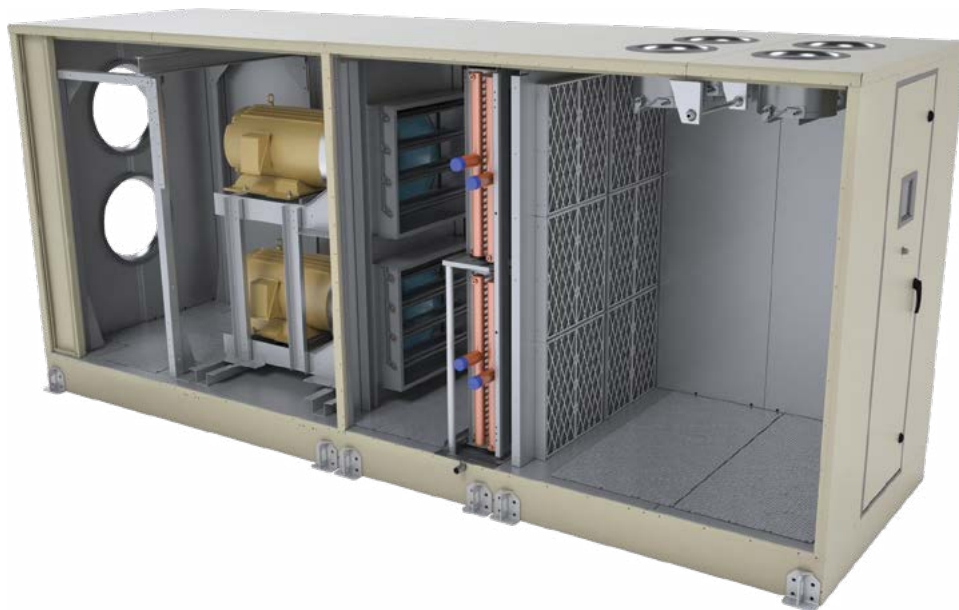




Marketing Guide

Performance Climate Changer™ PSCA Air Handlers

Indoor and Outdoor Custom Air Handling Unit



SAFETY WARNING

Only qualified personnel should install and service the equipment. The installation, starting up, and servicing of heating, ventilating, and air-conditioning equipment can be hazardous and requires specific knowledge and training. Improperly installed, adjusted or altered equipment by an unqualified person could result in death or serious injury. When working on the equipment, observe all precautions in the literature and on the tags, stickers, and labels that are attached to the equipment.



Introduction

Performance Climate Changer™ air handlers combine the Trane tradition of engineering excellence with the latest in manufacturing technology to deliver energy efficient air handlers with superior performance, the highest quality and reliability, and the lowest installed cost in the industry. Building upon this great lineup of air handlers, Trane introduces a new model - Performance PSCA. The PSCA model utilizes a common platform for both indoor and outdoor units. It combines custom features such as dimensional, casing, and component flexibility with integrated controls options and proven performance to give you the optimal system to clean, filter, heat, and cool your building.

Superior Performance

The PSCA air handler lives up to the Performance Climate Changer name. Utilizing a no-thru-metal design with injected closed-cell foam, the unit casing performance is superior to most others.

- ASHRAE 111 Class 6 low-leak casing design at +/- 10 inches w.g.
- Less than L/240 @ +/- 10 inches w.g. panel and door deflection
- Up to 10 inches w.g. operating pressure capability
- 2-inch R13 injected foam-insulated, mid-span thermal break wall panels and doors
- 3-inch R19 injected foam-insulated, mid-span double thermal break wall panels and doors
- Minimum casing thermal resistance ratio TR-value of 0.6
- Coils rated in accordance with AHRI 410 standard
- Acoustical performance per AHRI 260 test methods

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Revision History

- Updated Dimensional Flexibility information, including calculated unit size table.
- Minor updates.



