APPENDIX F

MR Credit 6 – Rapidly Renewable Materials

EQ Credit 1 – Carbon Dioxide Monitoring

Modular Pump Station Specifications

MR Credit 6: "Rapidly Renewable Materials"
Flooring Replacement Cost

	Base Case	Bamboo Flooring	
Total Construction Costs:	18986000	18986000	
Estimated Material Costs (@45%):	8543700	8543700	
Value of Rapidly Renewable Materials Required (@2.5%):	213592.5	260688	
Total Renewable Material Percentage:	2.65	3.05	*LEED Requirement: 2.5%*
Percentage Floor Material Cost Increase:	122	-	

1F Location	Floor Area	Material	$/SF	Total Cost ($)	Material Used (sf) Rubber	Carpet	Bamboo Flooring Cost $/SF	Total Cost ($)
Student Resource Ctr. (1105-1109)	3568	Rubber Floor Tile	5.00	17840.00	3568		6.00	21408
Student Resource Ctr. (1219)	577	Rubber Floor Tile	5.00	2885.00	577		6.00	3462
Student Resource Ctr. (1215)	679	Rubber Floor Tile	5.00	3395.00	679		6.00	4074
Student Conference Rm. (1103)	473	Carpet	5.00	2365.00		473	6.00	2838
Tech/Computer Rm.(1212)	953	Carpet	5.00	4765.00		953	6.00	5718
Teachers Workroom (1308)	288	Rubber Floor Tile	5.00	1440.00	288		6.00	1728
Conference Rm. (1305)	203	Carpet	5.00	1015.00		203	6.00	1218
Office (1304)	104	Carpet	5.00	520.00		104	6.00	624
Library (1227)	660	Carpet	5.00	3300.00		660	6.00	3960
Open Office (1220,1221,1228,1230, 1231,1233,1235,1237)	1751	Carpet	5.00	8755.00		1751	6.00	10506
Workroom (1230)	182	Rubber Floor Tile	5.00	910.00	182		6.00	1092
Conference Rm. (1238)	411	Carpet	5.00	2055.00		411	6.00	2466
Equipment Storage (1240)	132	Carpet	5.00	660.00		132	6.00	792
Storage (1113)	194	Rubber Floor Tile	5.00	970.00	194		6.00	1164
Kitchen (1114)	180	Rubber Floor Tile	5.00	900.00	180		6.00	1080
Multipurpose Room (1112)	1718	Wood	8.00	13744.00	-	-	6.00	10308
				5668	4687			
		Subtotal ($):		65519.00			Subtotal ($):	72438
		% Renewable Material by Cost:		0.77			% Renewable Material by Cost:	0.85

2F Location	Floor Area	Material	$/SF	Total Cost ($)	Material Used (sf) Rubber	Carpet	Bamboo Flooring Cost $/SF	Total Cost ($)
South Wing Workspaces + Circulation (throughout)	8038	Carpet	5.00	40190.00		8038	6.00	48228
Hallways and Second Floor Forum	1653	Carpet	5.00	8265.00		1653	6.00	9918
Workroom (2220) + Closet (2220A)	289	Rubber Floor Tile	5.00	1445.00	289		6.00	1734
Copier/Files (2291) + Filing Room (2290)	259	Rubber Floor Tile	5.00	1295.00	259		6.00	1554
Programming/ Meeting Room (2154)	431	Carpet	5.00	2155.00		431	6.00	2586
North Wing Workspaces (throughout)	4667	Rubber Floor Tile	5.00	23335.00	4667		6.00	28002
Files (2139), Office (2133,2131),Workstation (2135)	513	Carpet	5.00	2565.00		513	6.00	3078
				5215	10635			
		Subtotal ($):		79250.00			Subtotal ($):	95100
		% Renewable Material by Cost:		0.93			% Renewable Material by Cost:	1.11

3F Location	Floor Area	Material	$/SF	Total Cost ($)	Material Used (sf) Rubber	Carpet	Bamboo Flooring Cost $/SF	Total Cost ($)
South Wing Workspaces + Circulation (throughout)	8831	Rubber Floor Tile	5.00	44155.00	8831		6.00	52986
Hall (3201)	1043	Carpet	5.00	5215.00		1043	6.00	6258
Third Floor Forum	590	Carpet	5.00	2950.00		590	6.00	3540
Hall (3202)	806	Carpet	5.00	4030.00		806	6.00	4836
North Wing Workspaces (throughout)	4113	Carpet	6.00	24678.00		4113	6.00	24678
Storage (3133)	142	Rubber Floor Tile	7.00	994.00	142		6.00	852

