



# Application Guide

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Trane XL14i and XL13i  
XLi-APG04-EN





The purpose of this bulletin is to provide cumulative application criteria as related to the Trane XLI cooling units and heat pumps.

This bulletin discusses:

- I. Off Season Cooling Operation
- II. Unit Mounting
- III. Minimum Operating Clearances

ISSUED BY:  
Product Training and Application Department  
Trane  
Tyler, Texas

## Section I - Off Season Cooling Operation

The Trane XLI may be operated in the cooling mode to 55°F as shipped from the factory when applied with an indoor FCCV.

***NOTE: 5 ton units may be applied only with TXV's***

Please refer to the accessory table below when determining if the XLI will operate at the specified conditions as well as required accessories.

REQUIRED ACCESSORIES @ OD TEMPERATURE								
Model	55 °F	45 °F	40 °F		30 °F			0 °F
<b>XL13i</b>	As Shipped	TXV	EDC	CCHT	EDC	TXV	CCHT	Not Approved
<b>XL14i</b>	As Shipped	TXV	EDC	CCHT	EDC	TXV	CCHT	Not Approved

### Compressor Sump Heaters

Reciprocating Compressor BAYCCHT300

Scroll Compressor BAYCCHT301

### Evaporator Defrost Control Kits

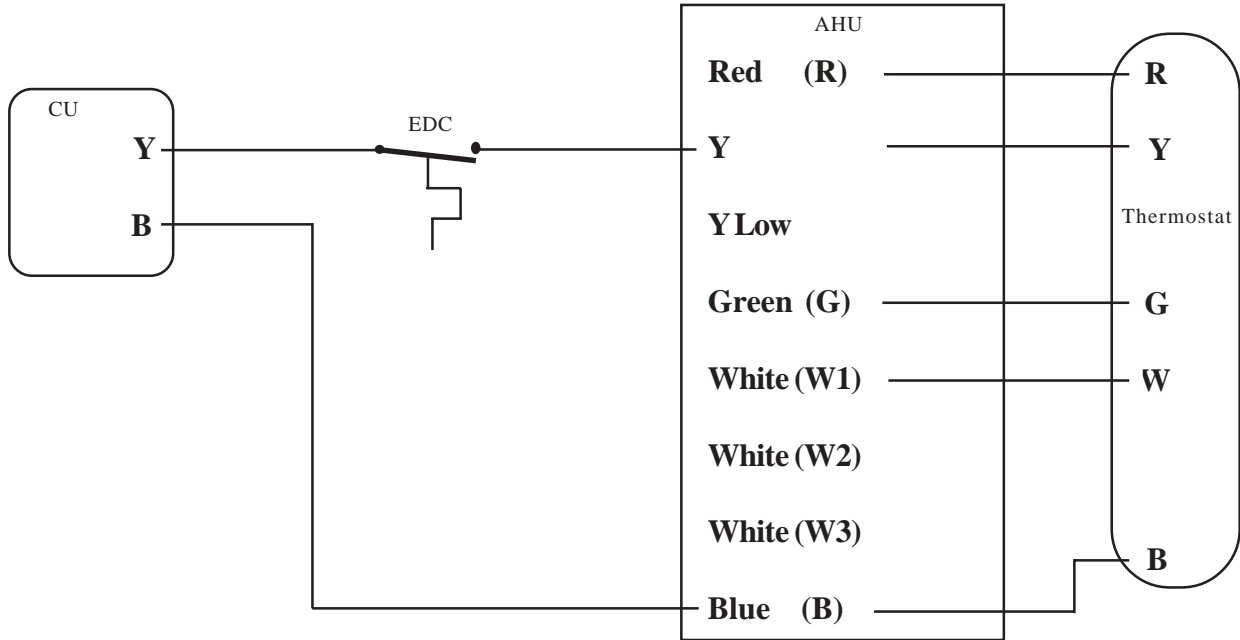
AY28X079 - Cooling only

AY28X084 - Heat pumps

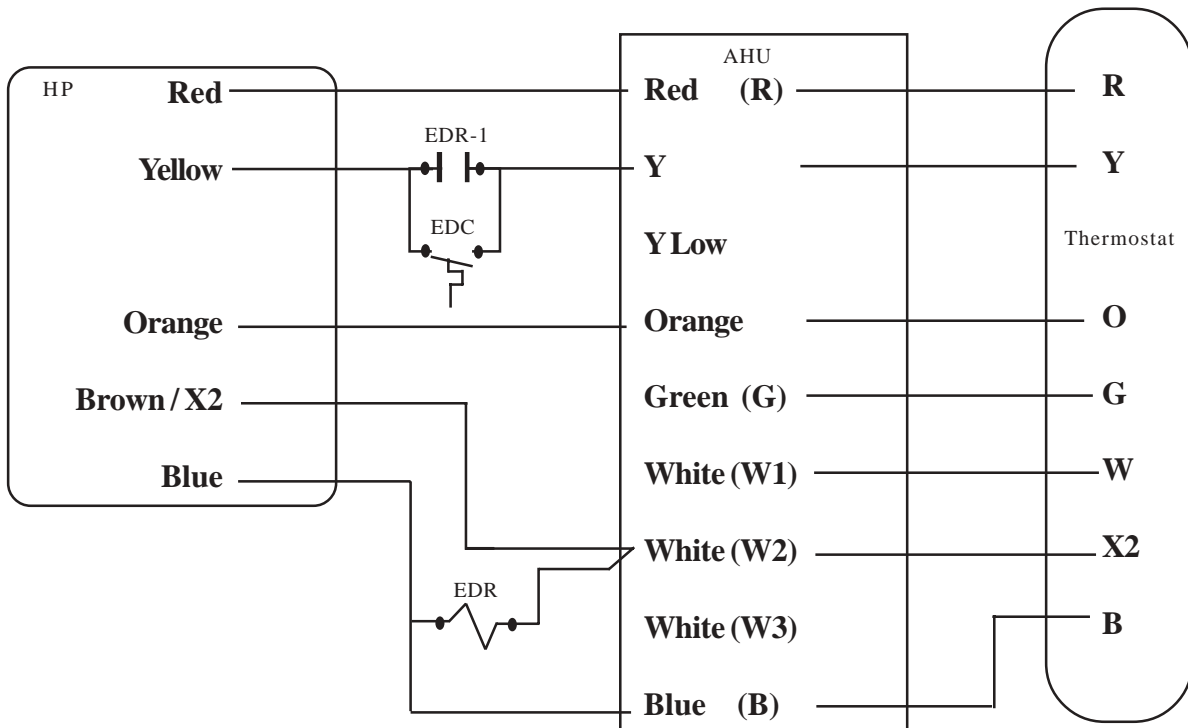
Unit Model	Factory Installed CCHT	Unit Model	Factory Installed CCHT	Unit Model	Factory Installed CCHT	Unit Model	Factory Installed CCHT	Unit Model	Factory Installed CCHT	Unit Model	Factory Installed CCHT
4TTX3018A1000A	No	4TWX3018A1000A	Yes	2TTX4018A1000A	Yes	2TWX4018A1000A	Yes	4TTX4018A1000A	Yes	4TWX4018A1000A	Yes
4TTX3024A1000A	No	4TWX3024A1000A	Yes	2TTX4024A1000A	Yes	2TWX4024A1000A	Yes	4TTX4024A1000A	Yes	4TWX4024A1000A	Yes
