

**ENERBOSS 400M SERIES ECM FAN COILS - NOMENCLATURE**

MECHANICAL ROOM UNITS - FINISHED CABINET, DUCTED RETURN  
2-PIPE OR 4-PIPE

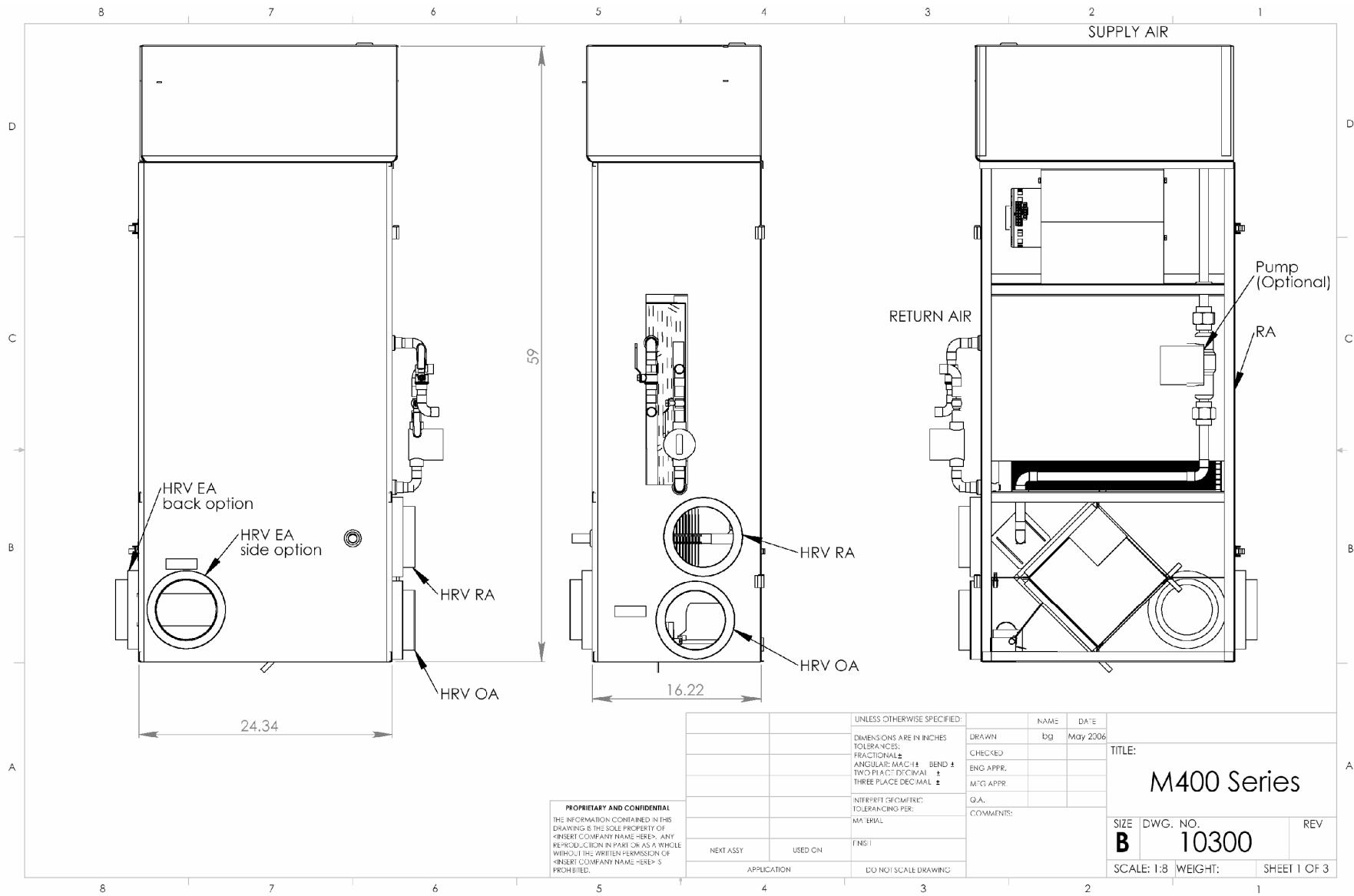
HEATING COIL			COOLING COIL		HRV	HEATING LOOP	COOLING LOOP
M4							
MECHANICAL ROOM INSTALLATION	00	NONE	00	NONE	0 - NO HRV	0 - NONE	0 - NONE
	09	25 MBH	17	17 MBH AT 450 CFM	1 - POLY	2 - 2 WAY VALVE	2 - 2 WAY VALVE
	12	39 MBH	22	22 MBH AT 600 CFM	2 - ALUM	3 - 3 WAY VALVE	3 - 3 WAY VALVE
	18	52 MBH	30	30 MBH AT 850 CFM	3 - ENTHALPY	C - CIRCULATING PUMP	