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Performance Climate Changer PSCA Air Handler

Dimensional Flexibility

Performance Climate Changer™ PSCA air handler's dimensional flexibility allows for up to 354 calculated unit sizes. Selecting the most cost effective unit dimensions to meet the jobsite dimensional constraints and performance is critical. Unit sizing is available with:

- Airflow range of 6,000 – 60,000 cfm
- Variable aspect ratio
 - 3-inch height increments
 - 6-inch width increments

Table 1. Calculated unit sizes for Performance PSCA air Handlers

External Height (in)	121.00									61	65	70	74	79	82	86	89	94	99	103	107	111																							
	116.75									54	58	62	67	70	76	78	82	84	89	94	98	102	106																						
	113.75																			45	50	53	57	61	66	69	75	77	80	83	88	93	96	100	104										
	110.75																				43	48	51	54	58	62	66	71	73	76	79	83	88	91	95	99									
	108.75																				43	48	51	54	58	62	66	71	73	76	79	83	88	91	95	99									
	104.75																					37	40	44	47	51	54	58	61	66	68	71	73	77	82	85	88	92							
	101.75																						36	39	44	46	50	53	57	60	65	67	70	72	76	81	84	87	91						
	98.75																							35	38	42	45	48	52	56	58	63	65	68	70	74	78	81							
	95.75																							33	36	40	43	46	49	53	56	60	62	65	67	70	75	77							
	93.75																								33	35	40	42	45	48	52	55	59	61	64	66	69	73		76					
	90.25																									26	29	31	33	37	39	42	45	49	51	55	57	59		61	65	69			
	86.75																										22	25	28	30	32	36	38	41	44	47	49	53		55	57	59	62	66	
	83.75																											21	24	27	28	31	34	37	39	42	45	47	51	53	55	57	60	64	
	80.50																												18	22	24	25	27	30	32	35	37	40	42	45	47	49	50	53	56
	77.75	16	18	22	24	25	27	30	32	35	37	40	42	45	47	49	49	50	53	56																									
	74.75	16	18	22	24	25	27	30	32	35	37	40	42	45	47	49	49	50	53	56																									
	72.00	14	16	19	21	22	24	27	29	31	33	36	37	40	42	43	45	47																											
	68.75	14	16	19	21	22	24	27	29	31	33	36	37	40	42	43	45	47																											
	66.25	12	14	17	18	20	21	24	25	27	29	31	33	35	37	38																													
	62.75	12	14	17	18	20	21	24	25	27	29	31	33	35																															
	59.75	10	12	14	15	16	18	20	21	23	24	26	27	29																															
	57.50	10	12	14	15	16	18	20	21	23	24	26	27	29																															
	53.75	10	12	14	15	16	17	19	20	22																																			
	52	58	66.5	72	76	80	88	93.5	100	106	113	118	125.5	130	136	141	148	155	160	166											172														
	External Width (in)																																												

Note: Dimensions shown are for 2-inch casing. External height shown with 7.25-inch base rail. Submittal drawings will reflect final external dimensions.'

PSCA has flexibility to options for what can be stacked on the 2nd level of the air handler. Sizes shown in gray in table shown above can have a 2nd level shorter than the 1st level. This means items such as return fans, exhaust fans and discharge plenums on the 2nd level will take up less space than a standard air handler.



Performance Climate Changer PSCA Air Handler

Benefits of utilizing the shorter 2nd level:

- Potentially lower cost than a catalog air handler – air handlers can often be selected with the shortest 2nd level height available to maximize the cost savings
- Fit's where a catalog unit will not fit
- Increased stacking to approximately 33,000 CFM
- 'Right sizing' the exhaust and return fans to keep good efficiency levels and an optimized price point
- Reduce height of stacked outside air path to lower cost (SDU or Winterizer configuration)

Dimensional flexibility does not stop with width and height. Variable length sections are also available to ensure the unit will meet the job specific space constraints. The sections listed below are available with varying length, which are optimized to meet the desired performance, application and service needs:

- Access section
- Direct-drive plenum fan section
- Mixing box
- Coil
- Controls section with openings

Casing Capability

The PSCA air handler utilizes injected, closed-cell foam to deliver superior performance. The casing is capable of industry leading leakage levels up to 10" of static pressure. The table below shows the leakage and deflection rates for each wall construction.

