

Cold Climate Heat Pump Water Heater

ccHPWH Series

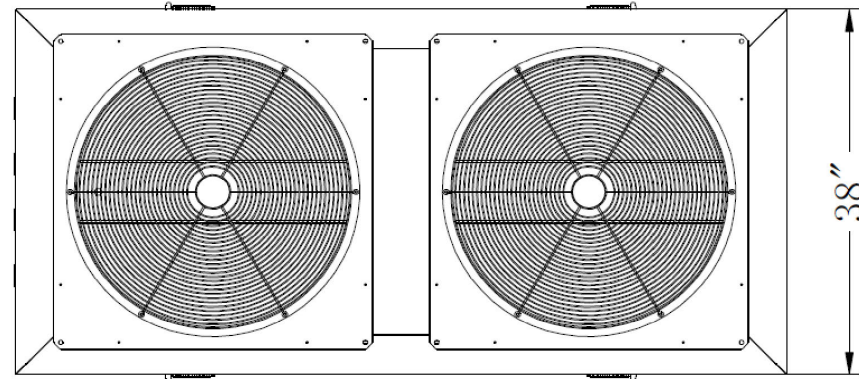
Ice Air's cold climate heat pump water heaters capture the free energy in the environment and convert it to hot water. These commercial water heaters are designed to provide domestic hot water to large buildings on the coldest days.

- Industry leading performance
 - Lower cost of operation and maintenance compared to condensing gas-fired water heaters
 - 4x more efficient compared to electric resistance heaters
- Multiple independent circuits provide built-in redundancy
- Double wall heat exchangers ensure occupant safety
- Optional single wall heat exchangers (for glycol applications)
- Freeze protection standard
- Optional heat-trace powered by building emergency power
- Clean out ports to remove sediment or lime deposits

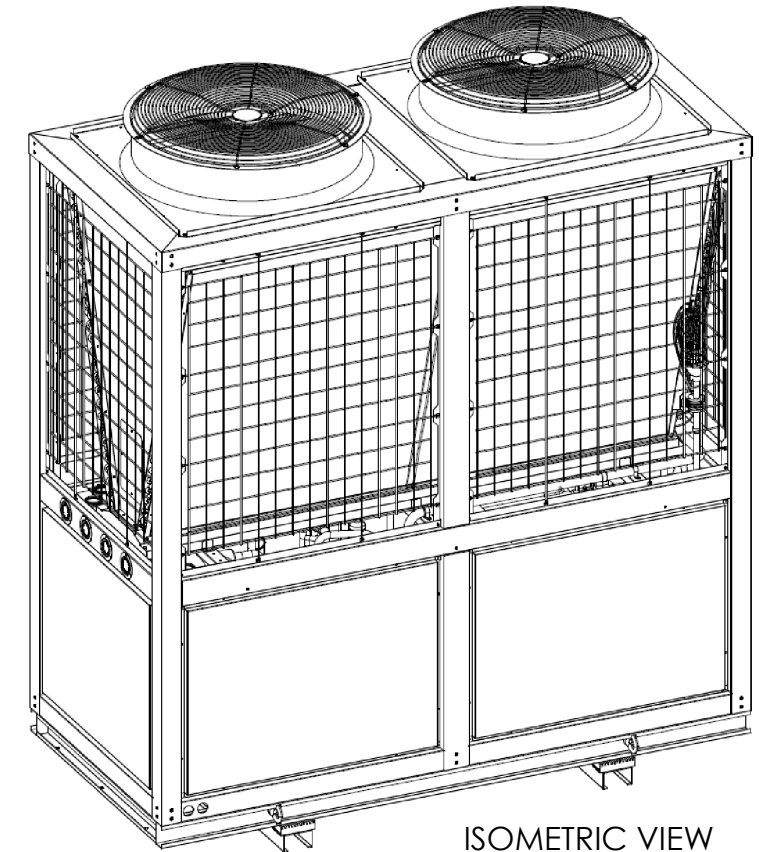


Model Numbers		ccHPWH275-D	ccHPWH550-D	ccHPWH275-S	ccHPWH550-S	
Input Power		208-230V/3Ph/60Hz	208-230V/3Ph/60Hz	208-230V/3Ph/60Hz	208-230V/3Ph/60Hz	
Refrigerant Circuits		2	4	2	4	
Refrigerant / Quantity		R410A (30.8 Lbs / 15.4 Lbs per circuit)	R410A (61.7 Lbs / 15.4 Lbs per circuit)	R410A (30.8 Lbs / 15.4 Lbs per circuit)	R410A (61.7 Lbs / 15.4 Lbs per circuit)	
Max H/W Temperature		140°F	140°F	140°F	140°F	
Performance Specifications	Dry Bulb Temperature (68°F) Wet Bulb Temperature (59°F) Inlet Water Temperature (59°F) Outlet Water Temperature (131°F)	Heating Capacity (Btu/H)	322,072	670,834	327,189	681,492
		Input Power (kW)	22.31	47.04	21.74	45.19
		COP	4.23	4.18	4.41	4.42
		Heating Capacity (Btu/H)	261,063	543,759	265,210	552,398
	Dry Bulb Temperature (45°F) Wet Bulb Temperature (43°F) Inlet Water Temperature (48°F) Outlet Water Temperature (131°F)	Input Power (kW)	24.4	48.3	22.3	46.4
		COP	3.34	3.30	3.48	3.49
		Heating Capacity (Btu/H)	168,698	351,376	171,378	356,958
	Dry Bulb Temperature (10°F) Wet Bulb Temperature (7°F) Inlet Water Temperature (43°F) Outlet Water Temperature (131°F)	Input Power (kW)	23.2	45.92	22.6	46.9
		COP	2.13	2.13	2.22	2.23
		FLA (A)	106.4	212.8	103.7	204.4
	MCA (A)		134.6	254.4	134.6	254.4
	MOCP (A)		175	300	175	300
Sound Level (dBA)		≤73	≤75	≤73	≤75	
Water Data	Condenser Type		Double Wall BPX	Double Wall BPX	Single Wall BPX	Single Wall BPX
	Water Side Pressure Loss (psig)		11.7	16.51	11.7	16.51
	Rated Water Flow (GPM) (DB/WB:45°F/43°F, Inlet/outlet: 104°F/113°F)		59.4	118.9	59.4	118.9
	Single pass delta-T (F) (OA_temp=68°F, LWT=131°F)		10.37	10.80	10.53	11.00
	Piping Position (Refer to the electric box as front)		Rear	Rear	Rear	Rear
	Piping Sizes		2" (DN50)	3" (DN80)	2" (DN50)	3" (DN80)
	Minimum Ambient Operating Temperature (°F)		-13	-13	-13	-13
Overall Dimensions [L x W x H] (inches)		81 x 39 x 89	95 x 51 x 89	81 x 39 x 89	95 x 51 x 89	
Net Weight (Lbs)		1,555	2,950	1,555	2,950	