Subtotal ($): 82022.00   8973   6552   **Subtotal ($):** 93150

% Renewable Material by Cost: 0.96   **% Renewable Material by Cost:** 1.09

Summary

Level	Rubber (sf)	Carpet (sf)	Total (sf)	Cost ($)
1F	5668	4687	10355	65519.00
2F	5215	10635	15850	79250.00
3F	8973	6552	15525	82022.00
Totals:	19856	21874	41730	**226791**

Bamboo Flooring

smith&fong plyboo®

Innovations in Bamboo

Edge Grain Amber

Edge Grain Natural

Flat Grain Amber

Flat Grain Natural

Material
100% Bamboo

Standard Sizes
5/8" x 3 3/4" x 75"
1/2" x 3" x 72"

Finish
Multi-coat Aluminum Oxide System

Fire Rating
0.45 meets class 1 rating
ASTM E-648 critical radiant flux

Emissions
0.045 hcho (mg/L)
0.30 meets US HUD standard,
0.045 registers a near zero output
(NVLAP 23/T02 and FTM 1-1983)

Hardness Rating
Average Hardness 1700 psi
Janka Ball Hardness Test (ASTM D1037)

Relative Stability
parallel 0.06
thickness 0.4
(ASTM D1037)

Finish Rating
23,500 rotations, 4B adhesion rating
(ASTM D4060, CS 17 wheel, taber abrasion
ASTM D3359 adhesion)

Slip Resistance
Static Friction coefficient 0.522
Sliding Friction coefficient 0.564
(ASTM D2394)

Unique to the hardwood flooring industry, Plyboo® bamboo flooring has grown in popularity and can now be found in homes all over America. With its easy installation, durability, and good looks, homeowners are choosing Plyboo® for its adaptability to design themes, from contemporary to tropical, from traditional to that Asian touch.

toll-free 866.835.9859

www.plyboo.com

LEED™ Certification
Plyboo® flooring is manufactured from 100% bamboo, a rapidly renewable material and a contributing finish under the 6.0 Section of the U.S. Green Building Council's LEED™ Materials and Resource Point System.

Material Data Safety Sheet (MSDS)
Bamboo Flooring

This MSDS relates to Smith & Fong Plyboo bamboo flooring products.
ANSI Format

1. PRODUCT IDENTIFICATION

Manufacturing Location

Unfinished vertical and horizontal grain bamboo flooring	Company headquarters, South San Francisco, CA, USA
Prefinished vertical and horizontal grain bamboo flooring	Company headquarters, South San Francisco, CA, USA
Unfinished bamboo strand flooring	Company headquarters, South San Francisco, CA, USA
Prefinished bamboo strand flooring	Company headquarters, South San Francisco, CA, USA

Product Composition: Timber bamboo (Moso), kiln dried and laminated.

Manufacturer's Information:
Manufacturer Name: Smith & Fong Company, Inc.
Manufacturer Address: 375 Oyster Point Blvd, Suite 3
                         South San Francisco, CA 94080 USA

Emergency Phone: (650) 872-1184
Additional Phone: (866) 835-9859
Website: www.plyboo.com
Email: dino@plyboo.com

Synonyms: Bamboo flooring

2. HAZARDOUS INGREDIENTS

Name	CAS#	Percent	Regulatory Agency	Exposure Limits	Comments
Bamboo	N/A	99-99.5	OSHA	PEL-TWA 15 mg/m3	Total dust
			OSHA	PEL-TWA 5 mg/m3	Respiratory dust fraction
			ACGIH	TLV-TWA 3 mg/m3	Respiratory dust fraction
			ACGIH	TLV-TWA 10 mg/m3	Inhalable particles
Urea Formaldehyde	9011-	1-.05	OSHA	PEL-TWA 0.75 ppm	Free gaseous
resin[1] (bamboo flooring)	05-6		OSHA	PEL-STEL 2 ppm	Free gaseous
			ACGIH	TLV-Ceiling 0.3 ppm	Free gaseous
Phenol Formaldehyde (bamboo strand flooring)	N/A	1.0	N/A		
UV Finish Polyurethane	N/A	0-.02	OSHA	PEL-TWA none	None
			ACGIH	TLV-TWA none	None

3. HAZARD IDENTIFICATION

Appearance and Odor: A natural or amber bamboo fiber with no, to a slight odor.

Primary Health Hazards: The health hazards of primary concern are exposure to dust particulate generated during machining, cutting, sanding, etc.

Primary Route(s) of Exposure: (X) Dust; (X) Inhalation: Dust or gas.

Medical Conditions Generally Aggravated by Exposure: Respiratory conditions or allergies.

Chronic Health Hazards: Bamboo dust has not been associated with long term chronic respiratory conditions.

Carcinogencity:
(X) NTP: Formaldehyde, Group 1
(X) IARC Monographs: Formaldehyde, Group 1
(X) OSHA Regulated: Formaldehyde

4. EMERGENCY AND FIRST-AID PROCEDURES

Ingestion: Not applicable.

