



It's Hard To Stop A Trane.®

Application Guide

Trane XR Style Condensing Units and Heat Pumps

SSC-APG002-EN

Low Outdoor Ambient Operation

Unit Mounting

Minimum Clearances



Trane XR Style Outdoor Models

The purpose of this bulletin is to provide application criteria as related to the Trane XR style condensing units and heat pump units.

This bulletin discusses:

- I. Terms and definitions
- II. Off season cooling operation
- III. Compressor crankcase heat requirements for split heat pump systems.
- IV. Unit mounting
- V. Minimum operating clearances
- VI. Clearance from vents
- VII. Nameplate electrical data

POSITION STATEMENT:

Trane has always recommended installing Trane approved, matched indoor and outdoor systems. The benefits of installing approved matched systems are maximum efficiency, optimum performance, and best overall system reliability

Warnings and Cautions may appear throughout this manual. Read these carefully.



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, may result in minor or moderate injury. It may also be used to alert against unsafe practices.

CAUTION – Indicates a situation that may result in equipment or property-damage-only accidents.

ISSUED BY:

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Section I - Terms and Definitions:

Three phase products:

All 2.5 to 5 ton three phase split system cooling units and heat pumps are shipped from the factory with compressor crankcase heat. Three phase compressor do not require start capacitors or start relays.

Definitions and information:

CCHT - Compressor Crankcase Heater, sometimes called a compressor sump heater. This device is designed to warm the compressor crankcase (or sump) in order to prevent or deter refrigerant migration during the compressor off cycle. Compressor crankcase heaters are required for low ambient cooling operation.

TXV - Thermostatic Expansion Valve. This is a type of refrigerant flow control device designed to maintain constant superheat throughout the operating envelope. For low ambient cooling applications, a non-bleed TXV is required.

Bleed TXV: This type of TXV will allow the refrigerant pressures between the high side and low side to equalize through the valve during the off cycle.

Non Bleed TXV: This type of TXV will not allow the refrigerant pressures between the high side and low side to equalize through the valve during the off cycle. When using this type of valve on single phase units with reciprocating style compressors, compressor start components are required. Check product data specifications for most current information.

Head pressure controller - A device that is field installed on a condensing unit or heat pump designed to maintain system head pressure that will allow safe system operation without indoor coil icing in colder outdoor ambients. The BAYLOAM*** will cycle the condenser fan motor in order to achieve adequate operating head pressure. The control is adjustable.

Evaporator Defrost Control - A device that is field installed on the system's indoor coil in order to prevent the system from running during the cooling cycle when the indoor coil approaches or reaches a temperature in which frost will form on the coil surface. When the indoor coil approaches a safe temperature for cooling operation, the control will close and allow the outdoor unit to restart. This controller makes and breaks the control voltage to the condensing unit.

Quick Start Component - This component may be factory installed or offered as a field installed accessory (BAYKSKT***). A quick start kit consist of a capacitor with a high microfarad rating and a potential relay. It is installed so that the start capacitor is wired in parallel with the compressor's run capacitor. Prior to start-up the potential relay contacts are closed, therefore placing the start capacitor in the compressor circuit, as the compressor motor reaches operating speed, electrical current flows through the potential relay's coil and the the relay contacts are opened, thus taking the start capacitor out of the system until the next compressor start up.

Section II – Off Season Cooling Operation

Trane outdoor units may be operated in the cooling mode to 55°F outdoor ambient as shipped from the factory when applied with an indoor TXV. Where required, these units with appropriate accessories may be applied to operate at outdoor temperatures below 55°F.

		55°F - 30°F	55°F - 30°F	55°F - 30°F	55°F - 30°F	30°F - 20°F or 30°F - 0°F see lowest approved OD ambient				
Air Conditioner Heat Pump	55 deg F. As Manufactured	Air Conditioner AY28X079 3	Heat Pump AY28X084 3	TXV-NB	CCHT	BAYLOAM103 BAYLOAM107	Start Kit	Solenoid Valve (AC) 4	Windshield	Lowest Approved Outdoor Ambient Cooling Mode
13 SEER	X	X	X	X	X	BAYLOAM103	X	X	X	Approved to 0 deg F
14 SEER	X	X	X	X	X	BAYLOAM103	X	X	X	AC Approved to 20 deg F HP Approved to 10 deg F
15 SEER	X	X	X	X	X	BAYLOAM103	X	X	X	AC Approved to 20 deg F HP Approved to 10 deg F
16 SEER 1, 2	X	X	X	X	X	BAYLOAM107 1	X	X	X	AC Approved to 20 deg F HP Approved to 10 deg F
17 SEER	X	X	X	X	X	BAYLOAM103	X	X	X	AC Approved to 20 deg F HP Approved to 10 deg F

Notes:

- 1 DO NOT apply BAYLOAM to model tonnages with variable speed condenser fan motors
- 2 Models with VS condenser fan motors are approved to 30 deg F with EDC or air handler with EEV
- 3 AY28X*** EDC not required when indoor unit has EEV
- 4 Liquid line solenoid shall be used for isolation purposes. Also used if liquid line is 1/2" and located before the evaporator coil if AC is above ID coil
See SS-APG006-EN Refrigeration Piping Application Guide

Unit requires a compressor crankcase heater and start accessory only if it is not factory installed.

Compressor Crankcase Heaters:

Reciprocating Compressor: BAYCCHT300

Large Scroll Compressor: BAYCCHT301RES

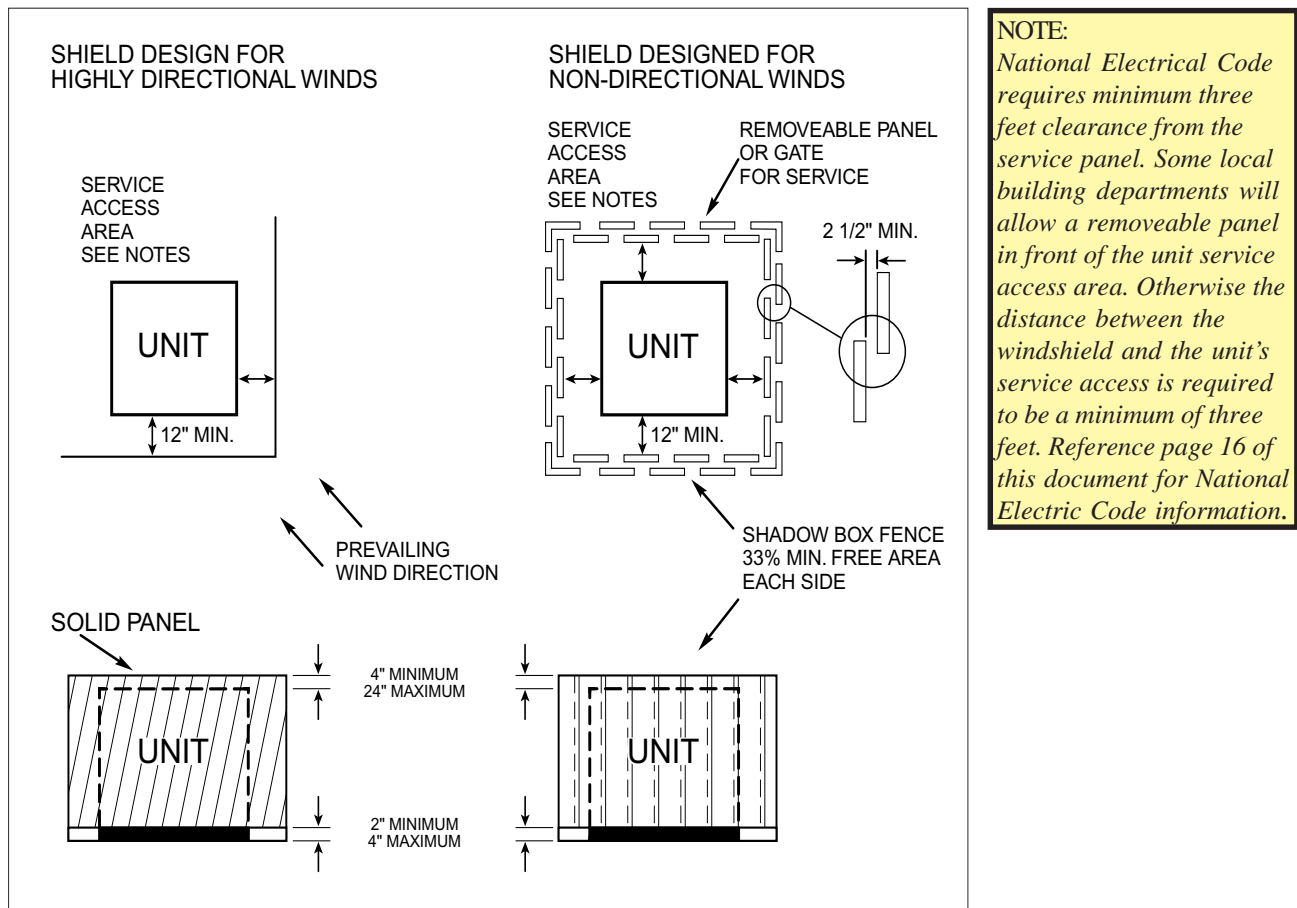
Small Scroll Compressor: BAYCCHT302RES

As noted in the above table, systems may be operated lower than 55°F by applying the BAYLOAM103 or BAYLOAM107 and other accessories. The BAYLOAM*** controller cycles the outdoor fan motor as needed to maintain liquid line temperature as set by the DIP switches located on the control. There is no need to change the outdoor motor on approved products since the controller does not vary the frequency to the motor. However the BAYLOAM*** CANNOT be applied to those model tonnages with a variable speed condenser fan motor.

