



INSTALL CONFIDENCE



YORK[®] LINEAR ACTIVE CHILLED BEAMS

ENGINEERING GUIDE



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YORK® Linear Active Chilled Beams

Energy Efficiency Delivered

YORK® linear chilled beams are the air distribution device of choice in high performing energy efficient buildings. Utilizing an integrated sensible cooling coil, active beams reduce the volume of air required for space cooling. A smaller volume of primary air minimizes energy consumed treating outdoor air and nearly eliminates energy wasted by parasitic reheat. When compared to conventional VAV systems a 30% energy savings can be realized.

Superior Performance

Aerodynamically designed nozzles inject conditioned primary air into the diffuser at high velocity. As the jets of air expand and slow the change in velocity creates a pressure gradient along its boundary. This pressure differential induces room air across the sensible coil within the diffuser. Using Computational Fluid Dynamics (CFD) and extensive laboratory testing the geometry of the YORK® linear active chilled beams was refined to maximize induce air flow for optimal energy efficiency.

Low Sound, Low Maintenance

Active chilled beams utilize system pressure in their operation, eliminating fans in the space or in the ceiling plenum minimizing overall system noise. With the elimination of fans, active chilled beams have no parts to replace for maintenance. Additionally, since coils are providing sensible cooling only there are no filters to be changed nor drain pans to clean; only periodic vacuuming of the coils to remove lint and dust from the coil and general cleaning of the exposed surfaces.

Linear Styling and Flexible Installations

The linear design of these beams is such that they can be installed in continuous runs to become a core design feature of a space or project. Perforated or bar grille faces are available to tie into styling of the entire project. Flexible mounting methods allow for direct attachment to the building slab, suspended by hanging wire or by threaded rods. Available border types accommodate standard lay-in, narrow tee and tegular drop face ceiling systems. The CB-ALE-YK is specifically designed for exposed installations with integral coanda plates for ceiling independent air distribution.

Available Models:

CB-ABL-YK: Standard Linear Active Chilled Beam

CB-ALV-YK: Linear Active Chilled Beam with Vertical Coils and condensate tray

CB-ALE-YK: Linear Active Chilled Beam for exposed installations



CB-ABL-YK / CB-ALV-YK



CB-ALE-YK

Standard Features:

- 2 foot to 10 foot lengths, 1 foot increments
- Perforated or linear bar induced air grille
- Left hand or Right hand coil connections
- Side or top air inlet locations
- 2-pipe and 4-pipe coil configurations
- Configured nozzle geometry for capacity optimization
- Hinged induced air grille for roomside coil access
- Commissioning port with roomside access for balancing
- Mounting brackets with adjustments in two directions
- Durable powder coat finish – White or Black
- 1/2" Sweat water coil connections
- Coil air vent

Options and Accessories:

- 1/2" thick foil-faced external insulation
- Coil drain valve
- 1/2" MNPT water coil connections
- 12-inch, 18-inch or 24-inch stainless steel braided hoses
- Lay-in, narrow tee and drop face border types

CB-ABL-YK: 24-IN WIDTH: PERFORMANCE DATA (4-PIPE COOLING)

Nominal Length ft	Nozzle Size	Primary Air			Sound NC	Coil Sensible Cooling (Btu/h)								Induction ratio	Throw ft.
		Inlet Dia.	Flow Rate	Inlet ΔPS		0.5 GPM		1.0 GPM		1.5 GPM		2.0 GPM			
		Inches	CFM	(in. H2O)		qCOIL	ΔCOIL	qCOIL	ΔCOIL	qCOIL	ΔCOIL	qCOIL	ΔCOIL		
4	B1	4	17	0.25	-	1,895	0.72	2,354	2.88	2,546	6.49	2,656	1.10	5.9	1 - 1 - 5
			24	0.50	-	2,043		2,537		2,745		2,863			
			29	0.75	16	2,594		3,222		3,486		3,636			
	B2	4	25	0.25	-	1,955	0.72	2,429	2.88	2,627	6.49	2,741	1.10	4.8	1 - 2 - 8
			36	0.50	19	2,136		2,653		2,869		2,993			
			44	0.75	24	2,693		3,345		3,619		3,775			
	B3	5	48	0.25	17	2,240	0.72	2,782	2.88	3,009	6.49	3,140	1.10	4	2 - 5 - 14
			68	0.50	26	2,466		3,063		3,313		3,456			
			84	0.75	31	3,096		3,846		4,160		4,340			
	B4	6	87	0.25	25	2,519	0.72	3,129	2.88	3,384	6.49	3,531	1.10	2.5	4 - 9 - 18
			124	0.50	34	2,774		3,445		3,727		3,888			
			151	0.75	39	3,482		4,326		4,679		4,881			
6	B1	4	25	0.25	-	2,335	1.01	2,900	4.03	3,137	9.06	3,273	2.26	5.9	1 - 2 - 6
			36	0.50	19	2,594		3,222		3,485		3,636			
			44	0.75	24	3,241		4,026		4,355		4,543			
	B2	5	39	0.25	-	2,512	1.01	3,120	4.03	3,375	9.06	3,521	2.26	4.8	1 - 3 - 10
			55	0.50	22	2,753		3,420		3,699		3,859			
			67	0.75	27	3,465		4,305		4,656		4,857			
	B3	6	75	0.25	21	2,946	1.01	3,659	4.03	3,958	9.06	4,129	2.26	4	3 - 7 - 18
			106	0.50	30	3,206		3,982		4,307		4,494			
			129	0.75	36	4,051		5,031		5,443		5,678			
	B4	8	136	0.25	26	3,337	1.01	4,145	4.03	4,484	9.06	4,677	2.26	2.5	5 - 11 - 23
			192	0.50	35	3,624		4,501		4,869		5,080			
			235	0.75	40	4,584		5,694		6,159		6,425			
8	B1	4	30	0.25	-	2,431	1.32	3,020	5.28	3,267	1.54	3,408	2.74	5.9	1 - 1 - 6
			43	0.50	22	3,074		3,819		4,131		4,309			
			53	0.75	27	3,591		4,461		4,825		5,034			
	B2	5	46	0.25	15	2,513	1.32	3,121	5.28	3,376	1.54	3,522	2.74	4.8	1 - 2 - 9
			65	0.50	24	3,217		3,996		4,323		4,509			
			79	0.75	30	3,735		4,639		5,018		5,235			
	B3	8	88	0.25	16	2,933	1.32	3,644	5.28	3,941	1.54	4,112	2.74	4	3 - 6 - 18
			124	0.50	25	3,739		4,645		5,024		5,241			
			152	0.75	30	4,350		5,404		5,845		6,098			
	B4	10*	153	0.25	22	3,108	1.32	3,860	5.28	4,176	1.54	4,356	2.74	2.5	4 - 9 - 22
			217	0.50	31	4,130		5,131		5,550		5,790			
			266	0.75	36	4,707		5,846		6,324		6,597			
10	B1	5	43	0.25	15	3,538	1.63	4,394	6.53	4,753	1.91	4,959	3.40	5.9	1 - 2 - 8
			61	0.50	24	3,892		4,835		5,230		5,456			
			75	0.75	29	4,889		6,073		6,569		6,853			
	B2	6	65	0.25	18	3,639	1.63	4,520	6.53	4,890	1.91	5,101	3.40	4.8	1 - 3 - 13
			92	0.50	27	4,065		5,049		5,462		5,698			
			112	0.75	33	5,064		6,291		6,805		7,099			
	B3	8	127	0.25	25	4,388	1.63	5,450	6.53	5,896	1.91	6,150	3.40	4	4 - 9 - 23
			179	0.50	34	4,781		5,938		6,423		6,701			
			219	0.75	39	6,037		7,499		8,111		8,462			
	B4	10*	230	0.25	31	4,955	1.63	6,155	6.53	6,658	1.91	6,946	3.40	2.5	7 - 15 - 30
			325	0.50	40	5,398		6,706		7,253		7,567			
			398	0.75	45	6,817		8,468		9,160		9,556			

CB-ABL-YK: 24-IN WIDTH: PERFORMANCE DATA (4-PIPE HEATING)

Nominal Length ft	Nozzle Size	Primary Air			Sound NC	Coil Heating (Btu/h)								Induction ratio	Throw ft.
		Inlet Dia.	Flow Rate	Inlet ΔPS		0.5 GPM		1.0 GPM		1.5 GPM		2.0 GPM			
		Inches	CFM	(in. H2O)		qCOIL	ΔCOIL	qCOIL	ΔCOIL	qCOIL	ΔCOIL	qCOIL	ΔCOIL		
4	B1	4	17	0.25	-	2,945	0.18	3,659	0.71	3,957	1.59	4,128	2.83	5.9	1 - 1 - 5
			24	0.50	-	3,175		3,944		4,266		4,451			
			29	0.75	16	4,033		5,009		5,418		5,652			
	B2	4	25	0.25	-	3,039	0.18	3,775	0.71	4,084	1.59	4,260	2.83	4.8	1 - 2 - 8
			36	0.50	19	3,320		4,124		4,460		4,653			
			44	0.75	24	4,186		5,200		5,625		5,868			
	B3	5	48	0.25	17	3,482	0.18	4,325	0.71	4,678	1.59	4,880	2.83	4	2 - 5 - 14
			68	0.50	26	3,833		4,761		5,150		5,372			
			84	0.75	31	4,813		5,978		6,466		6,746			
	B4	6	87	0.25	25	3,916	0.18	4,864	0.71	5,261	1.59	5,488	2.83	2.5	4 - 9 - 18
			124	0.50	34	4,312		5,356		5,793		6,044			
			151	0.75	39	5,413		6,724		7,273		7,588			
6	B1	4	25	0.25	-	4,107	0.28	5,102	1.11	5,519	2.50	5,757	4.44	5.9	1 - 2 - 6
			36	0.50	19	4,564		5,669		6,132		6,397			
			44	0.75	24	5,702		7,083		7,661		7,993			
	B2	5	39	0.25	-	4,419	0.28	5,489	1.11	5,938	2.50	6,194	4.44	4.8	1 - 3 - 10
			55	0.50	22	4,844		6,017		6,508		6,790			
			67	0.75	27	6,097		7,573		8,192		8,546			
	B3	6	75	0.25	21	5,183	0.28	6,438	1.11	6,964	2.50	7,264	4.44	4	3 - 7 - 18
			106	0.50	30	5,640		7,006		7,578		7,905			
			129	0.75	36	7,126		8,852		9,575		9,989			
	B4	8	136	0.25	26	5,680	0.28	7,056	1.11	7,632	2.50	7,962	4.44	2.5	5 - 11 - 23
			192	0.50	35	6,169		7,663		8,289		8,647			
			235	0.75	40	7,803		9,693		10,485		10,938			
8	B1	4	30	0.25	-	4,278	0.34	5,313	1.35	5,747	3.04	5,996	5.40	5.9	1 - 1 - 6
			43	0.50	22	5,409		6,719		7,267		7,582			
			53	0.75	27	6,318		7,848		8,489		8,856			
	B2	5	46	0.25	15	4,421	0.34	5,491	1.35	5,940	3.04	6,197	5.40	4.8	1 - 2 - 9
			65	0.50	24	5,660		7,030		7,605		7,933			
			79	0.75	30	6,570		8,161		8,828		9,209			
	B3	8	88	0.25	16	5,161	0.34	6,411	1.35	6,934	3.04	7,234	5.40	4	3 - 6 - 18
			124	0.50	25	6,578		8,171		8,839		9,221			
			152	0.75	30	7,653		9,506		10,283		10,727			
	B4	10*	153	0.25	22	5,290	0.34	6,571	1.35	7,108	3.04	7,415	5.40	2.5	4 - 9 - 22
			217	0.50	31	7,031		8,733		9,447		9,855			
			266	0.75	36	8,012		9,952		10,765		11,230			
10	B1	5	43	0.25	15	6,224	0.42	7,731	1.68	8,362	3.77	8,724	6.70	5.9	1 - 2 - 8
			61	0.50	24	6,848		8,506		9,201		9,598			
			75	0.75	29	8,601		10,684		11,557		12,056			
	B2	6	65	0.25	18	6,402	0.42	7,953	1.68	8,602	3.77	8,974	6.70	4.8	1 - 3 - 13
			92	0.50	27	7,151		8,883		9,609		10,024			
			112	0.75	33	8,910		11,067		11,972		12,489			
	B3	8	127	0.25	25	7,720	0.42	9,589	1.68	10,372	3.77	10,821	6.70	4	4 - 9 - 23
			179	0.50	34	8,411		10,447		11,301		11,789			
			219	0.75	39	10,620		13,192		14,270		14,886			
	B4	10*	230	0.25	31	8,435	0.42	10,478	1.68	11,334	3.77	11,824	6.70	2.5	7 - 15 - 30
			325	0.50	40	9,189		11,415		12,347		12,881			
			398	0.75	45	11,604		14,415		15,592		16,266			

CB-ABL-YK: 24-IN WIDTH: PERFORMANCE DATA (2-PIPE COOLING)