Table 2. Leakage and deflection rates

Wall Construction	Static Pressure	Max Deflection	Leakage Performance
2"	up to 8"	L/240	Class 6 Leakage
	8" to 10"	L/200	Class 9 Leakage
3"	up to 10"	L/240	Class 6 Leakage

More rigid casings at higher static pressures will minimize casing leakage. Rigid and consistent casing construction produces less stress on the casing and a longer lifecycle expectancy. The PSCA casing design is ideal for applications with high static pressure capabilities such as healthcare, with increased filtration needs and large central AHUs with long duct runs.



Performance Climate Changer PSCA Air Handler

Component Flexibility

Similar to other Performance Climate Changer models, the PSCA air handler features component flexibility to ensure that desired performance is met.

Unit Base Options

- 4-inch, 6-inch, 7.25-inch, and 10-inch base dependent upon aspect ratio
- Welded option with 7.25 inch height – optional for indoor units and standard for outdoor units

Unit Door Options

- All doors have single ganged door latches and stainless steel hinges
- Inward and outward swing doors are available depending upon pressure
- Two construction options
 - Standard Trane door
 - Premium - extruded aluminum frame door
- Premium door features
 - Standardized door widths for access sections and discharge plenums (12-inch, 18-inch, and 24-inch width)
 - Handles operable from the inside
- Both door options provide excellent leakage and deflection capabilities. The premium door is a great addition for a more custom look and feel.

Figure 1. Door options — standard outward swing door with ganged-handle (left), premium door with operable handles on inside (right)





Fan Section

- Direct-drive plenum fans
 - Class II and Class III construction, allows for up to 10+ in. w.g. total static pressure and fan arrays with 100 percent redundancy at 10 in. w.g total static pressure
 - One-, two-, three-, and four-fan arrays – combinations depend on aspect ratio
 - Variable fan section length based on options selected (i.e. fan size/quantity, access door, VFD, controller)
 - Optional motor removal rail
- Motorized impellers
 - Vertical and horizontal inlet
 - One-, two-, three-, and four-fan arrays – combinations depend on aspect ratio
- Variable size discharge dampers available for exhaust and air supply

Coil Section

- Chilled water
- Hot water
- Steam
- Refrigerant
- Electric heat
- Optional 0.01 inch fin thickness for hydronic

Filter Section

- Filter frame type: angle, flat, side-load cartridge/bag, HEPA, front-loading
- Multiple filter media types

Mixing Box Section

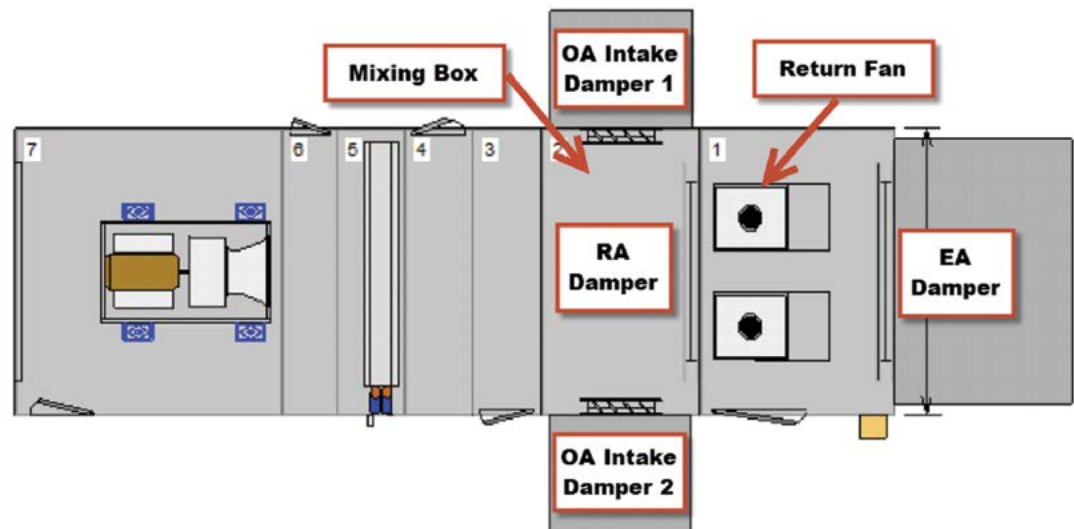
- Variable length
- Variable damper sizes
- Variable Traq™ damper quantity. Traq dampers allow direct measurement and control of outdoor and/or return airflow - a key part of a demand control ventilation strategy to help drive down energy costs.