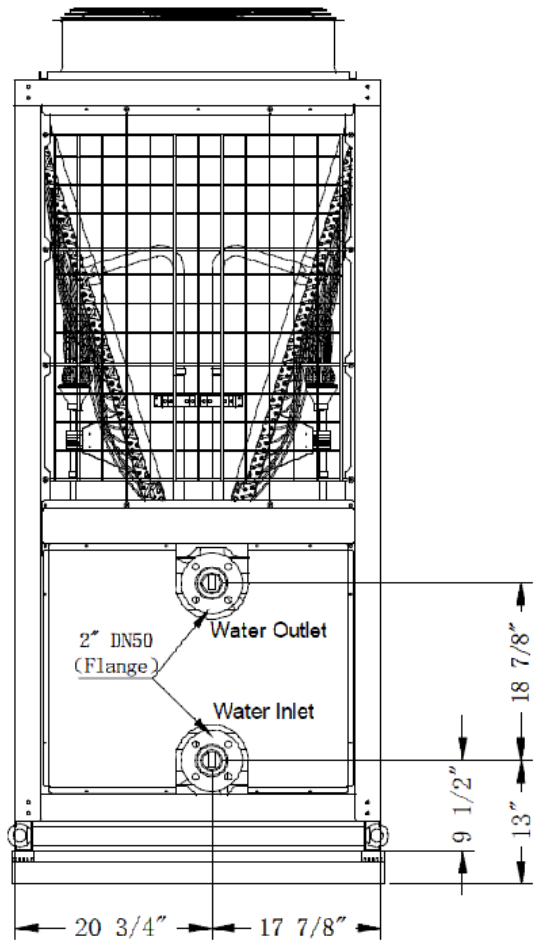
REVISIONS			
REV.	DESCRIPTION	BY	DATE



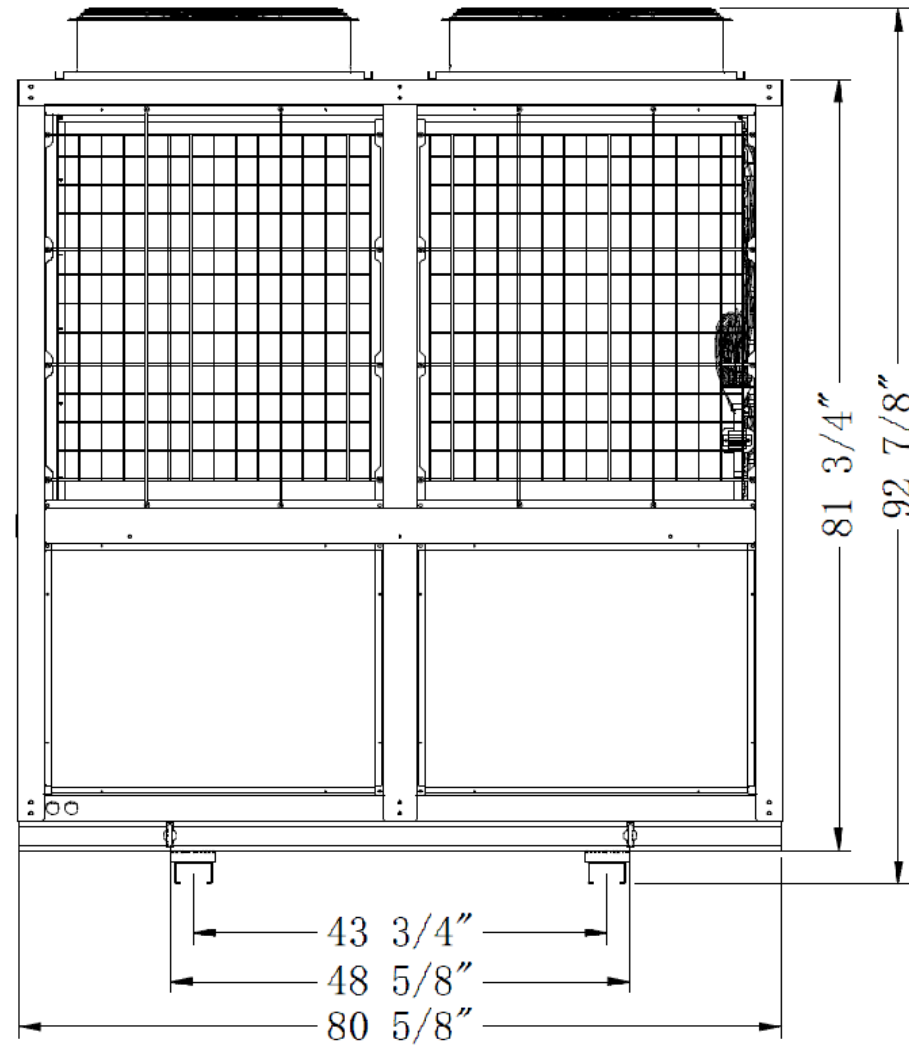
TOP VIEW



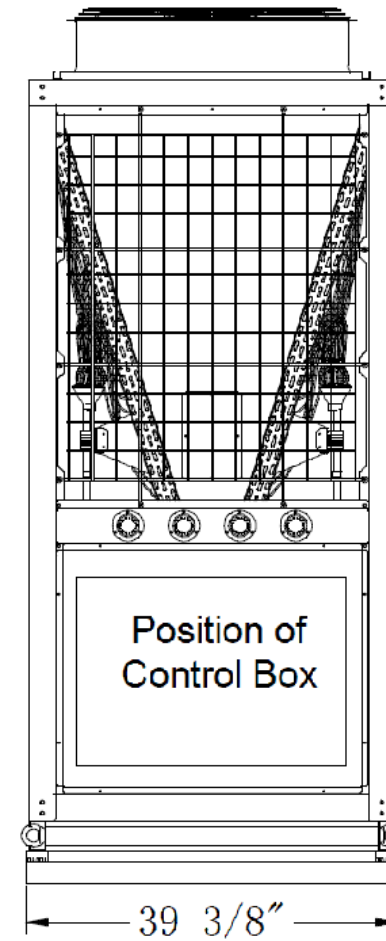
ISOMETRIC VIEW



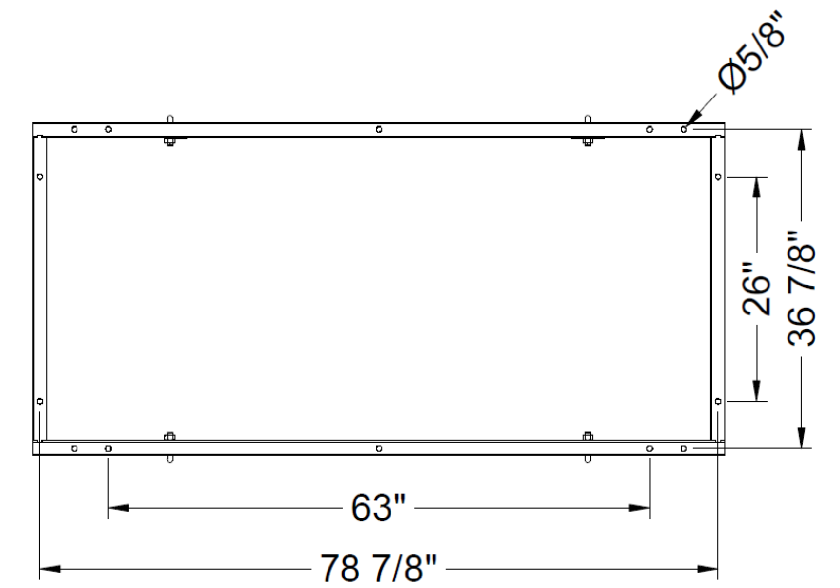
LEFT VIEW



FRONT VIEW

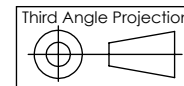


RIGHT VIEW



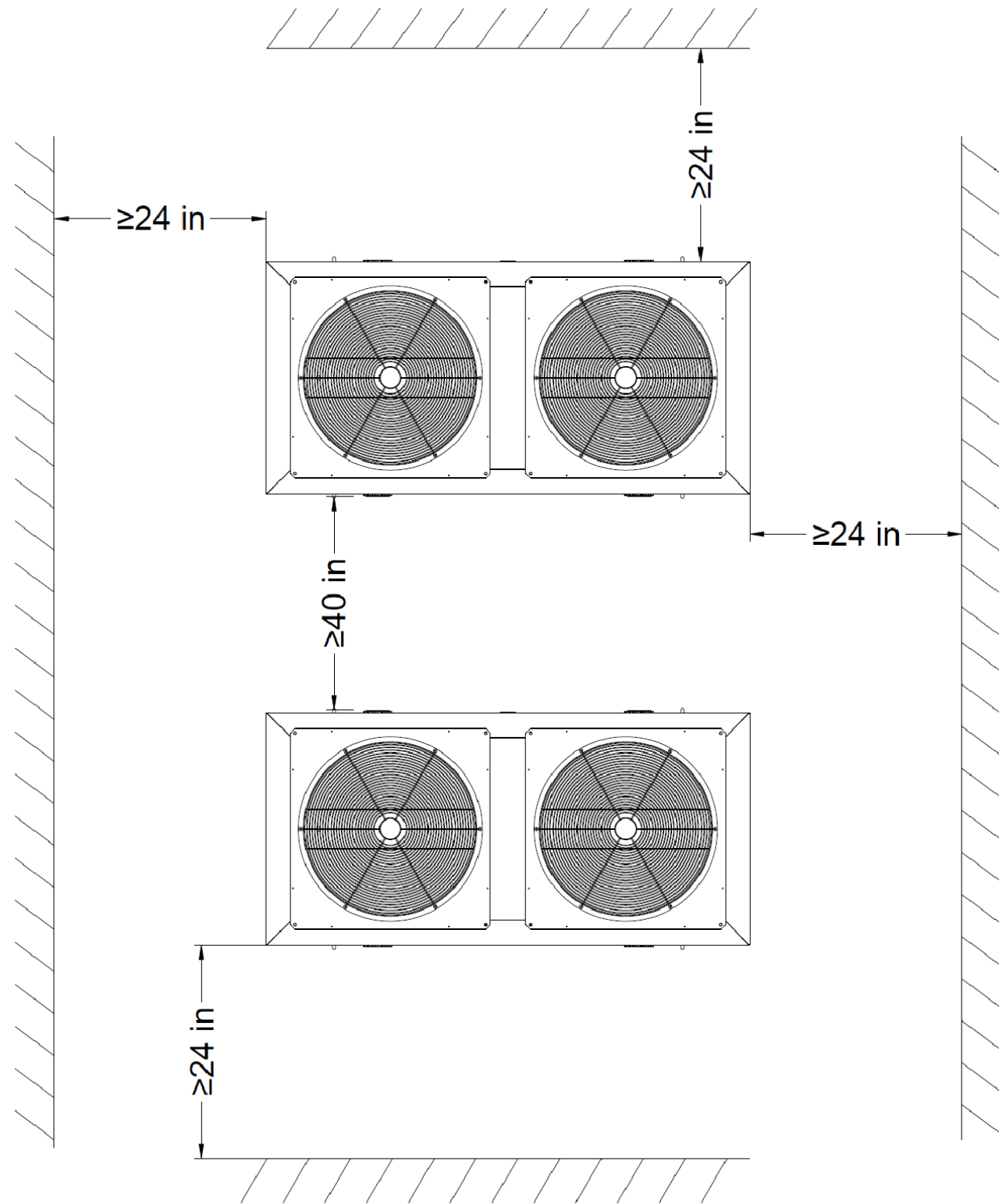
Bottom Mounting Hole Position

MATERIAL:	ICE-AIR LLC. 80 HARTFORD AVENUE MOUNT VERNON, NY 10553			
WEIGHT (LBS):				
FINISH:	TITLE: cCHPWH275 Dimensional Drawing	MODEL BY: JL	DATE: 11/24/20	DWG. NO. cCHPWH275 DWG
UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ± 1/32 ANGULAR: MACH ± ° BEND ± 1° TWO PLACE DECIMAL ± .03 THREE PLACE DECIMAL ± .015	SIZE B	SCALE: NONE DO NOT SCALE DRAWING	SHEET 1 OF 2	REV

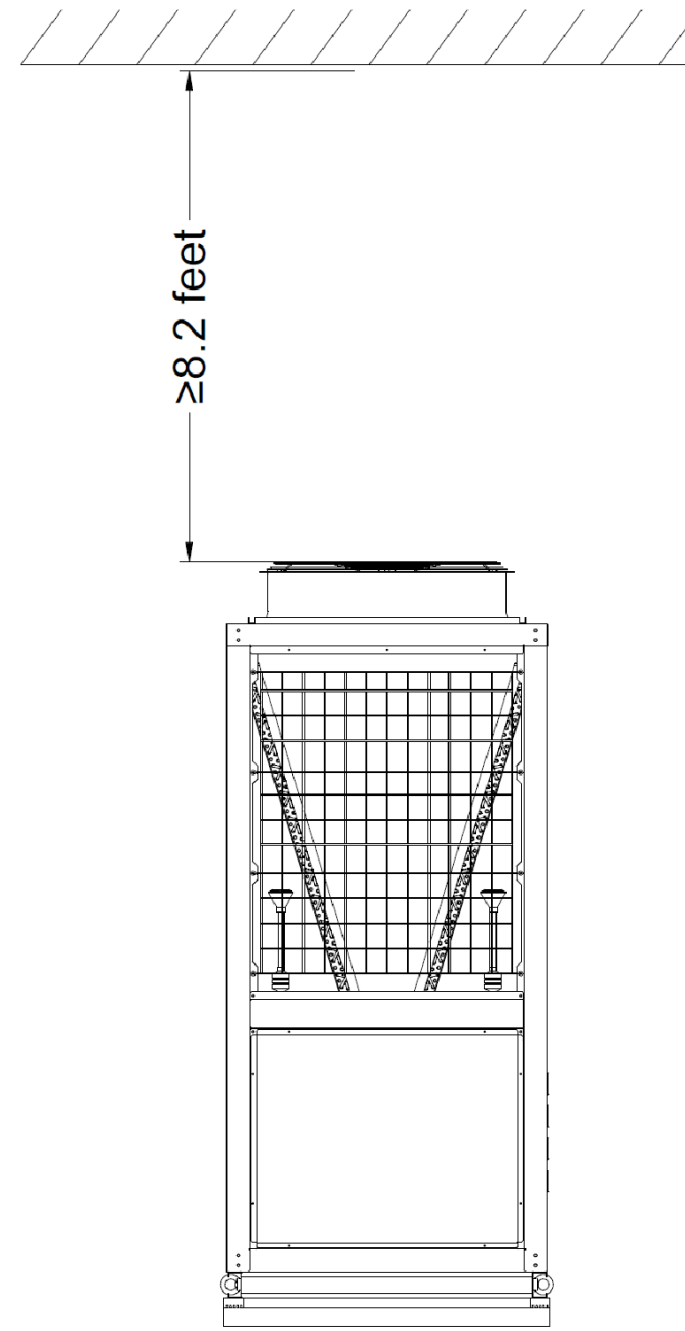


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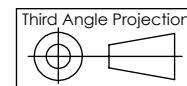
REVISIONS			
REV.	DESCRIPTION	BY	DATE



