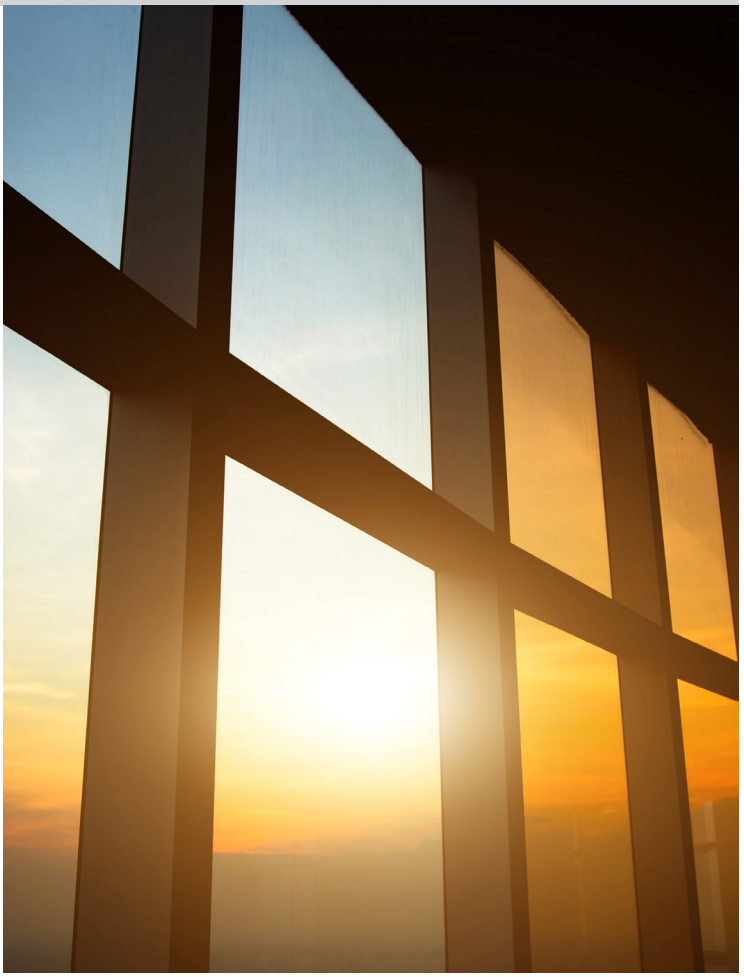
YORK®

INSTALL CONFIDENCE



YORK® SILL MOUNTED ACTIVE CHILLED BEAMS

ENGINEERING GUIDE

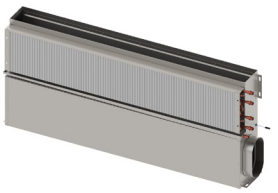
Johnson Controls

Contents

YORK® Under Sill Active Chilled Beams

Energy Efficiency Delivered

YORK® under sill active 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 is realized.



CB-ABS-YK

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® under sill 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, there are no filters to be changed nor drain pans to clean; only periodic vacuuming of the coils to remove lint and dust and general cleaning of the exposed surfaces.

Reenergize Retrofit Projects

YORK® under sill active chilled beams are ideal for retrofit of existing induction units, unit ventilators, and fan coils. Under sill active beams minimize energy consumption and reduce sound levels compared to other under sill mounted products. Additionally, retrofit project costs are minimized with the implementation of YORK® under sill active chilled beams because most, if not all, of the existing piping and duct work can be utilized.