Outdoor Economizer Layout

Economizing can be achieved by utilizing a combination of a mixing box(es) along with a return/exhaust fan. The ventilation (outdoor) air intake damper(s) is located in a mixing box along with the return air damper. The exhaust air damper is located in the fan section. The following figure is an example of this configuration for an outdoor unit.

Figure 2. Economizing is achieved by combining mixing box with return/exhaust fan



Discharge Plenum Section

- Horizontal variable length
- Vertical variable height
- Customizable quantity of openings, opening sizes, and locations

Access Section

- Infinitely variable length up to 96 inches

Additional Sections

The following sections are also available to meet specific requirements:

- Humidifier
- Blender
- Silencer
- Controls section

Factory-Mounted Controls

- Unwired end-devices
- End devices wired to terminal block
- Symbio 500 BACnet Controller

Motor Interface Options

- Variable frequency drive (VFD)
- VFD per fan for fan array
- Overload panel for fan array
- External junction box
- Motorized impeller control panel
- Motor wiring in conduit

Figure 3. DDP 1x2 fan array with motor wiring in conduit

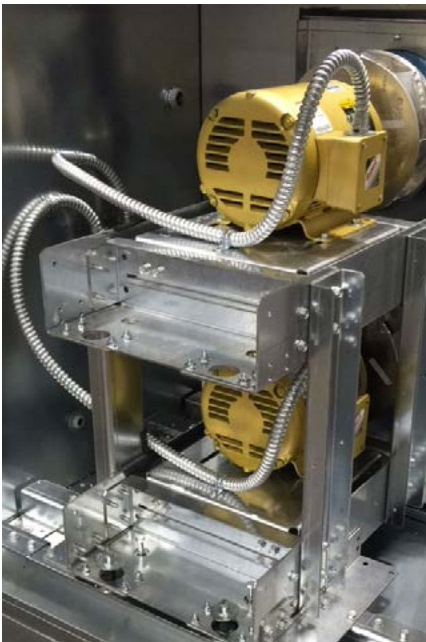


Figure 4. VFD per fan (outside)



Figure 5. VFD per fan (inside)





Competitive Comparison

Quick Competitive Comparison

The following table provides areas where the Performance PSCA air handler has a distinct advantage over the competition. These key areas should be highlighted in specs when positioning Performance PSCA air handlers against these manufacturers. The pages to follow provide more specific information on each competitor and areas where Performance PSCA air handlers can offer superior options.

Table 3. Quick comparison of Performance PSCA air handlers and competitive units

	Description	PSCA	Temtrol	Climate Craft	Energy Labs	Buffalo	Haakon
Dimensions	Aspect ratio 3 in. H x 6 in. W	✓	✓	✗	✓	✓	✗
	2-in. injected foam	✓	✓	✓	✓	✓	✗
	3-in. injected foam	✓	✓	✓	✗	✓	✗
Casing Performance	ASHRAE 111 Class 6 leakage up to @ +/- 10-in. w.g.	✓	✗	✓	✗	✗	✗
	L/240 @ 10-in. w.g.	✓	✓	✓	✗	✗	✗
	Thermal break with no thru-metal (including floor)	✓	✗	✗	✗	✗	✗
	Thermal break in door	✓	\$\$	\$\$	\$\$	✓	✓
Controls	Factory-mounted controls	✓	\$\$	\$\$	✓	\$\$	✓
	Factory-programmed controls	✓	✗	✗	✗	✗	✗
Coils	Guaranteed no water carryover	✓	✗	✗	✗	✗	✗
Fans	Estimated in accordance with AHRI 260	✓	✗	✗	✗	✗	✗
Lead Time	8 week lead time	✓	✓	✗	✗	✗	✗
Cost	Target price	\$\$	\$\$	\$\$\$	\$\$\$	\$\$\$\$	\$\$\$
Service	Extensive service network	✓	✗	✗	✗	✗	✗
Portfolio	Full portfolio offering	✓	✗	✗	✗	✗	✗
Disassembly	Site disassembly	✓	Painful	✓	Painful	✓	Painful

