

# ELECTRIC AIR HEATER



**BC(E) SERIES**

**INDOOR/OUTDOOR  
INSTALLATION**



## SPECIFICATIONS MANUAL



MANUFACTURED BY

**BOUSQUET**  
Technologies



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## DESCRIPTION

### ELECTRIC AIR HEATERS

The Bousquet BC(E) series air heater is a CSA certified ventilation unit designed to heat fresh air and/or recirculated air. Compact and built to facilitate its maintenance, this unit includes a forward curved centrifugal fan, an open elements electric heating coil, a control panel integrated to the unit's cabinet, motorized dampers and an air intake hood with a bird screen and integrated filters. Optionally, this unit can also be equipped with a "V" bank pleated filters section with an access door and a recirculation air damper. The BC(E) model is offered in five types of cabinet dimensions which cover a large range of air flows, from 750 CFM to 15,000 CFM (7079 liters/sec.), with a maximum temperature rise of 100°F (56°C) and a maximum supplied temperature of 140°F (60°C). Every unit is fully tested at the plant to ensure the best performance and operation. A series of inspections executed over the entire manufacturing period, guarantees higher standards of quality.

### A- CONSTRUCTION

The BC(E) series units are manufactured with G90 20ga galvanized steel and a 1-inch (25mm) thick reinforced fiberglass insulation. The cabinet is mounted on a formed 14ga galvanized steel frame with integrated lifting holes. A sealed gasket and a water resistant sealant are used in each joint of the unit's walls to prevent water infiltration between the panels.

The galvanized steel used, presents the following features:

- Excellent corrosion resistance for long term use;
- Refined aesthetic finish;
- No paint required.

### B- OPEN ELEMENTS ELECTRIC COIL

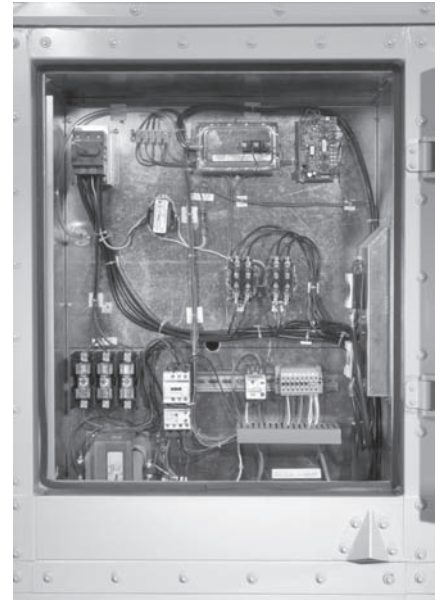
Electric coils are CSA-C / CSA-US certified, and are encased between corrosion resistant, galvanized steel panels. The heating elements are made of resistant wire coils formed of high grade Nickel-Chrome alloy, isolated from the galvanized steel frame with ceramic bushings therefore they are floating and free of mechanical constraints due to expansion and contraction.

The electric coil is equipped with built-in controls such as, a high limit sensor, a control transformer, a main electrical disconnect integrated to the handle (optional) and an air flow switch. When required, magnetic contactors are also included (optional).



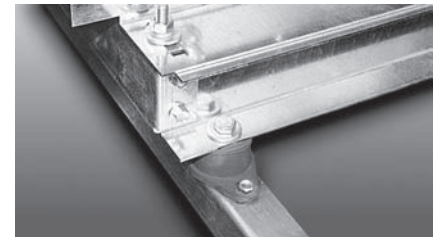
### **C- CONTROLS AND ELECTRICITY**

- Main power supply : 575, 460 volts / 3 phases / 60 cycles (Consult the manufacturer for other voltages);
- Terminal block for power connection ;
- Magnetic starter ;
- Thermal overloads ;
- Air temperature high limit switch ;
- Dynamic pressure control ;
- Fresh and/or returned air damper actuators ;
- Adjustable air inlet thermostat (optional) ;
- Low temperature freezing limit thermostat (optional) ;
- Programmable timer clock: 24 hours / 7 days (optional) ;
- Main electrical disconnect (optional) ;
- Double air volume (optional) ;
- "S" type remote control panel (optional) including:
  - Off / Fan / Heater switch ;
  - Blower operation light ;
  - Heater operation light ;
- "M" type remote control panel (optional) including:
  - Same as "S" panel ;
  - Temperature selector (or) time clock.



### **D- VIBRATION ISOLATORS**

The blower and motor are installed on a single integral base and mounted on "RIS" type vibration isolators to reduce sound and vibration transmission to the building.



### **E- BLOWER AND MOTOR**

- Centrifugal, DWDI blower with forward-curved blades mounted in a galvanized steel frame;
- Shaft on ball bearings and bushings ;
- Single speed, drip proof, energy efficient motor ;
- Adjustable motor base ;
- G90 galvanized steel construction.

### **F- ACCESS DOORS**

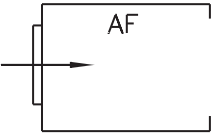
One wide, quick opening, access door with lockable screwed knobs allows an easy inspection and maintenance of the mechanical and electrical components of the unit.

### **G- FRESH AIR INTAKE**

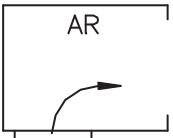
- Fresh air intake hood with bird screen ;
- 2"- 30% efficiency integrated pleated filters ;
- Equipped with gutter ;
- Sized for a maximum velocity of 500 fpm.

