

ACBC

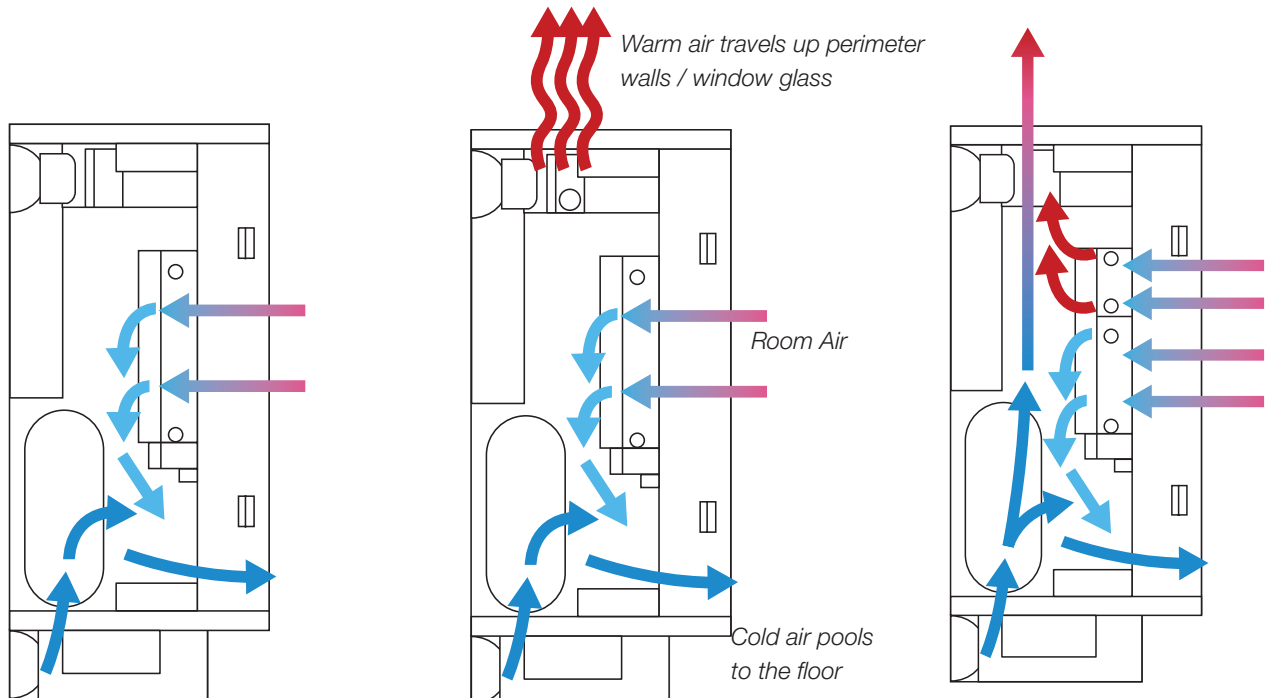
CABINET DISPLACEMENT CHILLED BEAM



ACBC Cabinet Displacement Chilled Beam

Chilled beams are sensible cooling and heating devices that reduce airflow requirements for a space by using the waterside design in addition to the primary air. Displacement ventilation provides an energy efficient way of improving indoor air quality, increasing thermal comfort within spaces, and allowing for a higher ventilation effectiveness. The Cabinet Displacement Chilled Beam (ACBC) combines the benefits of these two technologies to provide an energy efficient HVAC system and improved comfort benefits.

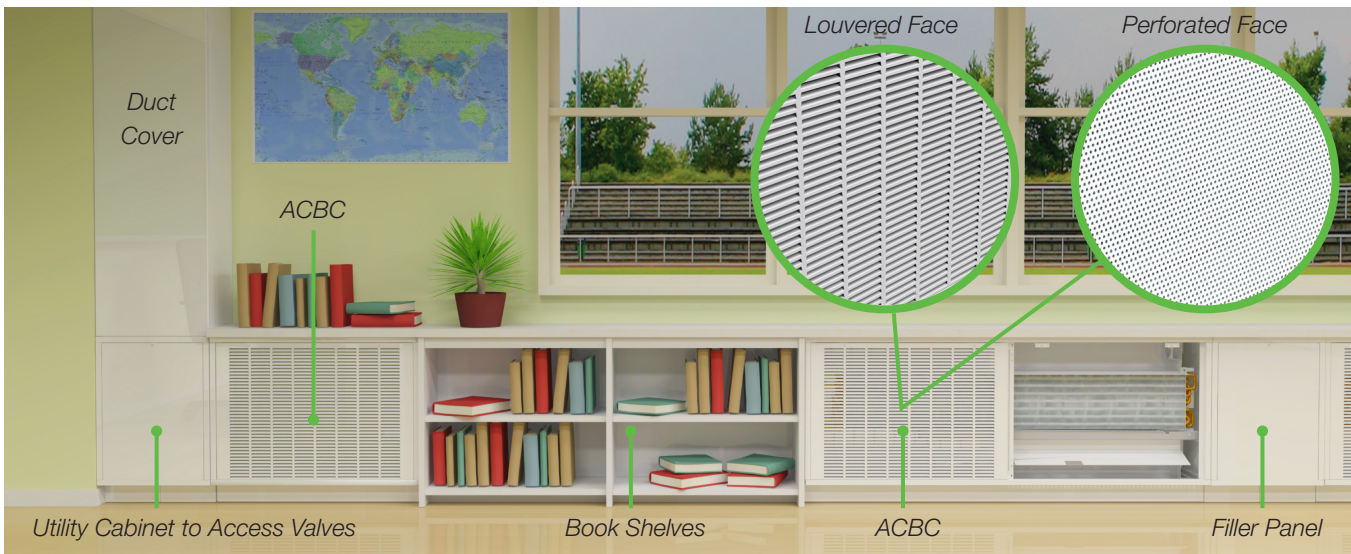
The ACBC is designed for high occupancy applications such as classrooms in primary, secondary, and higher education buildings. The ACBC supplies low velocity fresh air at ground level which allows for stratification to occur in the occupied space.