Performance PSCA Air Handlers vs. Temtrol Air Handlers

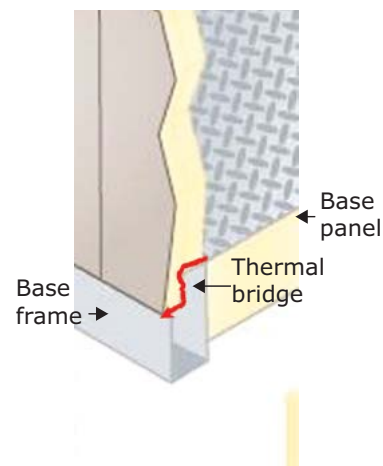
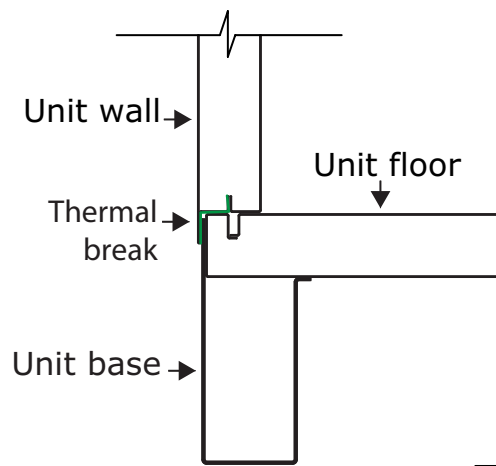


Table 4. Performance PSCA air handler advantages over Temtrol

Description	PSCA	Temtrol
Casing Performance	ASHRAE 111 Class 6 Leakage @ +/- 10-in. w.g.	1% of leakage specified to 9 in. static pressure
	Thermal break with no thru metal (including floor)	Thermal bridge at unit base
	Thermal break in door	Can do, but adds extra cost
Controls	Factory-mounted controls	Difficult, costly
	Factory-programmed controls	Not offered
Coils	Guaranteed no water carryover	No guarantee
Fans	Estimated in accordance with AHRI 260	AMCA 300 provided for some fans. FANWALL has no certification (not even AMCA)
Service	Extensive service network	Spotty
Portfolio	Full HVAC portfolio offering	Limited to airside
Disassembly	Site disassembly	Caulking used extensively; makes disassembly very difficult.



Competitive Comparison

Performance PSCA Air Handlers vs. Buffalo Air Handlers



Table 5. Performance PSCA air handler advantages over Buffalo

Description	PSCA	Buffalo
Casing Deflection	L/240 @ 10-in. w.g.	L/200
Casing Thermal	Thermal break with no thru metal (including floor)	Issues at base
Controls	Factory-mounted controls	Difficult, costly
	Factory-programmed controls	Not offered
Coils	Guaranteed no water carryover	No guarantee
Fans	Estimated in accordance with AHRI 260	Provides only AMCA 300 data
Lead Time	8 week lead time	Extended
Cost	Target price is catalog plus	Full custom pricing
Service	Extensive Service Network	Regional
Portfolio	Full portfolio offering	Air handling only