Available Model:

CB-ABS-YK: Under Sill Active Chilled Beam

Standard Features:

- 3 foot to 6 foot lengths, 1 foot increments
- 2-pipe and 4-pipe coil configurations
- Configured nozzle geometry for capacity optimization
- Condensate drip tray with capped ¾ inch connection
- Commissioning port with roomside access for balancing
- Mounting brackets with adjustments in two directions
- ½" Sweat water coil connections
- Coil air vent

Options and Accessories:

- ½" thick foil-faced EcoShield, anti-microbial external insulation
- Coil drain valve
- ½" MNPT water coil connections
- 12-inch, 18-inch or 24-inch stainless steel braided hoses

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

Nominal Length ft	Nozzle Size	Primary Air			Sound	Coil Sensible Cooling (Btu/h)								Induction ratio
		Inlet Dia.	Flow Rate	Inlet ΔPS	NC	0.5 GPM		1.0 GPM		1.5 GPM		2.0 GPM		
		Inches	CFM	(in. H2O)		qCOIL	ΔCOIL	qCOIL	ΔCOIL	qCOIL	ΔCOIL	qCOIL	ΔCOIL	
3	B1	6'' oval	5	0.25	-	896	0.39	1,112	1.56	1,203	3.51	1,255	6.24	7.2
			7	0.50	-	1,142		1,419		1,535		1,601		
			9	0.75	-	1,292		1,605		1,736		1,811		
	B2	6'' oval	9	0.25	-	901	0.39	1,119	1.56	1,211	3.51	1,263	6.24	5.7
			13	0.50	-	1,095		1,360		1,471		1,535		
			15	0.75	16	1,235		1,534		1,659		1,731		
	B3	6'' oval	15	0.25	-	1,097	0.39	1,362	1.56	1,474	3.51	1,537	6.24	4.2
			22	0.50	-	1,396		1,734		1,876		1,957		
			27	0.75	17	1,579		1,962		2,122		2,214		
	B4	6'' oval	28	0.25	-	1,668	0.39	2,072	1.56	2,241	3.51	2,338	6.24	3.4
			40	0.50	-	2,113		2,624		2,839		2,961		
			49	0.75	20	2,389		2,967		3,210		3,348		
4	B1	6'' oval	7	0.25	-	1,148	0.54	1,426	2.15	1,543	4.83	1,609	8.59	7.2
			10	0.50	-	1,464		1,819		1,968		2,053		
			13	0.75	-	1,657		2,058		2,226		2,322		