4TTX3030A1000A	No	4TWX3030A1000A	Yes	2TTX4030A1000A	No	2TWX4030A1000A	Yes	4TTX4030A1000A	No	4TWX4030A1000A	Yes
4TTX3036A1000A	No	4TWX3036A1000A	Yes	2TTX4036A1000A	No	2TWX4036A1000A	Yes	4TTX4036A1000A	No	4TWX4036A1000A	Yes
4TTX3042A1000A	No	4TWX3042A1000A	Yes	2TTX4042A1000A	Yes	2TWX4042A1000A	Yes	4TTX4042A1000A	No	4TWX4042A1000A	Yes
4TTX3048A1000A	No	4TWX3048A1000A	Yes	2TTX4048A1000A	Yes	2TWX4048A1000A	Yes	4TTX4048A1000A	No	4TWX4048A1000A	Yes
4TTX3060A1000A	No	4TWX3060A1000A	Yes	2TTX4060A1000A	Yes	2TWX4060A1000A	Yes	4TTX4060A1000A	No	4TWX4060A1000A	Yes

Typical wiring when using the evaporator defrost control (EDC) for operation as specified on page 7.

### Cooling Split System and AY28X079 Evaporator Defrost Control



### Heat Pump Split System and AY28X084 Evaporator Defrost Control



## SECTION II - Unit Mounting:

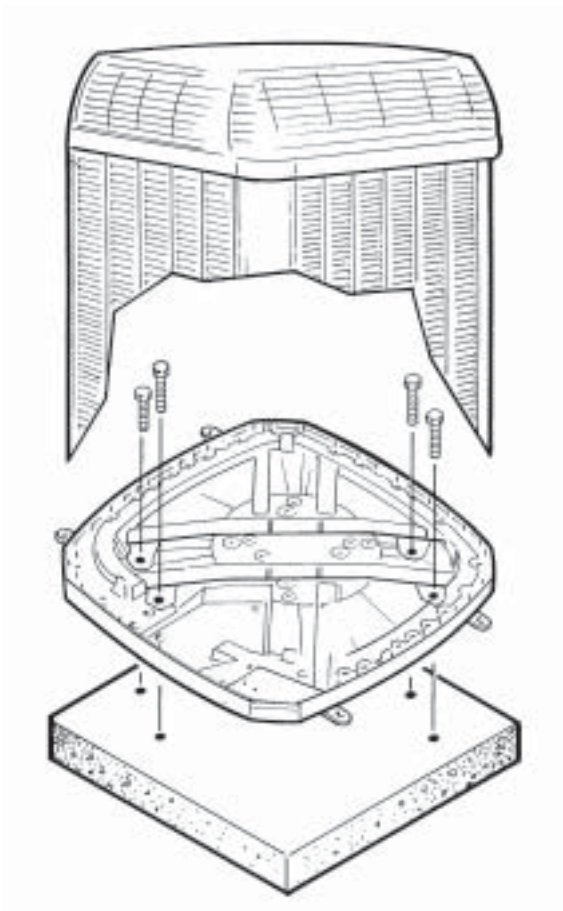
This section describes appropriate methods for mounting and securing the XLi. However, if these units are to be mounted in a region where high winds are an issue, please refer to the Trane BAYECMT001 extreme conditions mounting kit. In seismic regions, the unit must be secured per local code.

When mounting or securing the Trane condensing units and heat pumps please observe the following.

1. Anytime the unit is to be supported from the edge, the supporting material must extend minimum two inches 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 on page 9.
3. Washers should be placed in between the fastener head and the basepan.
4. Trane recommends supporting the center of the unit.
5. Base 3 and 4 pans have four mounting holes.