Windshields:

If low ambient cooling operation is required, windshields are a must in order to block prevailing winds from impacting system performance at low outdoor temperatures. Reference figure 1.

Figure 1 - Windshield Construction Information



Low ambient cooling utilizing the frost control in GAM5A and TAM4 indoor units:

The TAM4 and TAM7 fan coil units utilize an electronic expansion valve (EEV). With this enhancement the controls that monitor the EEV also allow us to take advantage of monitoring coil temperature.

How it works:

The on-board electronic controls include a relay that will open when the indoor coil begins to frost. When this occurs, the contacts to the YO circuit will open and de-energize the outdoor unit, provided figure 2 and 3 are followed. When the YO circuit opens the outdoor unit is taken off line; however, the indoor blower continues to operate, thus clearing the indoor coil of frost build-up.

Low ambient cooling utilizing thermostatic control found in the AY28X079 and AY28X084.

How it works:

These controls are thermally controlled contacts with a capillary style sensor. The capillary tube is inserted into the coil fins in between the tube rows. When the sensor detects 25F, the contacts open. The contacts close when the coil temperature reaches 60F. When wired as shown in figures 4 and 5, the outdoor unit is de-energized when the EDC contact opens and re-energizes when the EDC contact closes.

Typical wiring the frost control located in TAM4 or TAM7 fan coil unit

Figure 2
Cooling split system and TAM4 or TAM7 fan Coil Unit

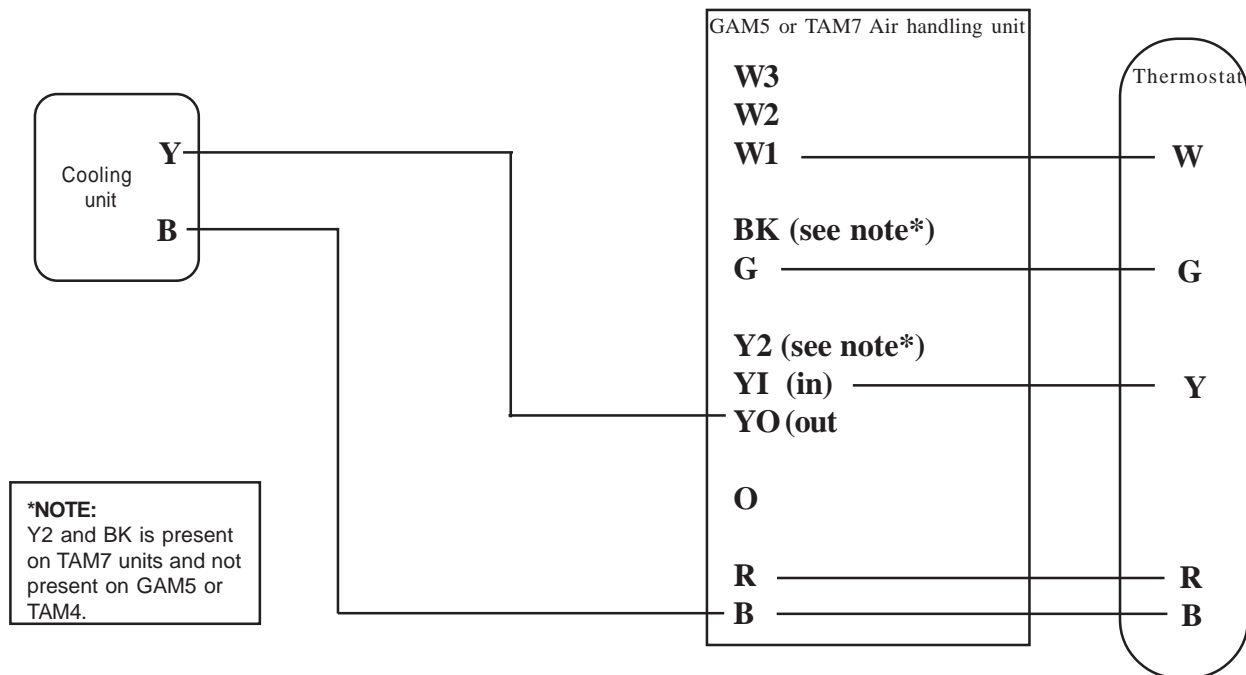
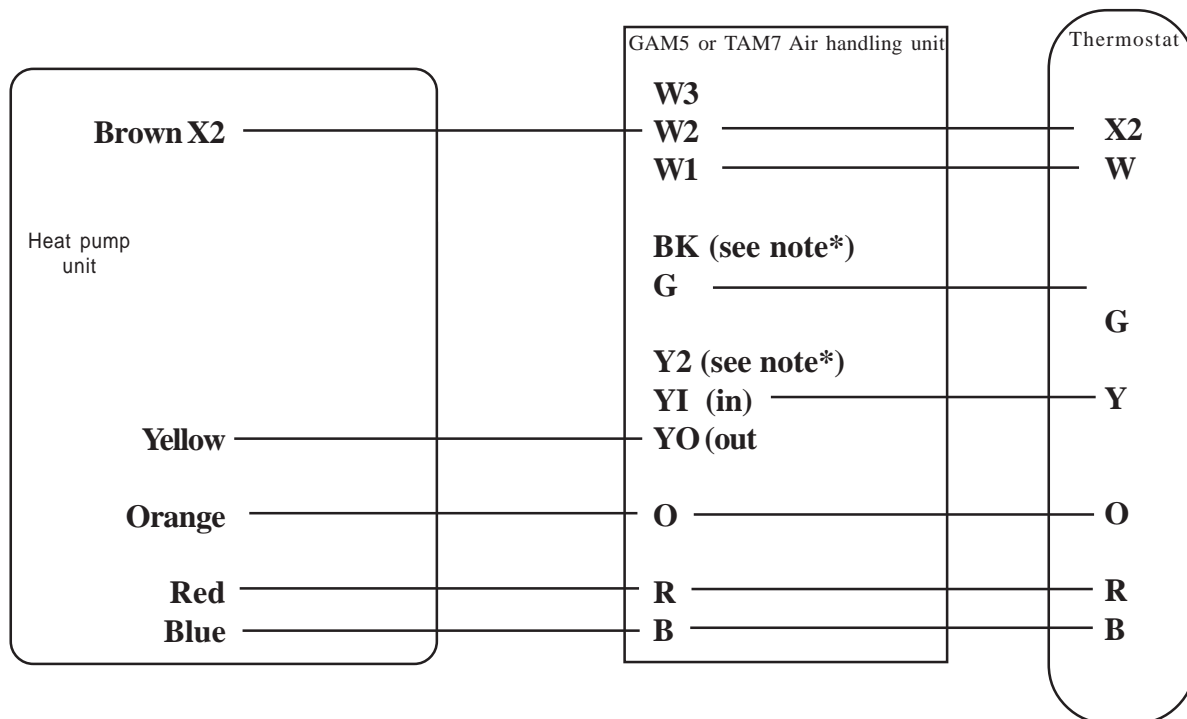


