 X 14.00	1	
TU2385-02 End Wall Dog Ear Both	25.50 X 14.00 X 14.00	1	

NOTES



NOTES

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

Trane has a policy of continuous product and product data improvement and reserves the right to change design and specifications without notice. We are committed to using environmentally conscious print practices.