NOTE MAINTENANCE CLEARANCE: 40 INCHES FROM UNIT TO UNIT



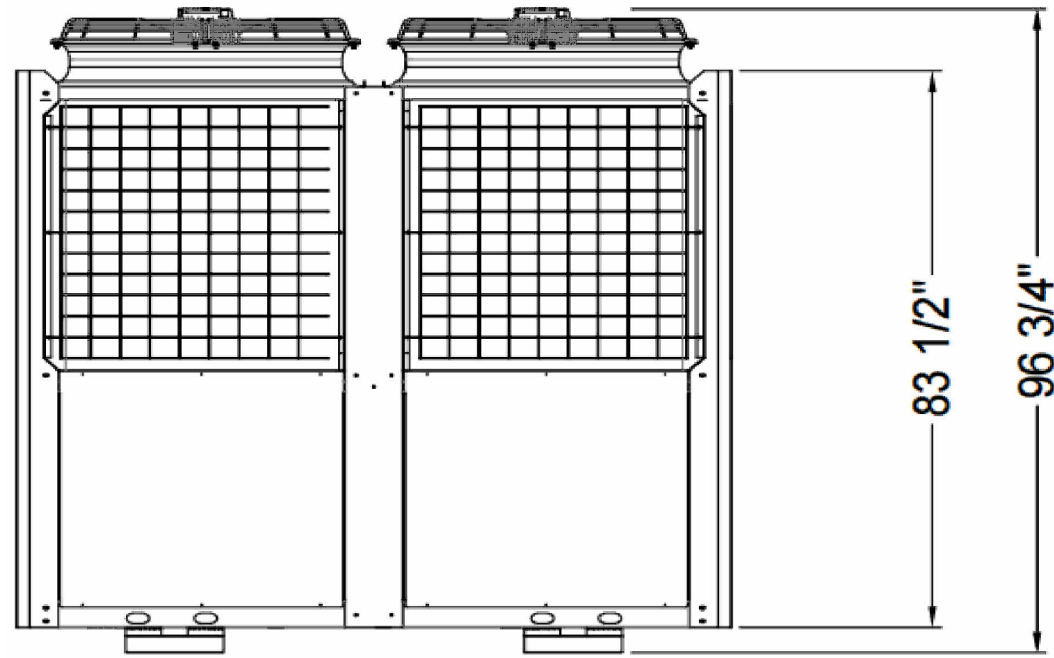
NOTE AIRFLOW CLEARANCE: 8.2 FEET FROM A CEILING



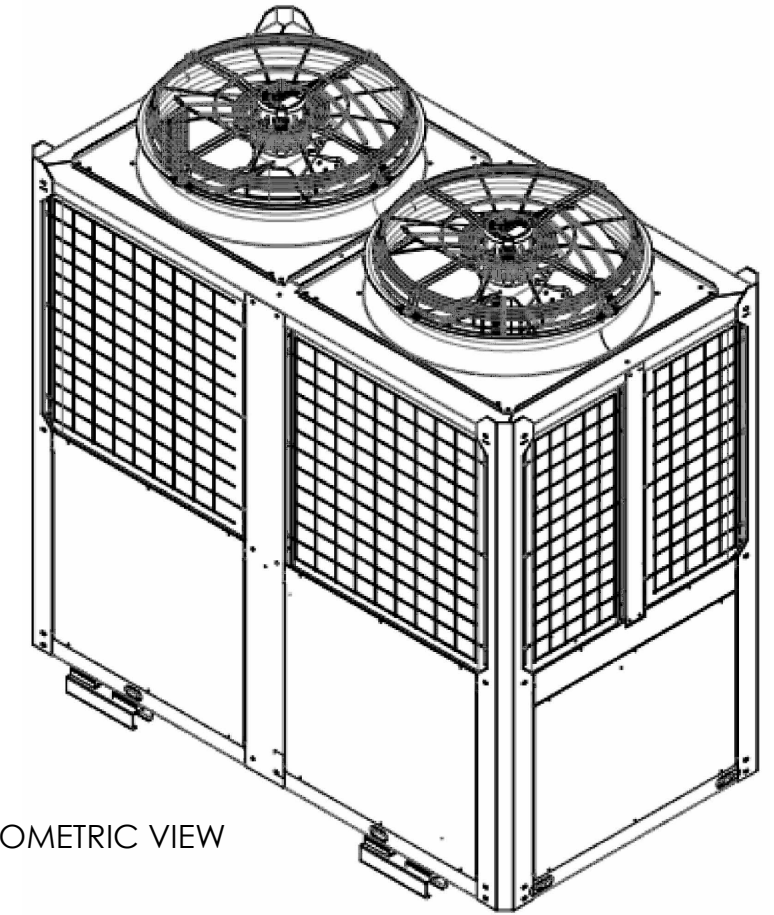
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MATERIAL:	ICE-AIR LLC. 80 HARTFORD AVENUE MOUNT VERNON, NY 10553		
WEIGHT (LBS):			
FINISH:	TITLE: cCHPWH275 Dimensional Drawing		
UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL $\pm 1/32$ ANGULAR: MACH $\pm \text{ }^\circ$ BEND $\pm 1^\circ$ TWO PLACE DECIMAL $\pm .03$ THREE PLACE DECIMAL $\pm .015$	MODEL BY: JL	DATE: 9/29/21	DWG. NO. cCHPWH275 DWG
	SIZE B	SCALE: NONE DO NOT SCALE DRAWING	SHEET 2 OF 2