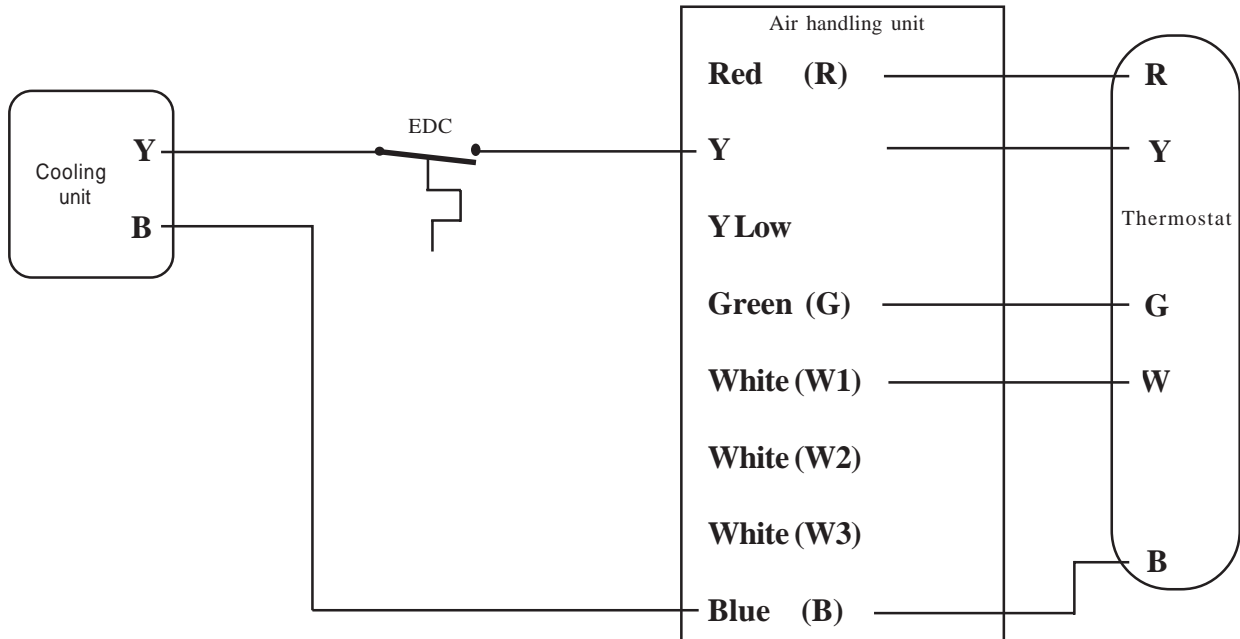
Figure 3
Heat pump split system and TAM4 or TAM7 fan coil unit



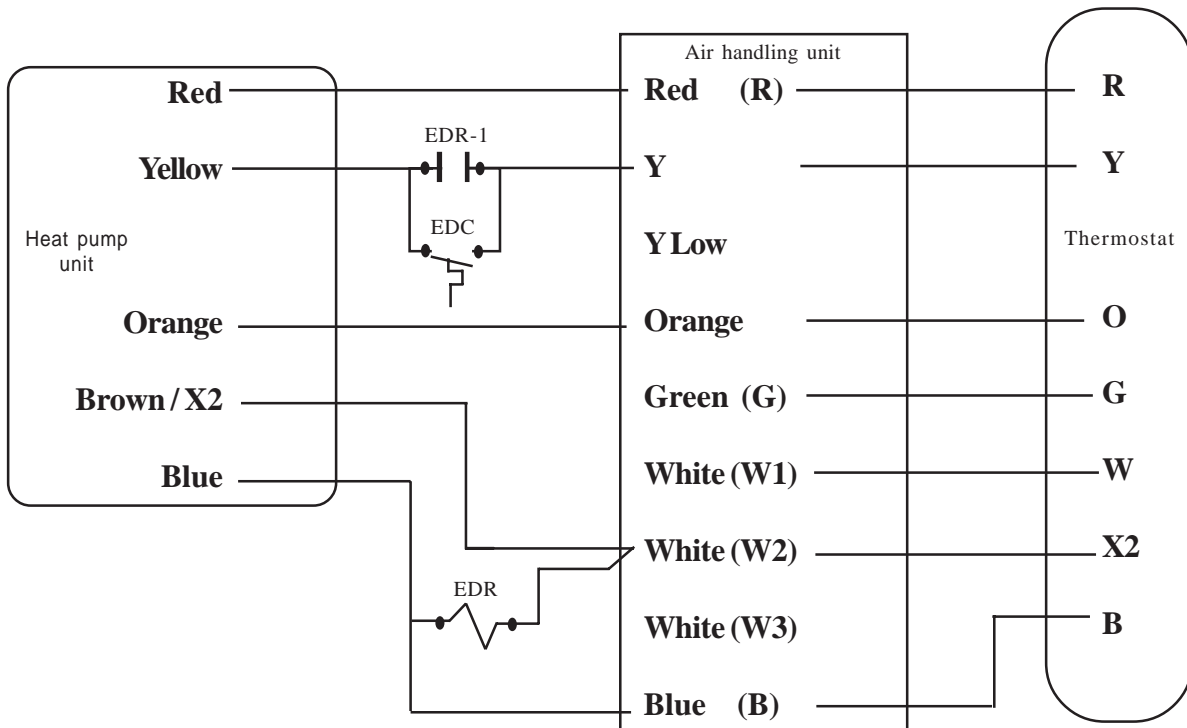
Warning! High voltage present in the outdoor unit and indoor unit. Assure high voltage power is disconnected using lockout / tag-out procedures if applicable prior to connecting low voltage wiring.

Typical wiring when using the evaporator defrost control (EDC):

**Figure 4 -
Single Speed Cooling Split System and AY28X079 Evaporator Defrost Control**



**Figure 5 -
Single Speed Heat Pump Split System and AY28X084 Evaporator Defrost Control**



Warning! High voltage present in the outdoor unit and indoor unit. Assure high voltage power is disconnected using lockout / tag-out procedures if applicable prior to connecting low voltage wiring.

Section III - Compressor Crankcase Heat Requirements for Split Heat Pumps:

Figure 6 -Climatic Zones for United States



Compressor crankcase heat is required in Climatic Zones 1, 2, and 3 for all heat pump applications. Refer to the unit product data catalogue for crankcase_heater selection.

Section IV- Unit Mounting:

This section describes appropriate methods for mounting and securing the unit. However, if these units are to be mounted in a region where high winds are an issue, a Trane BAYECMT*** extreme conditions mounting kit may be utilized. Otherwise, a local P.E. and restraining method approved by the authority having jurisdiction may be required. In regions where seismic restraint is a requirement, approval from a local P.E. (professional engineer) may be required for the restraining method. (reference figures 7, 8, and 9 for possible mounting configuration examples)

- A. For mounting or securing the Trane condensing units and heat pumps please observe the following:
1. If the unit is to be supported from the edge, the supporting material must extend two inches minimum under the perimeter of the unit's base.
 2. The mounting hole locations are molded in the basepan, however, must be drilled through.
 - a) Hole locations are identified in figures 10 and 11.
 3. Washers should be placed in between the fastener head and the basepan.
 4. Trane recommends supporting the center of the unit as shown in figures 9, 10, and 11.
 5. Base size 3 and 4 pans have four mounting holes - see figures 10 and 11.
 6. For hurricane or high wind applications, if using the BAYECMT*** kit, the bolt hardness and diameter is specified in the BAYECMT*** installation guide.
 - a) Bolt length is determined by the authority having jurisdiction and / or local P.E.
 - b) Mounting surface composition and weight shall be determined by the authority having jurisdiction and / or local P.E.
 - c) For non-ground installations, refer to a local P.E.
 - d) A local P.E. may be required if the BAYECMT*** kit is used or not.

