

ETL LISTED
277V MODELS

RHH Series

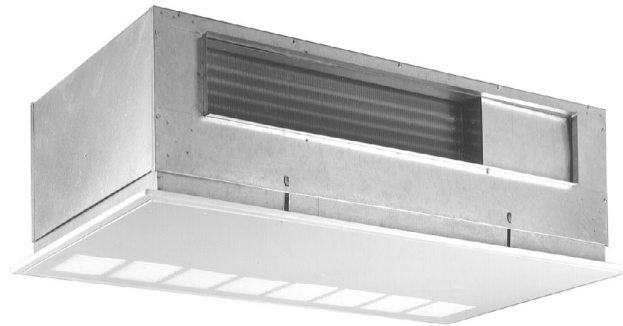
Cased Horizontal Fan Coil with Telescoping Panel
Chilled Water - Hot Water / Electric Heat
300 - 1400 CFM, 2 - 12 KW



Description :

The **RHH** series fan coil with factory installed electric heat and hinged ceiling panel is designed for recessed ceiling applications. The unit consists of an **HH** fan coil totally enclosed in a cabinet with decorator style hinged access panel that also serves as a return air panel. The ceiling frame and access panel are adjustable to permit easy field adaptation to most ceiling types for custom fit and maximum accessibility to the unit and controls. The cabinet is notched to allow for a ducted rear return and a solid bottom access panel is also available. All standard models include 240V 2-speed motor, electric heat and controls, 24/240V relay / transformer, insulated and sloped drain pan, and copper tube coil. All models are dual rated for 208/240V.

277V MODELS ARE NOW ETL LISTED!!



RHH SERIES

FEATURES:

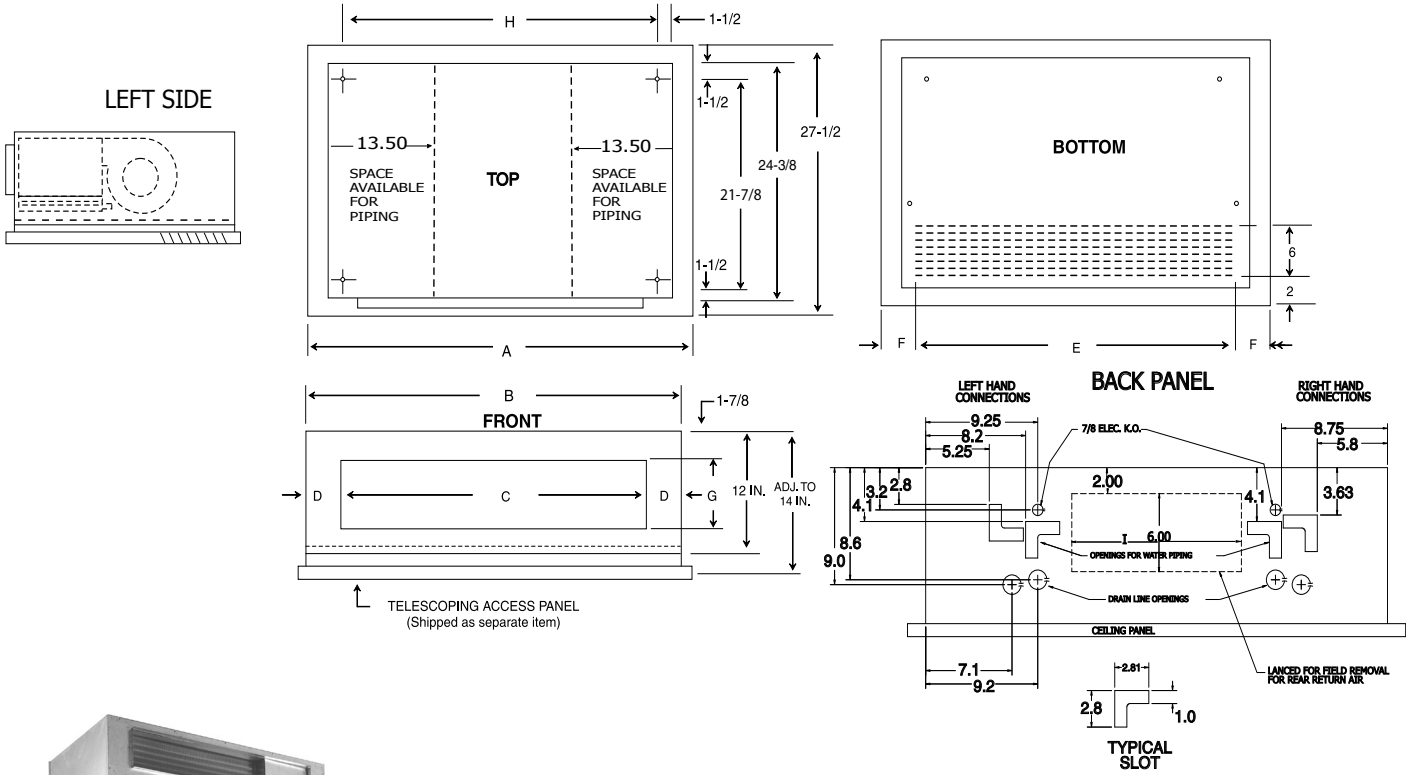
1. Factory installed **heating element(s)**
2. Insulated and **sloped drain pan**
3. **High efficiency** copper tube coil
4. 24/240V transformer for **low voltage control**
5. **Primary and secondary** condensate drains
6. **2 speed** motors (high speed for cooling, low speed for heating)
7. **Galvanized steel** construction
8. Manual **air vents**
9. Telescoping access / return air panel (solid or louvered)