Eye Contact: Dust in eye should be treated as a foreign object; flush with water several times. If irritation persists, seek medical attention.

EQ Credit 1: "Carbon Dioxide Monitoring"
Occupancy Density By Space

Level	Room	Area	Occupants	Occupancy Density Density	Occupancy Density Per 1000 sf	Course of Action	# CO2 Monitor	# Airflow Measurement Device
	Conference	445	22	0.05	49.4	install CO2 Monitor	1	
	Resource	535	27	0.05	50.5	install CO2 Monitor	1	
	Resource	578	29	0.05	50.2	install CO2 Monitor	1	
	Resource	578	29	0.05	50.2	install CO2 Monitor	1	
	Resource	535	27	0.05	50.5	install CO2 Monitor	1	
	Resource	578	29	0.05	50.2	install CO2 Monitor	1	
	Resource	578	29	0.05	50.2	install CO2 Monitor	1	
	Communication	99	1	0.01	10.1	airflow measurement device		1
	Elec/Mechanical	340	2	0.01	5.9	airflow measurement device		1
	Multipurpose	1590	165	0.10	103.8	install CO2 Monitor	1	
	Storage	165	1	0.01	6.1	airflow measurement device		1
	Kitchen	230	1	0.00	4.3	airflow measurement device		1
	Library	486	20	0.04	41.2	install CO2 Monitor	1	
	Storage	340	2	0.01	5.9	airflow measurement device		1
	Storage/Elec.	340	2	0.01	5.9	airflow measurement device		1
	Workspace	170	2	0.01	11.8	airflow measurement device		1
	Office	1070	11	0.01	10.3	airflow measurement device		1
	Tech Lab	900	45	0.05	50.0	install CO2 Monitor	1	
	Mechanical	348	2	0.01	5.7	airflow measurement device		1
	Electrical	348	2	0.01	5.7	airflow measurement device		1
1F	Resource	556	28	0.05	50.4	install CO2 Monitor	1	
	Resource	446	23	0.05	51.6	install CO2 Monitor	1	
	Reception	519	35	0.07	67.4	install CO2 Monitor	1	
	Classroom	745	37	0.05	49.7	install CO2 Monitor	1	
	Classroom	739	37	0.05	50.1	install CO2 Monitor	1	
	Storage	100	1	0.01	10.0	airflow measurement device		1
	Multi-use	213	11	0.05	51.6	install CO2 Monitor	1	
	Kitchen	86	1	0.01	11.6	airflow measurement device		1
	Conference Rm.	225	11	0.05	48.9	install CO2 Monitor	1	
	Classroom	746	37	0.05	49.6	install CO2 Monitor	1	
	Classroom	739	37	0.05	50.1	install CO2 Monitor	1	
	Storage	100	1	0.01	10.0	airflow measurement device		1
	Elev. Rm.	55	1	0.02	18.2	airflow measurement device		1
	Mechanical	1824	6	0.00	3.3	airflow measurement device		1
	Communication	73	1	0.01	13.7	airflow measurement device		1
	Electrical	316	2	0.01	6.3	airflow measurement device		1
	Resource	82	1	0.01	12.2	airflow measurement device		1
	Forum (NV)	2800	187	0.07	66.8	install CO2 Monitor	1	

2F

Miscellaneous Low Occupany Spaces

Room					Action	airflow measurement device	11
						-	**11**
					TOTALS	**20**	**29**
Work Area	312	16	0.05	51	install CO2 Monitor	1	1
Conference Rm.	418	21	0.05	50	install CO2 Monitor	1	1
Office (NV)	1426	14	0.01	10	install CO2 Monitor	1	1
Office	277	3	0.01	11	airflow measurement device		1
Conference Room	244	12	0.05	49	install CO2 Monitor	1	1
Janitor	70	1	0.01	14	airflow measurement device		1
Conference Room	223	11	0.05	49	install CO2 Monitor	1	1
Work Rm.	276	14	0.05	51	install CO2 Monitor	1	1
Office (NV)	834	8	0.01	10	install CO2 Monitor	1	1
Reception (NV)	485	32	0.07	66	install CO2 Monitor	1	1
Office	273	3	0.01	11	airflow measurement device		1
Office	547	6	0.01	11	airflow measurement device		1
Office	485	5	0.01	10	airflow measurement device		1
Conference Room	146	7	0.05	48	install CO2 Monitor	1	1
Meeting Room	457	23	0.05	50	install CO2 Monitor	1	1