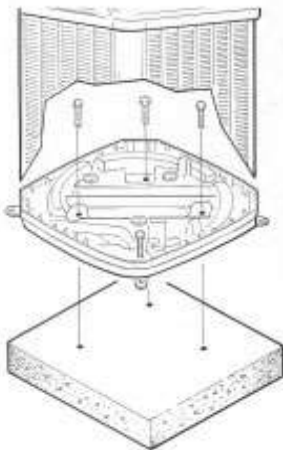


Figure 7

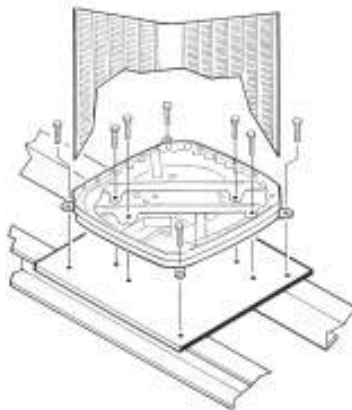


Figure 8

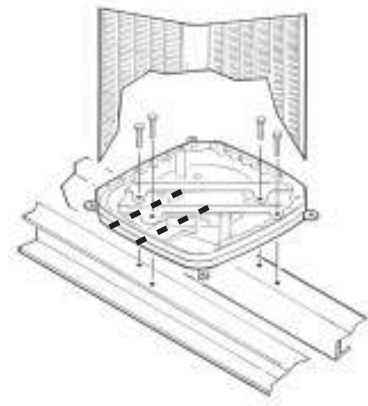


Figure 9

Drawings for illustration purposes only,

**BASE PAN MOUNTING HOLE LOCATIONS
(location only, holes must be drilled)**

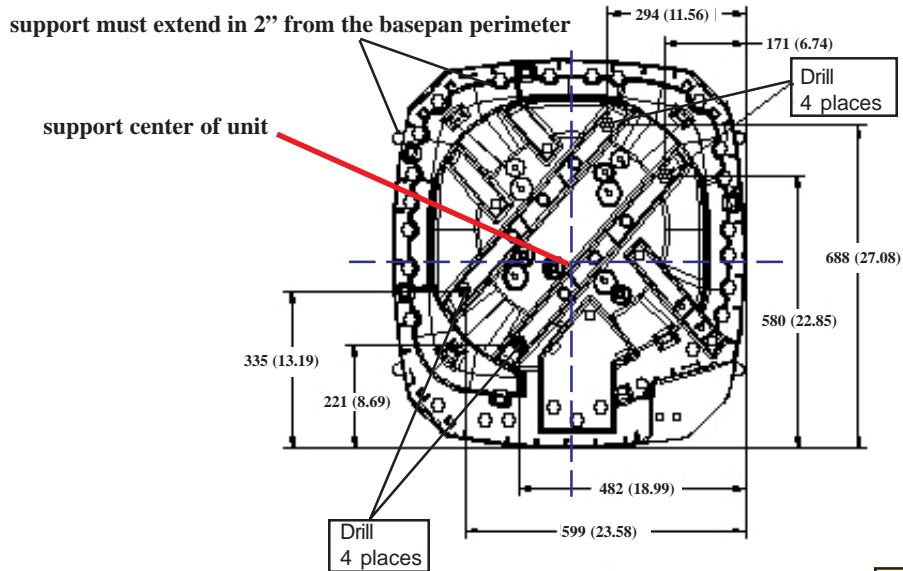


Figure 10 - Base 3

Measurements are provided
in MM and (Inches)

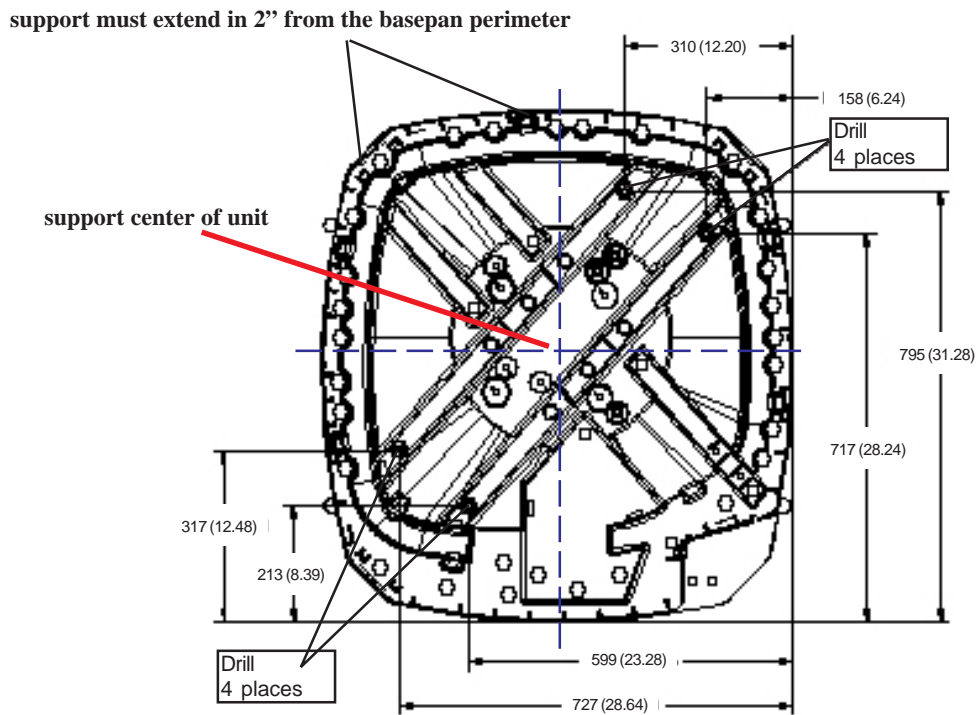


Figure 11 - Base 4

If supporting the base pan from the perimeter, the support must extend under the base pan at least 2". Trane recommends supporting the middle of the base pan with a cross member.

Section V - Minimum Operating Clearances

This section discusses installing a condensing unit / heat pump where spacing is limited. When installing Trane outdoor units in a location where clearance to other units, walls, fences, etc. is limited, the concerns listed below must be addressed:

1. System Operation - Adequate airflow must be provided to and away from the condensing unit / heat pump in order to enable appropriate heat transfer. If this is accomplished, head pressure will remain within an effective operating range.
2. System Servicability - Sufficient working space must be allowed for the HVAC service technician to properly maintain the condensing unit / heat pump. Furthermore, space must be allowed for major component change out in the event of a failure. Working space is determined by the Local, State and National Codes. (See National Electric Code Table 110.26 for explanation.)
3. Space Maintenance - Appropriate space must be allowed in order to for personnel to maintain the ground area where the units are positioned to prohibit foliage growth around the unit(s) and debris from collecting on the panels.
3. State, Local Codes, and National Codes shall prevail. Check with the local jurisdiction before installation to assure compliance.

Many projects require consideration of minimum clearances between outdoor units and adjacent walls, fences and other units. The obstruction in question is usually one of the following:

1. One or more walls of an adjacent building.
2. Fences or barriers provided to reduce sound transmission or visually screen the equipment.
3. Other outdoor units in a multi-unit installation.
4. A combination of the above.
5. Overhangs

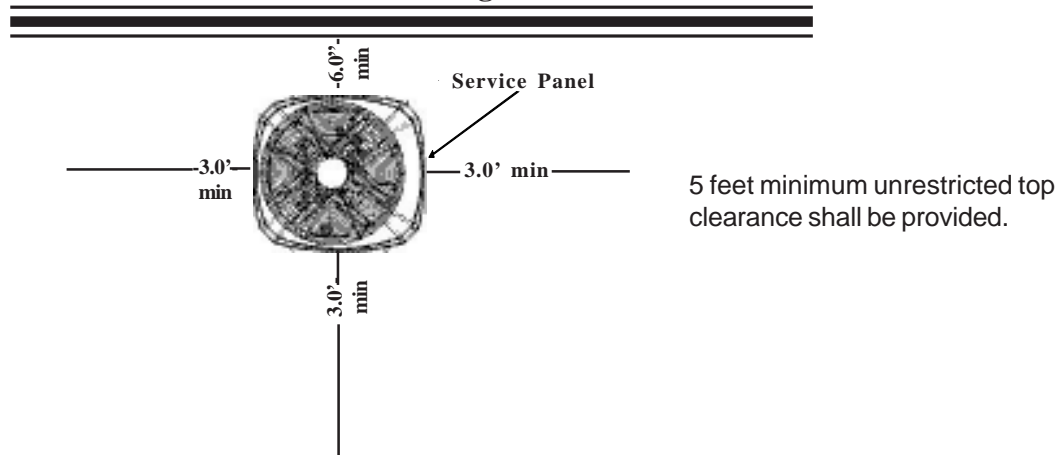
The prime considerations involved in establishing minimum clearances are:

1. Adequate airflow to the outdoor coil with minimum recirculation.
 2. Service access to the equipment.
 3. Compliance with the National Electric Code and other applicable codes.
 4. Design temperature - Design temperatures greater than 105F require additional consideration.
- I. In order to ensure adequate airflow reaches the condensing unit, size free air passages at 300 Feet Per Minute maximum velocity. See condensing unit airflow performance on page 18 of this document.
 - II. The importance of providing proper service access to equipment cannot be overemphasized. The HVAC service technician's job may be performed with greater ease and lower cost if adequate service space is allowed.
 - III. Knowledge of the National Electric Code and other applicable codes for the job site location is a necessity in order to satisfy local inspectors. These codes are in place for serviceability as well as safety.
 - IV. Be sure to read all provisions and footnotes contained in this document.
 - V. Where ASHRAE design temperatures exceed 105F, minimum operating clearances may increase.