## AIR CONFIGURATIONS

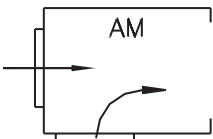
### AF - 100% FRESH AIR

	CONTROL SEQUENCE <b>DAMPERS</b>			CONTROL SEQUENCE <b>HEATING</b>		
	TYPES	2 POS.	3 POS. <sup>1</sup>	0-10VDC SIGNAL BY OTHERS	MODULATION CONTROLLER (WITH SENSOR IN UNIT) <sup>2</sup>	
					« S » PANEL <sup>3</sup>	« M » PANEL <sup>4</sup>
<b>AF 1</b>	X			X		
<b>AF 2</b>	X				X	
<b>AF 3</b>	X					X
<b>AF 4</b>			X	X		
<b>AF 5</b>			X		X	
<b>AF 6</b>			X			X

### AR - 100% RETURN AIR

	CONTROL SEQUENCE <b>DAMPERS</b>			CONTROL SEQUENCE <b>HEATING</b>			
	TYPES	NONE	2 POS.	0-10VDC SIGNAL BY OTHERS	MODULATION CONTROLLER (WITH SENSOR IN UNIT) <sup>5</sup>		MODULATION CONTROLLER (WITH ROOM SENSOR) <sup>6</sup>
					« S » PANEL <sup>3</sup>	« M » PANEL <sup>4</sup>	« M » PANEL <sup>4</sup>
<b>AR 1</b>	X			X			
<b>AR 2</b>	X				X		
<b>AR 3</b>	X					X	
<b>AR 4</b>	X						X
<b>AR 5</b>			X	X			
<b>AR 6</b>			X		X		
<b>AR 7</b>			X			X	
<b>AR 8</b>			X				X

### AM – FRESH AIR AND/OR RETURN AIR

	CONTROL SEQUENCE <b>DAMPERS</b>				CONTROL SEQUENCE <b>HEATING</b>			
	TYPES	2 POS. <sup>7</sup>	3 POS. <sup>1</sup>	0-10VDC SIGNAL BY OTHERS	0-10VDC SIGNAL BY OTHERS	MODULATION CONTROLLER (WITH SENSOR IN UNIT) <sup>2</sup>		MODULATION CONTROLLER (VENTILATION AND HEATING MODES) <sup>8</sup>
						« S » PANEL <sup>3</sup>	« M » PANEL <sup>4</sup>	« M » PANEL <sup>4</sup>
<b>AM 1</b>				X	X			
<b>AM 2</b>				X		X		
<b>AM 3</b>				X			X	
<b>AM 4</b>				X				X
<b>AM 5</b>	X							X
<b>AM 6</b>			X		X			
<b>AM 7</b>			X			X		
<b>AM 8</b>			X				X	
<b>AM 9</b>			X					X

1. Double air volume option including a potentiometer for lower air volume adjustment.
2. The temperature sensor is installed at the blower's output.
3. The temperature selector is installed in the unit's control box.
4. The temperature selector is installed in the unit's remote control panel.
5. The temperature sensor is installed in the unit's returned air flow.
6. The sensor is shipped separately and must be installed on the site.
7. A « Day / Night » time clock must be installed with this configuration.
8. This configuration features a temperature sensor installed at the blower's output including a modulating ventilation mode controller (70°F [21°C]) and a modulating heating mode controller (130°F [54°C]) controlled by an "ON/OFF" room thermostat.

## SELECTION TABLE (IMPERIAL)

BC(E) MODEL	FAN	FLOW (SCFM)	ELECTRIC HEATING CAPACITY (KW)							MOTOR (HP)					
			TEMPERATURE RISE ( °F )							EXTERNAL STATIC PRESSURE* (I.W.C.)					
			70	75	80	85	90	95	100	1/4	1/2	3/4	1	1-1/4	1-1/2
25	9 - 4	750	17	18	19	20	21	23	24	1	1	1	1	1	1
		1000	22	24	25	27	29	30	32	1	1	1	1	1	1
	9 - 9	1500	33	36	38	41	43	45	48	1	1	1	1	1	1
		2000	44	48	51	54	57	60	64	1	1	1	1-1/2	1-1/2	1-1/2
		2500	56	60	64	68	71	75	79	1-1/2	1-1/2	2	2	2	2
50	12 - 12	2501	56	60	64	68	71	75	79	1	1	1	1-1/2	1-1/2	1-1/2
		3000	67	71	76	81	86	91	95	1	1-1/2	1-1/2	1-1/2	2	2
		3500	78	83	89	95	100	106	111	1-1/2	1-1/2	2	2	2	3
	15 - 15	4000	89	95	102	108	114	121	127	1-1/2	1-1/2	2	2	3	3
		4500	100	107	114	122	129	136	143	1-1/2	2	2	3	3	3
		5000	111	119	127	135	143	151	159	2	2	3	3	3	3
75	18 - 18	5001	111	119	127	135	143	151	159	1-1/2	1-1/2	2	3	3	3
		5500	122	131	140	149	157	166	175	1-1/2	2	2	3	3	3
		6000	133	143	152	162	172	181	191	2	2	3	3	3	5
		6500	145	155	165	176	186	196	207	2	3	3	3	5	5
		7000	156	167	178	189	200	211	222	3	3	3	5	5	5
		7500	167	179	191	203	214	226	238	3	3	5	5	5	5
100	20 - 20	7501	167	179	191	203	214	226	238	2	3	3	5	5	5
		8000	178	191	203	216	229	241	254	3	3	5	5	5	5
		8500	189	203	216	230	243	257	270	3	3	5	5	5	7-1/2
		9000	200	214	229	243	257	272	286	3	5	5	5	5	7-1/2
		9500	211	226	241	257	272	287	302	5	5	5	5	7-1/2	7-1/2
		10000	222	238	254	270	286	302	318	5	5	5	5	7-1/2	7-1/2
150	22 - 22	10001	222	238	254	270	286	302	318	3	5	5	5	7-1/2	7-1/2
		11000	245	262	280	297	315	332	349	5	5	5	5	7-1/2	7-1/2
		12000	267	286	305	324	343	362	381	5	5	7-1/2	7-1/2	7-1/2	7-1/2
		13000	289	310	330	351	372	392	413	5	7-1/2	7-1/2	7-1/2	7-1/2	10
		14000	311	334	356	378	400	423	445	7-1/2	7-1/2	7-1/2	7-1/2	10	10
		15000	334	357	381	405	429	453	477	7-1/2	7-1/2	7-1/2	10	10	10

\* EXTERNAL STATIC PRESSURE OF UNIT

Internal static pressure drop includes the losses through the fresh air inlet, damper, 2"-30% efficiency standard filter section and electric heater.