	B2	6'' oval	11	0.25	-	1,036	0.54	1,286	2.15	1,391	4.83	1,452	8.59	5.7
			16	0.50	-	1,321		1,640		1,774		1,851		
			19	0.75	15	1,494		1,856		2,007		2,094		
	B3	6'' oval	21	0.25	-	1,399	0.54	1,738	2.15	1,880	4.83	1,961	8.59	4.8
			30	0.50	-	1,781		2,213		2,393		2,497		
			37	0.75	18	2,015		2,503		2,707		2,824		
	B4	6'' oval	39	0.25	-	2,113	0.54	2,624	2.15	2,839	4.83	2,961	8.59	3.4
			55	0.50	15	2,691		3,342		3,615		3,771		
			67	0.75	21	3,043		3,780		4,089		4,266		
5	B1	6'' oval	9	0.25	-	1,402	0.72	1,741	2.88	1,884	6.49	1,965	1.10	7.2
			13	0.50	-	1,783		2,215		2,396		2,500		
			16	0.75	-	2,017		2,505		2,710		2,827		
	B2	6'' oval	14	0.25	-	1,261	0.72	1,566	2.88	1,694	6.49	1,767	1.10	5.7
			20	0.50	-	1,606		1,994		2,157		2,251		
			25	0.75	16	1,816		2,256		2,440		2,546		
	B3	6'' oval	29	0.25	-	1,855	0.72	2,305	2.88	2,493	6.49	2,601	1.10	4.8
			42	0.50	15	2,276		2,827		3,058		3,190		
			51	0.75	22	2,568		3,190		3,451		3,600		
	B4	6'' oval	49	0.25	-	1,956	0.72	2,429	2.88	2,628	6.49	2,741	1.10	3.4
			70	0.50	16	2,493		3,097		3,350		3,495		
			86	0.75	22	2,820		3,503		3,789		3,953		
6	B1	6'' oval	12	0.25	-	1,708	1.01	2,122	4.03	2,295	1.27	2,394	2.26	7.2
			16	0.50	-	2,174		2,701		2,921		3,048		
			20	0.75	15	2,459		3,055		3,304		3,447		
	B2	6'' oval	17	0.25	-	1,535	1.01	1,907	4.03	2,063	1.27	2,152	2.26	5.7
			25	0.50	-	1,956		2,430		2,628		2,742		
			30	0.75	17	2,213		2,748		2,973		3,101		
	B3	6'' oval	33	0.25	-	2,078	1.01	2,582	4.03	2,793	1.27	2,913	2.26	4.8
			47	0.50	-	2,647		3,288		3,557		3,711		
			58	0.75	20	2,994		3,719		4,023		4,197		
	B4	6'' oval	60	0.25	-	2,389	1.01	2,968	4.03	3,210	1.27	3,349	2.26	3.4
			85	0.50	17	3,044		3,781		4,090		4,267		
			104	0.75	23	3,443		4,277		4,626		4,826		