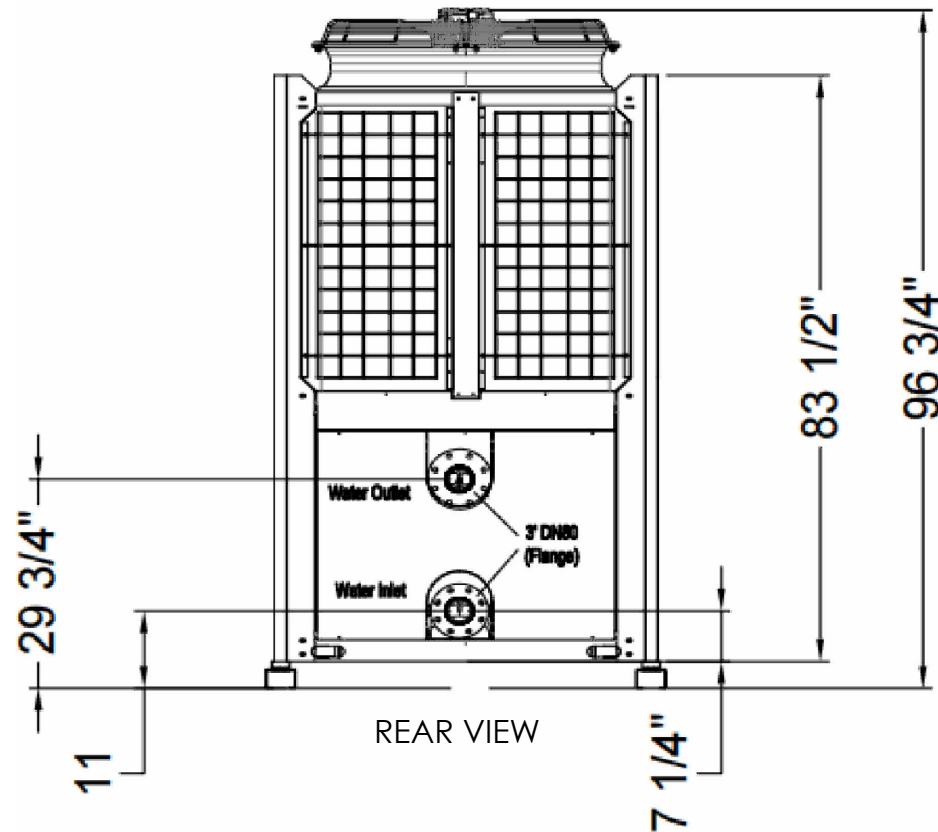
REVISIONS			
REV.	DESCRIPTION	BY	DATE



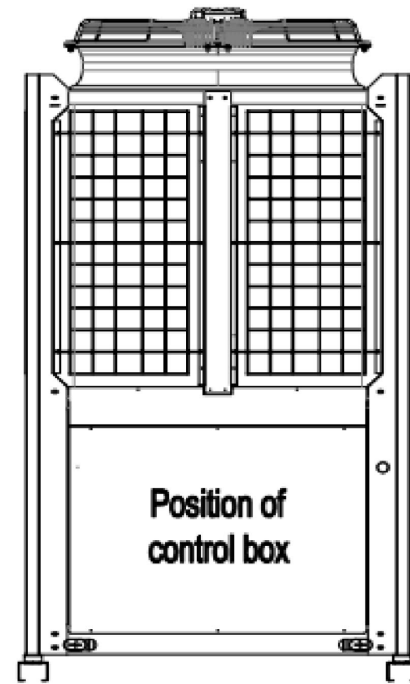
LEFT VIEW



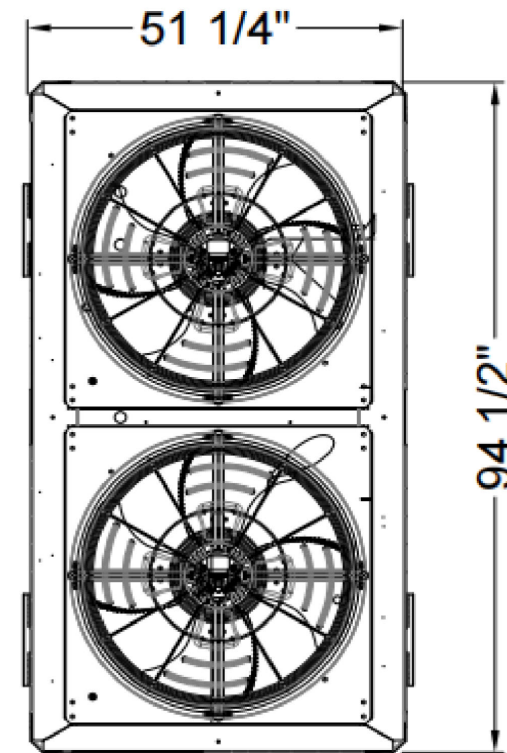
ISOMETRIC VIEW



REAR VIEW

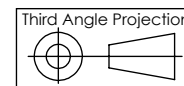


FRONT VIEW



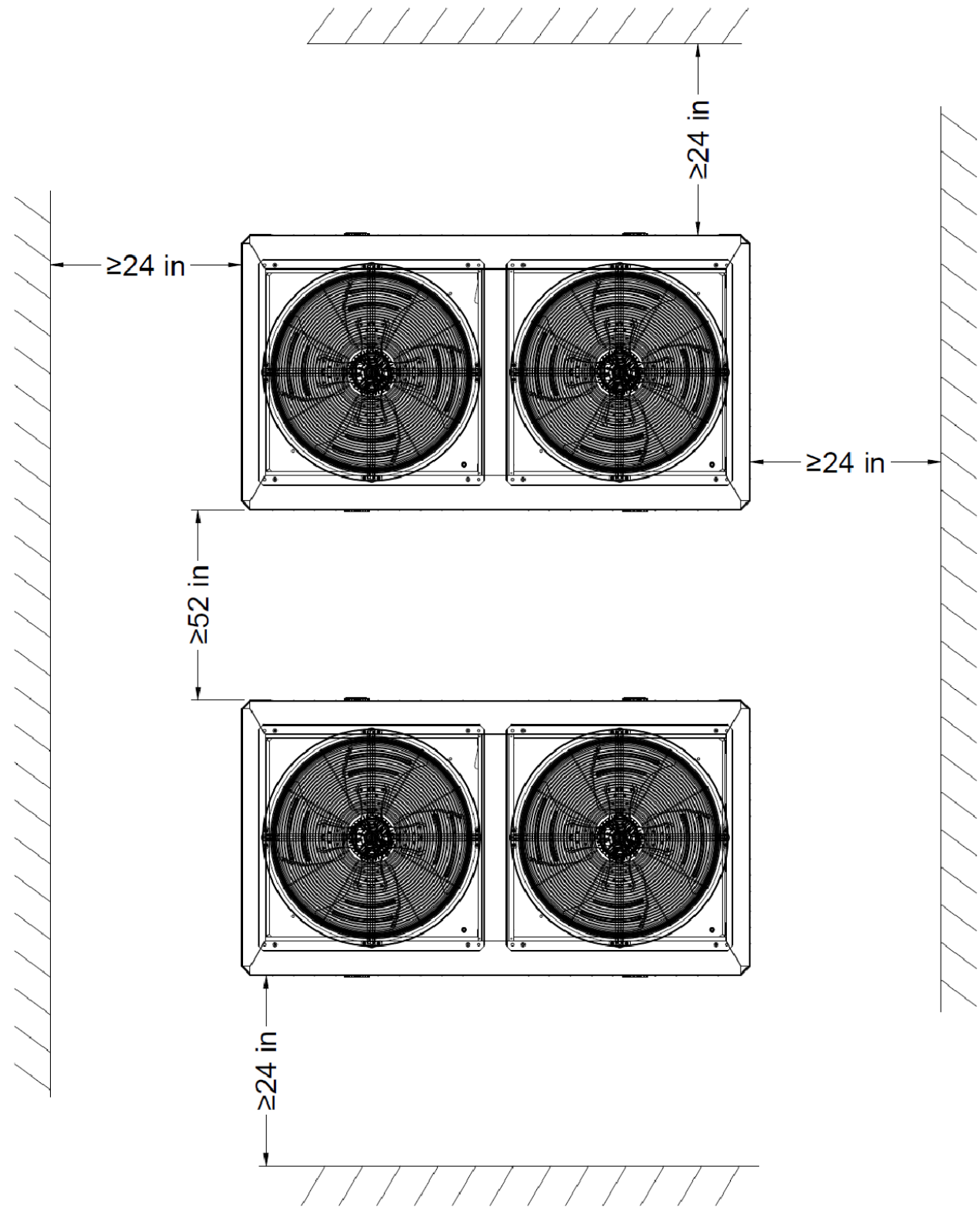
TOP VIEW

MATERIAL:	ICE-AIR LLC. 80 HARTFORD AVENUE MOUNT VERNON, NY 10553		
WEIGHT (LBS):			
FINISH:	TITLE: cCHPWH550 Dimensional Drawing		
UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ± 1/32 ANGULAR: MACH ± ° BEND ± 1° TWO PLACE DECIMAL ± .03 THREE PLACE DECIMAL ± .015	MODEL BY:	DATE:	DWG. NO.
	DRAWING BY: JL	DATE: 9/29/21	cCHPWH550 DWG
SIZE B	SCALE: NONE DO NOT SCALE DRAWING	SHEET 1 OF 2	REV

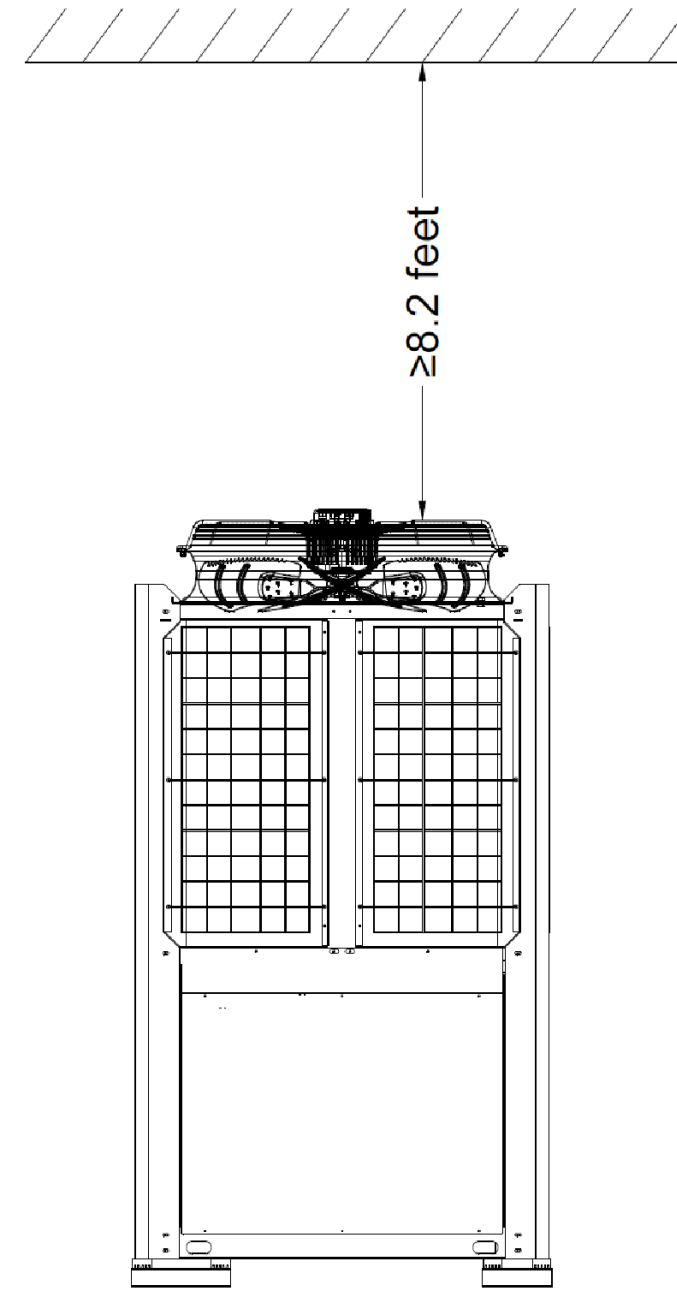


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REVISIONS			
REV.	DESCRIPTION	BY	DATE

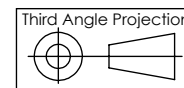


NOTE MAINTENANCE CLEARANCE: 52 INCHES FROM UNIT TO UNIT



NOTE AIRFLOW CLEARANCE: 8.2 FEET FROM A CEILING

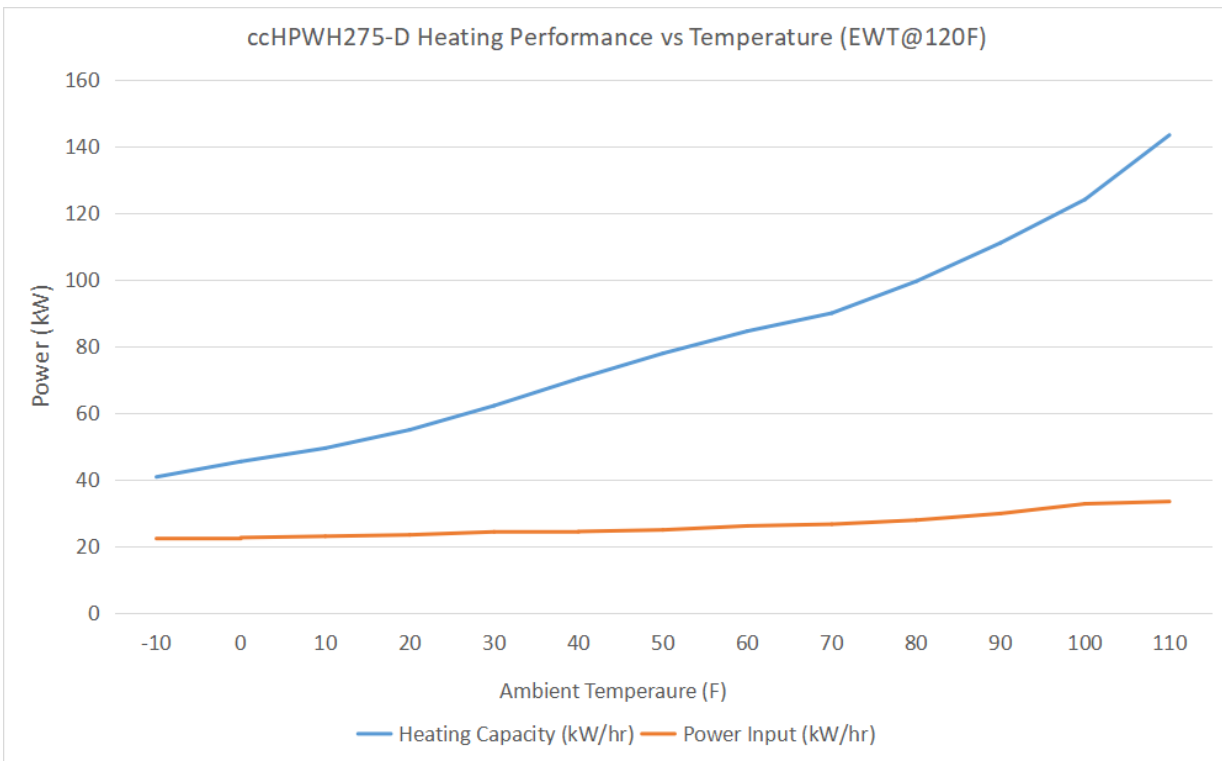
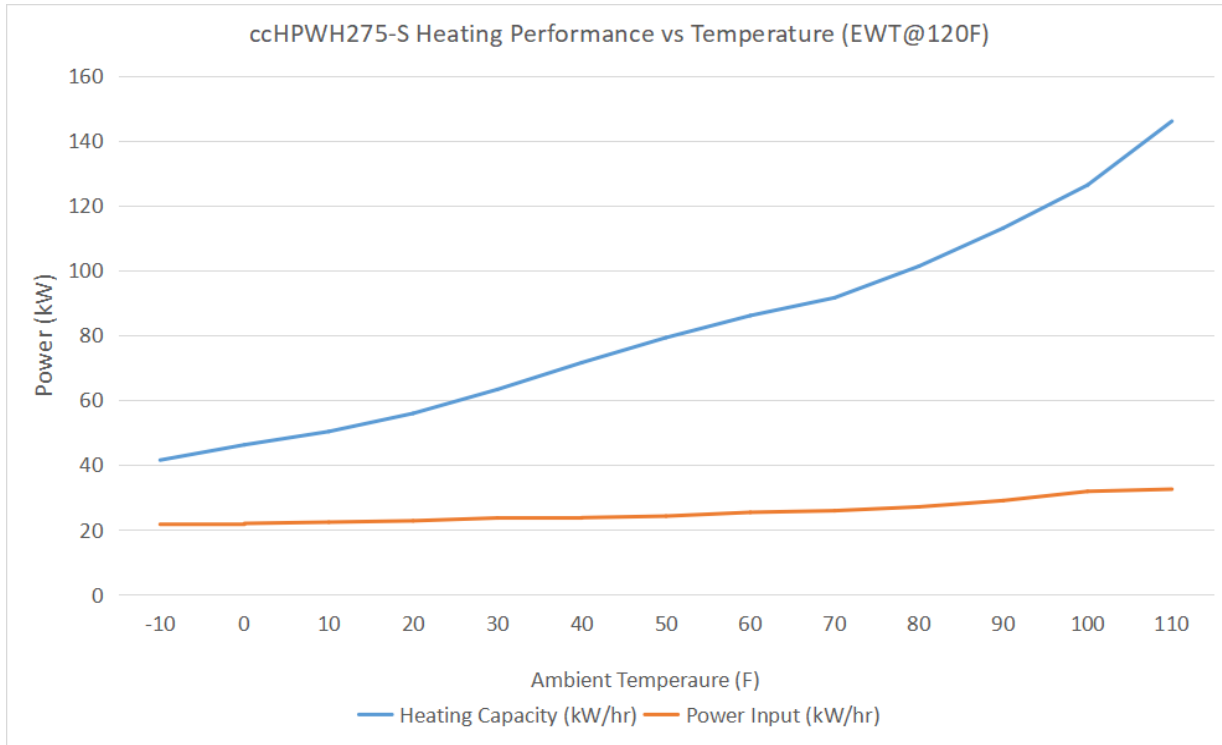
MATERIAL:	ICE-AIR LLC. 80 HARTFORD AVENUE MOUNT VERNON, NY 10553		
WEIGHT (LBS):			
FINISH:	TITLE: cCHPWH550 Dimensional Drawing		
UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN INCHES	MODEL BY: JL	DATE: 9/29/21	DWG. NO. cCHPWH550 DWG
TOLERANCES: FRACTIONAL $\pm 1/32$ ANGULAR: MACH $\pm 1^\circ$ BEND $\pm 1^\circ$ TWO PLACE DECIMAL $\pm .03$ THREE PLACE DECIMAL $\pm .015$	SIZE B	SCALE: NONE DO NOT SCALE DRAWING	SHEET 2 OF 2
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COLD CLIMATE HEAT PUMP DOMESTIC HOT WATER HEATER CERTIFIED DRAWING

