FLORIDA CLASSROOM FAN COIL UNIT

MODELS VGB1600 / HGB1600

TEMSPEC INC.

CLASSROOM HVAC EQUIPMENT FOR

FLORIDA
ALABAMA
MISSISSIPPI
LOUISIANA
TEXAS COAST
SOUTHERN GEORGIA

Temperature, Humidity, Air Quality and Sound Level

The four parameters which define comfort in the classroom.

In the humid climate of the Gulf Coast States, controlling temperature, humidity and air quality simultaneously and economically is an engineering challenge.

When it is 60°F outside with 100% R.H. the Temspec Florida Classroom fan coil unit will give you precise control.

Quiet operation, uniform air distribution in the room and an architecturally pleasing design are features of the equipment.

This catalog describes the performance and application data you need to specify the unit.

TEMSPEC INC.

Company Profile

Temspec designs and manufactures unit ventilators and fan coils for school classrooms and vertical stack fan coil units for high-rise hotels and condominiums.
The company was established in 1971 and has gained a reputation in the HVAC industry for on-time delivery of high quality equipment.

We specialize in flexible response to customers' needs, often customizing the units to suit specific application requirements. We work closely with engineers at the design stage to ensure optimum use of the units within the HVAC system.

Since 1971 Temspec has produced over 250,000 fan coil units and over 10,000 unit ventilators. Our market encompasses the whole of the U.S.A. and Canada through a network of experienced sales representatives.

Our client portfolio includes such prestigious companies as Hilton hotels, Marriott, Embassy Suites, Sheraton, Novotel, Skydome hotel, Royal York hotel, Intercontinental, Red Lion Inns, Fairmont, Tridel, Bally's, Harvey's Casino, Omni, Ramada, Belterra Casino Resort and Mandarin Oriental Hotel.

Other product catalogs from Temspec are:

- Classroom unit ventilators with chilled water or split system DX cooling
- Classroom unit ventilators with self-contained air conditioning
- Vertical hi-rise fan coil units

Contents

The Florida Classroom
The HVAC Solution

Temperature and humidity control in the classroom are challenging HVAC engineering problems in the extreme conditions of the Gulf Coast. Occupant discomfort, inadequate ventilation, mold growth and equipment noise are familiar issues. Air conditioning equipment with a single cooling coil, even with four or five rows in the coil, is usually incapable of providing proper humidity control while maintaining a stable room temperature in a high occupancy space. The requirement for 15 c.f.m. of outdoor air per occupant adds significantly to the problem.

The solution was developed in 1998 with the first installation of the Temspec VGB 1600 fan coil units in a high school in Central Florida. The unit has a dual coil/dual fan arrangement, one coil being dedicated to dehumidification of the outdoor air component. The equipment construction is of the highest quality with important features including stainless steel drain pans and coil supports, drywall cabinet liner and acoustical top plenum/elbow for super quiet operation.

Adaptations for regions which might experience sub-freezing temperatures include outdoor air pretreatment chilled water coil freeze protection. This is not a requirement for Central and Southern Florida but is a consideration for other Gulf Coast regions.

For representation in your area please visit our website www.temspec.com or call 1-888-836-7732

We invite comments, questions and suggestions from HVAC Engineers to assist us to develop and adapt this unit for specific applications.

The VGB 1600 and HGB 1600 Fan Coil Unit Features

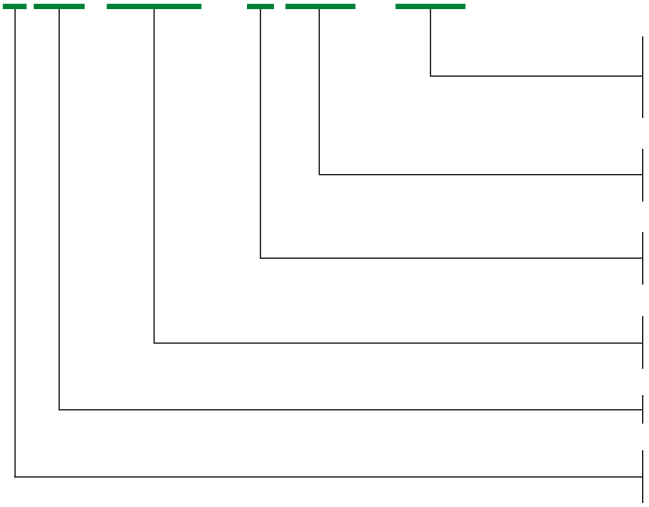
The VGB 1600 and HGB 1600 fan coil units are designed specifically for classroom HVAC in a humid climate. The outstanding features are:

- A dedicated outdoor air pre-treatment coil for dehumidifying the humid outdoor air (up to 500c.f.m.)
- An intake fan to ensure that the specified volume of outdoor air is induced
- The dehumidified outdoor air is mixed with the return air before passing through the primary cooling coil
- Spring return motorized outdoor air shut-off damper
- Chilled water or split system DX cooling
- Electric or hot water reheat
- 14 ga cabinet, powder coat finish
- 2" filters
- Stainless steel drain pans and coil supports
- Optional coated coil fins for protection against coastal salt-laden air
- Accessory options, including rear outdoor air plenum, side pipe cover, raised base, 4" intake louver, top acoustical supply air plenum / elbow
- Exceptionally quiet operation, typically NC40 at 6 ft.

Summer design conditions of 95 / 78 °F DB/WB are typical but this unit provides superb humidity control even when the outdoor air is 60 °F at 100% R.H.

Model numbers

VGB 1600 - DCW - 2E



2A = 2 Pipe System
2E = 2 Pipe Changeover System
4P = 4 Pipe System

CW = Chilled Water Cooling
DX = DX Cooling

B = Blow Through Type
D = Draw Through Type

Maximum Nominal Supply C.F.M.
For This Model Range

Model Designation

H = Horizontal Type
V = Vertical Type

Note: Blow through configurations are used only when the unit (VGB) does not have a ducted supply

Typical Specification
for classroom fan coil unit - Model VGB 1600

1. **THE CLASSROOM FAN COIL UNIT** shall be model VGB 1600 manufactured by Temspec Inc.
2. **ELECTRIC COIL** The electric heating coil shall have wire nickel-chrome elements carried in floating ceramic bushings. An auto-reset high limit switch shall be factory installed in the coil frame. The coil shall be rated for ___ kW at a supply voltage ___ Volts ___ phase 60 Hz. Each coil stage shall have an electromagnetic contactor to energize the coil. The coil shall be in the reheat position relative to the primary cooling coil.
3. **HOT WATER HEATING COIL** The coil shall have 1/2" copper tube of minimum wall thickness 0.016" and shall have aluminum fins. The coil supply and return headers shall be copper pipe, stubbed out for single point sweat connection. The coil shall be factory pressure tested at not less than 350 p.s.i. A manual air vent shall be factory installed and ball valves fitted. The coil capacity shall be as shown in the schedule. The coil shall be equipped with a drain plug, circuit balancing valve and unions.
4. **CHILLED WATER COILS** (outdoor air and primary cooling coils) The coils shall have 1/2" copper tube of minimum wall thickness 0.016" and shall have aluminum fins. The coil supply and return headers shall be copper pipe, stubbed out for single point sweat connection. The coil shall be factory pressure tested at not less than 350 p.s.i. A manual air vent shall be factory installed and ball valves fitted. The coil capacity shall be as shown in the schedule. Stainless steel pitched drain pans and stainless steel coil supports shall be provided. Coils shall be equipped with a drain plug, circuit balancing valve and unions.
5. **FREEZE PROTECTION COIL** (Optional) The outdoor air chilled water coil shall have a heating coil (electric or one row of hot water) located in the preheat position, of sufficient capacity to ensure a minimum 45°F leaving air temperature.
6. **DIRECT EXPANSION EVAPORATOR AND HOT GAS REHEAT COILS** (outdoor air and primary cooling coils) The coils shall have 3/8" copper tube and aluminum fins. Field connections shall be brazed. The mechanical contractor shall charge the refrigeration system after installation and ensure that the cooling system is operating correctly. The coil capacities shall be as shown in the schedule. Stainless steel pitched drain pans and stainless steel coil supports shall be provided. Coils shall be equipped with thermal expansion valves.
7. **CABINET AND CONFIGURATION** The unit cabinet shall be 14ga corrosion resistant steel, braced and reinforced for rigidity. The finish shall be textured powder coat, color as per the Architect's instruction. The cabinet shall be fully lined with 1/2" green-back gypsum board and 1" coated glass fiber insulation. The unit shall have an upflow configuration. The return air grille shall be heavy duty steel. Ducted units shall be draw through, non-ducted units shall be blow through.
8. **OUTDOOR AIR PLENUM** (Optional) A 6" deep plenum assembly shall be provided by the unit manufacturer and shall be color matched to the unit. The plenum shall be lined with 1" foil backed glass fiber insulation.
9. **TOP SUPPLY AIR PLENUM FOR NON-DUCTED UNITS** The unit manufacturer shall provide a color matched top supply air plenum with supply air grilles (two or three way discharge). The plenum shall be acoustically lined.
10. **TOP ACOUSTICAL PLENUM FOR DUCTED UNITS** The unit manufacturer shall provide a color matched top plenum extension for the cabinet, of size to suit the ceiling height. The plenum shall have an internal perforated elbow and be acoustically lined.
11. **RAISED BASE** (Optional) The unit manufacturer shall provide a color matched raised base, height as shown on the plans.
12. **SIDE PIPE COVER** (Optional) The unit manufacturer shall provide a 5" wide pipe cover assembly, color matched to the unit. The cover shall be the depth of the unit, height to suit.
13. **SUPPLY AIR FAN AND MOTOR** The fan shall be a direct drive centrifugal fan with forward curved impeller and a three speed split capacitor motor mounted on rubber isolation grommets. The motor supply voltage shall be ____V/1/60.
14. **OUTDOOR AIR INTAKE FAN AND MOTOR** The fan shall be an axial type with an integral single speed motor. The motor supply voltage shall be ____V/1/60. The motor shall be equipped with a manual variable speed controller.
15. **MOTORIZED OUTDOOR AIR DAMPER** The outdoor air damper shall have aluminum extruded blades. The dampers shall have neoprene blade tip seals and be spring return to closed.
16. **FILTERS FOR OUTDOOR AIR AND RETURN AIR** The filters shall be 2" pleated MERV 8.
17. **OUTDOOR AIR INTAKE LOUVER** The unit manufacturer shall provide a 4" deep external wall louver for the outdoor air intake. The louver shall be of heavy gauge aluminum with 45 degree blades. The blade profile shall be designed to prevent water penetration. The louver shall have a 1/2" birdscreen attached to the inner face. The finish on the louver shall be a color as per the Architect's instruction.
18. **LINE VOLTAGE WIRING** All internal line voltage wiring shall be by the unit manufacturer. A suitably rated remote circuit breaker shall be provided and installed by Division 16.
19. **INSTALLATION** The unit shall be installed plumb. The outdoor air intake shall be sleeved and foam sealing tape installed around the perimeter of the outdoor air opening in the back of the unit before moving the unit into position against the wall. The exterior louver shall be caulked. Wall openings shall be sleeved.
20. **DDC CONTROLS** Control items shall be furnished by the controls contractor for factory mounting and shall function as described in the Controls Specification.
21. **STAND-ALONE CONTROLS** The control system shall be Temspec type'V' incorporating an OC-3 model seven day programmable thermostat with integral "smart occupancy" sensor.

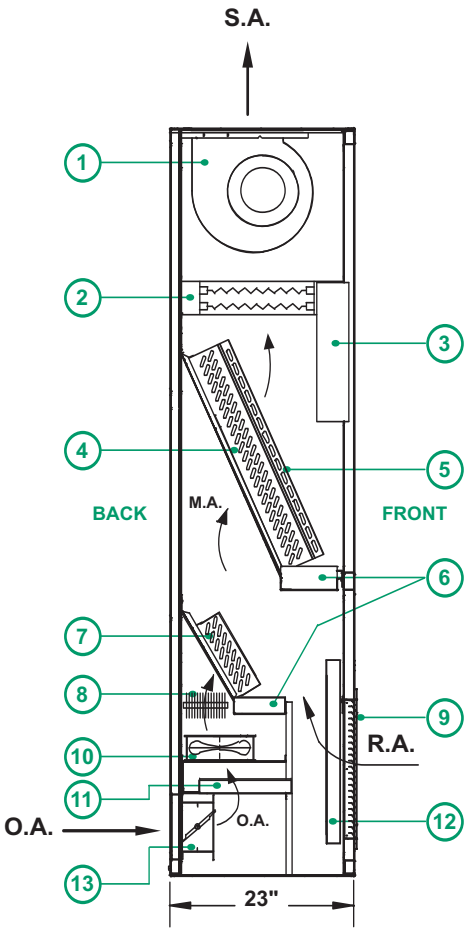
Typical Specification
for classroom fan coil unit - Model HGB 1600

1. **THE CLASSROOM FAN COIL UNIT** shall be model HGB 1600 manufactured by Temspec Inc.
2. **ELECTRIC COIL** The electric heating coil shall have wire nickel-chrome elements carried in floating ceramic bushings. An auto-reset high limit switch shall be factory installed in the coil frame. The coil shall be rated for ___ kW at a supply voltage ___ Volts ___ phase 60 Hz. Each coil stage shall have an electromagnetic contactor to energize the coil. The coil shall be in the reheat position relative to the primary cooling coil.
3. **HOT WATER HEATING COIL** The coil shall have 1/2" copper tube of minimum wall thickness 0.016" and shall have aluminum fins. The coil supply and return headers shall be copper pipe, stubbed out for single point sweat connection. The coil shall be factory pressure tested at not less than 350 p.s.i. A manual air vent shall be factory installed and ball valves fitted. The coil capacity shall be as shown in the schedule. The coil shall be equipped with a drain plug, circuit balancing valve and unions.
4. **CHILLED WATER COILS** (outdoor air and primary cooling coils) The coils shall have 1/2" copper tube of minimum wall thickness 0.016" and shall have aluminum fins. The coil supply and return headers shall be copper pipe, stubbed out for single point sweat connection. The coil shall be factory pressure tested at not less than 350 p.s.i. A manual air vent shall be factory installed and ball valves fitted. The coil capacity shall be as shown in the schedule. Stainless steel pitched drain pans and stainless steel coil supports shall be provided. Coils shall be equipped with a drain plug, circuit balancing valve and unions.
5. **FREEZE PROTECTION COIL** (Optional) The outdoor air chilled water coil shall have a heating coil (electric or one row of hot water) located in the preheat position, of sufficient capacity to ensure a minimum 45°F leaving air temperature.
6. **DIRECT EXPANSION EVAPORATOR AND HOT GAS REHEAT COILS** (outdoor air and primary cooling coils) The coils shall have 3/8" copper tube and aluminum fins. Field connections shall be brazed. The mechanical contractor shall charge the refrigeration system after installation and ensure that the cooling system is operating correctly. The coil capacities shall be as shown in the schedule. Stainless steel pitched drain pans and stainless steel coil supports shall be provided. Coils shall be equipped with thermal expansion valves.
7. **CABINET AND CONFIGURATION** The unit cabinet shall be 14ga corrosion resistant steel, braced and reinforced for rigidity. The finish shall be textured powder coat, color as per the Architect's instruction. The cabinet shall be fully lined with 1" coated glass fiber insulation. The unit shall have a horizontal configuration and shall be draw through. The return air grille (if required) shall be heavy duty steel.
8. **ACCESS PANELS** The side mounted hinged access panels shall be located on either the left or right side of the unit as per details shown on the mechanical plans.
9. **SUPPLY AIR FAN AND MOTOR** The fan shall be a direct drive centrifugal fan with forward curved impeller and a three speed split capacitor motor mounted on rubber isolation grommets. The motor supply voltage shall be ____V/1/60.
10. **OUTDOOR AIR INTAKE FAN AND DAMPER** The fan shall be an axial type with integral single speed motor. The motor supply voltage shall be ___V/1/60. The motor shall be equipped with a manual variable speed controller.
11. **MOTORIZED OUTDOOR AIR DAMPER** The outdoor air damper shall have aluminum extruded blades. The dampers shall have neoprene blade tip seals and be spring return to closed.
12. **FILTERS FOR OUTDOOR AIR AND RETURN AIR** The filters shall be 2" pleated MERV 8.
13. **LINE VOLTAGE WIRING** All internal line voltage wiring shall be by the unit manufacturer. A suitably rated remote circuit breaker shall be provided and installed by Division 16.
14. **INSTALLATION** The unit shall be installed level.
15. **DDC CONTROLS** Control items shall be furnished by the controls contractor for factory mounting and shall function as described in the Controls Specification.
16. **STAND-ALONE CONTROLS** The control system shall be Temspec type'V' incorporating an OC-3 model seven day programmable thermostat with integral "smart occupancy" sensor.