1. Installation of a single condensing unit / heat pump with one side facing wall, fence, or other obstruction with free air space on top. (See Figure 12)

- A) For locations where the ASHRAE design ambient temperature is below 110F:
1) 6.0 inches clearance on 1 side. Three feet minimum clearance required from other three sides from any obstructions.
2) Service access side - 3 feet minimum clearance required. Consult Local, State, and National Electric Codes for minimum service clearance.
- B) For locations where the ASHRAE design ambient temperature exceeds 110F:
Do not restrict any one side less than 1.0 feet. Refer to the unit's installation manual or the following pages of this document for more information regarding unit clearances.

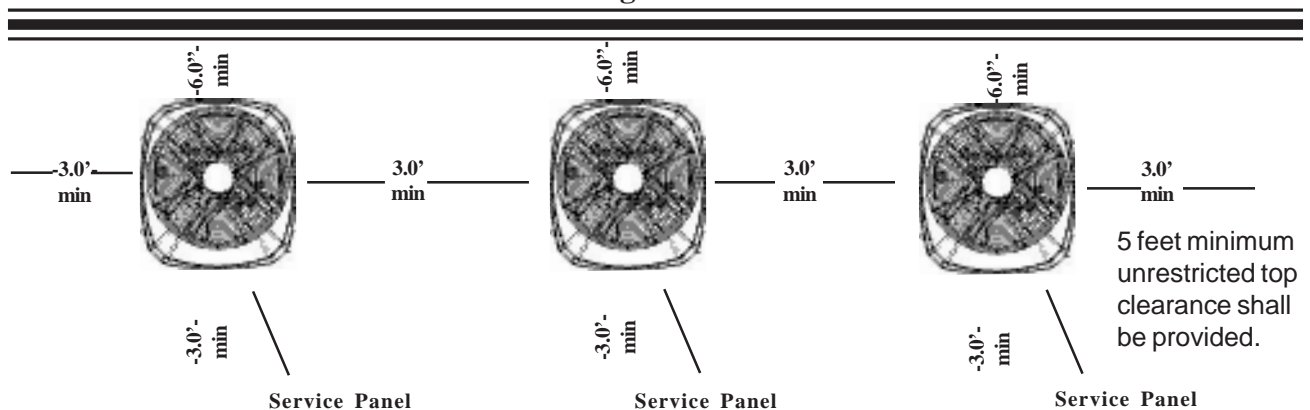
Figure 12



2. Installation of a multiple condensing units / heat pump units with one side facing wall, fence, or other obstruction with free air space on top. (See Figure 13)

- A) For locations where the ASHRAE design ambient temperature is below 110F:
1) 6.0 inches clearance on 1 side. Three feet minimum clearance required from other three sides from any obstructions.
2) Service access side - 3 feet minimum clearance required. Consult Local, State, and National Electric Codes for minimum service clearance.
- B) For locations where the ASHRAE design ambient temperature exceeds 110F:
Do not restrict any one side less than 1.0 feet. Refer to the unit's installation manual or the following pages of this document for more information regarding unit clearances.

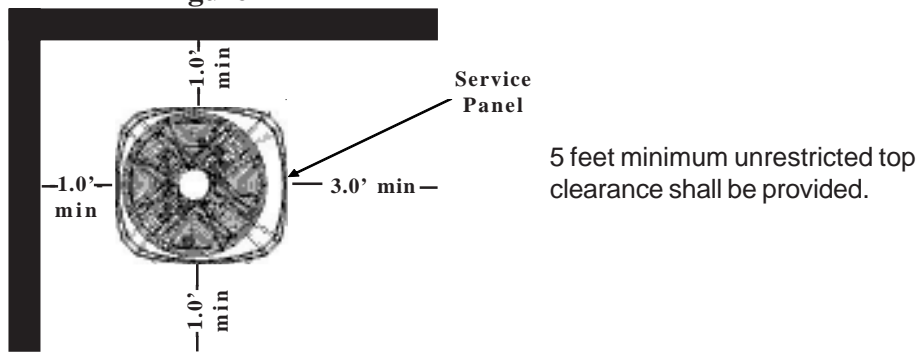
Figure 13



3. Installation of a single unit in a corner with free air space on top. (See Figure 14)

- A) For locations where the design ambient temperature is below 105F:
 - 1) 1.0 feet clearance on 2 sides - If foliage is to be placed by the unit other side, then allow 1.0 Feet minimum clearance from the unit
 - 2) Service access side - 3 feet minimum clearance required. Consult Local, State, and National Electric Codes for minimum service clearance.
- B) For locations where the design ambient temperature exceeds 105F:
 - 1) 1.5 feet clearance on 2 walls. - If foliage is to be placed by the unit other side, then allow 1.0 Feet minimum clearance from the unit.
 - 2) Service access side - 3 feet minimum clearance required.
- C) If unit is located in such a way that service panel is facing the wall
 - 1) NEC requires 3 feet minimum clearance between the unit and the wall
 - a) This space may be increased to 3 1/2 feet. Consult the National Electric Code for more information regarding minimum clearances for working spaces.

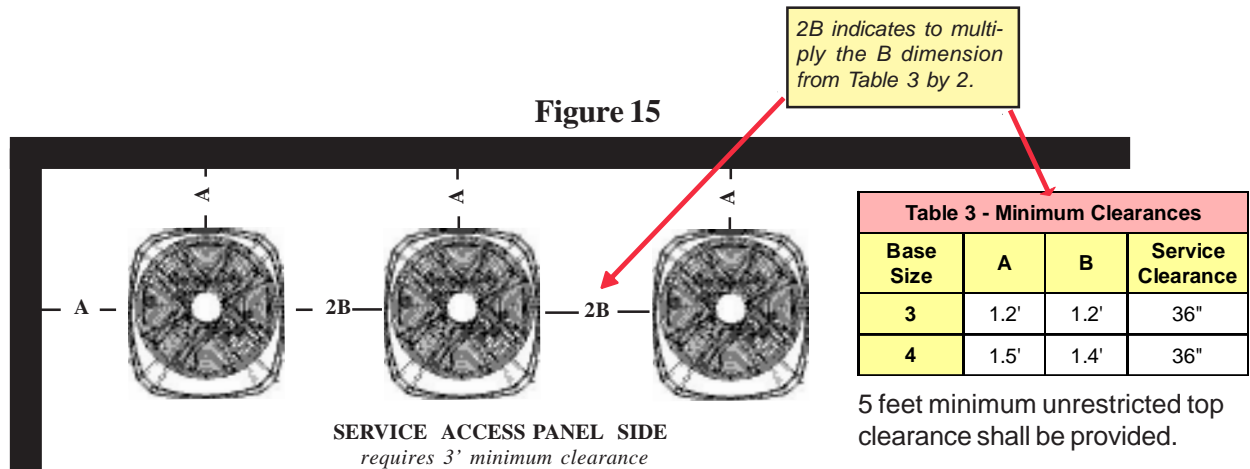
Figure 14



4. Installation of two or more units where two adjacent walls form a corner. (See Figure 15)

- A) For locations where the design ambient temperature is below 105F:
 - 1) Note the unit base size and obtain the minimum clearance values from the table below.
- B) For locations where the design ambient temperature exceeds 105F:
 - 1) 2.0 feet clearance from both walls.
 - 2) 3.0 feet clearance in between units, unless service panels face each other. (if service panels face each other, this clearance may be increased to 4 feet per NEC)
- C) If unit's are located with the service panels facing the wall
 - 1) NEC requires minimum 3 feet between the unit and the wall
 - a) This space may be increased to 3 1/2 feet. Consult the most current edition of the National Electric Code for more information regarding minimum clearances for working spaces.

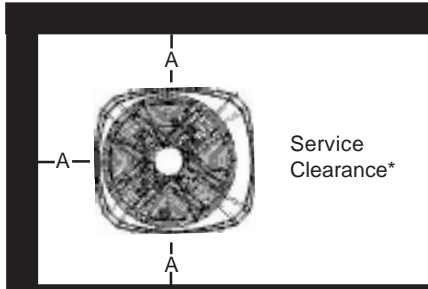
Figure 15



5. Units surrounded on all four sides: (See Figure 16, 17, 18, 19 and 20)

A. If installed unit(s) is / are surrounded by 2 walls and a solid fence, fence height on two sides shall be no higher than the height of the unit. In this application knockouts or louvers shall be provided on two sides minimum with free area to provide maximum 300 FPM velocity. Cutting a portion of the lower fence on two sides to accomplish 300 FPM maximum velocity is acceptable provided debris, dirt, and grass is prohibited from accumulating or growing to obstruct the opening. Refer to page 19 of this document for outdoor unit airflow. Please refer to table below for minimum clearances.

