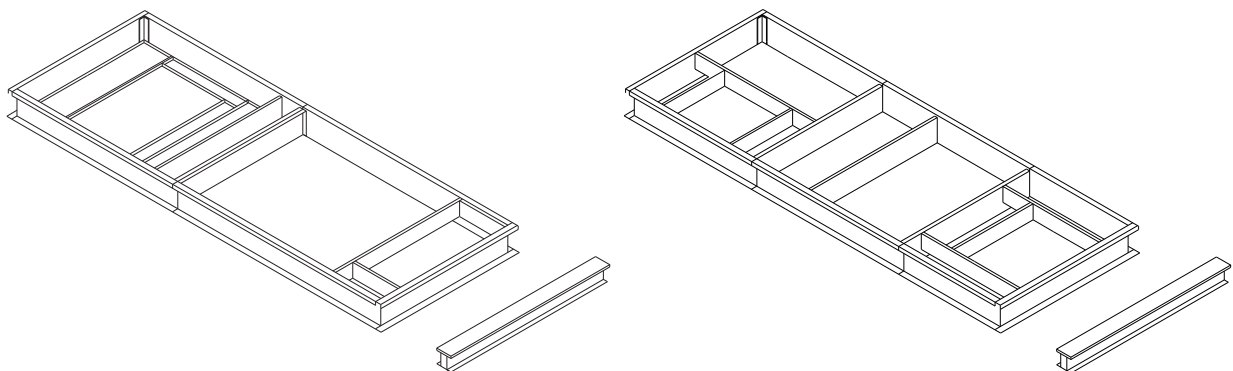




Installation Instructions

Accessory Roof Curb Kit

20 - 130 Ton



Model Number

S*HL

S*HK

W*HE

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.



Warnings, Cautions and Notices

Warnings, Cautions and Notices. Note that warnings, cautions and notices appear at appropriate intervals throughout this manual. Warnings are provided to alert installing contractors to potential hazards that could result in personal injury or death. Cautions are designed to alert personnel to hazardous situations that could result in personal injury, while notices indicate a situation that could result in equipment or property-damage-only accidents.

Your personal safety and the proper operation of this machine depend upon the strict observance of these precautions.

ATTENTION: Warnings, Cautions and Notices appear at appropriate sections throughout this literature. 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, 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-including industry replacements for CFCs such as HCFCs and HFCs.

Responsible Refrigerant Practices!

Trane believes that responsible refrigerant practices are important to the environment, our customers, and the air conditioning industry. All technicians who handle refrigerants must be certified. The Federal Clean Air Act (Section 608) sets forth the requirements for handling, reclaiming, recovering and recycling of certain refrigerants and the equipment that is used in these service procedures. In addition, some states or municipalities may have additional requirements that must also be adhered to for responsible management of refrigerants. Know the applicable laws and follow them.

⚠ WARNING

Personal Protective Equipment (PPE) Required!

Installing/servicing this unit could result in exposure to electrical, mechanical and chemical hazards.

- Before installing/servicing this unit, technicians **MUST** put on all Personal Protective Equipment (PPE) recommended for the work being undertaken. **ALWAYS** refer to appropriate MSDS sheets and OSHA guidelines for proper PPE.
- When working with or around hazardous chemicals, **ALWAYS** refer to the appropriate MSDS sheets and OSHA guidelines for information on allowable personal exposure levels, proper respiratory protection and handling recommendations.
- If there is a risk of arc or flash, technicians **MUST** put on all Personal Protective Equipment (PPE) in accordance with NFPA 70E or other country-specific requirements for arc flash protection, **PRIOR** to servicing the unit.

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

⚠ WARNING**Proper Field Wiring and Grounding Required!**

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.

About the Curb Kit

Note: One copy of this installation literature ships with each Roof Curb Kit.

The roof curb consists of two main components; a pedestal to support the unit's condenser end and a "full perimeter" enclosure to support the unit's air handler section. Refer to [Figure 1, p. 5](#) and [Figure 3, p. 7](#) for the roof curb layout and duct penetrations. [Table 1, p. 5](#) and [Figure 3, p. 7](#) list the dimensional data for the specific size and type of unit.

Note: When installing a S_HL/K unit, the pedestal is positioned at a specified distance from the air handler section of the curb. This distance is critical and must be maintained.

Each curb ships un-assembled. All rail sections, nailer strips, gaskets, and screws required to assemble the curb are provided in the kit and are packaged in a shipping carton.

Roof insulation, cant strips, flashing, roof felts, caulking and nails must be provided by the installing contractor.

All S/A and R/A ductwork must be fabricated, installed and attached to the roof curb by the installing contractor before the unit is set into place. Trane curbs include flanges around the S/A and R/A openings to simplify duct attachment.

By carefully reviewing the information within this manual and following the instructions, the risk of improper operation and/or component damage will be minimized.

If the job site inspection of the kit reveals damage, file a claim with the carrier immediately. Specify the type and extent of the damage on the "bill of lading" before signing. Do not install any damaged parts without the appropriate Trane sales representative's approval!

- Visually inspect the internal components for shipping damage and for material shortages as soon as possible after delivery, before it is stored. Concealed damage must be reported within 15 days.
- If concealed damage is discovered, stop unpacking the shipment. Do not remove damaged material from the receiving location. Take photos of the damage, if possible. The owner must provide reasonable evidence that the damage did not occur after delivery.
- Notify the carrier's terminal of damage immediately by phone and by mail. Request an immediate joint inspection of the damage by the carrier and the consignee.

Do not repair any parts until the damage is inspected by the carrier's representative.

⚠ WARNING**Fiberglass Wool!**

Product contains fiberglass wool. Disturbing the insulation in this product during installation, maintenance or repair will expose you to airborne particles of glass wool fibers and ceramic fibers known to the state of California to cause cancer through inhalation. You **MUST** wear all necessary Personal Protective Equipment (PPE) including gloves, eye protection, a NIOSH approved dust/mist respirator, long sleeves and pants when working with products containing fiberglass wool. Exposition to glass wool fibers without all necessary PPE equipment could result in cancer, respiratory, skin or eye irritation, which could result in death or serious injury.

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Dimensional Data

Note: For sound consideration, cut only the holes in the roof deck for the supply and return duct penetration. Do not remove the roof decking from the inside perimeter of the curb.

Figure 1. Typical curb illustration for 20 to 89 ton standard units

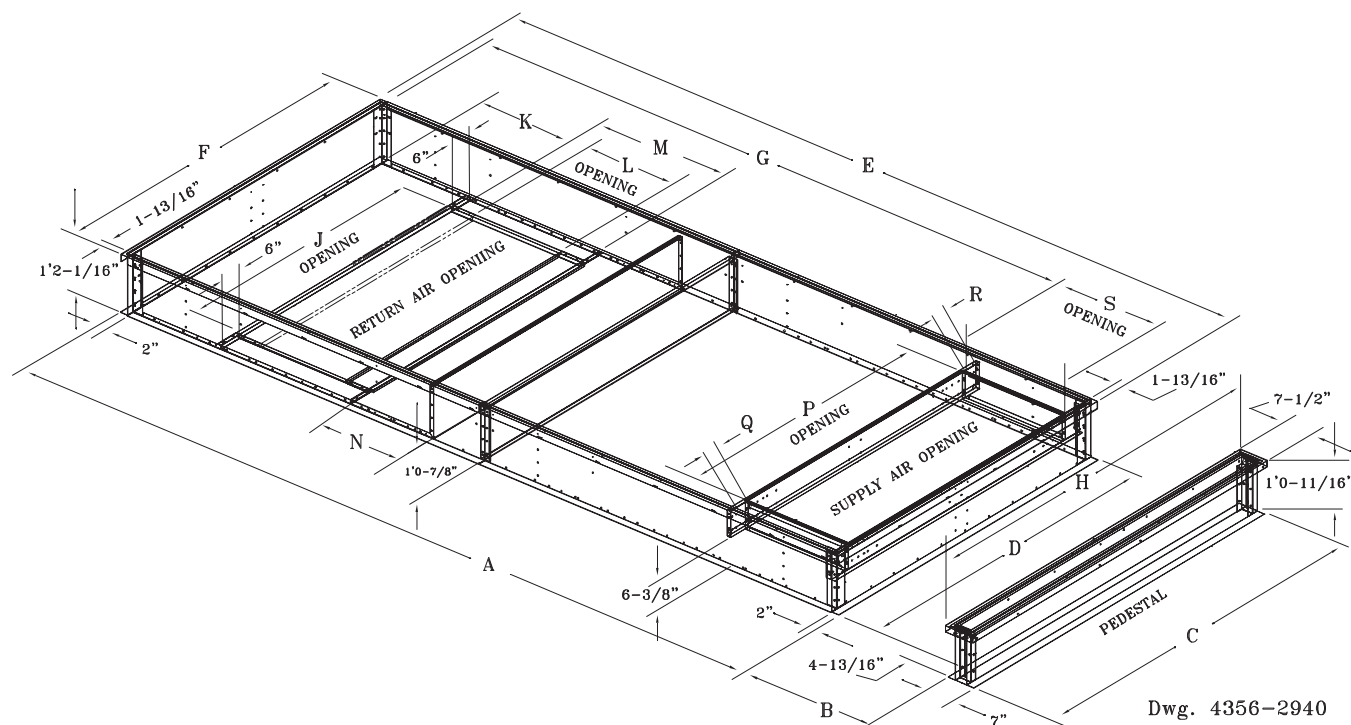


Table 1. Downflow roof curb dimensions (ft. in.) — 20 - 89 ton

Tons ^(a)	Model ^(b)	A	B	C	D	E	F	G	H	J
20,25,30	SAHL	16'-3 7/8"	2'-10 1/16"	7'-10 7/16"	7'-0 13/16"	16'-3 9/16"	7'-0 1/2"	13'-6 15/16"	7'-11 15/16"	5'-8 13/16"
	S*HL	18'-7 1/2"	2'-10 1/16"	7'-10 7/16"	7'-0 13/16"	18'-7 3/16"	7'-0 1/2"	15'-10 9/16"	7'-11 15/16"	5'-8 13/16"
24,29,36	S*HL	18'-7 1/2"	4'-8 1/16"	7'-10 7/16"	7'-0 13/16"	18'-7 3/16"	7'-0 1/2"	15'-10 9/16"	7'-11 15/16"	5'-8 13/16"
	SAHL	19'-1 15/16"	7'-10 1/16"	7'-10 7/16"	7'-0 13/16"	19'-1 5/8"	7'-0 1/2"	16'-2 9/16"	7'-11 15/16"	5'-8 13/16"
40/48, 50,55/59	S*HL	22'-4 1/2"	7'-10 1/16"	7'-10 7/16"	7'-0 13/16"	22'-4 1/8"	7'-0 1/2"	19'-5"	7'-11 15/16"	5'-8 13/16"
	SAHL	19'-1 15/16"	7'-10 1/16"	9'-11 15/16"	9'-2 5/16"	19'-1 5/8"	9'-2"	16'-2 9/16"	10'-1 7/16"	7'-10 5/16"
60,70,75/ 73,80,89	S*HL	22'-4 1/2"	7'-10 1/16"	9'-11 15/16"	9'-2 5/16"	22'-4 1/8"	9'-2"	19'-5"	10'-1 7/16"	7'-10 5/16"
Tons	Model	K	L	M	N	P	Q	R	S	
20,25,30	SAHL	2'-0"	2'-5 5/16"	2'-11 5/16"	1'-10 5/8"	5'-9 1/2"	0'-5 11/16"	0'-5 11/16"	2'-3 5/16"	
	S*HL	2'-0"	2'-5 5/16"	2'-11 5/16"	1'-10 5/8"	5'-7 3/8"	1'-0 7/16"	0'-1"	2'-3 5/16"	
24,29,36	S*HL	2'-0"	3'-6"	4'-0"	1'-10 5/8"	5'-7 3/8"	0'-1 13/16"	0'-2 1/4"	2'-5 15/16"	
	SAHL	2'-0"	3'-6"	4'-0"	1'-10 5/8"	5'-9 1/2"	0'-5 11/16"	0'-5 11/16"	2'-5 15/16"	
40/48, 50,55/59	S*HL	2'-0"	3'-6"	4'-0"	1'-10 5/8"	5'-7 3/8"	0'-11 3/16"	0'-2 1/4"	2'-5 15/16"	
	SAHL	2'-0"	3'-6"	4'-0"	1'-10 5/8"	6'-11 7/8"	0'-11 3/16"	0'-11 3/16"	2'-5 15/16"	
60,70,75/ 73,80,89	S*HL	2'-0"	3'-6"	4'-0"	1'-10 5/8"	7'-8 3/4"	0'-11 3/16"	0'-2 3/8"	2'-5 15/16"	
	SAHL	2'-0"	3'-6"	4'-0"	1'-10 5/8"	7'-8 3/4"	0'-11 3/16"	0'-2 3/8"	2'-5 15/16"	

Note: The return opening of the roof curb is provided with an adjustable filler panel six inches wide. This panel allows adjustment of the return air opening in order to clear roof members of all standard roof constructions with both the supply and return openings. The return air opening of the curb is at a 90 degree angle as compared to the rooftop return air opening to allow this placement flexibility. The curb acts as a plenum between the ductwork and the unit return opening. A retainer clip is used to secure the adjustable filler piece to the roof curb.

(a) Model sizes are listed are for air-cooled/evaporative condensers.

(b) Evaporative condenser units (24, 29, 36, 48, 59, 73, 80 and 89T) are not available with SAHL models.

Dimensional Data

Table 2. Casing 2-6 roof curb dimensions

Casing	A	C	D	E	F	G	H	J
2-3	18'-7 1/2"	7'-10 7/16"	7'-0 13/16"	18'-7 3/16"	7'-0 1/2"	15'-10 9/16"	7'-11 15/16"	5'-8 13/16"
4	22'-4 1/2"	7'-10 7/16"	7'-0 13/16"	22'-4 1/8"	7'-0 1/2"	19'-5"	7'-11 15/16"	5'-8 13/16"
5	22'-4 1/2"	7'-10 7/16"	7'-0 13/16"	22'-4 1/8"	7'-0 1/2"	19'-5"	7'-11 15/16"	5'-8 13/16"
6	22'-4 1/2"	9'-11 15/16"	9'-2 5/16"	22'-4 1/8"	9'-2"	19'-5"	10'-1 7/16"	7'-10 5/16"
Casing	K	L	M	N	P	Q	R	S
2-3	2'-0"	2'-5 5/16"	2'-11 5/16"	1'-10 5/8"	5'-7 3/8"	1'-0 7/16"	0'-1"	2'-3 5/16"
4	2'-0"	3'-6"	4'-0"	1'-10 5/8"	5'-7 3/8"	0'-1 13/16"	0'-2 1/4"	2'-5 15/16"
5	2'-0"	3'-6"	4'-0"	1'-10 5/8"	5'-7 3/8"	0'-11 3/16"	0'-2 1/4"	2'-5 15/16"
6	2'-0"	3'-6"	4'-0"	1'-10 5/8"	7'-8 3/4"	0'-11 3/16"	0'-2 3/8"	2'-5 15/16"

Note: The return opening of the roof curb is provided with an adjustable filler panel six inches wide. This panel allows adjustment of the return air opening in order to clear roof members of all standard roof constructions with both the supply and return openings. The return air opening of the curb is at a 90 degree angle as compared to the rooftop return air opening to allow this placement flexibility. The curb acts as a plenum between the ductwork and the unit return opening. A retainer clip is used to secure the adjustable filler piece to the roof curb.