DWG. NO.
ccHPWH-Series
REV. - 01

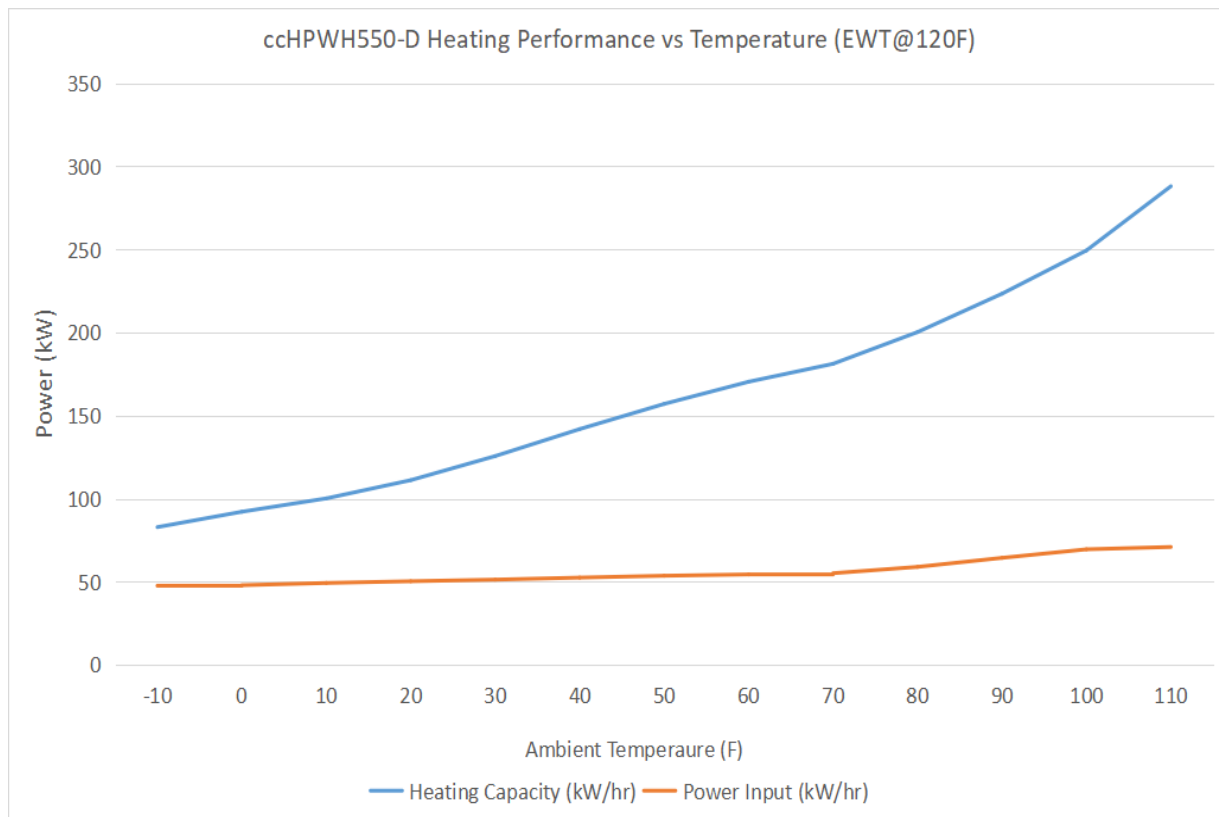
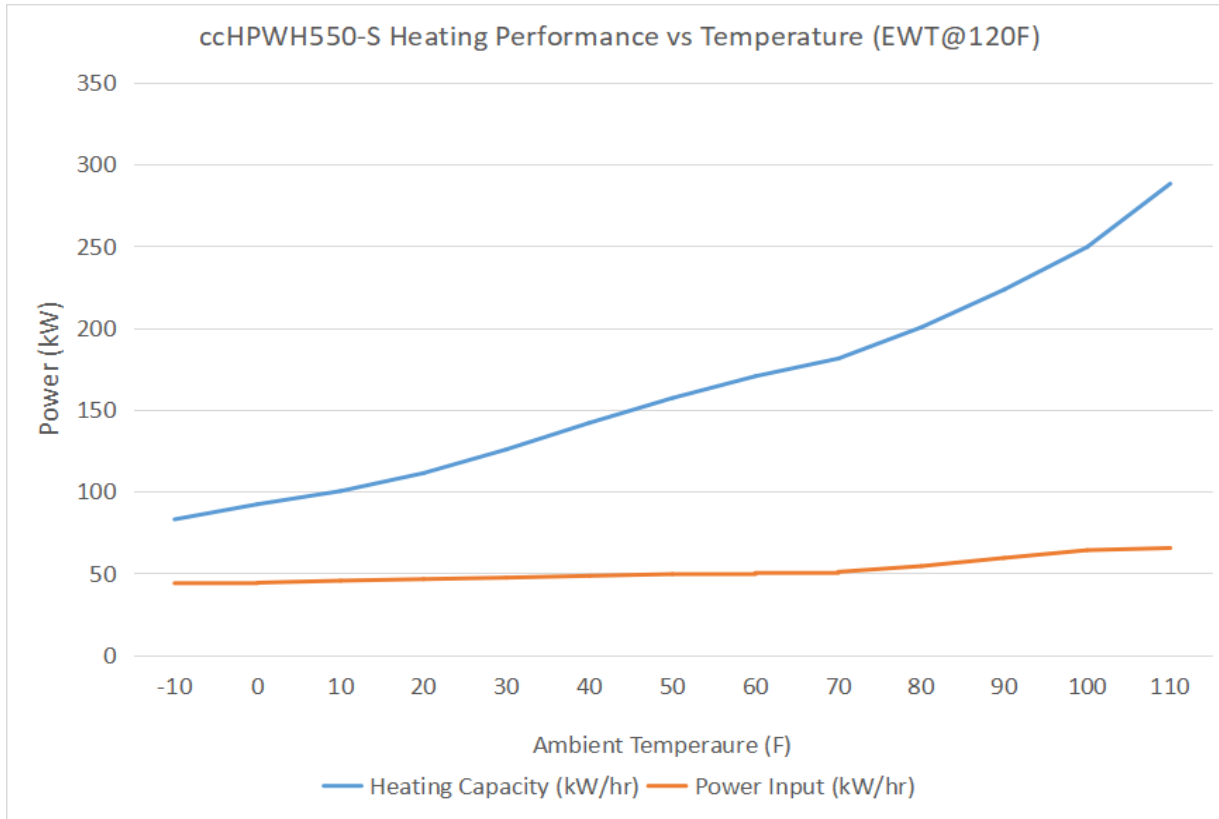
UNIT PERFORMANCE GRAPH



**COLD CLIMATE HEAT PUMP DOMESTIC HOT WATER HEATER
CERTIFIED DRAWING**

DWG. NO.
cCHPWH-Series
REV. - 01

UNIT PERFORMANCE GRAPH



COLD CLIMATE HEAT PUMP DOMESTIC HOT WATER HEATER CERTIFIED DRAWING

DWG. NO.
 ccHPWH-Series
 REV. - 01

UNIT PERFORMANCE CHART

Ambient Temp	ccHWHP275-S									
110F (max)	Capacity (Btu/hr)	Delta-T (F):	40	50	60	70	80	90	100	Dry Bulb Temperature (110°F) Wet Bulb Temperature (78.8°F) Inlet Water Temperature (59°F) Outlet Water Temperature (131°F)
	512,333	GPH:	1538	1230	1025	879	769	683	615	
		GPM:	25.6	20.5	17.1	14.6	12.8	11.4	10.3	
68F (nom)	Capacity (Btu/hr)	Delta-T (F):	40	50	60	70	80	90	100	Dry Bulb Temperature (68°F) Wet Bulb Temperature (59°F) Inlet Water Temperature (59°F) Outlet Water Temperature (131°F)
	327,189	GPH:	982	786	655	561	491	436	393	
		GPM:	16.4	13.1	10.9	9.4	8.2	7.3	6.5	
45F (NYC winter ave)	Capacity (Btu/hr)	Delta-T (F):	40	50	60	70	80	90	100	Dry Bulb Temperature (45°F) Wet Bulb Temperature (43°F) Inlet Water Temperature (48°F) Outlet Water Temperature (131°F)
	265,210	GPH:	796	637	531	455	398	354	318	
		GPM:	13.3	10.6	8.8	7.6	6.6	5.9	5.3	
10F (NYC winter design day)	Capacity (Btu/hr)	Delta-T (F):	40	50	60	70	80	90	100	Dry Bulb Temperature (10°F) Wet Bulb Temperature (7°F) Inlet Water Temperature (43°F) Outlet Water Temperature (131°F)
	171,378	GPH:	514	411	343	294	257	229	206	
		GPM:	8.6	6.9	5.7	4.9	4.3	3.8	3.4	
-13F (min)	Capacity (Btu/hr)	Delta-T (F):	40	50	60	70	80	90	100	Dry Bulb Temperature (-13°F) Wet Bulb Temperature (-2°F) Inlet Water Temperature (59°F) Outlet Water Temperature (131°F)
	139,897	GPH:	420	336	280	240	210	187	168	
		GPM:	7.0	5.6	4.7	4.0	3.5	3.1	2.8	

Ambient Temp	ccHWHP275-D									
110F (max)	Capacity (Btu/hr)	Delta-T (F):	40	50	60	70	80	90	100	Dry Bulb Temperature (110°F) Wet Bulb Temperature (78.8°F) Inlet Water Temperature (59°F) Outlet Water Temperature (131°F)
	503,017	GPH:	1510	1208	1006	863	755	671	604	
		GPM:	25.2	20.1	16.8	14.4	12.6	11.2	10.1	
68F (nom)	Capacity (Btu/hr)	Delta-T (F):	40	50	60	70	80	90	100	Dry Bulb Temperature (68°F) Wet Bulb Temperature (59°F) Inlet Water Temperature (59°F) Outlet Water Temperature (131°F)
	322,072	GPH:	967	773	644	552	483	430	387	
		GPM:	16.1	12.9	10.7	9.2	8.1	7.2	6.4	
45F (NYC winter ave)	Capacity (Btu/hr)	Delta-T (F):	40	50	60	70	80	90	100	Dry Bulb Temperature (45°F) Wet Bulb Temperature (43°F) Inlet Water Temperature (48°F) Outlet Water Temperature (131°F)
	261,063	GPH:	784	627	522	448	392	348	313	
		GPM:	13.1	10.4	8.7	7.5	6.5	5.8	5.2	
10F (NYC winter design day)	Capacity (Btu/hr)	Delta-T (F):	40	50	60	70	80	90	100	Dry Bulb Temperature (10°F) Wet Bulb Temperature (7°F) Inlet Water Temperature (43°F) Outlet Water Temperature (131°F)
	168,698	GPH:	506	405	338	289	253	225	203	
		GPM:	8.4	6.8	5.6	4.8	4.2	3.8	3.4	
-13F (min)	Capacity (Btu/hr)	Delta-T (F):	40	50	60	70	80	90	100	Dry Bulb Temperature (-13°F) Wet Bulb Temperature (-2°F) Inlet Water Temperature (59°F) Outlet Water Temperature (131°F)
	136,485	GPH:	410	328	273	234	205	182	164	
		GPM:	6.8	5.5	4.6	3.9	3.4	3.0	2.7	