Performance PSCA Air Handlers vs. Haakon Air Handlers

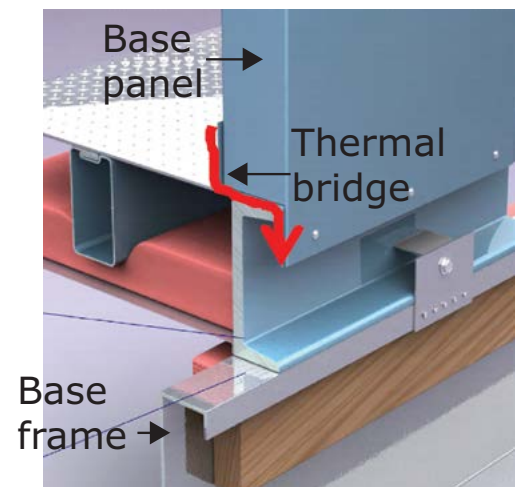
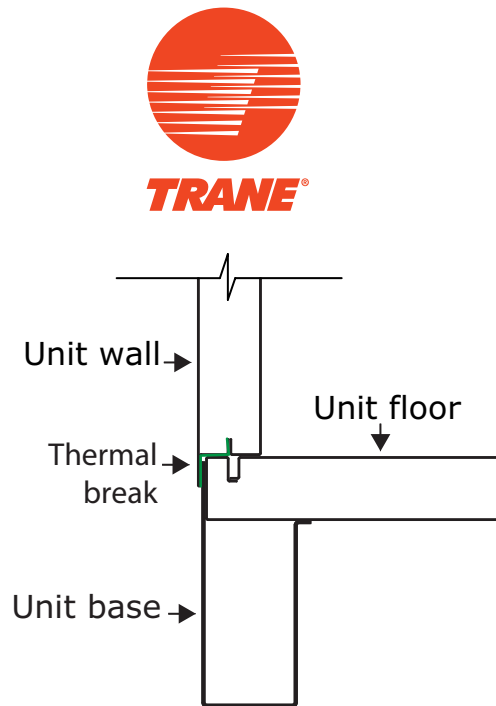


Table 6. Performance PSCA air handler advantages over Haakon

Description	PSCA	Haakon
Construction	2-in. injected foam 3-in. injected foam	Fiberglass base. Walls and roof not injected
Casing Leakage	ASHRAE 111 Class 6 leakage @ +/- 10-in. w.g.	1% up to 1.5 x working pressure
Casing Deflection	L/240 @ 10-in. w.g.	L/200
Casing Thermal	Thermal break with no thru metal (including floor)	Z-bar in base allows for thermal bridge
Controls	Factory-programmed controls	Not offered
Coils	Guaranteed no water carryover	No guarantee
Fan Acoustics	Estimated in accordance with AHRI 260	Fan only performance rated per AMCA 311
Lead Time	8 week lead time	18+ weeks during peak season
Cost	Target price is catalog plus	Full custom pricing
Service	Extensive service network	Spotty
Portfolio	Full portfolio offering	Air handling only
Disassembly	Site disassembly	Caulking used extensively. Makes disassembly very difficult



Competitive Comparison

Performance PSCA Air Handlers vs. ClimateCraft Air Handlers

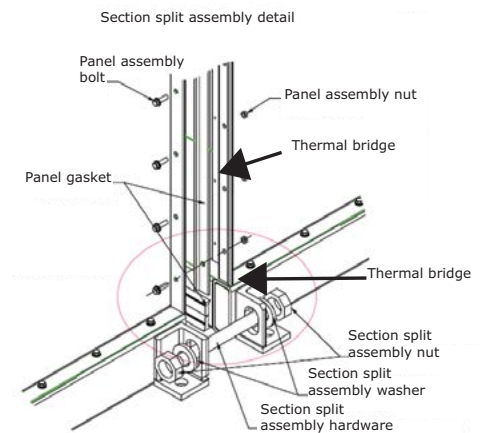
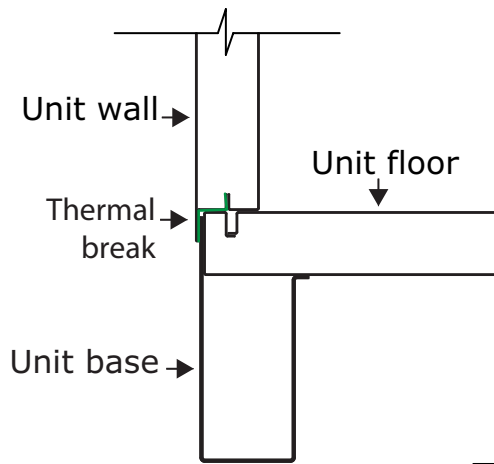