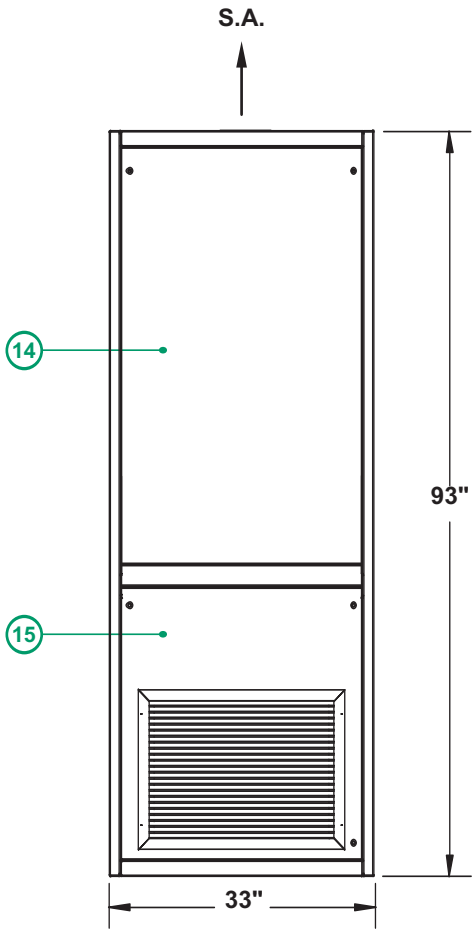
2 pipe or Split System DX

Models VGB 1600 DDX & VGB 1600 DCW

DUCTED CONFIGURATION



SIDE SECTION



FRONT ELEVATION

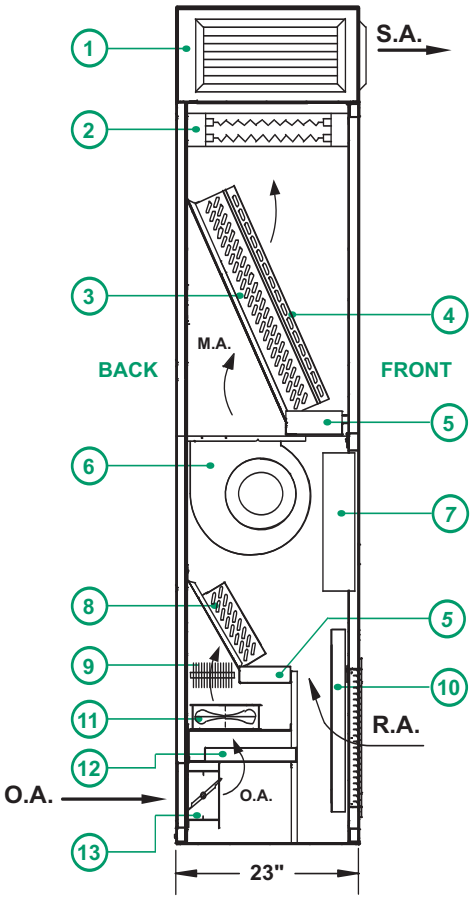
S.A.	Supply Air	**O.A.**	Outdoor Air	**R.A.**	Return Air	**M.A.**	Mixed Air

1. **Supply air fan.**
2. **Optional electric heater.**
3. **Hinged electrical / control enclosure.**
4. **Primary coil (DX evaporator or chilled water).**
5. **Optional hot gas reheat coil (DX units only).**
6. **Drain pan.**
7. **Outdoor air coil (DX evaporator or chilled water).**
8. **Optional electric coil for freeze protection (chilled water units only).**
9. **Heavy duty return air grille.**
10. **Outdoor air fan.**
11. **Outdoor air filter.**
12. **Return air filters.**
13. **Motorized spring return outdoor air damper.**
14. **Coil access panel.**
15. **Return air filter access panel.**

2 pipe or Split System DX

Models VGB 1600 BDX & VGB 1600 BCW

FREEBLOW CONFIGURATION



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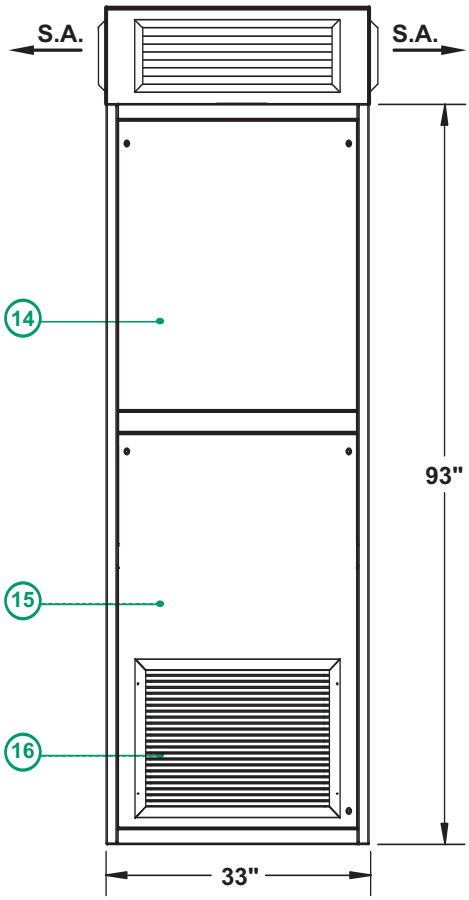


FRONT ELEVATION

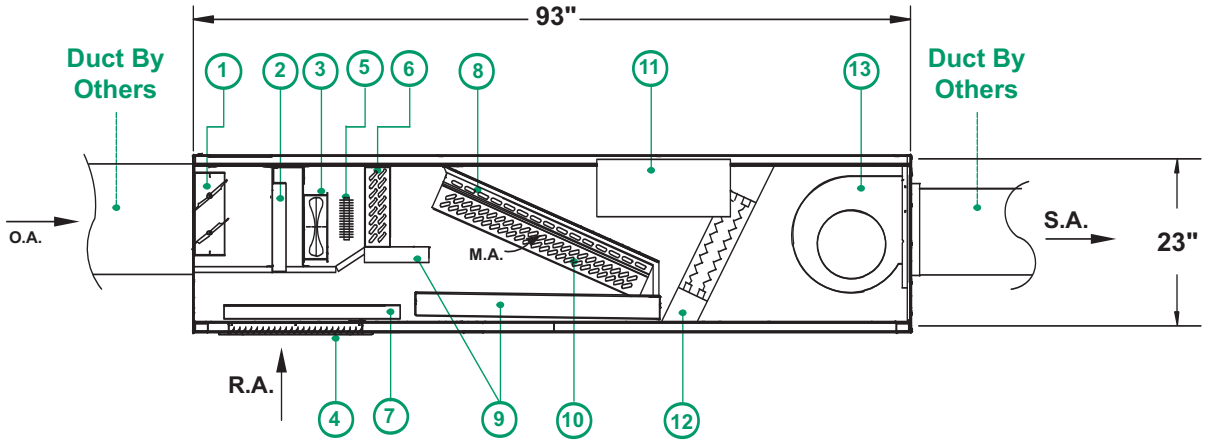
S.A.	Supply Air	**O.A.**	Outdoor Air	**R.A.**	Return Air	**M.A.**	Mixed Air

1. **Optional top plenum with double deflection supply air grilles.**
2. **Optional electric heater.**
3. **Primary coil (DX evaporator or chilled water).**
4. **Option hot gas reheat coil (DX units only)**
5. **Drain pan.**
6. **Supply air fan.**
7. **Hinged electrical / control enclosure.**
8. **Outdoor air coil (DX evaporator or chilled water).**
9. **Optional electric coil for freeze protection (chilled water units only).**
10. **Return air filters.**
11. **Outdoor air fan.**
12. **Outdoor air filter.**
13. **Motorized spring return outdoor air damper.**
14. **Coil access panel.**
15. **Return air filter access panel.**
16. **Heavy duty return air grille.**

Chilled Water or Split System DX Unit Ventilator

Model HGB 1600

HORIZONTAL, DRAW THROUGH CONFIGURATION



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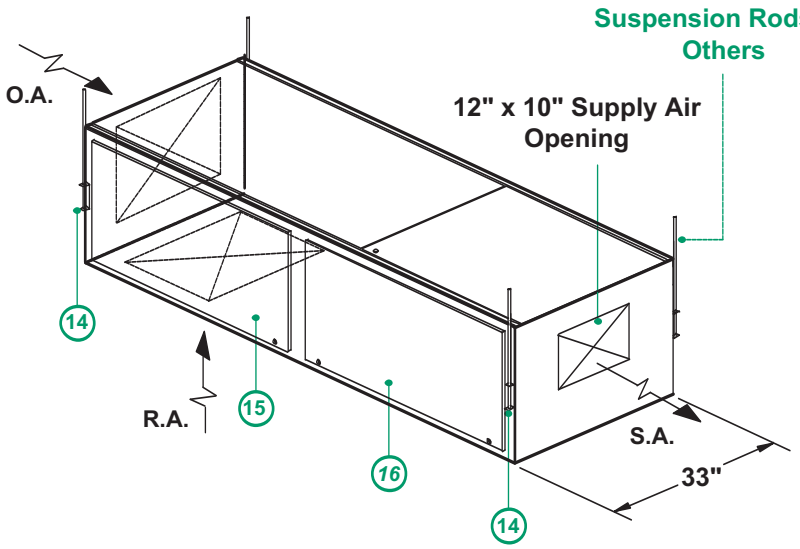


ISOMETRIC VIEW
(shown with left side access panel)

S.A.	Supply Air	**O.A.**	Outdoor Air	**R.A.**	Return Air

1. Outdoor air damper.
2. Outdoor air filter.
3. Outdoor air fan.
4. Heavy duty return air grille or duct collar.
5. Optional electric coil for freeze protection (chilled water units only).
6. Outdoor air chilled water or DX evaporator coil.
7. Return air filter.
8. Optional hot gas reheat coil (DX units only).
9. Drain pan. Drain pan is removable when option for bottom access panels is selected.
10. Primary chilled water or DX evaporator coil.
11. Electrical / control enclosure.
12. Optional electric heater.
13. Supply air fan.
14. Mounting brackets (4 per unit).
15. Left or Right side hinged filter access panel.
16. Left or Right side hinged coil access panel.

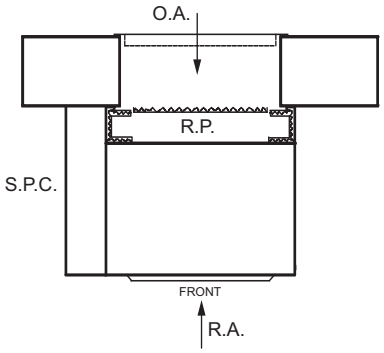
Application Layout

VGB Series Classroom Fan Coil Unit

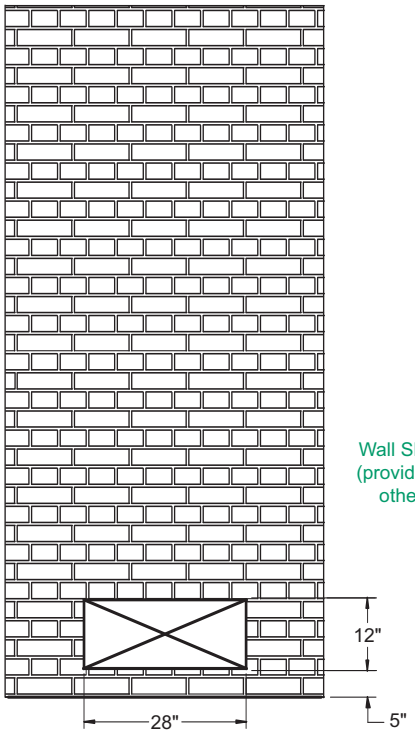
DRAW THROUGH CONFIGURATION

Not To Scale

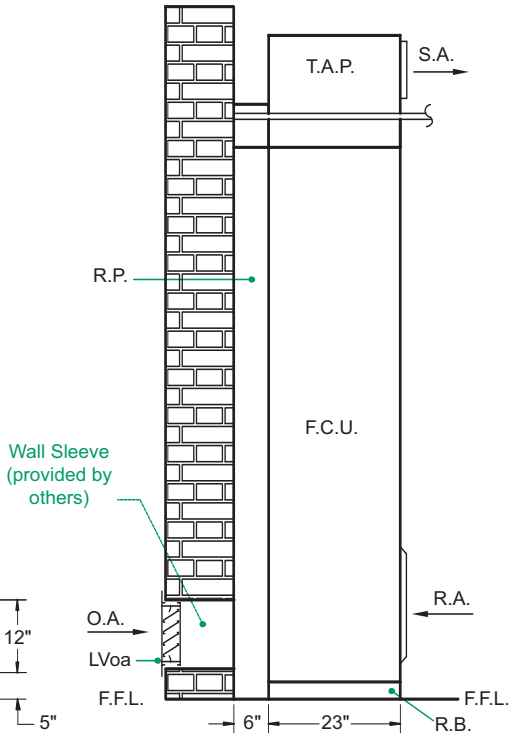
F.C.U.	Classroom fan coil unit
T.A.P.	Top acoustical plenum (optional)
H	Height from top of unit to bottom of duct
Ho	Overall height of top acoustical plenum
R.P.	Rear plenum (optional)
R.B.	Raised base (optional)
S.P.C.	Side pipe cover (optional)
LVoa	Outdoor air louver
Hsc	Height from F.F.L. to suspended ceiling
F.F.L.	Finished floor level
S.A.	Supply air
R.A.	Return air
O.A.	Outdoor air intake



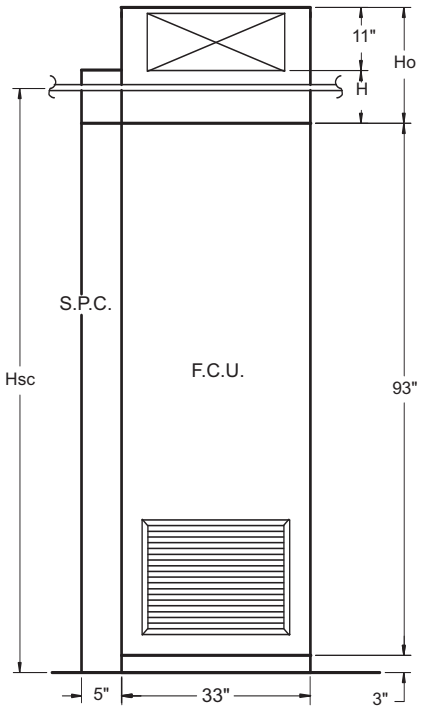
PLAN VIEW



MASONRY ELEVATION



SIDE ELEVATION



FRONT ELEVATION

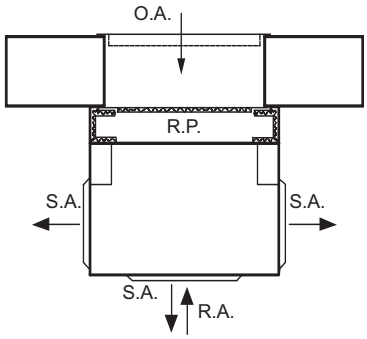
Application Layout

VGB Series Classroom Fan Coil Unit

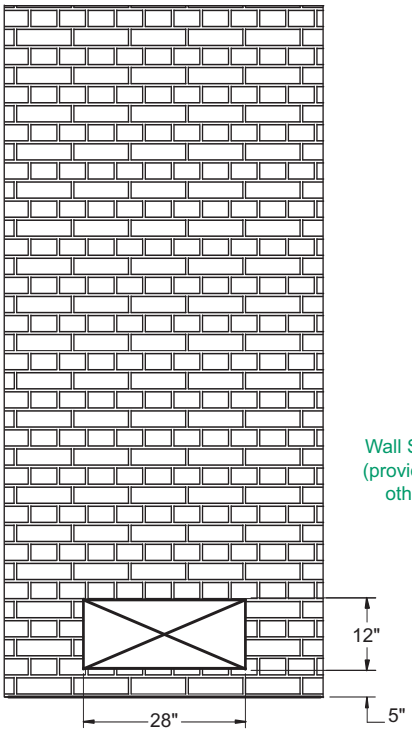
BLOW THROUGH CONFIGURATION

Not To Scale

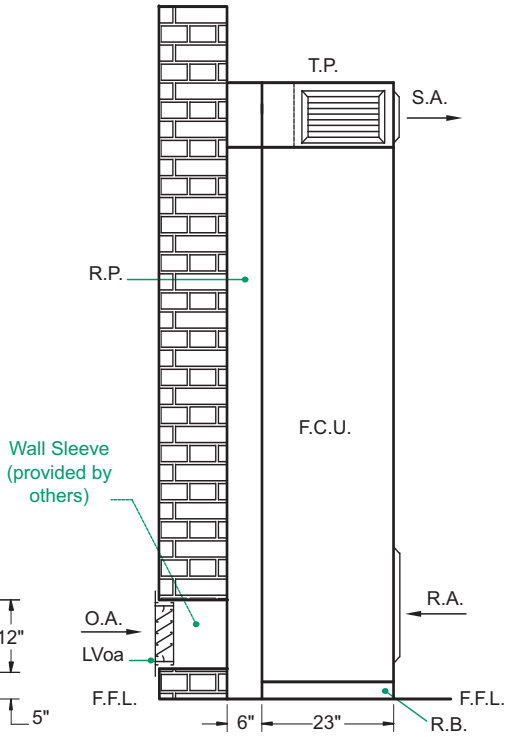
F.C.U.	Classroom fan coil unit
T.P.	Top plenum (optional)
Ho	Overall height of top plenum
R.P.	Rear plenum (optional)
R.B.	Raised base (optional)
LVoa	Outdoor air louver
F.F.L.	Finished floor level
S.A.	Supply air
R.A.	Return air
O.A.	Outdoor air intake