Figure 16



5 feet minimum top clearance shall be provided.

Figure 17

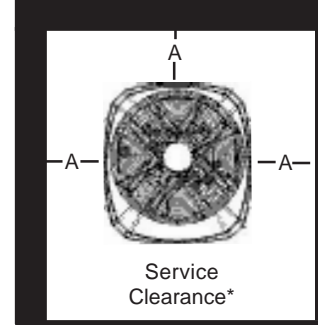
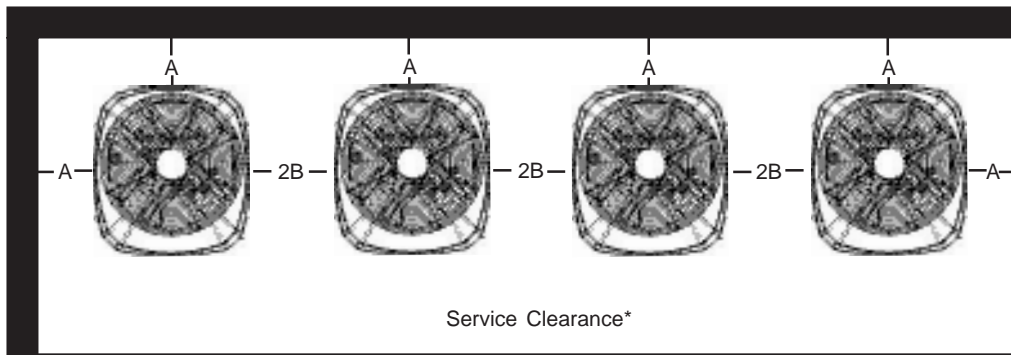


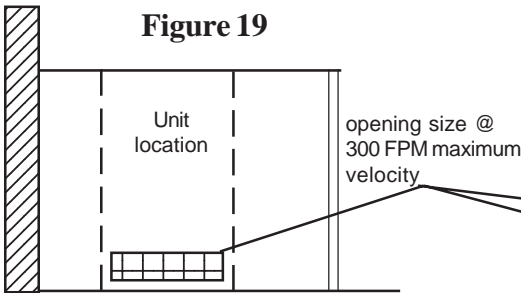
Figure 18



These clearances apply in geographical locations in which the ASHRAE design outdoor dry bulb = 105F or less.

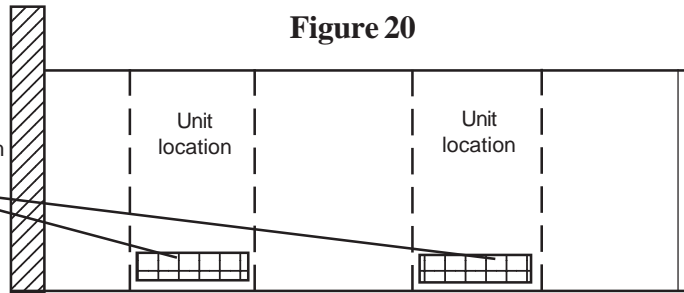
* If removable panels are used and acceptable to local inspection agency, the clearance to the removable panel may be reduced to (1.5 X the A dimension from Table 3)

Figure 19



Single Unit - Solid Fence

Figure 20



Multiple Units Solid Fence

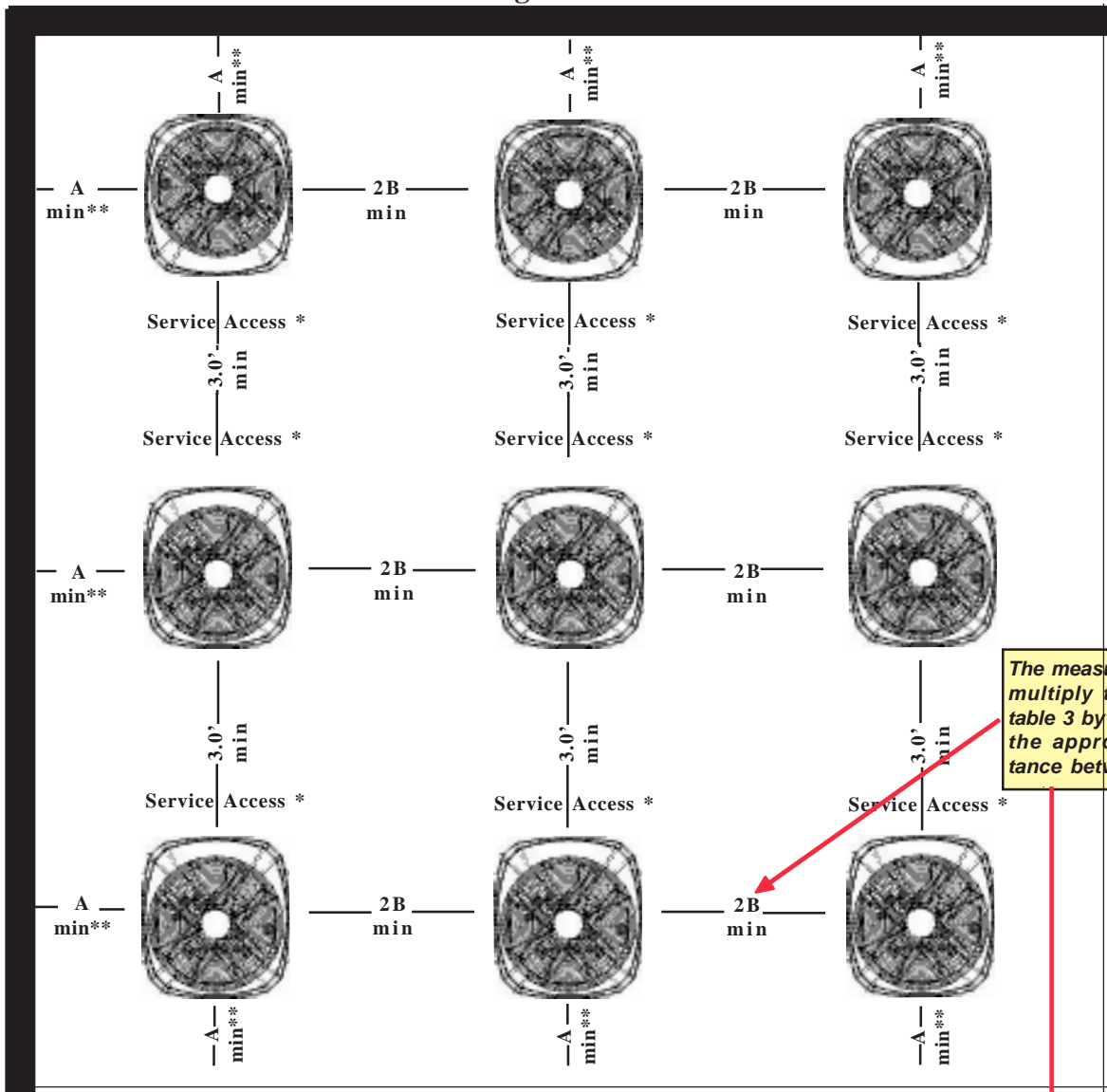
Solid Fence: If fence height is taller than unit(s), provide openings in fence that will provide maximum 300 FPM air velocity. These openings shall be located at the lower portion of the fence. If acceptable, the fence may be raised to provide open bottom clearance of fence height above the unit.

Table 3 - Minimum Clearances			
Base Size	A	B	Service Clearance
3	1.2'	1.2'	36"
4	1.5'	1.4'	36"

6. Installation of multiple units on a pad / rooftop where the top clearance is open. (See Figure 21)

- A) Refer to minimum clearance table in the lower corner of this page for clearances
- B) National Electric Code requires 3 feet minimum (4 feet if certain conditions are present) clearance between service access panel and adjacent unit. If service access panel faces the wall, the required space between the the wall and the unit shall be minimum 3 feet. (May require as much as 3 1/2 feet)
- C) Walls shall not be higher than top of units.
- D) National, State, and Local Codes must be observed.
- E) If design outdoor dry bulb exceeds 105F (40.6C) add 1.0 Ft. to all dimensions.