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

Nominal Length ft	Nozzle Size	Primary Air			Sound	Coil Heating (Btu/h)								Induction ratio
		Inlet Dia.	Flow Rate	Inlet ΔPS	NC	0.5 GPM		1.0 GPM		1.5 GPM		2.0 GPM		
		Inches	CFM	(in. H2O)		qCOIL	ΔCOIL	qCOIL	ΔCOIL	qCOIL	ΔCOIL	qCOIL	ΔCOIL	
3	B1	6" oval	5	0.25	-	2,433	0.10	2,829	0.38	2,999	0.86	3,103	1.53	7.2
			7	0.50	-	3,103		3,609		3,825		3,958		
			9	0.75	-	3,511		4,082		4,327		4,477		
	B2	6" oval	9	0.25	-	2,149	0.10	2,499	0.38	2,649	0.86	2,741	1.53	5.7
			13	0.50	-	2,611		3,036		3,218		3,330		
			15	0.75	16	2,945		3,424		3,630		3,755		
	B3	6" oval	15	0.25	-	2,980	0.10	3,465	0.38	3,673	0.86	3,800	1.53	4.8
			22	0.50	-	3,793		4,411		4,676		4,837		
			27	0.75	17	4,291		4,989		5,288		5,471		
	B4	6" oval	28	0.25	-	4,181	0.10	4,861	0.38	5,153	0.86	5,331	1.53	3.4
			40	0.50	-	5,295		6,157		6,526		6,752		
			49	0.75	20	5,987		6,962		7,379		7,635		
4	B1	6" oval	7	0.25	-	3,119	0.14	3,627	0.55	3,845	1.23	3,978	2.55	7.2
			10	0.50	-	3,979		4,626		4,904		5,074		
			13	0.75	-	4,501		5,234		5,548		5,739		
	B2	6" oval	11	0.25	-	2,470	0.14	2,872	0.55	3,044	1.23	3,149	2.55	5.7
			16	0.50	-	3,149		3,662		3,882		4,016		
			19	0.75	15	3,563		4,143		4,391		4,543		
	B3	6" oval	21	0.25	-	3,801	0.14	4,420	0.55	4,685	1.23	4,847	2.55	4.8
			30	0.50	-	4,840		5,628		5,965		6,172		
			37	0.75	18	5,474		6,365		6,747		6,981		
	B4	6" oval	39	0.25	-	5,295	0.14	6,157	0.55	6,526	1.23	6,752	2.55	3.4
			55	0.50	15	6,743		7,841		8,311		8,599		
			67	0.75	21	7,627		8,869		9,401		9,726		
5	B1	6" oval	9	0.25	-	3,809	0.18	4,429	0.71	4,695	1.59	4,857	2.83	7.2
			13	0.50	-	4,845		5,634		5,972		6,179		
			16	0.75	-	5,480		6,372		6,755		6,988		
	B2	6" oval	14	0.25	-	3,007	0.18	3,496	0.71	3,706	1.59	3,834	2.83	5.7
			20	0.50	-	3,829		4,452		4,719		4,883		
			25	0.75	16	4,331		5,036		5,338		5,523		
	B3	6" oval	29	0.25	-	5,041	0.18	5,862	0.71	6,214	1.59	6,429	2.83	4.8
			42	0.50	15	6,184		7,191		7,622		7,886		
			51	0.75	22	6,979		8,115		8,602		8,899		
	B4	6" oval	49	0.25	-	2,694	0.18	3,133	0.71	3,321	1.59	3,436	2.83	3.4
			70	0.50	16	3,435		3,994		4,233		4,380		
			86	0.75	22	3,885		4,518		4,789		4,955		
6	B1	6" oval	12	0.25	-	4,641	0.28	5,397	1.11	5,721	2.50	5,919	4.44	7.2
			16	0.50	-	5,907		6,869		7,281		7,533		
			20	0.75	15	6,682		7,770		8,236		8,521		
	B2	6" oval	17	0.25	-	3,513	0.28	4,085	1.11	4,330	2.50	4,480	4.44	5.7
			25	0.50	-	4,476		5,205		5,517		5,708		
			30	0.75	17	5,064		5,888		6,241		6,457		
	B3	6" oval	33	0.25	-	5,647	0.28	6,566	1.11	6,960	2.50	7,201	4.44	4.8
			47	0.50	-	7,192		8,363		8,865		9,172		
			58	0.75	20	8,136		9,460		10,028		10,374		
	B4	6" oval	60	0.25	-	3,291	0.28	3,827	1.11	4,057	2.50	4,197	4.44	3.4
			85	0.50	17	4,193		4,876		5,169		5,347		
			104	0.75	23	4,743		5,516		5,847		6,049		

