



# Water-to-Air Coil

## *Instruction & Setup Guide*



Intended to be used with the UltimateAir Temperature Controller and Grundfos Alpha Water Pump, this water-to-air coil is designed to temper and condition the fresh air supply provided by the UltimateAir *RecoupAerator*®.

### Suggested applications:

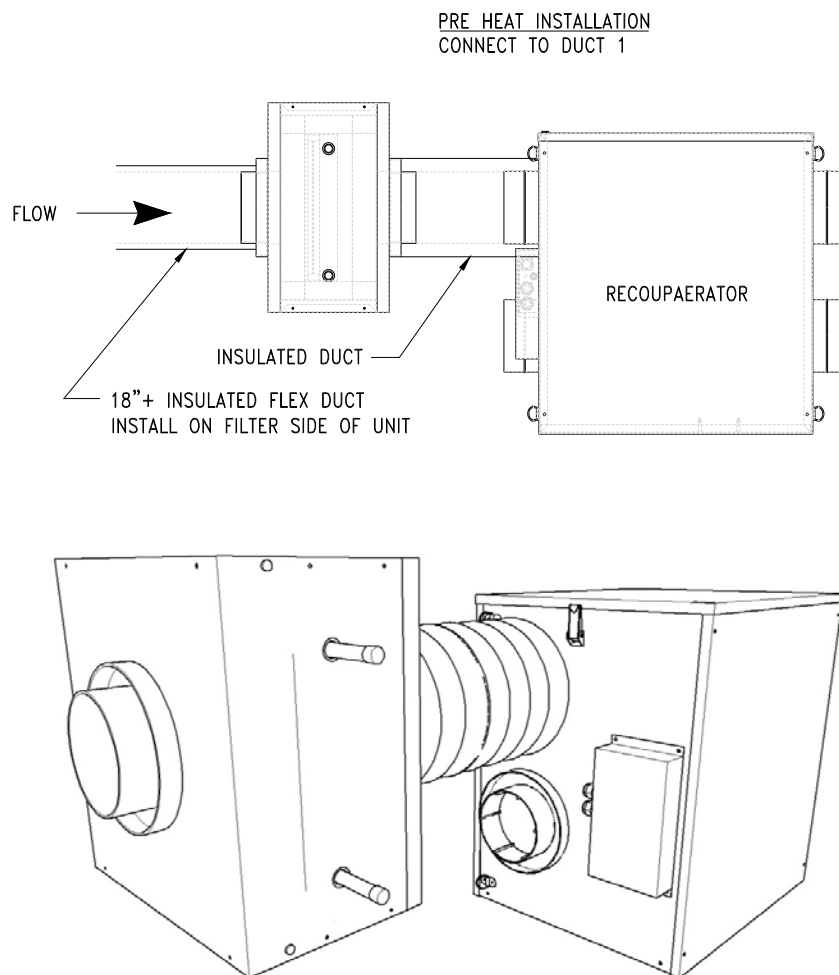
1. Pre-heat defrost for the RecoupAerator when the incoming outside temperature air is below 10°F (hot water or geothermal ground loop)
2. Pre-cooling/dehumidification to increase the cooling capacity of the RecoupAerator EconoCool feature (chilled water or geothermal ground loop)
3. Space heating using fresh air from the RecoupAerator
4. Space cooling/dehumidification using fresh air from the RecoupAerator



## Setup

Note: The Case is insulated with 1" polystyrene to thermally separate it from the coil. Make duct connections using 8 inch diameter insulated flexible duct to allow for easy installation and maintenance. The copper water coil connections are a standard 1/2" Inside Diameter tubing with a 5/8" Outside Diameter.