Revised Feb. 12, 2009

## 400M SERIES HEATING AND COOLING COIL DATA

Coil Construction		MODEL 409	MODEL 412	MODEL 418	MODEL CW1	MODEL CW1						
Type		WATER	WATER	WATER	WATER	WATER						
Fin Height x Finned Length (in)		20 X10	20 x 10	20 x 10	18X20	18X20						
Face Area (sq ft)		1.39	1.39	1.39	2.50	2.50						
Fins per inch		12.00	12.00	12.00	12.00	12.00						
Nominal Ton		0.75	1.00	1.50	1.00	1.00						
Tube OD		3/8	1/2	1/2	3/8	3/8						
Rows Deep		2	2	3	4	4						
Air Side Performance		HEATING			HEATING			HEATING			COOLING	COOLING
Flow	cfm	450	450	450	600	600	600	650	650	650	450	600
Circulation speed		<b>(38% of cooling speed)</b>			<b>(38% of cooling speed)</b>			<b>(38% of cooling speed)</b>			171	228
Entering Air Dry Bulb	F	70	70	70	70	70	70	70	70	70	80	80
Entering Air Wet Bulb	F										67	67
Leaving Air Dry Bulb	F	121.7	110.9	100.1	129.4	116.5	103.6	143.4	127.8	112	56.4	56.4
Leaving Air Wet Bulb	F										54.3	55.1
Face Velocity	FPM	324	324	324	432	432	432	468	468	468	180	240
Air Side Pressure Drop	inwg	0.09	0.09	0.09	0.12	0.12	0.12	0.21	0.21	0.21	0.14	0.2
Liquid Side Performance												
Entering Water Temperature	F	180	160	140	180	160	140	180	160	140	44	44
Leaving Water Temperature	F	160.4	140.4	120.4	160.4	140.4	120.4	160.4	140.4	120.4	56	55.9
Number of Circuits	ea	2	2	2	2	2	2	3	3	3	4	4
Fluid Flow	gpm	2.7	2.1	1.5	4.1	3.2	2.3	5.4	4.3	3.1	2.8	3.6
Water Pres. Drop	ft	7.55	5.07	3.01	3.48	2.3	1.32	3.1	2.76	1.6	4.53	6.84
Total Capacity	Btu/hr											
Sensible Capacity	Btu/hr	25,432	20,122	14,793	38,959	30,518	22,044	52,190	41,067	29,874	11,953	15,213