COLD CLIMATE HEAT PUMP DOMESTIC HOT WATER HEATER CERTIFIED DRAWING

DWG. NO.
 ccHPWH-Series
 REV. - 01

UNIT PERFORMANCE CHART

Ambient Temp	ccHWHP550-S									
110F (max)	Capacity (Btu/hr)	Delta-T (F):	40	50	60	70	80	90	100	Dry Bulb Temperature (110°F) Wet Bulb Temperature (78.8°F) Inlet Water Temperature (59°F) Outlet Water Temperature (131°F)
	1,027,055	GPH:	3082	2466	2055	1761	1541	1370	1233	
		GPM:	51.4	41.1	34.2	29.4	25.7	22.8	20.5	
68F (nom)	Capacity (Btu/hr)	Delta-T (F):	40	50	60	70	80	90	100	Dry Bulb Temperature (68°F) Wet Bulb Temperature (59°F) Inlet Water Temperature (59°F) Outlet Water Temperature (131°F)
	681,492	GPH:	2045	1636	1364	1169	1023	909	818	
		GPM:	34.1	27.3	22.7	19.5	17.0	15.2	13.6	
45F (NYC winter ave)	Capacity (Btu/hr)	Delta-T (F):	40	50	60	70	80	90	100	Dry Bulb Temperature (45°F) Wet Bulb Temperature (43°F) Inlet Water Temperature (48°F) Outlet Water Temperature (131°F)
	552,398	GPH:	1658	1326	1105	947	829	737	663	
		GPM:	27.6	22.1	18.4	15.8	13.8	12.3	11.1	
10F (NYC winter design day)	Capacity (Btu/hr)	Delta-T (F):	40	50	60	70	80	90	100	Dry Bulb Temperature (10°F) Wet Bulb Temperature (7°F) Inlet Water Temperature (43°F) Outlet Water Temperature (131°F)
	356,958	GPH:	1071	857	714	612	536	476	429	
		GPM:	17.9	14.3	11.9	10.2	8.9	7.9	7.1	
-13F (min)	Capacity (Btu/hr)	Delta-T (F):	40	50	60	70	80	90	100	Dry Bulb Temperature (-13°F) Wet Bulb Temperature (-2°F) Inlet Water Temperature (59°F) Outlet Water Temperature (131°F)
	275,624	GPH:	827	662	551	473	414	368	331	
		GPM:	13.8	11.0	9.2	7.9	6.9	6.1	5.5	

Ambient Temp	ccHWHP550-D									
110F (max)	Capacity (Btu/hr)	Delta-T (F):	40	50	60	70	80	90	100	Dry Bulb Temperature (110°F) Wet Bulb Temperature (78.8°F) Inlet Water Temperature (59°F) Outlet Water Temperature (131°F)
	1,010,812	GPH:	3034	2427	2022	1734	1517	1348	1213	
		GPM:	50.6	40.4	33.7	28.9	25.3	22.5	20.2	
68F (nom)	Capacity (Btu/hr)	Delta-T (F):	40	50	60	70	80	90	100	Dry Bulb Temperature (68°F) Wet Bulb Temperature (59°F) Inlet Water Temperature (59°F) Outlet Water Temperature (131°F)
	670,834	GPH:	2013	1611	1342	1150	1007	895	805	
		GPM:	33.6	26.8	22.4	19.2	16.8	14.9	13.4	
45F (NYC winter ave)	Capacity (Btu/hr)	Delta-T (F):	40	50	60	70	80	90	100	Dry Bulb Temperature (45°F) Wet Bulb Temperature (43°F) Inlet Water Temperature (48°F) Outlet Water Temperature (131°F)
	543,759	GPH:	1632	1306	1088	933	816	725	653	
		GPM:	27.2	21.8	18.1	15.5	13.6	12.1	10.9	
10F (NYC winter design day)	Capacity (Btu/hr)	Delta-T (F):	40	50	60	70	80	90	100	Dry Bulb Temperature (10°F) Wet Bulb Temperature (7°F) Inlet Water Temperature (43°F) Outlet Water Temperature (131°F)
	351,376	GPH:	1055	844	703	603	527	469	422	
		GPM:	17.6	14.1	11.7	10.0	8.8	7.8	7.0	
-13F (min)	Capacity (Btu/hr)	Delta-T (F):	40	50	60	70	80	90	100	Dry Bulb Temperature (-13°F) Wet Bulb Temperature (-2°F) Inlet Water Temperature (59°F) Outlet Water Temperature (131°F)
	283,207	GPH:	850	680	567	486	425	378	340	
		GPM:	14.2	11.3	9.4	8.1	7.1	6.3	5.7	

COLD CLIMATE HEAT PUMP DOMESTIC HOT WATER HEATER CERTIFIED DRAWING

DWG. NO.
 ccHPWH-Series
 REV. - 01

Detailed Performance Tables for Cold Climate Heat Pump Water Heater(ccHPWH275-S Series)

Ambient Air (F)	EWT (F)	LWT (F)	Heating Capacity (Btu/hr)	Heating Capacity (kW/hr)	Power Input (kW/hr)	COP
-10	50	55.7	168900.99	49.50	14.34	3.45
	60	65.6	167756.22	49.16	14.91	3.30
	70	75.5	164415.73	48.19	16.28	2.96
	80	85.3	158203.93	46.37	17.01	2.73
	90	95.1	151860.76	44.51	17.58	2.53
	100	104.9	146943.86	43.07	18.96	2.27
	110	114.8	143941.18	42.19	19.82	2.13
	120	124.8	141632.86	41.51	21.71	1.91
130	134.7	138686.48	40.65	23.02	1.77	
0	50	56.3	187705.30	55.01	14.61	3.76
	60	66.3	186446.05	54.64	15.53	3.52
	70	76.1	182771.51	53.57	16.18	3.31
	80	85.9	175938.53	51.56	17.12	3.01
	90	95.7	168961.04	49.52	18.08	2.74
	100	105.5	163552.46	47.93	19.44	2.47
	110	115.4	160249.51	46.96	20.44	2.30
	120	125.3	157710.36	46.22	21.98	2.10
130	135.2	154469.34	45.27	23.25	1.95	
10	50	57.0	208390.04	61.07	14.70	4.15
	60	67.0	207004.86	60.67	16.01	3.79
	70	76.8	202962.88	59.48	16.66	3.57
	80	86.6	195446.59	57.28	17.51	3.27
	90	96.3	187771.36	55.03	18.59	2.96
	100	106.1	181821.92	53.29	20.22	2.63
	110	115.9	176332.63	51.68	20.84	2.48
	120	125.8	171659.71	50.31	22.37	2.25
130	135.4	162144.95	47.52	22.74	2.09	
20	50	57.8	231143.26	67.74	15.30	4.43
	60	67.7	229619.56	67.29	16.15	4.17
	70	77.6	225173.38	65.99	17.29	3.82
	80	87.3	216905.47	63.57	18.14	3.50
	90	97.0	208462.71	61.09	19.29	3.17
	100	106.8	201918.32	59.18	20.63	2.87
	110	116.6	195880.11	57.41	21.57	2.66
	120	126.4	190739.89	55.90	22.79	2.45
130	136.1	180273.66	52.83	23.94	2.21	
30	50	58.8	261177.50	76.54	15.74	4.86
	60	68.7	259470.96	76.04	16.53	4.60
	70	78.6	254491.23	74.58	17.63	4.23
	80	88.2	245231.17	71.87	18.41	3.90
	90	97.9	235775.28	69.10	19.43	3.56
	100	107.7	228445.57	66.95	20.55	3.26
	110	117.4	221682.77	64.97	22.45	2.89
	120	127.3	215925.73	63.28	23.67	2.67
130	137.0	208986.82	61.25	24.70	2.48	
40	50	59.9	294815.85	86.40	16.24	5.32
	60	69.8	292904.53	85.84	16.87	5.09
	70	79.7	287327.24	84.21	17.77	4.74
	80	89.3	276955.97	81.17	18.61	4.36
	90	98.9	266365.37	78.06	19.91	3.92
	100	108.7	258156.09	75.66	21.04	3.60
	110	118.4	250581.76	73.44	22.27	3.30
	120	128.2	244133.87	71.55	23.76	3.01
130	137.9	236362.30	69.27	25.91	2.67	
50	50	61.0	326211.65	95.60	16.22	5.89
	60	70.9	324109.20	94.99	17.18	5.53
	70	80.7	317974.17	93.19	17.99	5.18
	80	90.3	306565.78	89.85	19.07	4.71
	90	99.9	294916.12	86.43	20.55	4.21
	100	109.6	285885.91	83.78	21.81	3.84
	110	119.3	277554.15	81.34	23.21	3.50
	120	129.1	270461.47	79.26	24.23	3.27
130	138.8	261912.74	76.76	26.17	2.93	

Ambient Air (F)	EWT (F)	LWT (F)	Heating Capacity (Btu/hr)	Heating Capacity (kW/hr)	Power Input (kW/hr)	COP
60	50	61.9	353839.95	103.70	16.44	6.31
	60	71.8	351569.30	103.03	17.41	5.92
	70	81.6	344943.47	101.09	18.46	5.48
	80	91.2	332622.41	97.48	19.36	5.04
	90	100.8	320040.78	93.79	21.19	4.43
	100	110.4	310288.15	90.94	22.17	4.10
	110	120.1	301289.85	88.30	22.98	3.84
	120	129.9	293629.75	86.05	25.40	3.39
130	139.6	284397.13	83.35	27.21	3.06	
70	50	62.6	376218.88	110.26	16.79	6.57
	60	72.6	373811.99	109.55	17.75	6.17
	70	82.3	366788.61	107.50	18.71	5.74
	80	91.9	353728.28	103.67	19.58	5.30
	90	101.4	340391.75	99.76	21.29	4.69
	100	111.1	330053.97	96.73	22.18	4.36
	110	120.8	320515.77	93.93	24.04	3.91
	120	130.5	312396.06	91.55	25.90	3.54
130	140.2	302609.48	88.69	27.22	3.26	
80	50	64.0	415754.97	121.85	17.98	6.78
	60	73.9	413107.40	121.07	18.81	6.44
	70	83.6	405381.68	118.81	20.16	5.89
	80	93.1	391015.32	114.60	21.48	5.33
	90	102.6	376345.14	110.30	22.60	4.88
	100	112.3	364973.58	106.96	23.96	4.47
	110	121.9	354481.55	103.89	25.33	4.10
	120	131.6	345549.88	101.27	27.09	3.74
130	141.2	334784.64	98.12	28.10	3.49	
90	50	65.6	463593.65	135.87	19.68	6.91
	60	75.5	460654.84	135.00	20.72	6.52
	70	85.2	452079.30	132.49	21.90	6.05
	80	94.7	436132.64	127.82	23.12	5.53
	90	104.1	419848.74	123.05	24.82	4.96
	100	113.7	407226.30	119.35	26.03	4.58
	110	123.3	395580.16	115.93	28.26	4.10
	120	133.0	385666.00	113.03	29.03	3.89
130	142.6	373716.58	109.53	32.21	3.40	
100	50	67.2	511867.23	150.01	21.17	7.09
	60	77.1	508634.54	149.07	22.36	6.67
	70	86.8	499201.44	146.30	23.88	6.13
	80	96.2	481660.11	141.16	24.96	5.65
	90	105.6	463747.82	135.91	26.44	5.14
	100	115.2	453592.99	132.94	28.12	4.73
	110	124.9	443759.20	130.05	29.64	4.39
	120	134.5	430903.96	126.29	31.86	3.96
130	144.1	418780.62	122.73	34.14	3.60	
110	50	69.0	564968.16	165.58	21.70	7.63
	60	78.9	561412.20	164.53	22.48	7.32
	70	88.5	551035.79	161.49	24.21	6.67
	80	97.9	531740.33	155.84	25.44	6.13
	90	107.5	521509.95	152.84	26.82	5.70
	100	117.2	512333.00	150.15	28.68	5.23
	110	126.9	504432.19	147.83	30.29	4.88
	120	136.7	498070.25	145.97	32.53	4.49
130	146.5	490000.54	143.61	34.36	4.18	