1-Way airflow

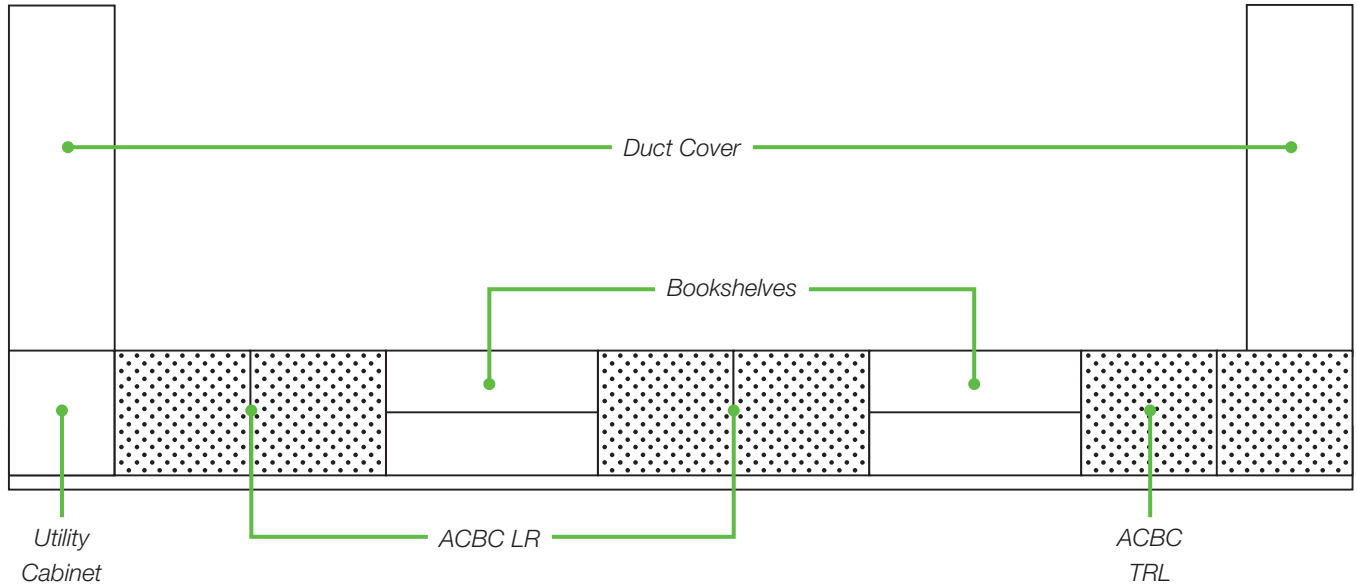
1-Way airflow with fin tube heater

2-Way airflow



CONFIGURATIONS

Choice of either twist louvered face or a perforated face style; both face options meet pencil proof requirements. The beams can be installed in series to form a continuous look or for a wall to wall installation. This feature makes it easy to integrate the ACBC with accessories such as bookshelves, filler panels, and duct covers, so as to minimize usable space impact. An optional utility cabinet provides room side access to connections and controls.



The following is a list of all ACBC configurations available:

- + **L:** Left inlet
- + **R:** Right inlet
- + **LR:** Left & right inlet
- + **TL:** Top left inlet
- + **TR:** Top right inlet
- + **TLR:** Top left & right inlet
- + **TRL:** Top right & left inlet

NOTE: Right Hand / Left Hand coil options available for all configurations. Check ACBC chilled beam submittals for further details and dimensions.