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

Nominal Length ft	Nozzle Size	Primary Air			Sound	Coil Sensible Cooling (Btu/h)								Induction ratio
		Inlet Dia.	Flow Rate	Inlet ΔPS	NC	0.5 GPM		1.0 GPM		1.5 GPM		2.0 GPM		
		Inches	CFM	(in. H2O)		qCOIL	ΔCOIL	qCOIL	ΔCOIL	qCOIL	ΔCOIL	qCOIL	ΔCOIL	
3	B1	6" oval	5	0.25	-	1,003	0.51	1,246	2.07	1,348	4.61	1,406	8.10	7.2
			7	0.50	-	1,279		1,589		1,719		1,793		
			9	0.75	-	1,447		1,798		1,944		2,029		
	B2	6" oval	9	0.25	-	1,009	0.51	1,254	2.07	1,356	4.61	1,415	8.10	5.7
			13	0.50	-	1,226		1,523		1,648		1,719		
			15	0.75	16	1,383		1,718		1,858		1,939		
	B3	6" oval	15	0.25	-	1,228	0.51	1,526	2.07	1,650	4.61	1,722	8.10	4.8
			22	0.50	-	1,564		1,942		2,101		2,192		
			27	0.75	17	1,769		2,197		2,376		2,479		
	B4	6" oval	28	0.25	-	1,868	0.51	2,321	2.07	2,510	4.61	2,619	8.10	3.4
			40	0.50	-	2,366		2,939		3,179		3,317		
			49	0.75	20	2,676		3,323		3,595		3,750		
4	B1	6" oval	7	0.25	-	1,286	0.72	1,597	2.88	1,728	6.49	1,802	1.25	7.2
			10	0.50	-	1,640		2,037		2,204		2,299		
			13	0.75	-	1,855		2,305		2,493		2,601		
	B2	6" oval	11	0.25	-	1,160	0.72	1,441	2.88	1,558	6.49	1,626	1.25	5.7
			16	0.50	-	1,479		1,837		1,987		2,073		
			19	0.75	15	1,673		2,078		2,248		2,345		
	B3	6" oval	21	0.25	-	1,567	0.72	1,946	2.88	2,105	6.49	2,196	1.25	4.8
			30	0.50	-	1,995		2,478		2,681		2,796		
			37	0.75	18	2,257		2,803		3,032		3,163		
	B4	6" oval	39	0.25	-	2,366	0.72	2,939	2.88	3,179	6.49	3,317	1.25	3.4
			55	0.50	15	3,013		3,743		4,049		4,224		
			67	0.75	21	3,409		4,234		4,580		4,778		
5	B1	6" oval	9	0.25	-	1,570	0.93	1,950	3.72	2,110	8.38	2,201	1.92	7.2
			13	0.50	-	1,997		2,481		2,684		2,800		
			16	0.75	-	2,259		2,806		3,035		3,167		
	B2	6" oval	14	0.25	-	1,412	0.93	1,754	3.72	1,897	8.38	1,979	1.92	5.7
			20	0.50	-	1,798		2,234		2,416		2,521		
			25	0.75	16	2,034		2,527		2,733		2,851		
	B3	6" oval	29	0.25	-	2,078	0.93	2,581	3.72	2,792	8.38	2,913	1.92	4.8
			42	0.50	15	2,549		3,166		3,425		3,573		
			51	0.75	22	2,877		3,573		3,865		4,032		
	B4	6" oval	49	0.25	-	2,190	0.93	2,721	3.72	2,943	8.38	3,070	1.92	3.4
			70	0.50	16	2,792		3,468		3,752		3,914		
			86	0.75	22	3,159		3,924		4,244		4,427		
6	B1	6" oval	12	0.25	-	1,913	1.35	2,377	5.40	2,571	1.58	2,682	2.81	7.2
			16	0.50	-	2,435		3,025		3,272		3,413		
			20	0.75	15	2,754		3,421		3,701		3,861		
	B2	6" oval	17	0.25	-	1,719	1.35	2,136	5.40	2,310	1.58	2,410	2.81	5.7
			25	0.50	-	2,191		2,721		2,944		3,071		
			30	0.75	17	2,478		3,078		3,330		3,474		
	B3	6" oval	33	0.25	-	2,328	1.35	2,892	5.40	3,128	1.58	3,263	2.81	4.8
			47	0.50	-	2,965		3,683		3,984		4,156		
			58	0.75	20	3,354		4,166		4,506		4,701		
	B4	6" oval	60	0.25	-	2,676	1.35	3,324	5.40	3,595	1.58	3,751	2.81	3.4
			85	0.50	17	3,409		4,235		4,581		4,779		
			104	0.75	23	3,856		4,790		5,181		5,405		