Figure 21



The measurement 2B indicates to multiply the dimension B from table 3 by 2 in order to determine the appropriate minimum distance between units.

* Units may be rotated in order that service access sides face each other provided that 3 feet minimum clearance is maintained between the units. In order to comply with NEC, this may increase to 4 feet minimum clearance.
 ** If wall or fence is to be constructed around the entire perimeter of the mechanical yard, Maintain minimum 1.5 feet clearance from the units. The fence height shall not exceed that of the unit. It is recommended to install louvers in the fence to allow no greater than 300 feet per minute velocity. Consult table 6 for unit airflow. Place louvers in the lower section of the fence by each unit in order to provide air access to each unit located by the fence. The lower portion of the fence may also be cut in order to equal the calculated free area.

Table 3 - Minimum Clearances			
Base Size	A	B	Service Clearance
3	1.2'	1.2'	36"
4	1.5'	1.4'	36"

7. Installation of multiple units on raised rooftop rail where the top clearance and side clearance is open. (See Figure 22)

A) Area between outdoor units shall be open in order that air may be drawn from top, bottom and sides.

B) Decorative walls shall be at minimum 10 feet away from the outdoor units.

C) Decorative walls shall not extend above the unit tops.

A) National Electric Code requires 3 feet minimum (4 feet if certain conditions are present) clearance between service access panel and adjacent unit.

D) National, State, and Local Codes shall be observed.

E) If design outdoor dry bulb exceeds 95F (35.0C) add 1.0 Ft. to all dimensions.

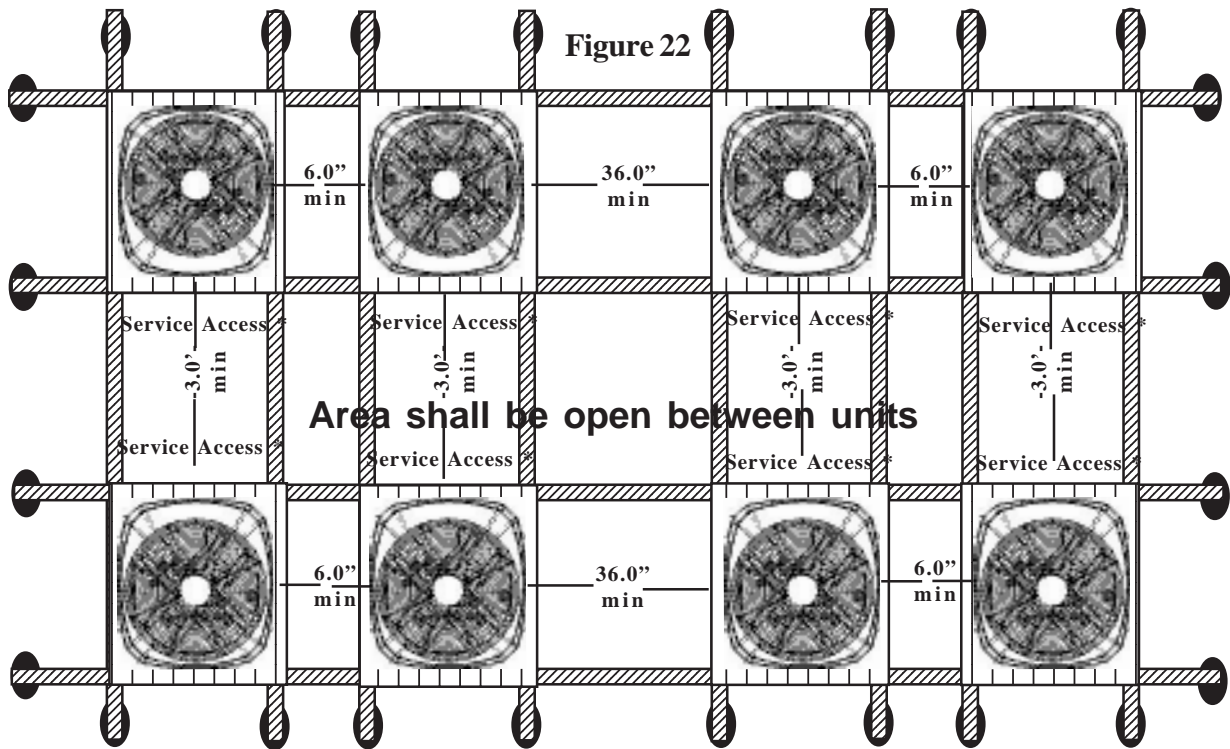


Photo for illustration purposes - area between units open for air to draw from top, bottom, and sides.

Electrical Code Information

Compliance with Local, State, and National Codes is a must on every HVAC Installation. This page discusses the criteria regarding minimum working spaces as defined in the 2007 National Electric Code. The main concern is the safety of the HVAC service / maintenance person. Minimum working clearances are specified in the National Electric Code (NEC) Article 110.26

For electrical equipment that from ground to power the voltage is 600 volts or less:

The National Electric Code specifically states that service area around electrical equipment shall provide sufficient access, and shall be properly maintained in order to permit safe operation and maintenance of the equipment. Figure 22 includes Table 110.26 from the National Electrical Code as well as Condition 1, 2, and 3 beside table 110.26. Conditions 1, 2, and 3 describe the minimum clearance for proper service and access to electrical equipment.

Trane residential and light commercial condensing units ranging from 1 to 6 ton require access to the side service panel as indicated on the previous pages as well those listed in Condition 1, 2, or 3 to gain access to the electrical controls.

Figure 23

The table and figure below are excerpts from the National Electric Code:

Table 110.26(A)(1) Working Clearances

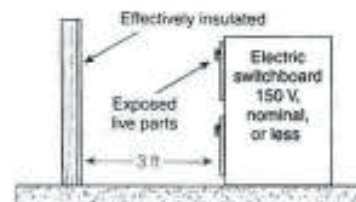
Nominal Voltage to Ground	Minimum Clear Distance		
	Condition 1	Condition 2	Condition 3
0-150	900 mm (3 FT)	900 mm (3 FT)	900 mm (3FT)
151-600	900 mm (3FT)	1 M (3.5FT)	1.2 mm (4FT)

Note: Where the conditions are as follows

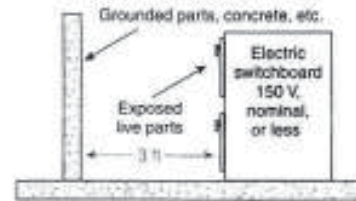
Condition 1 - Exposed live parts on one side and no live or grounded parts on the other side of the working space, or exposed live parts on both sides effectively guarded by suitable wood or other insulating materials. Insulated wire or insulated busbars operating at not over 300 volts to ground shall not be considered live parts

Condition 2 - Exposed live parts on one side and grounded parts on the other side. Concrete, brick, or tile walls shall be considered as grounded.

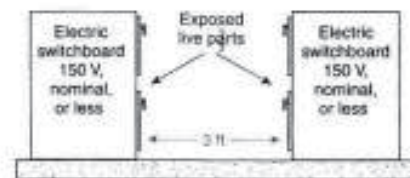
Condition 3 - Exposed live parts on both sides of the work space (not guarded as provided in Condition 1) with the operator between.



Condition 1
(3 ft min. for 151 - 600 V)



Condition 2
(Space would increase to 3 1/2 ft for 151 - 600 V)