ACBC Accessories



Active Bookshelf

* Inactive also available



Utility Cabinet



Duct Cover

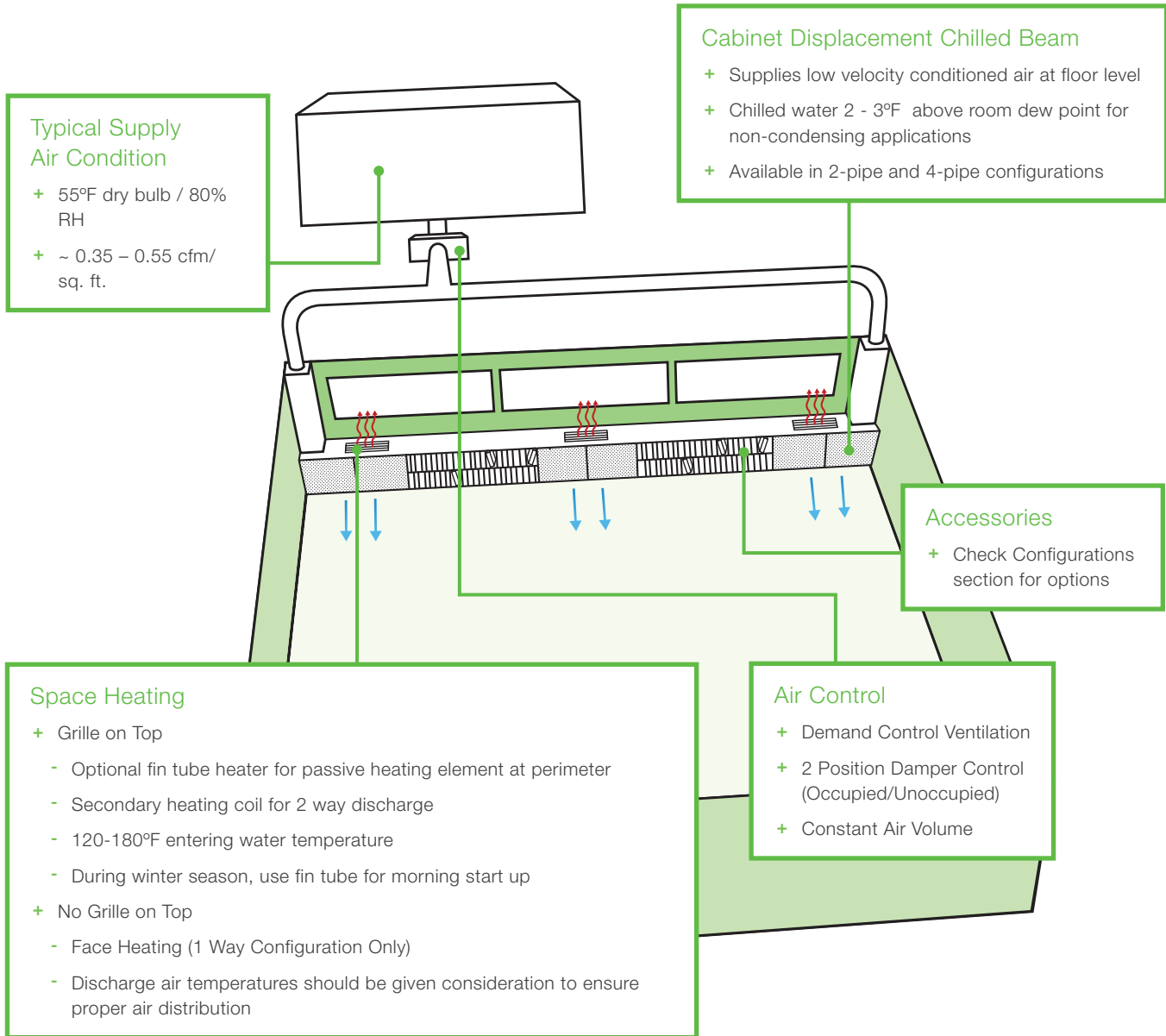


Filler Section

TYPICAL CLASSROOM LAYOUT

ACBC 1-Way and 2-Way

- + New construction project
- + 3-4 Floor mounted ACBC units



System Benefits

- + Quiet operation (complies with ANSI S12.60)
- + Achieves thermal stratification
- + Improved ventilation effectiveness (1.2)
- + Improved indoor air quality
- + Minimum in-classroom maintenance