Note : Refer to the manufacturer for higher static pressure and increased air flow.

### ELECTRIC HEATER WITH INTEGRATED DISCONNECT SWITCH ONLY

The maximum capacity of an electric heater operating on **575 volts** is **400 kw.**

The maximum capacity of an electric heater operating on **460 volts** is **300 kw.**

\*Electric units are approved for a maximum current of 1000 amps.

## SELECTION TABLE (METRIC)

BC(E) MODEL	FAN	FLOW (L/S)	ELECTRIC HEATING CAPACITY (KW)							MOTOR (KW)					
			TEMPERATURE RISE ( °C )							EXTERNAL STATIC PRESSURE* (Pa)					
			39	42	44	47	50	53	56	62	125	187	250	300	375
25	9 - 4	354	17	18	19	20	21	23	24	0.75	0.75	0.75	0.75	0.75	0.75
		472	22	24	25	27	29	30	32	0.75	0.75	0.75	0.75	0.75	0.75
	9 - 9	708	33	36	38	41	43	45	48	0.75	0.75	0.75	0.75	0.75	0.75
		943	44	48	51	54	57	60	64	0.75	0.75	0.75	1.1	1.1	1.1
		1180	56	60	64	68	71	75	79	1.1	1.1	1.5	1.5	1.5	1.5
50	12 - 12	1181	56	60	64	68	71	75	79	0.75	0.75	0.75	1.1	1.1	1.1
		1416	67	71	76	81	86	91	95	0.75	1.1	1.1	1.1	1.5	1.5
		1652	78	83	89	95	100	106	111	1.1	1.1	1.5	1.5	1.5	2.2
	15 - 15	1888	89	95	102	108	114	121	127	1.1	1.1	1.5	1.5	1.5	2.2
		2124	100	107	114	122	129	136	143	1.1	1.5	1.5	2.2	2.2	2.2
		2360	111	119	127	135	143	151	159	1.5	1.5	2.2	2.2	2.2	2.2
75	18 - 18	2361	111	119	127	135	143	151	159	1.1	1.1	1.5	2.2	2.2	2.2
		2596	122	131	140	149	157	166	175	1.1	1.5	1.5	2.2	2.2	2.2
		2832	133	143	152	162	172	181	191	1.5	1.5	2.2	2.2	2.2	3.7
		3068	145	155	165	176	186	196	207	1.5	2.2	2.2	2.2	3.7	3.7
		3304	156	167	178	189	200	211	222	2.2	2.2	2.2	3.7	3.7	3.7
		3540	167	179	191	203	214	226	238	2.2	2.2	3.7	3.7	3.7	3.7
100	20 - 20	3541	167	179	191	203	214	226	238	1.5	2.2	2.2	3.7	3.7	3.7
		3776	178	191	203	216	229	241	254	2.2	2.2	3.7	3.7	3.7	3.7
		4012	189	203	216	230	243	257	270	2.2	2.2	3.7	3.7	3.7	5.6
		4248	200	214	229	243	257	272	286	2.2	3.7	3.7	3.7	3.7	5.6
		4484	211	226	241	257	272	287	302	3.7	3.7	3.7	3.7	5.6	5.6
		4720	222	238	254	270	286	302	318	3.7	3.7	3.7	3.7	5.6	5.6
150	22 - 22	4721	222	238	254	270	286	302	318	2.2	3.7	3.7	3.7	5.6	5.6
		5192	245	262	280	297	315	332	349	3.7	3.7	3.7	3.7	5.6	5.6
		5664	267	286	305	324	343	362	381	3.7	3.7	5.6	5.6	5.6	5.6
		6135	289	310	330	351	372	392	413	3.7	5.6	5.6	5.6	5.6	7.5
		6607	311	334	356	378	400	423	445	5.6	5.6	5.6	5.6	7.5	7.5
		7079	334	357	381	405	429	453	477	5.6	5.6	5.6	7.5	7.5	7.5

\* EXTERNAL STATIC PRESSURE OF UNIT

Internal static pressure drop includes the losses through the fresh air inlet, damper, 2"-30% efficiency standard filter section and electric heater.

Note: Refer to the manufacturer for higher static pressure and increased air flow.