3F

Miscellaneous Low Occupany Spaces

Room					Action	airflow measurement device	52
						-	**52**
					TOTALS	**10**	**57**
Conference Room	559	28	0.05	50	install CO2 Monitor	1	1
Storage	144	2	0.01	14	airflow measurement device		1
Office	1221	12	0.01	10	airflow measurement device		1
Storage	195	2	0.01	10	airflow measurement device		1
Conversation	95	5	0.05	53	install CO2 Monitor	1	1
Storage	195	2	0.01	10	airflow measurement device		1
Storage	77	1	0.01	13	airflow measurement device		1
Office	556	6	0.01	11	airflow measurement device		1
Meeting	346	17	0.05	49	install CO2 Monitor	1	1
Mech/ Elec.	82	1	0.01	12	airflow measurement device		1
Communciation	99	1	0.01	10	airflow measurement device		1
Forum (NV)	435	22	0.05	51	install CO2 Monitor	1	1
Janitor	70	16	0.23	229	install CO2 Monitor	1	1
Office	238	16	0.07	67	install CO2 Monitor	1	1
Classroom	741	16	0.02	22	airflow measurement device		1
Classroom	214	16	0.07	75	install CO2 Monitor	1	1
Classroom	331	16	0.05	48	install CO2 Monitor	1	1
Storage	180	16	0.09	89	install CO2 Monitor	1	1

Space					Action		
Storage	180	16	0.09	89	install CO2 Monitor	1	
Tutorial	323	16	0.05	50	install CO2 Monitor	1	
Tutorial	332	16	0.05	48	install CO2 Monitor	1	
Tutorial	276	16	0.06	58	install CO2 Monitor	1	
Mech/ Elec.	179	16	0.09	89	install CO2 Monitor	1	
Mech/ Elec.	179	16	0.09	89	install CO2 Monitor	1	
Office (NV)	757	16	0.02	21	install CO2 Monitor	1	
Storage	100	16	0.16	160	install CO2 Monitor	1	
Tutorial	331	17	0.05	51	install CO2 Monitor	1	
Tutorial	252	13	0.05	52	install CO2 Monitor	1	
Office	236	3	0.01	13	airflow measurement device		1
Office	221	3	0.01	14	airflow measurement device		1
Classroom	717	36	0.05	50	install CO2 Monitor	1	
Tutorial	381	19	0.05	50	install CO2 Monitor	1	
Tutorial	381	19	0.05	50	install CO2 Monitor	1	
Miscellaneous Low Occupany Spaces		19		19	-	-	19
TOTALS						22	30

Installation Summary

Equipment Type	Level			Total
	1F	2F	3F	
CO2 Monitors	20	10	22	52
Airflow Measurement Devices	29	57	30	116

Note: "NV" denotes naturally ventilated space

GE
Sensing

Features

- Patented Absorption Infrared/Gas sensing engine provides high accuracy in a compact low cost package.

- Patented ABC Logic™ self-calibration system eliminates the need for manual calibration in most applications.

- Mounting bracket with terminal block provides quick, easy wiring.

- Gas permeable, water resistant diffusion filter prevents particulate and water contamination of the sensor.

- Locking screw secures cover and sensor to the mounting bracket for tamper resistance.

- Dual simultaneous analog output (V & mA).

- On-board relay with adjustable setpoint and dead-band.

- Choice of nine pre-programmed "standard settings" on easy-to-use interface.

- PC interface and adjustable settings allow for simple configuration.

- Optional enclosures available.

- Thirteen minute one-step calibration process.

- Lifetime calibration guarantee.

- Sensors are shipped factory calibrated.

Telaire Wall Mount

Ventostat® Wall Mount CO2 Ventilation Controllers

Telaire Wall Mount is a Telaire product. Telaire has joined other GE high-technology sensing businesses under a new name–GE Industrial, Sensing.

Wall mount sensors are used to control a specific area such as a conference room, classroom, meeting hall, etc. Even though the sensors are designed for wall mount configurations, some sensors can also be configured for "in-duct" mount. For in-duct, the sensor (8001B, 8002B, and 8102B) is mounted inside the duct to control an entire air-handling zone. All wall mount sensors (except the 8003) are compatible with accessory enclosures.

The Ventostat controller offers a SPDT relay (normally open or closed) and can be custom programmed to a specific measurement and output range using the UIP software interface or on-board keypad (display units).

ABC Logic Self Calibration Program

CO2 controllers use the patented ABC (Automatic Background Calibration) Logic self-Calibration system that virtually eliminates the need for manual calibration in applications where the indoor CO2 level drops to outside levels during unoccupied periods (e.g. during evening hours). ABC Logic is a special software routine in the sensor that remembers the background readings for 14 consecutive evenings, calculates if there is sensor drift, and then corrects for it. ABC Logic will not work properly in applications where the space is unoccupied for less than four hours a day or where there are industrial sources of CO2 in the building such as breweries or wineries.