Nominal Length ft	Nozzle Size	Primary Air			Sound NC	Coil Sensible Cooling (Btu/h)								Induction ratio	Throw ft.		
		Inlet Dia.	Flow Rate	Inlet ΔPS		0.5 GPM		1.0 GPM		1.5 GPM		2.0 GPM					
		Inches	CFM	(in. H2O)		qCOIL	ΔCOIL	qCOIL	ΔCOIL	qCOIL	ΔCOIL	qCOIL	ΔCOIL				
4	B1	4	17	0.25	-	2,084	0.93	2,589	3.72	2,800	8.38	2,921	1.92	5.9	1 - 1 - 5		
			24	0.50	-	2,247						2,791			3,019	3,150	1 - 3 - 10
			29	0.75	16	2,854						3,545			3,834	4,000	2 - 4 - 12
	B2	4	25	0.25	-	2,151	0.93	2,672	3.72	2,890	8.38	3,015	1.92	4.8	1 - 2 - 8		
			36	0.50	19	2,349						2,918			3,156	3,293	2 - 4 - 12
			44	0.75	24	2,962						3,680			3,980	4,152	3 - 6 - 15
	B3	5	48	0.25	17	2,464	0.93	3,060	3.72	3,310	8.38	3,453	1.92	4	2 - 5 - 14		
			68	0.50	26	2,712						3,369			3,644	3,802	5 - 10 - 19
			84	0.75	31	3,406						4,230			4,576	4,774	7 - 12 - 21
	B4	6	87	0.25	25	2,771	0.93	3,442	3.72	3,723	8.38	3,884	1.92	2.5	4 - 9 - 18		
			124	0.50	34	3,051						3,790			4,100	4,277	8 - 13 - 22
			151	0.75	39	3,831						4,758			5,147	5,369	10 - 16 - 24
6	B1	4	25	0.25	-	2,568	1.35	3,190	5.40	3,451	1.58	3,600	2.81	5.9	1 - 2 - 6		
			36	0.50	19	2,853						3,544			3,834	4,000	1 - 3 - 12
			44	0.75	24	3,565						4,429			4,790	4,997	2 - 5 - 14
	B2	5	39	0.25	-	2,763	1.35	3,432	5.40	3,713	1.58	3,873	2.81	4.8	1 - 3 - 10		
			55	0.50	22	3,029						3,762			4,069	4,245	2 - 5 - 15
			67	0.75	27	3,812						4,735			5,122	5,343	3 - 8 - 19
	B3	6	75	0.25	21	3,240	1.35	4,025	5.40	4,354	1.58	4,542	2.81	4	3 - 7 - 18		
			106	0.50	30	3,526						4,380			4,738	4,943	6 - 13 - 24
			129	0.75	36	4,456						5,535			5,987	6,245	9 - 15 - 27
	B4	8	136	0.25	26	3,671	1.35	4,559	5.40	4,932	1.58	5,145	2.81	2.5	5 - 11 - 23		
			192	0.50	35	3,986						4,952			5,356	5,588	10 - 16 - 27
			235	0.75	40	5,042						6,263			6,775	7,068	13 - 20 - 30
8	B1	4	30	0.25	-	2,675	1.77	3,322	7.08	3,594	2.07	3,749	3.68	5.9	1 - 1 - 6		
			43	0.50	22	3,382						4,201			4,544	4,740	1 - 3 - 11
			53	0.75	27	3,950						4,907			5,308	5,537	2 - 4 - 15
	B2	5	46	0.25	15	2,764	1.77	3,433	7.08	3,714	2.07	3,874	3.68	4.8	1 - 2 - 9		
			65	0.50	24	3,539						4,396			4,755	4,960	2 - 5 - 15
			79	0.75	30	4,108						5,103			5,520	5,758	3 - 7 - 19
	B3	8	88	0.25	16	3,227	1.77	4,008	7.08	4,336	2.07	4,523	3.68	4	3 - 6 - 18		
			124	0.50	25	4,113						5,109			5,526	5,765	6 - 12 - 26
			152	0.75	30	4,785						5,944			6,430	6,707	8 - 16 - 29
	B4	10*	153	0.25	22	3,419	1.77	4,246	7.08	4,593	2.07	4,792	3.68	2.5	4 - 9 - 22		
			217	0.50	31	4,543						5,644			6,105	6,368	8 - 16 - 29
			266	0.75	36	5,177						6,431			6,956	7,257	12 - 19 - 32
10	B1	5	43	0.25	15	3,891	2.19	4,834	8.76	5,228	2.56	5,454	4.55	5.9	1 - 2 - 8		
			61	0.50	24	4,282						5,318			5,753	6,001	2 - 4 - 16
			75	0.75	29	5,378						6,680			7,226	7,538	3 - 6 - 19
	B2	6	65	0.25	18	4,003	2.19	4,972	8.76	5,379	2.56	5,611	4.55	4.8	1 - 3 - 13		
			92	0.50	27	4,471						5,554			6,008	6,268	3 - 7 - 20
			112	0.75	33	5,571						6,920			7,485	7,809	4 - 10 - 24
	B3	8	127	0.25	25	4,827	2.19	5,995	8.76	6,485	2.56	6,766	4.55	4	4 - 9 - 23		
			179	0.50	34	5,259						6,532			7,066	7,371	8 - 16 - 31
			219	0.75	39	6,640						8,248			8,922	9,308	12 - 20 - 35
	B4	10*	230	0.25	31	5,451	2.19	6,771	8.76	7,324	2.56	7,641	4.55	2.5	7 - 15 - 30		
			325	0.50	40	5,938						7,376			7,979	8,324	13 - 21 - 35
			398	0.75	45	7,499						9,315			10,076	10,511	17 - 26 - 39

CB-ABL-YK: 24-IN WIDTH: PERFORMANCE DATA (2-PIPE HEATING)

Nominal Length ft	Nozzle Size	Primary Air			Sound NC	Coil Heating (Btu/h)								Induction ratio	Throw ft.
		Inlet Dia.	Flow Rate	Inlet ΔPS		0.5 GPM		1.0 GPM		1.5 GPM		2.0 GPM			
		Inches	CFM	(in. H ₂ O)		qCOIL	ΔCOIL	qCOIL	ΔCOIL	qCOIL	ΔCOIL	qCOIL	ΔCOIL		
4	B1	4	17	0.25	-	3,976	0.72	4,939	2.90	5,343	6.52	5,573	1.51	5.9	1 - 1 - 5
			24	0.50	-	4,287		5,325		5,760		6,009			
			29	0.75	16	5,444		6,762		7,315		7,631			
	B2	4	25	0.25	-	4,103	0.72	5,097	2.90	5,513	6.52	5,751	1.51	4.8	1 - 2 - 8
			36	0.50	19	4,482		5,567		6,022		6,282			
			44	0.75	24	5,651		7,020		7,593		7,922			
	B3	5	48	0.25	17	4,700	0.72	5,838	2.90	6,315	6.52	6,588	1.51	4	2 - 5 - 14
			68	0.50	26	5,174		6,427		6,952		7,252			
			84	0.75	31	6,497		8,070		8,730		9,107			
	B4	6	87	0.25	25	5,286	0.72	6,566	2.90	7,102	6.52	7,409	1.51	2.5	4 - 9 - 18
			124	0.50	34	5,821		7,230		7,821		8,159			
			151	0.75	39	7,308		9,077		9,819		10,243			
6	B1	4	25	0.25	-	5,545	1.05	6,888	4.20	7,451	1.23	7,772	2.19	5.9	1 - 2 - 6
			36	0.50	19	6,161		7,653		8,278		8,636			
			44	0.75	24	7,698		9,562		10,343		10,790			
	B2	5	39	0.25	-	5,966	1.05	7,411	4.20	8,016	1.23	8,363	2.19	4.8	1 - 3 - 10
			55	0.50	22	6,539		8,123		8,786		9,166			
			67	0.75	27	8,230		10,223		11,059		11,537			
	B3	6	75	0.25	21	6,996	1.05	8,691	4.20	9,401	1.23	9,807	2.19	4	3 - 7 - 18
			106	0.50	30	7,614		9,458		10,230		10,672			
			129	0.75	36	9,620		11,950		12,926		13,485			
	B4	8	136	0.25	26	7,668	1.05	9,525	4.20	10,303	1.23	10,749	2.19	2.5	5 - 11 - 23
			192	0.50	35	8,328		10,345		11,190		11,673			
			235	0.75	40	10,534		13,085		14,154		14,766			
8	B1	4	30	0.25	-	5,775	1.77	7,173	7.08	7,759	1.61	8,094	2.86	5.9	1 - 1 - 6
			43	0.50	22	7,302		9,070		9,811		10,235			
			53	0.75	27	8,529		10,595		11,460		11,956			
	B2	5	46	0.25	15	5,968	1.77	7,413	7.08	8,019	1.61	8,366	2.86	4.8	1 - 2 - 9
			65	0.50	24	7,641		9,491		10,266		10,710			
			79	0.75	30	8,870		11,017		11,918		12,433			
	B3	8	88	0.25	16	6,967	1.77	8,654	7.08	9,361	1.61	9,766	2.86	4	3 - 6 - 18
			124	0.50	25	8,881		11,031		11,932		12,448			
			152	0.75	30	10,332		12,834		13,882		14,482			
	B4	10*	153	0.25	22	7,142	1.77	8,871	7.08	9,596	1.61	10,011	2.86	2.5	4 - 9 - 22
			217	0.50	31	9,492		11,790		12,753		13,305			
			266	0.75	36	10,816		13,435		14,533		15,161			
10	B1	5	43	0.25	15	8,402	2.19	10,436	8.76	11,289	2.03	11,777	3.61	5.9	1 - 2 - 8
			61	0.50	24	9,244		11,483		12,421		12,958			
			75	0.75	29	11,611		14,423		15,601		16,276			
	B2	6	65	0.25	18	8,643	2.19	10,736	8.76	11,613	2.03	12,115	3.61	4.8	1 - 3 - 13
			92	0.50	27	9,654		11,992		12,972		13,532			
			112	0.75	33	12,028		14,941		16,162		16,860			
	B3	8	127	0.25	25	10,421	2.19	12,945	8.76	14,003	2.03	14,608	3.61	4	4 - 9 - 23
			179	0.50	34	11,354		14,104		15,256		15,915			
			219	0.75	39	14,337		17,809		19,264		20,097			
	B4	10*	230	0.25	31	11,388	2.19	14,146	8.76	15,301	2.03	15,962	3.61	2.5	7 - 15 - 30
			325	0.50	40	12,406		15,410		16,669		17,389			
			398	0.75	45	15,666		19,460		21,049		21,959			

NOTES:

1. All performance data based on test performed in accordance with ASHRAE Standard 200-2015
2. Inlet diameters shown are nominal. Inlet size designated with a star (*) indicates equivalent oval
3. NC values are based on room absorption of 10 dB. A dash (-) indicates an NC value less than 15
4. Throw values are based on isothermal supply air and represent throw distances to terminal velocities of 150, 100 and 50 fpm respectively
5. ΔP_{Coil} values in shaded cells indicate use of a two circuit coil. All other values represent a single circuit coil
6. Induction ratio is multiplied by the volume flow rate of primary air to estimate the volume flow rate of room air entrained through the coil

Cooling performance:

- Cooling capacity listed (qCOIL) is the sensible heat removal by the beam’s integral coil. It does not include any contribution or offset by the primary air
- Capacity is based on 18°F ΔT between the induced air and the chilled water supply.

TABLE 4: CORRECTION FOR (ΔT) BETWEEN ENTERING AIR AND ENTERING CHILLED WATER

Actual ΔT	10	12	14	16	18	20	22	24
Multiply Table Value by:	0.56	0.67	0.78	0.89	1.00	1.11	1.22	1.33

- Primary air sensible cooling contribution can be calculated by the following equation:

$$qSENSPA = 1.085 \times CFMPA \times (TPA - TROOM)$$

- Primary air latent cooling can be calculated by the following equation:

$$qLATENT = 0.69 \times CFMPA \times (WROOM - WPA)$$

where WROOM and WPA are the humidity ratio of the room and primary air respectively expressed in Grains of moisture per pound dry air

Heating performance:

- Heating capacity listed (qCOIL) is the sensible heat removal by the beam’s integral coil. It does not include any contribution or offset by the primary air
- Capacity is based on 50°F ΔT between the induced air and the chilled water supply.
- Primary air sensible heating offset (or contribution) can be calculated by the following equation:

$$qSENSPA = 1.085 \times CFMPA \times (TPA - TROOM)$$

if the primary air temperature is lower than that of the room, it will offset the coil’s heating

if the primary air temperature is higher than that of the room, it will contribute to the coil’s heating

Legend:

ΔP_s = Unit Inlet Pressure [in wg]

qCoil = Sensible Capacity, Coil [Btu/h]

ΔP_{Coil} = Water coil pressure drop [ft wg]

qSENSPA = Sensible Capacity, Primary Air [Btu/h]

CFMPA = Air Flowrate, Primary Air [CFM]

TPA = Temperature Primary Air [°F]

TROOM = Temperature Room Air [°F]

qSENSPA = Latent Capacity, Primary Air [Btu/h]