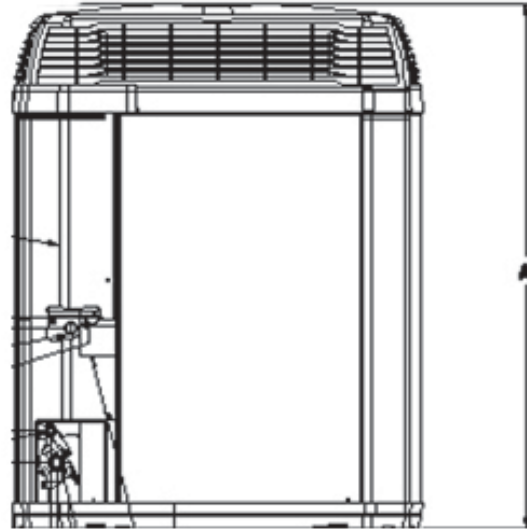
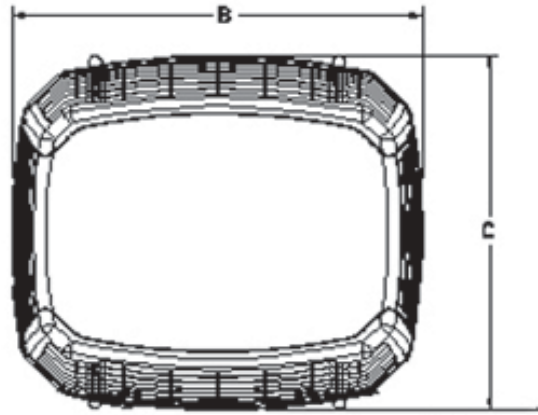
Refer to the dimension tables for actual unit size.

Please refer to the following illustrations for dimensions and general information.



Drawing for illustration purposes only.

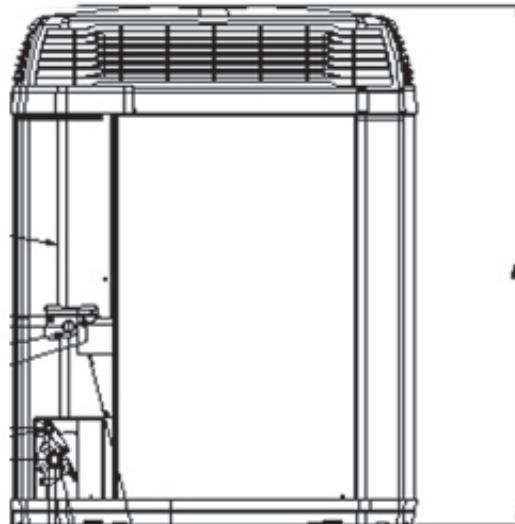
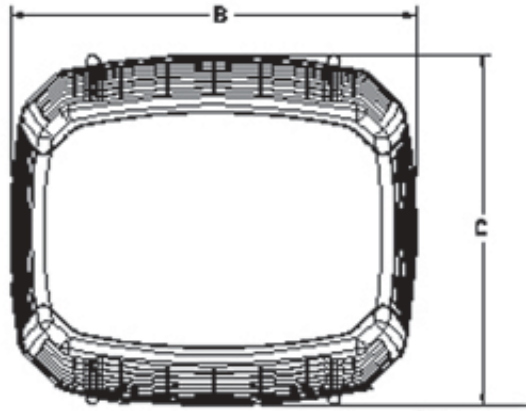
## 2TTX4, 4TTX4, 4TTX3 OUTLINE DRAWING



MODELS	BASE	A	B	C
4TTX3018A 2TTX4018A 4TTX4018A	3	1016 (40)	829 (32 5/8)	756 (29 3/4)
4TTX3024A 2TTX4024A 4TTX4024A	3	1016 (40)	829 (32 5/8)	756 (29 3/4)
4TTX3030A 4TTX4030A	3	1016 (40)	829 (32 5/8)	756 (29 3/4)
4TTX3036A	3	1016 (40)	829 (32 5/8)	756 (29 3/4)
2TTX4030A 2TTX4036A 4TTX4036A 4TTX3042A	3	1118 (44)	829 (32 5/8)	756 (29 3/4)
4TTX3048A	3	1219 (48)	829 (32 5/8)	756 (29 3/4)
2TTX4042A 4TTX4042A	4	1165 (45 7/8)	946 (37 1/4)	870 (34 1/4)
4TTX3060A	4	1064 (41 7/8)	946 (37 1/4)	870 (34 1/4)
2TTX4048A 4TTX4048A 2TTX4060A 4TTX4060A	4	1267 (49 7/8)	946 (37 1/4)	870 (34 1/4)

From Dwg. No. 21D152635 Rev.9

## 2TWX4, 4TWX4, 4TWX3 OUTLINE DRAWING



MODELS	BASE	A	B	C
4TWX3018A 2TWX4018A 4TWX4018A	3	1016 (40)	829 (32 5/8)	756 (29 3/4)
4TWX3024A	3	1016 (40)	829 (32 5/8)	756 (29 3/4)
4TWX3030A	3	1016 (40)	829 (32 5/8)	756 (29 3/4)
2TWX4024A	3	1118 (44)	829 (32 5/8)	756 (29 3/4)
4TWX3036A 4TWX3042A	3	1219 (48)	829 (32 5/8)	756 (29 3/4)
2TWX4030A 4TWX3048A	4	1064 (41 7/8)	946 (37 1/4)	870 (34 1/4)
4TWX3060A	4	1165 (45 7/8)	946 (37 1/4)	870 (34 1/4)
4TWX4024A	3	1219 (48)	829 (32 5/8)	756 (29 3/4)
4TWX4030A	3	1219 (48)	829 (32 5/8)	756 (29 3/4)
2TWX4026A 4TWX4036A	4	1165 (45 7/8)	946 (37 1/4)	870 (34 1/4)
2TWX4042A 2TWX4048A 2TWX4060A 4TWX4042A 4TWX4048A 4TWX4060A	4	1267 (49 7/8)	946 (37 1/4)	870 (34 1/4)