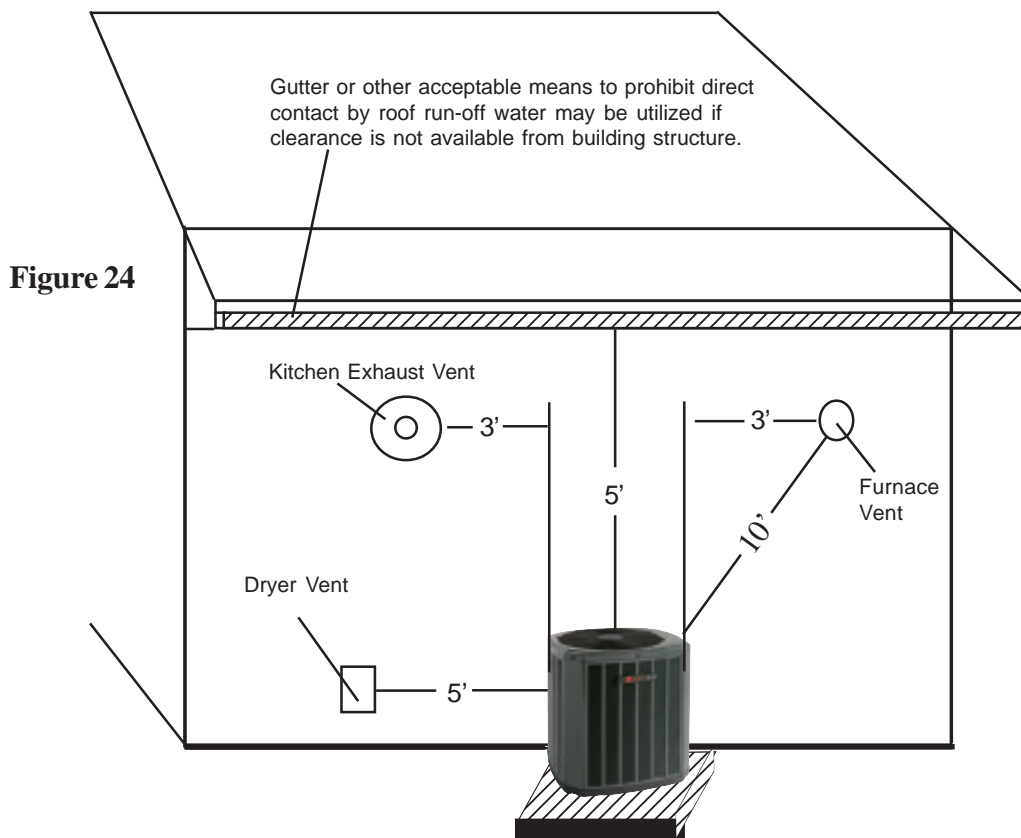
Condition 3
(Space would increase to 4 ft for 151 - 600 V)

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Section VI - Minimum Clearances From Vents: (See Figure 24)

This section deals specifically with installations in which a dryer vent, kitchen exhaust vent, or furnace vent is located near the condensing unit / heat pump unit.

- A. Condensing units and heat pumps shall be located not less than five feet from clothes dryer vents.
 - 1. Do not locate the condensing unit / heat pump unit directly below a clothes dryer vent.
- B. Condensing units and heat pumps units shall be located not less than three from any kitchen exhaust vent.
 - 1. Do not locate the condensing directly under a kitchen exhaust vent.
- C. Condensing units and heat pump unit shall be located not less than three feet vertically from any natural gas appliance vent outlet or inlet in which the condensing unit / heat pump unit is within a 10 feet diameter of the appliance vent termination.



- D. Code Compliance:
 - 1. Local, State and National codes shall be adhered to for all installations.
- E. Manufacturers Instructions:
 - 1. Always consult the manufacturers instructional manuals. These manuals contain information specific to the device or appliance being installed.
- F. Vents other than discussed in this document:
 - 1. The intent of this document is not to discuss every possible venting device nor all types of gasses, vapors, and spaces that are mechanically vented or naturally vented by draft. Please consult local, state and national codes. In the absence of codes, or if the installer is unfamiliar with local, state and national codes, a professional engineer or local building department should be utilized as a resource.

Outdoor Unit Airflow							
Unit Model Number	CFM	Unit Model Number	CFM	Unit Model Number	CFM	Unit Model Number	CFM
4TTR3018H1000A	2450	4TWR3018D1000A	2690	4TTR4018L1000A	2450	4TWR4018D1000A	3150
4TTR3024H1000A	2450	4TWR3024D1000A	2690	4TTR4024L1000A	2450	4TWR4024D1000A	2640
4TTR3030G1000A	2745	4TWR3030C1000A	2835	4TTR4025L1000A	2450	4TWR4030D1000A	4360
4TTR3036G1000A	2805	4TWR3036C1000A	4385	4TTR4030L1000A	2800	4TWR4036D1000A	4385
4TTR3042D1000A	4171	4TWR3042B1000A	4385	4TTR4031L1000A	2800	4TWR4042D1000A	4540
4TTR3048D1000A	3969	4TWR3048B1000A	4702	4TTR4036L1000A	2805	4TWR4048D1000A	4600
4TTR3060D1000A	4342	4TWR3060B1000A	4748	4TTR4037L1000A	2805	4TWR4060D1000A	4730
				4TTR4042L1000A	4171		
				4TTR4043L1000A	4171		
				4TTR4048L1000A	3970		
				4TTR4060L1000A	4340		
Unit Model Number	CFM						
4TWR5018G1000A	2800						
4TWR5024G1000A	2650						
4TWR5030G1000A	4370						
4TWR5036G1000A	4330						
4TWR5042G1000A	4075						
4TWR5049E1000A	4240						
4TWR5061E1000A	4750						
Unit Model Number	CFM	Unit Model Number	CFM	Unit Model Number	CFM	Unit Model Number	CFM
4TTR6018B1000A	2670	4TWR6024H1000A	2850	4TTR7024A1000A	3200	4TWR7024A1000A	3200
4TTR6024B1000A	2690	4TWR6030H1000A	3731	4TTR7036A1000A	3700	4TWR7036A1000A	3200
4TTR6030B1000A	4280	4TWR6036H1000A	4275	4TTR7048A1000A	4260	4TWR7048A1000A	4260
4TTR6036B1000A	4420	4TWR6042H1000A	4171	4TTR7060A1000A	4760	4TWR7060A1000A	4760
4TTR6042B1000A	4420	4TWR6048H1000A	4454				
4TTR6048B1000A	4600	4TWR6060H1000A	4992				
4TTR6049B1000A	4240						
4TTR6061C1000A	5400						

$$\text{Required Opening} = \text{CFM} / 300 \text{ FPM}$$

Example:

Given:

Quantity of 4 units in a mechanical yard, surrounded by a fence. Units are 4TTR6042B1000A

Required:

Determine free air opening space required in fence.

Solution:

4420 CFM x 4 units = 17,680 CFM

17,680 CFM / 300 FPM = 58.93 (59) square feet of free air opening in the fence sections surrounding the mechanical yard.

VII. Nameplate Electrical Data

Figure 25


XB 14		MFR	DATE 2/2009
MOD. NO. 4TTB4030E1000AA	VOLTS	208/230	
SERIAL NO. 9073LUL4F	PH 1	HZ	60
MINIMUM CIRCUIT AMPACITY	12.0	AMPS	
OVERCURRENT PROTECTIVE DEVICE	USA	CANADA	
MIN FUSE / BREAKER (HACR)	20	20	
MAX FUSE / BREAKER (HACR)	20	20	
HFC - 410A	7 LBS. 00 OZ. OR	3.18 kg(SI)	
8 °F DESIGN SUBCOOLING			
Clearstuff Durostuff Splice Pin Quick - Seal			
TRANE U.S. INC.		LISTED SECTION OF	
MANUFACTURER OF TRANE AND AMERICAN STANDARD		CENTRAL COOLING	
TYLER, TX 75707 ASSEMBLED IN USA		AIR CONDITIONER	
		23MF OUTDOOR USE	
COMPR. MOT. 9.1 RLA	200/230 V	57.8	LRA
O.D. MOT. 1.10 FLA	200/230 V	1/5	HP
N.E.A. NO.	F. ID. B8P		
DESIGN PSI - HIGH 480 LOW 480			
			
ARI Standard 210/240 UAC CERTIFICATION APPLIES ONLY WHEN THE COMPLETE SYSTEM IS LISTED WITH ARI			
			

Figure for reference only

Voltage Range -Units are tested @ 10% below the lowest rated voltage and 10% above the highest rated voltage.

Ph - 1 for single phase, 3 denotes three phase

Hz - Frequency

Minimum Circuit Ampacity - the lowest current in which the branch circuit conductor shall be rated. Reference National Electrical Code, local electrician or local building authority for assistance with wire sizing. (reference NEC Article 440.35)

Minimum Fuse / Breaker (HACR) - if this marking is present on the nameplate indicates the lowest rated overcurrent branch circuit protection device allowed for the appliance. (reference NEC Article 440.22)

Maximum Fuse / Breaker (HACR) - the largest rated overcurrent branch circuit protection device allowed for the appliance.

Please note that all installations shall comply to the codes adopted by the authority having jurisdiction. Questions regarding adopted codes should be directed to the local building department prior to installation. Articles from the National Electric Code include but are not limited to:

- Article 210 - Branch Circuits
- Article 240 - Overcurrent Protection
- Article 310 - Conductors for General Wiring
- Article 422 - Appliances
- Article 424 - Fixed Electric Space Heating Equipment
- Article 430 - Motors, Motor Circuits, and Controllers
- Article 440 - Air Conditioning and Refrigerating Equipment



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