OPTIONS: (contact factory)

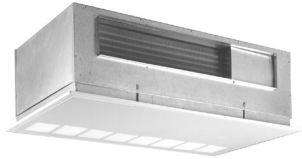
1. 277V models are ETL Listed
2. Factory or field installed motorized valve / hand valve clusters. (contact factory)
3. Aquastats, thermostats, rubber grommets, etc. (all field installed)
4. Drip pan extension for factory installed valve clusters (field installed)

NOTES:

- 1) ALL DIMENSIONS IN INCHES.
- 2) COIL CONNECTION TOLERANCE $\pm 1/4"$.
- 3) RIGHT HAND UNIT SHOWN, LEFT HAND MIRROR IMAGE.
(HAND IS DETERMINED BY FACING THE BLOWER END)



TELESCOPING ACCESS PANEL
(Shipped as separate item)



DETAIL OF BACK PANEL

- A - Hot water out *
- B - Chilled water in LH unit
Chilled water out RH unit
- C - Hot water in *
- D - Chilled water out LH unit
Chilled water in RH unit
- E - Primary drain
- F - Secondary drain
- All 1-1/2 Dia. K.O.'s
- * 4-Pipe system only



NOTES:

1. Telescoping panel allows the cabinet to be installed to within 2 inches of the ceiling line. The adjustable panel frame ensures a flush installation.
2. Louvered access panel (bottom return) is standard. Specify solid panel if ducted rear return air is required.

GENERAL DIMENSIONS												
MODEL	A	B	C	D	E	F	G	H	I	TELESCOPING LOUVERED ACCESS PANEL	TELESCOPING SOLID ACCESS PANEL	FILTER SIZE (INCL)
3RHH	41	38-1/8	29	4-1/2	36-5/8	2-3/16	5-1/2	36	14	968-1	968-1S	10 X 37
4/6RHH	51	48-1/8	39	4-1/2	47-1/4	1-7/8	5-1/2	46	24	968-3	968-3S	10 X 47.5
6/8RHH	51	48-1/8	39	4-1/2	47-1/4	1-7/8	5-1/2	46	24	968-3	968-3S	10 X 47.5
10RHH	57	54-1/8	45	4-1/2	52-1/2	2-1/4	5-1/2	52	30	968-4	968-4S	10 X 53
12RHH	63	60-1/8	51	4-1/2	57-7/8	2-9/16	5-1/2	58	36	968-5	968-5S	10 X 59