HALLWAYS, OFFICES, LIBRARIES

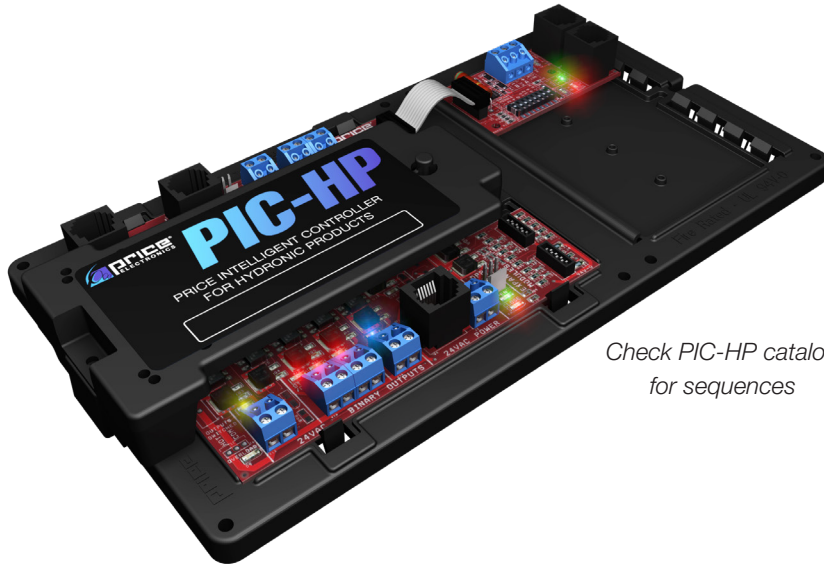


In other areas such as hallways, administrative offices and libraries, ACBLs can be used to work with the same DOAS system.



ZONE CONTROLLER

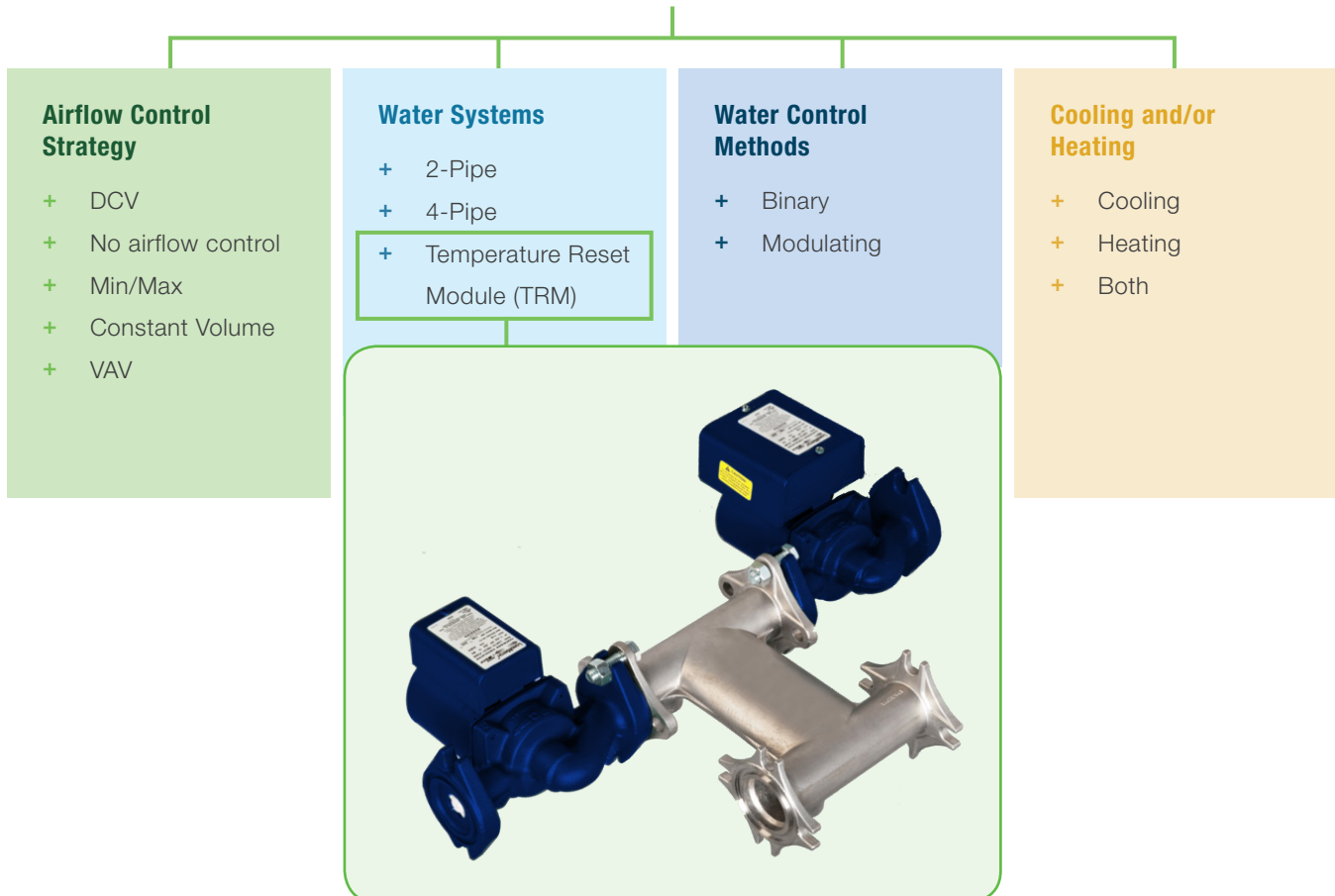
With the Price Intelligent Controller for Hydronic Applications (PIC-HP), Price now offers control of both the air side and the water side at the zone level. A wide variety of standard sequences are available depending on the desired control method. This systems brings multiple control points into one location allowing substantial cost savings with Chilled Beams systems. These controls are available with BMS integration over BACnet.