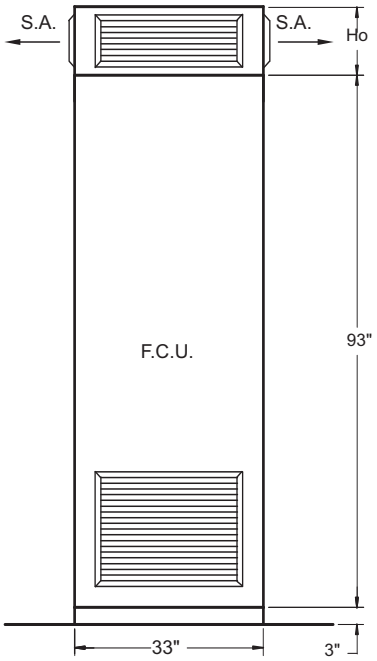
PLAN VIEW



MASONRY ELEVATION



SIDE ELEVATION



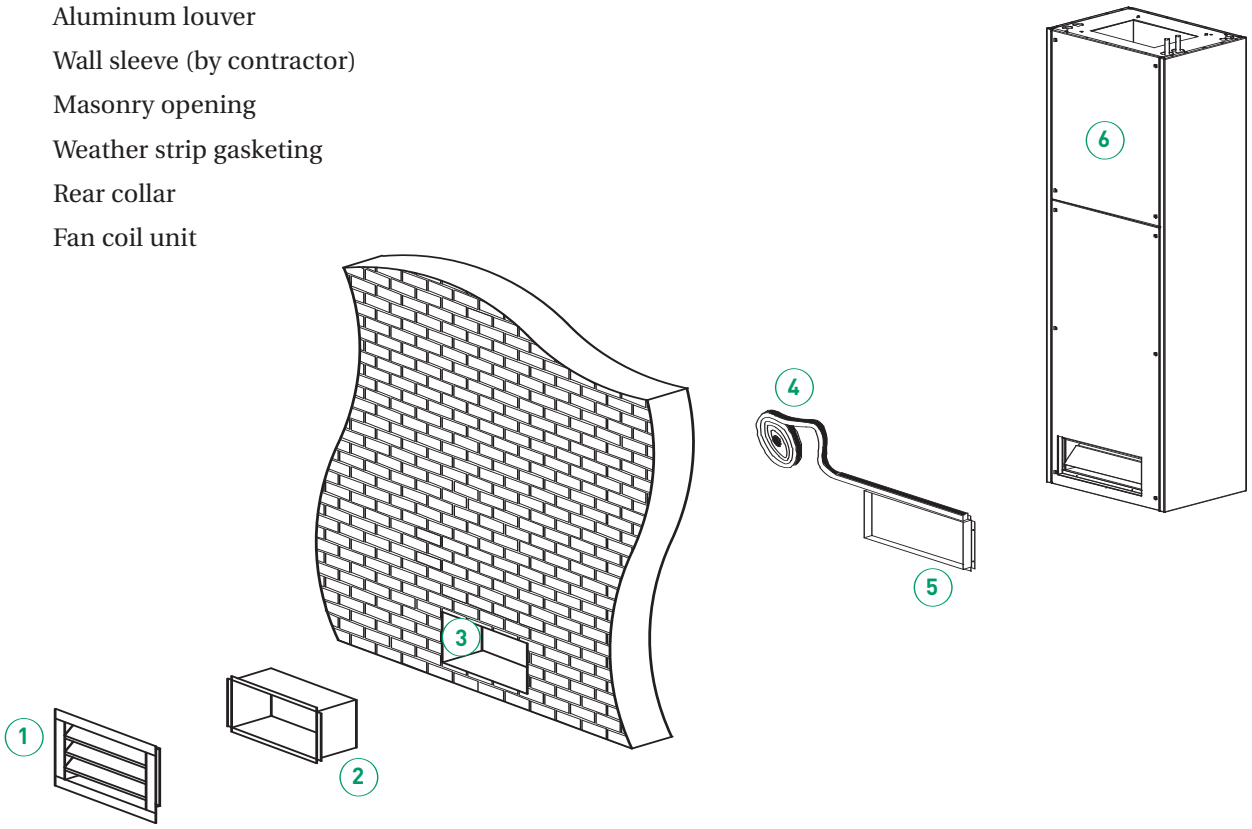
FRONT ELEVATION

Wall Sleeve / Louver Installation

Model VGB Series

Installation screws & caulk not provided.

1. Aluminum louver
2. Wall sleeve (by contractor)
3. Masonry opening
4. Weather strip gasketing
5. Rear collar
6. Fan coil unit



STEP 1

Attach the 2" deep collar to the back of the unit using the pre-drilled holes.

STEP 2

Apply self-adhesive 1" square foam weather strip around the outside of the collar. This is to prevent outdoor air leakage into the room from around the perimeter of the wall opening.

STEP 3

Before proceding to step 4, determine where the condensate line will drain out. If the condensate line is to run through the wall, refer to the shop drawings for condensate opening locations.

STEP 4

Push the unit into position, with the collar penetrating the wall opening, compressing the foam strip. Plumb the unit using shims, if necessary.

STEP 5

Insert the wall sleeve into the wall opening from outside the building. The sleeve should be an inside fit into the rear collar. Secure the sleeve to the side flange of the collar. Caulk all joints.

STEP 6

Fit the louver into the wall sleeve and secure to the wall. Caulk the top horizontal edge of the louver and the two vertical edges **but not the bottom horizontal flange**.

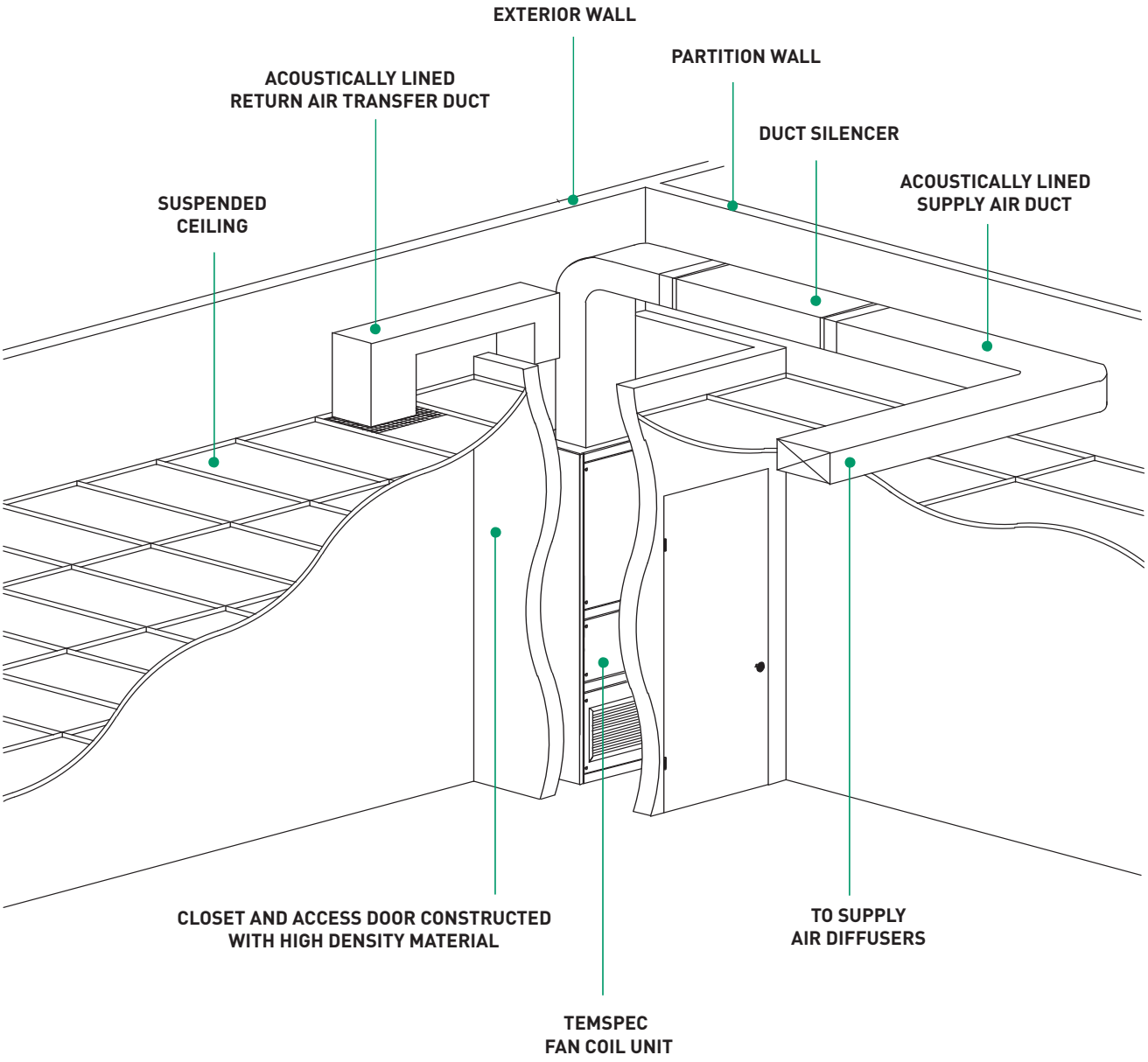
Temspec Customization

The design of the Temspec classroom fan coil unit allows for many customized or special features to be incorporated in its application.

The following pages illustrate some of the adaptations which are offered with this equipment.

Please call your local representative or the factory to enquire about modifications and accessories to suit your specific needs. Our designers and sales technicians are knowledgeable in configuring the unit construction which is best suited to meet particular architectural, mechanical or control specifications or constraints.

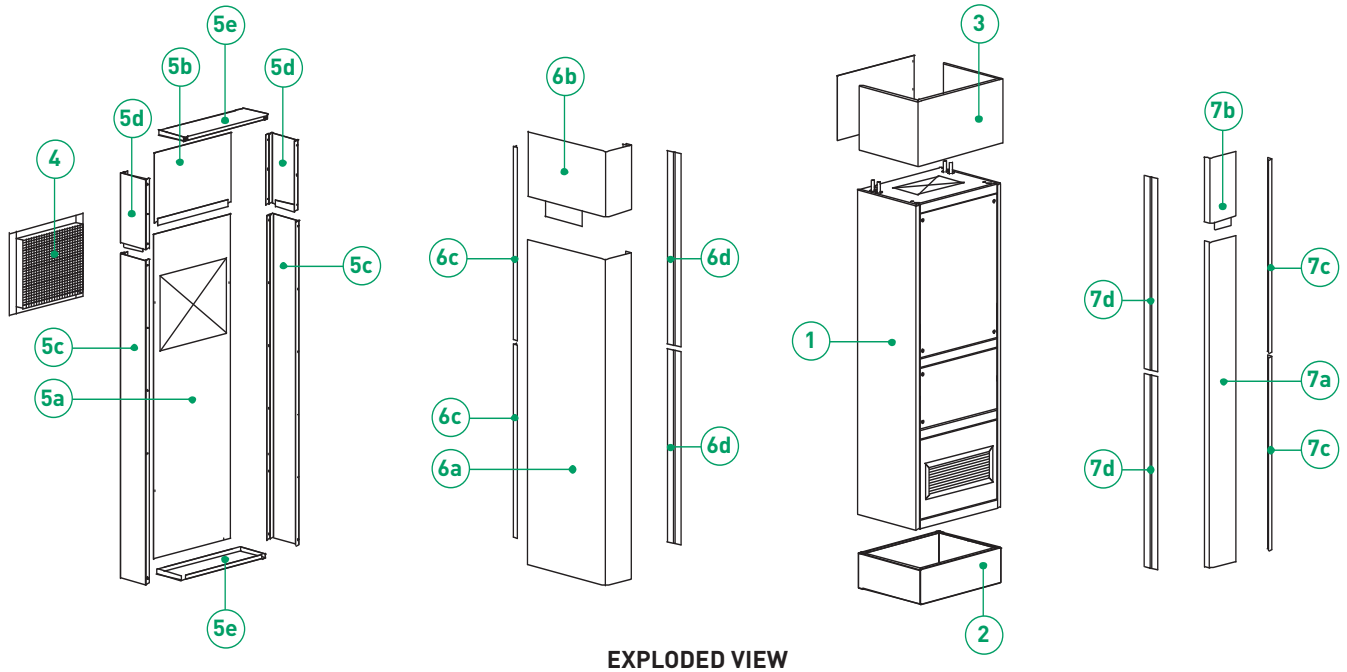
Designing for ANSI Standard S12.60



The ANSI S12.60 standard is a guide to acoustical performance criteria for schools. The standard covers noise transmission into the room from external sources, reverberation times and noise generated within the room. It recommends a maximum background sound level of 35dBA. Annex B of the standard discusses HVAC noise control. Clearly traditional under-the-window non-ducted unit ventilators or fan coil units will not meet the criteria given in ANSI S12.60. The illustration above shows a method of utilizing a Temspec ducted fan coil unit within an acoustical corner closet to achieve an exceptionally quiet installation.

Sheet Metal Accessories

Raised Base, Top Extension, Rear Outdoor Air Intake Plenum,
Side Pipe Cover, Side Wall Block-Off Panel



EXPLODED VIEW

1. Temspec fan coil unit
2. Raised base
3. Top extension (duct shroud)
4. Outdoor air intake louver

REAR OUTDOOR AIR INTAKE PLENUM (assembled on site):

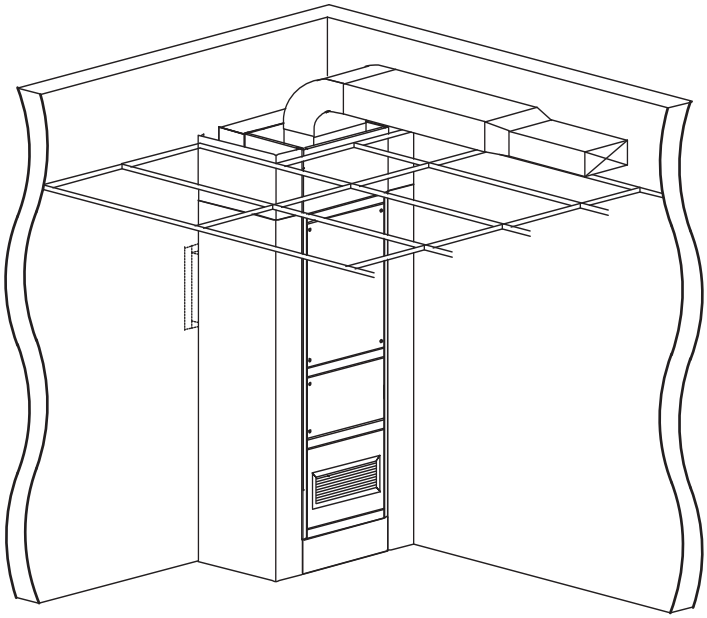
5a. Back panel
5b. Back panel extension (if required)
5c. Side panel
5d. Side panel extension (if required)
5e. Top / bottom panel

SIDE PIPE COVER:

6a. Side pipe cover
6b. Pipe cover extension (if required)
6c. Wall bracket
6d. Cover support

SIDE WALL BLOCK-OFF PANEL:

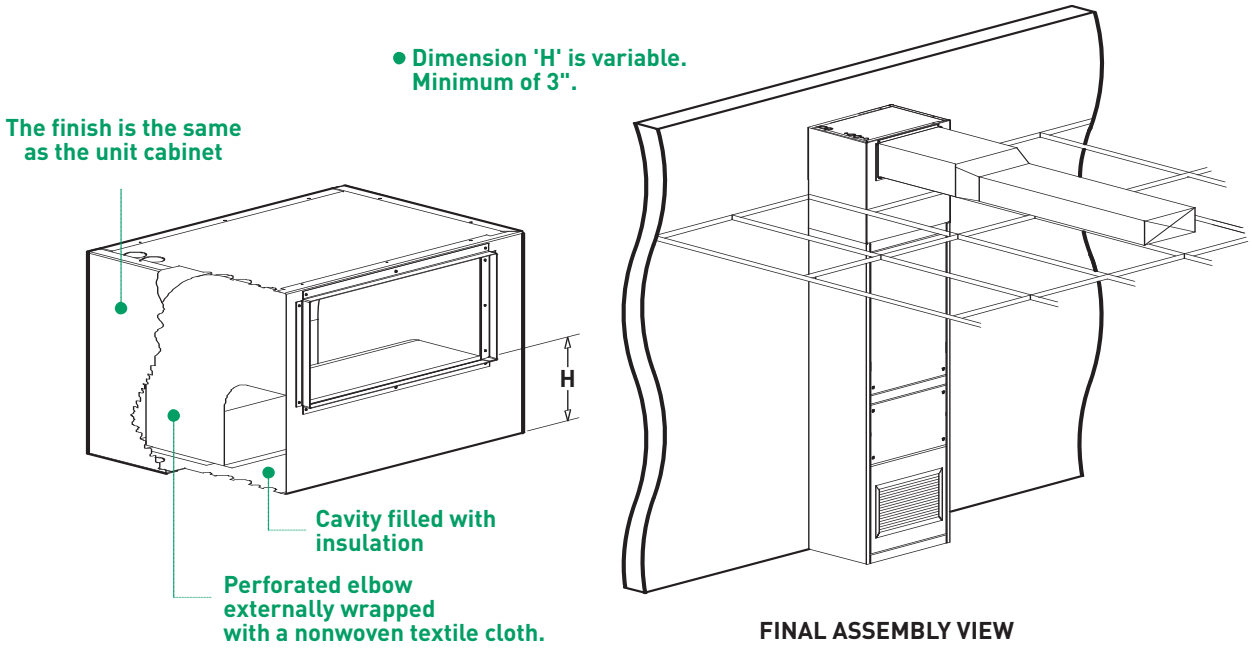
7a. Block-off panel
7b. Block-off extension (if required)
7c. Wall bracket
7d. Block-off support



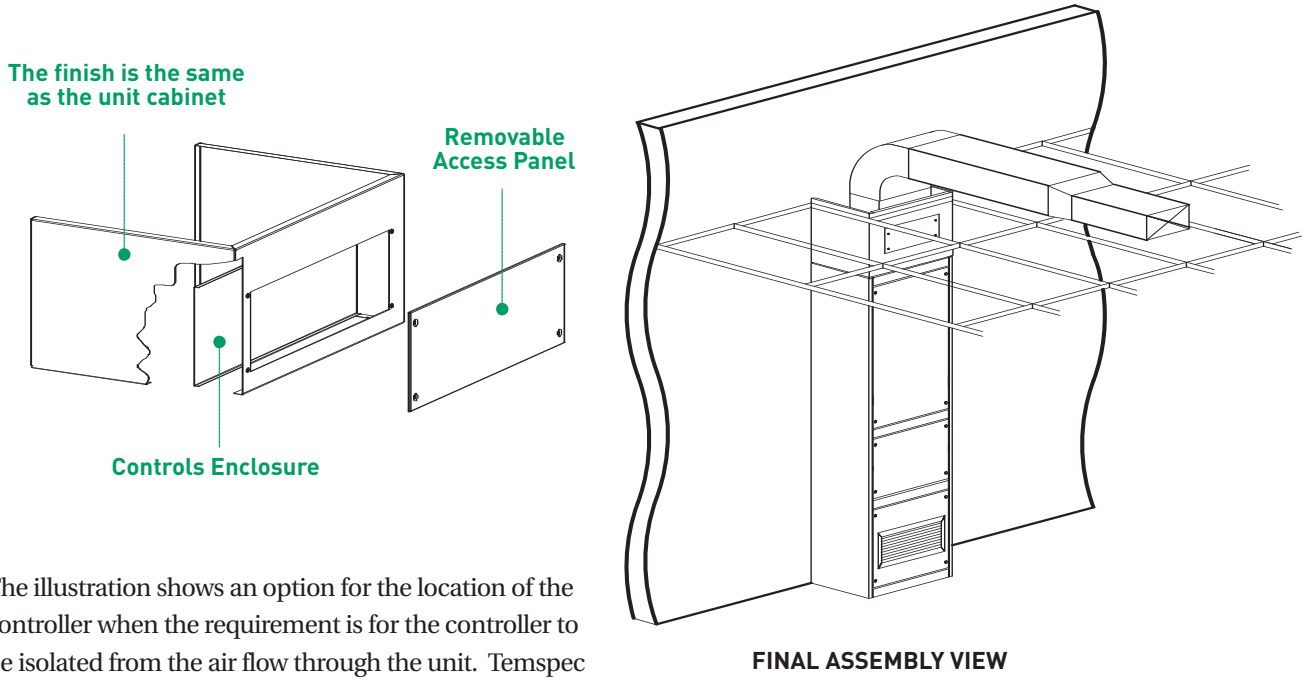
FINAL ASSEMBLY VIEW

Top Acoustical Plenum

Used for VGB 1600



Top Extension with Controls Enclosure



The illustration shows an option for the location of the controller when the requirement is for the controller to be isolated from the air flow through the unit. Temspec provides quick connect plugs for the wire harness.