ELECTRICAL DATA (240V)									
UNIT MODEL	NOM. CFM	HEAT		TOTAL AMPS (2)	MIN. CIR. AMPACITY		(2) MAX FUSE		
		kW	BTUH		208V	230V	208V	230V	
3RHHS	300	-2	2	6,820	9.3	11	12	15	15
		-3	3	10,230	13.5	15	17	15	20
		-4	4	13,640	17.6	20	23	20	25
		-5	5	17,050	21.8	24	28	25	30
4RHHS	400	-3	3	10,230	13.3	15	17	15	20
		-5	5	17,050	21.6	24	27	25	30
		-6	6	20,460	25.8	28	33	30	35
6RHHS	600	-3	3	10,230	14.1	16	18	20	20
		-5	5	17,050	22.4	23	28	25	30
		-6	6	20,460	26.6	30	34	30	35
		-8	8	27,280	34.9	39	44	40	45
6RHH	600	-3	3	10,200	14.5	16	20	20	20
		-5	5	17,000	22.8	25	30	25	30
		-6	6	20,500	27.0	30	35	30	35
		-8	8	27,300	35.3	39	47	40	50
		-10	10	34,100	43.6	48	55	50	60
8RHH	800	-3	3	10,200	14.5	16	20	20	20
		-5	5	17,000	22.8	25	30	25	30
		-6	6	20,500	27.0	29	35	30	35
		-8	8	27,300	35.3	39	47	40	50
		-10	10	34,100	43.6	48	55	50	60
10RHH	1000	-3	3	10,200	14.5	16	20	20	20
		-5	5	17,000	22.8	25	30	25	30
		-6	6	20,500	27.0	29	35	30	35
		-8	8	27,300	35.3	39	47	40	50
		-10	10	34,100	43.6	48	55	50	60
12RHH	1200	-3	3	10,200	15.3	18	20	20	20
		-5	5	17,000	23.6	27	30	30	30
		-6	6	20,500	27.8	31	35	35	35
		-8	8	27,300	36.1	40	46	40	50
		-10	10	34,100	44.5	49	56	50	60

- (1) Heating ratings at 240 volt, derate 25% for 208 volt application
(2) Includes motor and heaters

ELECTRICAL DATA (277V)								
UNIT MODEL	NOM. CFM	HEAT	MOTOR HP	MOTOR AMPS	TOTAL AMPS @ 277V (1)	MIN. CIR. AMPACITY	(2) MAX FUSE	
		@ 277V				@ 277V	@ 277V	@ 277V
3RHHS	300	-1-277	1	1/20	.50	4.1	6	15
		-2-277	2			7.7	10	15
		-3-277	3			11.3	15	15
4RHHS	400	-1-277	1	1/15	.52	4.1	6	15
		-2-277	2			7.7	10	15
		-3-277	3			11.4	15	15
		-4-277	4			15.0	19	20
6RHHS	600	-1-277	1	1/15	.52	4.1	6	15
		-2-277	2			7.7	10	15
		-3-277	3			11.4	15	15
		-4-277	4			15.0	19	20
6RHH	600	-1-277	1	1/12	.60	4.2	5	15
		-2-277	2			7.8	10	15
		-3-277	3			11.4	15	15
		-4-277	4			15.0	19	20
		-5-277	5			18.7	24	30
		-6-277	6			22.3	28	30
8RHH	800	-1-277	1	1/6	.80	4.4	6	15
		-2-277	2			8.0	10	15
		-3-277	3			11.6	15	15
		-4-277	4			15.2	19	20
		-5-277	5			18.9	24	30
		-6-277	6			22.5	28	30
		-7-277	7			26.1	33	40
		-8-277	8			29.7	38	40
10RHH	1000	-2-277	2	1/4	1.3	8.5	11	15
		-3-277	3			12.1	16	20
		-4-277	4			15.8	20	20
		-5-277	5			19.4	25	30
		-6-277	6			23.0	29	30
		-8-277	8			30.2	38	40
		-10-277	10			37.4	47	50
12RHH	1200	-2-277	2	1/3	2.0	9.2	12	15
		-3-277	3			12.8	16	20
		-4-277	4			16.5	21	25
		-5-277	5			20.0	25	30
		-6-277	6			23.7	30	30
		-8-277	8			30.9	39	40
-10-277	10	38.1	48	50				

- (1) Includes motor and heaters

In keeping with its policy of continuous progress and product improvement, First Co. reserves the right to make changes without notice. Maintenance for all First Co. products is available under "Product Maintenance" at www.firstco.com.