Check PIC-HP catalog
for sequences



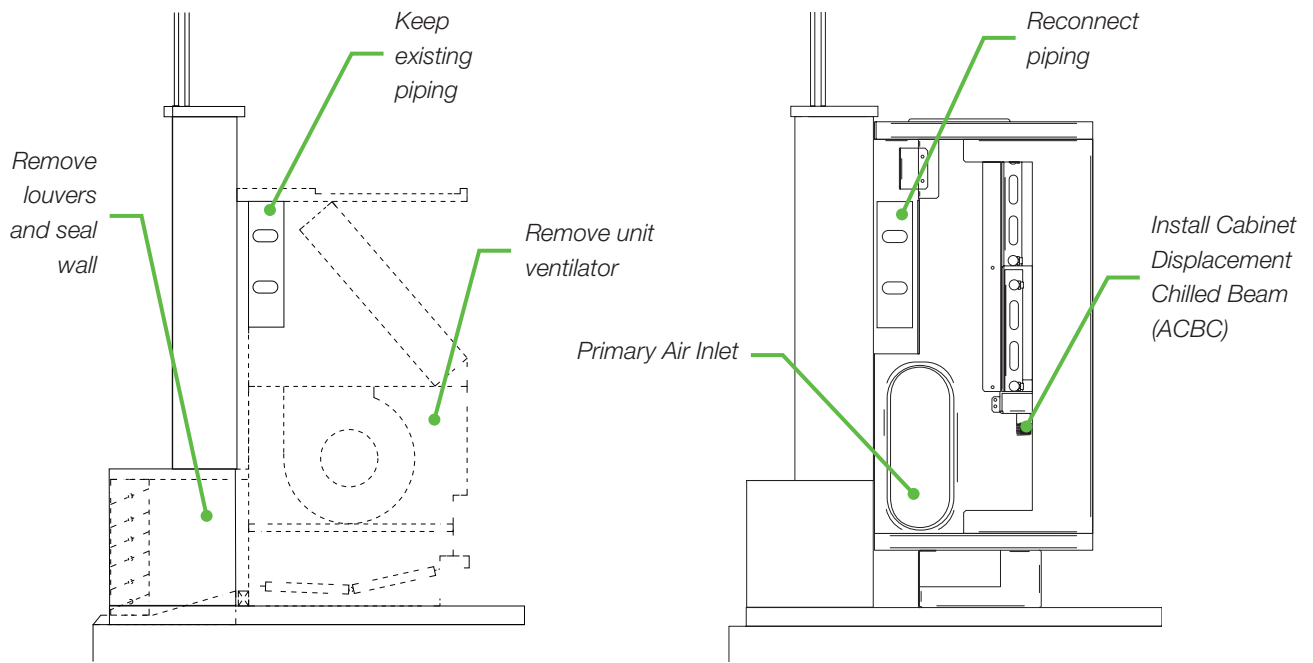
PIC-HP Control Sequences



RETROFIT APPLICATIONS

Classrooms with Existing Cabinet Unit Ventilators or Fan Coils

ACBC units are an excellent options for schools looking to upgrade their system from unit ventilators or fan coils. All that is required is the removal of the old units, placement of the ACBCs and reconnection of the existing water coils.



Unit ventilator removed, wall sealed, and existing water piping remains

ACBC unit installed and connected to existing water piping

Benefits

- + Lower first cost
- + Use of existing chilled water piping
- + Quiet operation (complies with ANSI S12.60)
- + Improved ventilation effectiveness (1.2)
- + Improved indoor air quality
- + Minimum in-classroom maintenance

PERFORMANCE DATA

Design Parameters

Design Parameters	Cooling	Heating
SAT	55 – 65°F	60 – 90°F
Airflow Rate	3 – 25 cfm/ft. (2-Way Discharge) 3 – 15 cfm/ft. (1-Way Discharge)	
EWT	Dew point + 2°F	120 – 180°F
Water ΔT	2 – 6°F	10 – 20°F
Water Flow Rate	min: 0.5 gpm max: 3 gpm (Optimal ≥ 1 gpm)	
Water ΔP	0 – 10 ft.	
Air ΔP	0.2 – 0.8 in.	