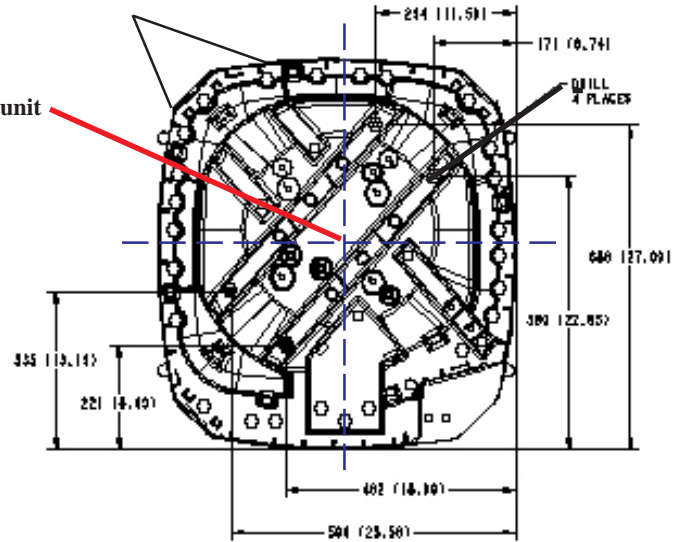
From Dwg. No. 21D152635 Rev. 6



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

support must extend 2" from the basepan perimeter

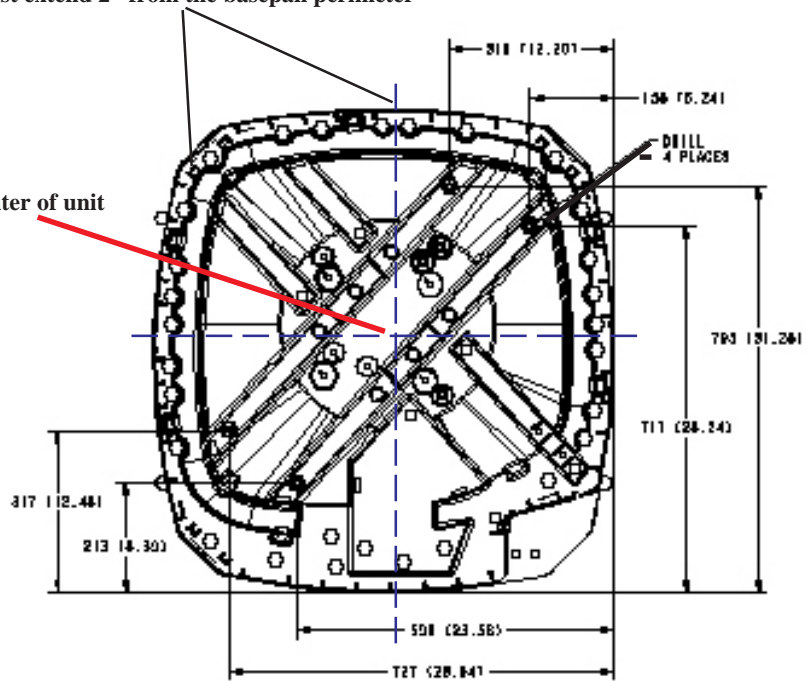
support center of unit



**BASE 3**

support must extend 2" from the basepan perimeter

support center of unit



**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 III - Minimum Operating Clearances

This section discusses installing the XLi condensing unit / heat pump in applications that exceed the installation manual. The intention of this section is to provide direction in order to provide an environment for the system to allow cooling and heating operation without system failure.

These concerns must be addressed:

1. System Operation - Adequate airflow must be provided to the condensing unit / heat pump in order to enable appropriate heat transfer. If this is accomplished, head pressure will remain at an effective operating range.
2. System Servicability - Proper space must be allowed for 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 National Electric Code
3. Space Maintenance - Appropriate area must be allowed in order maintain the ground area where the units are positioned to prohibit debris from collecting on the panels, thus further providing unobstructed airflow to the condensing unit.
4. State, Local Codes, and National Codes shall prevail. Check with the local jurisdiction before installation to assure compliance.

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

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

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 special consideration.

I. In order to assure that adequate airflow reaches the XLi condensing unit, size free air passages at 300 Feet Per Minute velocity. See Condensing unit airflow performance on page 17 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 if adequate service space is allowed.

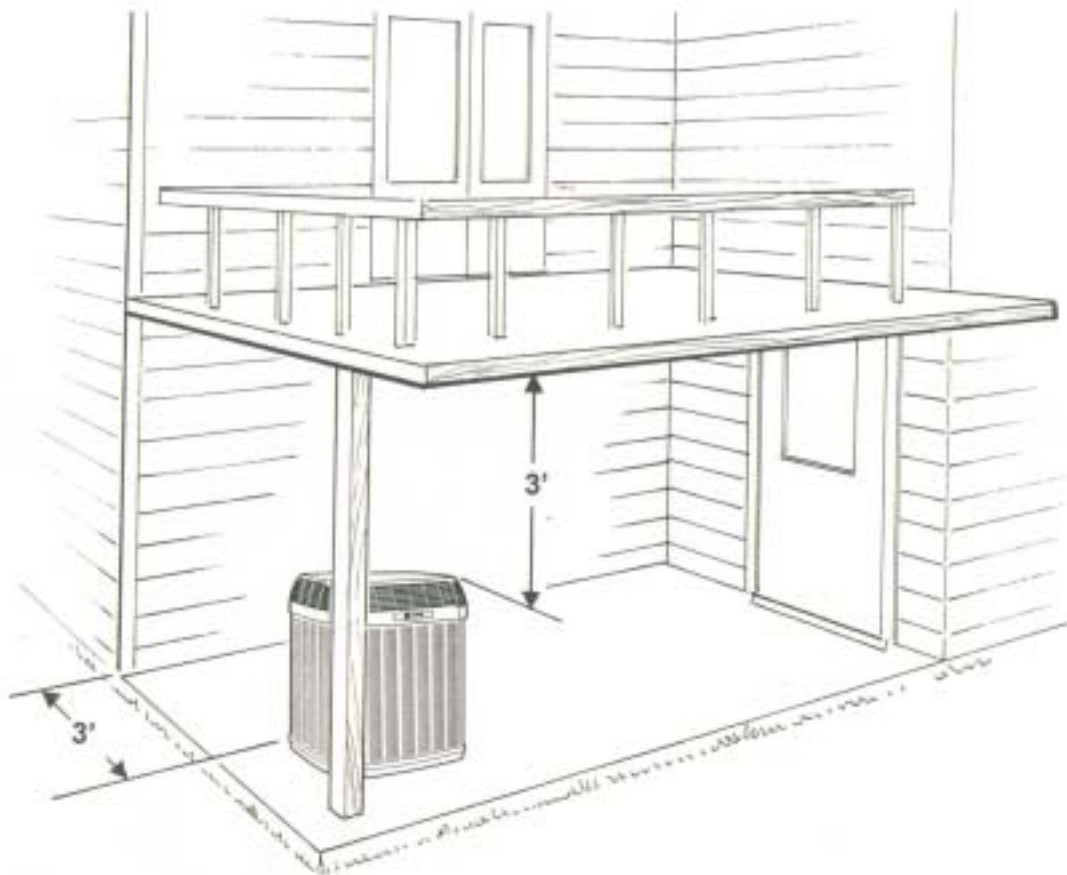
III. Knowledge of the National Electric Code and other applicable codes for the job sight location is a necessity in order to satisfy local inspectors. These codes are in place for service as well as safety.