Figure 2. Typical partial perimeter curb with pedestal dimensions for 90-130 ton and casing 9 air handlers

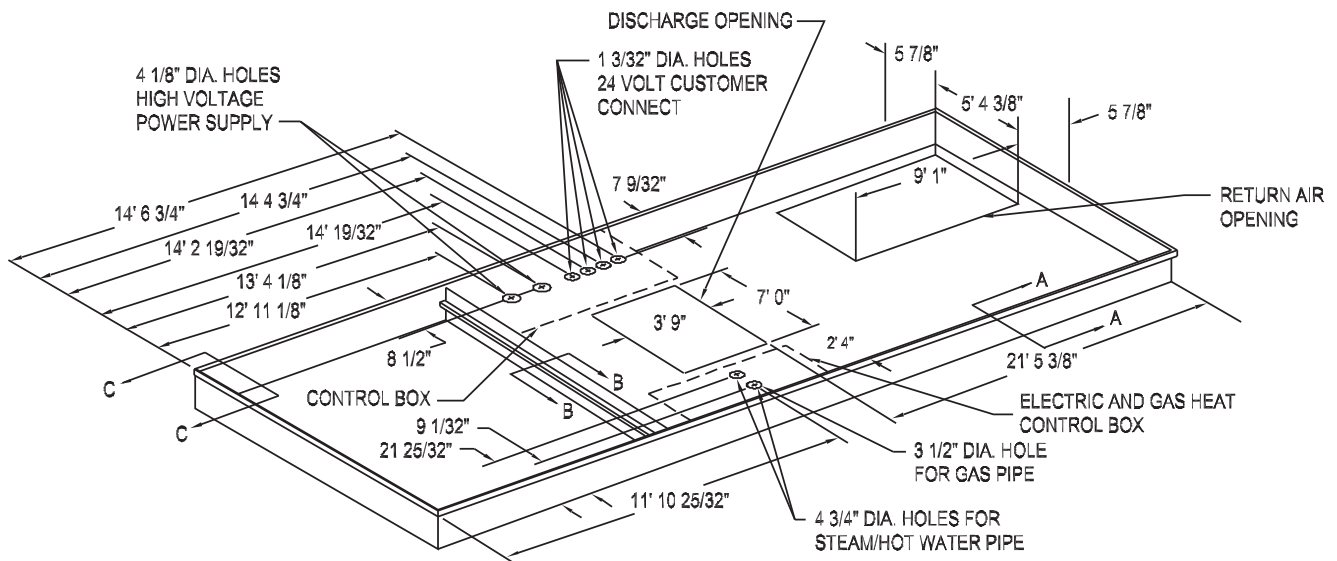
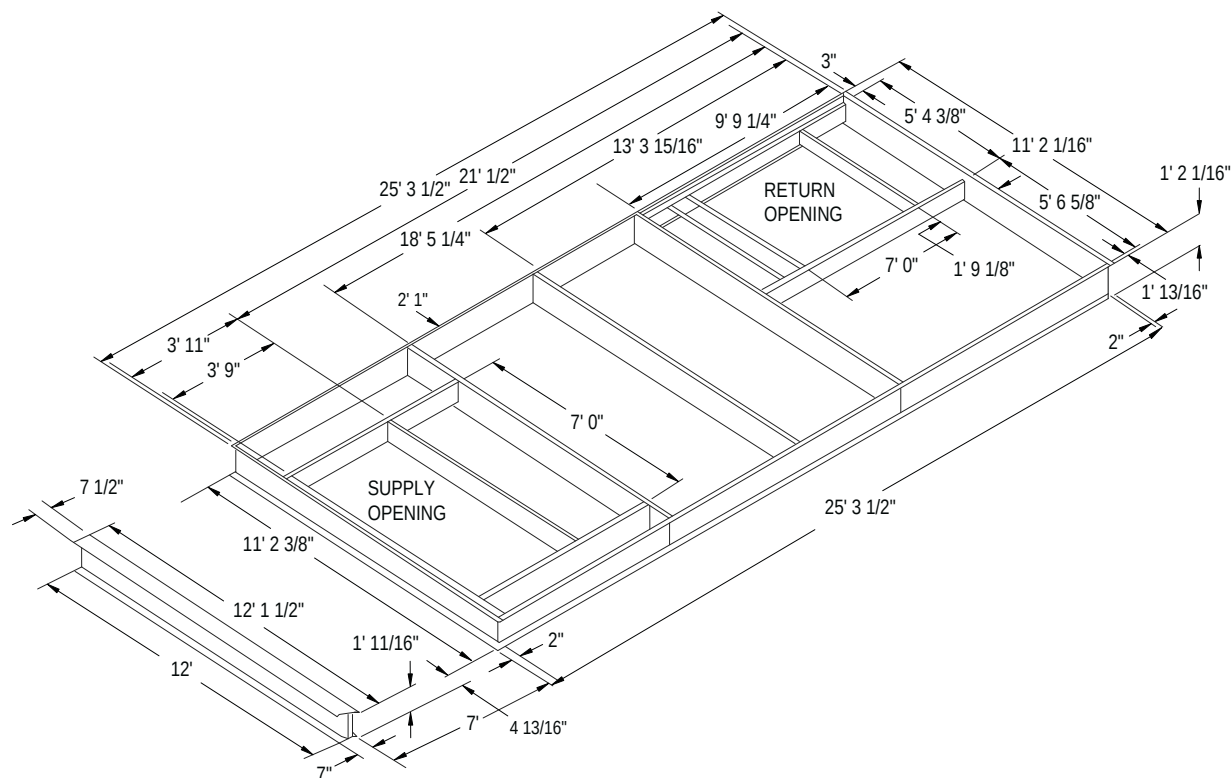


Figure 3. Roof curb dimensions — 90 - 130 ton air-cooled

Notes:

1. The pedestal was purposely designed $1\frac{3}{8}$ " shorter than the curb because the unit base rails rest on the pedestal at one point and on the curb at a different point.
2. Curb dimensions shown are for units with air-cooled condensers; for design special units with evaporative condensers, please see curb installation guide RT-SVN06*-EN.

Roof Curb and Unit Clearance Requirements

When determining the clearance requirements for the application, the minimum operating and service clearances for either a single or multiple unit installation is illustrated in [Figure 4, p. 8](#). These clearances are the minimum distances necessary to assure adequate serviceability, cataloged unit capacity, and peak operating efficiency. Be sure to provide adequate space for installation and maintenance of the ductwork, piping and electrical connections.

Providing less than the recommended clearances may result in condenser coil starvation, "short-circuiting" of exhaust and economizer airflows, or recirculation of hot condenser air. If the actual clearances available at the job site appear to be inadequate, consult the local Trane sales representative before installing the curb.

The supply air duct opening in the curb is located nearest the pedestal. The return air duct opening is located at the end of the curb farthest from the pedestal. A 6" Filler Panel, illustrated in [Figure 1, p. 5](#) can be installed on either side of the return air opening which allows the contractor to clear the roof support members of most standard roof constructions for both duct openings.

If the unit is installed higher than a typical curb elevation, a field constructed catwalk around the unit is recommended to provide access for unit maintenance and service.

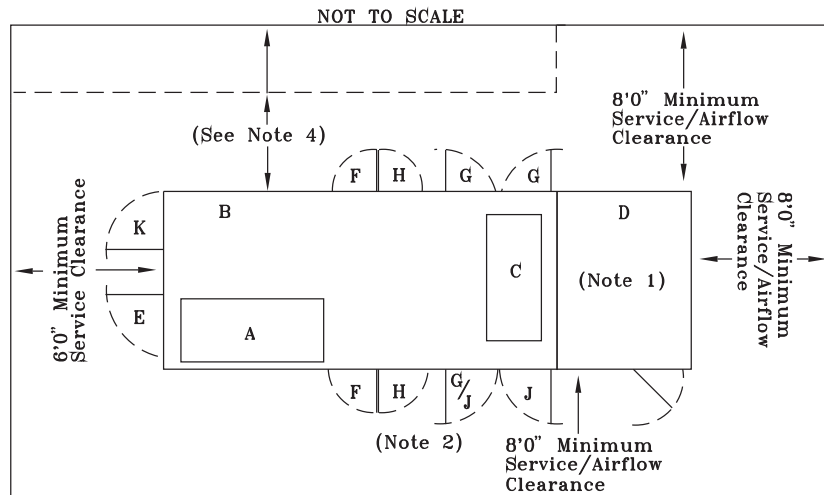
Dimensional Data

Figure 4. Typical service clearance required for single & multiple units installation

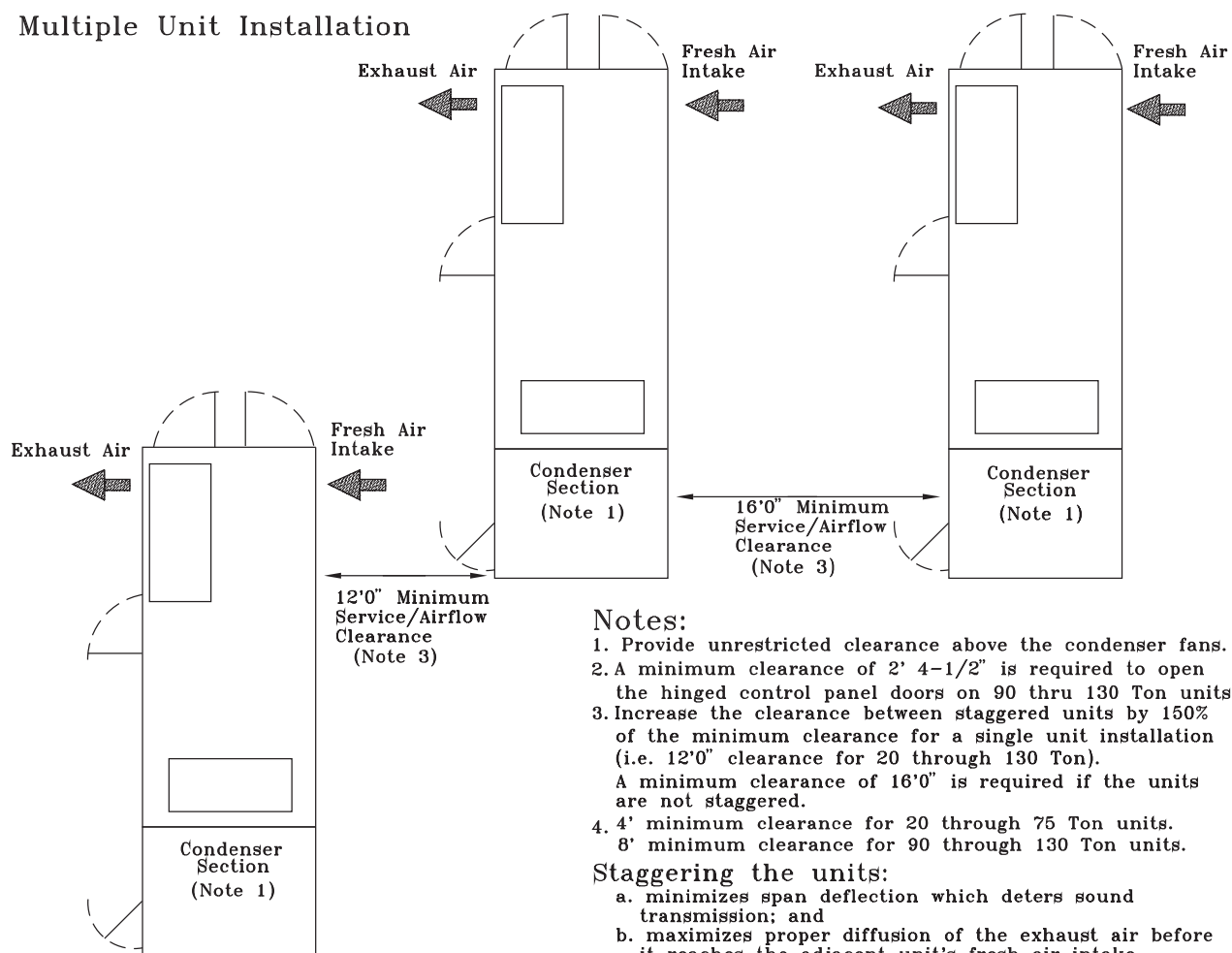
Single Unit Installation

Legend

- A = Return Air Opening
- B = Fresh Air Intake
- C = Supply Air Opening
- D = Condenser Section
- E = Optional 2'10-3/4" Access Door (180° swing)
- F = Hinged 2'10-3/4" Filter Access Door (180° swing)
- G = Hinged 2'10-3/4" Heater Access Door (180° swing)
- H = Hinged 2'10-3/4" Supply Fan Access Door (180° swing)
- J = Hinged 2'4-1/2" Control Panel Door (180° Swing) (90 thru 130 Ton)
- K = VFD Access Panel



Multiple Unit Installation



Notes:

1. Provide unrestricted clearance above the condenser fans.
2. A minimum clearance of 2' 4-1/2" is required to open the hinged control panel doors on 90 thru 130 Ton units.
3. Increase the clearance between staggered units by 150% of the minimum clearance for a single unit installation (i.e. 12'0" clearance for 20 through 130 Ton). A minimum clearance of 16'0" is required if the units are not staggered.
4. 4' minimum clearance for 20 through 75 Ton units.
8' minimum clearance for 90 through 130 Ton units.

Staggering the units:

- a. minimizes span deflection which deters sound transmission; and
- b. maximizes proper diffusion of the exhaust air before it reaches the adjacent unit's fresh air intake.

Roof Support Considerations

WARNING

Risk of Roof Collapsing!

Confirm with a structural engineer that the roof structure is strong enough to support the combined weight of the roofcurb and the unit. Refer to [“Weights,” p. 10](#) for typical unit and curb weights. Failure to ensure proper structural roof support could cause the roof to collapse, which could result in death or serious injury and property damage.

The roof must be capable of adequately supporting the combined weight of the S_HL/S_HK/W_HE units and the complete roof curb assembly. Refer to [Table 3, p. 10](#) and [Table 4, p. 11](#) for the approximate unit weights and curb weights and [Figure 5, p. 13](#) for center-of-gravity information.

For W_HE (Rooftop Air Handler) units, refer to [Table 6, p. 12](#) for the approximate unit weights and curb weights and [Table 8, p. 14](#) for center-of-gravity information.

Each unit may be set either perpendicular or parallel to the roof support members.

Note: When determining roof support member locations, do not block the supply and return air openings in the air handler portion of the roof curb. Refer to [Figure 1, p. 5](#) and [Table 1, p. 5](#) for opening sizes and locations.

Perpendicular Roof Supports

If the unit is to be positioned perpendicular to the roof supports, refer to [Figure 7, p. 15](#) while proceeding through the following steps:

1. Plan the support at the unit's condenser end first; the curb pedestal (S_HL units only) must rest on a roof support member as illustrated in [Figure 7, p. 15](#).
2. The supply air end of the curb must also rest on a roof support member as illustrated in [Figure 7, p. 15](#) (all units).
3. Provide additional roof support members to support the rest of the unit's air handler section. The center-to-center distance between roof support members must not exceed 120".
4. The unit's return air end may extend (overhang) a maximum of 30" beyond a roof support member if the unit has an exhaust fan. This extension (overhang) may be increased to a maximum of 72" if it doesn't have an exhaust fan.

Parallel Supports

1. If the unit is to be positioned parallel with the roof supports, refer to the illustration in [Figure 8, p. 16](#) while proceeding through the following steps:
2. Refer to [Figure 1, p. 5](#) and [Table 1, p. 5](#) to determine the appropriate width for the air handler portion of the roof curb (all units).
3. Based on the dimensions found in step 1, determine the distance between the two main roof supports that will bear the combined weight of the unit and curb assembly.
4. To ensure adequate clearance for ductwork, do not allow the inside edges of the roof supports to protrude more than 2" (1" for 20 - 30 Ton units) beyond the inside edges of the curb. Refer to [Figure 8, p. 16](#).

Dimensional Data

Weights

Table 3. Air-cooled condenser - approximate operating weights (lbs./kg)

Unit		Without Exhaust Fan					With Exhaust Fan				
		SA	SX	SE	SF	SL / SS	SA	SX	SE	SF	SL / SS
20	Lb	4092	4422	4712	4422	4312	4390	4720	5010	4720	4610
	Kg	1856	2006	2137	2006	1956	1991	2141	2272	2141	2091
25	Lb	4181	4521	4791	4521	4391	4485	4825	5095	4825	4695
	Kg	1896	2050	2173	2050	1992	2034	2188	2311	2188	2129
30	Lb	4572	4932	5202	4932	4812	5029	5389	5659	5389	5269
	Kg	2074	2237	2359	2237	2183	2281	2444	2567	2444	2390
40	Lb	6433	6737	7217	6737	6577	7103	7407	7887	7407	7247
	Kg	2918	3056	3273	3056	2983	3222	3360	3577	3360	3287
50	Lb	7175	7725	8185	7725	7555	7894	8444	8904	8444	8274
	Kg	3255	3504	3713	3504	3427	3581	3830	4039	3830	3753
55	Lb	7425	7975	8455	7975	7815	8144	8694	9174	8694	8534
	Kg	3368	3617	3835	3617	3545	3694	3944	4161	3944	3871
60	Lb	8338	8658	9118	8658	8498	9282	9602	10062	9602	9442
	Kg	3782	3927	4136	3927	3855	4210	4355	4564	4355	4283
70	Lb	8604	8666	9146	8666	8516	9547	9609	10089	9609	9459
	Kg	3903	3931	4148	3931	3863	4330	4358	4576	4358	4290
75	Lb	8843	9173	9653	9173	9023	9786	10116	10596	10116	9966
	Kg	4011	4161	4379	4161	4093	4439	4589	4806	4589	4521
90	Lb.	N/A	13100	13250	13890	13370	N/A	14440	14590	15230	14710
	Kg	N/A	5955	6023	6314	6077	N/A	6564	6632	6923	6686
105	Lb.	N/A	13710	13860	14500	13980	N/A	15050	15200	15840	15320
	Kg	N/A	6232	6300	6591	6355	N/A	6841	6909	7200	6964
115	Lb.	N/A	13900	14080	14740	14100	N/A	15240	15420	16080	15440
	Kg	N/A	6318	6400	6700	6409	N/A	6927	7009	7309	7018
130	Lb.	N/A	14350	14510	15150	14540	N/A	15690	15850	16490	15880
	Kg	N/A	6523	6595	6886	6609	N/A	7132	7205	7495	7218

Notes:

1. Weights shown for air-cooled units include the following features: standard coils, 100% economizer, throwaway filters, maximum motor sizes, inlet guide vanes, 460V XL, high heat.
2. Weights shown represent approximate operating weights and have a $\pm 5\%$ accuracy. To calculate weight for a specific unit configuration, utilize TOPSS™ or contact the local Trane sales representative. ACTUAL WEIGHTS ARE STAMPED ON THE UNIT NAMEPLATE.