Acoustic Performance Data

6 ft Long Cabinet: One-Way Discharge, Nozzle Size 50 (405)

8E Inlet		Airside Pressure Drop [in H ₂ O]	Number of Units Ducted In Series		
Primary Airflow Rate [CFM]	Total Airflow Rate [CFM]		1	2	3
			Sound Pressure Level [NC]		
60	211	0.28	<10	15	22
70	246	0.38	<10	15	22
80	281	0.50	11	16	23
90	315	0.63	15	20	27
100	349	0.78	19	24	31

6 ft Long Cabinet: One-Way Discharge, Nozzle Size 70 (504)

8E Inlet		Airside Pressure Drop [in H ₂ O]	Number of Units Ducted In Series		
Primary Airflow Rate [CFM]	Total Airflow Rate [CFM]		1	2	3
			Sound Pressure Level [NC]		
80	236	0.20	<10	15	22
100	296	0.32	11	16	23
120	355	0.46	17	22	29
140	413	0.63	22	27	34
160	471	0.82	27	32	39

6 ft Long Cabinet: Two-Way Discharge

8E Inlet		Airside Pressure Drop [in H ₂ O]	Number of Units Ducted In Series		
Primary Airflow Rate [CFM]	Total Airflow Rate [CFM]		1	2	3
			Sound Pressure Level [NC]		
110	417	0.25	11	16	20
130	474	0.35	16	21	25
150	528	0.47	21	26	30
170	580	0.60	24	29	33
190	630	0.76	28	33	37

Performance Notes:

1. Single unit data is tested to ASHRAE Standard 200
2. Tested in a chamber accredited to ANSI S12.51 (NVLAP Lab Code: 200874-0)
3. Airside pressure drop measured at the first unit
4. Tested with perforated face
5. NC values are based on a room absorption of 10dB, re 10⁻¹² Watts

PERFORMANCE DATA

Quick-Sizing Thermal Performance Data

6 ft Long Cabinet: One-Way Discharge, Nozzle Size 50 (405)

Primary Airflow Rate [CFM]	Total Airflow Rate [CFM]	Airside Pressure Drop [in H ₂ O]	Water Flow Rate [GPM]	Cooling		
				Total Sensible Capacity [BTUH]	Water Pressure Drop [ft H ₂ O]	Discharge Air T [°F]
60	211	0.28	0.5	2,903	0.9	62.6
			0.75	3,035	1.6	62.0
			1	3,136	2.4	61.6
			1.5	3,288	4.6	60.9
70	246	0.38	0.5	3,270	0.9	63.0
			0.75	3,415	1.6	62.5
			1	3,525	2.4	62.1
			1.5	3,691	4.6	61.5
80	281	0.50	0.5	3,618	0.9	63.4
			0.75	3,773	1.6	62.9
			1	3,891	2.4	62.5
			1.5	4,070	4.6	61.9
90	315	0.63	0.5	3,951	0.9	63.7
			0.75	4,115	1.6	63.2
			1	4,241	2.4	62.9
			1.5	4,430	4.6	62.3
100	349	0.78	0.5	4,272	0.9	64.0
			0.75	4,445	1.6	63.5
			1	4,577	2.4	63.2
			1.5	4,776	4.6	62.7

6 ft Long Cabinet: One-Way Discharge, Nozzle Size 70 (504)

Primary Airflow Rate [CFM]	Total Airflow Rate [CFM]	Airside Pressure Drop [in H ₂ O]	Water Flow Rate [GPM]	Cooling		
				Total Sensible Capacity [BTUH]	Water Pressure Drop [ft H ₂ O]	Discharge Air T [°F]
80	236	0.20	0.5	3,337	0.9	62.3
			0.75	3,469	1.6	61.8
			1	3,569	2.4	61.4
			1.5	3,720	4.6	60.8
100	296	0.32	0.5	3,987	0.9	62.9
			0.75	4,136	1.6	62.4
			1	4,250	2.4	62.1
			1.5	4,421	4.6	61.6
120	355	0.46	0.5	4,600	0.9	63.3
			0.75	4,763	1.6	62.9
			1	4,887	2.4	62.6
			1.5	5,075	4.6	62.1
140	413	0.63	0.5	5,186	0.9	63.7
			0.75	5,362	1.6	63.3
			1	5,495	2.4	63.0
			1.5	5,696	4.6	62.6
160	471	0.82	0.5	5,754	0.9	64.0
			0.75	5,940	1.6	63.6
			1	6,081	2.4	63.4
			1.5	6,294	4.6	63.0

Performance Notes:

1. Tested to ASHRAE Standard 200 in an accredited test chamber (A2LA Certificate Number 4357.01)
2. Room temperature is 75°F for cooling
3. The entering water temperature is 57°F for cooling
4. Primary air temperature is 55°F for cooling
5. See "Fin Tube Heating Performance Data" for One-Way Discharge unit heating capacity
6. Tested with perforated face

PERFORMANCE DATA

Fin Tube Heating: One-Way Discharge Only

Rear Fin Tube Heating Capacity [BTUH/ft] at 4 GPM						
Entering Water T [°F]	Entering Air Temperature [°F]					
	55	60	65	70	75	80
100	199	164	132	103	77	54
110	274	235	199	164	132	103
120	359	316	274	235	199	164
130	452	404	359	316	274	235
140	553	501	452	404	359	316
150	661	606	553	501	452	404
160	777	718	661	606	553	501
170	900	837	777	718	661	606
180	1029	963	900	837	777	718

