IAQ Solutions

The natural path
to clean air

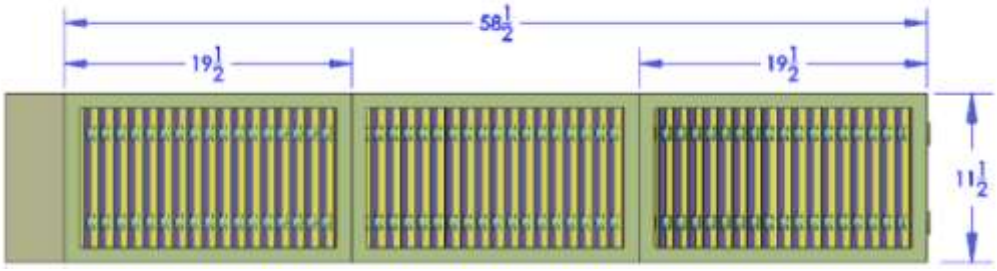
2008 PCP Compound Applications Guide

INTRODUCTION

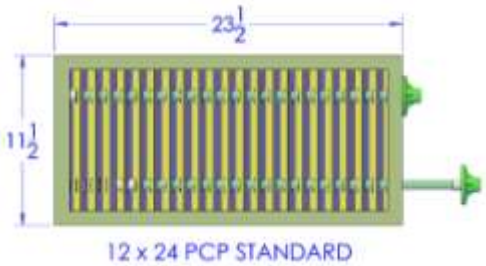
The Compound Populated Catalyst Panel (PCP Compound) is a combination of PCP Standard and Drop-In technologies. It may be used in conjunction with panels from either genre. This type of panel may be used in all air handlers with side load or frontload access. It is used to reduce the levels of Volatile Organic Compounds (VOC's) and viable airborne biological contaminants in airstreams, such as Air Handling Units (AHU's), Roof-Top Units (RTU's) or in the ductwork. The PCP Compound is a "scalable" technology; it may be engineered for any size air stream using combinations of standard sizes, or by designing custom units for the non-standard pathways. All IAQ Solutions products incorporate 3-step technology: MERV Filtration, UVGI Lamps and Photo-catalysis.

DIMENSIONAL DATA

A PCP Compound is comprised of PCP Standards connected together with a ballast tray. For example, the drawing below shows three 12"x 20"x 6" PCP Standards clipped together and attached to the spacer/ballast tray. The designation for this style unit requires two numbers. The first is the height, either 12", 16", 20" or 24". The second number is the nominal length of all PCP Standards built into the unit. A possible letter E located after the length number will designate an external ballast tray is needed. The unit below would be a PCP Compound 1260. The lamps (this example uses 59" lamps) are then inserted thru the holes and attached to the ballast tray by Greensleeves. These are collars permanently mounted to the lamps.



The PCP Compound is comprised of PCP Standards. As with the Compounds, the Standard's first dimension is the measurement of the panel across the lamps; the second measurement is along the lamps.



All PCP Compound units are 6" deep nominal; actual dimension is 5 13/16". The catalyst is pleated at one pleat per inch. The lamps are spaced 6" from each other on all models, then centered over the width of the panel. The ballast tray is incorporated into the unit to house the

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ballasts internally and to protect the lamps from damage. The table below contains all dimensional data for each of the PCP Compounds.

All PCP Compounds are rated at 500 fpm. As residence time is the most critical factor in designing a viable solution, do not exceed 500 fpm. Each panel has a 0.05" H_2O pressure drop @ 500 FPM.