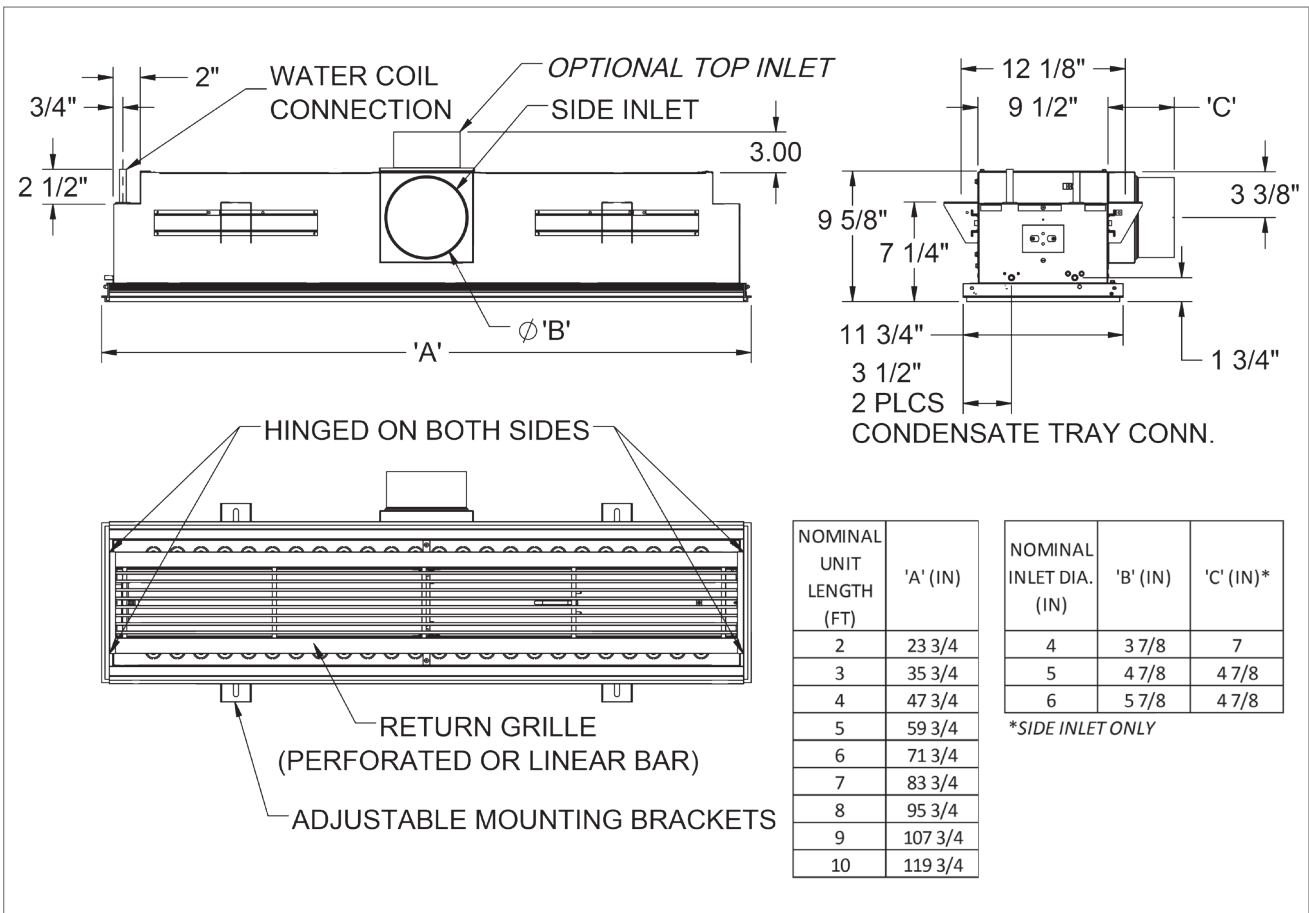
CB-ABL-YK

MODEL SPECIFIC FEATURES & OPTIONS

- 12 inch and 24 inch widths
- Condensate tray with drain connection for field plumbing (12 inch version only)

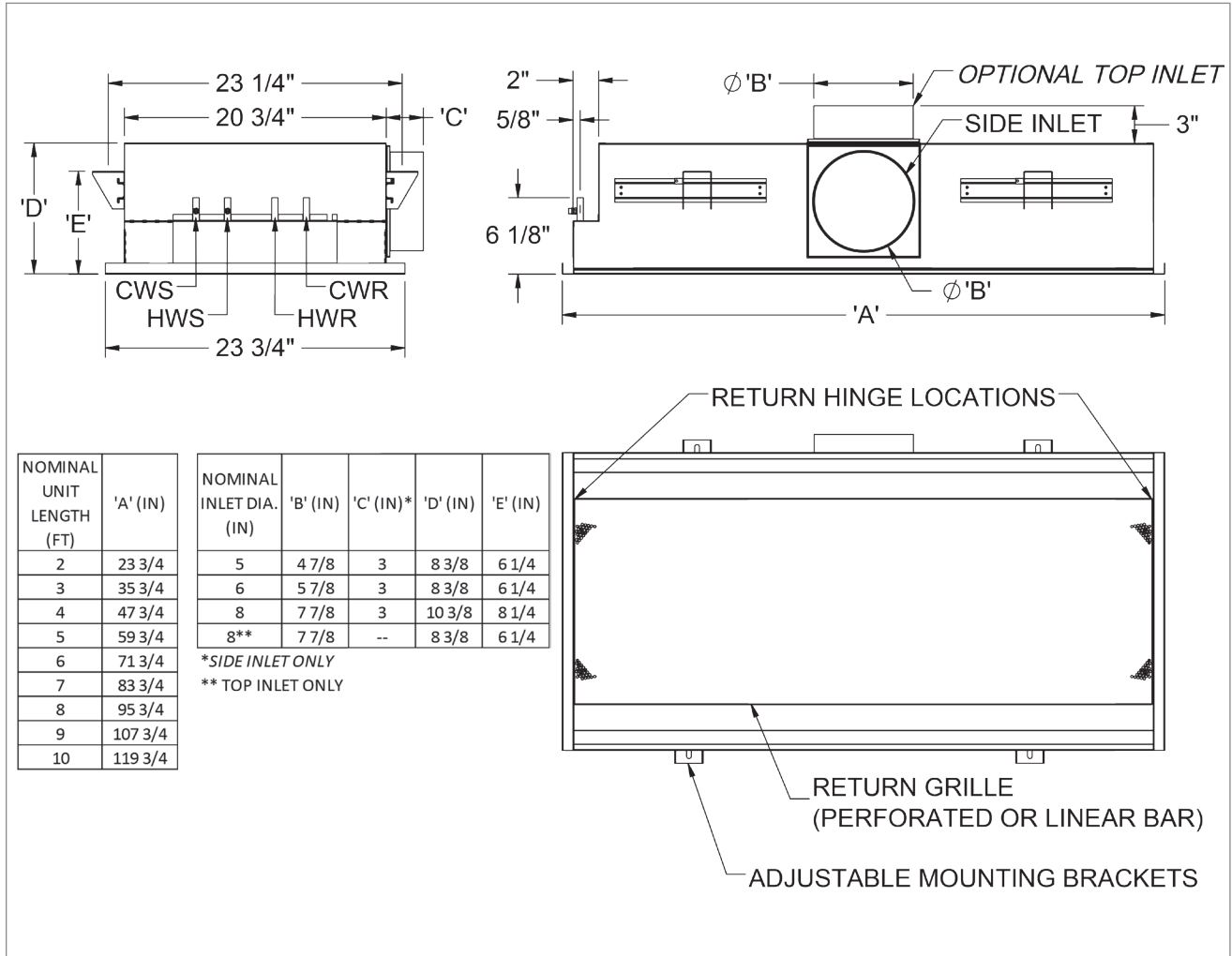
DIMENSIONAL INFORMATION

CB-ABL-YK (12-INCH)



DIMENSIONAL INFORMATION

CB-ABL-YK (24-INCH)



CB-ALV-YK: PERFORMANCE DATA (4-PIPE COOLING)

Nominal Length ft	Nozzle Size	Primary Air			Sound NC	Coil Sensible Cooling (Btu/h)								Induction ratio	Throw ft.			
		Inlet Dia.	Flow Rate	Inlet ΔPS		0.5 GPM		1.0 GPM		1.5 GPM		2.0 GPM						
		Inches	CFM	(in. H2O)		qCOIL	ΔCOIL	qCOIL	ΔCOIL	qCOIL	ΔCOIL	qCOIL	ΔCOIL					
4	B1	5	17	0.25	22	2,236	0.72	2,777	2.88	3,004	6.49	3,134	1.10	4.2	0 - 1 - 3			
			24	0.50	30	2,171									2,697	2,918	3,044	1 - 2 - 7
			29	0.75	35	2,923									3,631	3,927	4,097	1 - 3 - 10
	B2	5	23	0.25	23	743	0.72	923	2.88	998	6.49	1,041	1.10	3.7	1 - 1 - 5			
			32	0.50	31	822									1,021	1,104	1,152	1 - 3 - 10
			40	0.75	36	1,029									1,278	1,383	1,443	2 - 4 - 13
	B3	6	48	0.25	26	2,643	0.72	3,283	2.88	3,551	6.49	3,704	1.10	2.7	2 - 4 - 12			
			68	0.50	34	2,620									3,254	3,520	3,672	3 - 7 - 16
			84	0.75	39	3,486									4,330	4,683	4,886	5 - 11 - 18
	B4	8	79	0.25	20	1,775	0.72	2,205	2.88	2,385	6.49	2,489	1.10	1.9	3 - 6 - 15			
			112	0.50	28	1,970									2,446	2,646	2,761	5 - 11 - 18
			137	0.75	33	2,463									3,059	3,309	3,452	8 - 14 - 20
6	B1	5	25	0.25	25	1,849	1.01	2,297	4.03	2,484	9.06	2,592	2.26	4.2	0 - 1 - 4			
			36	0.50	33	1,920									2,385	2,580	2,692	1 - 2 - 8
			44	0.75	38	2,489									3,092	3,344	3,489	1 - 3 - 13
	B2	6	39	0.25	24	1,989	1.01	2,471	4.03	2,673	9.06	2,788	2.26	3.7	1 - 2 - 8			
			55	0.50	32	2,038									2,532	2,739	2,857	2 - 4 - 15
			67	0.75	36	2,662									3,307	3,577	3,732	3 - 6 - 18
	B3	8	75	0.25	21	2,333	1.01	2,898	4.03	3,135	9.06	3,270	2.26	2.7	2 - 5 - 16			
			106	0.50	29	2,374									2,949	3,189	3,327	4 - 9 - 20
			129	0.75	33	3,112									3,866	4,182	4,363	6 - 14 - 22
	B4	8	136	0.25	26	2,993	1.01	3,718	4.03	4,022	9.06	4,196	2.26	1.9	4 - 9 - 20			
			192	0.50	34	3,039									3,775	4,084	4,260	8 - 16 - 24
			235	0.75	39	3,989									4,955	5,360	5,592	12 - 19 - 26
8	B1	6	30	0.25	20	1,872	1.31	2,325	5.07	2,515	1.44	2,623	2.52	4.2	0 - 1 - 4			
			43	0.50	27	2,250									2,795	3,023	3,154	1 - 2 - 8
			53	0.75	32	2,697									3,350	3,624	3,780	1 - 3 - 12
	B2	6	46	0.25	23	1,934	1.31	2,403	5.07	2,599	1.44	2,711	2.52	3.7	1 - 2 - 7			
			65	0.50	31	2,354									2,924	3,163	3,300	2 - 4 - 14
			79	0.75	36	2,804									3,483	3,767	3,930	2 - 5 - 18
	B3	8	88	0.25	20	2,258	1.31	2,805	5.07	3,034	1.44	3,165	2.52	2.7	2 - 4 - 16			
			124	0.50	28	2,736									3,399	3,677	3,836	4 - 8 - 21
			152	0.75	33	3,266									4,057	4,389	4,578	5 - 12 - 24
	B4	8	153	0.25	25	2,709	1.31	3,365	5.07	3,640	1.44	3,797	2.52	1.9	3 - 8 - 21			
			217	0.50	33	3,422									4,251	4,598	4,797	7 - 15 - 25
			266	0.75	37	3,999									4,968	5,374	5,606	10 - 19 - 28
10	B1	6	43	0.25	24	2,680	1.65	3,329	6.34	3,601	1.81	3,757	3.22	4.2	1 - 1 - 6			
			61	0.50	32	2,835									3,522	3,809	3,974	1 - 3 - 11
			75	0.75	37	3,638									4,519	4,888	5,099	2 - 4 - 17
	B2	6	65	0.25	28	2,757	1.65	3,424	6.34	3,704	1.81	3,864	3.22	3.7	1 - 3 - 10			
			92	0.50	36	2,961									3,678	3,978	4,150	2 - 5 - 19
			112	0.75	40	3,768									4,680	5,063	5,281	3 - 8 - 23
	B3	8	127	0.25	25	3,324	1.65	4,129	6.34	4,467	1.81	4,660	3.22	2.7	3 - 6 - 20			
			179	0.50	33	3,483									4,326	4,679	4,881	5 - 12 - 26
			219	0.75	38	4,493									5,581	6,037	6,298	8 - 18 - 29
	B4	10*	230	0.25	24	4,252	1.65	5,282	6.34	5,713	1.81	5,960	3.22	1.9	5 - 12 - 26			
			325	0.50	32	4,454									5,532	5,984	6,243	11 - 21 - 31
			398	0.75	37	5,746									7,138	7,721	8,055	16 - 24 - 34

CB-ALV-YK: PERFORMANCE DATA (4-PIPE HEATING)