Table 4. Evaporative condenser - approximate operating weight (lbs/kg)

Unit		Without Exhaust Fan				With Exhaust Fan			
		SX	SE	SF	SL/SS	SX	SE	SF	SL/SS
24	Lb	6549	6679	6944	6763	6907	7037	7302	7121
	Kg	2971	3030	3150	3068	3133	3192	3312	3230
29	Lb	6599	6729	6994	6813	6963	7093	7358	7177
	Kg	2993	3052	3172	3090	3158	3217	3338	3255
36	Lb	7121	7251	7513	7335	7538	7668	7933	7752
	Kg	3230	3289	3409	3327	3419	3478	3598	3516
48	Lb	9001	9156	9631	9359	9585	9740	10215	9943
	Kg	4083	4153	4369	4245	4348	4418	4633	4510
59	Lb	9213	9368	9843	9571	9856	10011	10486	10214
	Kg	4179	4249	4465	4341	4471	4541	4756	4633
73	Lb	11303	11458	11933	11691	12128	12283	12758	12516
	Kg	5127	5197	5413	5303	5501	5571	5787	5677
80	Lb	11430	11585	12060	11818	12255	12410	12885	12643
	Kg	5185	5255	5470	5361	5559	5629	5845	5735
89	Lb	11820	11975	12450	12208	12645	12800	13275	13033
	Kg	5361	5432	5647	5537	5736	5806	6021	5912

Notes:

- Weights shown for evaporative condensing units include the following features: high capacity evaporative coil and the weight of the extra structure associated with the two piece unit. Add 520 lbs for 24, 29, 36, 48 and 59 units and 680 lbs for 73, 80 and 89 units for installed sump base water weight for evaporative-cooled condenser total operating weight.
- Weights shown represent approximate operating weights and have a $\pm 5\%$ accuracy. To calculate weight for a specific unit configuration, utilize TOPSS™ or contact the local Trane sales representative. ACTUAL WEIGHTS ARE STAMPED ON THE UNIT NAMEPLATE.

Table 5. Roof curb max weight^(a)

Unit	Roof Curb Max. Weight	
	SAHL	S*HL
20/24	490	510
	222	231
25/29	490	510
	222	231
30/36	490	510
	222	231
40/48	515	550
	234	249
50/55/59	515	550
	234	249
60/73	515	550
	234	249

Unit	Roof Curb Max. Weight	
	SAHL	S*HL
70/80	610	640
	277	290
75/89	610	640
	277	290
90	N/A	770
	N/A	349
105	N/A	770
	N/A	349
115	N/A	770
	N/A	349
130	N/A	770
	N/A	349

(a) Roof curb weights include the curb and pedestal.



Dimensional Data

Table 6. Air Handling Units (W_HE) - Typical unit & curb weights

Casing Size	Typical Unit Operating Weight ^(a)															Roof Curb Max. Wgt Wgt W _{HE} ^(b)
	Std. DX Coil			2 Row Chilled Water			4 Row Chilled Water			6 Row Chilled Water			8 Row Chilled Water			
	WE, WL			WE, WL			WE, WL			WE, WL			WE, WL			
	WSHE	WFHE	WXHE	WSHE	WFHE	WXHE	WSHE	WFHE	WXHE	WSHE	WFHE	WXHE	WSHE	WFHE	WXHE	
2	3690	3950	3560	3810	4075	3680	3970	4235	3840	4130	4395	4000	—	—	—	510
3	4165	4430	4040	4280	4545	4150	4510	4775	4380	4740	5005	4610	—	—	—	510
4	5324	5500	5170	5575	6050	5420	5840	6315	5685	6105	6580	5950	—	—	—	550
5	5945	6430	5790	6155	6630	6000	6480	6955	6325	6795	7270	6640	—	—	—	550
6	7070	7545	6915	7265	7740	7110	7625	8100	7470	7985	8460	7830	—	—	—	640
9	10655	11300	10500	10320	10965	10165	10865	11510	10710	11405	12050	11250	11955	12600	11800	770
Casing Size	Typical Unit Operating Weight ^(c)															Roof Curb Max. Wgt Wgt W _{HB} ^(b)
	Std. DX Coil			2 Row Chilled Water			4 Row Chilled Water			6 Row Chilled Water			8 Row Chilled Water			
	WE, WL			WE, WL			WE, WL			WE, WL			WE, WL			
	WSHE	WFHE	WXHE	WSHE	WFHE	WXHE	WSHE	WFHE	WXHE	WSHE	WFHE	WXHE	WSHE	WFHE	WXHE	
2	3990	4255	3860	4115	4380	3985	4275	4540	4145	4435	4700	4305	—	—	—	510
3	4510	4775	4380	4625	4890	4495	4855	5120	4725	5085	5350	4955	—	—	—	510
4	5730	6205	5575	5980	6455	5825	6245	6720	6090	6510	6985	6355	—	—	—	550
5	6410	6885	6255	6625	7100	6470	6945	7420	6790	7265	7740	7110	—	—	—	550
6	7585	8060	7430	7780	8255	7625	8140	8615	7985	8500	8975	8345	—	—	—	640
9	11505	12150	11350	11170	11815	11015	11715	12360	11560	12255	12900	12100	12805	13450	12650	770

(a) The weights shown in this table represents the typical unit operating weights for the heating/cooling function indicated with an economizer and exhaust fan installed.

(b) Roof curb weights include the curb and pedestal.

(c) The weights shown represents the typical unit operating weights for the heating/cooling function indicated with an economizer, exhaust fan with supply & exhaust VFD installed. The actual weight is stamped on unit nameplate.

Center of Gravity

Figure 5. S_HL 20 through 89 ton and S_HK 90 through 130 ton center-of-gravity

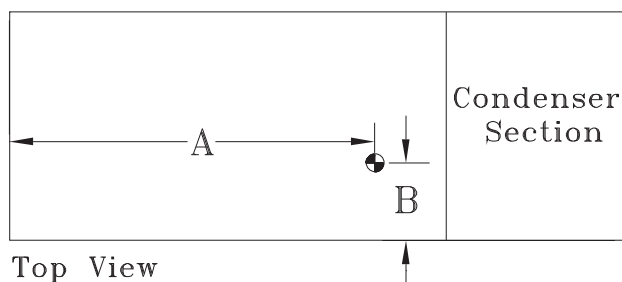


Table 7. Center of gravity data

Unit Model	Unit Size	Units without 100 % Exhaust/Return Fan		Units with Exhaust/Return Fan		Units with Supply & Exhaust/Return VFD	
		Dim. A	Dim. B	Dim. A	Dim. B	Dim. A	Dim. B
SAHL	20	13' 6"	4' 10"	13' 10"	4' 9"	12' 4"	4' 10"
	25	14' 6"	4' 10"	13' 11"	4' 9"	12' 4"	4' 10"
	30	13' 11"	4' 10"	12' 1"	4' 9"	12' 8"	4' 10"
	40	17' 4"	4' 0"	16' 2"	4' 11"	16' 7"	4' 11"
	50	18' 6"	4' 0"	16' 4"	4' 11"	16' 9"	4' 11"
	55	18' 6"	4' 0"	16' 5"	4' 11"	16' 9"	4' 11"
	60	17' 0"	5' 10"	16' 9"	5' 8"	15' 2"	5' 9"
	70	17' 0"	5' 10"	16' 10"	5' 8"	15' 3"	5' 9"
SEHL, SLHL, SSHL, SXHL	75	18' 6"	5' 10"	16' 4"	5' 8"	16' 9"	5' 9"
	20	15' 8"	4' 9"	14' 0"	4' 8"	13' 5"	4' 9"
	25	15' 8"	4' 9"	14' 0"	4' 8"	13' 6"	4' 9"
	30	14' 1"	4' 9"	13' 3"	4' 8"	13' 8"	4' 9"
	40	18' 4"	4' 11"	17' 2"	4' 10"	17' 6"	4' 10"
	50	19' 1"	4' 0"	18' 11"	4' 11"	17' 2"	4' 11"
	55	19' 1"	4' 0"	18' 11"	4' 11"	17' 3"	4' 0"
	60	18' 6"	5' 9"	17' 2"	5' 7"	17' 6"	5' 8"
SFHL	70	18' 3"	5' 10"	17' 11"	5' 8"	16' 4"	5' 9"
	75	19' 2"	5' 10"	18' 10"	5' 8"	17' 2"	5' 9"
	20	15' 9"	4' 10"	14' 1"	4' 9"	14' 7"	4' 10"
	25	15' 10"	4' 9"	14' 2"	4' 8"	14' 7"	4' 9"
	30	14' 2"	4' 9"	13' 4"	4' 8"	13' 10"	4' 9"
	40	19' 6"	4' 11"	17' 4"	4' 10"	17' 9"	4' 10"
	50	19' 1"	4' 11"	18' 0"	4' 10"	17' 4"	4' 11"
	55	19' 2"	4' 11"	18' 0"	4' 10"	17' 4"	4' 11"
SXHK, SEHK, SLHK, SSHK	60	19' 7"	5' 9"	17' 4"	5' 7"	17' 8"	5' 9"
	70	18' 3"	5' 9"	17' 0"	5' 7"	16' 5"	5' 8"
SFHK	75	19' 2"	5' 9"	18' 10"	5' 7"	17' 3"	5' 9"
	90	18' 9"	5' 10"	20' 4"	6' 2"	17' 9"	5' 10"
SFHK	105	19' 1"	5' 11"	20' 7"	6' 2"	18' 1"	6' 0"
	90	18' 11"	6' 0"	20' 6"	6' 3"	17' 10"	5' 11"
SXHK, SEHK, SLHK, SSHK	105	19' 3"	6' 0"	20' 9"	6' 4"	18' 4"	6' 7"
	115	19' 2"	5' 10"	20' 8"	6' 2"	18' 1"	6' 0"
SFHK	130	19' 5"	5' 10"	20' 11"	6' 2"	18' 6"	6' 0"
	115	19' 4"	6' 0"	20' 9"	6' 3"	18' 3"	6' 1"
	130	19' 6"	6' 0"	21' 10"	6' 3"	18' 8"	6' 0"

Note: Dimensions shown for the center-of-gravity are approximate and are based on a unit equipped with: Standard coils, 100% economizer, throwaway filters, inlet guide vanes, 460 volt XL start, high capacity heat (as applicable).

Dimensional Data

Figure 6. W_HE Case 2-9 - center-of-gravity

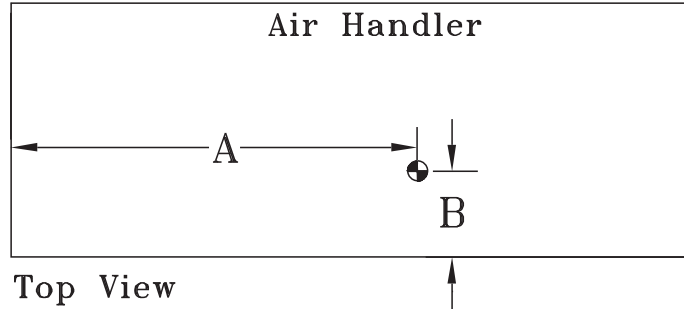


Table 8. W_HE center-of-gravity data^(a)

Unit Model	Casing Size	Units with 100 % Exhaust Fan									
		Std. DX Coil		2 Row		4 Row		6 Row		8 Row	
				Chilled Water		Chilled Water		Chilled Water		Chilled Water	
		A	B	A	B	A	B	A	B	A	B
WEHE WLHE WSHE WXHE	2	10' 4"	3' 4"	10' 4"	3' 4"	10' 4"	3' 4"	10' 4"	3' 4"	N/A	N/A
	3	10' 2"	3' 4"	10' 2"	3' 4"	10' 2"	3' 4"	10' 4"	3' 4"	N/A	N/A
	4	12' 2"	3' 4"	12' 1"	3' 4"	12' 0"	3' 4"	12' 0"	3' 4"	N/A	N/A
	5	12' 0"	3' 4"	11' 10"	3' 4"	11' 9"	3' 4"	11' 9"	3' 4"	N/A	N/A
	6	11' 10"	4' 1"	11' 9"	4' 0"	11' 9"	4' 0"	11' 8"	4' 0"	N/A	N/A
	9	12' 8"	5' 4"	12' 6"	5' 4"	12' 4"	5' 2"	12' 4"	5' 1"	12' 4"	5' 1"
WFHE	2	10' 8"	3' 4"	10' 8"	3' 4"	10' 8"	3' 4"	10' 8"	3' 4"	N/A	N/A
	3	10' 7"	3' 4"	10' 7"	3' 4"	10' 7"	3' 4"	10' 7"	3' 4"	N/A	N/A
	4	12' 10"	3' 4"	12' 8"	3' 4"	12' 7"	3' 4"	12' 7"	3' 4"	N/A	N/A
	5	12' 6"	3' 4"	12' 6"	3' 4"	12' 4"	3' 4"	12' 4"	3' 4"	N/A	N/A
	6	12' 4"	4' 1"	12' 4"	4' 0"	12' 2"	4' 0"	12' 2"	4' 0"	N/A	N/A
	9	13' 4"	5' 7"	13' 1"	5' 4"	13' 0"	5' 4"	12' 10"	5' 4"	12' 9"	5' 2"
Unit Model	Casing Size	Units without Exhaust Fan									
		Std. DX Coil		2 Row		4 Row		6 Row		8 Row	
				Chilled Water		Chilled Water		Chilled Water		Chilled Water	
		A	B	A	B	A	B	A	B	A	B
WEHE WLHE WSHE WXHE	2	11' 1"	3' 6"	11' 0"	3' 6"	11' 0"	3' 6"	11' 0"	3' 6"	N/A	N/A
	3	11' 1"	3' 6"	11' 0"	3' 6"	11' 0"	3' 6"	11' 0"	3' 6"	N/A	N/A
	4	13' 4"	3' 6"	13' 1"	3' 6"	13' 0"	3' 6"	12' 10"	3' 6"	N/A	N/A
	5	13' 1"	3' 6"	12' 10"	3' 6"	12' 9"	3' 6"	12' 8"	3' 6"	N/A	N/A
	6	13' 1"	4' 4"	13' 0"	4' 4"	12' 10"	4' 4"	12' 8"	4' 2"	N/A	N/A
	9	14' 2"	5' 9"	14' 0"	5' 7"	13' 9"	5' 6"	13' 7"	5' 4"	13' 4"	5' 4"
WFHE	2	11' 6"	3' 6"	11' 6"	3' 6"	11' 4"	3' 6"	11' 4"	3' 6"	N/A	N/A
	3	11' 4"	3' 6"	11' 4"	3' 6"	11' 4"	3' 6"	11' 4"	3' 6"	N/A	N/A
	4	13' 10"	3' 6"	13' 8"	3' 6"	13' 7"	3' 6"	13' 6"	3' 6"	N/A	N/A
	5	13' 8"	3' 6"	13' 6"	3' 6"	13' 4"	3' 6"	13' 2"	3' 6"	N/A	N/A
	6	13' 7"	4' 4"	13' 6"	4' 4"	13' 4"	4' 2"	13' 2"	4' 2"	N/A	N/A
	9	14' 9"	6' 0"	14' 6"	5' 9"	14' 3"	5' 8"	14' 1"	5' 7"	14' 0"	5' 6"