COOLING / HEATING CAPACITIES							
MODEL	COIL ROWS	NOM. CFM	GPM	P.D. (FT. WTR)	TOTAL (2) COOLING	SENSIBLE COOLING	WATER (3) HEATING CAPACITY
3RHHS	3	270	1.0	1.4	6.1	5.1	18.9
			2.0	5.0	8.1	5.9	21.0
			3.0	10.5	8.9	6.2	21.8
3RHHS	4	215	1.0	1.8	6.7	5.1	18.8
			2.0	6.3	8.4	5.7	20.5
			3.0	13.1	9.0	6.0	21.1
4RHHS	3	410	1.5	4.2	11.1	8.6	32.2
			2.0	7.0	12.5	9.2	33.6
			2.5	10.5	13.5	9.5	34.5
4RHHS	4	390	1.5	5.8	12.5	9.3	34.9
			2.0	9.7	14.1	9.9	36.4
			2.5	14.5	15.1	10.3	37.4
6RHHS	3	535	3.0	5.7	15.3	11.3	41.1
			4.0	9.5	16.6	11.8	42.4
			5.0	14.2	17.5	12.1	43.3
6RHHS	4	490	3.0	3.9	16.5	11.9	43.5
			4.0	6.5	18.0	12.5	45.0
			5.0	9.7	18.9	12.8	46.0
6RHH	3	600	3.0	5.7	16.3	12.3	44.2
			4.0	9.5	17.7	12.8	45.7
			5.0	14.2	18.7	13.1	46.7
6RHH	4	600	3.0	3.9	18.2	13.7	50.1
			4.0	6.5	20.1	14.4	52.0
			5.0	9.7	21.3	14.8	53.2
8RHH	3	800	4.0	5.4	19.6	15.0	54.2
			5.0	8.0	21.1	15.6	55.8
			6.0	11.0	22.1	15.9	56.9
8RHH	4	800	4.0	6.5	23.2	17.4	63.4
			5.0	9.6	24.9	18.0	65.3
			6.0	13.3	26.2	18.5	66.5
10RHH	3	1000	4.0	5.5	22.9	18.1	65.5
			5.0	8.4	24.9	18.8	67.7
			6.0	11.7	26.3	19.3	69.2
10RHH	4	1000	4.0	4.3	28.6	21.5	78.3
			5.0	6.5	30.3	22.1	80.2
			6.0	9.1	31.6	22.6	81.6
12RHH	3	1200	6.0	7.9	28.6	22.0	79.4
			7.0	10.5	30.0	22.5	81.0
			8.0	13.3	31.2	23.0	82.3
12RHH	4	1200	6.0	10.0	33.9	25.6	93.2
			7.0	13.1	35.6	26.2	95.1
			8.0	16.5	37.0	26.8	96.6

- (1) Cooling at 80DB/67WB, 45°F EWT.
(2) Heating at 70DB/180°F EWT.