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

Nominal Length ft	Nozzle Size	Primary Air			Sound	Coil Heating (Btu/h)								Induction ratio
		Inlet Dia.	Flow Rate	Inlet ΔPS	NC	0.5 GPM		1.0 GPM		1.5 GPM		2.0 GPM		
		Inches	CFM	(in. H2O)		qCOIL	ΔCOIL	qCOIL	ΔCOIL	qCOIL	ΔCOIL	qCOIL	ΔCOIL	
3	B1	6" oval	5	0.25	-	3,285	0.28	3,820	1.12	4,049	2.52	4,189	4.48	7.2
			7	0.50	-	4,190		4,872		5,164		5,343		
			9	0.75	-	4,740		5,511		5,842		6,044		
	B2	6" oval	9	0.25	-	2,901	0.28	3,374	1.12	3,576	2.52	3,700	4.48	5.7
			13	0.50	-	3,525		4,099		4,345		4,495		
			15	0.75	16	3,976		4,623		4,900		5,070		
	B3	6" oval	15	0.25	-	4,023	0.28	4,678	1.12	4,958	2.52	5,130	4.48	4.8
			22	0.50	-	5,121		5,955		6,312		6,530		
			27	0.75	17	5,792		6,735		7,139		7,386		
	B4	6" oval	28	0.25	-	5,644	0.28	6,563	1.12	6,957	2.52	7,197	4.48	3.4
			40	0.50	-	7,148		8,312		8,810		9,115		
			49	0.75	20	8,082		9,398		9,962		10,307		
4	B1	6" oval	7	0.25	-	4,211	0.56	4,896	2.25	5,190	5.06	5,370	9.00	7.2
			10	0.50	-	5,371		6,246		6,620		6,849		
			13	0.75	-	6,076		7,065		7,489		7,748		
	B2	6" oval	11	0.25	-	3,334	0.56	3,877	2.25	4,110	5.06	4,252	9.00	5.7
			16	0.50	-	4,252		4,944		5,240		5,422		
			19	0.75	15	4,810		5,593		5,928		6,133		
	B3	6" oval	21	0.25	-	5,131	0.56	5,966	2.25	6,324	5.06	6,543	9.00	4.8
			30	0.50	-	6,534		7,597		8,053		8,332		
			37	0.75	18	7,390		8,593		9,109		9,424		
	B4	6" oval	39	0.25	-	7,148	0.56	8,312	2.25	8,811	5.06	9,115	9.00	3.4
			55	0.50	15	9,103		10,585		11,220		11,608		
			67	0.75	21	10,297		11,973		12,692		13,131		
5	B1	6" oval	9	0.25	-	5,142	0.72	5,979	2.90	6,338	6.52	6,557	1.51	7.2
			13	0.50	-	6,541		7,606		8,062		8,341		
			16	0.75	-	7,398		8,603		9,119		9,434		
	B2	6" oval	14	0.25	-	4,059	0.72	4,720	2.90	5,003	6.52	5,176	1.51	5.7
			20	0.50	-	5,169		6,011		6,371		6,592		
			25	0.75	16	5,847		6,799		7,207		7,456		
	B3	6" oval	29	0.25	-	6,806	0.72	7,914	2.90	8,389	6.52	8,679	1.51	4.8
			42	0.50	15	8,349		9,708		10,290		10,646		
			51	0.75	22	9,421		10,955		11,612		12,014		
	B4	6" oval	49	0.25	-	3,637	0.72	4,229	2.90	4,483	6.52	4,638	1.51	3.4
			70	0.50	16	4,637		5,392		5,715		5,913		
			86	0.75	22	5,245		6,099		6,465		6,689		
6	B1	6" oval	12	0.25	-	6,266	1.05	7,286	4.20	7,723	1.23	7,990	2.19	7.2
			16	0.50	-	7,975		9,273		9,830		10,170		
			20	0.75	15	9,021		10,489		11,118		11,503		
	B2	6" oval	17	0.25	-	4,743	1.05	5,515	4.20	5,846	1.23	6,048	2.19	5.7
			25	0.50	-	6,043		7,027		7,449		7,706		
			30	0.75	17	6,836		7,949		8,426		8,717		
	B3	6" oval	33	0.25	-	7,624	1.05	8,865	4.20	9,396	1.23	9,721	2.19	4.8
			47	0.50	-	9,710		11,291		11,968		12,382		
			58	0.75	20	10,983		12,771		13,537		14,006		
	B4	6" oval	60	0.25	-	4,443	1.05	5,167	4.20	5,477	1.23	5,666	2.19	3.4
			85	0.50	17	5,661		6,583		6,978		7,219		
			104	0.75	23	6,404		7,446		7,893		8,166		

NOTES:

1. All performance data based on test performed in accordance with ASHRAE Standard 200-2015
2. ΔP_S values are measured in inches of water
3. NC values are based on room absorption of 10 dB. A dash (-) indicates an NC value less than 15
4. ΔP_{Coil} values are measured in feet of water
5. ΔP_{Coil} 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.