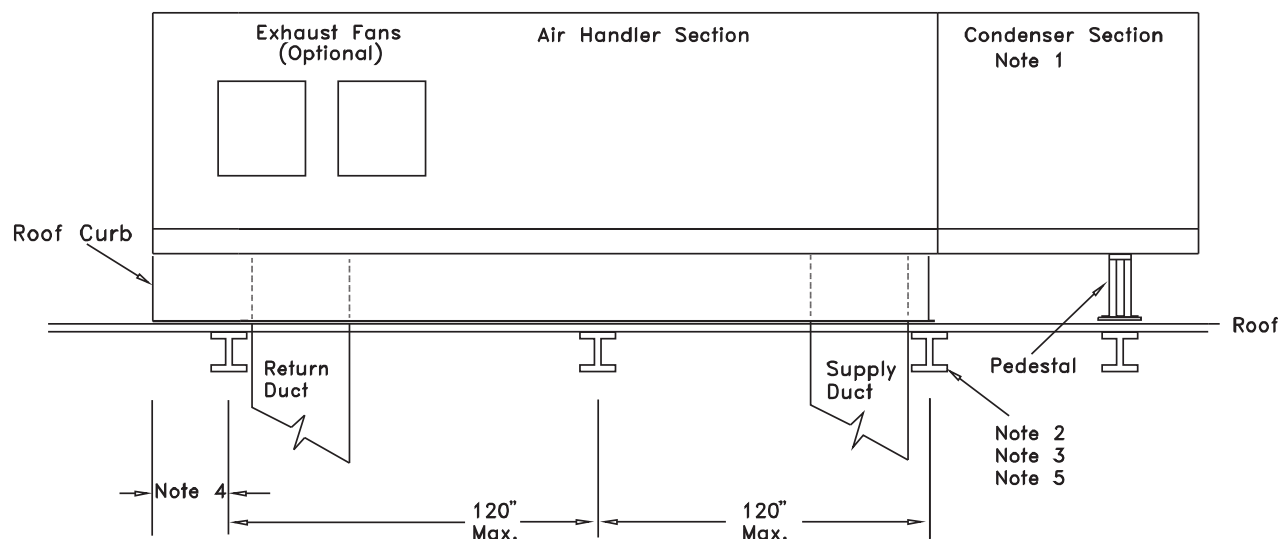
continued on next page

Table 8. (continued) W_HE center-of-gravity data^(a)

Unit Model	Casing Size	Units with Supply and Exhaust Fan (VFD)									
		Std. DX Coil		2 Row		4 Row		6 Row		8 Row	
				Chilled Water		Chilled Water		Chilled Water		Chilled Water	
		A	B	A	B	A	B	A	B	A	B
WEHE WLHE WSHE WXHE	2	9' 7"	3' 4"	9' 7"	3' 4"	9' 7"	3' 4"	9' 8"	3' 4"	N/A	N/A
	3	9' 6"	3' 4"	9' 6"	3' 4"	9' 7"	3' 6"	9' 7"	3' 6"	N/A	N/A
	4	11' 4"	3' 4"	11' 4"	3' 6"	11' 4"	3' 6"	11' 4"	3' 6"	N/A	N/A
	5	11' 2"	3' 6"	11' 1"	3' 6"	11' 1"	3' 6"	11' 1"	3' 6"	N/A	N/A
	6	11' 2"	4' 4"	11' 1"	4' 2"	11' 1"	4' 2"	11' 1"	4' 2"	N/A	N/A
	9	11' 9"	5' 7"	11' 8"	5' 6"	11' 7"	5' 4"	11' 7"	5' 4"	11' 6"	5' 2"
WFHE	2	10' 0"	3' 4"	10' 0"	3' 4"	10' 0"	3' 4"	10' 0"	3' 4"	N/A	N/A
	3	9' 10"	3' 4"	9' 10"	3' 4"	10' 0"	3' 6"	10' 0"	3' 6"	N/A	N/A
	4	12' 1"	3' 4"	12' 0"	3' 4"	11' 10"	3' 6"	11' 10"	3' 6"	N/A	N/A
	5	11' 9"	3' 6"	11' 8"	3' 6"	11' 8"	3' 6"	11' 7"	3' 6"	N/A	N/A
	6	11' 8"	4' 2"	11' 7"	4' 2"	11' 7"	4' 2"	11' 6"	4' 1"	N/A	N/A
	9	12' 4"	5' 8"	12' 4"	5' 7"	12' 2"	5' 6"	12' 1"	5' 4"	12' 1"	5' 4"

(a) Dimensions shown for the center-of-gravity are approximate and are based on a unit equipped with: Standard coils, 100% economizer, throwaway filters, 100% economizer, throwaway filters, hi-efficiency motors, inlet guide vanes, 460 volt XL start, high capacity heat section (as applicable).

Figure 7. Unit and curb assembly positioned perpendicular to roof supports

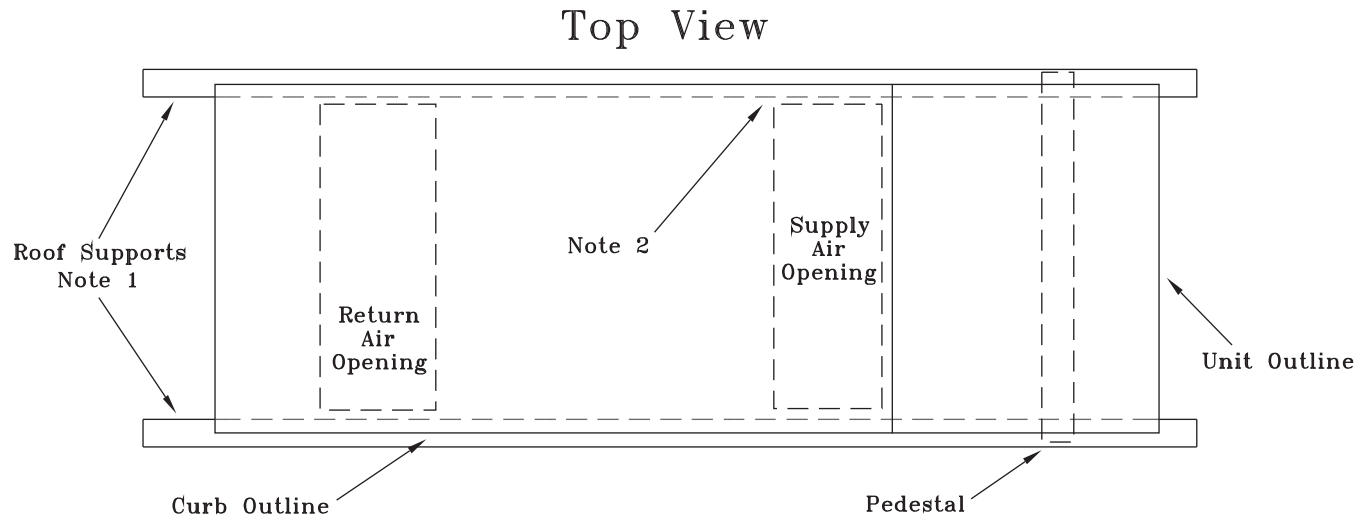


Notes:

1. Check final layout to ensure adequate clearance for unit operation, ductwork installation and electrical connections for the unit and optional heat section.
2. Roof supports must be strong enough to support the combined weight of the unit, curb and pedestal. Maximum spacing between centers of roof support is 10 feet.
3. Do not allow the roof support to protrude more than 1" beyond the curb's inside edge.
4. Maximum allowable overhang for the return air end of a unit without power exhaust is 6 feet.
Maximum allowable overhang for the return air end of a unit with power exhaust is 2'-6".
5. Actual number of roof supports varies by unit model, size and center-to-center spacing of the main roof supports.

Dimensional Data

Figure 8. Unit and curb assembly positioned parallel with roof supports



Notes:

1. Determine the required distance between the roof supports based on the curb's width.
2. To provide adequate clearance for the return air ductwork, do not allow the inside edge of the roof support to protrude more than 2" beyond the inside edge of the curb (1" for 20 through 30 Ton units).

Roof Curb Assembly

Inspection

- Verify that the curb identification data on the shipping carton(s) corresponds with the ordering information.
- Inspect the curb for shipping damage and material shortages; report any discrepancies to the carrier and the local Trane sales office.

Assembly Checklist

A “Checklist” is provided below as a summary of the steps required to complete the assembly and installation of the roof curb and pedestal. It is intended to acquaint the installing personnel with what is required in the process. It does not replace the detailed instructions called out in this manual.

Perimeter Curb Rail Assembly, [p. 21](#)

- Attach a corner angle (slotted) to each end of End Rail (1).
- Attach End Rail (1) to Side Rail (4).
- Align Side Rail (15) next to Side Rail (4) and attach Crossmember (13) to both Side Rails at the joint.
- Attach a corner angle (slotted) to each end of End Rail (2).
- Attach Crossmember (12) and End Rail (2) to Side Rail (15).
- Attach Crossmember (12) and End Rail (2) to Side Rail (14).
- Align Side Rail (14) next to Side Rail (3) and attach Crossmember (13) to both Side Rails at the joint.
- Attach Side Rail (3) to End Rail (1).

Return Air Duct Opening Assembly, [p. 23](#)

- Attach End Panel (5) between Side Rail (3) and Side Rail (4).
- Attach “L” Panel (8) between Side Rail (3) and Side Rail (4).
- Attach Side Panel (6) between End Panel (5) and “L” Panel (8).
- Attach Side Panel (7) between End Panel (5) and “L” Panel (8).
- Attach Filler Panel (16) between Side Panel (6) and Side Panel (7).

Supply Air Duct Opening Assembly, [p. 25](#)

- Attach Crossmember (9) between Side Rail (14) and Side Rail (15).
- Attach Crossmember (10) between Crossmember (9) and Crossmember (12).
- Attach Crossmember (11) between Crossmember (9) and Crossmember (12).

Pedestal Assembly (page 12) (Not required for W_HB Rooftop Air Handlers)

Note: Torque the screws for the pedestal during each step to 6 ft./lbs.

- Attach Channel Splice (P4) and Channel Splice (P6) to the ends of Side Rail (P1).
- Attach Side Rail (P2) to Channel Splice (P4) and Channel Splice (P6).
- Attach End Rail (P5) to Channel Splice (P4).
- Attach End Rail (P7) to Channel Splice (P6).
- Apply the gasket material to the top flanges of the Pedestal assembly.
- Place Cap (P3) over pedestal assembly and secure it with one screw at each end.

Roof Curb Assembly

Curb and Pedestal Installation, [p. 25](#) (Pedestal not Required for W_HE Rooftop Air Handlers)

- Verify that the roof structure can adequately support the combined weight of the unit and curb assembly.
- Ensure that the selected installation location provides sufficient service and operational clearances.
- Place the curb end at the proper distance from the pedestal over the proper roof support.
- Remove any twist within the curb due to roof supports and square the curb.
- Level the curb.
- Place the pedestal on the roof support member(s).
- Center the pedestal to the curb.
- Verify the proper vertical distance between the top of the pedestal and the perimeter curb is correct.
- Secure the curb and pedestal to the roof support members.
- Install 2" X 10" boards or rigid insulation around the curb and pedestal.
- Install cant strips around the curb and pedestal.
- Bring field supplied roofing felt up to the top of the curb and pedestal nailing strips. Nail felt into place.
- Installed field supplied flashing under the lip of the curb flanges and over the felt.
- Remove the pedestal Cap and attach field supplied flashing to the 2" X 2" nailer strips.
- Replace the Cap over the pedestal and secure it with 20 sheet metal screws.
- Apply sealant (kit provided) to the four Cap corners.
- Caulk all joints between the curb and the roof.
- Attach the gasket material (kit provided) to the curb's top flanges (entire perimeter) and to the supply and return air duct opening panel flanges.
- Install a field supplied "Pitch Pocket" if applicable.

Assembly Instructions

If the roof curb is being installed on a new building, the curb can be assembled at a convenient location and installed when the roof support members are in place. It is recommended that the curb and pedestal (pedestal used with S_HL/S_HK units only) be installed directly onto the support members and fastened to the supports using tack welds or other equivalent methods. Properly supported decking should be installed inside the air handler section of the curb when this method is used.

As an alternative, the roof curb and pedestal can be installed on the roof decking. Additional staging must be used directly beneath the curb and pedestal flanges to ensure adequate support and to minimize vibration.

If the roof curb assembly is being installed on an existing building, assembling the roof curb near the unit location may be more convenient.

Note: For sound consideration, cut only the holes in the roof deck for the supply and return duct penetration. Do Not remove the roof decking from the inside perimeter of the curb.

To simplify the curb assembling process, a roof curb drawing illustrated in [Figure 9, p. 19](#) (20-75 ton units) or [Figure 10, p. 20](#) (90-130 ton units) is shipped with each curb kit. This drawing identifies the curb and pedestal components by number and illustrates the configuration of the finished curb assembly. The curb components are numbered "(1)" through "(16/22)" and the pedestal components are numbered "(P1)" through "(P7/9)".

Roof Curb Assembly

Arrange the various curb and pedestal components as shown in [Figure 9](#). Compare the part number marked on each rail, panel and cross member to the assembly drawing as they are laid out.

Figure 9. Curb & pedestal components layout drawing for 20 through 89 ton units

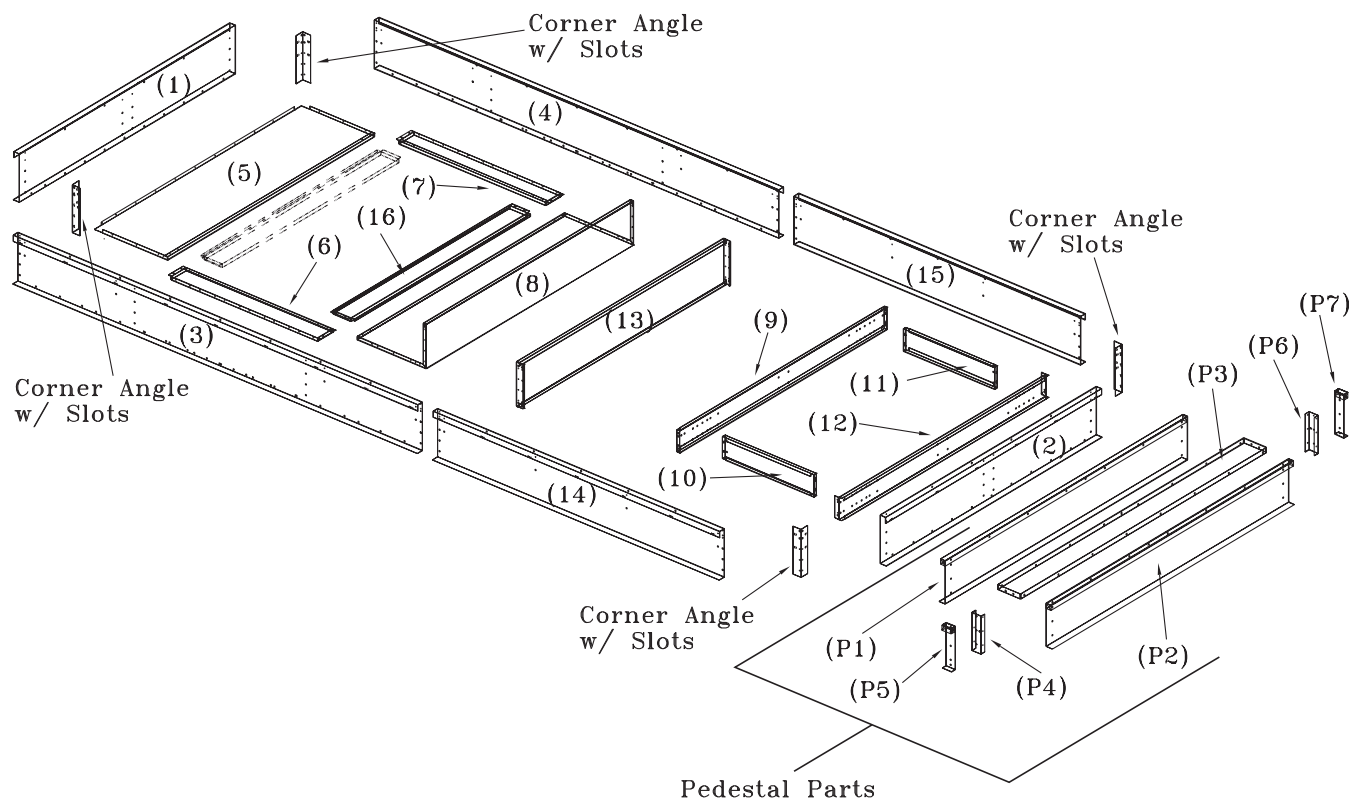


Table 9. Curb legend

(1) End Rail (R/A End)	(9) Duct Support Crossmember (S/A Opening)
(2) End Rail (S/A End)	(10) Duct Support Crossmember (S/A Opening)
(3) Side Rail	(11) Duct Support Crossmember (S/A Opening)
(4) Side Rail	(12) Duct Support Crossmember (S/A Opening)
(5) End Panel (R/A Opening)	(13) Crossmember
(6) Side Panel (R/A Opening)	(14) Side Rail
(7) Side Panel (R/A Opening)	(15) Side Rail
(8) L-Panel	(16) Filler Panel