Capacities for Outdoor Air Chilled Water Pretreatment Coil

43 FEWT

150 c.f.m.		95DB/78WB EAT				93DB/77WB EAT				90DB/76WB EAT			
g.p.m.	WPD	TOTAL	SENS.	LAT	LWT	TOTAL	SENS.	LAT	LWT	TOTAL	SENS.	LAT	LWT
1.5	0.7									10.3	5.3	57.3/56.7	57
2.0	1.1	12.4	6.4	55.7/54.9	55	11.9	6.1	55.2/54.5	55				

200 c.f.m.		95DB/78WB EAT				93DB/77WB EAT				90DB/76WB EAT			
g.p.m.	WPD	TOTAL	SENS.	LAT	LWT	TOTAL	SENS.	LAT	LWT	TOTAL	SENS.	LAT	LWT
2.5	1.8					15.8	8.1	55.4/54.6	56	15.2	7.6	54.8/54.1	55
3.0	2.5	17.2	8.7	54.5/53.6	55								

250 c.f.m.		95DB/78WB EAT				93DB/77WB EAT				90DB/76WB EAT			
g.p.m.	WPD	TOTAL	SENS.	LAT	LWT	TOTAL	SENS.	LAT	LWT	TOTAL	SENS.	LAT	LWT
2.5	1.8					19.7	10.1	55.5/54.7	59	18.9	9.5	55.0/54.3	58
3.0	2.5	21.5	10.9	54.5/53.7	57								

300 c.f.m.		95DB/78WB EAT				93DB/77WB EAT				90DB/76WB EAT			
g.p.m.	WPD	TOTAL	SENS.	LAT	LWT	TOTAL	SENS.	LAT	LWT	TOTAL	SENS.	LAT	LWT
3.0	3.3									22.3	11.2	55.5/54.8	58
3.5	4.3					24.2	12.3	54.9/54.0	57				
4.0	5.5	25.9	13.1	54.6/53.6	56								

350 c.f.m.		95DB/78WB EAT				93DB/77WB EAT				90DB/76WB EAT			
g.p.m.	WPD	TOTAL	SENS.	LAT	LWT	TOTAL	SENS.	LAT	LWT	TOTAL	SENS.	LAT	LWT
4.0	5.5									26.4	13.1	55.2/54.3	56
4.5	6.8					28.0	14.3	55.3/54.2	56				
5.0	8.2	29.8	15.1	55.2/54.1	55								

400 c.f.m.		95DB/78WB EAT				93DB/77WB EAT				90DB/76WB EAT			
g.p.m.	WPD	TOTAL	SENS.	LAT	LWT	TOTAL	SENS.	LAT	LWT	TOTAL	SENS.	LAT	LWT
5.0	8.2									30.0	14.9	55.5/54.5	55
6.5	13.0					32.7	16.5	54.8/53.6	53				
7.0	15.0	34.5	17.3	54.9/53.7	53								

450 c.f.m.		95DB/78WB EAT				93DB/77WB EAT				90DB/76WB EAT			
g.p.m.	WPD	TOTAL	SENS.	LAT	LWT	TOTAL	SENS.	LAT	LWT	TOTAL	SENS.	LAT	LWT
6.5	13.0									34.0	16.8	55.4/54.3	54
7.0	15.0	37.5	18.9	56.1/54.8	54	35.9	18.2	55.6/54.3	53				

500 c.f.m.		95DB/78WB EAT				93DB/77WB EAT				90DB/76WB EAT			
g.p.m.	WPD	TOTAL	SENS.	LAT	LWT	TOTAL	SENS.	LAT	LWT	TOTAL	SENS.	LAT	LWT
7.0	15.0	40.0	20.4	57.2/55.8	55	38.6	19.6	56.7/55.3	54	37.0	18.3	56.1/54.9	55

WPD	water pressure drop across coil in ft. of water
EWT	entering water temperature in °F
LWT	leaving water temperature in °F
EAT	entering air temperature in °F
LAT	leaving air temperature in °F

Total and sensible cooling capacities are in MBtuh

Coils are four row, circuited in a counterflow configuration

For conditions different to those shown in this catalog, call the factory

OCCUPIED MODE

95DB/78WB, 93DB/77WB and 90DB/76WB are outdoor air Summer design temperatures.

UNOCCUPIED MODE

Outdoor air is shut off, outdoor air C.W. coil valve is closed.

Capacities for Outdoor Air Chilled Water Pretreatment Coil

44 FEWT

150 c.f.m.		95DB/78WB EAT				93DB/77WB EAT				90DB/76WB EAT			
g.p.m.	WPD	TOTAL	SENS.	LAT	LWT	TOTAL	SENS.	LAT	LWT	TOTAL	SENS.	LAT	LWT
2.0	1.1									11.1	5.6	55.4/54.8	55
2.5	1.6	12.8	6.5	54.7/54.0	54	12.3	6.3	54.3/53.6	54				

200 c.f.m.		95DB/78WB EAT				93DB/77WB EAT				90DB/76WB EAT			
g.p.m.	WPD	TOTAL	SENS.	LAT	LWT	TOTAL	SENS.	LAT	LWT	TOTAL	SENS.	LAT	LWT
2.5	1.8									14.8	7.4	55.5/54.8	56
3.0	2.5	16.9	8.6	55.2/54.3	55	16.2	8.3	54.8/54.0	55				

250 c.f.m.		95DB/78WB EAT				93DB/77WB EAT				90DB/76WB EAT			
g.p.m.	WPD	TOTAL	SENS.	LAT	LWT	TOTAL	SENS.	LAT	LWT	TOTAL	SENS.	LAT	LWT
3.0	3.3	21.0	10.7	55.2/54.4	58	20.1	10.3	54.8/54.1	57	19.3	9.6	54.4/53.7	57

300 c.f.m.		95DB/78WB EAT				93DB/77WB EAT				90DB/76WB EAT			
g.p.m.	WPD	TOTAL	SENS.	LAT	LWT	TOTAL	SENS.	LAT	LWT	TOTAL	SENS.	LAT	LWT
3.5	4.3									22.6	11.3	55.4/54.5	57
4.0	5.5	25.3	12.9	55.3/54.4	57	24.2	12.4	54.9/54.0	56				

350 c.f.m.		95DB/78WB EAT				93DB/77WB EAT				90DB/76WB EAT			
g.p.m.	WPD	TOTAL	SENS.	LAT	LWT	TOTAL	SENS.	LAT	LWT	TOTAL	SENS.	LAT	LWT
4.5	6.7									26.2	13.1	55.4/54.5	56
5.0	8.1	29.1	14.8	55.8/54.8	56	28.0	14.2	55.4/54.4	55				

400 c.f.m.		95DB/78WB EAT				93DB/77WB EAT				90DB/76WB EAT			
g.p.m.	WPD	TOTAL	SENS.	LAT	LWT	TOTAL	SENS.	LAT	LWT	TOTAL	SENS.	LAT	LWT
5.5	9.6									29.8	14.8	55.7/54.7	55
6.0	11.0	33.0	16.7	56.3/55.1	55	31.5	16.0	55.8/54.7	55				

450 c.f.m.		95DB/78WB EAT				93DB/77WB EAT				90DB/76WB EAT			
g.p.m.	WPD	TOTAL	SENS.	LAT	LWT	TOTAL	SENS.	LAT	LWT	TOTAL	SENS.	LAT	LWT
6.5	13.0									33.2	16.5	56.0/54.9	54
7.0	15.0	36.6	18.6	56.8/55.4	55	35.1	17.9	56.3/55.0	54				

500 c.f.m.		95DB/78WB EAT				93DB/77WB EAT				90DB/76WB EAT			
g.p.m.	WPD	TOTAL	SENS.	LAT	LWT	TOTAL	SENS.	LAT	LWT	TOTAL	SENS.	LAT	LWT
7.0	15.0	39.3	20.0	57.9/56.4	55	37.7	19.3	57.3/55.9	55	36.0	18.0	56.7/55.5	54

WPD	water pressure drop across coil in ft. of water
EWT	entering water temperature in °F
LWT	leaving water temperature in °F
EAT	entering air temperature in °F
LAT	leaving air temperature in °F

Total and sensible cooling capacities are in MBtuh

Coils are four row, circuited in a counterflow configuration

For conditions different to those shown in this catalog, call the factory

OCCUPIED MODE

95DB/78WB, 93DB/77WB and 90DB/76WB are outdoor air Summer design temperatures.

UNOCCUPIED MODE

Outdoor air is shut off, outdoor air C.W. coil valve is closed.

Capacities for Outdoor Air Chilled Water Pretreatment Coil

45 FEWT

150 c.f.m.		95DB/78WB EAT				93DB/77WB EAT				90DB/76WB EAT			
g.p.m.	WPD	TOTAL	SENS.	LAT	LWT	TOTAL	SENS.	LAT	LWT	TOTAL	SENS.	LAT	LWT
2.5	1.8					12.0	6.1	55.0/54.3	55	11.5	5.7	54.6/54.0	54
3.0	2.5	13.0	6.6	54.3/53.6	54								

200 c.f.m.		95DB/78WB EAT				93DB/77WB EAT				90DB/76WB EAT			
g.p.m.	WPD	TOTAL	SENS.	LAT	LWT	TOTAL	SENS.	LAT	LWT	TOTAL	SENS.	LAT	LWT
3.0	2.5									15.1	7.6	55.0/54.3	55
3.5	3.2	17.0	8.7	54.9/54.0	55	16.3	8.3	54.5/53.7	54				

250 c.f.m.		95DB/78WB EAT				93DB/77WB EAT				90DB/76WB EAT			
g.p.m.	WPD	TOTAL	SENS.	LAT	LWT	TOTAL	SENS.	LAT	LWT	TOTAL	SENS.	LAT	LWT
3.0	3.3					19.7	10.1	55.5/54.8	58	18.8	9.4	55.1/54.4	58
3.5	4.3	21.3	10.8	54.9/54.1	57								

300 c.f.m.		95DB/78WB EAT				93DB/77WB EAT				90DB/76WB EAT			
g.p.m.	WPD	TOTAL	SENS.	LAT	LWT	TOTAL	SENS.	LAT	LWT	TOTAL	SENS.	LAT	LWT
4.0	5.5					23.6	12.1	55.6/54.7	57	22.6	11.3	55.1/54.3	56
4.5	6.7	25.1	12.8	55.5/54.6	56								

350 c.f.m.		95DB/78WB EAT				93DB/77WB EAT				90DB/76WB EAT			
g.p.m.	WPD	TOTAL	SENS.	LAT	LWT	TOTAL	SENS.	LAT	LWT	TOTAL	SENS.	LAT	LWT
5.5	9.6					27.7	14.1	55.6/54.6	55	26.5	13.2	55.1/54.2	55
6.0	11.0	29.3	14.9	55.7/54.6	55								

400 c.f.m.		95DB/78WB EAT				93DB/77WB EAT				90DB/76WB EAT			
g.p.m.	WPD	TOTAL	SENS.	LAT	LWT	TOTAL	SENS.	LAT	LWT	TOTAL	SENS.	LAT	LWT
6.5	13.0									30.0	14.9	55.6/54.6	54
7.0	15.0	33.0	16.7	56.3/55.1	54	31.6	16.1	55.8/54.7	54				

450 c.f.m.		95DB/78WB EAT				93DB/77WB EAT				90DB/76WB EAT			
g.p.m.	WPD	TOTAL	SENS.	LAT	LWT	TOTAL	SENS.	LAT	LWT	TOTAL	SENS.	LAT	LWT
7.0	15.0									32.8	16.3	56.4/55.3	54
7.5	17.0	36.2	18.4	57.1/55.8	55	34.7	17.7	56.6/55.4	54				

500 c.f.m.		95DB/78WB EAT				93DB/77WB EAT				90DB/76WB EAT			
g.p.m.	WPD	TOTAL	SENS.	LAT	LWT	TOTAL	SENS.	LAT	LWT	TOTAL	SENS.	LAT	LWT
7.5	17.0	38.9	19.9	58.2/56.7	55	37.2	19.1	57.6/56.3	55	35.6	17.8	57.0/55.8	55

WPD	water pressure drop across coil in ft. of water
EWT	entering water temperature in °F
LWT	leaving water temperature in °F
EAT	entering air temperature in °F
LAT	leaving air temperature in °F

Total and sensible cooling capacities are in MBtuh

Coils are four row, circuited in a counterflow configuration

For conditions different to those shown in this catalog, call the factory

OCCUPIED MODE

95DB/78WB, 93DB/77WB and 90DB/76WB are outdoor air Summer design temperatures.

UNOCCUPIED MODE

Outdoor air is shut off, outdoor air C.W. coil valve is closed.

Capacities for Primary Chilled Water Coil

43 FEWT

900 c.f.m.		68DB/60WB EAT				75DB/63WB EAT			
g.p.m.	WPD	TOTAL	SENS.	LAT	LWT	TOTAL	SENS.	LAT	LWT
3.0	1.1	16.5	13.1	54.6/53.6	54	20.1	17.5	57.0/55.6	56

1000 c.f.m.		68DB/60WB EAT				75DB/63WB EAT			
g.p.m.	WPD	TOTAL	SENS.	LAT	LWT	TOTAL	SENS.	LAT	LWT
3.5	1.5	18.8	14.7	54.4/53.4	54	23.0	19.6	56.9/55.4	56

1100 c.f.m.		68DB/60WB EAT				75DB/63WB EAT			
g.p.m.	WPD	TOTAL	SENS.	LAT	LWT	TOTAL	SENS.	LAT	LWT
4.0	1.8	21.1	16.2	54.4/53.3	54	25.7	21.6	56.8/55.3	56

1200 c.f.m.		68DB/60WB EAT				75DB/63WB EAT			
g.p.m.	WPD	TOTAL	SENS.	LAT	LWT	TOTAL	SENS.	LAT	LWT
4.5	2.3	23.2	17.7	54.3/53.2	53	28.3	23.5	56.8/55.2	56

1300 c.f.m.		68DB/60WB EAT				75DB/63WB EAT			
g.p.m.	WPD	TOTAL	SENS.	LAT	LWT	TOTAL	SENS.	LAT	LWT
5.5	3.2	26.6	19.7	54.0/52.8	53	32.4	26.0	56.4/54.7	55

1400 c.f.m.		68DB/60WB EAT				75DB/63WB EAT			
g.p.m.	WPD	TOTAL	SENS.	LAT	LWT	TOTAL	SENS.	LAT	LWT
6.0	3.8	28.6	21.1	54.0/52.8	53	34.8	27.9	56.5/54.7	55

1500 c.f.m.		68DB/60WB EAT				75DB/63WB EAT			
g.p.m.	WPD	TOTAL	SENS.	LAT	LWT	TOTAL	SENS.	LAT	LWT
6.0	3.8	29.4	22.0	54.4/53.1	53	35.8	29.2	57.0/55.1	55

1600 c.f.m.		68DB/60WB EAT				75DB/63WB EAT			
g.p.m.	WPD	TOTAL	SENS.	LAT	LWT	TOTAL	SENS.	LAT	LWT
6.5	4.3	31.4	23.4	54.4/53.1	53	38.3	31.0	57.0/55.1	55

WPD	water pressure drop across coil in ft. of water
EWT	entering water temperature in ^{0}F
LWT	leaving water temperature in ^{0}F
EAT	entering air temperature in ^{0}F
LAT	leaving air temperature in ^{0}F

Total and sensible cooling capacities are in MBtuh

Coils are three row, circuited in a counterflow configuration

For conditions different to those shown in this catalog, call the factory

OCCUPIED MODE

68DB/60WB EAT is the mixed air condition resulting from 66% room air at 75DB/63WB and 34% pretreated air off the outdoor air coil at 55DB/54WB.