COLD CLIMATE HEAT PUMP DOMESTIC HOT WATER HEATER CERTIFIED DRAWING

DWG. NO.
 ccHPWH-Series
 REV. - 01

Detailed Performance Tables for Cold Climate Heat Pump Water Heater(ccHPWH275-D Series)

Ambient Air (F)	EWT (F)	LWT (F)	Heating Capacity (Btu/hr)	Heating Capacity (kW/hr)	Power Input (kW/hr)	COP
-10	50	55.6	165830.06	48.60	14.71	3.30
	60	65.5	164706.10	48.27	15.30	3.15
	70	75.4	161426.35	47.31	16.71	2.83
	80	85.2	155327.49	45.52	17.45	2.61
	90	95.0	149099.65	43.70	18.04	2.42
	100	104.8	144272.15	42.28	19.45	2.17
	110	114.7	141324.06	41.42	20.33	2.04
	120	124.7	139057.72	40.75	22.28	1.83
	130	134.6	136164.91	39.91	23.63	1.69
0	50	56.2	184292.48	54.01	15.00	3.60
	60	66.2	183056.12	53.65	15.94	3.37
	70	76.0	179448.40	52.59	16.61	3.17
	80	85.8	172739.65	50.63	17.57	2.88
	90	95.6	165889.02	48.62	18.55	2.62
	100	105.4	160578.78	47.06	19.94	2.36
	110	115.3	157335.88	46.11	20.98	2.20
	120	125.2	154842.90	45.38	22.55	2.01
	130	135.1	151660.80	44.45	23.86	1.86
10	50	56.9	204601.13	59.96	15.09	3.97
	60	66.8	203241.14	59.56	16.42	3.63
	70	76.7	199272.64	58.40	17.10	3.42
	80	86.4	191893.02	56.24	17.97	3.13
	90	96.2	184357.33	54.03	19.08	2.83
	100	106.0	178516.06	52.32	20.75	2.52
	110	115.8	173126.59	50.74	21.39	2.37
	120	125.7	168538.62	49.39	22.96	2.15
	130	135.3	159196.86	46.66	23.33	2.00
20	50	57.6	226940.65	66.51	15.70	4.24
	60	67.6	225444.66	66.07	16.57	3.99
	70	77.4	221079.31	64.79	17.74	3.65
	80	87.2	212961.73	62.41	18.61	3.35
	90	96.9	204672.47	59.98	19.79	3.03
	100	106.7	198247.08	58.10	21.17	2.74
	110	116.5	192318.65	56.36	22.14	2.55
	120	126.3	187271.89	54.88	23.38	2.35
	130	135.9	176995.95	51.87	24.57	2.11
30	50	58.6	256428.82	75.15	16.15	4.65
	60	68.6	254753.31	74.66	16.96	4.40
	70	78.4	249864.12	73.23	18.09	4.05
	80	88.1	240772.43	70.56	18.89	3.73
	90	97.8	231488.46	67.84	19.94	3.40
	100	107.5	224292.01	65.73	21.09	3.12
	110	117.3	217652.18	63.79	23.03	2.77
	120	127.1	211999.80	62.13	24.28	2.56
	130	136.9	205187.06	60.13	25.35	2.37
40	50	59.7	289455.57	84.83	16.66	5.09
	60	69.7	287579.00	84.28	17.31	4.87
	70	79.5	282103.10	82.68	18.24	4.53
	80	89.1	271920.41	79.69	19.10	4.17
	90	98.8	261522.36	76.64	20.43	3.75
	100	108.5	253462.34	74.28	21.59	3.44
	110	118.3	246025.73	72.10	22.86	3.15
	120	128.1	239695.07	70.25	24.38	2.88
	130	137.8	232064.80	68.01	26.58	2.56
50	50	60.8	320280.53	93.86	16.65	5.64
	60	70.7	318216.30	93.26	17.63	5.29
	70	80.5	312192.82	91.49	18.46	4.96
	80	90.1	300991.85	88.21	19.57	4.51
	90	99.7	289554.01	84.86	21.09	4.02
	100	109.4	280687.99	82.26	22.38	3.68
	110	119.2	272507.71	79.86	23.82	3.35
	120	128.9	265543.98	77.82	24.86	3.13
	130	138.6	257150.69	75.36	26.85	2.81

Ambient Air (F)	EWT (F)	LWT (F)	Heating Capacity (Btu/hr)	Heating Capacity (kW/hr)	Power Input (kW/hr)	COP
60	50	61.7	347406.50	101.81	16.87	6.04
	60	71.6	345177.13	101.16	17.86	5.66
	70	81.4	338671.77	99.25	18.94	5.24
	80	91.0	326574.73	95.71	19.86	4.82
	90	100.6	314221.85	92.09	21.74	4.24
	100	110.2	304646.55	89.28	22.75	3.92
	110	119.9	295811.85	86.69	23.58	3.68
	120	129.7	288291.03	84.49	26.06	3.24
	130	139.4	279226.27	81.83	27.92	2.93
70	50	62.4	369378.53	108.25	17.23	6.28
	60	72.3	367015.41	107.56	18.22	5.90
	70	82.1	360119.72	105.54	19.20	5.50
	80	91.7	347296.86	101.78	20.09	5.07
	90	101.2	334202.81	97.95	21.85	4.48
	100	110.9	324052.99	94.97	22.76	4.17
	110	120.6	314688.21	92.23	24.67	3.74
	120	130.3	306716.14	89.89	26.57	3.38
	130	140.0	297107.49	87.07	27.93	3.12
80	50	63.7	408195.79	119.63	18.45	6.48
	60	73.6	405596.35	118.87	19.30	6.16
	70	83.4	398011.10	116.65	20.69	5.64
	80	92.9	383905.95	112.51	22.04	5.10
	90	102.4	369502.50	108.29	23.19	4.67
	100	112.0	358337.69	105.02	24.58	4.27
	110	121.7	348036.43	102.00	25.99	3.92
	120	131.4	339267.16	99.43	27.80	3.58
	130	141.0	328697.65	96.33	28.83	3.34
90	50	65.3	455164.68	133.40	20.19	6.61
	60	75.2	452279.30	132.55	21.26	6.23
	70	84.9	443859.67	130.08	22.48	5.79
	80	94.4	428202.95	125.49	23.73	5.29
	90	103.9	412215.12	120.81	25.46	4.74
	100	113.4	399822.19	117.18	26.71	4.39
	110	123.0	388387.79	113.83	29.00	3.92
	120	132.7	378653.89	110.97	29.78	3.73
	130	142.3	366921.73	107.53	33.05	3.25
100	50	66.9	502560.55	147.29	21.72	6.78
	60	76.8	499386.64	146.36	22.95	6.38
	70	86.5	490125.05	143.64	24.50	5.86
	80	95.9	472902.65	138.59	25.61	5.41
	90	105.3	455316.04	133.44	27.13	4.92
	100	115.0	445345.85	130.52	28.86	4.52
	110	124.6	435690.85	127.69	30.42	4.20
	120	134.2	423069.34	123.99	32.69	3.79
	130	143.8	411166.43	120.50	35.03	3.44
110	50	68.6	554696.02	162.57	22.26	7.30
	60	78.5	551204.71	161.54	23.06	7.00
	70	88.2	541016.96	158.56	24.84	6.38
	80	97.5	522072.33	153.00	26.10	5.86
	90	107.2	512027.96	150.06	27.52	5.45
	100	116.9	503017.86	147.42	29.43	5.01
	110	126.6	495260.69	145.15	31.08	4.67
	120	136.4	489014.43	143.32	33.38	4.29
	130	146.2	481091.44	140.99	35.26	4.00

COLD CLIMATE HEAT PUMP DOMESTIC HOT WATER HEATER CERTIFIED DRAWING

DWG. NO.
 cCHPWH-Series
 REV. - 01

Detailed Performance Tables for Cold Climate Heat Pump Water Heater(cCHPWH550-S Series)

Ambient Air (F)	EWT (F)	LWT (F)	Heating Capacity (Btu/hr)	Heating Capacity (kW/hr)	Power Input (kW/hr)	COP
-10	50	55.7	341896.55	100.20	29.70	3.37
	60	65.7	339508.05	99.50	31.16	3.19
	70	75.6	333024.98	97.60	32.83	2.97
	80	85.4	320400.06	93.90	34.66	2.71
	90	95.2	307775.14	90.20	36.84	2.45
	100	105.0	297879.93	87.30	38.86	2.25
	110	114.9	292079.29	85.60	41.48	2.06
	120	124.8	287302.29	84.20	44.58	1.89
	130	134.7	281501.65	82.50	46.70	1.77
0	50	56.4	379430.10	111.20	30.26	3.67
	60	66.3	376700.39	110.40	31.75	3.48
	70	76.2	369534.89	108.30	33.45	3.24
	80	86.0	355886.33	104.30	35.36	2.95
	90	95.7	341896.55	100.20	37.58	2.67
	100	105.6	331318.91	97.10	39.69	2.45
	110	115.5	324494.63	95.10	42.32	2.25
	120	125.4	319376.42	93.60	44.87	2.09
	130	135.3	312893.35	91.70	47.67	1.92
10	50	57.1	420717.01	123.30	31.13	3.96
	60	67.0	417987.30	122.50	32.68	3.75
	70	76.9	409798.16	120.10	34.41	3.49
	80	86.6	394784.74	115.70	36.38	3.18
	90	96.4	379430.10	111.20	38.68	2.87
	100	106.2	367487.61	107.70	40.83	2.64
	110	116.0	356568.76	104.50	43.55	2.40
	120	125.8	347355.97	101.80	46.16	2.21
	130	135.6	332001.34	97.30	48.02	2.03
20	50	57.8	466098.49	136.60	31.73	4.31
	60	67.8	463027.56	135.70	33.31	4.07
	70	77.6	454155.99	133.10	35.09	3.79
	80	87.3	437436.50	128.20	37.09	3.46
	90	97.1	420717.01	123.30	39.47	3.12
	100	106.9	407750.87	119.50	41.69	2.87
	110	116.6	395808.38	116.00	44.48	2.61
	120	126.5	385571.96	113.00	47.14	2.40
	130	136.2	368511.25	108.00	49.85	2.17
30	50	58.8	525810.96	154.10	32.28	4.77
	60	68.8	522398.82	153.10	33.89	4.52
	70	78.6	512503.61	150.20	35.71	4.21
	80	88.3	494078.05	144.80	37.79	3.83
	90	98.0	475311.27	139.30	40.21	3.46
	100	107.7	460639.06	135.00	42.48	3.18
	110	117.5	446990.50	131.00	45.30	2.89
	120	127.3	435730.43	127.70	48.05	2.66
	130	137.1	421740.65	123.60	51.01	2.42
40	50	60.0	593030.14	173.80	33.00	5.27
	60	69.9	589276.79	172.70	34.65	4.98
	70	79.7	578016.72	169.40	36.51	4.64
	80	89.4	557543.87	163.40	38.65	4.23
	90	99.0	536388.60	157.20	41.14	3.82
	100	108.7	520010.32	152.40	43.46	3.51
	110	118.5	504655.68	147.90	46.36	3.19
	120	128.3	492030.76	144.20	49.18	2.93
	130	138.0	476334.91	139.60	52.23	2.67
50	50	61.0	655813.54	192.20	33.69	5.71
	60	70.9	651377.76	190.90	35.35	5.40
	70	80.7	639094.05	187.30	37.26	5.03
	80	90.4	616573.91	180.70	39.45	4.58
	90	100.0	593371.35	173.90	42.00	4.14
	100	109.7	575287.01	168.60	44.38	3.80
	110	119.4	558567.51	163.70	47.36	3.46
	120	129.1	544577.74	159.60	50.24	3.18
	130	138.9	527517.03	154.60	53.38	2.90