### **ELECTRIC HEATER WITH INTEGRATED DISCONNECT SWITCH ONLY**

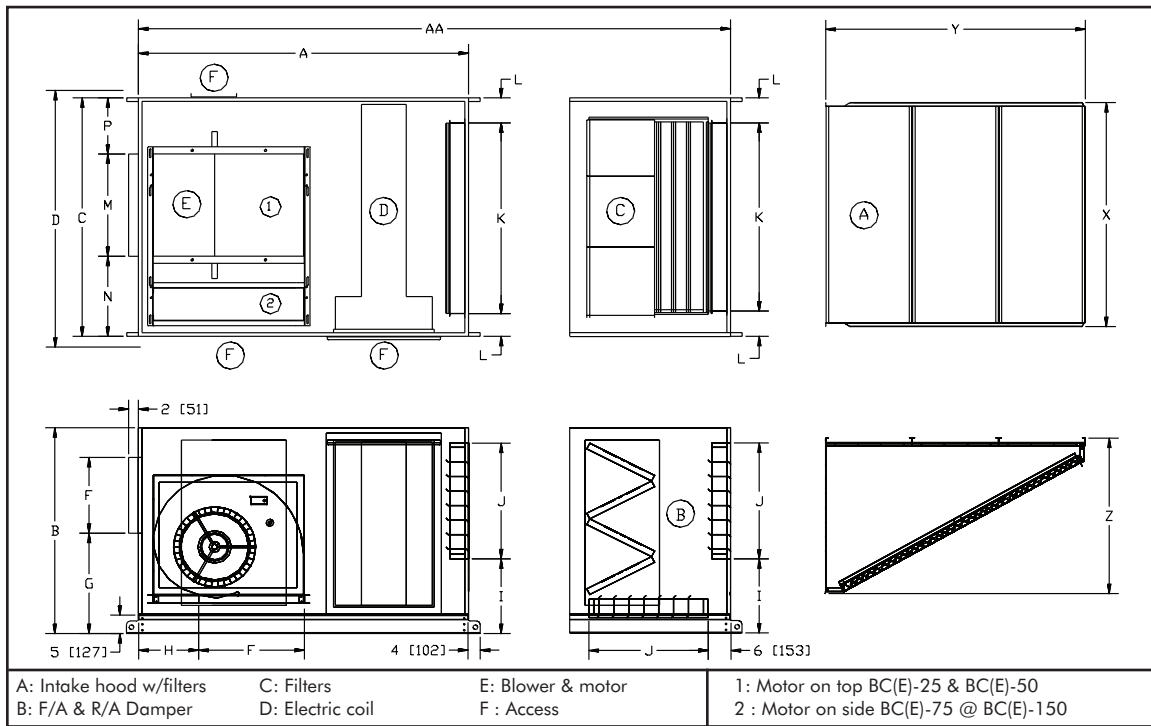
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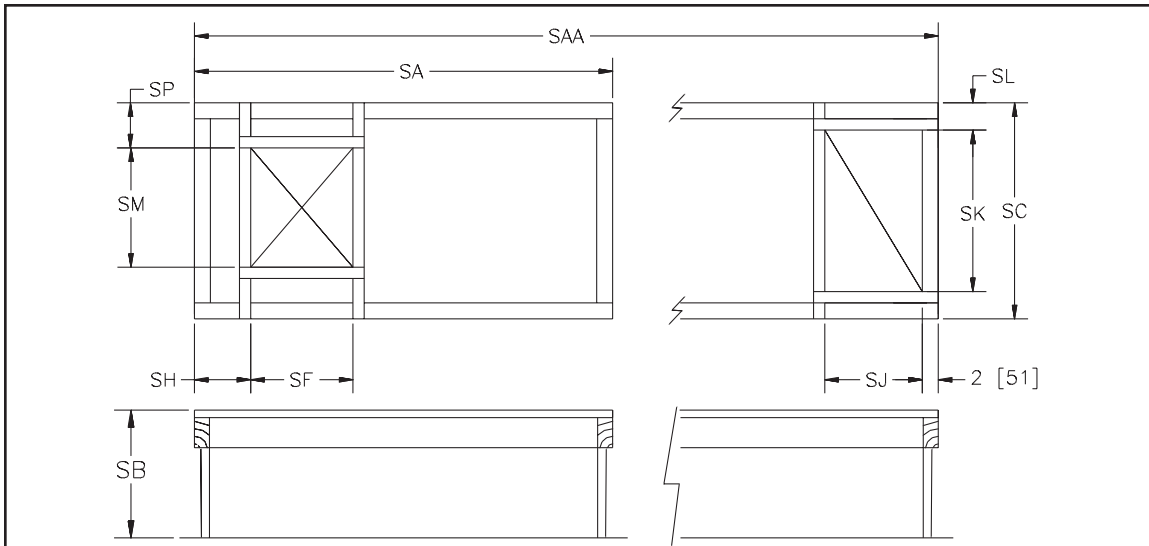
## MODEL DIMENSIONS - BC(E)-25 to 150



	BC(E) 25 9-4 / (9-9)		BC(E) 50 12-12 / (15-15)		BC(E) 75 18-18		BC(E) 100 20-20		BC(E) 150 22-22	
	in	mm	in	mm	in	mm	in	mm	in	mm
<b>FILTRES</b>	2-16X25	2-406X635	2-16X20 2-16X25	2-406X508 2-406X635	3-16X20 3-16X25	3-406X508 3-406X635	6-20X25	6-508X635	9-20X25	9-508X635
A <sup>1</sup>	59	1499	70	1778	78	1981	83-1/2	2121	83	2108
AA <sup>1</sup>	78	1981	93	2362	102	2591	114-1/2	2908	122-1/2	3112
B	43	1092	52-1/4	1327	49	1245	56	1422	60	1524
C	35-1/2	902	48-1/2	1232	63	1600	66-1/2	1689	71-3/4	1822
D	38-1/4	972	51-1/4	1302	65-3/4	1670	69-1/4	1759	74-1/2	1892
F	10-3/8	264	13-1/2 (15-7/8)	343 (403)	18-7/8	479	25-1/8	638	28-1/8	714
G	15-3/4	400	17-5/8 (19)	448 (483)	21	533	22	559	23-3/8	594
H	7-3/4	197	9-3/4 (11)	248 (279)	13	330	13-1/4	337	14-1/2	368
I	18-7/8	479	23-1/4	591	18-7/8	479	20-7/8	530	18-7/8	479
J	15	381	19	483	20	508	24	610	32	813
K	20	508	30	762	45	1143	47	1194	53	1346
L	7-3/4	197	9-1/4	235	9	229	9-3/4	248	9-3/8	238
M	6-7/8 (11-3/4)	175 (298)	15-5/8 (18-5/8)	397 (473)	22	559	25-1/8	638	28-1/8	714
N	17-5/8 (15-1/8)	448 (384)	20-1/4 (18-3/4)	514 (476)	24-3/4	629	25-3/4	654	27-3/4	705
P	11 (8-5/8)	279 (219)	12-5/8 (11-1/8)	321 (283)	16-1/4	413	15-5/8	397	15-7/8	403
Q	5	127	5	127	5	127	5	127	5	127
X	20	508	32	813	48	1219	50	1270	60	1524
Y <sup>1</sup>	43	1092	43	1092	43	1092	59	1490	70	1778
Z	27	686	27	686	27	686	34	864	43	1092
Weight (A)	710 lbs	322 kg	1020 lbs	463 kg	1252 lbs	568 kg	1555 lbs	705 kg	1840 lbs	835 kg
Weight (AA)	811 lbs	368 kg	1171 lbs	531 kg	1434 lbs	650 kg	1796 lbs	815 kg	2171 lbs	985 kg