UNOCCUPIED MODE

75DB/63WB is the return air condition, the outdoor air is shut off.

Capacities for Primary Chilled Water Coil

44 FEWT

900 c.f.m.		68DB/60WB EAT				75DB/63WB EAT			
g.p.m.	WPD	TOTAL	SENS.	LAT	LWT	TOTAL	SENS.	LAT	LWT
3.0	1.1	15.5	12.7	54.9/54.0	54	19.1	17.1	57.4/56.0	57

1000 c.f.m.		68DB/60WB EAT				75DB/63WB EAT			
g.p.m.	WPD	TOTAL	SENS.	LAT	LWT	TOTAL	SENS.	LAT	LWT
4.0	1.8	19.2	14.8	54.3/53.3	54	23.7	19.8	56.6/55.2	56

1100 c.f.m.		68DB/60WB EAT				75DB/63WB EAT			
g.p.m.	WPD	TOTAL	SENS.	LAT	LWT	TOTAL	SENS.	LAT	LWT
4.5	2.3	21.2	16.3	54.3/53.3	53	26.1	21.7	56.7/55.1	56

1200 c.f.m.		68DB/60WB EAT				75DB/63WB EAT			
g.p.m.	WPD	TOTAL	SENS.	LAT	LWT	TOTAL	SENS.	LAT	LWT
5.0	2.7	23.1	17.7	54.4/53.3	53	28.5	23.6	56.8/55.1	55

1300 c.f.m.		68DB/60WB EAT				75DB/63WB EAT			
g.p.m.	WPD	TOTAL	SENS.	LAT	LWT	TOTAL	SENS.	LAT	LWT
6.0	3.8	26.2	19.5	54.1/52.9	53	32.2	26.0	56.5/54.7	55

1400 c.f.m.		68DB/60WB EAT				75DB/63WB EAT			
g.p.m.	WPD	TOTAL	SENS.	LAT	LWT	TOTAL	SENS.	LAT	LWT
6.5	4.3	28.1	20.9	54.2/53.0	53	34.6	27.8	56.6/54.8	55

1500 c.f.m.		68DB/60WB EAT				75DB/63WB EAT			
g.p.m.	WPD	TOTAL	SENS.	LAT	LWT	TOTAL	SENS.	LAT	LWT
7.0	4.9	30.0	22.3	54.3/53.0	53	36.9	29.6	56.7/54.8	55

1600 c.f.m.		68DB/60WB EAT				75DB/63WB EAT			
g.p.m.	WPD	TOTAL	SENS.	LAT	LWT	TOTAL	SENS.	LAT	LWT
7.5	5.6	31.8	23.6	54.3/53.0	53	39.1	31.4	56.8/54.9	54

WPD	water pressure drop across coil in ft. of water
EWT	entering water temperature in °F
LWT	leaving water temperature in °F
EAT	entering air temperature in °F
LAT	leaving air temperature in °F

Total and sensible cooling capacities are in MBtuh

Coils are three row, circuited in a counterflow configuration

For conditions different to those shown in this catalog, call the factory

OCCUPIED MODE

68DB/60WB EAT is the mixed air condition resulting from 66% room air at 75DB/63WB and 34% pretreated air off the outdoor air coil at 55DB/54WB.

UNOCCUPIED MODE

75DB/63WB is the return air condition, the outdoor air is shut off.

Capacities for Primary Chilled Water Coil

45 FEWT

900 c.f.m.		68DB/60WB EAT				75DB/63WB EAT			
g.p.m.	WPD	TOTAL	SENS.	LAT	LWT	TOTAL	SENS.	LAT	LWT
4.0	1.8	17.3	13.4	54.2/53.3	54	21.6	18.0	56.4/55.0	56

1000 c.f.m.		68DB/60WB EAT				75DB/63WB EAT			
g.p.m.	WPD	TOTAL	SENS.	LAT	LWT	TOTAL	SENS.	LAT	LWT
4.5	2.3	19.2	14.8	54.3/53.3	54	23.9	19.9	56.6/55.1	56

1100 c.f.m.		68DB/60WB EAT				75DB/63WB EAT			
g.p.m.	WPD	TOTAL	SENS.	LAT	LWT	TOTAL	SENS.	LAT	LWT
5.0	3.2	22.0	16.6	54.0/53.0	53	26.1	21.7	56.7/55.1	56

1200 c.f.m.		68DB/60WB EAT				75DB/63WB EAT			
g.p.m.	WPD	TOTAL	SENS.	LAT	LWT	TOTAL	SENS.	LAT	LWT
6.0	3.8	23.8	17.9	54.2/53.0	53	29.6	24.0	56.5/54.8	55

1300 c.f.m.		68DB/60WB EAT				75DB/63WB EAT			
g.p.m.	WPD	TOTAL	SENS.	LAT	LWT	TOTAL	SENS.	LAT	LWT
7.0	4.9	26.5	19.6	54.0/52.8	53	32.9	26.3	56.3/54.5	54

1400 c.f.m.		68DB/60WB EAT				75DB/63WB EAT			
g.p.m.	WPD	TOTAL	SENS.	LAT	LWT	TOTAL	SENS.	LAT	LWT
7.5	5.6	28.2	21.0	54.1/52.9	53	35.1	28.0	56.5/54.6	54

1500 c.f.m.		68DB/60WB EAT				75DB/63WB EAT			
g.p.m.	WPD	TOTAL	SENS.	LAT	LWT	TOTAL	SENS.	LAT	LWT
8.0	6.2	29.8	22.2	54.3/53.0	53	37.0	29.7	56.7/54.8	54

1600 c.f.m.		68DB/60WB EAT				75DB/63WB EAT			
g.p.m.	WPD	TOTAL	SENS.	LAT	LWT	TOTAL	SENS.	LAT	LWT
8.0	6.2	30.7	23.1	54.6/53.3	53	38.0	31.0	57.1/55.1	55

WPD	water pressure drop across coil in ft. of water
EWT	entering water temperature in °F
LWT	leaving water temperature in °F
EAT	entering air temperature in °F
LAT	leaving air temperature in °F

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OCCUPIED MODE

68DB/60WB EAT is the mixed air condition resulting from 66% room air at 75DB/63WB and 34% pretreated air off the outdoor air coil at 55DB/54WB.

UNOCCUPIED MODE

75DB/63WB is the return air condition, the outdoor air is shut off.

Capacities for Primary Hot Water Coil in a Four Pipe Unit

160 FEWT

900 c.f.m.		70 F			55 F		
g.p.m.	WPD	MBtuh	LAT	LWT	MBtuh	LAT	LWT
3.0	1.8	33.6	105	137	39.2	95	133
4.0	3.0	35.2	106	142	41.0	97	139
5.0	4.5	36.2	107	145	42.2	99	143

1000 c.f.m.		70 F			55 F		
g.p.m.	WPD	MBtuh	LAT	LWT	MBtuh	LAT	LWT
3.0	1.8	35.6	103	136	41.5	94	132
4.0	3.0	37.5	105	141	43.7	95	138
5.0	4.5	38.6	106	144	45.1	97	142

1100 c.f.m.		70 F			55 F		
g.p.m.	WPD	MBtuh	LAT	LWT	MBtuh	LAT	LWT
3.0	1.8	37.5	102	135	43.7	92	130
4.0	3.0	39.6	103	140	46.2	94	137
5.0	4.5	40.9	104	143	47.7	95	141

1200 c.f.m.		70 F			55 F		
g.p.m.	WPD	MBtuh	LAT	LWT	MBtuh	LAT	LWT
3.0	1.8	39.3	100	133	45.8	90	129
4.0	3.0	41.6	102	139	48.5	92	135
5.0	4.5	43.1	103	142	50.2	94	140

1300 c.f.m.		70 F			55 F		
g.p.m.	WPD	MBtuh	LAT	LWT	MBtuh	LAT	LWT
3.0	1.8	40.9	99	132	47.7	89	128
4.0	3.0	43.5	101	138	50.7	91	134
5.0	4.5	45.1	102	142	52.6	93	139

1400 c.f.m.		70 F			55 F		
g.p.m.	WPD	MBtuh	LAT	LWT	MBtuh	LAT	LWT
3.0	1.8	42.5	98	131	49.5	88	126
4.0	3.0	45.2	100	137	52.7	90	133
5.0	4.5	47.0	101	141	54.9	91	138

1500 c.f.m.		70 F			55 F		
g.p.m.	WPD	MBtuh	LAT	LWT	MBtuh	LAT	LWT
3.0	1.8	43.9	97	130	51.2	87	125
4.0	3.0	46.9	99	136	54.7	89	132
5.0	4.5	48.9	100	140	57.0	90	137

1600 c.f.m.		70 F			55 F		
g.p.m.	WPD	MBtuh	LAT	LWT	MBtuh	LAT	LWT
3.0	1.8	45.3	96	129	52.8	86	124
4.0	3.0	48.5	98	135	56.6	88	131
5.0	4.5	50.6	99	139	59.0	89	136

WPD	water pressure drop across coil in ft. of water
EWT	entering water temperature in °F
LWT	leaving water temperature in °F
EAT	entering air temperature in °F
LAT	leaving air temperature in °F

Capacities are for pure water, no glycol

Coils are one row, located in the reheat position relative to the primary cooling coil

For conditions different to those shown in this catalog, call the factory

OCCUPIED MODE

70°F is the mixed air condition resulting from 66% room air at 72°F and 34% air off the outdoor air coil preheated to 66°F by the freeze protection coil.

UNOCCUPIED MODE

55°F is the return air condition during night set-back, the outdoor air is shut off.

Capacities for Hot Water Coil used in a Chilled Water Unit for Freeze Protection of Outdoor Air Pretreatment Coil

160 FEWT

150 c.f.m.		15 F			26 F			37 F		
g.p.m.	WPD	MBtuh	LAT	LWT	MBtuh	LAT	LWT	MBtuh	LAT	LWT
0.5	0.1	10.0	76	119	9.2	83	122	8.4	89	126

200 c.f.m.		15 F			26 F			37 F		
g.p.m.	WPD	MBtuh	LAT	LWT	MBtuh	LAT	LWT	MBtuh	LAT	LWT
0.5	0.1	11.4	68	113	10.5	75	117	9.6	81	121

250 c.f.m.		15 F			26 F			37 F		
g.p.m.	WPD	MBtuh	LAT	LWT	MBtuh	LAT	LWT	MBtuh	LAT	LWT
0.5	0.2				12.9	74	107	11.8	80	112
0.8	0.4	16.3	75	118						

300 c.f.m.		15 F			26 F			37 F		
g.p.m.	WPD	MBtuh	LAT	LWT	MBtuh	LAT	LWT	MBtuh	LAT	LWT
0.5	0.2							12.7	76	108
0.8	0.4				16.4	76	118			
1.0	0.6	18.8	73	122						

350 c.f.m.		15 F			26 F			37 F		
g.p.m.	WPD	MBtuh	LAT	LWT	MBtuh	LAT	LWT	MBtuh	LAT	LWT
0.8	0.4							16.0	79	119
1.0	0.6	20.2	68	119	18.6	75	122			

400 c.f.m.		15 F			26 F			37 F		
g.p.m.	WPD	MBtuh	LAT	LWT	MBtuh	LAT	LWT	MBtuh	LAT	LWT
0.8	0.4							17.0	76	117
1.0	0.6				19.8	72	120			
1.4	1.1	23.3	69	126						

450 c.f.m.		15 F			26 F			37 F		
g.p.m.	WPD	MBtuh	LAT	LWT	MBtuh	LAT	LWT	MBtuh	LAT	LWT
0.8	0.4							17.8	74	114
1.0	0.6				20.9	69	117			
1.5	1.3	25.0	66	126						

500 c.f.m.		15 F			26 F			37 F		
g.p.m.	WPD	MBtuh	LAT	LWT	MBtuh	LAT	LWT	MBtuh	LAT	LWT
0.8	0.4							18.6	71	113
1.0	0.6				21.8	66	115			
1.5	1.3	26.3	64	124						

WPD	water pressure drop across coil in ft. of water
EWT	entering water temperature in °F
LWT	leaving water temperature in °F
EAT	entering air temperature in °F
LAT	leaving air temperature in °F

Capacities are for pure water, no glycol

Coils are one row, located in the preheat position relative to the outdoor cooling coil

For conditions different to those shown in this catalog, call the factory

OCCUPIED MODE

15°F, 26°F and 37°F are outdoor air Winter design temperatures.

UNOCCUPIED MODE

Outdoor air is shut off, freeze protection H.W. coil valve is closed.

Capacities for Outdoor Air DX Pretreatment Coil

c.f.m.	95DB/78WB EAT			93DB/77WB EAT			90DB/76WB EAT			ACCU/evap. coil Nominal Cooling Capacity
	TOTAL	SENS.	LAT	TOTAL	SENS.	LAT	TOTAL	SENS.	LAT	
200	19.9	10.4	51/51	19.2	9.9	51/51	18.4	9.6	51/51	2 tons
250	23.8	12.4	51/51	22.8	11.8	51/51	21.9	11.4	51/51	2 tons
300	27.5	14.3	52/52	26.4	13.7	52/52	25.2	13.1	51/51	2.5 tons
350	30.9	16.2	53/53	29.6	15.6	53/53	28.4	14.7	52/52	3 tons
400	34.1	18.0	54/54	32.7	17.3	53/53	31.3	16.2	53/53	3 tons
450	37.2	19.7	55/54	35.7	18.9	55/54	34.2	17.7	54/54	3.5 tons
500	40.1	21.4	56/55	38.5	20.6	55/55	36.9	19.2	55/55	4 tons

Capacities for Primary DX Coil

c.f.m.	68DB/60WB EAT			75DB/63WB EAT			ACCU/evap. coil Nominal Cooling Capacity
	TOTAL	SENS.	LAT	TOTAL	SENS.	LAT	
900	16.3	12.2	55/54	21.9	17.0	57/54	2 tons
1000	17.5	13.1	56/54	23.5	18.3	58/55	2 tons
1100	18.7	14.1	56/54	33.9	26.1	53/52	3 tons
1200	19.8	15.0	56/54	36.0	27.9	54/53	3 tons
1300	29.6	21.8	53/52	37.9	29.7	54/53	3.5 tons
1400	31.0	23.1	53/52	39.7	31.4	54/53	3.5 tons
1500	32.5	24.3	53/52	41.5	33.1	55/54	3.5 tons
1600	33.9	25.6	53/53	43.2	34.7	55/54	3.5 tons

OCCUPIED MODE

Outdoor air coil
95DB/78WB, 93DB/77WB and 90DB/76WB are outdoor air Summer design temperatures.

Primary coil
68DB/60WB EAT is the mixed air condition resulting from 66% room air at 75DB/63WB and 34% pretreated air off the outdoor air coil at 55DB/54WB.

UNOCCUPIED MODE

Outdoor air coil
Outdoor air is shut off, outdoor air cooling circuit is de-energized.

Primary coil
75DB/63WB is the return air condition.

Capacities are for a suction temperature of 40°F at the outdoor air coil and 45°F at the primary coil. The compressor in the outdoor air cooling circuit must be equipped with an APR valve for automatic suction pressure control. APR valves as manufactured by RAWAL Devices Inc., are recommended.

Capacities for Optional Hot Gas Reheat Coil

c.f.m.	53 EAT	
	Reheat capacity	LAT
900	21.9	75
1000	23.6	74
1100	25.1	74
1200	26.7	73
1300	28.2	73
1400	29.7	72
1500	31.1	72
1600	32.4	71

HOT GAS REHEAT MODE

53° F is the approximate leaving air temperature off the primary coil in sub cooling mode when the humidistat is over-riding the thermostatic control of the primary cooling circuit compressor.

ACCU	air cooled condensing unit
EAT	entering air temperature in °F
LAT	leaving air temperature in °F

Total cooling, sensible cooling and hot gas reheat capacities are in MBtuh

Outdoor air coil is four row

Primary coil is three or four row

Hot gas reheat coil is one row

For conditions different to those shown in this catalog, call the factory

Fan Motor and Electric Coil Data

SUPPLY AIR FAN MOTORS - FREE DISCHARGE UNITS (NON-DUCTED)

Model	S.A. c.f.m.	120 Volts			208 Volts			277 Volts		
		High Speed h.p.	h.p. at selected speed	High Speed Amps	High Speed h.p.	h.p. at selected speed	High Speed Amps	High Speed h.p.	h.p. at selected speed	High Speed Amps
VGB 1600 BCW / BDX	1000	1/3	1/4	4.9A	1/3	1/4	2.6A	1/3	1/4	2.7A
VGB 1600 BCW / BDX	1200	1/2	1/3	6.5A	1/2	1/3	3.2A	1/2	1/3	3.2A
VGB 1600 BCW / BDX	1400	2 x 1/4	2 x 1/5	7.0A	2 x 1/4	2 x 1/5	3.6A	2 x 1/4	2 x 1/5	3.6A
VGB 1600 BCW / BDX	1500	2 x 1/3	2 x 1/4	9.8A	2 x 1/3	2 x 1/4	5.2A	2 x 1/3	2 x 1/4	5.4A

SUPPLY AIR FAN MOTORS - UNITS WITH DUCTED SUPPLY AIR

Model	S.A. c.f.m.	120 Volts			208 Volts			277 Volts		
		High Speed h.p.	h.p. at selected speed	High Speed Amps	High Speed h.p.	h.p. at selected speed	High Speed Amps	High Speed h.p.	h.p. at selected speed	High Speed Amps
VGB 1600 BCW / BDX HGB 1600	1000	1/3	1/4	4.9	1/3	1/4	2.6	1/3	1/4	2.7
VGB 1600 BCW / BDX HGB 1600	1200	1/2	1/3	6.5	1/2	1/3	3.2	1/2	1/3	3.6
VGB 1600 BCW / BDX HGB 1600	1400	1/2	1/3	6.5	1/2	1/3	3.2	1/2	1/3	3.6
VGB 1600 BCW / BDX HGB 1600	1600	3/4	1/2	8.9	3/4	1/2	4.0	3/4	1/2	5.0

OUTDOOR AIR INTAKE FAN MOTOR DATA

O.A. intake c.f.m.	120 Volts		208 Volts		277 Volts	
	h.p.	Amps	h.p.	Amps	h.p.	Amps
100 to 500	1/8	0.67	1/8	0.4	1/8	0.4

NOTES:

1. Supply air fan motors generally have three speeds, each represented by a decreasing H.P. from the maximum nameplate H.P. The amp draws shown in the charts above are the nameplate motor amps or Rated Load Amps. This is the high speed amp rating of the motor, not necessarily the draw for the selected speed.
2. Where two motors are used (dual fans), the amp data shown is the RLA sum of both motors.
3. All fan motors are single phase, 60Hz, P.S.C. type.
4. For ducted units refer to the curves of c.f.m. versus ESP on page 27.