Ambient Air (F)	EWT (F)	LWT (F)	Heating Capacity (Btu/hr)	Heating Capacity (kW/hr)	Power Input (kW/hr)	COP
60	50	61.9	710749.01	208.30	34.14	6.10
	60	71.9	706313.23	207.00	35.85	5.77
	70	81.6	693005.88	203.10	37.79	5.38
	80	91.2	668438.46	195.90	40.00	4.90
	90	100.8	643529.83	188.60	42.60	4.43
	100	110.5	623739.41	182.80	45.00	4.06
	110	120.2	605996.28	177.60	48.06	3.70
	120	129.9	590641.64	173.10	50.96	3.40
	130	139.6	572216.08	167.70	54.16	3.10
70	50	62.7	755448.06	221.40	34.58	6.40
	60	72.6	750671.06	220.00	36.31	6.06
	70	82.4	736681.29	215.90	38.28	5.64
	80	91.9	710407.80	208.20	40.51	5.14
	90	101.5	684134.31	200.50	43.16	4.65
	100	111.1	663320.25	194.40	45.61	4.26
	110	120.8	644212.26	188.80	48.68	3.88
	120	130.6	628175.19	184.10	51.65	3.56
	130	140.2	608725.99	178.40	54.90	3.25
80	50	64.0	834268.52	244.50	36.94	6.62
	60	73.9	829150.31	243.00	38.79	6.26
	70	83.7	813795.68	238.50	40.89	5.83
	80	93.2	785133.69	230.10	43.30	5.31
	90	102.7	755789.28	221.50	46.11	4.80
	100	112.3	732927.93	214.80	48.73	4.41
	110	122.0	712113.87	208.70	52.04	4.01
	120	131.7	694370.73	203.50	55.21	3.69
	130	141.3	672874.24	197.20	58.69	3.36
90	50	65.6	929808.48	272.50	40.31	6.76
	60	75.5	924007.84	270.80	42.33	6.40
	70	85.2	906947.13	265.80	44.63	5.96
	80	94.7	874873.00	256.40	47.24	5.43
	90	104.2	842457.66	246.90	50.33	4.91
	100	113.7	817207.82	239.50	53.21	4.50
	110	123.3	794005.26	232.70	56.82	4.10
	120	133.0	774214.84	226.90	60.28	3.76
	130	142.6	750329.85	219.90	64.09	3.43
100	50	67.2	1026030.86	300.70	43.48	6.92
	60	77.1	1019547.79	298.80	45.66	6.54
	70	86.8	1000781.01	293.30	48.14	6.09
	80	96.2	965635.96	283.00	50.97	5.55
	90	105.6	930149.69	272.60	54.32	5.02
	100	115.3	909676.84	266.60	57.44	4.64
	110	125.0	890227.64	260.90	61.38	4.25
	120	134.5	864636.58	253.40	65.11	3.89
	130	144.1	840410.38	246.30	69.24	3.56
110	50	69.0	1132148.45	331.80	44.28	7.49
	60	78.9	1124982.95	329.70	46.50	7.09
	70	88.5	1104168.89	323.60	49.02	6.60
	80	97.9	1065611.70	312.30	51.92	6.02
	90	107.6	1045138.85	306.30	55.34	5.53
	100	117.3	1027054.50	301.00	58.57	5.14
	110	127.0	1011358.65	296.40	62.59	4.74
	120	136.8	998392.52	292.60	66.42	4.41
	130	146.5	982355.45	287.90	70.67	4.07

COLD CLIMATE HEAT PUMP DOMESTIC HOT WATER HEATER CERTIFIED DRAWING

DWG. NO.
 ccHPWH-Series
 REV. - 01

Detailed Performance Tables for Cold Climate Heat Pump Water Heater(ccHPWH550-D Series)

Ambient Air (F)	EWT (F)	LWT (F)	Heating Capacity (Btu/hr)	Heating Capacity (kW/hr)	Power Input (kW/hr)	COP	
-10	50	55.7	336450.77	98.60	31.72	3.11	
	60	65.6	334202.85	97.95	33.30	2.94	
	70	75.5	327643.35	96.02	35.06	2.74	
	80	85.3	315445.63	92.45	37.05	2.50	
	90	95.1	302989.95	88.80	39.37	2.26	
	100	104.9	293334.95	85.97	41.54	2.07	
	110	114.8	287438.77	84.24	44.32	1.90	
	120	124.8	282906.09	82.91	47.66	1.74	
	130	134.7	277120.46	81.22	49.91	1.63	
	0	50	56.3	373375.60	109.43	32.33	3.38
		60	66.2	370902.89	108.70	33.93	3.20
		70	76.1	363687.44	106.59	35.74	2.98
		80	85.9	350269.94	102.65	37.78	2.72
90		95.7	336568.69	98.64	40.16	2.46	
100		105.5	325948.20	95.53	42.39	2.25	
110		115.4	319462.40	93.63	45.23	2.07	
120		125.3	314476.45	92.16	47.96	1.92	
130		135.2	308112.26	90.30	50.96	1.77	
10		50	57.0	413992.91	121.33	33.25	3.65
		60	66.9	411272.93	120.53	34.91	3.45
		70	76.8	403335.93	118.21	36.77	3.21
		80	86.5	388576.69	113.88	38.88	2.93
	90	96.3	373505.31	109.46	41.34	2.65	
	100	106.1	361822.77	106.04	43.65	2.43	
	110	115.9	351043.82	102.88	46.54	2.21	
	120	125.7	341867.89	100.19	49.31	2.03	
	130	135.5	326832.63	95.79	51.32	1.87	
	20	50	57.7	458671.95	134.42	33.90	3.97
		60	67.7	455679.97	133.55	35.59	3.75
		70	77.5	446949.27	130.99	37.49	3.49
		80	87.2	430714.11	126.23	39.65	3.18
90		97.0	414135.60	121.37	42.18	2.88	
100		106.7	401284.80	117.60	44.54	2.64	
110		116.5	389427.95	114.13	47.51	2.40	
120		126.4	379334.43	111.17	50.35	2.21	
130		136.1	362795.64	106.32	53.28	2.00	
30		50	58.7	517648.28	151.71	34.50	4.40
		60	68.6	514297.27	150.73	36.22	4.16
		70	78.5	504518.89	147.86	38.17	3.87
		80	88.2	486335.50	142.53	40.38	3.53
	90	97.9	467767.57	137.09	42.96	3.19	
	100	107.6	453374.67	132.87	45.38	2.93	
	110	117.4	440095.00	128.98	48.42	2.66	
	120	127.2	428790.26	125.67	51.33	2.45	
	130	137.0	415164.77	121.67	54.52	2.23	
	40	50	59.8	583701.78	171.07	35.27	4.85
		60	69.7	579948.64	169.97	37.03	4.59
		70	79.6	568996.85	166.76	39.02	4.27
		80	89.2	548631.46	160.79	41.29	3.89
90		98.9	527835.38	154.69	43.94	3.52	
100		108.6	511715.33	149.97	46.43	3.23	
110		118.3	496842.10	145.61	49.55	2.94	
120		128.1	484180.79	141.90	52.54	2.70	
130		137.9	468920.25	137.43	55.81	2.46	
50		50	60.8	645351.70	189.13	35.99	5.26
		60	70.8	641223.25	187.92	37.78	4.97
		70	80.6	629176.29	184.39	39.82	4.63
		80	90.2	606774.35	177.83	42.14	4.22
	90	99.8	583898.66	171.12	44.87	3.81	
	100	109.5	566166.62	165.93	47.41	3.50	
	110	119.2	549806.06	161.13	50.61	3.18	
	120	129.0	535878.62	157.05	53.67	2.93	
	130	138.7	519092.02	152.13	57.02	2.67	

Ambient Air (F)	EWT (F)	LWT (F)	Heating Capacity (Btu/hr)	Heating Capacity (kW/hr)	Power Input (kW/hr)	COP	
60	50	61.8	699603.64	205.03	36.49	5.62	
	60	71.7	695144.91	203.73	38.31	5.32	
	70	81.5	682134.19	199.91	40.38	4.95	
	80	91.1	657940.10	192.82	42.74	4.51	
	90	100.6	633234.36	185.58	45.51	4.08	
	100	110.3	614083.75	179.97	48.10	3.74	
	110	120.0	596414.35	174.79	51.35	3.40	
	120	129.8	581372.71	170.38	54.45	3.13	
	130	139.5	563243.18	165.07	57.87	2.85	
	70	50	62.5	743547.71	217.91	36.95	5.90
		60	72.4	738821.46	216.53	38.80	5.58
		70	82.2	725030.09	212.49	40.90	5.20
		80	91.7	699384.36	204.97	43.29	4.73
90		101.3	673196.27	197.29	46.10	4.28	
100		111.0	652896.62	191.35	48.73	3.93	
110		120.7	634167.06	185.86	52.03	3.57	
120		130.4	618222.92	181.18	55.18	3.28	
130		140.1	599005.62	175.55	58.65	2.99	
80		50	63.8	821182.23	240.66	39.47	6.10
		60	73.7	815983.35	239.14	41.44	5.77
		70	83.5	800812.85	234.70	43.69	5.37
		80	93.0	772602.55	226.43	46.25	4.90
	90	102.5	743795.64	217.99	49.26	4.43	
	100	112.1	721466.03	211.44	52.08	4.06	
	110	121.8	700863.51	205.40	55.61	3.69	
	120	131.5	683324.96	200.26	58.98	3.40	
	130	141.1	662185.94	194.07	62.70	3.10	
	90	50	65.4	915120.00	268.20	43.07	6.23
		60	75.3	909349.25	266.50	45.22	5.89
		70	85.0	892509.99	261.57	47.68	5.49
		80	94.5	861196.55	252.39	50.49	5.00
90		103.9	829220.89	243.02	53.78	4.52	
100		113.5	804435.02	235.76	56.86	4.15	
110		123.1	781566.23	229.05	60.72	3.77	
120		132.8	762098.43	223.35	64.42	3.47	
130		142.4	738634.12	216.47	68.49	3.16	
100		50	67.0	1009911.75	295.98	46.46	6.37
		60	76.9	1003563.92	294.12	48.79	6.03
		70	86.5	985040.74	288.69	51.44	5.61
		80	96.0	950595.96	278.59	54.48	5.11
	90	105.4	915422.73	268.28	58.04	4.62	
	100	115.0	895482.34	262.44	61.39	4.28	
	110	124.7	876172.35	256.78	65.58	3.92	
	120	134.3	850929.33	249.38	69.57	3.58	
	130	143.9	827123.50	242.41	73.98	3.28	
	110	50	68.7	1114182.68	326.53	47.31	6.90
		60	78.6	1107200.06	324.49	49.68	6.53
		70	88.3	1086824.57	318.52	52.38	6.08
		80	97.6	1048935.30	307.41	55.48	5.54
90		107.3	1028846.56	301.53	59.14	5.10	
100		117.0	1010826.36	296.24	62.57	4.73	
110		126.7	995312.03	291.70	66.87	4.36	
120		136.5	982819.50	288.04	70.98	4.06	
130		146.2	966973.52	283.39	75.52	3.75	