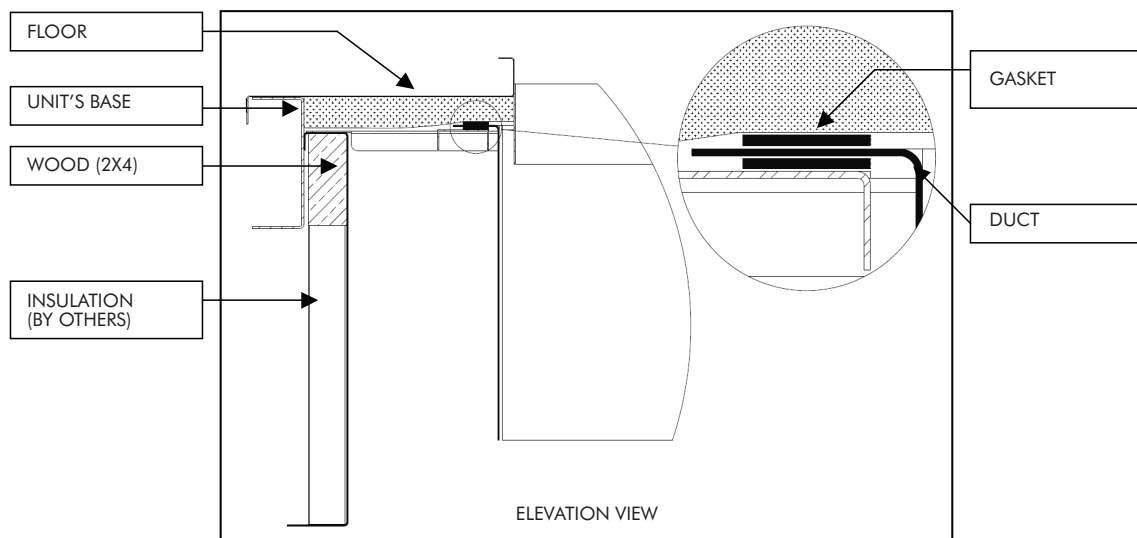
Note 1 : Add up dimensions **A** or **AA** and **Y** to determine the overall length of the unit with a fresh air hood.

## ROOF CURBS



	BC(E) 25		BC(E) 50		BC(E) 75		BC(E) 100		BC(E) 150	
	in	mm	in	mm	in	mm	in	mm	in	mm
SA	53-1/2	1359	64-1/2	1638	72-1/2	1842	78	1981	77-1/2	1969
SAA	72-1/2	1842	87-1/2	2223	96-1/2	2451	109	2769	117	2972
SB	17	432	17	432	17	432	17	432	17	432
SC	30	762	43	1092	57-1/2	1461	61	1549	66-1/4	1683
SF	12-3/8	314	19-1/8	486	20-7/8	530	27-1/8	689	30-1/8	765
SH	4	102	6	152	9-1/4	235	9-1/2	241	10-3/4	273
SJ	17-1/4	438	21-1/4	540	22-1/4	565	26-1/4	667	34-1/4	870
SK	22	559	32	813	47	1194	49	1245	55	1397
SL	4	102	5-1/2	140	5-1/4	133	6	152	5-5/8	143
SM	13-3/4	349	20-5/8	524	24	610	27-1/8	689	30-1/8	765
SP	4-7/8	124	7-3/8	187	12-1/2	318	11-7/8	302	12-1/8	308
Weight (A)	62 lbs	28 kg	80 lbs	36 kg	96 lbs	44 kg	103 lbs	47 kg	106 lbs	48 kg
Weight (AA)	77 lbs	35 kg	97 lbs	44 kg	114 lbs	52 kg	125 lbs	57 kg	135 lbs	61 kg

### ROOF CURB – DETAIL OF ASSEMBLY



## STANDARD AND OPTIONAL FEATURES

### STANDARDS :

- CSA – Canada – USA certification;
- Downward or horizontal discharge;
- Air intake hood with integrated 2" [50 mm] - 30% efficiency pleated filters (MERV-7);
- Single wall construction made of 20ga G90 galvanized steel;
- 1-inch thick [25 mm] (1.5 lbs/pi<sup>3</sup>) neoprene coated fiber glass thermal insulation on the inside of all the unit's panels;
- 14ga G90 galvanized steel formed structure;
- Centrifugal blower with frame, DWDI type with forward-curved blades; shaft on ball bearings and bushings;
- Single speed motor (1750 RPM), drip proof, high efficiency;
- Adjustable motor base;
- Variable pulley on motor of 5 HP and less;
- Fixed pulley on motor of 7.5 HP and higher;
- Lifting lugs on each corner of the unit for easy handling;
- Rubber in shear "RIS" vibration isolators for the blower & motor;
- TA-1000, low leakage, aluminium extruded opposed blades motorized air inlet damper
- Main power supply of 575, 460 volts/3 phases/60 cycles;
- 2 dry contacts (Blower in operation, electric coil in operation)
- 0-10 Vdc analogical input (Modulation signal provided by others);
- High limit of temperature and air pressure switch;
- Modulating capacity controller (SCR).