Fast One Step Calibration

The CO2 Sensors (except the 8009) feature a fast one step calibration process should it ever be required. A zero calibration can be performed in less than fifteen minutes by flowing gas to the calibration port and activating the calibration routine. If drift occurs in the sensor it usually affects the zero setting of the sensor only. If a two-point calibration is desired, it can be performed using the UIP Program.

Lifetime Calibration Guarantee

Telaire is serious about minmizing maintenence, so each sensor comes with a lifetime calibration guarantee. If a Telaire 8000 sensor drifts out of calibration range, it can be sent back to Telaire for a free factory calibration. Further information on the guarantee is available on our web site.

User Interface Program (UIP)

All Ventostat 8000 series controllers (except the 8009) can be connected to a PC using the UIP 2072 Windows® program. Simply connect to the sensor using the onboard RJ45 jack and you can adjust the output scaling, elevation adjustment, relay setpoint, relay dead-band, select linear or proportional exponential output, perform single-point or two-point calibration, and check ppm levels. Display units can also be adjusted using the keypad.

Ventostat 8001/8002

Ventostat 8001 CO2 Sensor No Display
Ventostat 8002 CO2 Sensor with Display
For use in commercial buildings for demand-controlled ventilation.

Ventostat 8001B/8002B

Ventostat 8001B CO2 Sensor No Display
Ventostat 8002B CO2 Sensor with Display
Wall or optional in-duct mount, for use in commercial buildings, for demand-controlled ventilation. Conformal coated electronics and high temperature enclosure (UL94-5V) allow for installation in harsh environments. Model 8002B includes a display and a keypad for sensor programming without software.

Ventostat 8003

Ventostat 8003 CO2 Sensor No display
This wall mount includes our patented technology, but omits programming ability, which allows for an economically-priced sensor. This also includes a calibration guarantee.

Ventostat 8102

Ventostat 8102 CO2 Sensor with Display
Ideal for use in applications where CO2 monitoring and control are required for a 24/7 period. Equipped with a dual beam sensor, it provides higher accuracy and stability over time. The display and keypad allow for sensor programming without software.

Ventostat 8102B

Ventostat 8102B CO2 Sensor with display
Equipped with a dual beam sensor, it provides higher accuracy and stability over time. It is wall mount or optional in-duct configured. The display and keypad allow for sensor programming without software. Conformal coated electronics and high temperature enclosure (UL94-5V) allow for installation in harsh environments.

Wall Mount Specifications

Sensing Method
- Non-dispersive infrared (NDIR) absorbtion
- Gold-plated optics
- Patented ABC Logic self calibration algorithm

Sample Method
Diffusion

Measurement Range
- 0 to 2000 ppm factory default
- Adjustable to 10,000 ppm

Accuracy
±40 ppm 3% of reading @ 72°F (22°C) when compared against a certified factory reference*

Non-Linearity
< 1% of FS

Stability
< 2% of FS over life of sensor (15 year typical)*

Temperature Dependence
±0.2% FS per °C (±0.11% per °F)

Pressure Dependence
0.13% of reading per mm Hg

Response Time
< 2 minutes for 90% step change

Warm-up Time
- < 2 minutes (operational)
- 10 minutes (maximum accuracy)

Operating Conditions
- 32°F to 122°F (0°C to 50°C)
- 0 to 95% RH, non-condensing

Storage Conditions
-4°F to 158°F (-20°C to 70°C)
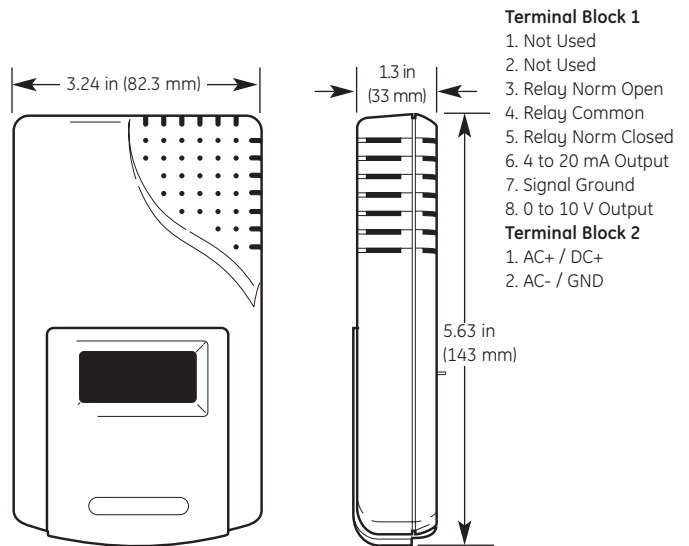
Terminal Block 1
1. Not Used
2. Not Used
3. Relay Norm Open
4. Relay Common
5. Relay Norm Closed
6. 4 to 20 mA Output
7. Signal Ground
8. 0 to 10 V Output