Nominal Length ft	Nozzle Size	Primary Air			Sound NC	Coil Heating (Btu/h)								Induction ratio	Throw ft.
		Inlet Dia.	Flow Rate	Inlet ΔPS		0.5 GPM		1.0 GPM		1.5 GPM		2.0 GPM			
		Inches	CFM	(in. H2O)		qCOIL	ΔCOIL	qCOIL	ΔCOIL	qCOIL	ΔCOIL	qCOIL	ΔCOIL		
4	B1	5	17	0.25	22	3,476	0.18	4,317	0.72	4,670	1.62	4,872	2.88	4.2	0 - 1 - 3
			24	0.50	30	3,375		4,193		4,535		4,731			1 - 2 - 7
			29	0.75	35	4,544		5,644		6,105		6,369			1 - 3 - 10
	B2	5	23	0.25	23	2,154	0.18	2,675	0.72	2,894	1.62	3,019	2.88	3.7	1 - 1 - 5
			32	0.50	31	2,383		2,960		3,202		3,341			1 - 3 - 10
			40	0.75	36	2,984		3,707		4,010		4,183			2 - 4 - 13
	B3	6	48	0.25	26	4,108	0.18	5,103	0.72	5,520	1.62	5,758	2.88	2.7	2 - 4 - 12
			68	0.50	34	4,072		5,059		5,472		5,708			3 - 7 - 16
			84	0.75	39	5,418		6,730		7,280		7,595			5 - 11 - 18
	B4	8	79	0.25	20	3,705	0.18	4,602	0.72	4,978	1.62	5,193	2.88	1.9	3 - 6 - 15
			112	0.50	28	4,110		5,105		5,523		5,761			5 - 11 - 18
			137	0.75	33	5,140		6,384		6,906		7,204			8 - 14 - 20
6	B1	5	25	0.25	25	4,249	0.25	5,278	1.01	5,709	2.27	5,955	4.03	4.2	0 - 1 - 4
			36	0.50	33	4,413		5,481		5,929		6,185			1 - 2 - 8
			44	0.75	38	5,720		7,105		7,686		8,018			1 - 3 - 13
	B2	6	39	0.25	24	4,571	0.25	5,679	1.01	6,142	2.27	6,408	4.03	3.7	1 - 2 - 8
			55	0.50	32	4,684		5,819		6,294		6,566			2 - 4 - 15
			67	0.75	36	6,118		7,599		8,220		8,575			3 - 6 - 18
	B3	8	75	0.25	21	5,361	0.25	6,660	1.01	7,204	2.27	7,515	4.03	2.7	2 - 5 - 16
			106	0.50	29	5,455		6,776		7,329		7,646			4 - 9 - 20
			129	0.75	33	7,152		8,884		9,610		10,025			6 - 14 - 22
	B4	8	136	0.25	26	6,861	0.25	8,522	1.01	9,219	2.27	9,617	4.03	1.9	4 - 9 - 20
			192	0.50	34	6,966		8,653		9,360		9,765			8 - 16 - 24
			235	0.75	39	9,145		11,359		12,287		12,818			12 - 19 - 26
8	B1	6	30	0.25	20	4,301	0.33	5,342	1.27	5,779	2.79	6,028	4.87	4.2	0 - 1 - 4
			43	0.50	27	5,171		6,423		6,947		7,248			1 - 2 - 8
			53	0.75	32	6,198		7,698		8,327		8,687			1 - 3 - 12
	B2	6	46	0.25	23	4,445	0.33	5,521	1.27	5,972	2.79	6,230	4.87	3.7	1 - 2 - 7
			65	0.50	31	5,410		6,720		7,269		7,583			2 - 4 - 14
			79	0.75	36	6,443		8,004		8,658		9,032			2 - 5 - 18
	B3	8	88	0.25	20	5,189	0.33	6,445	1.27	6,972	2.79	7,273	4.87	2.7	2 - 4 - 16
			124	0.50	28	6,288		7,811		8,449		8,814			4 - 8 - 21
			152	0.75	33	7,506		9,324		10,085		10,521			5 - 12 - 24
	B4	8	153	0.25	25	6,210	0.33	7,714	1.27	8,344	2.79	8,704	4.87	1.9	3 - 8 - 21
			217	0.50	33	7,844		9,744		10,540		10,995			7 - 15 - 25
			266	0.75	37	9,168		11,388		12,318		12,850			10 - 19 - 28
10	B1	6	43	0.25	24	6,159	0.41	7,650	1.59	8,275	3.49	8,633	6.20	4.2	1 - 1 - 6
			61	0.50	32	6,515		8,093		8,754		9,132			1 - 3 - 11
			75	0.75	37	8,360		10,385		11,233		11,719			2 - 4 - 17
	B2	6	65	0.25	28	6,335	0.41	7,869	1.59	8,512	3.49	8,880	6.20	3.7	1 - 3 - 10
			92	0.50	36	6,803		8,451		9,141		9,536			2 - 5 - 19
			112	0.75	40	8,659		10,755		11,634		12,137			3 - 8 - 23
	B3	8	127	0.25	25	7,639	0.41	9,489	1.59	10,265	3.49	10,708	6.20	2.7	3 - 6 - 20
			179	0.50	33	8,003		9,941		10,753		11,218			5 - 12 - 26
			219	0.75	38	10,325		12,825		13,872		14,472			8 - 18 - 29
	B4	10*	230	0.25	24	9,747	0.41	12,107	1.59	13,096	3.49	13,662	6.20	1.9	5 - 12 - 26
			325	0.50	32	10,209		12,682		13,718		14,310			11 - 21 - 31
			398	0.75	37	13,172		16,362		17,698		18,463			16 - 24 - 34

CB-ALV-YK: PERFORMANCE DATA (2-PIPE COOLING)

Nominal Length ft	Nozzle Size	Primary Air			Sound NC	Coil Sensible Cooling (Btu/h)								Induction ratio	Throw ft.
		Inlet Dia.	Flow Rate	Inlet ΔPS		0.5 GPM		1.0 GPM		1.5 GPM		2.0 GPM			
		Inches	CFM	(in. H2O)		qCOIL	ΔCOIL	qCOIL	ΔCOIL	qCOIL	ΔCOIL	qCOIL	ΔCOIL		
4	B1	5	17	0.25	22	2,460	0.87	3,055	3,36	3,305	7.40	3,448	1.67	4.2	0 - 1 - 3
			24	0.50	30	2,388		2,967		3,209		3,348			1 - 2 - 7
			29	0.75	35	3,215		3,994		4,320		4,507			1 - 3 - 10
	B2	5	23	0.25	23	817	0.87	1,015	3,36	1,098	7.40	1,145	1.67	3.7	1 - 1 - 5
			32	0.50	31	904		1,123		1,215		1,267			1 - 3 - 10
			40	0.75	36	1,132		1,406		1,521		1,587			2 - 4 - 13
	B3	6	48	0.25	26	2,907	0.87	3,611	3,36	3,906	7.40	4,075	1.67	2.7	2 - 4 - 12
			68	0.50	34	2,882		3,580		3,872		4,039			3 - 7 - 16
			84	0.75	39	3,834		4,763		5,152		5,374			5 - 11 - 18
	B4	8	79	0.25	20	1,953	0.87	2,426	3,36	2,624	7.40	2,737	1.67	1.9	3 - 6 - 15
			112	0.50	28	2,166		2,691		2,911		3,037			5 - 11 - 18
			137	0.75	33	2,709		3,365		3,640		3,797			8 - 14 - 20
6	B1	5	25	0.25	25	2,034	1.31	2,526	5.07	2,733	1.44	2,851	2.52	4.2	0 - 1 - 4
			36	0.50	33	2,112		2,624		2,838		2,961			1 - 2 - 8
			44	0.75	38	2,738		3,401		3,679		3,838			1 - 3 - 13
	B2	6	39	0.25	24	2,188	1.31	2,718	5.07	2,940	1.44	3,067	2.52	3.7	1 - 2 - 8
			55	0.50	32	2,242		2,785		3,013		3,143			2 - 4 - 15
			67	0.75	36	2,928		3,638		3,935		4,105			3 - 6 - 18
	B3	8	75	0.25	21	2,566	1.31	3,188	5.07	3,448	1.44	3,597	2.52	2.7	2 - 5 - 16
			106	0.50	29	2,611		3,243		3,508		3,660			4 - 9 - 20
			129	0.75	33	3,424		4,253		4,600		4,799			6 - 14 - 22
	B4	8	136	0.25	26	3,292	1.31	4,090	5.07	4,424	1.44	4,615	2.52	1.9	4 - 9 - 20
			192	0.50	34	3,343		4,153		4,492		4,686			8 - 16 - 24
			235	0.75	39	4,388		5,451		5,896		6,151			12 - 19 - 26
8	B1	6	30	0.25	20	2,059	1.76	2,557	6.77	2,766	1.93	2,886	3.38	4.2	0 - 1 - 4
			43	0.50	27	2,475		3,074		3,326		3,469			1 - 2 - 8
			53	0.75	32	2,967		3,685		3,986		4,158			1 - 3 - 12
	B2	6	46	0.25	23	2,128	1.76	2,643	6.77	2,859	1.93	2,982	3.38	3.7	1 - 2 - 7
			65	0.50	31	2,590		3,217		3,479		3,630			2 - 4 - 14
			79	0.75	36	3,084		3,831		4,144		4,323			2 - 5 - 18
	B3	8	88	0.25	20	2,484	1.76	3,085	6.77	3,337	1.93	3,481	3.38	2.7	2 - 4 - 16
			124	0.50	28	3,010		3,739		4,044		4,219			4 - 8 - 21
			152	0.75	33	3,593		4,463		4,828		5,036			5 - 12 - 24
	B4	8	153	0.25	25	2,980	1.76	3,702	6.77	4,004	1.93	4,177	3.38	1.9	3 - 8 - 21
			217	0.50	33	3,764		4,676		5,058		5,276			7 - 15 - 25
			266	0.75	37	4,399		5,465		5,911		6,167			10 - 19 - 28
10	B1	6	43	0.25	24	2,948	2.20	3,662	8.47	3,961	2.42	4,132	4.24	4.2	1 - 1 - 6
			61	0.50	32	3,119		3,874		4,190		4,371			1 - 3 - 11
			75	0.75	37	4,002		4,971		5,377		5,609			2 - 4 - 17
	B2	6	65	0.25	28	3,033	2.20	3,767	8.47	4,075	2.42	4,251	4.24	3.7	1 - 3 - 10
			92	0.50	36	3,257		4,045		4,376		4,565			2 - 5 - 19
			112	0.75	40	4,145		5,148		5,569		5,810			3 - 8 - 23
	B3	8	127	0.25	25	3,657	2.20	4,542	8.47	4,913	2.42	5,126	4.24	2.7	3 - 6 - 20
			179	0.50	33	3,831		4,758		5,147		5,370			5 - 12 - 26
			219	0.75	38	4,942		6,139		6,640		6,927			8 - 18 - 29
	B4	10*	230	0.25	24	4,677	2.20	5,810	8.47	6,285	2.42	6,556	4.24	1.9	5 - 12 - 26
			325	0.50	32	4,899		6,086		6,583		6,867			11 - 21 - 31
			398	0.75	37	6,321		7,852		8,493		8,860			16 - 24 - 34

CB-ALV-YK: PERFORMANCE DATA (2-PIPE HEATING)

Nominal Length ft	Nozzle Size	Primary Air			Sound NC	Coil Heating (Btu/h)								Induction ratio	Throw ft.		
		Inlet Dia.	Flow Rate	Inlet ΔPS		0.5 GPM		1.0 GPM		1.5 GPM		2.0 GPM					
		Inches	CFM	(in. H2O)		qCOIL	ΔCOIL	qCOIL	ΔCOIL	qCOIL	ΔCOIL	qCOIL	ΔCOIL				
4	B1	5	17	0.25	22	4,692	0.72	5,829	2.90	6,305	6,577	1.51	4.2	0 - 1 - 3			
			24	0.50	30	4,557								5,660	6,122	6,387	1 - 2 - 7
			29	0.75	35	6,134								7,619	8,242	8,598	1 - 3 - 10
	B2	5	23	0.25	23	2,908	0.72	3,612	2.90	3,907	4,076	1.51	3.7	1 - 1 - 5			
			32	0.50	31	3,217								3,996	4,323	4,510	1 - 3 - 10
			40	0.75	36	4,029								5,004	5,413	5,647	2 - 4 - 13
	B3	6	48	0.25	26	5,546	0.72	6,889	2.90	7,452	7,774	1.51	2.7	2 - 4 - 12			
			68	0.50	34	5,498								6,829	7,387	7,706	3 - 7 - 16
			84	0.75	39	7,315								9,086	9,828	10,253	5 - 11 - 18
	B4	8	79	0.25	20	5,002	0.72	6,213	2.90	6,721	7,011	1.51	1.9	3 - 6 - 15			
			112	0.50	28	5,549								6,892	7,455	7,778	5 - 11 - 18
			137	0.75	33	6,939								8,619	9,323	9,726	8 - 14 - 20
6	B1	5	25	0.25	25	5,736	1.05	7,125	4.20	7,707	8,040	2.19	4.2	0 - 1 - 4			
			36	0.50	33	5,957								7,400	8,004	8,350	1 - 2 - 8
			44	0.75	38	7,722								9,592	10,375	10,824	1 - 3 - 13
	B2	6	39	0.25	24	6,172	1.05	7,666	4.20	8,292	8,651	2.19	3.7	1 - 2 - 8			
			55	0.50	32	6,324								7,855	8,497	8,864	2 - 4 - 15
			67	0.75	36	8,259								10,259	11,097	11,577	3 - 6 - 18
	B3	8	75	0.25	21	7,238	1.05	8,990	4.20	9,725	10,145	2.19	2.7	2 - 5 - 16			
			106	0.50	29	7,364								9,147	9,895	10,322	4 - 9 - 20
			129	0.75	33	9,655								11,994	12,973	13,534	6 - 14 - 22
	B4	8	136	0.25	26	9,262	1.05	11,505	4.20	12,445	12,983	2.19	1.9	4 - 9 - 20			
			192	0.50	34	9,405								11,682	12,636	13,183	8 - 16 - 24
			235	0.75	39	12,345								15,335	16,587	17,304	12 - 19 - 26
8	B1	6	30	0.25	20	5,806	1.76	7,212	6.77	7,801	8,138	2.86	4.2	0 - 1 - 4			
			43	0.50	27	6,980								8,671	9,379	9,784	1 - 2 - 8
			53	0.75	32	8,367								10,393	11,242	11,728	1 - 3 - 12
	B2	6	46	0.25	23	6,000	1.76	7,454	6.77	8,062	8,411	2.86	3.7	1 - 2 - 7			
			65	0.50	31	7,303								9,072	9,813	10,237	2 - 4 - 14
			79	0.75	36	8,699								10,805	11,688	12,193	2 - 5 - 18
	B3	8	88	0.25	20	7,005	1.76	8,701	6.77	9,412	9,819	2.86	2.7	2 - 4 - 16			
			124	0.50	28	8,489								10,545	11,406	11,899	4 - 8 - 21
			152	0.75	33	10,133								12,587	13,615	14,204	5 - 12 - 24
	B4	8	153	0.25	25	8,383	1.76	10,413	6.77	11,264	11,751	2.86	1.9	3 - 8 - 21			
			217	0.50	33	10,590								13,154	14,229	14,844	7 - 15 - 25
			266	0.75	37	12,376								15,373	16,629	17,348	10 - 19 - 28
10	B1	6	43	0.25	24	8,314	2.20	10,328	8.47	11,171	11,654	3.61	4.2	1 - 1 - 6			
			61	0.50	32	8,796								10,926	11,818	12,329	1 - 3 - 11
			75	0.75	37	11,286								14,019	15,165	15,820	2 - 4 - 17
	B2	6	65	0.25	28	8,553	2.20	10,624	8.47	11,492	11,988	3.61	3.7	1 - 3 - 10			
			92	0.50	36	9,185								11,409	12,341	12,874	2 - 5 - 19
			112	0.75	40	11,689								14,520	15,706	16,385	3 - 8 - 23
	B3	8	127	0.25	25	10,313	2.20	12,811	8.47	13,857	14,456	3.61	2.7	3 - 6 - 20			
			179	0.50	33	10,804								13,420	14,517	15,144	5 - 12 - 26
			219	0.75	38	13,938								17,313	18,728	19,537	8 - 18 - 29
	B4	10*	230	0.25	24	13,158	2.20	16,345	8.47	17,680	18,444	3.61	1.9	5 - 12 - 26			
			325	0.50	32	13,783								17,120	18,519	19,319	11 - 21 - 31
			398	0.75	37	17,782								22,088	23,893	24,925	16 - 24 - 34

NOTES:

1. All performance data based on test performed in accordance with ASHRAE Standard 200-2015
2. Inlet diameters shown are nominal. Inlet size designated with a star (*) indicates equivalent oval
3. NC values are based on room absorption of 10 dB. A dash (-) indicates an NC value less than 15
4. Throw values are based on isothermal supply air and represent throw distances to terminal velocities of 150, 100 and 50 fpm respectively
5. ΔP_{Coil} values in shaded cells indicate use of a two circuit coil. All other values represent a single circuit coil
6. Induction ratio is multiplied by the volume flow rate of primary air to estimate the volume flow rate of room air entrained through the coil

Cooling performance:

- Cooling capacity listed (qCOIL) is the sensible heat removal by the beam’s integral coil. It does not include any contribution or offset by the primary air
- Capacity is based on 18°F ΔT between the induced air and the chilled water supply.