ESP = External Static Pressure (inches w.g.)

MCA = Minimum Circuit Ampacity

RLA = Rated Load Amps

MCA = (1.25 x (Electric Heater Amps + RLA of largest motor load)) + (sum of any other loads≥ 1 amp)

ELECTRIC PRIMARY REHEAT COIL

Coil kW	Amps			
	208V/1/60	208V/3/60	277V/1/60	460V/3/60
6	29	17	22	8
8	38	22	29	10
10	48	28	36	12
12	58	33	43	15
15	72	42	54	19

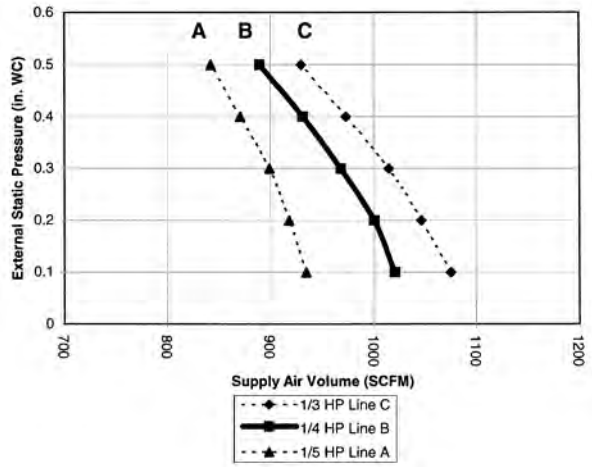
AUXILIARY ELECTRIC COIL USED IN A CHILLED WATER UNIT FOR FREEZE PROTECTION OF THE OUTDOOR AIR PRETREATMENT COIL

Coil kW	Amps			
	208V/1/60	208V/3/60	277V/1/60	460V/3/60
1.0	4.8	2.8	3.6	1.3
1.5	7.2	4.2	5.4	1.9
2.0	9.6	5.6	7.2	2.5

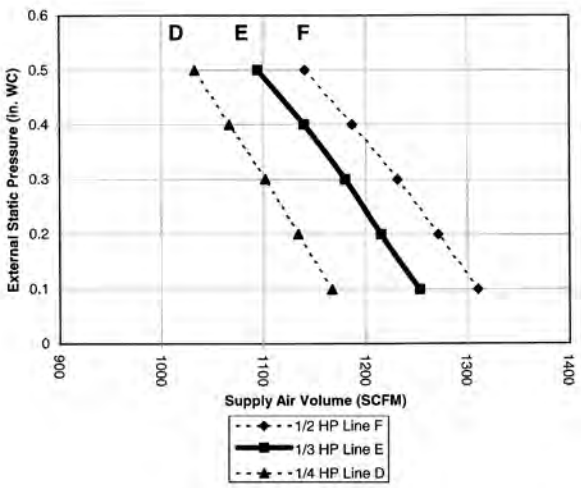
Amp ratings for three phase power are based on the maximum current in any one conductor. A remote circuit breaker should be provided, rated in accordance with the MCA information and data provided above.
If an auxiliary electric heater is included, both the auxiliary and primary reheat coils are separately fused within the unit.

Fan Curves for Ducted Units

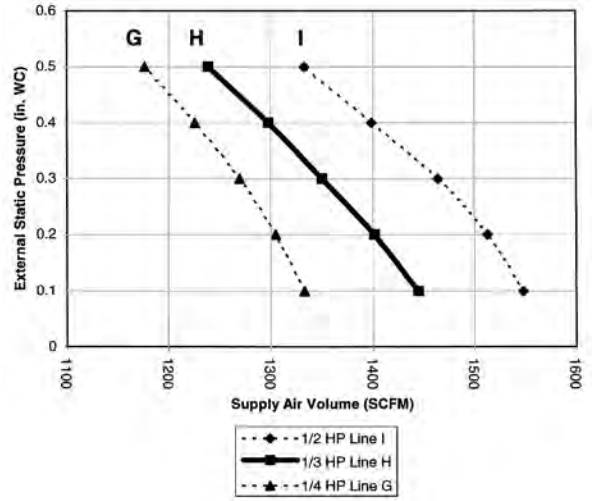
Nominal 1000 CFM



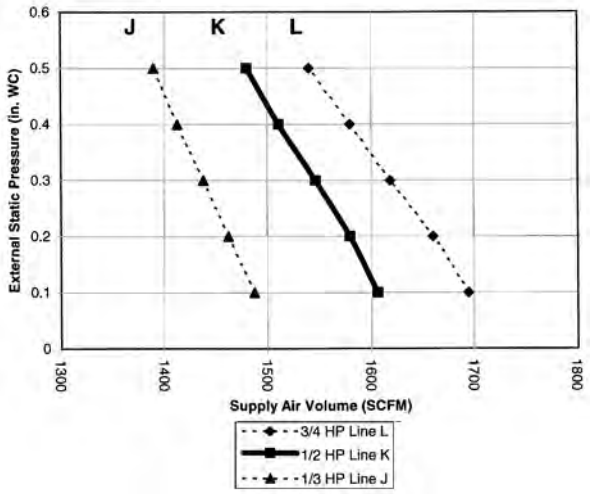
Nominal 1200 CFM



Nominal 1400 CFM



Nominal 1600 CFM



The following test conditions apply:

- The supply air is ducted off the top of a model VGB 1600 unit with a 90 degree elbow at the fan discharge.
- Fan motors are 277V/1/60, 1075 r.p.m. synchronous speed, P.S.C. type.
- Fans are centrifugal, direct drive, double inlet with forward curved impeller.
- Cooling coils are dry.
- 2" pleated filters are clean.

Fan curve	Supply air fan motor h.p. at selected speed	Supply air fan model
A	1/5	BCN 09070
B	1/4	BCN 09070
C	1/3	BCN 09070
D	1/4	BCT 10080
E	1/3	BCT 10080
F	1/2	BCT 10080
G	1/4	BCN 10090
H	1/3	BCN 10090
I	1/2	BCN 10090
J	1/3	BCT 12080
K	1/2	BCT 12080
L	3/4	BCT 12080

Sound Data, Weight, Filter Sizes

SOUND DATA

Nominal c.f.m. of unit	Sound pressure level at 6ft.	
	dBA	NC
1200	46	40
1400	47	41
1600	49	43

The following test conditions apply:

- The microphone of the sound meter is located at a distance of 6 ft. from the unit and 4 ft. above the floor.
- The unit has a ducted supply air arrangement.
- Both the outdoor air intake and supply air fans are running.
- The filters (2" pleated) are clean.
- The room has a medium hardness.

WEIGHT

A typical VGB or HGB 1600 fan coil unit weighs approximately 600 lbs.

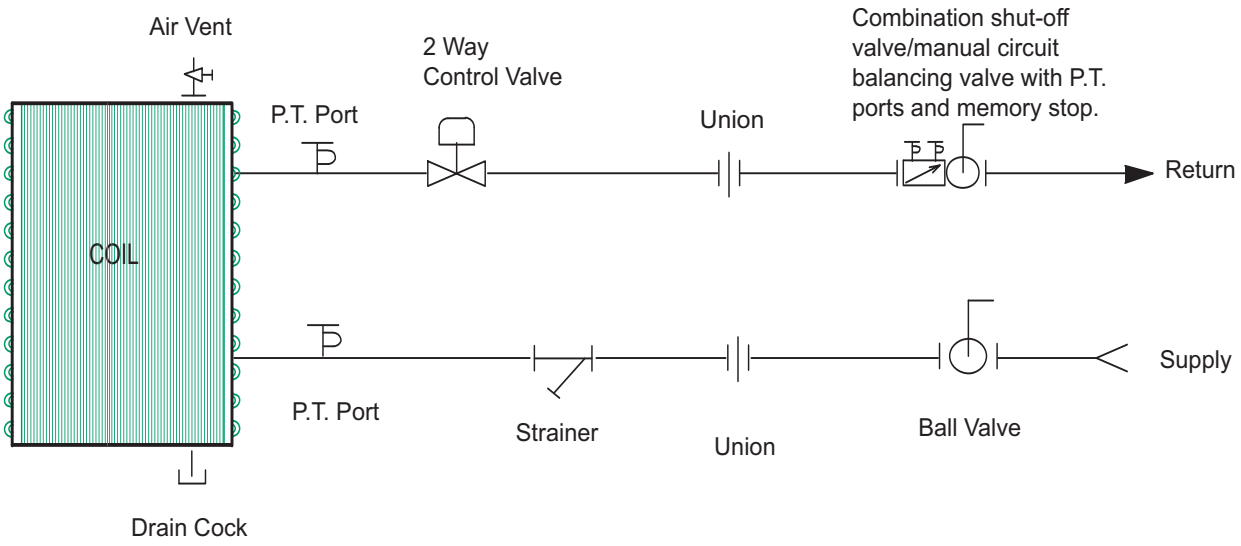
The weight excludes sheet metal accessories such as top plenum, pipe covers and rear outdoor air plenum. The gypsum board liner is included.

FILTER SIZES

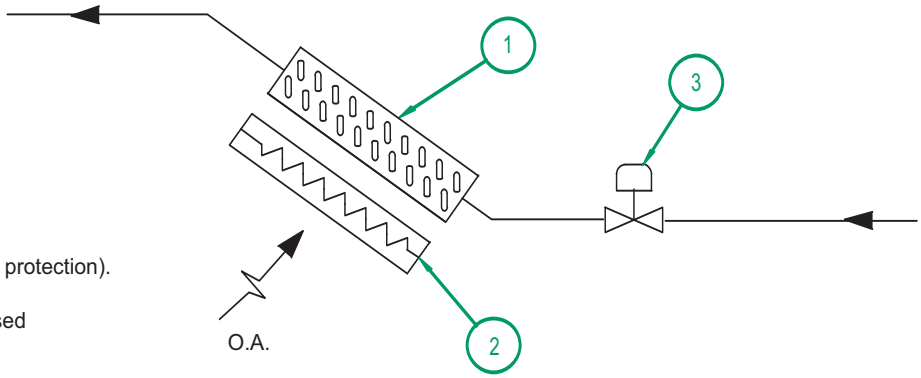
Location	Nominal size	Actual size	Part no.
Outdoor air	12" x 25" x 2"	11 3/8" x 23 3/8" x 1 3/4"	FPY 12224
Return air (x2)	12" x 25" x 2"	11 3/8" x 23 3/8" x 1 3/4"	FPY 12224

Filters are pleated, 2" thickness, MERV 8.

TYPICAL PIPING PACKAGE FOR OUTDOOR AIR AND PRIMARY CHILLED WATER COILS

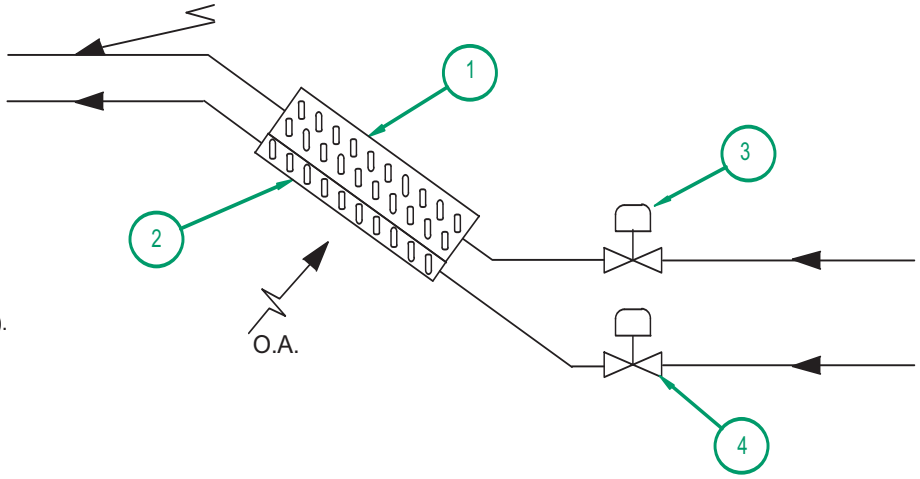


COIL PIPING PACKAGE FOR OUTDOOR AIR PRETREATMENT COIL IN A TWO PIPE ARRANGEMENT



1. 4 row chilled water coil.
2. Electric coil (optional for freeze protection).
3. Two position control valve (closed if O.A.T. is less than 55ºF).

COIL PIPING PACKAGE FOR OUTDOOR AIR PRETREATMENT COIL IN A FOUR PIPE ARRANGEMENT

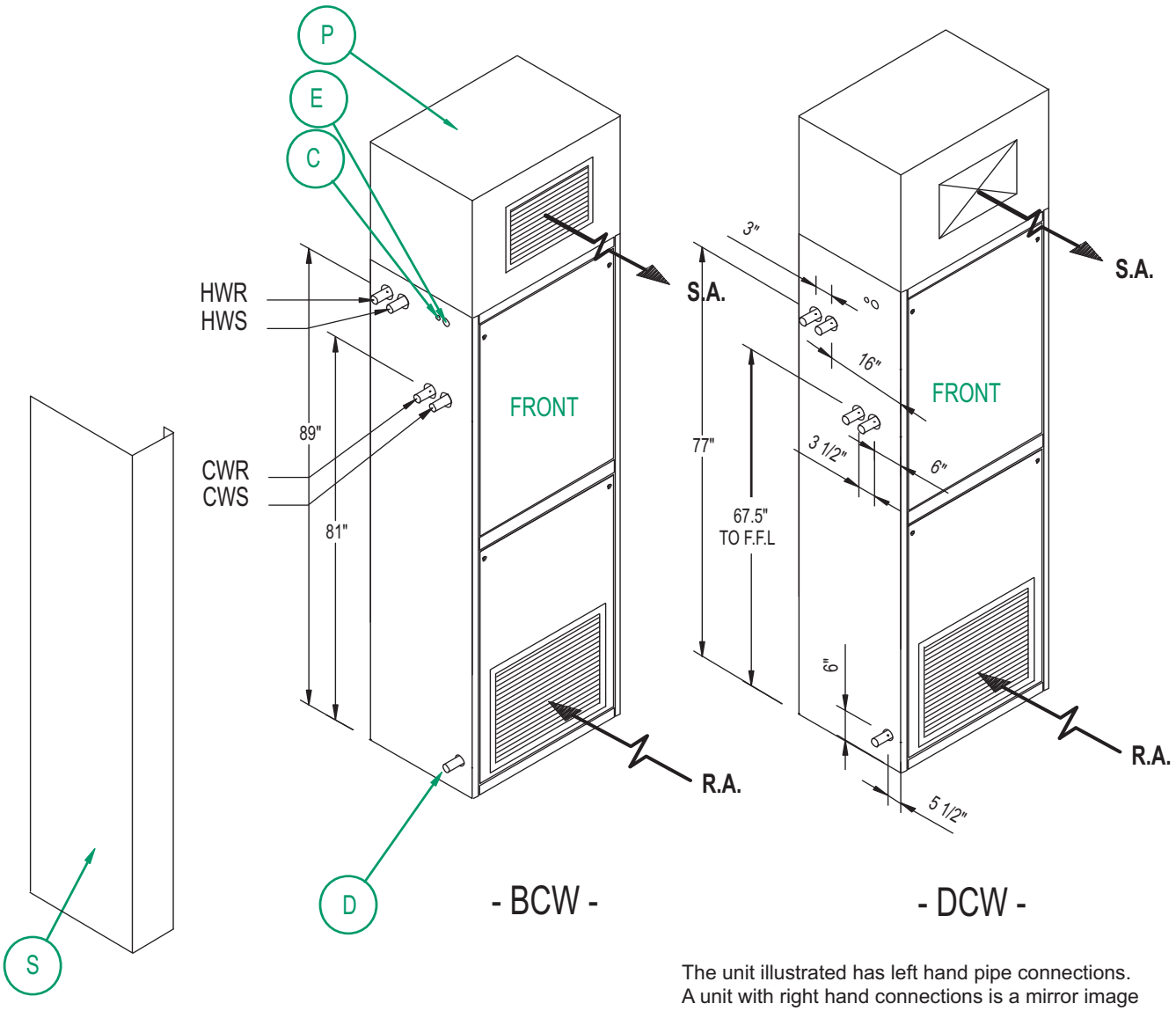


1. 4 row chilled water coil.
2. 1 row hot water coil.
3. Two position C.W. control valve (closed if O.A.T. is less than 55ºF).
4. Two position H.W. control valve (open if O.A.T. is less than 37ºF).

Utility Connection Locations

VGB 1600 - BCW/DCW

SIDE PIPE CONNECTIONS



The unit illustrated has left hand pipe connections. A unit with right hand connections is a mirror image of the illustration.