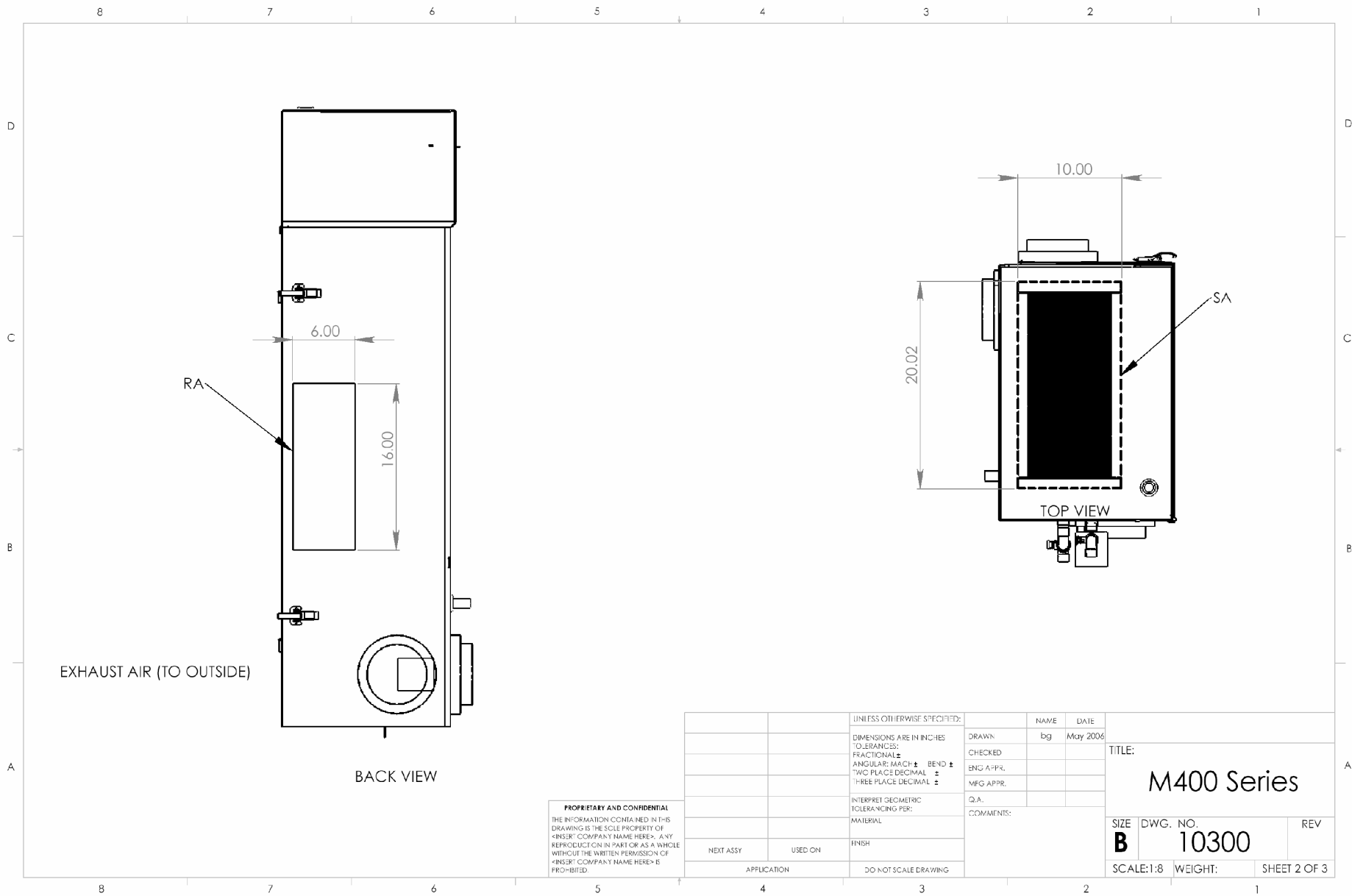
Revised Feb. 15, 2008



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		UNLESS OTHERWISE SPECIFIED:		NAME	DATE
		DIMENSIONS ARE IN INCHES		DRAWN	bg
		TOLERANCES:		CHECKED	May 2006
		FRACTIONAL: $\pm$		ENG APPR:	
		ANGULAR: MAC: $\pm$ BEND: $\pm$		MFG APPR:	
		TWO PLACE DECIMAL: $\pm$		G.A.	
		THREE PLACE DECIMAL: $\pm$		COMMENTS:	
		INTERPRET OF CONFLICTING TOLERANCES PER MATERIAL			
NEXT ASSY	USED ON	FINISH		TITLE:	
APPLICATION	DO NOT SCALE DRAWING			M400 Series	
		SIZE	DWG. NO.	REV	
		<b>B</b>	<b>10300</b>		
		SCALE: 1:8	WEIGHT:	SHEET 1 OF 3	