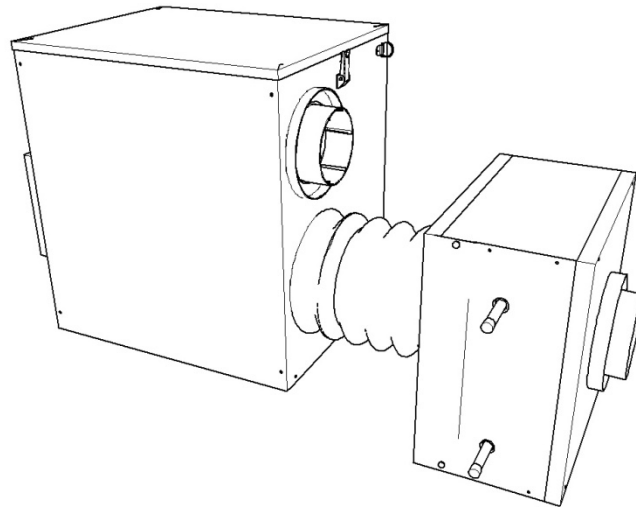
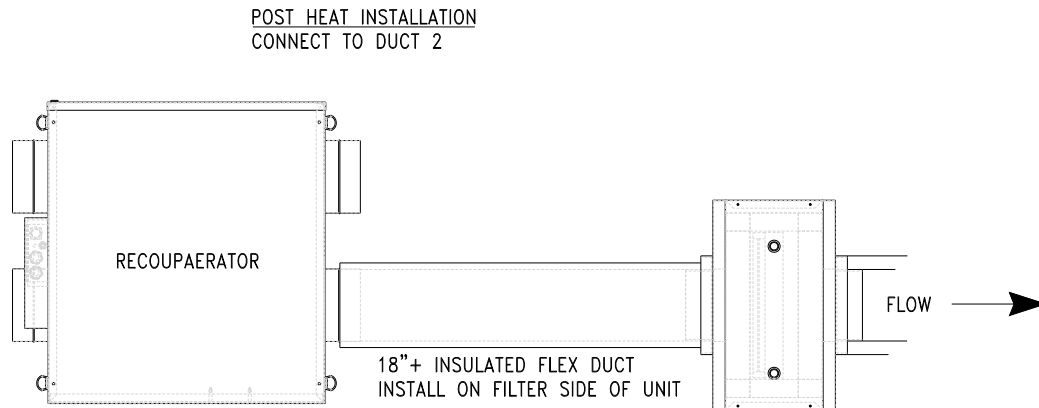
### DEFROST and/or PRE-COOLING/DEHUMIDIFICATION (Pre- RecoupAerator)



Connect to Duct 1 "Fresh Air In from outside" noted on the RecoupAerator. Be sure the air flow direction is consistent between the air stream, and the diagram. Screws, mastic, and/or metal tape are required after making the connection. It is important to have no air leakage. To prevent condensation from forming on the duct work, the duct must be insulated and air tight from the outside building wall to the duct connection of the RecoupAerator. The coil case is insulated.



## SPACE HEAT and COOLING (Post- RecoupAerator)



Connect to Duct 2 "Fresh Air In to the living space" noted on the RecoupAerator. Make this connection using insulated ducting. Be sure the air flow direction is consistent between the air stream, and the diagram. Screws, mastic, and/or metal tape are required after making the connection. It is important to have no air leakage.