TABLE 4: CORRECTION FOR (ΔT) BETWEEN ENTERING AIR AND ENTERING CHILLED WATER

Actual ΔT	10	12	14	16	18	20	22	24
Multiply Table Value by:	0.56	0.67	0.78	0.89	1.00	1.11	1.22	1.33

- Primary air sensible cooling contribution can be calculated by the following equation:

$$qSENSPA = 1.085 \times CFMPA \times (TPA - TROOM)$$

- Primary air latent cooling can be calculated by the following equation:

$$qLATENT = 0.69 \times CFMPA \times (WROOM - WPA)$$

where WROOM and WPA are the humidity ratio of the room and primary air respectively expressed in Grains of moisture per pound dry air

Heating performance:

- Heating capacity listed (qCOIL) is the sensible heat removal by the beam’s integral coil. It does not include any contribution or offset by the primary air
- Capacity is based on 50°F ΔT between the induced air and the chilled water supply.
- Primary air sensible heating offset (or contribution) can be calculated by the following equation:

$$qSENSPA = 1.085 \times CFMPA \times (TPA - TROOM)$$

if the primary air temperature is lower than that of the room, it will offset the coil’s heating

if the primary air temperature is higher than that of the room, it will contribute to the coil’s heating

Legend:

ΔP_s = Unit Inlet Pressure [in wg]

qSENSPA = Sensible Capacity, Primary Air [Btu/h]

TROOM = Temperature Room Air [°F]

qCoil = Sensible Capacity, Coil [Btu/h]

CFMPA = Air Flowrate, Primary Air [CFM]

qLATENT = Latent Capacity, Primary Air [Btu/h]

ΔP_{Coil} = Water coil pressure drop [ft wg]

TPA = Temperature Primary Air [°F]

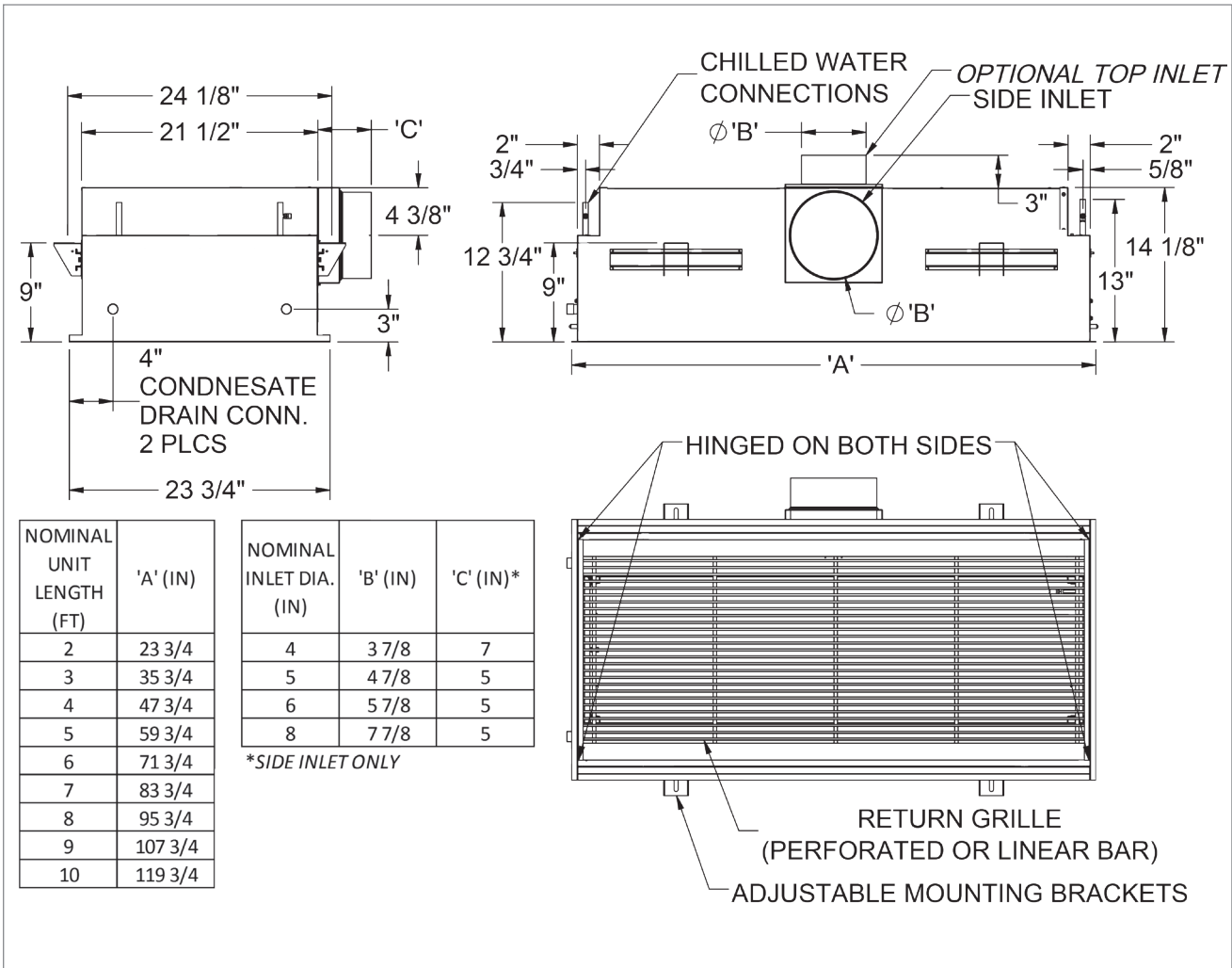
CB-ALV-YK

MODEL SPECIFIC FEATURES & OPTIONS

- Vertical Water Coil
- Condensate tray with drain connection for field plumbing

DIMENSIONAL INFORMATION

CB-ALV-YK



NOMINAL UNIT LENGTH (FT)	'A' (IN)
2	23 3/4
3	35 3/4
4	47 3/4
5	59 3/4
6	71 3/4
7	83 3/4
8	95 3/4
9	107 3/4
10	119 3/4

NOMINAL INLET DIA. (IN)	'B' (IN)	'C' (IN)*
4	3 7/8	7
5	4 7/8	5
6	5 7/8	5
8	7 7/8	5

*SIDE INLET ONLY

CB-ALE-YK: 24-IN WIDTH: PERFORMANCE DATA (4-PIPE COOLING)

Nominal Length ft	Nozzle Size	Primary Air			Sound NC	Coil Sensible Cooling (Btu/h)								Induction ratio	Throw ft.			
		Inlet Dia.	Flow Rate	Inlet ΔPS		0.5 GPM		1.0 GPM		1.5 GPM		2.0 GPM						
		Inches	CFM	(in. H2O)		qCOIL	ΔCOIL	qCOIL	ΔCOIL	qCOIL	ΔCOIL	qCOIL	ΔCOIL					
4	B1	4	17	0.25	-	1,895	0.72	2,354	2.88	2,546	6.49	2,656	1.10	5.9	0 - 1 - 3			
			24	0.50	-	2,043									2,537	2,745	2,863	1 - 2 - 5
			29	0.75	16	2,594									3,222	3,486	3,636	1 - 3 - 7
	B2	4	25	0.25	-	1,955	0.72	2,429	2.88	2,627	6.49	2,741	1.10	4.8	1 - 1 - 4			
			36	0.50	19	2,136									2,653	2,869	2,993	1 - 3 - 7
			44	0.75	24	2,693									3,345	3,619	3,775	2 - 4 - 10
	B3	5	48	0.25	17	2,240	0.72	2,782	2.88	3,009	6.49	3,140	1.10	4	2 - 3 - 9			
			68	0.50	26	2,466									3,063	3,313	3,456	4 - 6 - 13
			84	0.75	31	3,096									3,846	4,160	4,340	7 - 9 - 15
	B4	6	87	0.25	25	2,519	0.72	3,129	2.88	3,384	6.49	3,531	1.10	2.5	2 - 5 - 10			
			124	0.50	34	2,774									3,445	3,727	3,888	6 - 8 - 14
			151	0.75	39	3,482									4,326	4,679	4,881	10 - 10 - 17
6	B1	4	25	0.25	-	2,335	1.01	2,900	4.03	3,137	9.06	3,273	2.26	5.9	0 - 1 - 3			
			36	0.50	19	2,594									3,222	3,485	3,636	1 - 2 - 7
			44	0.75	24	3,241									4,026	4,355	4,543	2 - 3 - 10
	B2	5	39	0.25	-	2,512	1.01	3,120	4.03	3,375	9.06	3,521	2.26	4.8	1 - 2 - 5			
			55	0.50	22	2,753									3,420	3,699	3,859	2 - 3 - 9
			67	0.75	27	3,465									4,305	4,656	4,857	3 - 5 - 12
	B3	6	75	0.25	21	2,946	1.01	3,659	4.03	3,958	9.06	4,129	2.26	4	2 - 4 - 10			
			106	0.50	30	3,206									3,982	4,307	4,494	5 - 7 - 15
			129	0.75	36	4,051									5,031	5,443	5,678	8 - 10 - 19
	B4	8	136	0.25	26	3,337	1.01	4,145	4.03	4,484	9.06	4,677	2.26	2.5	3 - 5 - 13			
			192	0.50	35	3,624									4,501	4,869	5,080	7 - 10 - 18
			235	0.75	40	4,584									5,694	6,159	6,425	12 - 13 - 21
8	B1	4	30	0.25	-	2,431	1.32	3,020	5.28	3,267	1.54	3,408	2.74	5.9	0 - 1 - 3			
			43	0.50	22	3,074									3,819	4,131	4,309	1 - 2 - 7
			53	0.75	27	3,591									4,461	4,825	5,034	2 - 4 - 12
	B2	5	46	0.25	15	2,513	1.32	3,121	5.28	3,376	1.54	3,522	2.74	4.8	1 - 2 - 5			
			65	0.50	24	3,217									3,996	4,323	4,509	2 - 3 - 10
			79	0.75	30	3,735									4,639	5,018	5,235	3 - 5 - 14
	B3	8	88	0.25	16	2,933	1.32	3,644	5.28	3,941	1.54	4,112	2.74	4	2 - 4 - 12			
			124	0.50	25	3,739									4,645	5,024	5,241	5 - 9 - 18
			152	0.75	30	4,350									5,404	5,845	6,098	9 - 12 - 21
	B4	10*	153	0.25	22	3,108	1.32	3,860	5.28	4,176	1.54	4,356	2.74	2.5	4 - 6 - 15			
			217	0.50	31	4,130									5,131	5,550	5,790	8 - 12 - 21
			266	0.75	36	4,707									5,846	6,324	6,597	14 - 15 - 24
10	B1	5	43	0.25	15	3,538	1.63	4,394	6.53	4,753	1.91	4,959	3.40	5.9	1 - 1 - 4			
			61	0.50	24	3,892									4,835	5,230	5,456	1 - 3 - 9
			75	0.75	29	4,889									6,073	6,569	6,853	2 - 4 - 13
	B2	6	65	0.25	18	3,639	1.63	4,520	6.53	4,890	1.91	5,101	3.40	4.8	1 - 2 - 7			
			92	0.50	27	4,065									5,049	5,462	5,698	2 - 4 - 12
			112	0.75	33	5,064									6,291	6,805	7,099	4 - 7 - 16
	B3	8	127	0.25	25	4,388	1.63	5,450	6.53	5,896	1.91	6,150	3.40	4	3 - 5 - 13			
			179	0.50	34	4,781									5,938	6,423	6,701	6 - 10 - 20
			219	0.75	39	6,037									7,499	8,111	8,462	10 - 13 - 24
	B4	10*	230	0.25	31	4,955	1.63	6,155	6.53	6,658	1.91	6,946	3.40	2.5	4 - 7 - 17			
			325	0.50	40	5,398									6,706	7,253	7,567	9 - 12 - 23
			398	0.75	45	6,817									8,468	9,160	9,556	15 - 17 - 26

CB-ALE-YK: 24-IN WIDTH: PERFORMANCE DATA (4-PIPE HEATING)