CORRECTION FOR (ΔT) BETWEEN ENTERING AIR AND ENTERING CHILLED WATER TEMPERATURE

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 x CFMPA x (TPA - TROOM)

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

qLATENT = 0.69 x CFMPA x (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 x CFMPA x (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]

ΔCoil = 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-ABS-YK

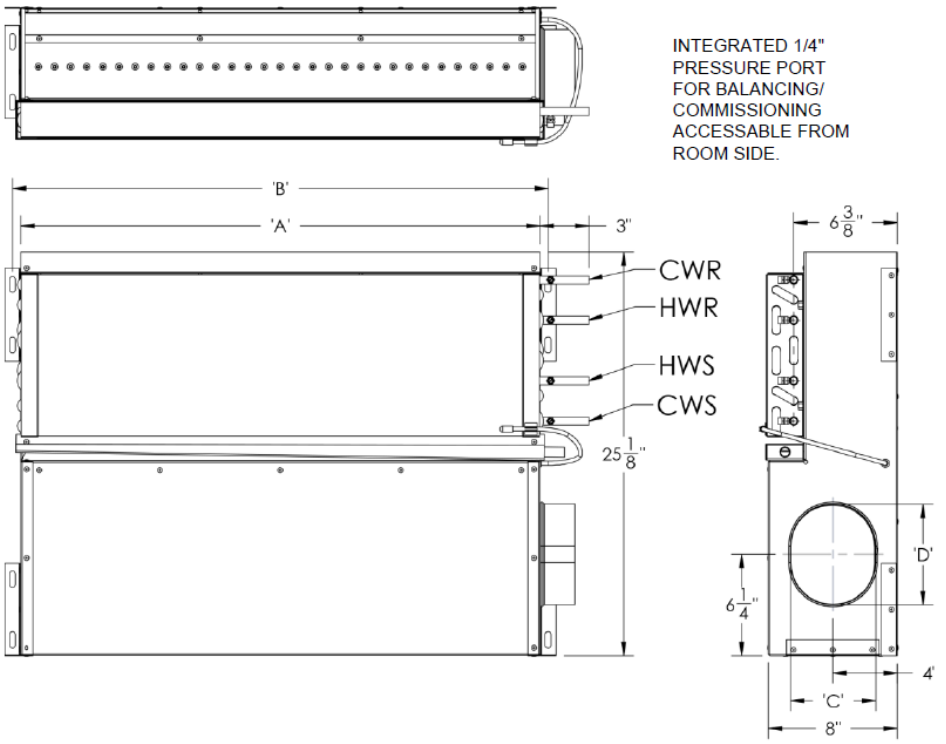
DIMENSIONAL INFORMATION

CB-ABS-YK

NOMINAL LENGTH	A	B
3 FT	32	33
4 FT	44	45
5 FT	56	57
6 FT	68	69

NOMINAL INLET	C	D
4 INCH	3 7/8	-
5 INCH	4 7/8	-
6 INCH	5 1/4	6 1/4
8 INCH	5 1/4	9 3/8

6 INCH AND 8 INCH INLETS ARE EQUALIVALENT OVAL



Guide Specification:
CB-ABS-YK Under Sill 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.

1.03 Warranty

Parts-only warranty shall be 12 months from date of shipment.

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-ABS-YK series under sill 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 beams shall consist of a minimum 20 gauge galvanized steel housing encasing the integral sensible cooling coil and a plenum feeing a series of induction nozzles. A single duct connection shall be provided on the unit. The use of multiple duct connections is NOT ACCEPTABLE.
3. 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.
4. 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 (½" 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 1½" long to facilitate field connection (by others).

5. Coils 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 shall be independently suspended from the structure above by a four (4) threaded rods of 3/8" diameter (provided by the installing contractor). 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.

YORK®

For more information www.york.com/chilledbeams

 PUBL-7943 (Rev. 08/16)

www.johnsoncontrols.com

Johnson Controls