Terminal Block 2
1. AC+ / DC+
2. AC- / GND

3.24 in (82.3 mm)
1.3 in (33 mm)
5.63 in (143 mm)

2.88 in (73.1 mm)
2.38 in (60.4 mm)
2.38 in (60.4 mm)
3.25 in (82.5 mm)
4.25 in (107.9 mm)
5.06 in (128.5 mm)
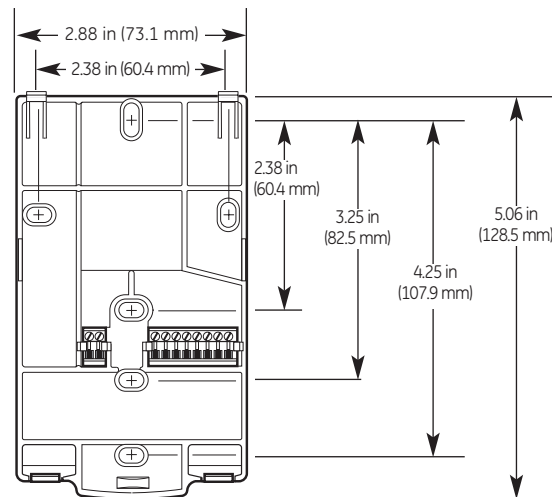
Ventostat 8100/8000 dimensions
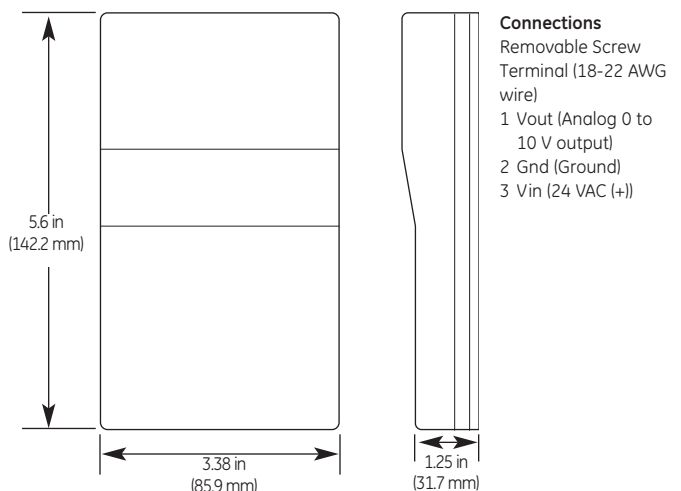
Connections
Removable Screw Terminal (18-22 AWG wire)
1 Vout (Analog 0 to 10 V output)
2 Gnd (Ground)
3 Vin (24 VAC (+))

5.6 in (142.2 mm)
3.38 in (85.9 mm)
1.25 in (31.7 mm)

Ventostat 8009 dimensions

Wall Mount Specifications

Calibration Interval
- Not required
- Lifetime calibration guarantee
- Sensors are factory calibrated

Output

Analog
- 0 to 10 V (100 Ω output impedance) and
- 4 to 20mA (RL maximum 500 Ω) available simultaneously (4 to 20mA not available on the 8003)

Relay
SPDT, gold bifurcated, 2 A maximum @ 24 V (Not available on the 8003).
Relay threshold 1000 ppm, dead band 50 ppm (factory set) user-configurable (Not available on the 8003)

Digital
RS232 communicates with Telaire CO2 View and UIP software (Not available on the 8003)

The sensor employs ABC (Automatic Background Calibration) Logic a patented self-calibration technique used in applications where concentrations will drop to outside ambient conditions (approximately 400 ppm) at least 3 times in a 14 day period, typically during unoccupied intervals. Specified accuracy is achieved after 14 days of continuous operation.

Accessories

8001B, 8002B, 8102B
- 1505 Water Resistant Enclosure for Harsh Environments
- 1551 Outside Air Enclosure for Temperatures to –20°F (-29°C)
- 1508 Aspiration Box for Duct Mounting

8001B, 8002B, 8102B, 8007, 8008
- 2072 UIP for Customizing Settings and Calibration
- 2075 Calibration Kit for Performing Zero and Span Calibration.
- Replacement Bottles for Replacing 2075 Gas Bottles

Factory calibration available – Call for details.

Note: Accessories are not available for the 8009.

www.gesensing.com

Function:

The 600 Series Modular Pump Stations are self-contained, pre-engineered underground pump vault systems designed for overall construction cost savings, as well as minimal maintenance upkeep.