### OPTIONNELS :

- 17" [432 mm] high non-insulated roof curb;
- 20ga double floor (only available without roof curb);
- Centrifugal blower with frame, forward-curved blades; shaft on pillow blocks;
- Unit with air re-circulation (Return air damper);
- Low leakage, insulated, aluminium extruded opposed blades, TAMCO 9000 damper;
- Filters section within the cabinet with an access door for easy maintenance;
- Single speed, totally enclosed 1750 RPM, vented, drip proof, high efficiency motor;
- "S" series remote control panel;
- "M" series remote control panel;
- Duct or room temperature sensor;
- Main electrical disconnect switch installed in the control box of the unit;
- Air low limit thermostat;
- Adjustable air inlet thermostat for heat cut-off in mild weather;
- Programmable timer clock (7 days / 24 hours).

## REMOTE CONTROL PANELS

### "S" series



**Dimensions** (10 1/2" wide x 5 1/2" high)

- Main switch (Off / Blower / Heating)
- Blower operation light
- Heating operation light
- Connecting terminal block

### "M" series



**Dimensions** (10 1/2" wide x 10 1/2" high)

- Main switch (Off / Blower / Heating)
- Blower operation light
- Heating operation light
- Connecting terminal block
- Temperature selector (installed inside)
- Programmable timer clock (optional)

## TEMPERATURE CONTROLLERS



### Duct temperature sensor

Installed at the blower's discharge or in the returned air, it assures an accurate control of the supplied air temperature.



### Room temperature sensor

Installed in the room, it assures an accurate control of the room temperature.



### Room or duct temperature selector

The temperature selector can be installed either in the unit's control box or in the remote control panel ("M" series).



### Room or duct temperature selector

Duct Modulating controller (AM-4,5 and 9 sequences only)

Installed in the unit's control box (heating mode) and in the "M" series remote control panel (ventilation mode).



### ON/OFF room thermostat

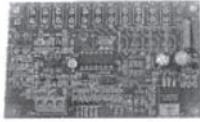
Installed in the room, it assures an accurate control of the temperature and allows switching from heating to ventilation depending on the need.



### Air low limit thermostat and sensor

The air low limit thermostat stops the unit if the supplied air is below 40°F for more than 300 seconds. (Optional)

## ELECTRICAL COMPONENTS



### **HEC electronic controller**

The HEC modulates the heating capacity of the electric coil according to a proportional signal via the SSR. The control signals are: 0-10 VDC and 4-20 mA provided by the room thermostat, by the duct thermostat or a building management control system.



### **Electronic relay (SSR) with a thyristor (SCR)**

Controls proportionally the amount of power transferred to the electric coil according to the HEC controller's signal.



### **Transformers**

Two transformers are provided for controls and power.



### **High limit air temperature sensor with automatic reset**

Used to prevent the overheating of the electric coil (installed on the electric coil and set at 160°F).



### **High limit air temperature with manual reset**

Used to prevent the supplied air temperature from being too high (installed on the blower and set at 160°F).



### **Air pressure controller**

Automatically stops the electric coil when the air pressure goes below the set point.



### **Fuses**

The fuses assure the controls' security.

Additional fuses assure the electric coil's security when required by the local code (USA).



### **Main electrical disconnect switch**

The disconnect switch is installed in the control box and features an automated proof of operation to prevent the electric coil to be functioning when the door is open.