PROPRIETARY AND CONFIDENTIAL

	Height Designation	Width Designation	Built From Standards			Actual Height	Total Length with Ballast Tray and Bolted Frames	Lamps	Lamp Length	Amp per Lamp	Total Amps	UVC Watts	Approx Weight Gal. lbs.	Approx Weight SS. lbs.	Approx Weight Al. lbs.
1212	1	12 12	12			11.5	14.938	2	12"	0.224	0.45	7	7.348	6.488	5.286
1216	2	12 16	16			11.5	18.938	2	16"	0.296	0.59	9	8.224	7.364	6.162
1220	3	12 20	20			11.5	22.938	2	20"	0.367	0.73	15	9.099	8.239	7.038
1221	4	12 21	21			11.5	24.063	2	20"	0.367	0.73	15	9.335	8.475	7.273
1224	5	12 24	24			11.5	26.938	2	24"	0.519	1.04	18	9.975	9.115	7.913
1228	6	12 28	16	12		11.5	30.438	2	28"	0.604	1.21	21	12.327	11.030	9.218
1232	7	12 32	22	9		11.5	34.438	2	31"	0.659	1.32	24	13.203	11.906	10.093
1233	8	12 33	24	9		11.5	35.938	2	31"	0.659	1.32	24	13.489	12.192	10.379
1236	9	12 36	24	12		11.5	38.438	2	36"	0.752	1.50	27	14.078	12.781	10.969
1237	10	12 37	24	13		11.5	39.688	2	36"	0.752	1.50	27	14.331	13.034	11.221
1240	11	12 40	20	20		11.5	42.438	2	40"	0.844	1.69	30	14.954	13.657	11.845
1241	12	12 41	21	20		11.5	43.563	2	40"	0.844	1.69	30	15.190	13.892	12.080
1244	13	12 44	24	20		11.5	46.438	2	44"	0.908	1.82	32	15.829	14.532	12.720
1245	14	12 45	24	21		11.5	47.563	2	44"	0.908	1.82	32	16.065	14.768	12.956
1246	15	12 46	24	22		11.5	48.938	2	44"	0.908	1.82	32	16.334	15.037	13.225
1248	16	12 48	24	24		11.5	50.438	2	48"	0.981	1.96	36	16.705	15.408	13.596
1252	17	12 52	24	16	12	11.5	53.938	2	51.5"	1.033	2.07	38.5	19.057	17.323	14.900
1253	18	12 53	24	20	9	11.5	55.438	2	51.5"	1.033	2.07	38.5	19.343	17.609	15.186
1256	19	12 56	24	22	9	11.5	57.938	2	55"	1.105	2.21	41	19.933	18.199	15.776
1257	20	12 57	24	24	9	11.5	59.438	2	55"	1.105	2.21	41	20.219	18.485	16.062
1259	21	12 59	21	21	17	11.5	61.688	2	59"	1.17	2.34	44	20.690	18.956	16.533
1260	22	12 60	24	24	12	11.5	61.938	2	59"	1.17	2.34	44	20.808	19.074	16.652
1261	23	12 61	24	24	14a	11.5	63.438	2	59"	1.17	2.34	44	21.095	19.360	16.938
1262	24	12 62	24	24	14b	11.5	64.188	2	59"	1.17	2.34	44	21.280	19.546	17.123
1612	25	16 12	12			15.5	14.938	3	12"	0.224	0.67	7	9.753	8.556	6.883
1616	26	16 16	16			15.5	18.938	3	16"	0.296	0.89	9	10.741	9.544	7.871
1620	27	16 20	20			15.5	22.938	3	20"	0.367	1.10	15	11.730	10.532	8.860
1621	28	16 21	21			15.5	24.063	3	20"	0.367	1.10	15	11.994	10.796	9.124
1624	29	16 24	24			15.5	26.938	3	24"	0.519	1.56	18	12.718	11.521	9.848
1628	30	16 28	16	12		15.5	30.438	3	28"	0.604	1.81	21	15.855	14.030	11.482
1632	31	16 32	22	9		15.5	34.438	3	31"	0.659	1.98	24	16.843	15.019	12.470
1633	32	16 33	24	9		15.5	35.938	3	31"	0.659	1.98	24	17.157	15.333	12.784
1636	33	16 36	24	12		15.5	38.438	3	36"	0.752	2.26	27	17.831	16.007	13.458
1637	34	16 37	24	13		15.5	39.688	3	36"	0.752	2.26	27	18.112	16.288	13.739
1640	35	16 40	20	20		15.5	42.438	3	40"	0.844	2.53	30	18.820	16.995	14.447