Nominal Length ft	Nozzle Size	Primary Air				Sound NC	Coil Heating (Btu/h)								Induction ratio	Throw ft.
		Inlet Dia.	Flow Rate	Inlet ΔPS	0.5 GPM		1.0 GPM		1.5 GPM		2.0 GPM					
		Inches	CFM	(in. H2O)			qCOIL	ΔCOIL	qCOIL	ΔCOIL	qCOIL	ΔCOIL	qCOIL	ΔCOIL		
4	B1	4	17	0.25	-	2,945	0.18	3,659	0.71	3,957	1.59	4,128	2.83	5.9	0 - 1 - 3	
			24	0.50	-	3,175		3,944		4,266		4,451				
			29	0.75	16	4,033		5,009		5,418		5,652				
	B2	4	25	0.25	-	3,039	0.18	3,775	0.71	4,084	1.59	4,260	2.83	4.8	1 - 1 - 4	
			36	0.50	19	3,320		4,124		4,460		4,653				
			44	0.75	24	4,186		5,200		5,625		5,868				
	B3	5	48	0.25	17	3,482	0.18	4,325	0.71	4,678	1.59	4,880	2.83	4	2 - 3 - 9	
			68	0.50	26	3,833		4,761		5,150		5,372				
			84	0.75	31	4,813		5,978		6,466		6,746				
	B4	6	87	0.25	25	3,916	0.18	4,864	0.71	5,261	1.59	5,488	2.83	2.5	2 - 5 - 10	
			124	0.50	34	4,312		5,356		5,793		6,044				
			151	0.75	39	5,413		6,724		7,273		7,588				
6	B1	4	25	0.25	-	4,107	0.28	5,102	1.11	5,519	2.50	5,757	4.44	5.9	0 - 1 - 3	
			36	0.50	19	4,564		5,669		6,132		6,397				
			44	0.75	24	5,702		7,083		7,661		7,993				
	B2	5	39	0.25	-	4,419	0.28	5,489	1.11	5,938	2.50	6,194	4.44	4.8	1 - 2 - 5	
			55	0.50	22	4,844		6,017		6,508		6,790				
			67	0.75	27	6,097		7,573		8,192		8,546				
	B3	6	75	0.25	21	5,183	0.28	6,438	1.11	6,964	2.50	7,264	4.44	4	2 - 4 - 10	
			106	0.50	30	5,640		7,006		7,578		7,905				
			129	0.75	36	7,126		8,852		9,575		9,989				
	B4	8	136	0.25	26	5,680	0.28	7,056	1.11	7,632	2.50	7,962	4.44	2.5	3 - 5 - 13	
			192	0.50	35	6,169		7,663		8,289		8,647				
			235	0.75	40	7,803		9,693		10,485		10,938				
8	B1	4	30	0.25	-	4,278	0.34	5,313	1.35	5,747	3.04	5,996	5.40	5.9	0 - 1 - 3	
			43	0.50	22	5,409		6,719		7,267		7,582				
			53	0.75	27	6,318		7,848		8,489		8,856				
	B2	5	46	0.25	15	4,421	0.34	5,491	1.35	5,940	3.04	6,197	5.40	4.8	1 - 2 - 5	
			65	0.50	24	5,660		7,030		7,605		7,933				
			79	0.75	30	6,570		8,161		8,828		9,209				
	B3	8	88	0.25	16	5,161	0.34	6,411	1.35	6,934	3.04	7,234	5.40	4	2 - 4 - 12	
			124	0.50	25	6,578		8,171		8,839		9,221				
			152	0.75	30	7,653		9,506		10,283		10,727				
	B4	10*	153	0.25	22	5,290	0.34	6,571	1.35	7,108	3.04	7,415	5.40	2.5	4 - 6 - 15	
			217	0.50	31	7,031		8,733		9,447		9,855				
			266	0.75	36	8,012		9,952		10,765		11,230				
10	B1	5	43	0.25	15	6,224	0.42	7,731	1.68	8,362	3.77	8,724	6.70	5.9	1 - 1 - 4	
			61	0.50	24	6,848		8,506		9,201		9,598				
			75	0.75	29	8,601		10,684		11,557		12,056				
	B2	6	65	0.25	18	6,402	0.42	7,953	1.68	8,602	3.77	8,974	6.70	4.8	1 - 2 - 7	
			92	0.50	27	7,151		8,883		9,609		10,024				
			112	0.75	33	8,910		11,067		11,972		12,489				
	B3	8	127	0.25	25	7,720	0.42	9,589	1.68	10,372	3.77	10,821	6.70	4	3 - 5 - 13	
			179	0.50	34	8,411		10,447		11,301		11,789				
			219	0.75	39	10,620		13,192		14,270		14,886				
	B4	10*	230	0.25	31	8,435	0.42	10,478	1.68	11,334	3.77	11,824	6.70	2.5	4 - 7 - 17	
			325	0.50	40	9,189		11,415		12,347		12,881				
			398	0.75	45	11,604		14,415		15,592		16,266				

CB-ALE-YK: 24-IN WIDTH: PERFORMANCE DATA (2-PIPE COOLING)

Nominal Length ft	Nozzle Size	Primary Air			Sound NC	Coil Sensible Cooling (Btu/h)								Induction ratio	Throw ft.			
		Inlet Dia.	Flow Rate	Inlet ΔPS		0.5 GPM		1.0 GPM		1.5 GPM		2.0 GPM						
		Inches	CFM	(in. H2O)		qCOIL	ΔCOIL	qCOIL	ΔCOIL	qCOIL	ΔCOIL	qCOIL	ΔCOIL					
4	B1	4	17	0.25	-	2,084	0.93	2,589	3.72	2,800	8.38	2,921	1.92	5.9	0 - 1 - 3			
			24	0.50	-	2,247									2,791	3,019	3,150	1 - 2 - 5
			29	0.75	16	2,854									3,545	3,834	4,000	1 - 3 - 7
	B2	4	25	0.25	-	2,151	0.93	2,672	3.72	2,890	8.38	3,015	1.92	4.8	1 - 1 - 4			
			36	0.50	19	2,349									2,918	3,156	3,293	1 - 3 - 7
			44	0.75	24	2,962									3,680	3,980	4,152	2 - 4 - 10
	B3	5	48	0.25	17	2,464	0.93	3,060	3.72	3,310	8.38	3,453	1.92	4	2 - 3 - 9			
			68	0.50	26	2,712									3,369	3,644	3,802	4 - 6 - 13
			84	0.75	31	3,406									4,230	4,576	4,774	7 - 9 - 15
	B4	6	87	0.25	25	2,771	0.93	3,442	3.72	3,723	8.38	3,884	1.92	2.5	2 - 5 - 10			
			124	0.50	34	3,051									3,790	4,100	4,277	6 - 8 - 14
			151	0.75	39	3,831									4,758	5,147	5,369	10 - 10 - 17
6	B1	4	25	0.25	-	2,568	1.35	3,190	5.40	3,451	1.58	3,600	2.81	5.9	0 - 1 - 3			
			36	0.50	19	2,853									3,544	3,834	4,000	1 - 2 - 7
			44	0.75	24	3,565									4,429	4,790	4,997	2 - 3 - 10
	B2	5	39	0.25	-	2,763	1.35	3,432	5.40	3,713	1.58	3,873	2.81	4.8	1 - 2 - 5			
			55	0.50	22	3,029									3,762	4,069	4,245	2 - 3 - 9
			67	0.75	27	3,812									4,735	5,122	5,343	3 - 5 - 12
	B3	6	75	0.25	21	3,240	1.35	4,025	5.40	4,354	1.58	4,542	2.81	4	2 - 4 - 10			
			106	0.50	30	3,526									4,380	4,738	4,943	5 - 7 - 15
			129	0.75	36	4,456									5,535	5,987	6,245	8 - 10 - 19
	B4	8	136	0.25	26	3,671	1.35	4,559	5.40	4,932	1.58	5,145	2.81	2.5	3 - 5 - 13			
			192	0.50	35	3,986									4,952	5,356	5,588	7 - 10 - 18
			235	0.75	40	5,042									6,263	6,775	7,068	12 - 13 - 21
8	B1	4	30	0.25	-	2,675	1.77	3,322	7.08	3,594	2.07	3,749	3.68	5.9	0 - 1 - 3			
			43	0.50	22	3,382									4,201	4,544	4,740	1 - 2 - 7
			53	0.75	27	3,950									4,907	5,308	5,537	2 - 4 - 12
	B2	5	46	0.25	15	2,764	1.77	3,433	7.08	3,714	2.07	3,874	3.68	4.8	1 - 2 - 5			
			65	0.50	24	3,539									4,396	4,755	4,960	2 - 3 - 10
			79	0.75	30	4,108									5,103	5,520	5,758	3 - 5 - 14
	B3	8	88	0.25	16	3,227	1.77	4,008	7.08	4,336	2.07	4,523	3.68	4	2 - 4 - 12			
			124	0.50	25	4,113									5,109	5,526	5,765	5 - 9 - 18
			152	0.75	30	4,785									5,944	6,430	6,707	9 - 12 - 21
	B4	10*	153	0.25	22	3,419	1.77	4,246	7.08	4,593	2.07	4,792	3.68	2.5	4 - 6 - 15			
			217	0.50	31	4,543									5,644	6,105	6,368	8 - 12 - 21
			266	0.75	36	5,177									6,431	6,956	7,257	14 - 15 - 24
10	B1	5	43	0.25	15	3,891	2.19	4,834	8.76	5,228	2.56	5,454	4.55	5.9	1 - 1 - 4			
			61	0.50	24	4,282									5,318	5,753	6,001	1 - 3 - 9
			75	0.75	29	5,378									6,680	7,226	7,538	2 - 4 - 13
	B2	6	65	0.25	18	4,003	2.19	4,972	8.76	5,379	2.56	5,611	4.55	4.8	1 - 2 - 7			
			92	0.50	27	4,471									5,554	6,008	6,268	2 - 4 - 12
			112	0.75	33	5,571									6,920	7,485	7,809	4 - 7 - 16
	B3	8	127	0.25	25	4,827	2.19	5,995	8.76	6,485	2.56	6,766	4.55	4	3 - 5 - 13			
			179	0.50	34	5,259									6,532	7,066	7,371	6 - 10 - 20
			219	0.75	39	6,640									8,248	8,922	9,308	10 - 13 - 24
	B4	10*	230	0.25	31	5,451	2.19	6,771	8.76	7,324	2.56	7,641	4.55	2.5	4 - 7 - 17			
			325	0.50	40	5,938									7,376	7,979	8,324	9 - 12 - 23
			398	0.75	45	7,499									9,315	10,076	10,511	15 - 17 - 26

CB-ALE-YK: 24-IN WIDTH: PERFORMANCE DATA (2-PIPE HEATING)

Nominal Length ft	Nozzle Size	Primary Air			Sound NC	Coil Heating (Btu/h)								Induction ratio	Throw ft.
		Inlet Dia.	Flow Rate	Inlet ΔPS		0.5 GPM		1.0 GPM		1.5 GPM		2.0 GPM			
		Inches	CFM	(in. H2O)		qCOIL	ΔCOIL	qCOIL	ΔCOIL	qCOIL	ΔCOIL	qCOIL	ΔCOIL		
4	B1	4	17	0.25	-	3,976	0.72	4,939	2.90	5,343	6.52	5,573	1.51	5.9	0 - 1 - 3
			24	0.50	-	4,287		5,325		5,760		6,009			
			29	0.75	16	5,444		6,762		7,315		7,631			
	B2	4	25	0.25	-	4,103	0.72	5,097	2.90	5,513	6.52	5,751	1.51	4.8	1 - 1 - 4
			36	0.50	19	4,482		5,567		6,022		6,282			
			44	0.75	24	5,651		7,020		7,593		7,922			
	B3	5	48	0.25	17	4,700	0.72	5,838	2.90	6,315	6.52	6,588	1.51	4	2 - 3 - 9
			68	0.50	26	5,174		6,427		6,952		7,252			
			84	0.75	31	6,497		8,070		8,730		9,107			
	B4	6	87	0.25	25	5,286	0.72	6,566	2.90	7,102	6.52	7,409	1.51	2.5	2 - 5 - 10
			124	0.50	34	5,821		7,230		7,821		8,159			
			151	0.75	39	7,308		9,077		9,819		10,243			
6	B1	4	25	0.25	-	5,545	1.05	6,888	4.20	7,451	1.23	7,772	2.19	5.9	0 - 1 - 3
			36	0.50	19	6,161		7,653		8,278		8,636			
			44	0.75	24	7,698		9,562		10,343		10,790			
	B2	5	39	0.25	-	5,966	1.05	7,411	4.20	8,016	1.23	8,363	2.19	4.8	1 - 2 - 5
			55	0.50	22	6,539		8,123		8,786		9,166			
			67	0.75	27	8,230		10,223		11,059		11,537			
	B3	6	75	0.25	21	6,996	1.05	8,691	4.20	9,401	1.23	9,807	2.19	4	2 - 4 - 10
			106	0.50	30	7,614		9,458		10,230		10,672			
			129	0.75	36	9,620		11,950		12,926		13,485			
	B4	8	136	0.25	26	7,668	1.05	9,525	4.20	10,303	1.23	10,749	2.19	2.5	3 - 5 - 13
			192	0.50	35	8,328		10,345		11,190		11,673			
			235	0.75	40	10,534		13,085		14,154		14,766			
8	B1	4	30	0.25	-	5,775	1.77	7,173	7.08	7,759	1.61	8,094	2.86	5.9	0 - 1 - 3
			43	0.50	22	7,302		9,070		9,811		10,235			
			53	0.75	27	8,529		10,595		11,460		11,956			
	B2	5	46	0.25	15	5,968	1.77	7,413	7.08	8,019	1.61	8,366	2.86	4.8	1 - 2 - 5
			65	0.50	24	7,641		9,491		10,266		10,710			
			79	0.75	30	8,870		11,017		11,918		12,433			
	B3	8	88	0.25	16	6,967	1.77	8,654	7.08	9,361	1.61	9,766	2.86	4	2 - 4 - 12
			124	0.50	25	8,881		11,031		11,932		12,448			
			152	0.75	30	10,332		12,834		13,882		14,482			
	B4	10*	153	0.25	22	7,142	1.77	8,871	7.08	9,596	1.61	10,011	2.86	2.5	4 - 6 - 15
			217	0.50	31	9,492		11,790		12,753		13,305			
			266	0.75	36	10,816		13,435		14,533		15,161			
10	B1	5	43	0.25	15	8,402	2.19	10,436	8.76	11,289	2.03	11,777	3.61	5.9	1 - 1 - 4
			61	0.50	24	9,244		11,483		12,421		12,958			
			75	0.75	29	11,611		14,423		15,601		16,276			
	B2	6	65	0.25	18	8,643	2.19	10,736	8.76	11,613	2.03	12,115	3.61	4.8	1 - 2 - 7
			92	0.50	27	9,654		11,992		12,972		13,532			
			112	0.75	33	12,028		14,941		16,162		16,860			
	B3	8	127	0.25	25	10,421	2.19	12,945	8.76	14,003	2.03	14,608	3.61	4	3 - 5 - 13
			179	0.50	34	11,354		14,104		15,256		15,915			
			219	0.75	39	14,337		17,809		19,264		20,097			
	B4	10*	230	0.25	31	11,388	2.19	14,146	8.76	15,301	2.03	15,962	3.61	2.5	4 - 7 - 17
			325	0.50	40	12,406		15,410		16,669		17,389			
			398	0.75	45	15,666		19,460		21,049		21,959			