### **Programmable timer clock (7 days / 24 hours; mode: « Day / Night »)**

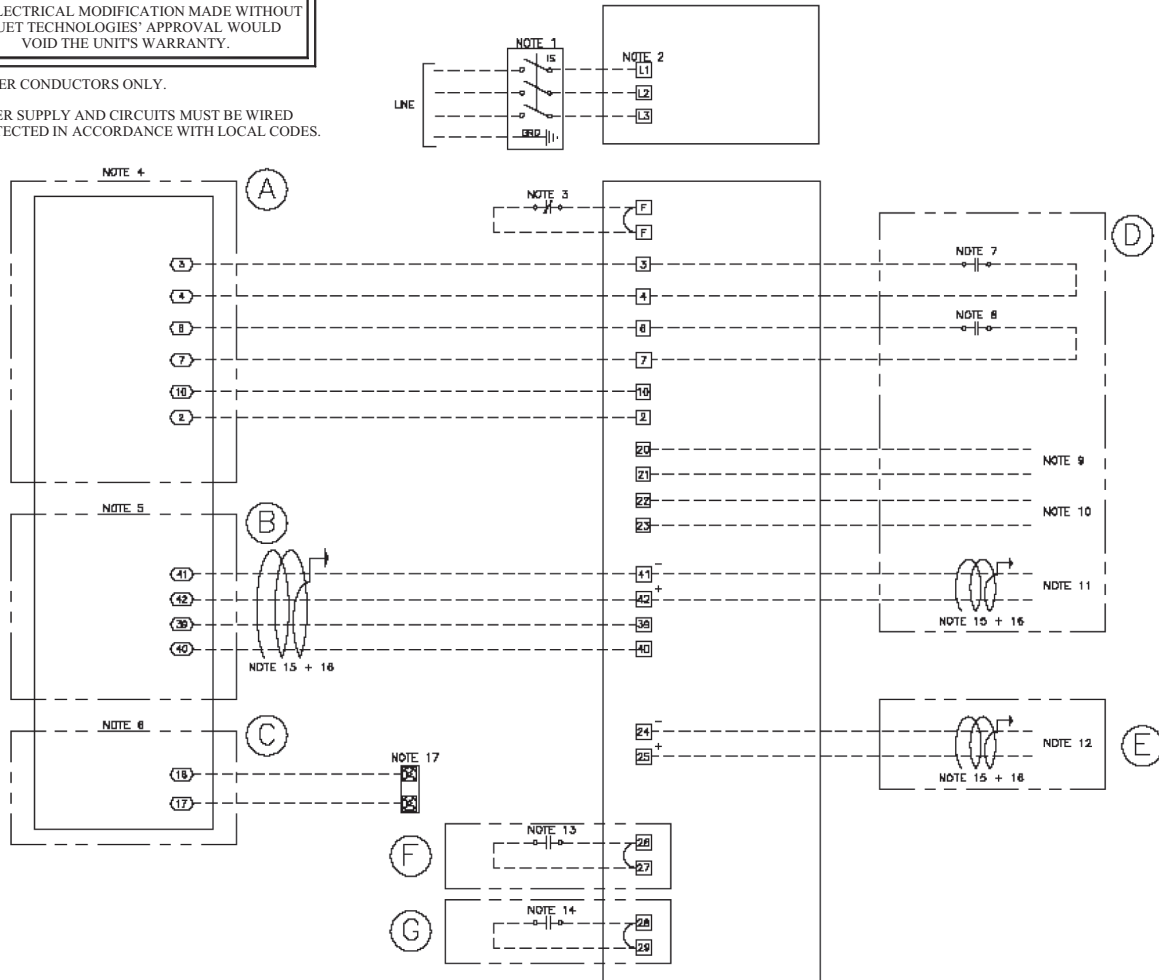
The timer clock allows to program a ventilation and heating sequence to suit the needs of the building.

## TYPICAL DIAGRAM

**⚠ WARNING :**  
 ANY ELECTRICAL MODIFICATION MADE WITHOUT BOUSQUET TECHNOLOGIES' APPROVAL WOULD VOID THE UNIT'S WARRANTY.

USE COPPER CONDUCTORS ONLY.

ALL POWER SUPPLY AND CIRCUITS MUST BE WIRED AND PROTECTED IN ACCORDANCE WITH LOCAL CODES.



**AF - 100% FRESH AIR**

	A	B	C	D	E	F	G
AF1				X			
AF2	X						
AF3	X	X					
AF4				X			X
AF5	X						X
AF6	X	X					X

**AR - 100% RETURNED AIR**

	A	B	C	D	E	F	G
AR1				X			
AR2	X						
AR3	X	X					
AR4	X	X	X				
AR5				X			
AR6	X						
AR7	X	X					
AR8	X	X	X				

**AR - FRESH / RETURNED AIR**

	A	B	C	D	E	F	G
AM1				X	X		
AM2	X				X		
AM3	X	X			X		
AM4	X	X	X		X		
AM5	X	X	X			X	
AM6				X			X
AM7	X						X
AM8	X	X					X
AM9	X	X	X				X

TABLE 1

WIRE GAUGE	FEET
14 AWG	800
16 AWG	500
18 AWG	310
20 AWG	200
22 AWG	124

- WIRED BY CUSTOMER
- PRE-WIRED IN SHOP
- REMOTE CONTROL PANEL TERMINAL
- UNIT TERMINAL

1. Main electrical disconnect (optional).
2. Connecting terminal block of high voltage, standard in unit.
3. Fire alarm dry contact (24 vca N.C.), remove the jumper if needed.
4. « S » type remote control panel (See diagram A).
5. « M » type remote control panel, (See diagrams A+B).
6. « M » type remote control panel, (See diagrams A+B+C).
7. Stop/Start contact of unit (24 vca by others).
8. Stop/Start heating contact (24 vca by others).
9. Unit operation dry contact (24 vca by others).
10. Heating operation dry contact (24 vca by others).
11. 0-10 vdc heating modulation signal (by others).
12. 0-10 vdc damper modulation (par autres).
13. Timer clock contact (24 vca), remove the jumper if needed. (Closed contact = occupied mode).
14. Double air volumes contact (24 vca), remove the jumper if needed. (Closed contact = high volume).
15. Requires shielded wire to prevent induction. The shielded wire must be grounded at one end only.
16. See table 1 for proper wire gauges to use.
17. Sensor (AR4,8) or room thermostat (AM4,5,9).

## ELECTRIC AIR HEATER BC(E) SERIES TYPICAL SPECIFICATIONS

### GENERAL

Supply and install a Bousquet Technologies electric air heater model BC(E)-\_\_\_\_, for indoor or outdoor installation.

### PERFORMANCE

The electric air heater shall have the capacity to heat \_\_\_\_\_ SCFM with a temperature rise of \_\_\_\_\_ °F, for an output capacity of \_\_\_\_\_ kW and an external static pressure of \_\_\_\_\_ inches of water column.

### UNIT'S CONSTRUCTION

The supporting frame will be made of formed and bolted 14ga galvanized steel structural "C" channel. The sides and top of the unit will be made of a single wall construction, insulated with 1 inch [25 mm] thick neoprene coated fiberglass. The ultra compact unit cabinet is composed of panels that shall not exceed 20 inches wide made of 20ga G90 galvanized steel, double folded at vertical edges for structural rigidity, bolted together and sealed with a PVC gasket and a urethane joint to ensure waterproofing. The access doors of the blower and filters section will be provided with gutters to prevent water infiltration. All electrical components will be gathered in the electric coil's control cabinet, within the unit.