Table 10. Pedestal legend

(P1) Side Rail	(P5) End Rail
(P2) Side Rail	(P6) Channel Splice
(P3) Cap	(P7) End Rail
(P4) Channel Splice	

Roof Curb Assembly

Figure 10. Curb & pedestal components layout drawing for 90 through 130 ton units

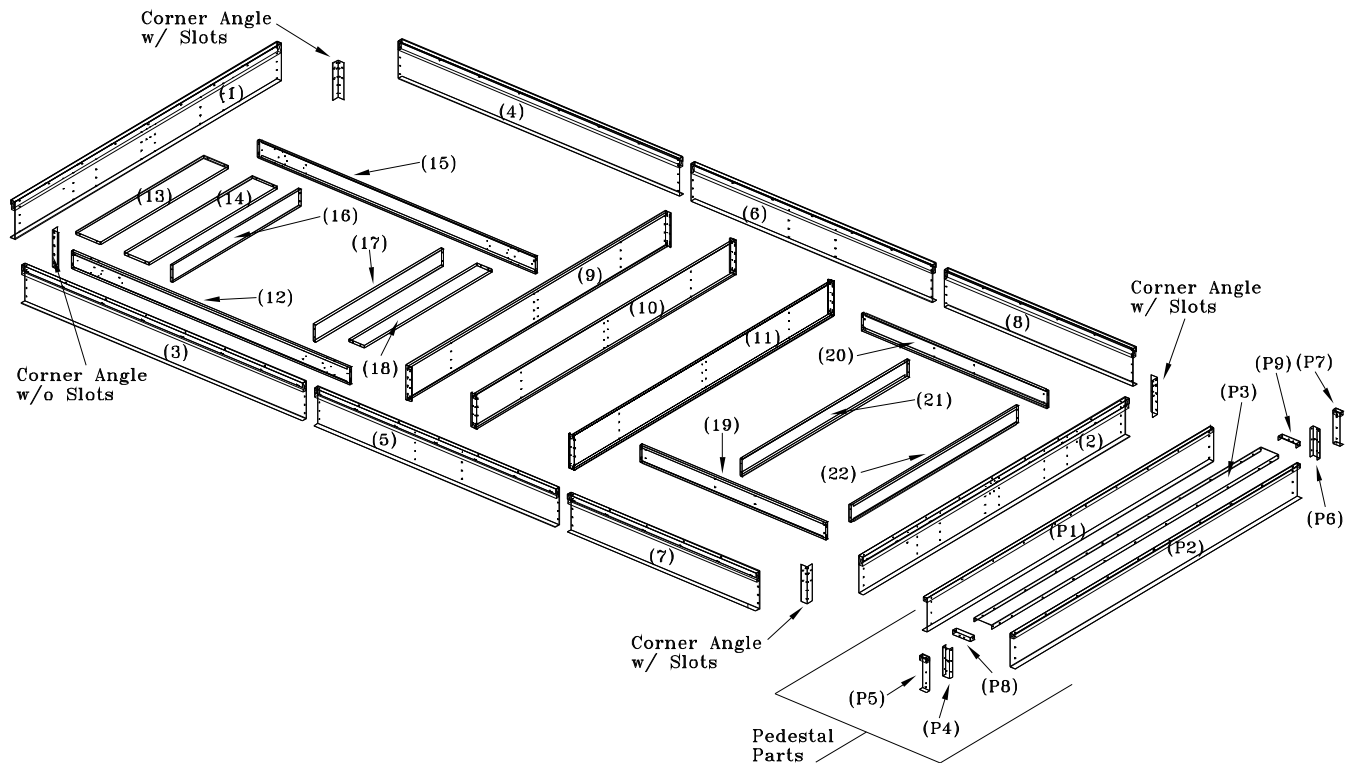


Table 11. Curb legend

(1) End Rail (R/A End)	(12) Duct Support Side Rail
(2) End Rail (S/A End)	(13) End Panel
(3) Side Rail	(14) End Panel
(4) Side Rail	(15) Duct Support Side Rail
(5) Side Rail	(16) Duct Support End Rail
(6) Side Rail	(17) Duct Support End Rail
(7) Side Rail	(18) End Panel
(8) Side Rail	(19) Duct Support Side Rail
(9) Crossmember	(20) Duct Support Side Rail
(10) Crossmember	(21) Duct Support End Rail
(11) Crossmember	(22) Duct Support End Rail

Table 12. Pedestal legend

(P1) Side Rail	(P6) Channel Splice
(P2) Side Rail	(P7) End Rail
(P3) Center Cap	(P8) End Cap
(P4) Channel Splice	(P9) End Cap
(P5) End Rail	

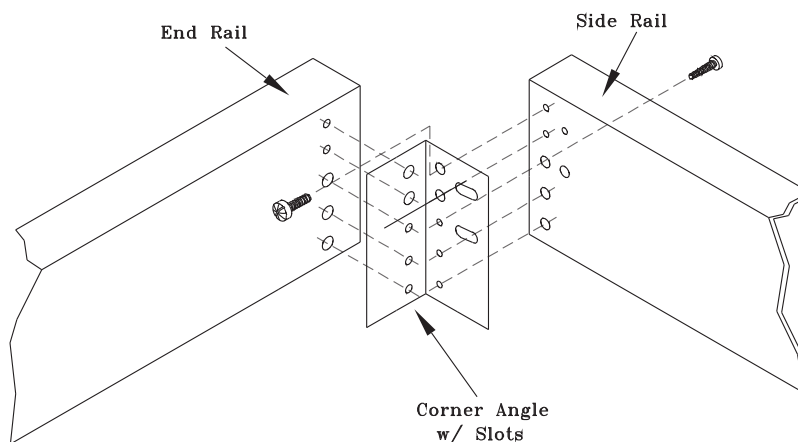
Perimeter Curb Rail Assembly

Note: Do not tighten any of the screws used to assemble this section until the curb has been leveled and squared in its installed location.

20 - 89 Ton Units

1. Attach a corner angle (slotted), using 5 sheet metal screw to each end of End Rail (1) and End Rail (2). Place the slots in each corner angle toward the top of the curb. Refer to [Figure 9, p. 19](#) and [Figure 11](#) for details.

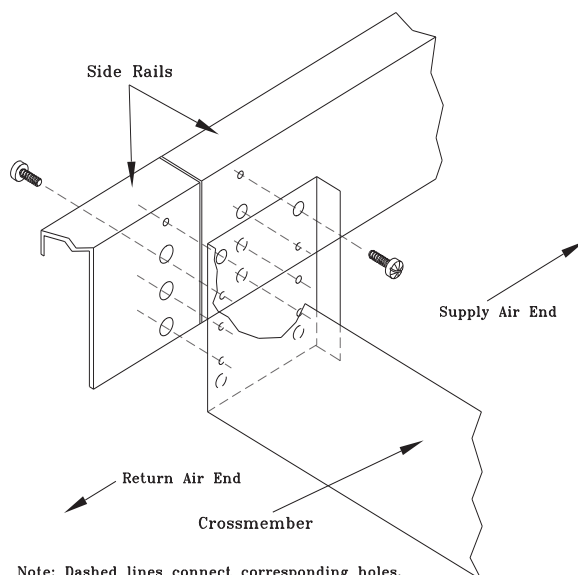
Figure 11. Typical curb corner assembly



Note:
Dashed lines connect corresponding holes in the corner angles and rails.
The two top screws are installed from inside the curb and the bottom three screws are installed from outside the curb.

2. Attach End Rail (1) to Side Rail (4) using 5 sheet metal screws. Refer to [Figure 9, p. 19](#) and [Figure 11](#) for details.
3. Align Side Rail (15) next to Side Rail (4) and attach Crossmember (13) perpendicular to both Side Rails at the joint using 8 sheet metal screws. Refer to [Figure 9, p. 19](#) and [Figure 12](#) for details.

Figure 12. Typical curb rail and crossmember assembly



Note: Dashed lines connect corresponding holes.

Roof Curb Assembly

4. Attach Crossmember (12) and End Rail (2) to Side Rail (15) using 5 sheet metal screws. The screws for Crossmember (12) must pass through the slots in the corner angle. Refer to [Figure 9, p. 19](#) and [Figure 15](#) for details.
5. Attach Crossmember (12) and End Rail (2) to Side Rail (14) using 5 sheet metal screws. The screws for Crossmember (12) must pass through the slots in the corner angle. Refer to [Figure 9, p. 19](#) through [Figure 15, p. 25](#) for details.
6. Align Side Rail (14) next to Side Rail (3) and attach Crossmember (13) perpendicular to both Side Rails at the joint using 8 sheet metal screws. Refer to [Figure 9, p. 19](#) through [Figure 15, p. 25](#) for details.
7. Attach Side Rail (3) to End Rail (1) using 5 sheet metal screws. Refer to [Figure 9, p. 19](#) through [Figure 15, p. 25](#) for details.

90- 130 Ton Units

1. Attach a corner angle (slotted), using 5 sheet metal screws to the end of End Rail (1) adjacent to Side Rail (4). Place the slots in the corner angle toward the top of the curb. Refer to [Figure 10, p. 20](#) and [Figure 11, p. 21](#) for details.
2. Attach End Rail (1) to Side Rail (4) using 5 sheet metal screws. Refer to [Figure 10, p. 20](#) and [Figure 11, p. 21](#) for details.
3. Align Side Rail (6) next to Side Rail (4) and attach Crossmember (9) perpendicular to both Side Rails at the joint using 8 sheet metal screws. Refer to [Figure 10, p. 20](#) and [Figure 12, p. 21](#) for details.
4. Attach Crossmember (10) to Side Rail (6) using 4 sheet metal screws. Refer to [Figure 10, p. 20](#) for specific flange positioning.
5. Align Side Rail (8) next to Side Rail (6) and attach Crossmember (11) perpendicular to both Side Rails at the joint using 8 sheet metal screws. Refer to [Figure 10, p. 20](#) and [Figure 12, p. 21](#) for details.
6. Attach a corner angle (slotted), using 10 sheet metal screws to End Rail (2) and Side Rail (8). Place the slots in the corner angle toward the top of the curb. Refer to [Figure 10, p. 20](#) and [Figure 11, p. 21](#) for details.
7. Attach a corner angle (slotted), using 10 sheet metal screws to End Rail (2) and Side Rail (7). Place the slots in the corner angle toward the top of the curb. Refer to [Figure 10, p. 20](#) and [Figure 11, p. 21](#) for details.
8. Align Side Rail (7) next to Side Rail (5) and attach Crossmember (11) perpendicular to both Side Rails at the joint using 8 sheet metal screws. Refer to [Figure 10, p. 20](#) and [Figure 12, p. 21](#) for details.
9. Attach Side Rail (5) to Crossmember (10) using 4 sheet metal screws. Refer to [Figure 10, p. 20](#) and [Figure 12, p. 21](#) for details.
10. Align Side Rail (5) next to Side Rail (3) and attach Crossmember (9) perpendicular to both Side Rails at the joint using 8 sheet metal screws. Refer to [Figure 10, p. 20](#) and [Figure 12, p. 21](#) for details.

Return Air Duct Opening Assembly

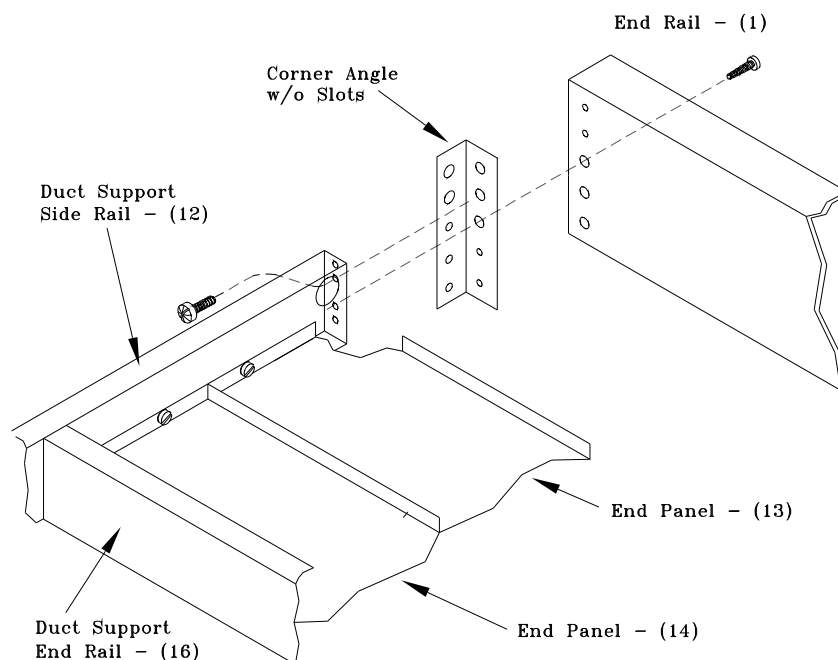
Note: The return air opening panels must be pre-assembled before they are installed into the curb.

20 - 89 Ton Units

1. Attach End Panel (5) between Side Rail (3) and Side Rail (4) using 3 sheet metal screws in each rail. Attach End Panel (5) to End Rail (1) using 11 sheet metal screws. Refer to [Figure 9, p. 19](#) for details.
2. Attach "L" shaped Panel (8) between Side Rail (3) and Side Rail (4) using 7 sheet metal screws in each rail. Refer to [Figure 9, p. 19](#) for details.
3. Attach Side Panel (6) between End Panel (5) and "L" shaped Panel (8) using 2 sheet metal screws at each end. Attach Side Panel (6) to Side Rail (3) using sheet metal screws. Refer to [Figure 9, p. 19](#) for details.
4. Attach Side Panel (7) between End Panel (5) and "L" shaped Panel (8) using 2 sheet metal screws at each end. Attach Side Panel (7) to Side Rail (4) using sheet metal screws. Refer to [Figure 9, p. 19](#) for details.
5. Attach Filler Panel (16) between Side Panel (6) and Side Panel (7) using 2 sheet metal screws at each end. This Filler Panel (16) can be located at either side of the return air opening depending on roof support layout. Refer to [Figure 9, p. 19](#) for details.

90- 130 Ton Units

Figure 13. Typical attachment of return air duct assembly to end rail (90-130 ton units)



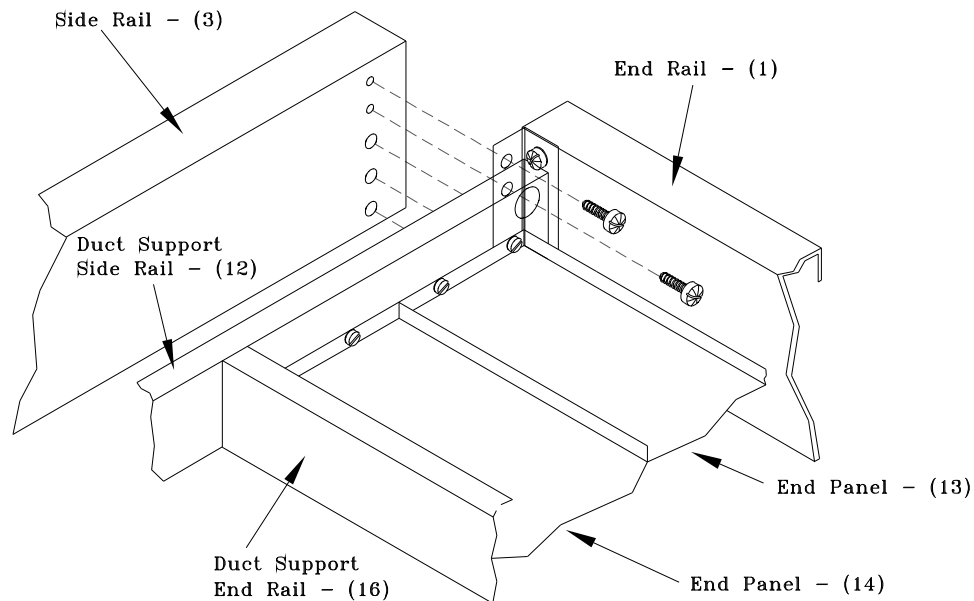
Note:
Dashed lines connect corresponding holes in the corner angles and rails.
The two top screws are installed from inside the curb and the bottom three screws are installed from outside the curb.

1. Attach End Rail (16) between Side Rail (12) and Side Rail (15) using 2 sheet metal screws in each rail. Position flanges away from duct opening and torque each screw to 6 ft/lbs.
2. Attach End Rail (17) between Side Rail (12) and Side Rail (15) using 2 sheet metal screws in each rail. Position flanges away from duct opening and torque each screw to 6 ft/lbs.