S.A. Supply Air **R.A.** Return Air

- (C) Entry point for control cable.
- (D) Exit point of condensate drain line.
- (E) Electrical power cable entry point.
- (P) Top supply air plenum.
- (S) Side pipe cover.

Condensate drain line is 1" copper. An internal trap is included.

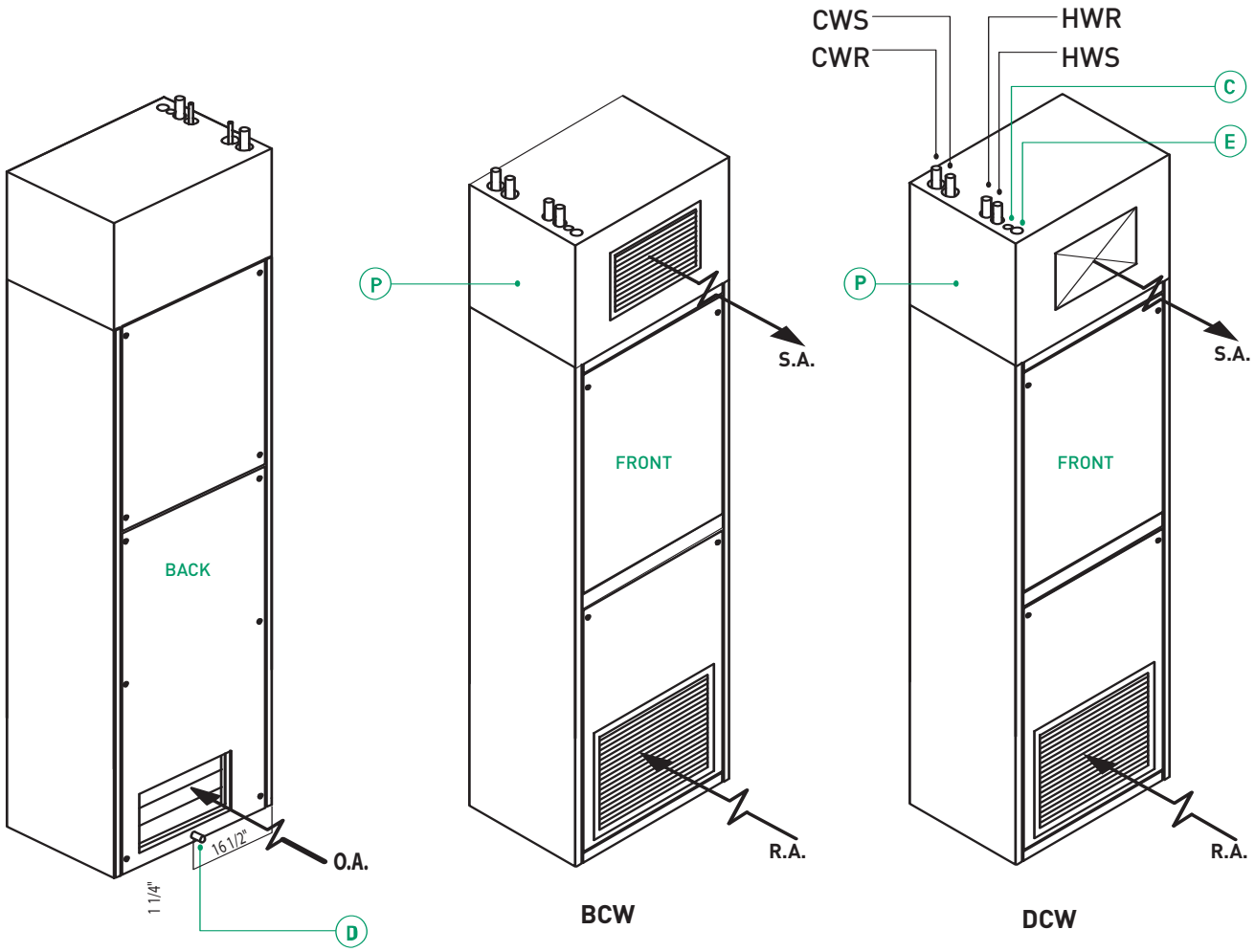
Chilled water supply and return pipe connections are 1 1/4" copper sweat

Hot water supply and return pipe connections are 3/4" copper sweat

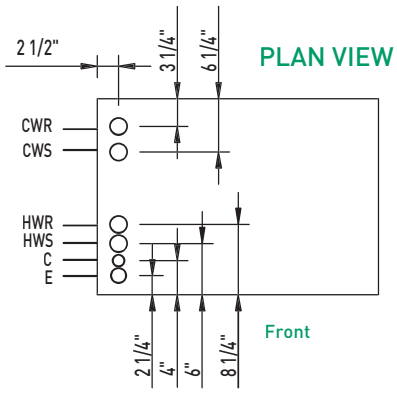
Utility Connection Locations

VGB 1600 - BCW/DCW

TOP PIPE CONNECTIONS



S.A.	Supply Air	**O.A.**	Outdoor Air	**R.A.**	Return Air



- (C) Entry point for control cable
- (D) Exit point of condensate drain line.
- (E) Electrical power cable entry point.
- (P) Top supply air plenum.

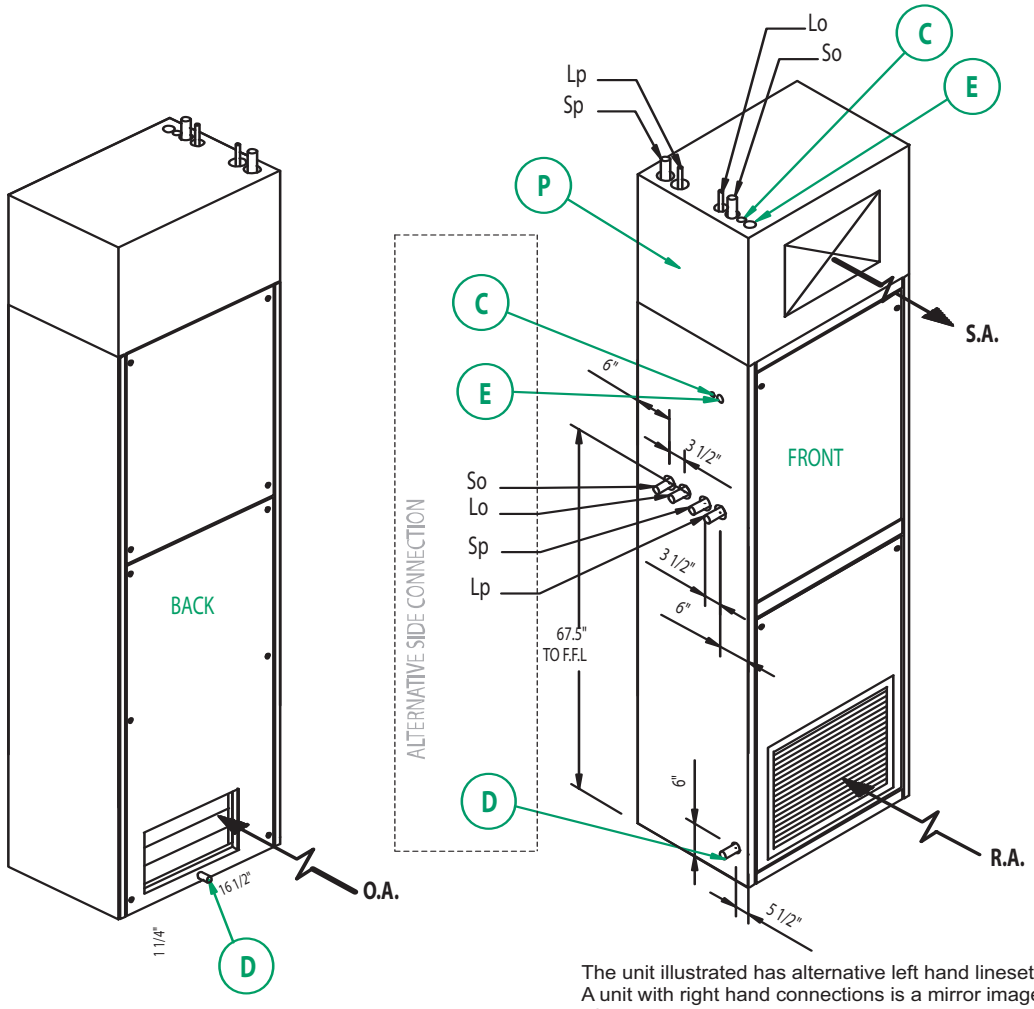
Condensate drain line is 1" copper. An internal trap is included.

Chilled water supply and return pipe connections are 1 1/4" copper sweat

Hot water supply and return pipe connections are 3/4" copper sweat

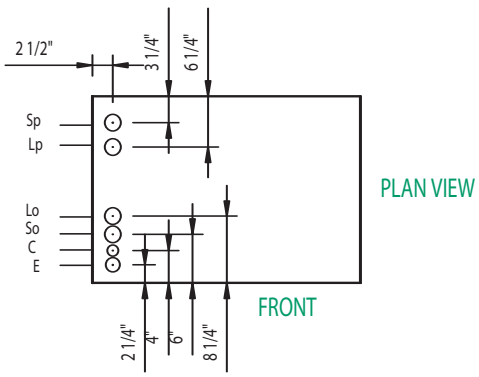
Utility Connection Locations

VGB 1600 - DX



The unit illustrated has alternative left hand lineset connections. A unit with right hand connections is a mirror image of the illustration.

S.A. Supply Air **O.A.** Outdoor Air **R.A.** Return Air



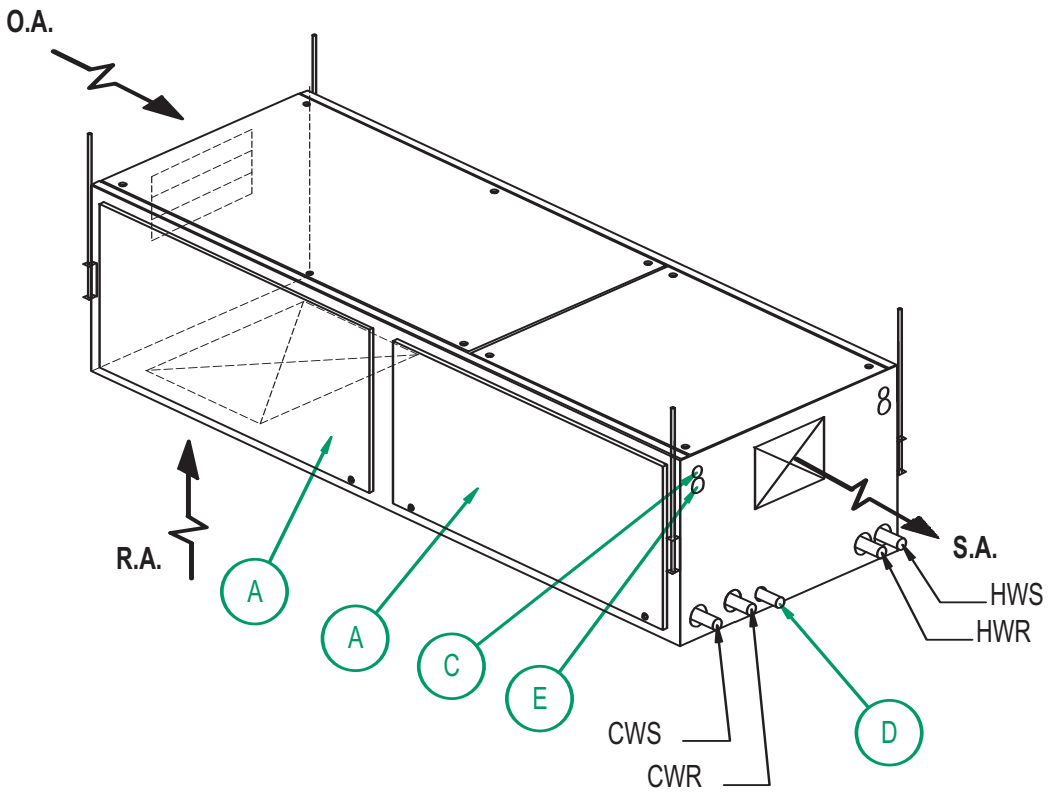
Condensate drain line is 1" copper. An internal trap is included.

- (C) Entry point for control cable
- (D) Exit point of condensate drain line.
- (E) Electrical power cable entry point.
- (P) Top supply air plenum.

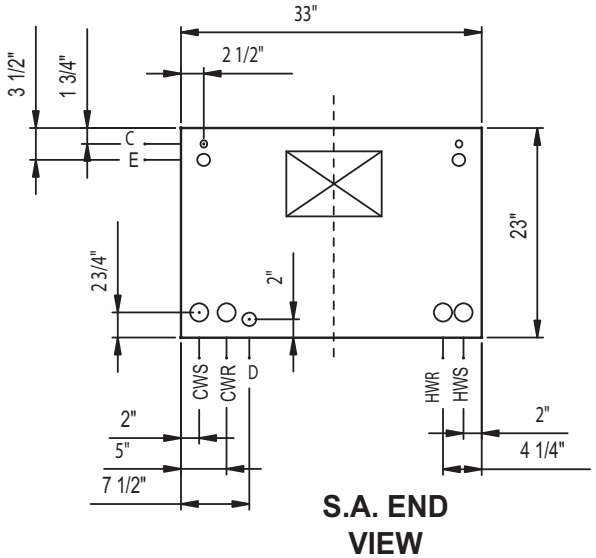
- **Lo** Liquid line connection for O.A. condensing unit - 1/2" O.D. sweat connection.
- **Lp** Liquid line connection for Primary condensing unit - 1/2" O.D. sweat connection.
- **So** Suction line connection for O.A. condensing unit - 7/8" O.D. sweat connection.
- **Sp** Suction line connection for Primary condensing unit - 7/8 O.D. sweat connection.

Utility Connection Locations

HGB 1600 - DCW



S.A.	Supply Air	**O.A.**	Outdoor Air	**R.A.**	Return Air



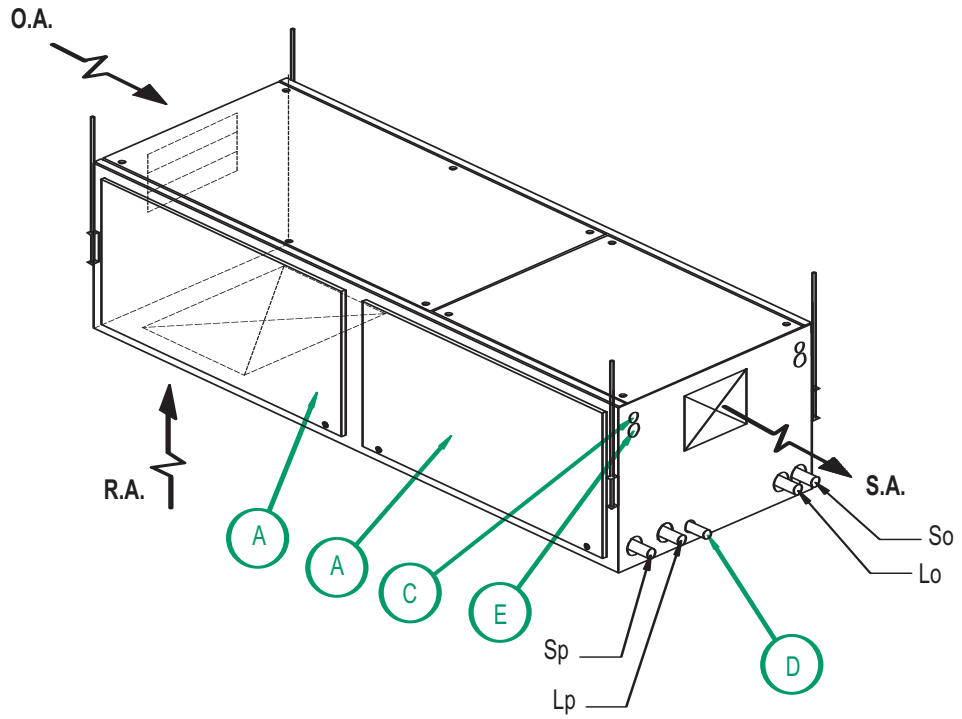
S.A. END VIEW

- (A) Hinged access panel.
- (C) Entry point for control cable. [Access side]
- (D) Exit point of condensate drain line. [P-Trap by others]
- (E) Electrical power cable entry point. [Access side]

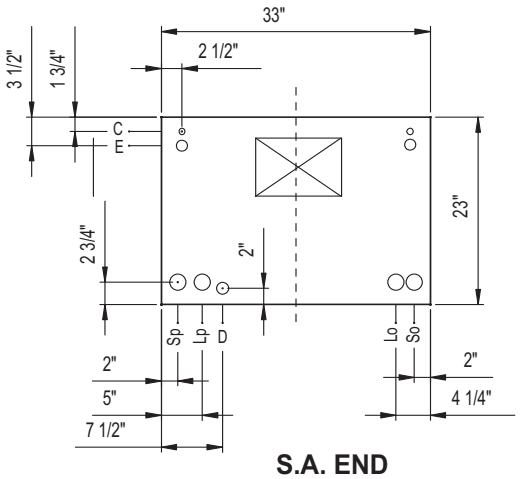
Condensate drain line connection is 1" copper
Chilled water supply and return pipe connections are 1 1/4" copper sweat
Hot water supply and return pipe connections are 3/4" copper sweat

Utility Connection Locations

HGB 1600 - DDX



S.A. Supply Air **O.A.** Outdoor Air **R.A.** Return Air



S.A. END VIEW

- (A) Hinged access panel.
- (C) Entry point for control cable. [Access side]
- (D) Exit point of condensate drain line - 1" copper. [P-Trap by others]
- (E) Electrical power cable entry point. [Access side]

Lo: Liquid line connection for O.A. condensing unit - 1/2" O.D. sweat connection.
Lp: Liquid line connection for Primary condensing unit - 1/2" O.D. sweat connection.
So: Suction line connection for O.A. condensing unit - 7/8" O.D. sweat connection.
Sp: Suction line connection for Primary condensing unit - 7/8 O.D sweat connection.