NOTES:

1. All performance data based on test performed in accordance with ASHRAE Standard 200-2015
2. Inlet diameters shown are nominal. Inlet size designated with a star (*) indicates equivalent oval
3. NC values are based on room absorption of 10 dB. A dash (-) indicates an NC value less than 15
4. Throw values are based on isothermal supply air and represent throw distances to terminal velocities of 150, 100 and 50 fpm respectively
5. ΔP_{Coil} values in shaded cells indicate use of a two circuit coil. All other values represent a single circuit coil
6. Induction ratio is multiplied by the volume flow rate of primary air to estimate the volume flow rate of room air entrained through the coil

Cooling performance:

- Cooling capacity listed (qCOIL) is the sensible heat removal by the beam’s integral coil. It does not include any contribution or offset by the primary air
- Capacity is based on 18°F ΔT between the induced air and the chilled water supply.

TABLE 4: CORRECTION FOR (ΔT) BETWEEN ENTERING AIR AND ENTERING CHILLED WATER

Actual ΔT	10	12	14	16	18	20	22	24
Multiply Table Value by:	0.56	0.67	0.78	0.89	1.00	1.11	1.22	1.33

- Primary air sensible cooling contribution can be calculated by the following equation:

$$qSENSPA = 1.085 \times CFMPA \times (TPA - TROOM)$$

- Primary air latent cooling can be calculated by the following equation:

$$qLATENT = 0.69 \times CFMPA \times (WROOM - WPA)$$

where *WROOM* and *WPA* are the humidity ratio of the room and primary air respectively expressed in Grains of moisture per pound dry air

Heating performance:

- Heating capacity listed (qCOIL) is the sensible heat removal by the beam’s integral coil. It does not include any contribution or offset by the primary air
- Capacity is based on 50°F ΔT between the induced air and the chilled water supply.
- Primary air sensible heating offset (or contribution) can be calculated by the following equation:

$$qSENSPA = 1.085 \times CFMPA \times (TPA - TROOM)$$

if the primary air temperature is lower than that of the room, it will offset the coil's heating

if the primary air temperature is higher than that of the room, it will contribute to the coil's heating

Legend:

ΔP_s = Unit Inlet Pressure [in wg]

qCoil = Sensible Capacity, Coil [Btu/h]

$\Delta Coil$ = Water coil pressure drop [ft wg]

qSENSPA = Sensible Capacity, Primary Air [Btu/h]

CFMPA = Air Flowrate, Primary Air [CFM]

TPA = Temperature Primary Air [°F]

TROOM = Temperature Room Air [°F]

qSENSPA = Latent Capacity, Primary Air [Btu/h]

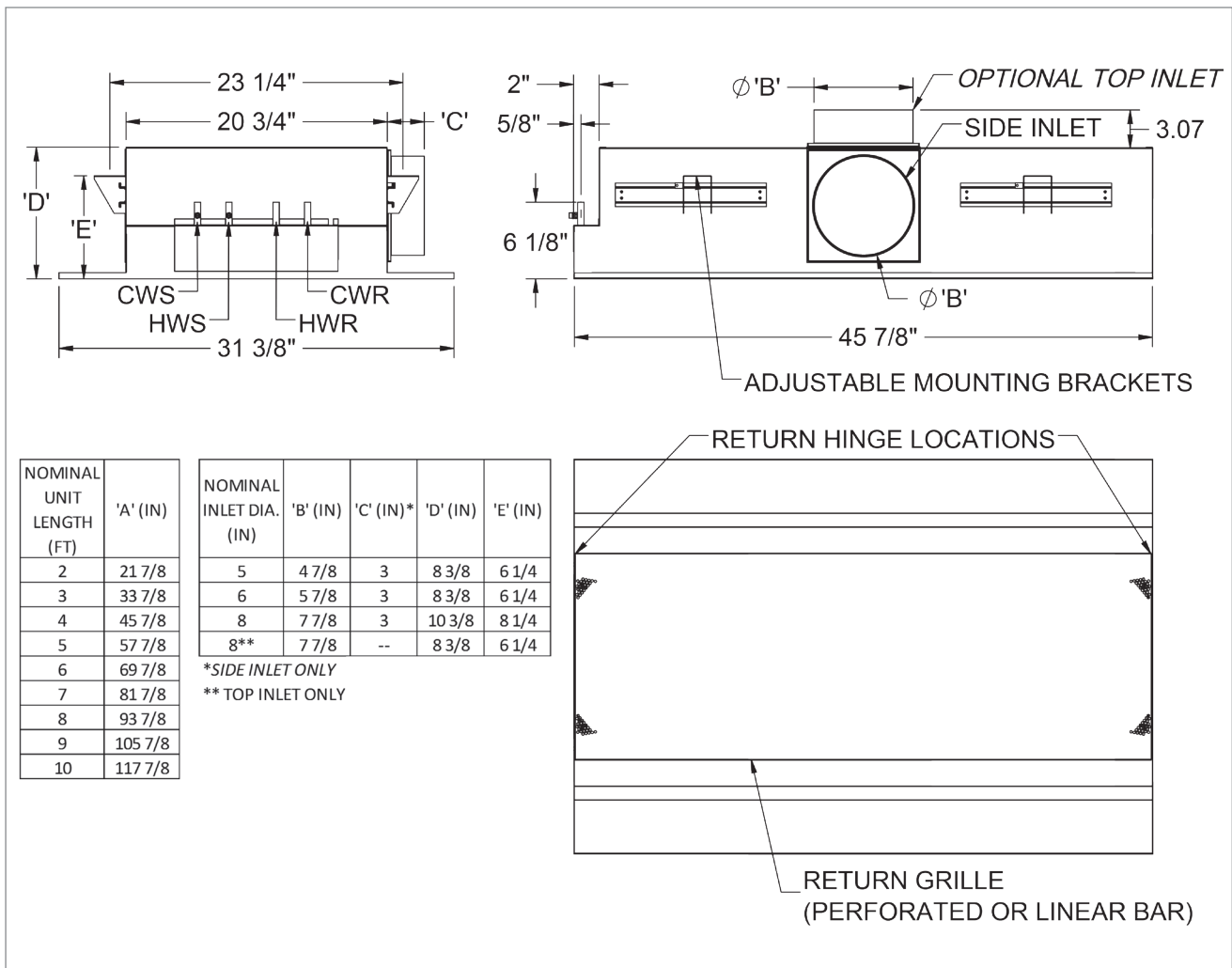
CB-ALE-YK

MODEL SPECIFIC FEATURES & OPTIONS

- Integral coanda plates for ceiling independent air distribution pattern
- 1-way or 2-way air distribution pattern

DIMENSIONAL INFORMATION

CB-ALE-YK



Guide Specification:
CB-ABL-YK Active Chilled Beams
24-inch Width

PART 1- GENERAL

1.01 Summary

This section describes the active chilled beams.

1.02 Submittals

Submit product data for all items complete with the following information:

1. Operating weights and dimensions of all unit assemblies.
2. Performance data, including sensible and latent cooling capacities, nozzle types, primary and total supply (primary plus induced) airflow rates, chilled (and where applicable hot) water flow rates, noise levels in octave bands, air and water side pressure losses and maximum discharge air throw values.
3. Construction details including manufacturers recommendations for installation, mounting and connection.

PART 2- PRODUCTS

2.01 General

Materials and products required for the work of this section shall not contain asbestos, polychlorinated biphenyls (PCB) or other hazardous materials identified by the engineer or owner.

2.02 Design

1. Furnish and install YORK® CB-ABL-YK series two slot active chilled beams of sizes and capacities as indicated on the drawings and within the mechanical equipment

schedules. The quantity and length of the beams shall be as shown on the drawings, without EXCEPTION. The beams shall be constructed and delivered to the job site as single units.

2. The face of the beam shall consist of a room air induction section of 50% free area perforated (optional linear bar type) induction section flanked by linear supply slots. The face section shall include hinged fastening on each side that allows the face to be swung opened from either direction for coil cleaning. Faces that are designed to be lifted out are NOT ACCEPTABLE. The entire visible face sections and all visible internal surfaces shall be finished in white powder coat paint or as specified by the architect.

3. Beams shall be provided with side and end details which will allow its integration into the applicable (nominal 24 inch wide) acoustical ceiling grid as specified by the architect.

4. The beams shall consist of a minimum 20 gauge galvanized steel housing encasing the integral sensible cooling coil and a plenum featuring a series of induction nozzles. A single duct connection shall be provided on either the side or top of the unit. The use of multiple duct connections is NOT ACCEPTABLE.

5. Each beam shall be provided with a pressure tap that may be used to measure the pressure differential between the primary air plenum and the room. Airflow calibration charts that relate this pressure differential reading with the primary and beam supply airflow rates shall be furnished with the beams.

6. Beams shall be provided with connections for either 2 or 4 pipe water connections as indicated on plans and schedules. Four pipe configurations shall require separate supply and return connections for chilled and hot water. The coil shall be mounted horizontally and shall be manufactured with seamless copper tubing (1/2" outside diameter) with minimum .016 inch wall thickness

mechanically fixed to aluminum fins. The aluminum fins shall be limited to no more than ten (10) fins per inch. The coil shall have a working pressure of at least 300 PSI, and be factory tested for leakage at a minimum pressure of 360 PSI. Each chilled beam shall be provided with factory integrated manual air vents. (OPTIONAL, coil shall be provided with factory integrated drain fittings.) Unless otherwise specified, coil connections shall be bare copper for field sweating to the water supply circuit. Connections shall face upwards, be located near the left end of the beam (when viewing into the primary air connection). (OPTIONAL, the chilled water coil shall be provided with NPT male threaded fittings. These fittings must be suitable for field connection to a similar NPT female flexible hose spigot and shall be at least 1½" long to facilitate field connection (by others).

7. Beams shall be delivered clean, flushed and capped to prevent ingress of dirt

2.03 Performance

1. All performance shall be in compliance with that shown on the equipment schedule. Acoustical testing shall have been performed in accordance with ASHRAE Standard 200-2015.
2. Coils shall be rated in accordance with AHRI Standard 410, but their cooling and heating capacities shall be established in accordance to ASHRAE Standard 200-2015 for the specific application on the inlet side of the submitted chilled beam.
3. Chilled water flow rates to the beams shall be limited to that which results in a maximum ten (10) foot head loss. Water flow velocities through the beam shall not exceed 4 FPS.

PART 3- EXECUTION

3.02 Installation

1. Coordinate the size, tagging and capacity of the beams to their proper location.
2. Chilled beams up to six feet in length shall be independently suspended from the structure above by a four (4) threaded rods of 3/8" diameter (provided by the installing contractor). For beams beyond six feet in length, six (6) threaded rods of 3/8" diameter shall be used. The upper end of the rods shall be suspended from strut channels that are a) mounted perpendicular to the beam length and b) at least four inches wider than the beam to facilitate relocation of the threaded rods along their length. The beam shall then be positioned above the acoustical ceiling grid and lowered into the grid module by adjusting the nuts connecting the threaded rods to the beam.
3. Before connecting the supply water system(s) to the beams, contractor shall flush the piping system(s) to assure that all debris and other matter have been removed.
4. Contractor shall perform connection of beams to the chilled water circuit by method specified (hard connection using sweated connection or connection using flexible hoses).
5. Flexible connector hoses shall be furnished by others (optionally by the manufacturer). Hoses shall be twenty four (12, 18, or 24) inches in length and suitable for operation with a bend radius as small as five (5) inches. Connector hoses shall consist of a PTFE lined hose with a wire braided jacket. The hoses shall be suitable for operation in an environment between -40 and 200°F, rated for a least 300 PSI and tested for leakage at a minimum pressure of 360 PSI. Contractor shall assure that the chilled water supplying the beams has been

properly treated in accordance to BSRIA publication AG 2/93.

6. No power or direct control connections shall be required for the operation of the chilled beam.

3.03 Cleaning and Protection

1. Air and water connections shall be covered before shipment and remain so until final installation. Damaged material due to improper site protection shall be cause for rejection.

2. Clean equipment, repair damaged finishes as required to restore beams to as-new appearance.

the diffuser. Using Computational Fluid Dynamics (CFD) and extensive laboratory testing the geometry of the York linear active chilled beams was refined to maximize induce air flow for optimal energy efficiency.

Guide Specification: CB-ABL-YK Active Chilled Beams 12-inch Width

PART 1- GENERAL

1.01 Summary

This section describes the active chilled beams.

1.02 Submittals

Submit product data for all items complete with the following information:

1. Operating weights and dimensions of all unit assemblies.
2. Performance data, including sensible and latent cooling capacities, nozzle types, primary and total supply (primary plus induced) airflow rates, chilled (and where applicable hot) water flow rates, noise levels in octave bands, air and water side pressure losses and maximum

discharge air throw values.