1641	36	16 41	21	20		15.5	43.563	3	40"	0.844	2.53	30	19.084	17.259	14.711
1644	37	16 44	24	20		15.5	46.438	3	44"	0.908	2.72	32	19.808	17.984	15.435
1645	38	16 45	24	21		15.5	47.563	3	44"	0.908	2.72	32	20.072	18.248	15.699
1646	39	16 46	24	22		15.5	48.938	3	44"	0.908	2.72	32	20.370	18.545	15.996
1648	40	16 48	24	24		15.5	50.438	3	48"	0.981	2.94	36	20.797	18.972	16.424
1652	41	16 52	24	16	12	15.5	53.938	3	51.5"	1.033	3.10	38.5	23.933	21.482	18.057
1653	42	16 53	24	20	9	15.5	55.438	3	51.5"	1.033	3.10	38.5	24.247	21.796	18.371
1656	43	16 56	24	22	9	15.5	57.938	3	55"	1.105	3.32	41	24.922	22.470	19.045
1657	44	16 57	24	24	9	15.5	59.438	3	55"	1.105	3.32	41	25.236	22.784	19.360
1659	45	16 59	21	21	17	15.5	61.688	3	59"	1.17	3.51	44	25.764	23.312	19.887
1660	46	16 60	24	24	12	15.5	61.938	3	59"	1.17	3.51	44	25.910	23.458	20.034
1661	47	16 61	24	24	14a	15.5	63.438	3	59"	1.17	3.51	44	26.224	23.773	20.348
1662	48	16 62	24	24	14b	15.5	64.188	3	59"	1.17	3.51	44	26.438	23.986	20.562
1728	49	17 28	25			17	28.000	3	24"	0.519	1.56	18	14.000	12.392	10.142
2012	50	20 12	12			19.5	14.938	3	12"	0.224	0.67	7	11.014	9.556	7.518
2016	51	20 16	16			19.5	18.938	3	16"	0.296	0.89	9	12.115	10.657	8.619
2020	52	20 20	20			19.5	22.938	3	20"	0.367	1.10	15	13.217	11.758	9.721
2021	53	20 21	21			19.5	24.063	3	20"	0.367	1.10	15	13.509	12.050	10.013
2024	54	20 24	24			19.5	26.938	3	24"	0.519	1.56	18	14.318	12.859	10.822
2028	55	20 28	16	12		19.5	30.438	3	28"	0.604	1.81	21	17.970	15.770	12.698
2032	56	20 32	22	9		19.5	34.438	3	31"	0.659	1.98	24	19.071	16.872	13.799
2033	57	20 33	24	9		19.5	35.938	3	31"	0.659	1.98	24	19.414	17.214	14.141
2036	58	20 36	24	12		19.5	38.438	3	36"	0.752	2.26	27	20.173	17.973	14.900
2037	59	20 37	24	13		19.5	39.688	3	36"	0.752	2.26	27	20.481	18.282	15.209
2040	60	20 40	20	20		19.5	42.438	3	40"	0.844	2.53	30	21.274	19.074	16.001
2041	61	20 41	21	20		19.5	43.563	3	40"	0.844	2.53	30	21.566	19.366	16.293
2044	62	20 44	24	20		19.5	46.438	3	44"	0.908	2.72	32	22.375	20.175	17.103
2045	63	20 45	24	21		19.5	47.563	3	44"	0.908	2.72	32	22.667	20.468	17.395
2046	64	20 46	24	22		19.5	48.938	3	44"	0.908	2.72	32	22.993	20.793	17.720
2048	65	20 48	24	24		19.5	50.438	3	48"	0.981	2.94	36	23.476	21.277	18.204
2052	66	20 52	24	16	12	19.5	53.938	3	51.5"	1.033	3.10	38.5	27.128	24.188	20.080
2053	67	20 53	24	20	9	19.5	55.438	3	51.5"	1.033	3.10	38.5	27.471	24.530	20.422
2056	68	20 56	24	22	9	19.5	57.438	3	55"	1.105	3.32	41	28.230	25.289	21.181
2057	69	20 57	24	24	9	19.5	59.438	3	55"	1.105	3.32	41	28.572	25.631	21.523
2059	70	20 59	21	21	17	19.5	61.688	3	59"	1.17	3.51	44	29.156	26.216	22.107
2060	71	20 60	24	24	12	19.5	61.938	3	59"	1.17	3.51	44	29.331	26.390	22.282
2061	72	20 61	24	24	14a	19.5	63.438	3	59"	1.17	3.51	44	29.673	26.733	22.624
2062	73	20 62	24	24	14b	19.5	64.188	3	59"	1.17	3.51	44	29.915	26.974	22.866