Roof Curb Assembly

3. Attach End Panel (13) and End Panel (14) (flanges upward) between Side Rail (12) and Side Rail (15). Use sheet metal screws to mount the panels approximately midway of Side Rails. Refer to [Figure 10, p. 20](#) and [Figure 13, p. 23](#) for details. Torque each screw to 6 ft/lbs.
4. Attach End Panel (18) between Side Rail (12) and Side Rail (15). Use sheet metal screws to mount the End Panel flush with the top of the Side Rails. Refer to [Figure 10, p. 20](#) for details and torque each screw to 6 ft/lbs.
5. Place the return air duct opening assembly into position as illustrated in [Figure 3, p. 7](#).
6. Attach Side Rail (12) and a Corner Angle (w/o slots) to End Rail (1) with 5 sheet metal screws. Refer to [Figure 10, p. 20](#) and [Figure 13, p. 23](#) for details.
7. Attach Side Rail (3) using the Corner Angle (w/o slots) to End Rail (1) with 5 sheet metal screws. Refer to [Figure 10, p. 20](#) and [Figure 14](#) for details.

Figure 14. Typical attachment of return air duct assembly to side rail (90-130 ton units)



Note:

Dashed lines connect corresponding holes in the corner angles and rails.

The two top screws are installed from inside the curb and the bottom three screws are installed from outside the curb.

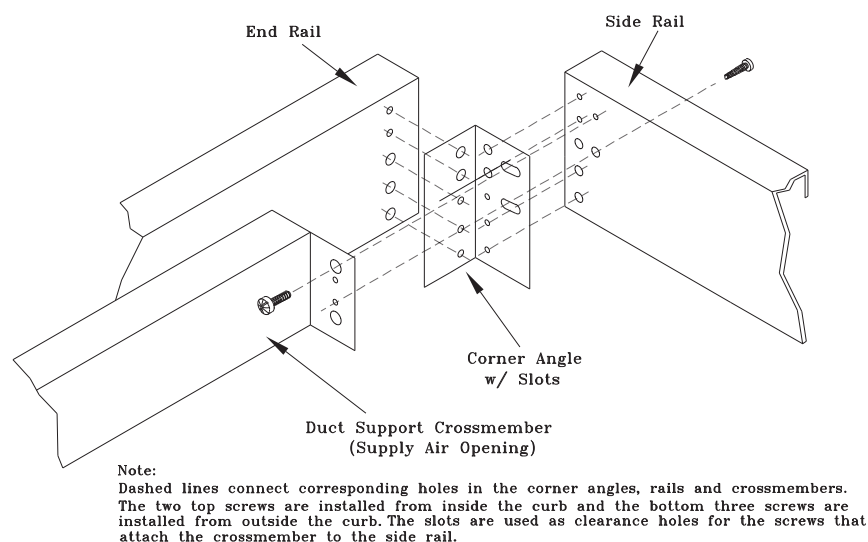
8. Attach other end of Side Rail (12) to Crossmember (9) using 2 sheet metal screws.
9. Attach Side Rail (15) between End Rail (1) and Crossmember (9) using 2 sheet metal screws at each end.

Supply Air Opening Assembly

Note: Do not tighten any of the screws used to assemble this section until the curb has been leveled and squared in its installed location.

20 - 89 Ton Units

Figure 15. Typical supply air duct crossmember assembly



1. Attach Crossmember (9) between Side Rail (14) and Side Rail (15) using 2 sheet metal screws at each end. Refer to [Figure 9, p. 19](#) for details.
2. Attach Crossmember (10) & (11) between Crossmember (9) and Crossmember (12) using 2 sheet metal screws at each end. Refer to [Figure 9, p. 19](#) for details.

90 - 130 Ton Units

1. Place Side Rail (19) between End Rail (2) and Crossmember (11) and attach it with 2 sheet metal screws at each end.
2. Place Side Rail (20) between End Rail (2) and Crossmember (11) and attach it with 2 sheet metal screws at each end.
3. Place End Rail (21) between Side Rail (19) and Side Rail (20) and attach it with 2 sheet metal screws at each end.
4. Place End Rail (22) between Side Rail (19) and Side Rail (20) and attach it with 2 sheet metal screws at each end.

Curb Pedestal Assembly (Not required for W_HE Rooftop Air Handlers)

Note: Torque the screws for the pedestal during each step to 6 ft./lbs.

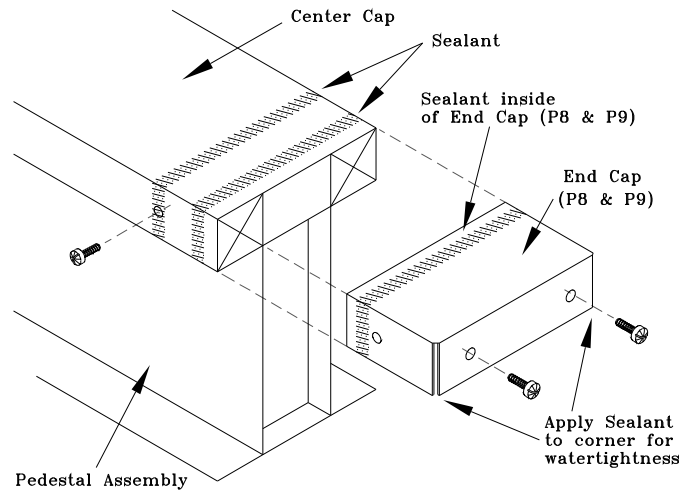
20 - 89 Ton Units

1. Attach Channel Splice (P4) and (P6), with flanges inward, to each end of Side Rail (P1) using 3 sheet metal screws. The End rail flange must point outward as illustrated in [Figure 9, p. 19](#).
2. Attach Side Rail (P2) to Channel Splice (P4) and (P6) using 3 sheet metal screws at each end. The End Rail flange must point outward as illustrated in [Figure 9, p. 19](#).
3. Attach End Rail (P5) and (P7), with the flanges outward, to Channel Splice (P4) and (P6) respectfully using 3 sheet metal screws.

Roof Curb Assembly

4. Apply the gasket material to the top flanges of Side Rails (P1) and (P2) and End Rails (P5) and (P7) and place Cap (P3) over pedestal assembly. Temporarily secure the Cap (P3) with one sheet metal screw at each end.

Figure 16. Typical end cap installation (20 - 130 ton units)



Notes:

1. Apply two beads of sealant (kit supplied) to each end of the pedestal Center Cap (P3) as shown.
2. Apply aone bead of sealant to the inside of each End Cap (P8 & P9) as shown.
3. Apply sealant to the two End Cap (P8 & P9). Apply it to both the inside and outside of each corner.

90 - 130 Ton Units

1. Attach Channel Splice (P4) to one end of Side Rail (P1) using 3 sheet metal screws. Attach Channel Splice (P6) to the opposite end of Side Rail (P1) using 3 sheet metal screws. The Channel Splice flanges must point inward as illustrated in [Figure 10, p. 20](#).
2. Attach Side Rail (P2) to Channel Splice (P4) and (P6) using 3 sheet metal screws at each end. The Side Rail flange must point outward as illustrated in [Figure 10, p. 20](#).
3. Attach End Rail (P5) and (P7), with the flanges outward, to Channel Splice (P4) and (P6) respectfully using 3 sheet metal screws as illustrated in [Figure 10, p. 20](#).
4. Apply the gasket material to the top flanges of Side Rails (P1) and (P2) and End Rails (P5) and (P7).
5. Place Center Cap (P3) over pedestal assembly as illustrated in [Figure 16](#).
6. Place End Cap (P8) at one end of Center Cap (P3) and secure it with 1 sheet metal screw as illustrated in [Figure 16](#). Do not torque screws at this time.
7. Place End Cap (P9) onto the opposite end of Center Cap (P3) and secure it with 1 sheet metal screw as illustrated in [Figure 16](#). Do not torque screws at this time.

Installation

New Building

To install the assembled roof curb and pedestal on a new building:

1. It is recommended that the curb and pedestal (pedestal used with S_HL and S_HK units only) be installed directly on the support members and fastened to the supports using tack welds or other equivalent methods. Properly supported decking should be installed inside the air handler section of the curb when this method is used, or;
2. Mount the curb and pedestal on a roof deck with additional staging installed directly below the curb and pedestal flanges as illustrated in [Figure 17](#) and [Figure 18](#).

Figure 17. Cross section of curb installation on new construction

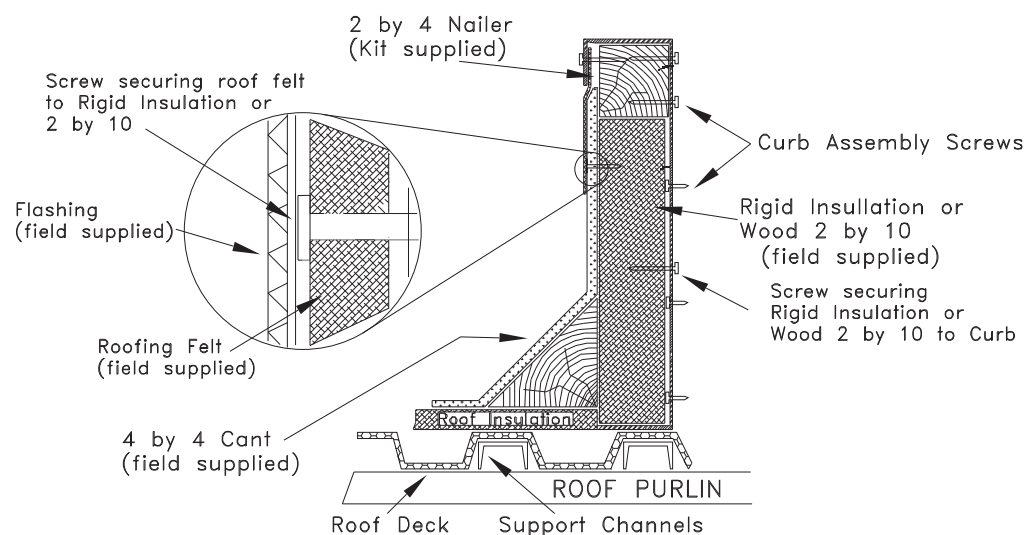
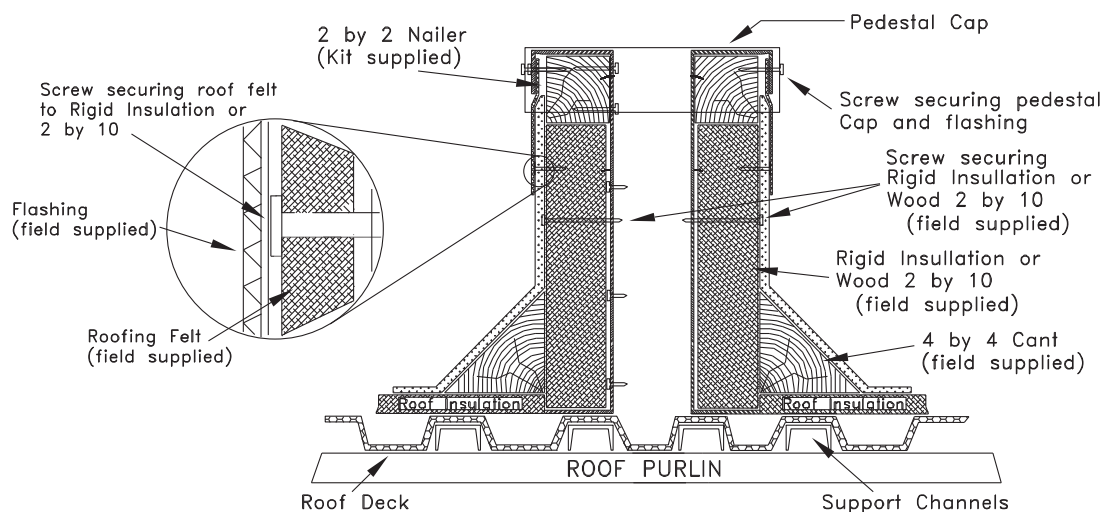


Figure 18. Cross section of pedestal installation on new construction



Existing Building

If the roof curb and pedestal will be installed on an existing building, remove the old roof insulation and roof deck. Then build up the curb foundation with wooden nailer or other rigid supports as shown in [Figure 19](#) and [Figure 20](#). Do not set the curb or pedestal directly on the existing roof insulation or deck due to the insufficient strength of these surfaces.

Figure 19. Cross section of curb installation on existing construction

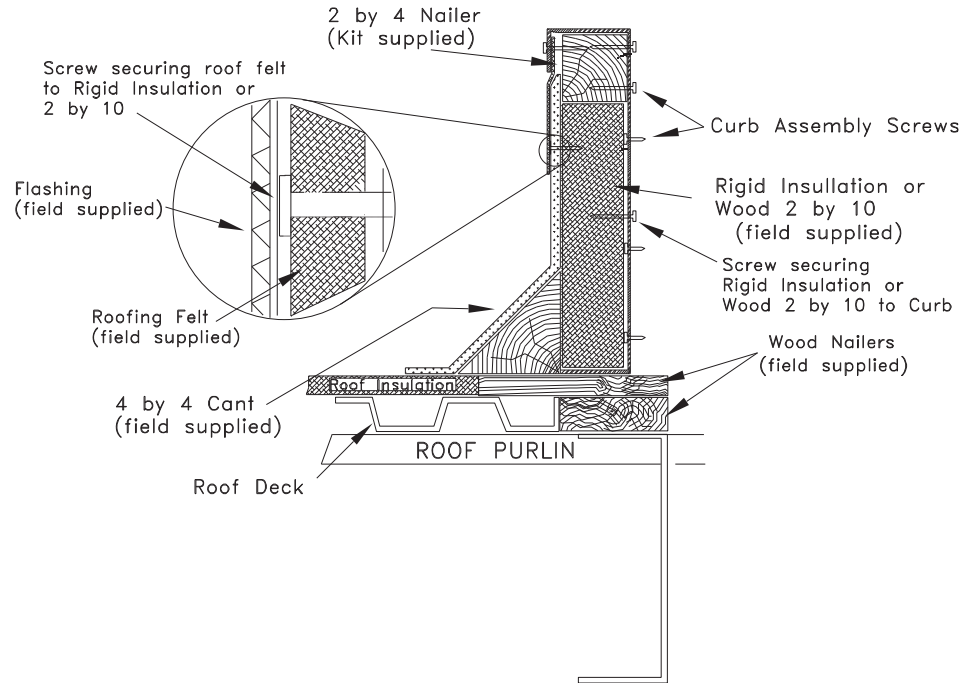
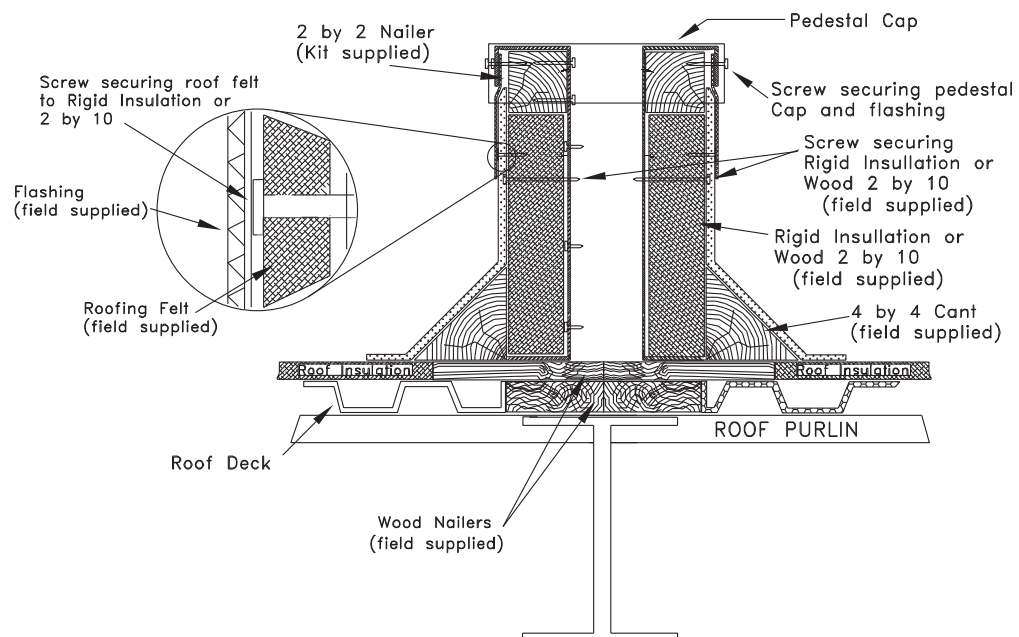


Figure 20. Cross section of pedestal installation on existing construction



Curb and Pedestal Positioning Instructions (Pedestal not Required for W_HE Rooftop Air Handlers)

The pedestal (if applicable) and the curb have a position relationship (both vertically and laterally) that must be maintained. The pedestal must be positioned a specified distance from the curb. Since the pedestal is wider than the curb, the pedestal's ends will extend beyond the curb's sides. To ensure the pedestal and curb are installed and positioned properly, follow these steps.