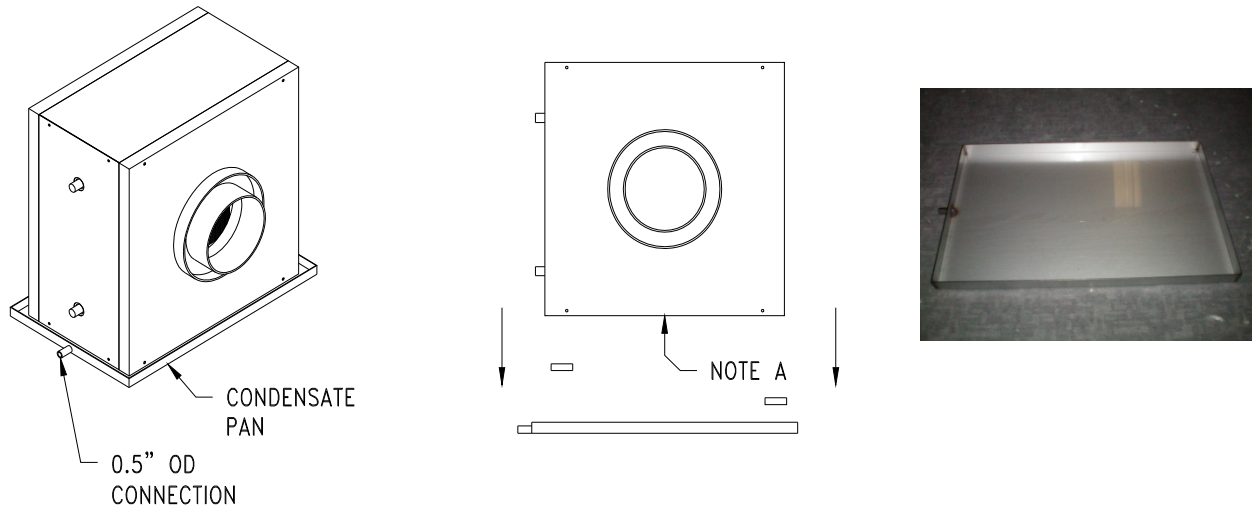
## CONDENSATE PAN INSTALLATION AND USE

***NOTE A: Drill a 3/8" hole carefully through the middle of the bottom to allow better free flow of condensation out of the metal case.***

For installations that will be condensing moisture out of the air stream passing through the coil (pre cooling application), a condensate pan installation will be required. Please request this pan when ordering, or obtain similar locally.

Orient the coil to set in the pan, convenient for your plumbing scenario. Once orientation is determined, fix small rubber spacers to the bottom of the coil box, to space the coil box just off of the inside of the pan. This will allow water to easily flow to the drain at the end. Ensure the pan is level, or slightly lower at the drain end.

Connect a 0.5" ID hose to the condensate pan drain tube and run to appropriate drain location. Note that a pump will be necessary if the drain location is higher than the pan. If relying on gravity, keep the length and elbows of the drain tube at a minimum.

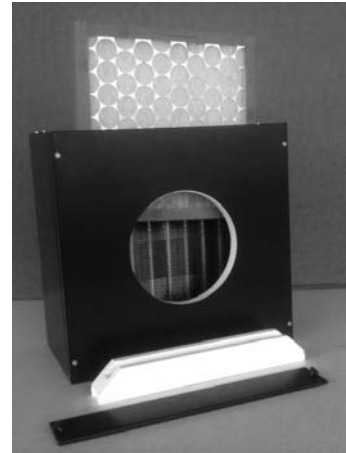


***NOTE A: Drill a 3/8" hole carefully through the middle of the bottom to allow better free flow of water out of the coils sheet metal case.***



## MAINTENANCE

Your coil comes installed with a dust collection filter. This filter will help protect the fins and coil from collecting dust and debris. This filter will likely need to be changed once every 6 months of continuous air flow operation, depending on your specific inside and outside conditions. The outside dimension of the filter measure 14" w x 14" h x 1" d. Please contact UltimateAir for purchasing, or sourcing of replacement filters. They are widely available in the field. When installing a new filter, ensure that the resistance across the replacement filter does not exceed the original design static pressure of the duct system for the air moving fan.



The coil should be visually inspected and cleaned once a year. If there is build up of dirt and/or debris on the fin surfaces, or coil surfaces, these surfaces should be rinsed clean with warm water using some form of pressurized water.



The installed Water-to-Air Coil Module produces some resistance to airflow in the duct it is installed in. The table below summarizes the resistance and associated pressure drop.

Resistance to Airflow	
CFM Setting	Pressure Drop (in. Water Gauge)
70	0.025
200	0.12

### Coil Performance Data

Test	Inlet Water <i>F</i>	Water Flow <i>GPM</i>	Air Flow <i>CFM</i>	Inlet Air <i>F</i>	Outlet Water <i>F</i>	Outlet Air <i>DB F</i>	DP Fan <i>in. wg.</i>	Capacity <i>Btu/hr</i>
<b>Options For Post Heat (Space Conditioning)</b>								
1	160	2.5	200	55	152.8	95.7	TBD	8777
2	160	2.5	200	65	153.5	102.0	TBD	7,972
3	160	5.0	200	65	156.6	103.9	TBD	8,393
4	160	2.0	100	65	153.7	123.5	TBD	6,220
5	120	2.0	200	65	115.5	85.9	TBD	4,452
6	120	5.0	200	65	118.1	87.2	TBD	4,783
7	120	2.5	100	65	117.1	98.8	TBD	3,585
8	110	2.0	200	65	106.3	82.1	TBD	3,621
9	110	5.0	200	65	108.4	83.1	TBD	3,902
10	100	2.0	200	65	97.2	78.1	TBD	2,824
11	100	5.0	200	65	98.8	79.0	TBD	3,025
<b>Options For Pre Heat</b>								
1	55	2.5	100	0	52.4	30.3 *	TBD	3,266
2	55	5.0	100	0	53.6	31.7	TBD	3,423
3	55	2.5	100	-10	51.9	25.5	TBD	3,833
4	55	2.5	100	-20	51.5	20.5	TBD	4,369
5	45	2.5	70	-20	42.1	28.9	TBD	3,692