IV. Be sure to read all provisions and footnotes contained in this document. When ambient temperatures exceed 105F, more space may be required for minimum operating clearances.

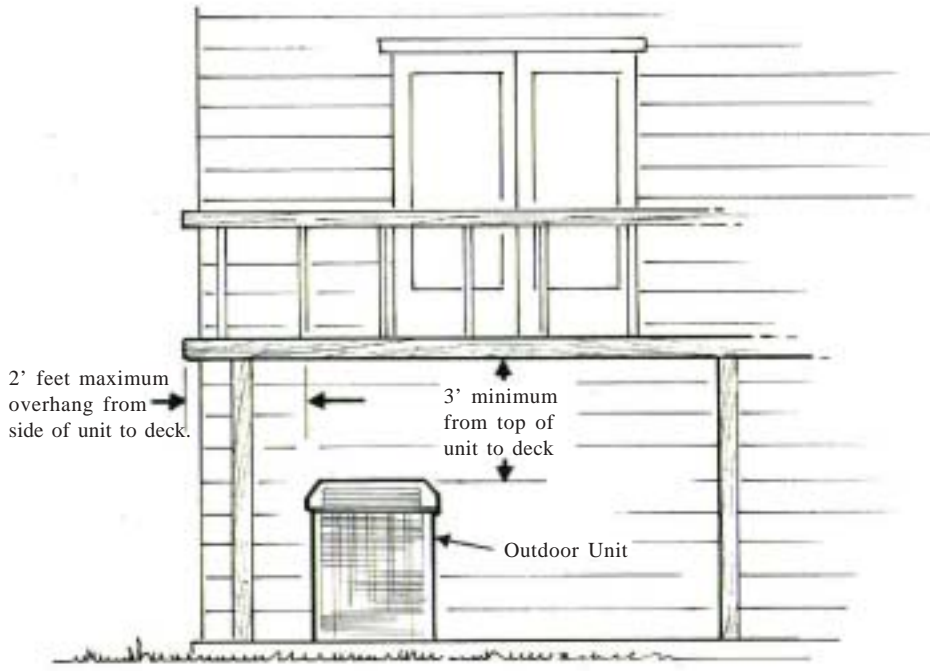
*Please note: Trane residential outdoor condensing units are UL listed for outdoor use only. No written or verbal approval will be provided for installation in areas which are considered indoors.*

**A. Installation of The XLi unit under a deck.**

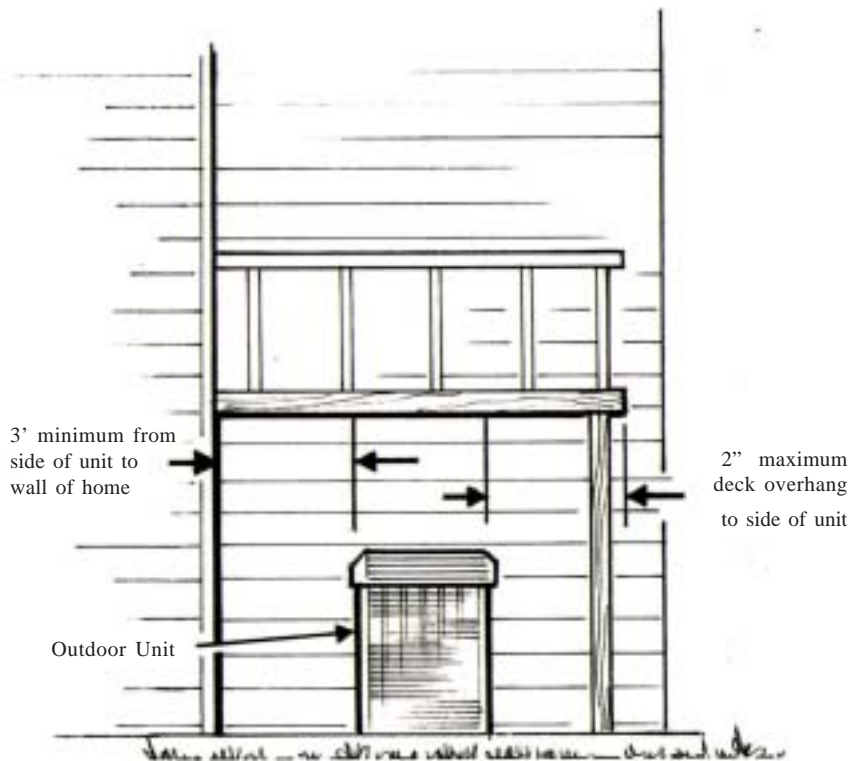
1. Single XLi units may be installed under a deck as long as the following criteria is met:
  - a) 3 feet minimum top clearance is provided.
  - b) 3 feet away from obstructions such as a wall, or shrubbery on two sides.
  - c) The other two sides left unobstructed.
  - d) Decking material overhanging the unit not to exceed two feet on two sides.
  - e) Servicability - Adequate space provided for annual service and maintenance.
  - f) Condensing unit shall be set on firm foundation independent from building structure, not directly on ground surface.
  - g) Consult with local building department to assure the installation will comply with local code before installing the equipment.