AIR STANDARD APPROVED RATINGS								
MODEL	COIL	CFM	GPM	P.D. (FT. WTR.)	COOLING (1000 BTUH)		POWER INPUT (WATTS)	TYPE MOTOR
					TH	SH		
3RHHS(*)-240-3	3 ROW	310	1.5	3.3	7.5	4.9	130	SP
4RHHS(*)-240-3		410	2.6	12.0	12.9	8.9	90	SP
6RHHS(*)-240-3		590	3.1	7.0	15.4	10.5	145	SP
6RHH(*)-240-3		790	4.0	10.5	19.8	14.2	290	SP
8RHH(*)-240-3		950	4.2	6.5	21.2	16.3	320	PSC
10RHH(*)-240-3		1170	5.2	10.0	26.2	20.2	398	PSC
12RHH(*)-240-3		1460	6.4	9.2	32.1	24.9	490	PSC
3RHHS(*)-240-4	4 ROW	275	1.7	5.0	8.5	5.1	120	SP
4RHHS(*)-240-4		400	3.2	24.0	15.8	9.8	88	SP
6RHHS(*)-240-4		550	3.3	6.0	16.5	11.0	140	SP
6RHH(*)-240-4		770	4.5	9.0	22.5	15.5	280	SP
8RHH(*)-240-4		920	5.0	10.0	24.9	17.5	310	PSC
10RHH(*)-240-4		1160	6.2	10.5	30.9	22.1	390	PSC
12RHH(*)-240-4		1440	8.4	18.4	42.2	30.7	485	PSC

NOTE:

Ratings based on high fan speed, standard air at dry coil operation, 10 °F water temp. rise, ent. air 80DB, 67WB entering water at 45°F.

Rated in accordance with ARI Standard 440.

SH - sensible heat

TH - total heat

SP - shaded pole

PSC - perm. split capacitor

Power input is for motor only

RHH - 240 Volt

(3 - ROW COIL)

RHH SERIES		CFM vs EXTERNAL STATIC PRESSURE (3 ROW)								
MODEL	H.P.	FAN SPEED	EXTERNAL STATIC PRESSURE (inches of water)							
			0.0	0.05	0.10	0.15	0.20	0.25	0.30	0.35
3RHHS-3	1/30	COOL	270	255	215	180	---	---	---	---
		HEAT	250	215	185	160	---	---	---	---
4RHHS-3	1/50	COOL	430	395	350	295	---	---	---	---
		HEAT	340	320	295	255	---	---	---	---
6RHHS-3	1/12	COOL	570	490	415	335	---	---	---	---
		HEAT	290	285	270	240	---	---	---	---
6RHH-3	1/8	COOL	---	---	710	660	615	570	530	485
		HEAT	---	---	625	575	535	495	460	415
8RHH-3	1/4	COOL	---	---	860	830	800	770	740	710
		HEAT	---	---	555	540	525	505	490	470
10RHH-3	1/4	COOL	---	---	1050	1010	965	920	875	825
		HEAT	---	---	760	735	710	675	640	600
12RHH-3	1/3	COOL	---	---	1240	1205	1165	1115	1065	1005
		HEAT	---	---	910	870	835	805	765	720

RHH - 240 Volt

(4 - ROW COIL)

RHH SERIES		CFM vs EXTERNAL STATIC PRESSURE (3 ROW)								
MODEL	H.P.	FAN SPEED	EXTERNAL STATIC PRESSURE (inches of water)							
			0.0	0.05	0.10	0.15	0.20	0.25	0.30	0.35
3RHHS-4	1/30	COOL	225	195	165	---	---	---	---	---
		HEAT	210	175	145	---	---	---	---	---
4RHHS-4	1/50	COOL	420	375	315	---	---	---	---	---
		HEAT	330	305	265	---	---	---	---	---
6RHHS-4	1/12	COOL	500	450	395	---	---	---	---	---
		HEAT	325	320	300	---	---	---	---	---
6RHH-4	1/8	COOL	---	---	680	645	610	570	530	490
		HEAT	---	---	645	565	485	430	395	360
8RHH-4	1/4	COOL	---	---	740	690	645	605	560	515
		HEAT	---	---	650	610	570	530	490	445
10RHH-4	1/4	COOL	---	---	990	950	915	875	840	800
		HEAT	---	---	750	725	700	675	650	620
12RHH-4	1/3	COOL	---	---	1200	1150	1110	1065	1020	975
		HEAT	---	---	900	870	840	800	760	710

RHH - 277 Volt

(3 - ROW COIL)