1. Place the pedestal on the roof support member(s) designated in the building specification.
2. Place the curb the proper distance from the pedestal. Use a tape measure to ensure that both ends of the pedestal are an equal distance from the end rail of the curb. Refer to [Figure 1, p. 5](#), [Table 1, p. 5](#), [Table 2, p. 6](#), and [Figure 3, p. 7](#) for the specified distances.
3. Center the pedestal with the curb by measuring the distance from one corner of the pedestal to the opposite corner of the curb as shown in [Figure 21](#) and [Figure 22](#). Then measure the distance from the remaining corner of the pedestal to the remaining corner of the curb. To make the two measurements equal, slide the pedestal back or forward (parallel to the end of the curb). Take precautions not to change the dimension achieved in step 2.

Figure 21. S_HL (20-89 ton) - centering curb and pedestal (overhead view)

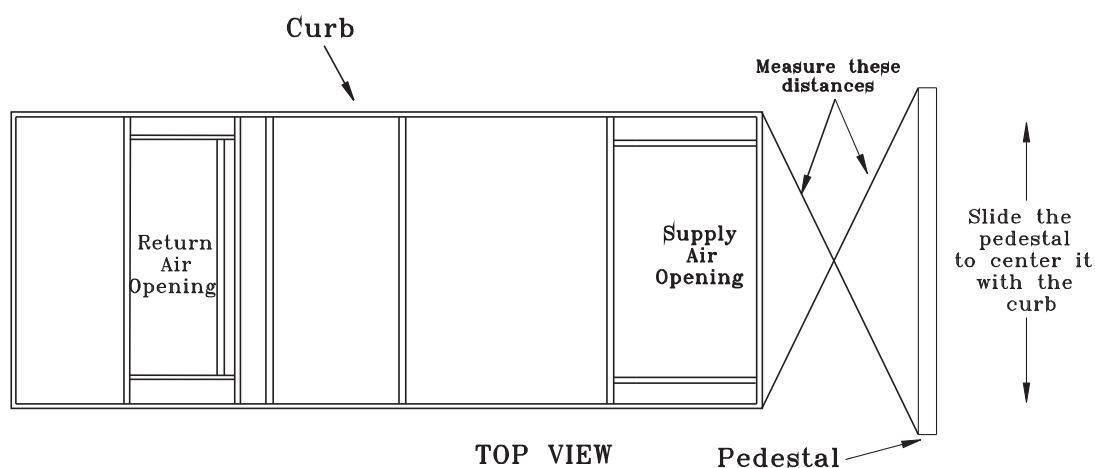
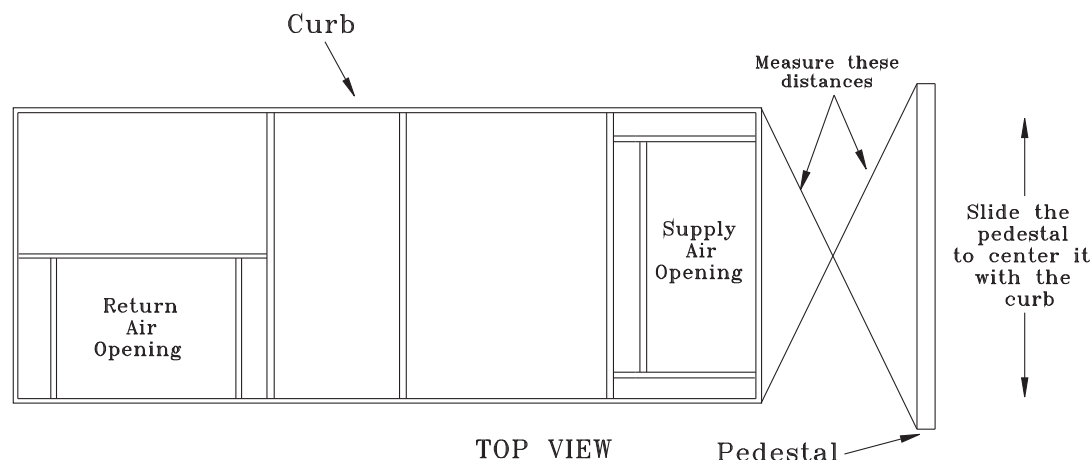


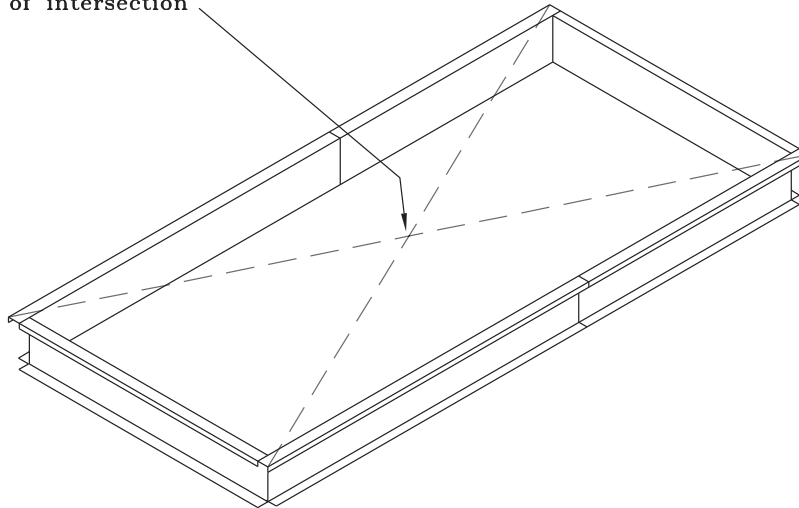
Figure 22. S_HK (90 - 130 ton) - centering curb and pedestal (overhead view)



4. Ensure that the curb is not twisted (i.e. one corner higher than another). Stretch lines diagonally between opposite corners of the assembled curb as illustrated in [Figure 23](#). The vertical distance between the lines at the point of intersection should not exceed 1/4".

Figure 23. Verifying roof curb is square and not twisted

Distance from corner-to-corner must be of equal length and lines must be within 1/4" of each other vertically at the point of intersection



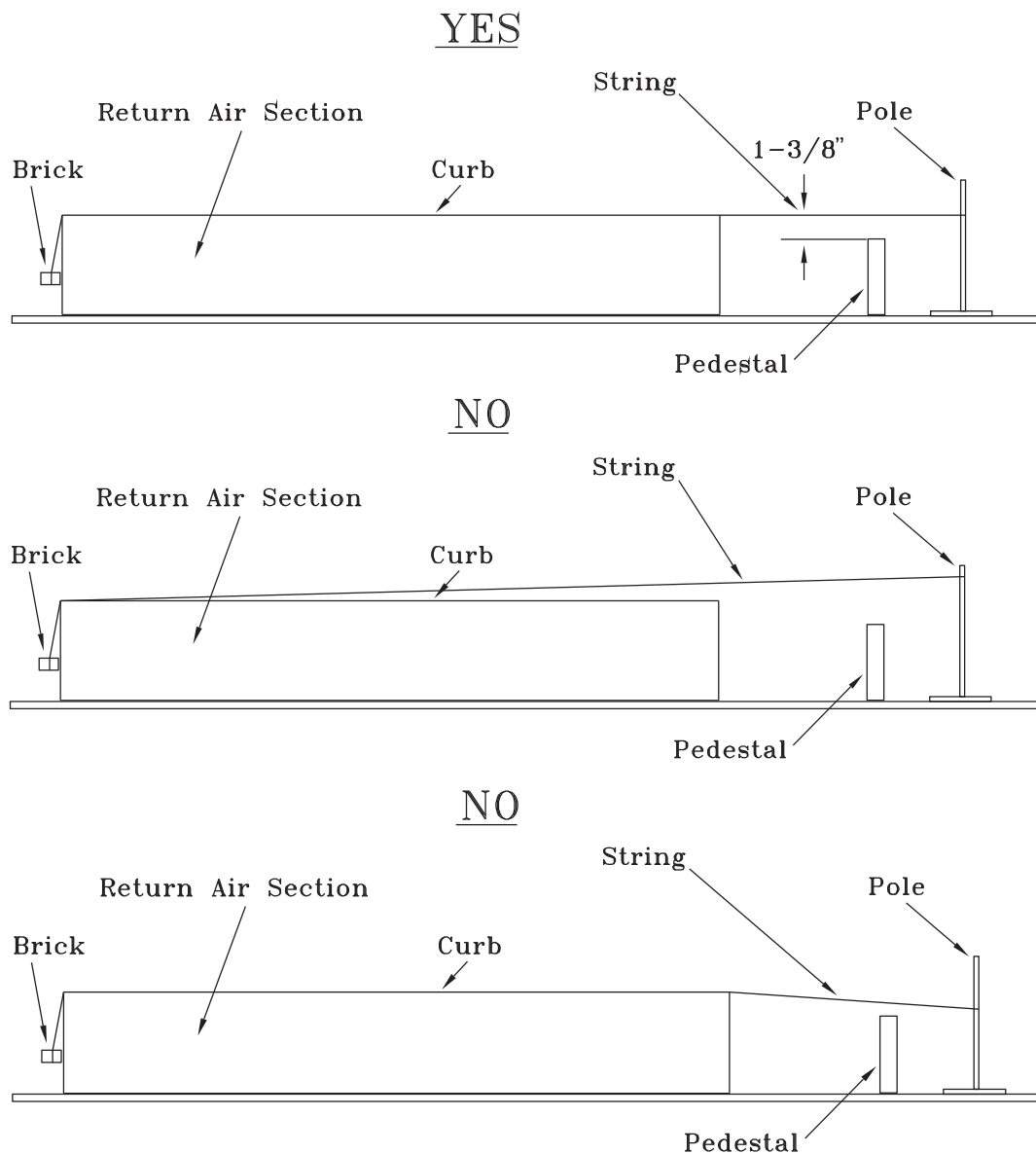
Note: If the lines touch, place the top line on bottom and the bottom on top, and recheck the point of intersection. Place shims under the low corners as required.

5. Square the curb by measuring diagonally between opposite corners as shown in [Figure 23](#). The curb is square when these two measurements are equal.
6. Tighten each screw used to assemble the curb to a torque of 6 ft. lb.
7. Level the curb and pedestal assembly. The best condition is that the assembly be installed level, but an overall slope of up to 4" end to end and 2" side to side is acceptable for most applications.

Note: SSHL and WSHE units (units with steam heat) require a level curb; no slope is allowed.

8. Position the pedestal vertically so that the top of the pedestal is 1-3/8" below the top of the curb. (The pedestal was purposely designed 1-3/8" shorter than the curb because the unit's base rails rest on the pedestal at one point and on the curb at a different point). One suggestion for positioning the pedestal vertically is given in Steps 9 through 11 and illustrated in [Figure 24, p. 31](#).

Figure 24. Vertical alignment of the curb and pedestal



9. Run a string between the curb's return air end and a pole just beyond the pedestal. Tie the string to the pole as shown in [Figure 24](#). Do not tie the string too high or too low as illustrated in [Figure 24](#), thus making it a true extension of the curb's height.
10. Measure the distance from the string to the top of the pedestal, if this distance is 1-3/8", the pedestal is positioned properly.

If not, raise the pedestal or curb with shims until the distance from the string to the top of the pedestal is 1-3/8". Take precautions to maintain the leveled position of the curb and pedestal if shimming is necessary.

11. Secure the curb and pedestal to the roof support members or the roof deck.

After properly positioning the curb and pedestal, refer to [Figure 17, p. 27](#) through [Figure 20, p. 28](#) and the following steps to complete the installation.

Installation

12. Place either 2 x 10 boards or rigid insulation around the curb's exterior and fasten them in place from inside the curb.
 13. Place either 2 x 10 boards or rigid insulation around the pedestal's exterior and fasten them in place from outside the pedestal.
 14. Install cant strips around the outside of the curb and pedestal.
- Note: Cant strips may be 4 x 4 wood cut diagonally in half, concrete or rigid insulation.*
15. Bring roofing felts up to the top of the curb's 2 x 10's and the pedestal's 2 x 10's and fasten them into place.
 16. Place flashing under the lip of the curb flanges and over the felts, and secure them as illustrated.
 17. Remove the cap from the pedestal and attach flashing over the felts as illustrated.
 18. Place the cap over the pedestal and secure it with 20 sheet metal screws.
 19. Apply sealant (provided with the curb kit) to the four corners of the pedestal's cap to make it watertight.
 20. Generously caulk (field-provided) all joints between the curb assembly and the roof to ensure a watertight seal.
 21. Install the gasket material (kit provided) to the entire perimeter of the top flanges on the curb. Install the gasket material on the flanges of the supply air opening. Install the gasket material on the top flange of the L-Panel as illustrated in [Figure 25](#).

Figure 25. S_HL (20 - 89 ton) - Roof curb gasket installation

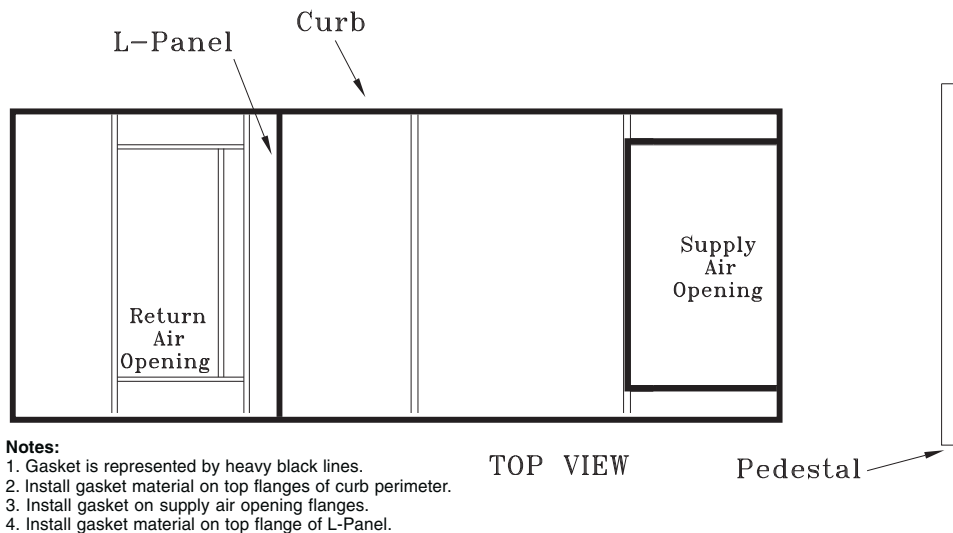
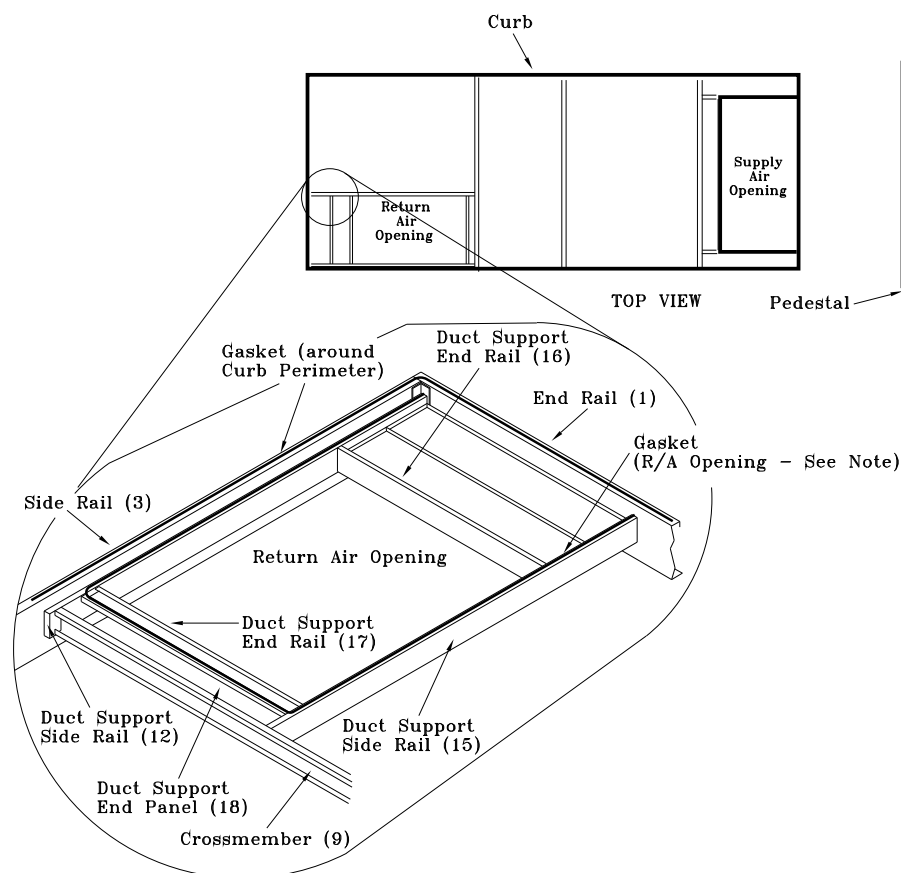


Figure 26. S_HK (90 - 130 ton) - Roof curb gasket installation



Note: To ensure a good gasket-to-metal bond, thoroughly clean the metal curb surfaces where the gasket will be applied.