Illustrations provided to designate required clearances. Trane recommends mounting the unit on a pad that is independent of the structure. Reference section III.A.1.F on pg 11 of this document.

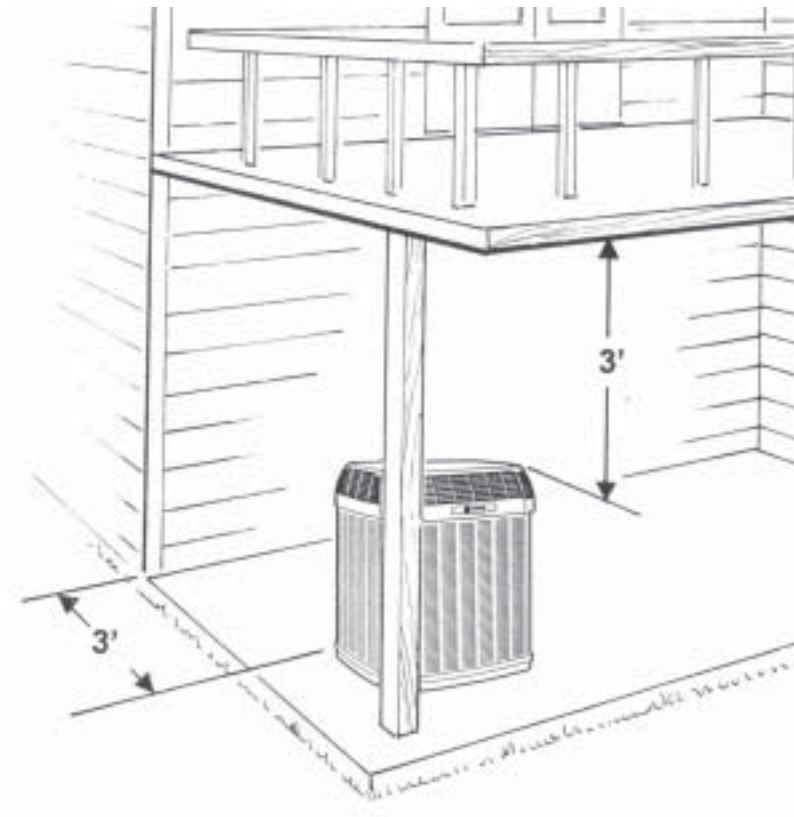
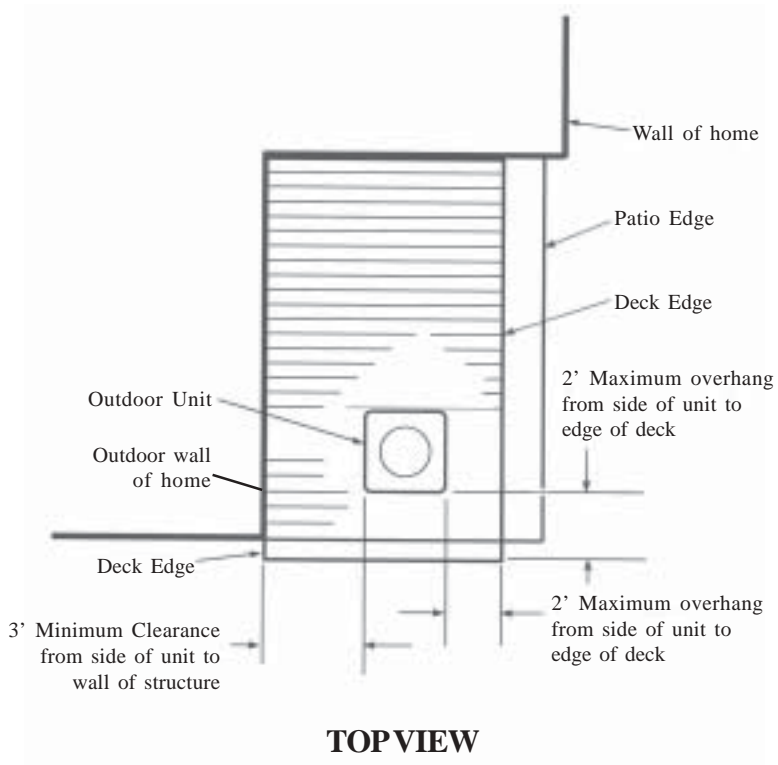


**Front View**



**SIDE VIEW**

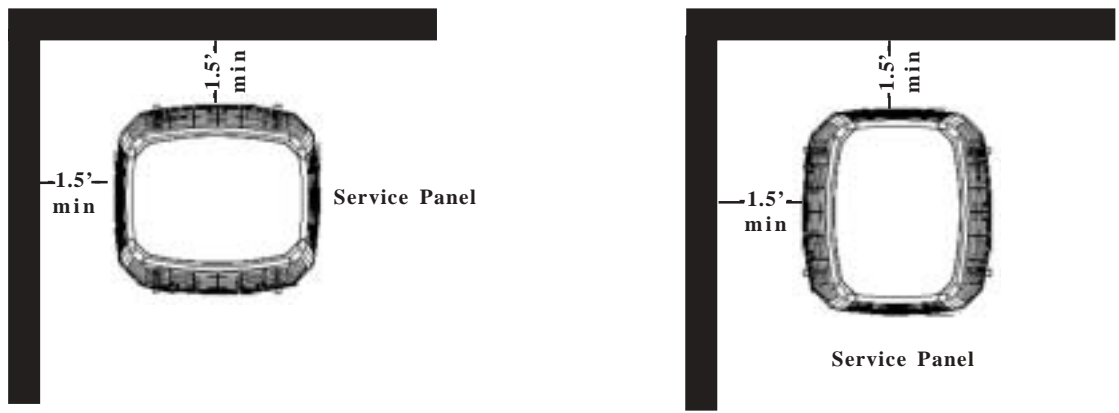
Illustrations provided to designate required clearances



Illustrations provided to designate required clearances. Trane recommends mounting the unit on a pad that is independent of the structure. Reference section III.A.1.F on pg 11 of this document.