RHH SERIES		CFM vs EXTERNAL STATIC PRESSURE (3 ROW)								
MODEL	H.P.	FAN SPEED	EXTERNAL STATIC PRESSURE (inches of water)							
			0.0	0.05	0.10	0.15	0.20	0.25	0.30	0.35
3RHHS-3	1/20	COOL	265	235	205	170	---	---	---	---
		HEAT	230	195	165	135	---	---	---	---
4RHHS-3	1/15	COOL	530	465	415	365	---	---	---	---
		HEAT	445	390	335	280	---	---	---	---
6RHHS-3	1/15	COOL	525	445	375	300	---	---	---	---
		HEAT	425	370	305	225	---	---	---	---
6RHH-3	1/12	COOL	---	---	565	515	470	420	375	---
		HEAT	---	---	445	400	360	---	---	---
8RHH-3	1/6	COOL	---	---	745	715	690	665	650	635
		HEAT	---	---	660	630	600	570	535	495
10RHH-3	1/4	COOL	---	---	990	950	910	870	830	795
		HEAT	---	---	870	830	795	765	730	700
12RHH-3	1/3	COOL	---	---	1305	1260	1220	1185	1145	1100
		HEAT	---	---	1180	1140	1105	1070	1030	990

RHH - 277 Volt

(4 - ROW COIL)

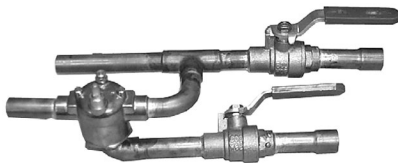
RHH SERIES		CFM vs EXTERNAL STATIC PRESSURE (3 ROW)								
MODEL	H.P.	FAN SPEED	EXTERNAL STATIC PRESSURE (inches of water)							
			0.0	0.05	0.10	0.15	0.20	0.25	0.30	0.35
3RHHS-4	1/20	COOL	240	215	180	160	---	---	---	---
		HEAT	205	180	150	125	---	---	---	---
4RHHS-4	1/15	COOL	490	420	360	295	---	---	---	---
		HEAT	415	365	310	240	---	---	---	---
6RHHS-4	1/15	COOL	485	410	330	250	---	---	---	---
		HEAT	420	345	280	210	---	---	---	---
6RHH-4	1/12	COOL	---	---	560	525	490	455	415	370
		HEAT	---	---	480	445	415	380	350	---
8RHH-4	1/6	COOL	---	---	660	610	565	520	470	415
		HEAT	---	---	585	535	490	445	395	350
10RHH-4	1/4	COOL	---	---	925	890	860	830	795	765
		HEAT	---	---	820	790	765	740	710	680
12RHH-4	1/3	COOL	---	---	1190	1145	1105	1065	1030	995
		HEAT	---	---	1070	1030	995	960	920	885

VALVE CLUSTERS AND INDIVIDUAL COMPONENTS: (field installed (1))			
Assembled Valve Clusters: (factory-assembled and field installed) Components are factory piped together (order power heads separately). Contact factory for other valve clusters			
	Right Hand	Left Hand	Description (all 1/2")
2 pipe	9VHR2BV	9VHL2BV	2-pipe, 2 hand valves only
	9VHR22B	9VHL22B	2-pipe, one 2-way valve body and 2 hand valves
	9VHR23B	9VHL23B	2-pipe, one 3-way valve body and 2 hand valves
4 pipe	9VHR4BV	9VHL4BV	4-pipe, 2 hand valves only
	9VHR42B	9VHL42B	4-pipe, one 2-way valve body and 2 hand valves
	9VHR43B	9VHL43B	4-pipe, one 3-way valve body and 2 hand valves
Power Heads: (two power heads required for 4-pipe) - For all units			
	E50131180		24V
	E50132180		110V/50Hz - 120V/60Hz
	E50137180		277V
	E50138180		220V/50Hz - 230V/60Hz
Separate Valve Bodies: (order power heads separately)			
	E421213		1/2" 2-way
	E431213		1/2" 3-way
Hand Valves: (Combination balance / shut-off) (2 usually required per coil))			
	CP9		1/2"
Circuit Setters and Strainers			
	CP601		1/2" Circuit Setter (Taco)
	CP12		1/2" Circuit Setter (Bell and Gossett)
	CP603		1/2" Strainer (Kitz)

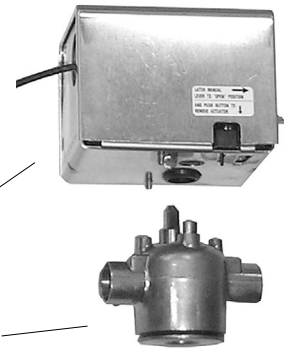
(1) Contact factory for information concerning factory mounting.