Each 600 Series Modular Pump Station arrives at the jobsite assembled, tested, and ready to set in place for a quick "fast track" installation. The fountain mechanical and electrical support equipment is housed in a corrosion-proof, water resistant fiberglass vault. All internal components are preinstalled, prewired and prevalved, with leak-resistant penetrations through the exterior shell wall. Each penetration is labeled to correspond to the proper pipe or conduit that is to run to or from the vault, and as indicated in our complete installation drawing package.

The Modular Pump Stations dramatically reduce project costs by eliminating the need to construct an equipment room. Each vault can be conveniently located underground near the fountain resulting in cost savings on piping, wiring and labor. A 600 Series Pumping Station is also an economical alternative in applications where leasable space would be required for an equipment room.

600 Series Modular Pump Stations are available in five standard sizes: 3-PAK, 4-PAK, 6-PAK, 8-PAK, 10-PAK. Custom sizes are available to fit the requirements of the project.

Specifications:

Each 600 Series Modular Pump Station is designed and manufactured with the following standard equipment. Alternatives to the standard equipment can be provided to meet the project's requirements.

Filtration System - The filtration system utilizes a cartridge filter consisting of:
 • Type 304 stainless steel canister with non-woven polyester cartridge element
 • Automatic air relief
 • Stainless steel lid with brass wing nuts for easy disassembly and cleaning
 • 2" bottom-mounted inlet and outlet
 • Electro-polished for resistance to corrosion
 • Includes spare cartridge element; reducing down time during filter cleaning

Fill / Water Level Control Manifold - A fill / water level control manifold, with a nominal pipe size of 3/4", 1" or 1-1/2" depending on the size of the fountain, consisting of the following:
 • Type 'K' copper construction
 • 'Quick-fill' ball valve (bronze body)
 • Backflow preventer: bronze body, Watts #007 double check valve style; four air
    relief valves (WATTS 009 or 090 type available upon request).
 • Pressure reducing valve (bronze body with integral strainer and union connection
    inlet)

H₂O PARTS
a wm. hobbs ltd. company

6-2

Toll Free: 887.426.4622
Phone: 770.457.3000
Fax: 770.457.4225
www.hobbsfountains.com

Rev.01

Fill / Water Level Control Manifold (continued):
• Pressure gauge (0 - 100 psi scale, steel body)
• 3/4", 120 volt, single phase, slow-closing 'make-up' solenoid valve (bronze body construction with NEMA 4 coil enclosure)
• Isolation gate valve (bronze body) on 3/4" and 1" versions, or 3/4" hose bibb (bronze body, for convenient water source) and 3/4" check valve on 1-1/2" versions

Sump Pump Assembly:
• Vortex impeller design
• Float operated, submersible (NEMA 6) mechanical switch with dark blue plastic housing
• U.L. listed 3-wire cord and plug
• Light blue epoxy-coated cast iron motor and pump housing
• Glass-filled impeller with metal insert
• Stainless steel screws and switch arm
• Water tight neoprene ring between motor and pump housing
• Automatic-reset, thermal overload protection
• 120 volt, 7.7 amp oil-filled motor, hemetically sealed
• Carbon and ceramic shaft seal
• PVC discharge piping assembly, 1-1/2" union/check valve (PVC body) and 1-1/2" NPT connection
• NOTE: Sump pump is optional in the 3-PAK

U.L. Listed Electrical Control Panel:
• NEMA 1 painted steel enclosure
• Main disconnect for power supply
• Panel board with circuit breakers
• Magnetic motor starter rated for the pump(s) selected
• H-O-A selector switches for the pump(s), vent fan and fountain lights
• 24-hour programmable time clock that is designed for two channel operation

Vent Fan System:
3-PAK and 4-PAK
• 4" PVC inlet fitting and 4" PVC outlet fitting with 106 CFM fan (120 volt, 0.20 amp, 3,000 RPM motor).
6-PAK
• 6" PVC inlet outlet fitting with 495 CFM fan (115 volt, 3.25 amp, 1570 RPM motor)
8-PAK and 10-PAK
• 6" PVC inlet outlet fitting with 495 CFM fan (115 volt, 3.25 amp, 1570 RPM motor)

Function:

The Modular Pump Stations are designed to conform to any setting, indoors and outdoors. This is done by providing an entry hatch that best suits your pump station's environment. There are three different type of hatches: the Landscape, the Diamond Plate, and the Tile-set Hatch. The hatches are premounted on the various pump stations.

The Landscape Hatch is used when the pump station is to be installed in a planter or other area with fill-dirt and landscaping adjacent to the hatch. The Diamond Plate and Tile-set hatches are used when the pump station is to be installed in an area which has a hard, formed-in-place floor (such as plain or tile-covered concrete) and requires a flush-mounted finish. All hatches are attached and sealed to the pump stations with stainless steel fasteners and clear silicon sealer.