22. The curbs include flanges around the S/A and R/A openings to simplify duct attachment. Fabricated, install and attached all supply and return air ductwork to the roof curb before the unit is placed onto the curb.

Note: For sound consideration, cut only the holes in the roof deck for the supply and return duct penetration. Do not remove the roof decking from the inside perimeter of the curb.

Pitch Pocket Location

The location of the main supply power entry for S_HL 20 through 89 Ton rooftop units is located at the bottom right-hand corner of the control panel. If the power supply conduit penetrates the building's roof beneath this opening, it is recommended that a pitch pocket be installed before the unit is placed on the curb. The center line dimensions shown in [Figure 27, p. 34](#) indicates the center line of the electrical access hole in the unit base when it is positioned on the curb, +3/8 inch. In order for the conduit to align with the base entry access, the actual diameter of the hole in the roof should be at least 1/2 inch larger than the diameter of the conduit penetrating the roof. This will allow for the clearance variable between the roof curb rail and the unit base rail.

The pitch pocket dimensions listed are recommended to enhance the application of roofing pitch after the unit is set into place. The pitch pocket may need to be shifted as illustrated to prevent interference with the curb pedestal.

Figure 27. Locating pitch pocket for unit power supply

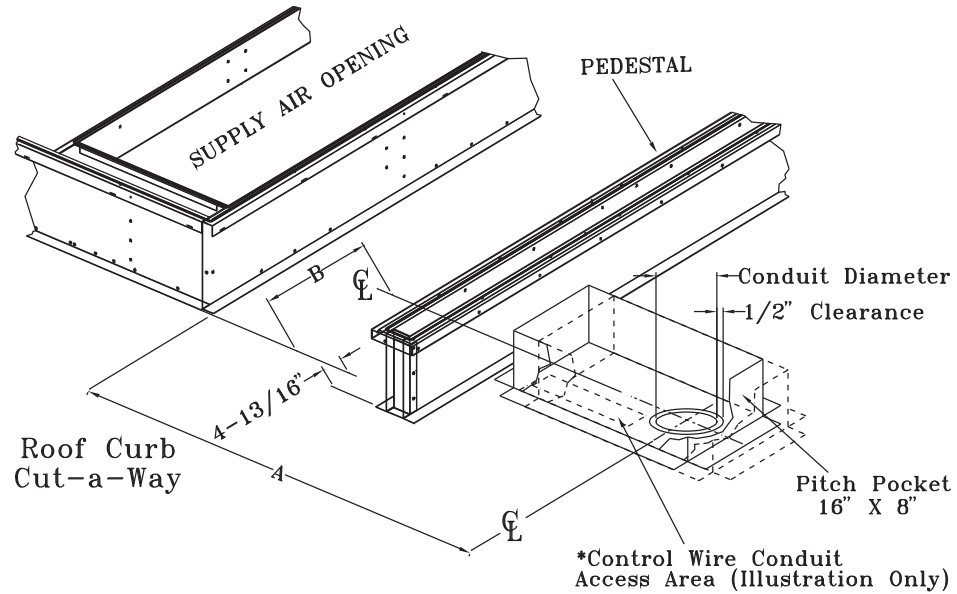


Table 13. Center line dimensions for through-the-roof electrical access

Unit	Tonnage	"A" Dimension	"B" Dimension
S_HL	20, 25 & 30	4' 5-9/16"	5-9/16"
S_HL	24, 29, & 36	6' 9-11/16"	5-1/2"
S_HL	40 - 89	9' 5-11/16"	5-1/2"

Note: _ = All unit functions (A,E,F,S,L,X).

Sound Attenuation

To ensure adequate sound attenuation (dissipation) for any S_HL, S_HK, or W_HE installation, it is important to consider every possible source of noise associated with large rooftop unit applications.

Unit noise sources include:

1. The supply fan;
2. Compressors;
3. Exhaust/Return fans (optional);
4. Condenser fans;
5. Duct fittings - i.e., "aerodynamic noise" caused by ductwork design; and
6. Vibration - i.e., produced by the unit's compressors and fan assemblies.

It is also important to consider the four "transmission paths" that allow unit noise to reach the conditioned space:

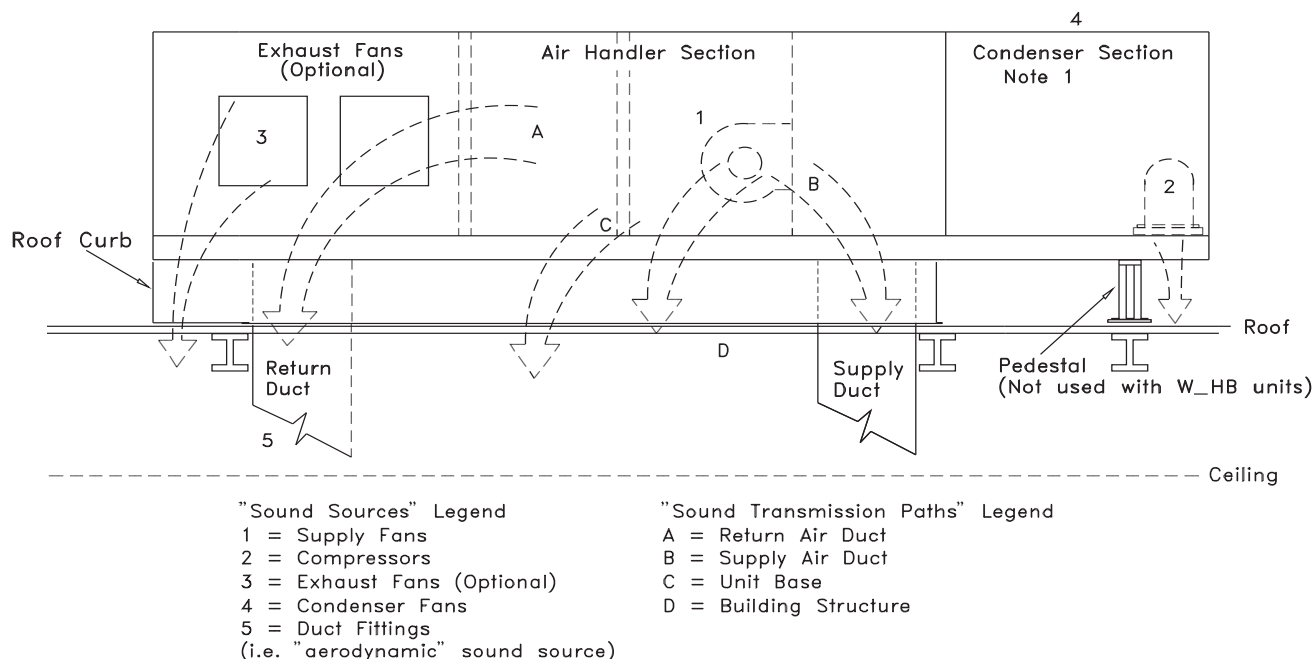
1. Building Structure (carries noise and vibration produced by the unit's compressors and fan assemblies).
2. Unit Base (conducts noise produced by the supply and exhaust fans).
3. Supply Duct (conveys noise originating at the supply fan discharge).
4. Return Duct (conveys noise originating from the inlets of both the supply and exhaust fans; may also transmit compressor and fan vibration).

A summary of the sources of noise and sound transmission paths associated with a typical rooftop unit is illustrated in [Figure 28](#).

Some basic installation guidelines for minimizing unit sound (i.e., vibration-transmitted, casing-radiated, supply and return fan, and aerodynamic noise) are briefly outlined below.

Note: For other suggestions - and a more complete discussion of sound attenuation - see Trane Engineering Bulletin RT-PRB022-EN.

Figure 28. Unit sound sources and typical sound transmission paths



Sounds Transmitted by Vibration

Eliminating unit vibration transmission is only possible if the building structure is rigid enough to serve as an adequate base. However, there are several things the installer can do to reduce the amount of vibration transmitted to the building structure.

1. Do not remove the roof decking within the curb perimeter.
2. Ensure that the unit's weight does not crush the roof deck at points where the deck is between the curb and the roof joists. Poured insulation usually adds the needed strength; if rigid insulation is used, add support channels to the decking as illustrated in [Figure 15, p. 25](#) through [Figure 19, p. 28](#).
3. Use a solid concrete pad as a base.
4. Set the unit on spring isolation rails to further isolate it from the building structure.
5. Use flexible connections between:
 - a. the unit discharge and the supply duct;
 - b. the supply duct and the building walls and duct chases; and,
 - c. the unit return opening and the return duct.
6. Make sure that the supply duct does not contact any of the building structure.
7. Use flexible connectors when attaching electrical conduits, gas or steam/hot water piping to the unit.
8. Locate the unit over vertical building supports - not at the center of a horizontal beam!

Sounds Radiated by Unit Casing

To reduce the amount of sound transmitted to the conditioned space through the bottom of the unit casing:

1. Fill the curb with either "lightweight" concrete, or alternating layers of high-density, fiberglass insulation and dry wall (or sheet lead).
2. Fabricate a steel structure to raise the unit several feet above the roof surface.
3. Apply a sealant around all piping penetrations.
4. Cut close tolerance holes in the roof deck for the supply and return ductwork.
5. Seal the penetration holes between the decking and the ductwork with caulk; even a small air leak between the duct and deck destroys most of the attenuation afforded by the steel decking.

Sounds Transmitted by Supply Fans

Typically, the primary source of noise in a rooftop unit installation is the supply fan discharge. The low frequency sound produced by the supply fan is readily conveyed to the conditioned space via the ductwork.

1. Carefully review and adhere to the metal gauge and duct installation guidelines sanctioned by the Sheet Metal and Air Conditioning Contractors' National Association (SMACNA).

Note: Lightly-constructed ductwork can actually add another sound problem - "oil canning" (i.e., noise produced by the rapid in and out motion of the duct walls).

2. Include a 15' to 20' outdoor duct run between the unit discharge and the point where the supply duct enters the building.
3. Beginning at the unit discharge, use round, spiral-seam duct for the supply ductwork. A 2" internal acoustic lining is recommended for the first 20' to 30' of the duct. Refer to RT-PRB022-EN for further details.
4. If rectangular supply ductwork is used:

- a. Construct the first 20' to 30' of duct with heavy-gauge (#14 to #16 gauge) sheet metal.
- b. "Lag" (cover) the duct exterior using one of these media:
 - i. gypsum board (plasterboard) isolated from the duct (Figure 29);
 - ii. a leaded vinyl barrier; or,
 - iii. gypsum board applied tight to the duct.

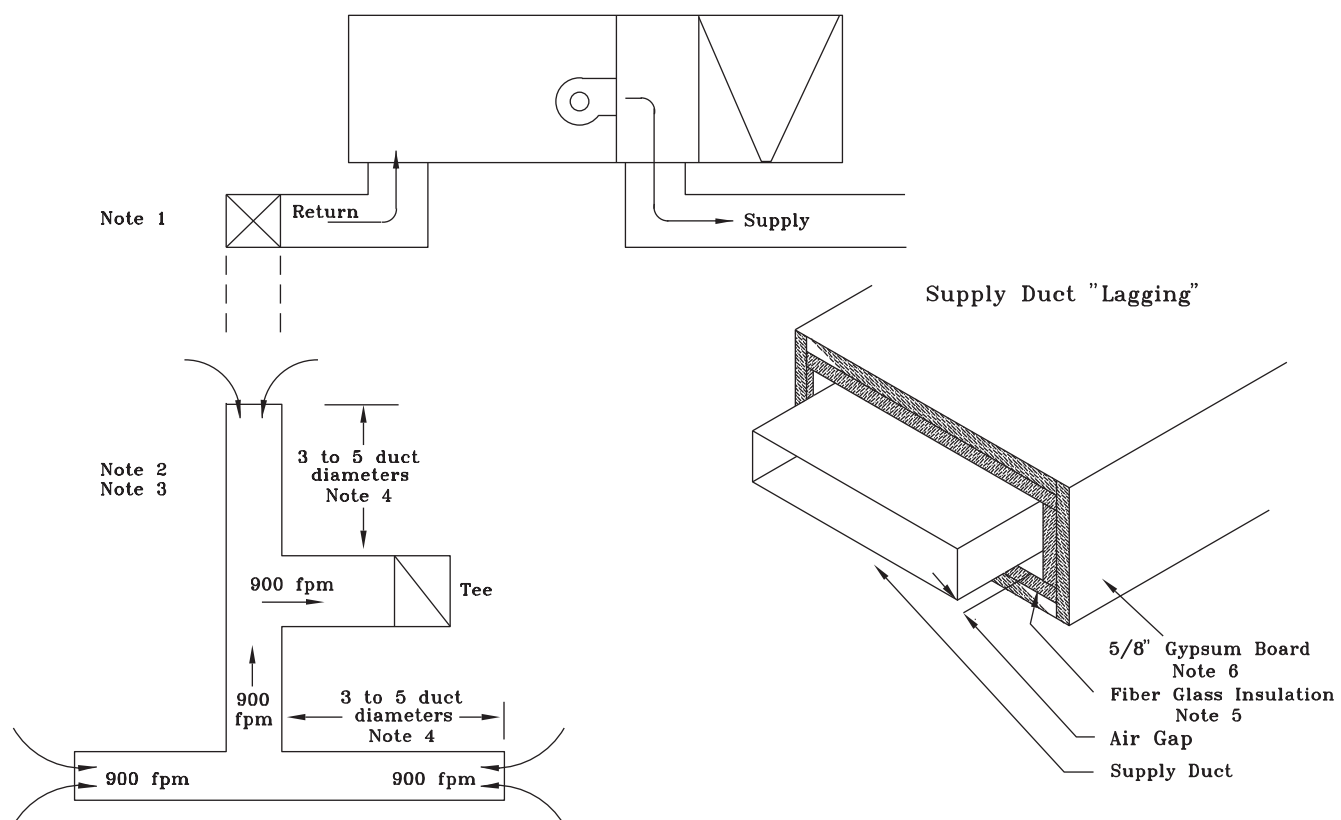
For more details about "lagging rectangular ductwork," refer to RT-PRB022-EN.

Sounds Transmitted by Return Fans

Sounds originating at the inlets of the supply and optional exhaust fans carries to the conditioned space through the unit's return air opening.

To minimize these transmissions in an open plenum return system, use a heavy-gauge, internally-lined boot or "T"; refer to Figure 29. For ducted return systems, a 2" internal duct lining is recommended.

Figure 29. Illustration of attenuating transmitted sounds by supply and return fans



Notes:

1. Use a heavy-gauge, internally-lined boot or tee for "Open Plenum" return systems.
2. Use a 2" minimum internal lining in all ducted returns.
3. Size all return ducts for 900 to 1,000 fpm, maximum.
4. Each Section of the return air duct should be atleast 3 to 5 duct diameters long.
5. If desired, add fiberglass insulation to:
 - a. the interior surface of the gypsum board, or;
 - b. the exterior surface of the supply duct.
 Maintain the air gap when applying the insulation.
6. Use one or two layers of 5/8" gypsum board (plasterboard) as desired. To maintain the vibration isolation property, do not allow the gypsum board to contact the duct.

Aerodynamic Noise

“Aerodynamic” sounds associated with rooftop unit installations is related to ductwork design and is produced at duct fittings (e.g., elbows, dampers, and takeoffs).

The level of aerodynamic noise produced at these fittings is a function of airflow velocity and turbulence, as well as fitting geometry.

To limit the amount of noise generated at duct fittings, consider these basic guidelines when designing the ductwork:

1. Size rectangular ductwork for low velocities. (Round ductwork may be sized for either medium or high velocities.)
2. Use straight duct runs between fittings.
3. Avoid abrupt changes in direction.

Be sure to review RT-PRB022-EN for a further discussion of duct design considerations.



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