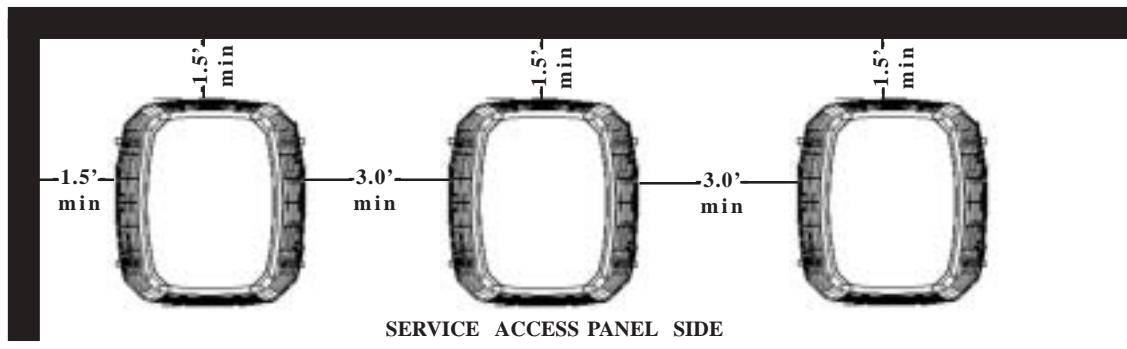
**2. Installation of a single XLi condensing unit / heat pump in a corner with free air space on top:**

- A) For locations where the design ambient temperature is below 105F:
  - 1) 1.5 feet clearance from both walls.
  - 2) Other two sides left unrestricted.
- B) For locations where the design ambient temperature exceeds 105F:
  - 1) 2.0 feet clearance from both walls.
  - 2) Other two sides left unrestricted.
- C) If unit is located in such a way that service panel is 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 National Electric Code for more information regarding minimum clearances for working spaces.



**3. Installation of two or more XLi units where two adjacent walls form a corner.**

- A) For locations where the design ambient temperature is below 105F:
  - 1) Corner unit shall have 1.5 feet clearance from both walls.
  - 2) 3 feet clearance in between units. ( if service panels face each other, this clearance may be increased to 4 feet per NEC)
  - 3) Other two sides left unrestricted.
- B) **For locations where the design ambient temperature exceeds 105F:**
  - 1) 2.0 feet clearance from both walls.
  - 2) 3 feet clearance in between units. ( if service panels face each other, this clearance may be increased to 4 feet per NEC)
  - 3) Other two sides left unrestricted.
- C) If unit's are located in such a way that the service panels are 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.



**4. Installation of multiple units on a pad or rooftop where the top clearance is open.**

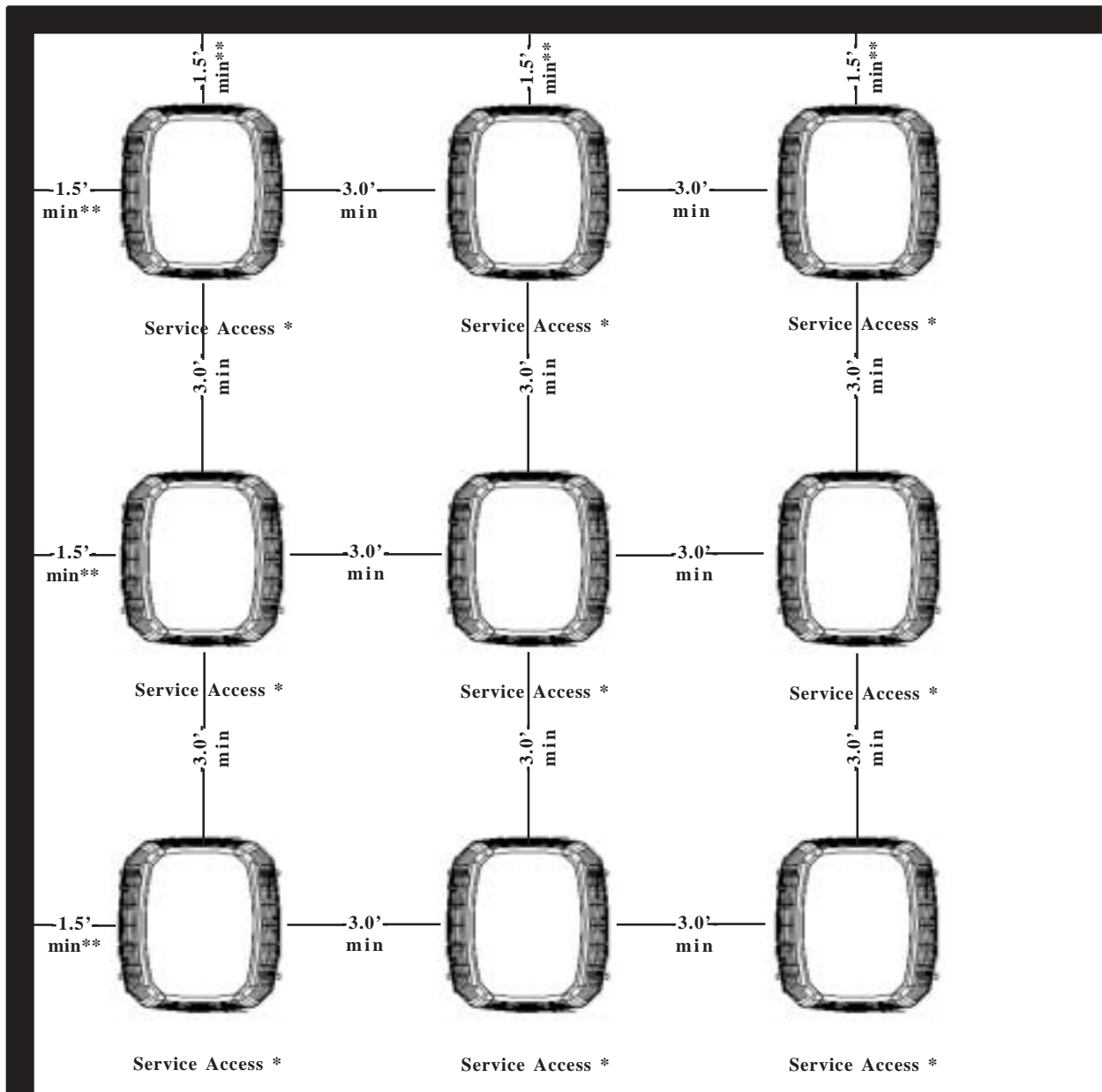
A) Allow 1.5 feet clearance from surrounding walls. (if design temp exceeds 105F, increase this clearance to 2 feet.)