### OPEN ELEMENTS ELECTRIC COIL

- A. Supply and install an electric heater with open elements, flanged type, CSA-C and CSA-US certified according to CSA standard C22.2 No. 155 and UL 1996. Electric heater shall be manufactured and approved for zero clearance with any combustible material.
- B. The heater's frames shall be made of galvanized steel, assembled with rivets – no welding is allowed.
- C. Heating elements shall be of the open type, made of grade C nickel chrome alloy, supported by ceramic bushings and enclosed in the frame design. The coil terminal pins shall be stainless steel isolated.
- D. Electric heaters shall be provided with a SSR modulating for the first heating level and fixed additional heating levels.
- E. All heaters have magnetic contactors, high limit temperature sensor, fixed airflow switch, transformer supplied with a protective fuse, internal wiring for the number of heating levels indicated, disconnects etc.  
*Additional fuses will be supplied when required by local code.*
- F. All the controls shall be integrated and pre-wired within a NEMA-3R control panel which will include a removable, hinged door to provide easy access.

## **FAN SECTION**

The fan section will be designed according to AMCA (Air Movement & Control Association) standards. The fan and motor will be mounted on "RIS: rubber-in-shear" type vibration isolators. An access door will be installed to enable the maintenance of the blower, motor, bearings, belts, pulleys and electric controls. The motor shall be open drip proof (ODP) or thermal protected (TEFC) with a high efficiency; it will be installed on an adjustable base allowing the belt's tension and the pulley's alignment to be adjusted. The blower will be centrifugal, double width and double inlet (DWDI), with forward-curved blades (FC).

## **FILTERS**

Filters will be disposable, extended surface pleated media, 2 inches [50mm] thick with 30% filtration efficiency meeting the MERV-7 requirements and will provide a good resistance to humidity. They can either be installed in the air intake hood, in galvanized steel slides and accessible through a hinge panel or within the cabinet, in filters rails with side access door. Face velocity shall not exceed 500 FPM.

## **DAMPERS**

Air intake damper shall be TAMCO-1000, low leakage, aluminium extruded opposed blades, equipped with and "On/Off" electric actuator and an end limit proving switch.

## **AIR INTAKE HOOD**

The air intake hood will be located on the end of the unit, built the same way as the unit's cabinet, sized for 500 FPM maximum air velocity and equipped with a bird screen.

## **ELECTRICITY & CONTROLS**

- Main electric power supply \_\_\_\_ volts, 3 phases, 60 cycles;
- Terminal block for electrical connection;
- Temperature control with SCR;
- Magnetic starter with overloads;
- High limits of temperature;
- Air flow sensor;
- All components required for proper operation.

## **CERTIFICATION**

All Bousquet BC(E) series electric air heaters shall bear the CSA label and be certified under CAN/CSA-C22.2 No. 236-95 standards.

## **START-UP & ADJUSTMENTS**

The heater shall be factory tested prior to shipping.  
The start-up shall be done by a qualified technician whom is authorized by the manufacturer.



## GENERAL WARRANTY

Subject to the terms and conditions hereof, during the first year after the original installation of the product or eighteen (18) months from date of shipment by Bousquet Technologies Inc. whichever occurs first, we will supply free of charge any component part(s) of our product found to be defective in material or workmanship. Any replacement part(s) so supplied will be warranted for the balance of our product's original warranty. The part(s) to be replaced must be available in exchange for the replacement part(s). Any labor, material, transportation, freight or other charges incurred in connection with the performance of this warranty will be the responsibility of the owner at the hourly rates and prices then in force. This limited warranty is only applicable to new and unused products purchased from us or from our authorized distributors, provided that our user instructions contained in our user guide have been adhered to. You recognize and understand that our obligation is limited to replacing the part found to be defective and that you have no further recourse against us.

### **THIS WARRANTY DOES NOT COVER:**

Damages caused by accident, abuse, negligence, misuse, riot, fire, flood or Acts of God;  
Damages caused by operating the product in a corrosive atmosphere;  
Damages caused by any unauthorized alteration or repair of the system, affecting the product's reliability or performance;  
Damages caused by improper matching or use of the product or the product's components;  
Damages caused by failing to provide routine and proper maintenance or service to the product;  
Expenses incurred for erecting, disconnecting or dismantling the product;  
Parts used for normal maintenance, such as filters or belts;  
Products no longer at the site of original installation;  
Products which are not installed or operated in accordance with the printed instructions, with the local installation or building codes or with good trade practices;  
Products lost or stolen.

**No one** is authorized to modify this WARRANTY or to create for us or on our behalf any other obligation or liability in connection with our product(s). There is **no other representation**, warranty or condition, expressed or implied, made by or binding upon us other than the above, nor will we be liable in any way for incidental, consequential, or special damages, however caused, such as, but not limited to: loss of productivity, damages caused by delays, loss of profits and management time.

In order to obtain replacement parts under this product's warranty, contact the dealer or contractor who has installed or services our products. Only dealers or contractors who are registered with us are authorized to perform this warranty. Should your dealer or contractor need assistance, his Bousquet authorized agent is available, and he can count on our support.

### **KEEP THIS WARRANTY IN YOUR FILES FOR FUTURE REFERENCE**

This warranty is explicitly given and accepted in lieu of any and all other warranties, expressed or implied, including, without any limitation, any warranty of merchantability, employability or fitness for a particular purpose. Some states/provinces do not allow disclaimers, limitations and exclusions as identified above; as a result, they may not apply to you.







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