CP9



Assembled Valve Cluster (3-way)



Power Head

Valve Body

“Twilight Electric” Fan Coil Installations (Supplemental Seasonal Electric Heat)

Developers in many parts of the country are giving a great deal of attention to the “twilight electric” fan coil system for heating and cooling. The interest in this system is a result of being able to offer individual unit control which provides the room comfort of a four-pipe fan coil system yet maintains most of the economic advantages of a two-pipe installation. Often mortgage money has a restriction of individual unit control as a condition of the mortgage and the twilight electric system provides one way to satisfy this requirement without greatly increasing either installation or operating costs as compared to the familiar two-pipe system.

The twilight electric system is a two-pipe fan coil unit with a small kilowatt electric resistance heater element added. When properly furnished with adequate controls, the electric heating element provides limited heating capability for use in mild weather during seasonal changeover of the central-chiller-boiler system. During the winter season, with the central boiler operational, the system functions as a standard two-pipe system utilizing hot water as the heating source. Because the electric heat is only intended to provide a limited amount of heat during mild weather, the size of the heater is relatively small, usually selected to provide adequate heat with about a 50 degree outdoor temperature.

The operational advantage of a twilight system is obvious when the requirements of the heating-cooling system during the Spring and Fall seasons are considered. During the morning hours heating may be required in some or all of the separate units while the afternoon hours may require cooling. Once again the evening hours may again require heating. The normal two-pipe system simply cannot cope with rapid changes in demand from heating to cooling. With the addition of electric heat, the central system is simply operated in its cooling mode and all demands for heat are satisfied with the electric heaters. Should an extended period of cold weather develop, the central system is then changed over to its heating mode and hot water is again used to provide the necessary heat. This changeover can be achieved with automatic controls on the central equipment.

The included diagram illustrates the typical control arrangement. Both aquastats are strapped to the water supply piping and the 3-way motorized valve is also located in the supply line.

The system functions as follows:

I. Central system in cooling mode. Chilled water available to the fan coil units.

A. Thermostat calls for cooling - The (Y) terminal at the thermostat is energized and voltage is applied to the motorized valve by aquastat No. 2 which is in the cold position. The valve opens and allows a flow of water through the unit coil. At the same time the (G) terminal at the thermostat is energized which causes the fan relay to start the fan motor. When the thermostat is satisfied both the fan motor and motorized valve cycle off.

B. Thermostat calls for heating - The (W) terminal of the thermostat is energized and voltage is applied to aquastat No. 1. Since the aquastat senses the cold water, its contact is closed in the cold position and voltage is fed to the (W) connection at the control box which causes the electric heat contactor to close energizing the electric heaters. At this time the (G) connection is also energized bringing the fan on. The factory wired box is wired to provide fan operation any time the electric heaters are energized. This interlock is necessary during the cycling operation of the silent contactors.

II. Central system in heating mode. Hot water available to the fan coil units.

A. Thermostat calls for heat - The (W) terminal at the thermostat is energized and voltage is applied to aquastat No. 1. Since the aquastat senses the hot water, its contact is closed to the hot position and voltage is fed to the motorized valve which opens and allows a flow of water through the unit coil. At the same time the (G) terminal of the thermostat is energized which causes the fan relay to start the fan motor. When the thermostat is satisfied both the fan motor and motorized valve cycle off.

B. Thermostat calls for cooling - Should the thermostat call for cooling while hot water is in the system the (Y) terminal of the thermostat is energized but aquastat No. 2 is in the hot position and no power can get through to the motorized valve. Since the (G) terminal at the thermostat is also energized the fan motor will run but this is the only response.