Multiplier for Water Flow Rates Less than 4.0 GPM							
Flow Rate [GPM]	0.5	1.0	1.5	2.0	2.5	3.0	3.5
Factor	0.927	0.951	0.965	0.975	0.983	0.990	0.995

Performance Notes:

1. Tested in an accredited test chamber (A2LA Certificate Number 4357.01)
2. Capacity of fin tube installed in cabinet (one-way discharge)

6 ft Long Cabinet: Two-Way Discharge

Primary Airflow Rate [CFM]	Total Airflow Rate [CFM]	Airside Pressure Drop [in H ₂ O]	Water Flow Rate [GPM]	Cooling			Heating		
				Total Sensible Capacity [BTUH]	Water Pressure Drop [ft H ₂ O]	Discharge Air T [°F]	Total Sensible Capacity [BTUH]	Water Pressure Drop [ft H ₂ O]	Discharge Air T [°F]
110	417	0.25	0.5	3,433	0.6	68.0	2,137	0.4	83.6
			0.75	3,516	1.1	67.7	2,369	0.8	84.9
			1	3,580	1.7	67.5	2,546	1.2	86.0
			1.5	3,676	3.2	67.1	2,812	2.3	87.5
130	474	0.35	0.5	3,978	0.6	67.7	2,306	0.4	82.5
			0.75	4,070	1.1	67.5	2,562	0.8	83.8
			1	4,140	1.7	67.2	2,756	1.2	84.7
			1.5	4,245	3.2	66.9	3,050	2.3	86.1
150	528	0.47	0.5	4,508	0.6	67.5	2,435	0.4	81.6
			0.75	4,608	1.1	67.3	2,711	0.8	82.7
			1	4,683	1.7	67.0	2,920	1.2	83.6
			1.5	4,797	3.2	66.7	3,237	2.3	84.9
170	580	0.60	0.5	5,028	0.6	67.4	2,533	0.4	80.8
			0.75	5,134	1.1	67.1	2,827	0.8	81.8
			1	5,214	1.7	66.9	3,050	1.2	82.7
			1.5	5,336	3.2	66.5	3,388	2.3	83.9
190	630	0.76	0.5	5,539	0.6	67.2	2,608	0.4	80.1
			0.75	5,651	1.1	66.9	2,918	0.8	81.1
			1	5,735	1.7	66.7	3,153	1.2	81.9
			1.5	5,863	3.2	66.4	3,509	2.3	83.0

Performance Notes:

1. Tested to ASHRAE Standard 200 in an accredited test chamber (A2LA Certificate Number 4357.01)
2. Room temperature is 75°F for cooling and 70°F for heating.
3. The entering water temperature is 57°F for cooling and 120°F for heating
4. Primary air temperature is 55°F for cooling and 65°F for heating
5. Tested with perforated face

PERFORMANCE DATA

Adjacent Zone Data

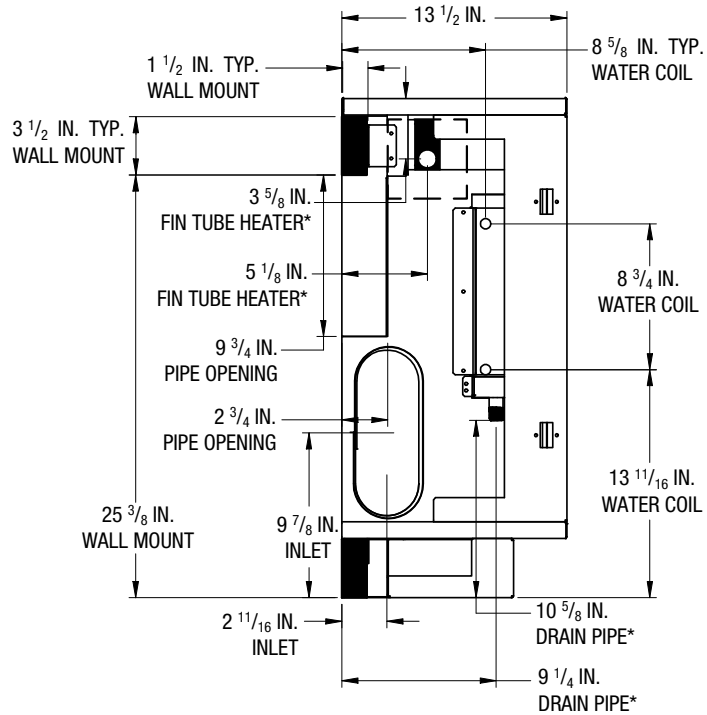
5 ft Long Cabinet	Primary Airflow Rate [CFM]	Total Airflow Rate [CFM]	Airside Pressure Drop [in H ₂ O]	Adjacent Zone [ft]	
				60 FPM	40 FPM
One-Way Discharge, Nozzle Size 50	70	229	0.57	7	13
Two-Way Discharge	120	350	0.47	5	9

Thermal Comfort Performance Notes:

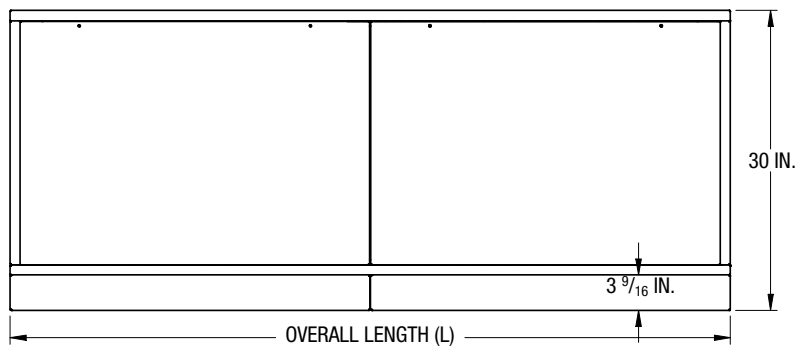
1. Tested to ASHRAE Standard 70
2. Temperature differential of 5°F between discharge air and room temperature
3. Air velocity measured 4" above the floor
4. Tested with perforated face

DIMENSIONAL DATA

ACBC 1-Way



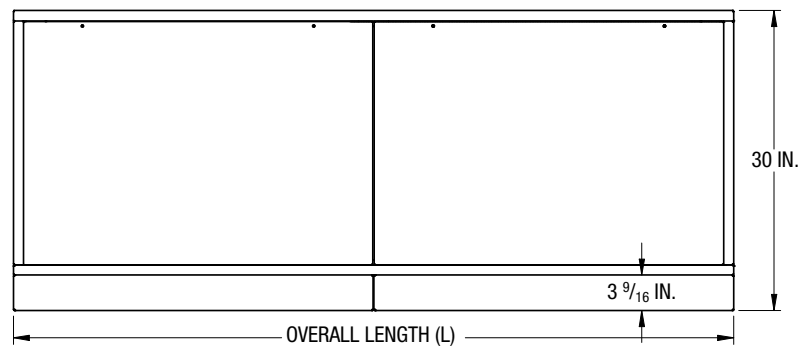
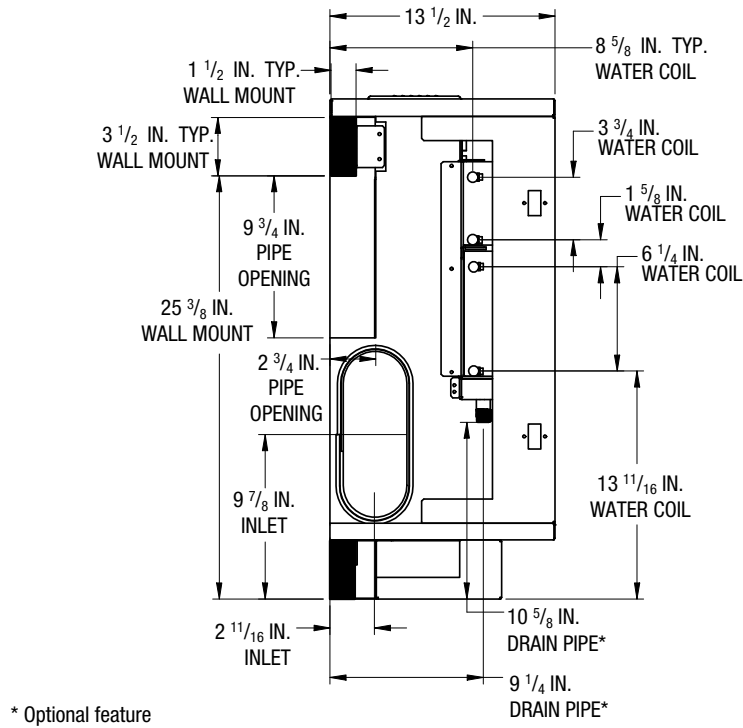
* Optional features



Overall Length (in.)	Available Active Coil Length (in.)	Available Inlet Location
60	36	L, R, LR, TL, TR, TLR, TRL
	60	L, R, LR
67.75 (1500)	36	L, R, LR, TL, TR, TLR, TRL
	60	L, R, LR
72	48	L, R, LR, TL, TR, TLR, TRL
	72	L, R, LR
87.44 (2000)	60	L, R, LR, TL, TR, TLR, TRL
	84	L, R, LR

DIMENSIONAL DATA

ACBC 2-Way



Overall Length (in.)	Available Active Coil Length (in.)	Available Inlet Location
60	36	L, R, LR, TL, TR, TLR, TRL
	60	L, R, LR
67.75 (1500)	36	L, R, LR, TL, TR, TLR, TRL
	60	L, R, LR
72	48	L, R, LR, TL, TR, TLR, TRL
	72	L, R, LR
87.44 (2000)	60	L, R, LR, TL, TR, TLR, TRL
	84	L, R, LR



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