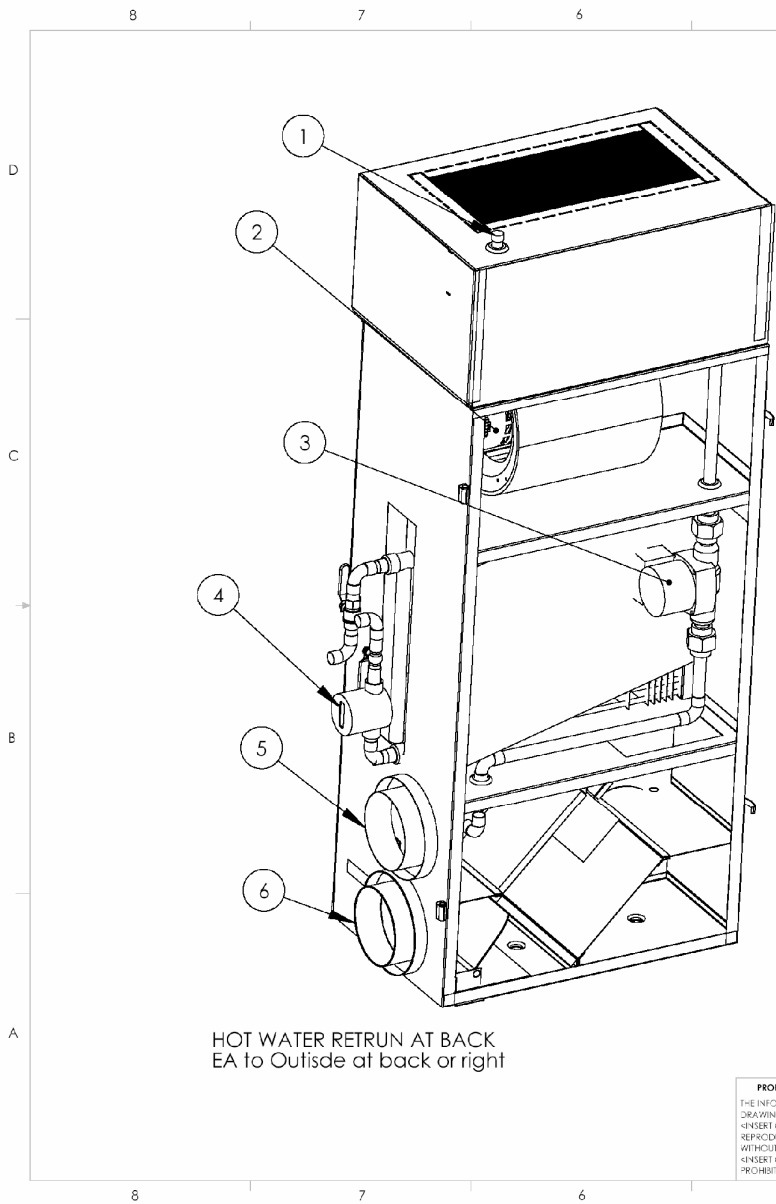
Revised Jan 7, 2008



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		UNLESS OTHERWISE SPECIFIED:		NAME	DATE	
		DIMENSIONS ARE IN INCHES	DRAWN	bg	May 2006	
		TOLERANCES:	CHECKED			TITLE:
		FRACTIONAL ±	ENG APPR.			M400 Series
		ANGULAR: HATCH ± BEND ±	MFG APPR.			
		TWO PLACE DECIMAL ±				SIZE DWG. NO.
		THREE PLACE DECIMAL ±				<b>B</b> 10300
		INTERPRET GEOMETRIC TOLERANCING PER:	Q.A.			REV
		MATERIAL	COMMENTS:			
		FINISH				SCALE: 1:8 WEIGHT: SHEET 2 OF 3
	NEXT ASSY	USED ON				
	APPLICATION	DO NOT SCALE DRAWING				

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HOT WATER RETRUN AT BACK  
EA to Outside at back or right

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1	HOT WATER IN
2	ECM
3	CIRCULATOR
4	BTU METER Optional by others
5	EA FROM SPACE
6	OUTSIDE AIR