3. Construction details including manufacturers recommendations for installation, mounting and connection.

PART 2- PRODUCTS

2.01 General

Materials and products required for the work of this section shall not contain asbestos, polychlorinated biphenyls (PCB) or other hazardous materials identified by the engineer or owner.

2.02 Design

1. Furnish and install YORK® CB-ABL-YK series two slot active chilled beams of sizes and capacities as indicated on the drawings and within the mechanical equipment schedules. The quantity and length of the beams shall be as shown on the drawings, without EXCEPTION. The beams shall be constructed and delivered to the job site as single units.

2. The face of the beam shall consist of a room air induction section of 50% free area perforated (optional linear bar type) induction section flanked by linear supply slots. The face section shall include hinged fastening on each side that allows the face to be swung opened from either direction for coil cleaning. Faces that are designed to be lifted out are NOT ACCEPTABLE. The entire visible face section shall be finished in white powder coat paint or as specified by the architect. All visible internal surfaces shall be flat black.

3. Beams shall be provided with side and end details which will allow its integration into the applicable (nominal 12 inch wide) acoustical ceiling grid as specified by the architect.

4. The beams shall consist of a minimum 20 gauge

galvanized steel housing encasing the integral sensible cooling coil and a plenum feeding a series of induction nozzles. A single duct connection shall be provided on either the side or top of the unit. The use of multiple duct connections is NOT ACCEPTABLE.

5. Each beam shall be provided with a pressure tap that may be used to measure the pressure differential between the primary air plenum and the room. Airflow calibration charts that relate this pressure differential reading with the primary and beam supply airflow rates shall be furnished with the beams.

6. Beams shall be provided with connections for either 2 or 4 pipe water connections as indicated on plans and schedules. Four pipe configurations shall require separate supply and return connections for chilled and hot water. The coils shall be mounted vertically and shall be manufactured with seamless copper tubing (1/2" outside diameter) with minimum .016 inch wall thickness mechanically fixed to aluminum fins. The aluminum fins shall be limited to no more than ten (10) fins per inch. A horizontal collection tray shall be furnished under each coil section to collect any condensation that might occur during brief periods of improper operation. The coil shall have a working pressure of at least 300 PSI, and be factory tested for leakage at a minimum pressure of 360 PSI. Each chilled beam shall be provided with factory integrated manual air vents. (OPTIONAL, coil shall be provided with factory integrated drain fittings.) Unless otherwise specified, coil connections shall be bare copper for field sweating to the water supply circuit. Connections shall face upwards, be located near the left end of the beam (when viewing into the primary air connection). (OPTIONAL, the chilled water coil shall be provided with NPT male threaded fittings. These fittings must be suitable for field connection to a similar NPT female flexible hose spigot and shall be at least 1 1/2" long to facilitate field connection (by others).

7. Beams shall be delivered clean, flushed and capped to prevent ingress of dirt

2.03 Performance

1. All performance shall be in compliance with that shown on the equipment schedule. Acoustical testing shall have been performed in accordance with ASHRAE Standard 200-2015.

2. Coils shall be rated in accordance with AHRI Standard 410, but their cooling and heating capacities shall be established in accordance to ASHRAE Standard 200-2015 for the specific application on the inlet side of the submitted chilled beam.

3. Chilled water flow rates to the beams shall be limited to that which results in a maximum ten (10) foot head loss. Water flow velocities through the beam shall not exceed 4 FPS.

PART 3- EXECUTION

3.02 Installation

1. Coordinate the size, tagging and capacity of the beams to their proper location.

2. Chilled beams up to six feet in length shall be independently suspended from the structure above by a four (4) threaded rods of 3/8" diameter (provided by the installing contractor). For beams beyond six feet in length, six (6) threaded rods of 3/8" diameter shall be used. The upper end of the rods shall be suspended from strut channels that are a) mounted perpendicular to the beam length and b) at least four inches wider than the beam to facilitate relocation of the threaded rods along their length. The beam shall then be positioned above the acoustical ceiling grid and lowered into the grid module by adjusting the nuts connecting the threaded rods to the

beam.

3. Before connecting the supply water system(s) to the beams, contractor shall flush the piping system(s) to assure that all debris and other matter have been removed.

4. Contractor shall perform connection of beams to the chilled water circuit by method specified (hard connection using sweated connection or connection using flexible hoses).

5. Flexible connector hoses shall be furnished by others (optionally by the manufacturer). Hoses shall be twenty four (12, 18, or 24) inches in length and suitable for operation with a bend radius as small as five (5) inches. Connector hoses shall consist of a PTFE lined hose with a wire braided jacket. The hoses shall be suitable for operation in an environment between -40 and 200°F, rated for a least 300 PSI and tested for leakage at a minimum pressure of 360 PSI. Contractor shall assure that the chilled water supplying the beams has been properly treated in accordance to BSRIA publication AG 2/93.

6. No power or direct control connections shall be required for the operation of the chilled beam.

3.03 Cleaning and Protection

1. Air and water connections shall be covered before shipment and remain so until final installation. Damaged material due to improper site protection shall be cause for rejection.

2. Clean equipment, repair damaged finishes as required to restore beams to as-new appearance.

Guide Specification: CB-ALV-YK Active Chilled Beams

PART 1- GENERAL

1.01 Summary

This section describes the active chilled beams.

1.02 Submittals

Submit product data for all items complete with the following information:

1. Operating weights and dimensions of all unit assemblies.
2. Performance data, including sensible and latent cooling capacities, nozzle types, primary and total supply (primary plus induced) airflow rates, chilled (and where applicable hot) water flow rates, noise levels in octave bands, air and water side pressure losses and maximum discharge air throw values.
3. Construction details including manufacturers recommendations for installation, mounting and connection.

PART 2- PRODUCTS

2.01 General

Materials and products required for the work of this section shall not contain asbestos, polychlorinated biphenyls (PCB) or other hazardous materials identified by the engineer or owner.

2.02 Design

1. Furnish and install YORK® CB-ALV-YK series two slot active chilled beams of sizes and capacities as indicated on the drawings and within the mechanical equipment schedules. The quantity and length of the beams shall

be as shown on the drawings, without EXCEPTION. The beams shall be constructed and delivered to the job site as single units.

2. The face of the beam shall consist of a room air induction section of 50% free area perforated (optional linear bar type) induction section flanked by linear supply slots. The face section shall include hinged fastening on each side that allows the face to be swung opened from either direction for coil cleaning. Faces that are designed to be lifted out are NOT ACCEPTABLE. The entire visible face section shall be finished in white powder coat paint or as specified by the architect. All visible internal surfaces shall be flat black.

3. Beams shall be provided with side and end details which will allow its integration into the applicable (nominal 24 inch wide) acoustical ceiling grid as specified by the architect.

4. The beams shall consist of a minimum 20 gauge galvanized steel housing encasing the integral sensible cooling coil and a plenum featuring a series of induction nozzles. A single duct connection shall be provided on either the side or top of the unit. The use of multiple duct connections is NOT ACCEPTABLE.

5. Each beam shall be provided with a pressure tap that may be used to measure the pressure differential between the primary air plenum and the room. Airflow calibration charts that relate this pressure differential reading with the primary and beam supply airflow rates shall be furnished with the beams.

6. Beams shall be provided with connections for either 2 or 4 pipe water connections as indicated on plans and schedules. Four pipe configurations shall require separate supply and return connections for chilled and hot water. The coils shall be mounted vertically and shall be manufactured with seamless copper tubing (1/2" outside diameter) with minimum .016 inch wall thickness mechanically fixed to aluminum fins. The aluminum fins

shall be limited to no more than ten (10) fins per inch. A horizontal collection tray shall be furnished under each coil section to collect any condensation that might occur during brief periods of improper operation. The coil shall have a working pressure of at least 300 PSI, and be factory tested for leakage at a minimum pressure of 360 PSI. Each chilled beam shall be provided with factory integrated manual air vents. (OPTIONAL, coil shall be provided with factory integrated drain fittings.) Unless otherwise specified, coil connections shall be bare copper for field sweating to the water supply circuit. Connections shall face upwards, be located near the left end of the beam (when viewing into the primary air connection). (OPTIONAL, the chilled water coil shall be provided with NPT male threaded fittings. These fittings must be suitable for field connection to a similar NPT female flexible hose spigot and shall be at least 1 1/2" long to facilitate field connection (by others).

7. Beams shall be delivered clean, flushed and capped to prevent ingress of dirt

2.03 Performance

1. All performance shall be in compliance with that shown on the equipment schedule. Acoustical testing shall have been performed in accordance with ASHRAE Standard 200-2015.

2. Coils shall be rated in accordance with AHRI Standard 410, but their cooling and heating capacities shall be established in accordance to ASHRAE Standard 200-2015 for the specific application on the inlet side of the submitted chilled beam.

3. Chilled water flow rates to the beams shall be limited to that which results in a maximum ten (10) foot head loss. Water flow velocities through the beam shall not exceed 4 FPS.

PART 3- EXECUTION

3.02 Installation

1. Coordinate the size, tagging and capacity of the beams to their proper location.
2. Chilled beams up to six feet in length shall be independently suspended from the structure above by a four (4) threaded rods of 3/8" diameter (provided by the installing contractor). For beams beyond six feet in length, six (6) threaded rods of 3/8" diameter shall be used. The upper end of the rods shall be suspended from strut channels that are a) mounted perpendicular to the beam length and b) at least four inches wider than the beam to facilitate relocation of the threaded rods along their length. The beam shall then be positioned above the acoustical ceiling grid and lowered into the grid module by adjusting the nuts connecting the threaded rods to the beam.
3. Before connecting the supply water system(s) to the beams, contractor shall flush the piping system(s) to assure that all debris and other matter have been removed.
4. Contractor shall perform connection of beams to the chilled water circuit by method specified (hard connection using sweated connection or connection using flexible hoses).
5. Flexible connector hoses shall be furnished by others (optionally by the manufacturer). Hoses shall be twenty four (12, 18, or 24) inches in length and suitable for operation with a bend radius as small as five (5) inches. Connector hoses shall consist of a PTFE lined hose with a wire braided jacket. The hoses shall be suitable for operation in an environment between -40 and 200°F, rated for a least 300 PSI and tested for leakage at a minimum pressure of 360 PSI. Contractor shall assure that the chilled water supplying the beams has been

properly treated in accordance to BSRIA publication AG 2/93.

6. No power or direct control connections shall be required for the operation of the chilled beam.

3.03 Cleaning and Protection

1. Air and water connections shall be covered before shipment and remain so until final installation. Damaged material due to improper site protection shall be cause for rejection.
2. Clean equipment, repair damaged finishes as required to restore beams to as-new appearance.

Guide Specification: CB-ALE-YK Active Chilled Beams

PART 1- GENERAL

1.01 Summary

This section describes the active chilled beams.

1.02 Submittals

Submit product data for all items complete with the following information:

1. Operating weights and dimensions of all unit assemblies.
2. Performance data, including sensible and latent cooling capacities, nozzle types, primary and total supply (primary plus induced) airflow rates, chilled (and where applicable hot) water flow rates, noise levels in octave bands, air and water side pressure losses and maximum discharge air throw values.
3. Construction details including manufacturers recommendations for installation, mounting and connection.

PART 2- PRODUCTS

2.01 General

Materials and products required for the work of this section shall not contain asbestos, polychlorinated biphenyls (PCB) or other hazardous materials identified by the engineer or owner.

2.02 Design

1. Furnish and install YORK® CB-ALE-YK series two slot active chilled beams of sizes and capacities as indicated on the drawings and within the mechanical equipment schedules. The quantity and length of the beams shall be as shown on the drawings, without EXCEPTION. The beams shall be constructed and delivered to the job site as single units.
2. The face of the beam shall consist of a room air induction section of 50% free area perforated (optional linear bar type) induction section flanked by linear supply slots. The face section shall include hinged fastening on each side that allows the face to be swung opened from either direction for coil cleaning. Faces that are designed to be lifted out are NOT ACCEPTABLE. The entire visible face sections and all visible internal surfaces shall be finished in white powder coat paint or as specified by the architect.
3. Beams shall be provided with extended coanda plates not to exceed 4 inches providing ceiling independent throw patterns for use in exposed applications.
4. The beams shall consist of a minimum 20 gauge galvanized steel housing encasing the integral sensible cooling coil and a plenum feeding a series of induction nozzles. A single duct connection shall be provided on either the side or top of the unit. The use of multiple duct connections is NOT ACCEPTABLE.
5. Each beam shall be provided with a pressure tap that may be used to measure the pressure differential between the primary air plenum and the room. Airflow calibration charts that relate this pressure differential reading with the primary and beam supply airflow rates shall be furnished with the beams.
6. Beams shall be provided with connections for either 2 or 4 pipe water connections as indicated on plans and schedules. Four pipe configurations shall require separate supply and return connections for chilled and hot water. The coil shall be mounted horizontally and shall be manufactured with seamless copper tubing (1/2" outside diameter) with minimum .016 inch wall thickness mechanically fixed to aluminum fins. The aluminum fins shall be limited to no more than ten (10) fins per inch. The coil shall have a working pressure of at least 300 PSI, and be factory tested for leakage at a minimum pressure of 360 PSI. Each chilled beam shall be provided with factory integrated manual air vents. (OPTIONAL, coil shall be provided with factory integrated drain fittings.) Unless otherwise specified, coil connections shall be bare copper for field sweating to the water supply circuit. Connections shall face upwards, be located near the left end of the beam (when viewing into the primary air connection). (OPTIONAL, the chilled water coil shall be provided with NPT male threaded fittings. These fittings must be suitable for field connection to a similar NPT female flexible hose spigot and shall be at least 1 1/2" long to facilitate field connection (by others).
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2. Coils shall be rated in accordance with AHRI Standard 410, but their cooling and heating capacities shall be established in accordance to ASHRAE Standard 200-2015 for the specific application on the inlet side of the submitted chilled beam.

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For more information www.york.com/chilledbeams

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