Control Options

DIRECT DIGITAL CONTROLS

Temspec offers factory mounting of a wide range of control types. Often a building owner has a preference for the controls of a particular energy management systems contractor or manufacturer.

We work closely with the selected contractor to ensure economical and error free factory mounting of the control components and associated wiring.

TEMSPEC TYPE "V" STAND ALONE CONTROLS

Thermostat model OC-3

- ASHRAE standard ventilation capability
- Seven day programmability
- Control of heating and cooling functions for the outdoor air and primary coils
- Precise control by P & I logic
- Outdoor air damper is closed during unoccupied mode (at night)
- Rugged steel casing, size 6" x 4"
- Up to 20 vacation periods are programmable. Automatic compensation for leap years and daylight savings time
- No batteries, schedule retention for up to 3 months is by a capacitor
- Intelligent morning warm up
- Optional humidistat input for use in a humidity control strategy using reheat

Passive infrared motion sensor maximizes the energy savings by automatically closing the outdoor air damper when occupants vacate the room during the day.

Control Strategy

for a Temspec VGB or HGB series classroom fan coil unit with type "V" stand alone control package (thermostat model OC-3)

UNIT WITH DX COOLING, ELECTRIC OR HOT WATER HEATING

1. Supply Air Fan Control

The fan shall run continuously when the unit is operating in the occupied mode. The fan shall run only on a call for heating, cooling or dehumidification in the unoccupied (night setback) mode.

2. Outdoor Air Intake Fan and Damper Control

The fan shall run continuously and the damper shall be open during the occupied mode when motion is sensed. When motion ceases to be sensed after a time-out delay period, the fan shall stop and the damper close until motion is next sensed. During unoccupied mode, the fan shall be de-energized and the damper closed.

3. Condensing Units

The split system condensing units shall be one of the following arrangements:

3.1 Temspec series XXX consisting of a single cabinet with dual compressors, two-circuit condensing coil and a condensing fan.

3.2 Two separate condensing units as manufactured by Trane or McQuay.

The outdoor air DX coil and the primary DX coil shall be independently connected to a dedicated condensing unit. A Rawal APR valve shall be factory installed on the outdoor air condensing unit compressor to reduce the cooling capacity of the outdoor air cooling circuit during low ambient conditions, to prevent coil freezing. Installation of the refrigerant linesets and charging with R22 shall be by the installing contractor.

4. Outdoor Air Cooling Coil

Pre-filtered outdoor air shall pass over the coil and be cooled and dehumidified. During unoccupied mode the condensing unit shall be de-energized as outdoor air is not induced during this period. During occupied mode, when the outdoor air damper is open and the outdoor air intake fan runs, the condensing unit shall operate when the O.A. temperature is above 60° F.

5. Primary Cooling Coil

Pre-filtered return air and pre-cooled outdoor air mix and the mixed air shall pass over the primary evaporator coil to cool and further dehumidify the air. During unoccupied mode only return air shall pass over the coil. The cycling of the primary condensing unit shall be by the thermostat to maintain the room temperature at the cooling set point.

6. Heating

On a call for space heating by the thermostat, the electric coil shall pulse (by an SCR) or the hot water valve modulate (0-10Vdc) to maintain the occupied heating set point (typically 72° F). Both condensing units shall be de-energized. If the room temperature falls 2° F below set point and the mixed air temperature is below 60° F, the outdoor air damper shall close and the outdoor air intake fan stop until the mixed air temperature rises to 70° F.

7. Humidistat and Hot Gas Reheat (Optional)

A room humidistat shall be included in the return air stream. The hot gas reheat coil shall be located in the reheat position relative to the primary cooling coil. The humidistat shall have a typical set point of 55% R.H. (adjustable). When the room temperature falls to the cooling set point and the humidistat set point has not been satisfied, the hot gas reheat coil shall provide reheat to maintain the cooling temperature set point in the room (to avoid overcooling the space). The condensing units on both the outdoor air cooling coil and primary cooling coil shall be operating under this condition. When the humidity set point is satisfied the reheat coil solenoid valve shall close. The humidistat shall trigger dehumidification in both occupied and unoccupied modes. The reheat strategy shall be enabled during the occupied mode only.

Control Strategy

for a Temspec VGB or HGB series classroom fan coil unit with type "V" stand alone control package (thermostat model OC-3)

UNIT WITH CHILLED WATER COOLING, ELECTRIC OR HOT WATER HEATING

1. **Supply Air Fan Control**
   The fan shall run continuously when the unit is operating in the occupied mode. The fan shall run only on a call for heating, cooling or dehumidification in the unoccupied (night setback) mode.

2. **Outdoor Air Intake Fan and Damper Control**
   The fan shall run continuously and the damper shall be open during the occupied mode when motion is sensed. When motion ceases to be sensed after a time-out delay period, the fan shall stop and the damper close until motion is next sensed. An outdoor air temperature sensor shall close the damper and stop the fan if a temperature of 37° F or lower is measured. During unoccupied mode, the fan shall be de-energized and the damper closed.

3. **Outdoor Air Cooling Coil**
   Pre-filtered outdoor air shall pass over the coil and be cooled and dehumidified. Chilled water to the coil shall be controlled by a two position valve. During unoccupied mode the valve shall close, as outdoor air is not induced during this period. During occupied mode, when the outdoor air damper is open, the outdoor air intake fan shall run. The valve shall open, except if the outdoor air temperature is between 37° F and 55° F db. (adjustable). Between these temperatures the fan shall run, the damper open and the valve close.

4. **Outdoor Air Cooling Coil Freeze Protection (Optional)**
   If the outdoor air temperature is below 37° F in the occupied mode the electric preheat coil shall be energized or the hot water valve on the preheat coil shall open. The outdoor air damper shall remain open and the outdoor air fan shall run.

5. **Primary Cooling Coil**
   Pre-filtered return air and pre-cooled outdoor air mix and the mixed air shall pass over the primary coil to cool and further dehumidify the air. Chilled water to the coil shall be controlled by a modulating valve (0-10Vdc). During unoccupied mode only return air shall pass over the coil.

6. **Heating**
   On a call for space heating by the thermostat, the electric coil shall pulse (by an SCR) or the hot water valve modulate (0-10Vdc) to maintain the occupied heating set point (typically 72° F). Both cooling coil control valves shall be closed. If the room temperature falls 2° F below set point and the mixed air temperature is below 60° F, the outdoor air damper shall close and the outdoor air intake fan stop until the mixed air temperature rises to 70° F.

Control Type "V" (Temspec OC-3 thermostat)

VGB and HGB series classroom fan coil units occupancy based energy saving strategy

Smart occupancy function

Motion is detected by a passive infrared motion sensor incorporated into the front face of the thermostat. Time-out delay (T.O.D.) is the period of delay allowed after the last motion was detected. The motion sensor can be disabled by jumper selection in the OC-3 thermostat.

Unoccupied mode (night)

The unoccupied period is set on the thermostat. Typically unoccupied mode starts at 4:00 p.m. and ends at 7:30 a.m. during which time the room is vacated. The night 'heating set-back' and 'cooling set-up' temperatures are programmed using the hand held OC-3P programmer.

CONDITION - NO MOVEMENT

Unit switches to night set-back after expiry of the T.O.D.

CONDITION - MOVEMENT SENSED

Unit switches to daytime operation, which continues for a period equal to the T.O.D. Each time movement is sensed, the daytime operation mode is triggered for a further period equal to the T.O.D.

MORNING WARM UP / COOL DOWN

The start of morning warm up / cool down is determined by the thermostat, using continuously updated historical data to modify the time required to complete the process. This action optimizes energy savings. At the end of the unoccupied period, the room will have attained set temperature. The outdoor air damper remains closed throughout the unoccupied and warm up / cool down period.

Occupied mode (day)

CONDITION - NO MOVEMENT SENSED

The morning warm up / cool down occurs, but the unit reverts to night setback commencing one hour after the timed occupied start.

CONDITION - MOVEMENT SENSED

The morning warm up / cool down occurs and daytime operation is maintained until the end of the occupied time, as pre-programmed on the thermostat clock. If no movement is sensed for a period equal to the T.O.D., the outdoor air damper will fully close (but room temperature is not set-back / set-up) until movement is again detected during the occupied mode. This is an energy saving function.

Weekends

Saturday and Sunday can be selected for programming as weekdays using the hand-held programmer. If not programmed, the room is maintained in the unoccupied mode throughout the weekend.

Holiday periods

The user schedules holiday dates using the hand-held programmer. Up to twenty events can be programmed. The OC-3 thermostat automatically compensates for daylight saving time changes and leap years. If the user does not program a holiday schedule, for example the Christmas period, the OC-3 thermostat error-traps this condition. On the first Monday of this period the OC-3 thermostat is searching for motion and if none is sensed after one hour of the timed start of occupancy, the unit is put into night set-back mode. On Tuesday, the unit will again preheat the room, but if no movement is occurring at the start of time occupancy, the night set-back / set-up is triggered immediately. On Wednesday, the unit does not preheat the room, but holds it in set-back / set-up mode until occupancy is next sensed. The energy savings are significant.

Control Valve Strategies

TWO PIPE CHANGEOVER, CHILLED WATER COOLING, HOT WATER HEATING

OAT	MAT	CONTROL OF OUTDOOR AIR PRETREATMENT COIL IN OCCUPIED MODE	CONTROL OF PRIMARY COOLING/HEATING COIL
95	70	2 position valve open (chilled water in system)	valve modulates to maintain room set point (chilled water in system)
55 to 94	66 to 70	2 position valve open (chilled water in system)	valve modulates to maintain room set point (chilled water in system)
38 to 54	63 to 66	2 position valve closed	valve modulates to maintain room set point (hot or chilled water in system)
15 to 37	68 to 75*	2 position valve closed electric heater is on to prevent coil freezing	valve modulates to maintain room set point (hot water in system)

TWO PIPE SYSTEM (NO HOT WATER), CHILLED WATER COOLING WITH ELECTRIC HEAT

OAT	MAT	CONTROL OF OUTDOOR AIR PRETREATMENT COIL IN OCCUPIED MODE	CONTROL OF PRIMARY COOLING COIL	CONTROL OF PRIMARY ELECTRIC HEATING COIL
95	70	2 position valve open	valve modulates to maintain room set point	off
55 to 94	66 to 70	2 position valve open	valve modulates to maintain room set point	off
38 to 54	63 to 66	2 position valve closed	valve modulates to maintain room set point if C.W. is available	stages on or pulsed by an SCR on call for heating by the thermostat
15 to 37	68 to 75*	2 position valve closed electric heater is on to prevent coil freezing	valve closed	stages on or pulsed by an SCR on call for heating by the thermostat

FOUR PIPE SYSTEM, CHILLED WATER COOLING, HOT WATER HEATING

OAT	MAT	CONTROL OF OUTDOOR AIR PRETREATMENT COIL IN OCCUPIED MODE	CONTROL OF PRIMARY COOLING COIL	CONTROL OF PRIMARY HEATING COIL
95	70	2 position C.W. valve open, H.W. valve closed	valve modulates to maintain room set point	off
55 to 94	66 to 70	2 position C.W. valve open, H.W. valve closed	valve modulates to maintain room set point	valve modulates to maintain room set point if H.W. is available
38 to 54	63 to 66	2 position C.W. and H.W. valves closed	valve modulates to maintain room set point if C.W. is available	valve modulates to maintain room set point
15 to 37	70 to 76*	2 position C.W. valve closed. 2 position H.W. valve opens to prevent C.W. coil freezing	valve closed	valve modulates to maintain room set point

TYPICAL CONDITIONS

Supply air c.f.m.	1300
Outdoor air c.f.m.	420
Design summer condition	95°/78° F
Design winter condition	15° F
Entering C.W. temperature	45° F
Entering H.W. temperature	180° F
Room temperature	75°/63° F

ABBREVIATIONS

OAT	Outdoor air DB temperature
MAT	Mixed air DB temperature (O.A. mixed with return air)
*	Heated by electric or hot water coil in preheat position relative to outdoor air C.W. coil

Notes

Other Temspec HVAC Products

Unit ventilators

All units have 100% economizer cooling and are available in an upflow draw through configuration for ducted supply air systems or upflow blow through for non-ducted units.

Chilled water and split system DX units can be installed horizontally above the ceiling tile. Heating is by hot water, steam or electric coil.

VUD 1200

Cooling capacities:
Split system DX
2.0, 2.5, 3.0 tons

Chilled water (2 or 4 pipe)
Up to 3.5 tons

VUD 1600

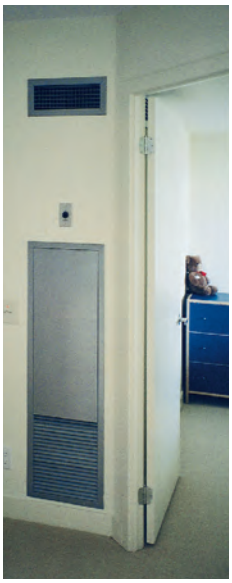
Cooling capacities:
Split system DX
4.0 and 5.0 tons

Chilled water (2 or 4 pipe)
Up to 5 tons

VHC AND VLC SERIES

Cooling capacities:
Self contained DX
2 through 5 tons

Vertical fan coil units



TV Series

TV SERIES

Chilled water (2 or 4 pipe)
Up to 4 tons

Concealed installation

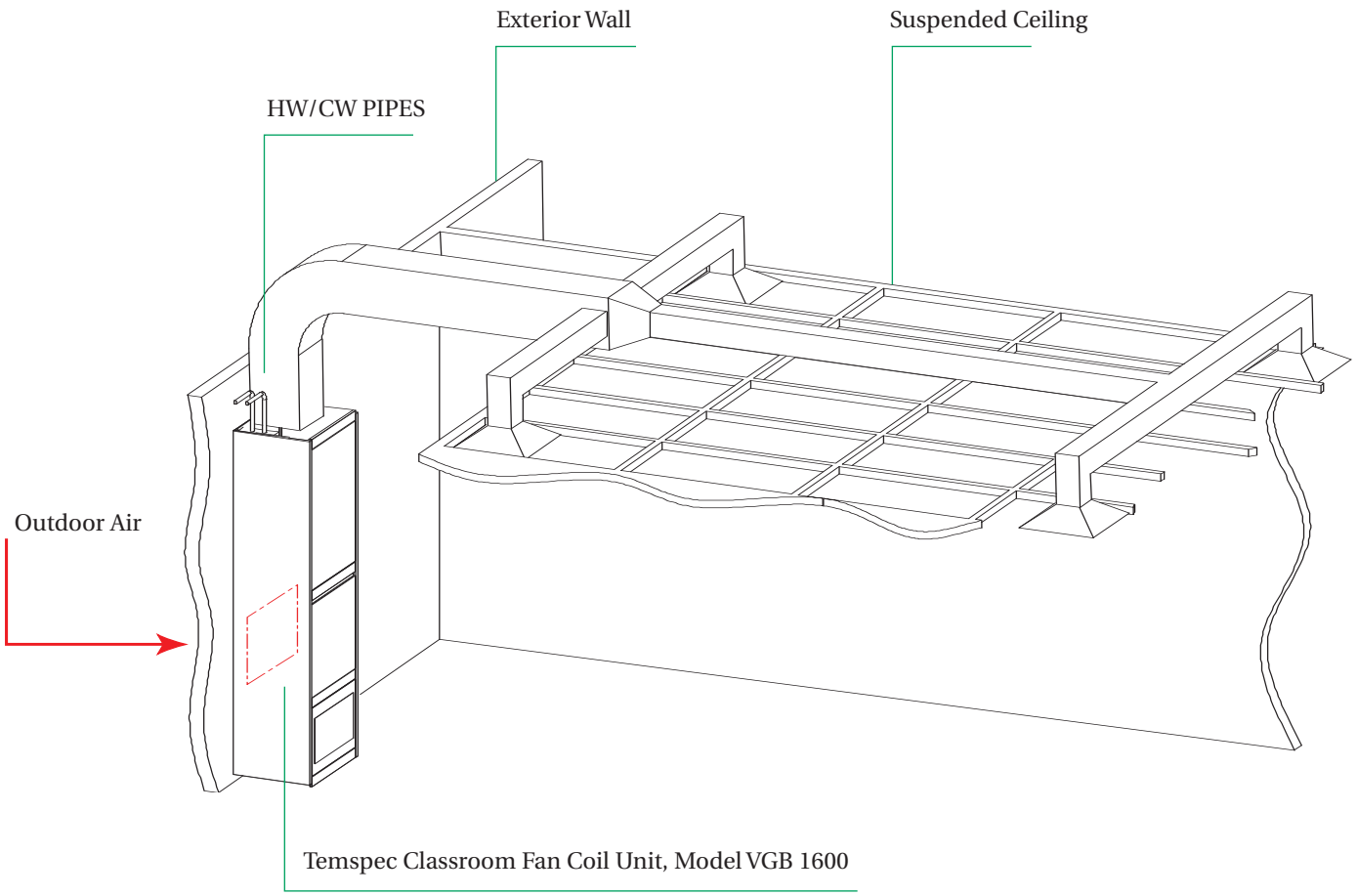
TF SERIES

Chilled water (2 or 4 pipe)
Up to 4 tons

Powder coat finished cabinet for exposed installation. We can color match to your specification.

TF Series

TEMSPEC DUCTED CLASSROOM FAN COIL UNIT



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