\*This column pertinent as RecoupAerator requires incoming air be above 10 F



**Coil Performance Data Cont.**

Inlet Water <i>F</i>	Water Flow <i>GPM</i>	Air Flow <i>CFM</i>	Inlet Air		Inlet Air <i>RH %</i>	Outlet Water <i>F</i>	Outlet Air		Capacity Btu/Hr		
			<i>WB F</i>	<i>DB F</i>			<i>WB F</i>	<i>DB F</i>	<i>Total</i>	<i>Sensible</i>	<i>Latent</i>
<i>Options for Pre Cooling and Dehumidification</i>											
50	2.5	100	79.1	95	52.5	54.2	67.4	71.8	5176	2538	2638
50	2.5	200	79.1	95	52.5	54.9	72.8	80.3	6224	3224	3001
50	5	200	79.1	95	52.5	52.6	72.4	79.4	6606	3411	3195
60	2.5	100	75.1	95	40	61.9	71.5	73.5	2332	2027	305
60	2.5	200	75.1	95	40	62.2	71.8	82.5	2722	2722	0
60	2.5	50	75.1	95	40	61.3	66.4	71.9	1656	1259	397
60	2.5	100	74.9	90	50	62.1	68.2	73.7	2629	1782	847
60	2.5	200	74.9	90	50	71.8	74.9	89.9	14709	14709	0
60	2.5	50	74.9	90	50	61.3	66.2	70.3	1660	1074	586
60	2.5	100	73.8	80	75	62	67.6	69.8	2420	1117	1304
60	2.5	200	73.8	80	75	62.2	70.4	73.5	2878	1417	1370
60	2.5	50	73.8	80	75	61.2	65.6	67.3	1547	692	855
60	2.5	100	67.9	70	90	61.1	64.1	65	1339	542	797
60	2.5	200	67.9	70	90	61.2	66	66.9	1494	684	810
60	2.5	50	67.9	70	90	60.7	62.6	63.7	871	342	528
Inlet Water <i>F</i>	Water Flow <i>GPM</i>	Air Flow <i>CFM</i>	Inlet Air		Inlet Air <i>RH %</i>	Outlet Water <i>F</i>	Outlet Air		Capacity Btu/Hr		
			<i>WB F</i>	<i>DB F</i>			<i>WB F</i>	<i>DB F</i>	<i>Total</i>	<i>Sensible</i>	<i>Latent</i>
<i>Options for Post Cooling and Dehumidification</i>											
42	2.5	50	65	78	50%	43.6	51.7	54.7	1953	1266	687
42	2.5	100	65	78	50%	44.5	53.9	58.9	3144	2077	1066
42	2.5	200	65	78	50%	45	59.2	65.8	3722	2663	1059
42	2.5	300	65	78	50%	45.2	60.9	68.2	4057	3182	874
42	2.5	400	65	78	50%	45	62.2	69.8	3759	3570	189
42	5	50	65	78	50%	42.8	51.3	54.1	2008	1299	709
42	5	100	65	78	50%	43.3	58.1	54.2	3255	2160	1095
42	5	200	65	78	50%	43.6	58.8	65	3958	2821	1137
42	5	300	65	78	50%	43.8	60.5	67.5	4399	3416	983
42	5	400	65	78	50%	43.6	62	69.1	4086	3873	213



---

**UltimateAir, Inc.**  
178 Mill Street  
Athens, Ohio 45701

Tel: 740-594-2277  
Fax: 740-592-1499  
[www.ultimateair.com](http://www.ultimateair.com)

---

If design/engineering assistance is needed, please call for more information.

UltimateAir® Inc  
p.740.594.2277  
800.535.3448

Revised: August 13, 2014 by: MB