Table 7. Performance PSCA air handler advantages over Climate Craft

Description	PSCA	Climate Craft
Dimensions	Aspect ratio 3 in. H x 6 in. W	Width varies in 6 in. increments
Casing Thermal	Thermal break with no thru metal (including floor)	Wall panel screws create thermal bridge. Base design also has thru metal.
	Thermal break in door	Can do, but adds extra cost
Controls	Factory-programmed controls	Not offered
Coils	Guaranteed no water carryover	No guarantee
Fans	Estimated in accordance with AHRI 260	Provides only AMCA 300 data
Lead Time	8 week lead time	8+ weeks
Cost	Target price is catalog plus	Full custom pricing
Service	Extensive service network	Spotty
Portfolio	Full portfolio offering	Air handling only

Performance PSCA Air Handlers vs. Energy Labs Air Handlers

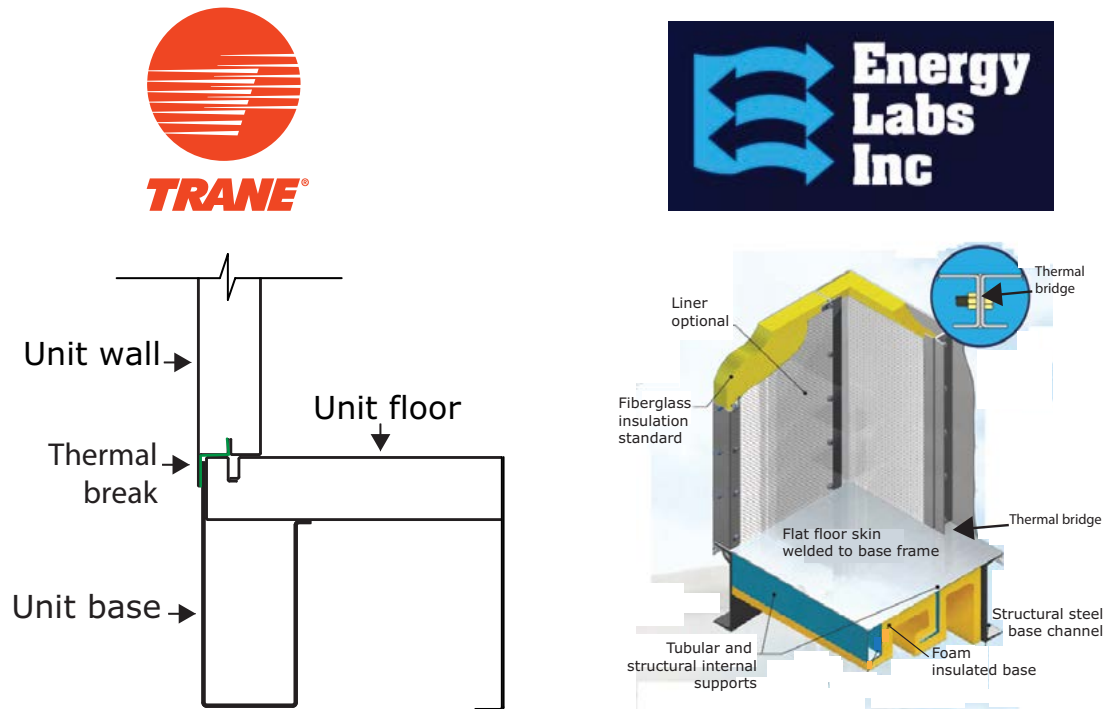


Table 8. Performance PSCA air handler advantages over Energy Labs

Description	PSCA	Energy Labs
Construction	3 in. injected foam	3 in. adds complexity and cost
Casing Leakage	ASHRAE 111 Class 6 leakage @ +/- 10-in. w.g.	1%
Casing Deflection	L/240 @ 10-in. w.g.	L/200
Casing Thermal	No thru metal	Standard unit does not have thermal break. Make sure to specify no thru metal to force Energy Labs to the more costly true thermal break injected foam option.
Controls	Factory-programmed controls	Not offered
Coils	Guaranteed no water carryover	No guarantee
Fans	Estimated in accordance with AHRI 260	Provides only AMCA 300 data
Lead Time	8 week lead time	Extended
Cost	Target price is catalog plus	Full custom pricing
Service	Extensive service network	Spotty
Portfolio	Full portfolio offering	Airside only



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