UNLESS OTHERWISE SPECIFIED:		NAME	DATE
DIMENSIONS ARE IN INCHES TOLERANCES:		DRAWN	bg May 2006
FRACTIONAL ±		CHECKED	
ANGULAR: MACH ± BEND ±		ENG APPR.	
TWO PLACE DECIMAL ±		MFG APPR.	
THREE PLACE DECIMAL ±		G.A.	
INTERPRET GEOMETRIC TOLERANCING PER:		COMMENTS:	
MATERIAL			
FINISH			
NEXT ASSY	USED ON		
APPLICATION	DO NOT SCALE DRAWING		

TITLE:		
<b>M400 Series</b>		
SIZE	DWG. NO.	REV
<b>B</b>	<b>10300</b>	
SCALE: 1:8	WEIGHT:	SHEET 3 OF 3

Revised Jan 7, 2008

# **SAMPLE SPECIFICATION – 400M**

## **1. GENERAL**

*1.1 System Description:* Vertical 2-pipe or 4-pipe fan coil with separately plumbed hot and chilled water. ECM motor with constant CFM control to power the main blower in heating, cooling and circulation modes. Unit complete with a) internal circulator for in-suite water heater application, or b) solenoid valve for central boiler application. Integral heat/energy recovery ventilator with dedicated wet room exhaust and non-recirculating proportional defrost.

*1.2 Quality Assurance:* Each unit shall be CSA approved or equivalent.

## **2. CABINET**

*2.1 Casing:* The fan coil shall be constructed of 14 ga. aluminum with 1” foil face insulation where appropriate for thermal performance and noise reduction.

*2.2 Service Access:* Removable front service panel for easy access to all components

*2.2 Location:* Mechanical room within 60’ (equivalent length) of ventilation exterior wall caps.

## **3. HYDRONIC COMPONENTS**

*3.1 Coils:* The coils shall be constructed of 3/8 x 0.014 (1/2 x 0.016) copper tube and return bend connectors. The tubing shall be mechanically joined to corrugated aluminum fins 0.006” thick with 12 fins per inch.

*3.2 Coil branches and headers:* The coils shall be joined to the riser stub using 5/8” type L copper tube.

*3.3 Risers:* The risers shall be supplied integral to the fan coil unit (optional). Risers shall be \_\_\_ inches long and flared at the top to accept the riser directly below. Riser pipe shall be insulated with 1” polyethylene pipe wrap within the height of the fan coil. The riser diameters shall be specified in the equipment schedule.

*3.4 Control Valve:* The fan coil shall come complete with: a) two 2-way, or b) three 3-way motorized control valves normally closed to the coil.

*3.5 Isolating valves:* The fan coil shall come complete with two ball valves fitted to the riser stubs.

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## **4. AIR MOVEMENT COMPONENTS**

4.1 *Blower motor:* The blower motor shall be direct drive electronically commutating (ECM) and operate in constant CFM mode. The motor shall be capable of delivering constant airflow in fan only, heating, cooling, and high ventilation speeds.

4.2 *Main Blower:* The main blower shall be a DWDI forward curve GT9-DD with galvanized wheel and housing.

## 5. INTEGRAL HRV/ERV

5.1 *HRV fan:* Supply air shall be via the main fan. The unit shall be capable of exhausting stale air from sources of contamination by way of a duct system and independent exhaust fan. The exhaust fan shall be backward curved motorized impellor. High and low speed shall be adjustable by way of the fan coil control for in-suite air balancing.

5.2 *Core Media:* The HRV core shall be aluminum/polypropylene/enthalpy fixed plate with an apparent sensible effectiveness of \_\_\_% at \_\_\_ C.

*Apparent sensible effectiveness: Aluminum core: 75% at -25C*

*Polypropylene core: 78% at 0C*

*Enthalpy core: 75% Sen/54% Lat*

5.3 *Defrost:* Unit shall have continuous non-recirculating air exchange during defrost. Fan shut down and recirculating defrost are unacceptable.

5.4 *Interlock:* HRV shall be interlocked with in-suite dryer to provide make-up air during dryer operation.

## 6. ELECTRICAL

6.1 *Electrical Disconnect:* A 20 amp dedicated circuit with overload protection is required. Units with electric elements shall be provided with an overload fuse for the electric heater.

## 7. FILTERS

7.1 *Filters:* The unit shall be provided with return air, outside air and exhaust