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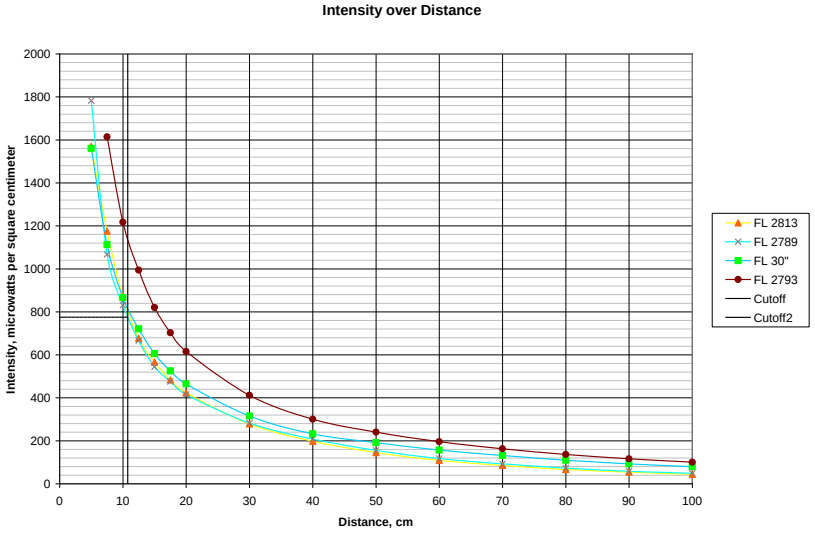
2412	74	24 12	12		23.5	14.938	4	12"	0.224	0.90	7	13.285	11.527	9.071
2416	75	24 16	16		23.5	18.938	4	16"	0.296	1.18	9	14.499	12.741	10.285
2420	76	24 20	20		23.5	22.938	4	20"	0.367	1.47	15	15.713	13.955	11.500
2421	77	24 21	21		23.5	24.063	4	20"	0.367	1.47	15	16.033	14.275	11.820
2424	78	24 24	24		23.5	26.938	4	24"	0.519	2.08	18	16.927	15.169	12.714
2428	79	24 28	16	12	23.5	30.438	4	28"	0.604	2.42	21	21.229	18.578	14.875
2432	80	24 32	22	9	23.5	34.438	4	31"	0.659	2.64	24	22.443	19.792	16.089
2433	81	24 33	24	9	23.5	35.938	4	31"	0.659	2.64	24	22.814	20.163	16.460
2436	82	24 36	24	12	23.5	38.438	4	36"	0.752	3.01	27	23.657	21.006	17.303
2437	83	24 37	24	13	23.5	39.688	4	36"	0.752	3.01	27	23.994	21.343	17.640
2440	84	24 40	20	20	23.5	42.438	4	40"	0.844	3.38	30	24.871	22.220	18.517
2441	85	24 41	21	20	23.5	43.563	4	40"	0.844	3.38	30	25.192	22.541	18.838
2444	86	24 44	24	20	23.5	46.438	4	44"	0.908	3.63	32	26.085	23.434	19.731
2445	87	24 45	24	21	23.5	47.563	4	44"	0.908	3.63	32	26.406	23.755	20.052
2446	88	24 46	24	22	23.5	48.938	4	44"	0.908	3.63	32	26.759	24.109	20.405
2448	89	24 48	24	24	23.5	50.438	4	48"	0.981	3.92	36	27.299	24.649	20.945
2452	90	24 52	24	16	12	23.5	53.938	4	51.5"	1.033	4.13	38.5	31.601	28.057	23.107
2453	91	24 53	24	20	9	23.5	55.438	4	51.5"	1.033	4.13	38.5	31.972	28.428	23.477
2456	92	24 56	24	22	9	23.5	57.938	4	55"	1.105	4.42	41	32.815	29.272	24.321
2457	93	24 57	24	24	9	23.5	59.438	4	55"	1.105	4.42	41	33.186	29.642	24.691
2459	94	24 59	21	21	17	23.5	61.688	4	59"	1.17	4.68	44	33.827	30.283	25.332
2460	95	24 60	24	24	12	23.5	61.938	4	59"	1.17	4.68	44	34.030	30.486	25.535
2461	96	24 61	24	24	14a	23.5	63.438	4	59"	1.17	4.68	44	34.400	30.856	25.905
2462	97	24 62	24	24	14b	23.5	64.188	4	59"	1.17	4.68	44	34.670	31.126	26.175