B) Allow 3 feet clearance in between units except for the service panel.

C) 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)

D) Walls shall not be higher than top of units.

E) National, State, and Local Codes must be observed.



\* Units may be rotated in order that service access sides face each other provided that 3 feet minimum clearance be 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 3 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 the table on the following page 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 fence may also be raised in order to equal the calculated free area.



## 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 2002 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. Table 110.26 as well as the figures beside the table 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 to gain access to the electrical controls.

The table and figure below are excerpts from the National Electric Code 2002:

**Table 110.26(A)(1) Working Clearances**

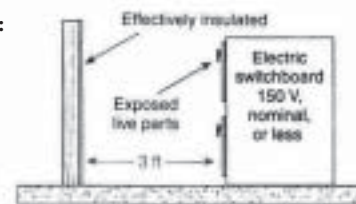
Nominal Voltage to Ground	Minimum Clear Distance		
	Condition 1	Condition 2	Condition 3
0-150	900 mm (3 FT)	900 mm (3 FT)	900 mm (3FT)
151-600	900 mm (3FT)	1 M (3.5FT)	1.2 m (4FT)

Note: Where the conditions are as follows

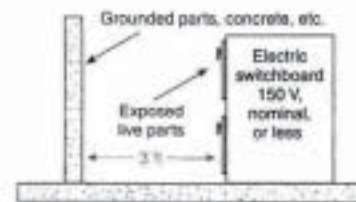
**Condition 1** - Exposed live parts on one side and no live or grounded parts on the other side of the working space, or exposed live parts on both sides effectively guarded by suitable wood or other insulating materials. Insulated wire or insulated busbars operating at not over 300 volts to ground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

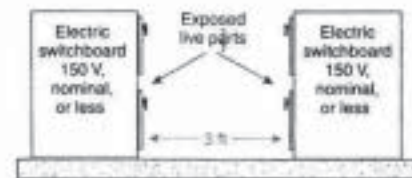
**Condition 3** - Exposed live parts on both sides of the work space (not guarded as provided in Condition 1) with the operator between.



Condition 1  
(3 Ft. minimum for 151 - 600 Volts)



Condition 2  
(Space would increase to 3 1/2 Ft. for 151 - 600 Volts)



Condition 3  
(Space would increase to 4 Ft. for 151 - 600 Volts)

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<b>XLi Outdoor Unit Airflow</b>			
<b>Cooling Units</b>		<b>Heat Pump Units</b>	
Unit Model Number	CFM	Unit Model Number	CFM
2TTX4018A1000A	2000	2TWX4018A1000A	2100
4TTX4018A1000A	2100	4TWX4018A1000A	2200
4TTX3018A1000A	2700	4TWX3018A1000A	2700
4TTX3024A1000A 4TTX4024A1000A	2700	4TWX3024A1000A 4TWX4024A1000A	2700
2TTX4024A1000A	2800	2TWX4024A1000A	2875
4TTX3030A1000A 2TTX4030A1000A 4TTX4030A1000A	3100	4TWX3030A1000A 4TWX3036A1000A	3100
2TTX4036A1000A 4TTX3036A1000A 4TTX4036A1000A	3100	4TWX4030A1000A	3250
4TTX3042A1000A	3100	4TWX3042A1000A	3400
4TTX3048A1000A	3400	4TWX4036A1000A	4000
4TTX3060A1000A	4150	2TWX4030A1000A 4TWX4042A1000A 4TWX4048A1000A	4200
2TTX4042A1000A 4TTX4042A1000A	4400	2TWX4036A1000A 2TWX4042A1000A 2TWX4048A1000A 2TWX4060A1000A	4250
2TTX4048A1000A 4TTX4048A1000A	4400	4TWX3048A1000A 4TWX4060A1000A	4400
2TTX4060A1000A 4TTX4060A1000A	4400	4TWX3060A1000A	4550

\*Table produced May 2002. For the most current information, please refer to specific equipment Product Data.

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

*Example:*

**Given:**

Qty of 4 units in a mechanical yard, surrounded by a fence. Units are 4TTX4042A100A's -

**Required:**

Determine free air opening space required in fence -

**Solution:**

4400 CFM X Qty of 4 = 17,600 CFM

17600 CFM / 300 FPM = 58.67 square feet

Round 58.67 to 59 square feet of free air opening in the 4 fence sections surrounding the mechanical yard.



## NOTES

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Literature Order Number		
File Number	XLi-APG04-EN	3/04
Supersedes	XLi-APG03-EN	
Stocking Location		

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Since Trane has a policy of continuous product improvement, it reserves the right to change design and specifications without notice