Landscape Hatch: Single-leaf aluminum curb hatch is complete with counterflashing and 1" rigid insulation. Twelve inch (12") curb is formed with a 3-1/2" flange which is attached to the pump station. Metal cover is complete with 1" insulation covered by metal liner, neoprene draft seal, and inside handle. The hatch is assembled with Easy-Access spring hinges entirely contained within the hatch to prevent outside tampering. All hardware is equipped with automatic hold-open arm, complete with red vinyl grip handle, which provides easy one-hand release. A spring latch provides inside and outside operation.

Diamond Plate Hatch: Single-leaf, flush, gutter-type floor hatch has a 1/4" thick aluminum diamond plate cover reinforced to withstand a live load of 300 pounds per square foot. The frame is 1/4" formed aluminum with built-in 1-1/2" drainage coupling. Unless noted, all hardware is cadmium plated to resist corrosion. The hatch is equipped with an automatic hold-open arm and red vinyl release handle, stainless steel inside snap lock with removable outside wrench handle, heavy bronze hinges with stainless steel pins, and spiral lift springs. Note: all stainless steel hardware available upon request.

Tile-Set Hatch: Single-leaf, flush, gutter-type floor hatch has a 1/4" smooth aluminum cover with aluminum edging to receive 3/4" thick terrazzo or tile and setting bed, reinforced to withstand a live load of 300 pounds per square foot. The frame is 1/4" formed aluminum with built-in 1-1/2" drainage coupling. Unless noted, all hardware is cadmium plated to resist corrosion. The hatch is equipped with automatic hold-open arm and red vinyl release handle, stainless steel inside snap lock with removable outside wrench handle, heavy, bronze hinges with stainless steel pins, and spiral lift springs.

3-PAK Modular Pumping Station

630-Series 3-PAK Modular Pump Station: Approximate size 3'-8" x 3'-2" x 3'-2"; Can utilize pumps between 1/3 HP and 3 HP.

Function:

3-PAK Modular Pump Station: Shell is a single-piece construction of 1/4" thick fiber reinforced plastic (FRP), with interior white gel-coat finish throughout. Formed integrally into the shell is a floor drain sump, which is normally drained via gravity through a 1-1/2" PVC line with backwater check valve, serviceable from the interior of the shell. As an option, a 120 volt, automatic sump pump (15 GPM) to remove any excess water can be substituted. Two skids are permanently bonded and sealed to the outside bottom of the shell, serving to provide rigidity and allow easy fork lift handling.

Ventilation is provided by a 106 CFM vent van assembly which operates in conjunction with two air ventilation fittings for air intake and exhaust. The access hatch has a 2'-6" x 3'-0" opening, with a variety of styles available (see '600-Series Hatches' for the type needed).

The pumping system has the capability of utilizing as small as a 1/3 horsepower centrifugal pump and as large as a 3 horsepower centrifugal pump. The 3 horsepower pump can produce a maximum of 150 gallons per minute at 50 feet of head.
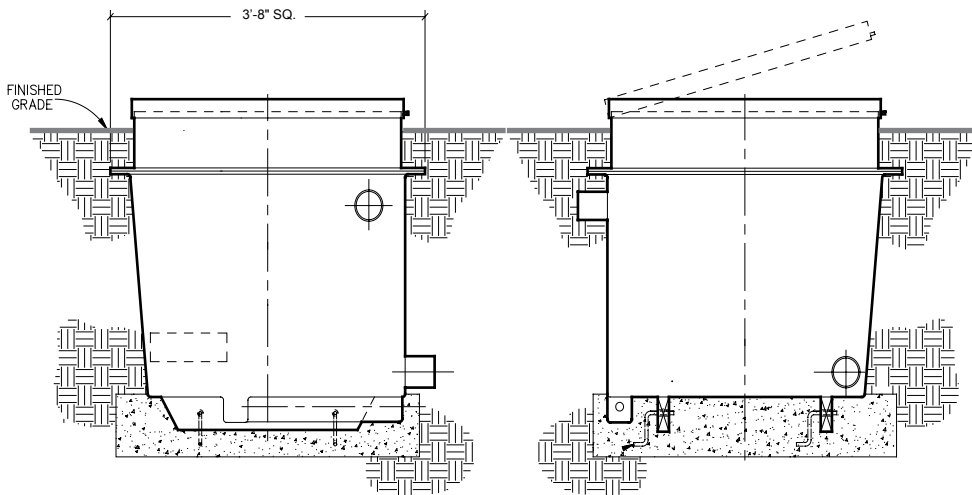
The 630 3-Pak Pump Station is custom manufactured per the requirements for each fountain project. Contact our office for pricing and ordering information.