How to size PCP Compound units

The Compound unit will fill "blocks" of space in an air stream. Consider an AHU with a cross-section of 50" by 95" and one side access. One column of 2445's and one column of 2444's would fit with need of a 1" spacer. Four 2444's could also be used, but would require a 2.5" spacer. Many different arrays can be built from the above list. We design first by filling the cross-section, then find multiples of the same compound, or at least the same lamp size. Contact IAQ Solutions to help design your array.

Lamps

IAQ Solutions lamps do not produce ozone! The lamps provide a minimum intensity of 775 microwatts/cm^2 (5 milliwatts per square inch) at 10.77 centimeters (4.24") to activate the catalyst effectively. To maintain tested performance, lamps may not be substituted with another manufacturer's products. These lamps provide UV-C wavelengths @ 254 nm. All lamps must be replaced at 12000 hrs (16 months continuous use) to maintain intensity requirements. IAQ Solutions lamps contain trace amounts of mercury, encapsulated within the lamp and sealed with a Teflon coating, therefore reducing risk to the consumer or ecosphere.



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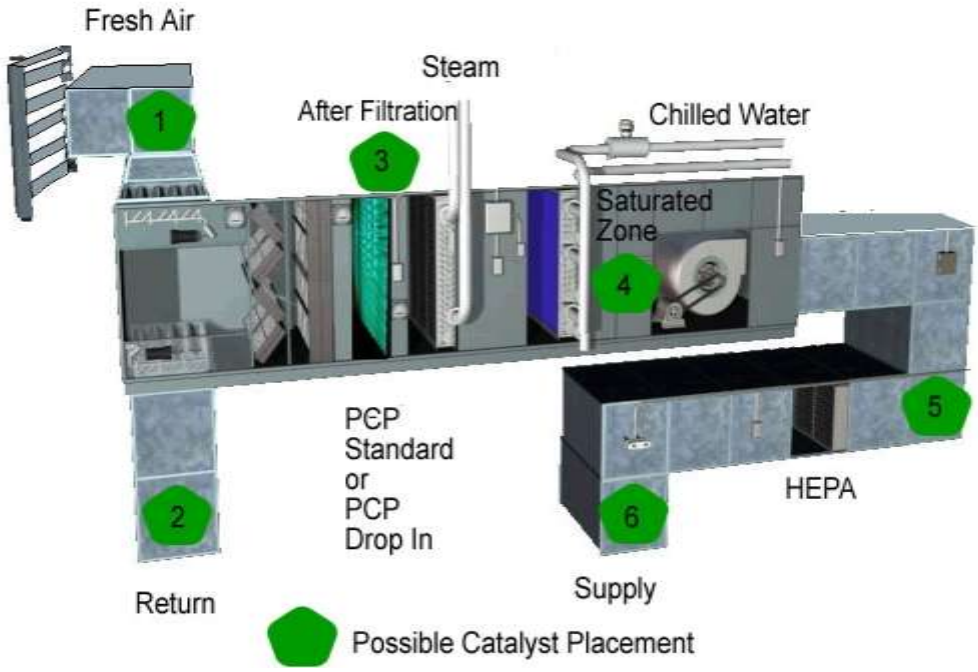
POWER

Ballasts are matched to the specific length of lamp. To maintain tested performance, ballasts may not be substituted with another manufacturer's products. The ballasts must be specified as 120v, 60 Hz: contact the factory for other voltage/frequency requirements. The ballast operating temperature range is -20°F to 158°F. In a side-loading configuration, power is delivered from Compound to Compound by a metal conduit running through the catalyst panels.

SAFETY

IAQ Solutions includes a safety door switch on all portable units and may provide a Current Killbox (CKB) on duct/AHU units. This CKB kills power to the lamps when the pressure difference between airstream and atmosphere drops below 0.15 inches H_2O. It also includes provisions for a door switch circuit that will kill power to the lamps if certain doors are opened.

WHERE TO PLACE PCP COMPOUND UNITS



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Objective	Location	Solution
Reduce contaminants before entering the AHU	1	• Example – fresh air intake located near heliport • Recommended for general IAQ to reduce TVOC and viable biologics entering unit • Note: metal pre-filter required
Reduce contaminants leaving particular areas or offices from mixing into air stream	2	• Example – Funeral home body prep; coroner's office; branch on common return with contamination problems (must have filtration upstream)
Reduce contaminants entering unit in mixed air stream after filter bank **(possible filter damage may occur – contact IAQ Solutions for options)**	3	• Reduces viable biologics and particulate load • Renders captured contaminants non-viable • This placement is preferred when typical RH is 15% or more
Reduce risk of viable biohazards entering supply duct by prohibiting biologics and mold from accumulating on the cooling coil **(recommended)**	4	• Example – Accessory filter section to bathe coils in UV-C light • These units are a cost-effective solution if the end user is requesting UV-C lamps since PCP Compound units will reduce biolevels as well as prohibit buildup on surfaces • This location is preferred when typical upstream RH is below 15%
Lengthen HEPA life by reducing load of contaminant upstream of HEPA	5	• Reduces viable biologics and particulate load • Typical applications include clean rooms and operating suites • Renders captured contaminants non-viable
Reduce contaminants before entering the supply distribution	6	• Ideal for IAQ Solutions PCP Compounds, 2008LB or 2008DT

Caution: Equipment Damage Hazard. Ultraviolet light can cause color shift or surface degradation and sometimes structural degradation of non-metallic components, including filtration media! IAQ Solutions provides UV shielding; contact your local rep.

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IAQ Solutions Quick Reference

		2006D&L	2008DT-FP	2008B	2008LB	2008 PCP COMPOUND	2008CU	
	Small spaces	×	×			×	×	
	Medium spaces		×		×	×	×	
	Large spaces			×	×	×	×	
	Fan-powered	×	×	×				
	Multiple panels standard	×						
	Multiple panels optional			×	×	×		
	Located in:							
	AHU/RTU					×		
	Returns				×	×	×	
	Supplies				×	×	×	
	Trunk lines				×	×	×	
	Curbs					×		
	Stand-alone units	×	×	×				

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