



SPECIFICATIONS 3



tripOD

Prepared by:
Stef Chu
August 07 2007

SHELL/STRUCTURE

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Solar cell specifications:

- o **Copy of manufacturer's solar cell and module specification sheet(s)**
See: 48 14 00—PV Panels
- o **Manufacturer's name and contact information**
SunPower Corporation
Luis Rangel
Applications Engineer Manager
408-240-5548
- o **Stock number, type, or description**
SPR-215-BLK
Residential PV Module
- o **Manufacturer's quote for cell or module area**
Module Dimensions: 61.39" x 31.42" x 1.81"
- o **Manufacturer's quote for performance**
Module efficiency 17.3%
- o **Cost (US\$) per watt for each cell or module.**
\$4.10 per watt

• Battery specifications:

- o **Copy of manufacturer's battery specification sheet(s)**
Not Currently Available. Battery does not come out until late spring. See: 26 33 00 for dimensions
- o **Material Safety Data Sheets (MSDS) obtained from the manufacturer**
See: 26 33 00—Batteries
- o **Manufacturer's name and contact information**
Concorde Battery Corporation
Ed Mahoney < EMahoney@concordebattery.com >
- o **Stock number, type, or description**
SunXTender Sealed-Lead-Acid Battery
PVX-9150T
- o **Module voltage (e.g., 6 V, 12 V, or 24 V)**
2 volts
- o **Bus voltage**
48 Volts
- o **Number of modules to be used in the house**
One string of 24 modules
- o **Manufacturer's specifications, including capacity (kWh), weight (lb.), and cost (US\$)**
900 AmpHrs estimated \$217 per battery
- o **Spill and damage protocols and procedures**
All required information is contained in MSDS

Division Title:
CONCRETE

Division:
03 31 00

Item:
Concrete Foundation Pavers

Manufacturer:
Tile Tech Pavers

Product Model:
Concrete Paver

Website:
<http://www.tiletechpavers.com>

Link to Full Data Sheet:
<http://www.tiletechpavers.com/paverspecs.pdf>

CONCRETE PAVERS SPECIFICATIONS GUIDE

SANDBET METHOD

PART ONE - GENERAL

1.1 SCOPE OF WORK

- A. Furnish materials, labor, transportation, services, and equipment necessary to furnish and install Eurogranite concrete pavers as indicated on Drawings and as specified herein.

1.2 REFERENCES

- A. American Society of Testing Materials (ASTM):
 1. ASTM C-150
 2. ASTM C-33
 3. ASTM C-140
 4. ASTM C-293
 5. ASTM C-1028
 6. ASTM C501, 50
 7. ASTM C241
- B. Performance Requirements
 1. Compressive Strength at the time of delivery to be not less than 5,000 psi; Averaging 7,000 psi when tested in accordance with ASTM C-140.
 2. Water Absorption shall not be greater than 5-1/2% to 6-1/2%, when tested in accordance with ASTM C-293.
 3. Flexural Strength shall not be less than 900psi average. 950psi when tested in accordance with ASTM C-293.
 4. Static Coefficient of Friction ASTM C-1028 conditionally slip resistant:
 - a.) Wet: 0.50 - 0.60
 - b.) Dry: 0.60 - 0.70

1.3 QUALITY ASSURANCE

- A. Manufacturer: Company specializing in the manufacture of pre-cast concrete pavers for a minimum of three (3) years.
- B. Installation shall be by a contractor and crew with at least (1) year of experience in placing concrete pavers on projects of similar nature or dollar cost.
- C. Installation Contractor shall conform to all local, state/provincial licensing and bonding requirements.

Division Title:
CONCRETE

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1.4 SUBMITTALS

- A. Submit installation instructions as recommended by manufacturer.
- B. Submit full size sample sets of concrete paving units to indicate color and shape selections. Color will be selected by Architect / Engineer / Landscape Architect / Owner from manufacturer's available colors.
- C. Submit sieve analysis for grading of bedding and joint sand.
- D. Submit test results from an independent testing laboratory for compliance with performance requirements specified herein.
- E. Indicate layout, pattern, and relationship of paving joints to fixtures and project formed details.
- F. Submit two copies of written instructions for recommended maintenance.

1.5 PROJECT CONDITIONS

- A. Do not install sand or pavers during heavy rain or snowfall.
- B. Do not install sand and pavers over frozen base materials.
- C. Do not install frozen sand.

1.6 PRODUCT DELIVERY, STORAGE AND HANDLING

- A. Packaging and Shipping: Precast pavers to be stretch wrapped in rows and banded on pallets, delivered in original unopened packaging with legible manufacturer identification, including size, quantity, manufacture date and inspector initials.
- B. Sand shall be covered with waterproof covering to prevent exposure to rainfall or removal by wind. The covering shall be secured in place.

1.7 WARRANTY

- A. Manufacturer/Installer shall warrant installed system for a period of 1 year from date of substantial completion against failure of workmanship and materials.

1.8 MAINTENANCE

- A. Extra Materials: Deliver supply of maintenance materials to the owner. Furnish maintenance materials from same lot as materials installed, and enclosed in protective packaging with appropriate identifying labels.
 - 1. Furnish not less than 1 percent of total product installed maintenance stock for each type, color, pattern and size of paver product installed.

Division Title:
CONCRETE

Division:
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PART TWO - PRODUCTS

2.1 CONCRETE PAVERS

- A. Manufacturers
1. Acceptable Manufacturer
 - a. Tile Tech Industries - Los Angeles, CA - (323) 733-6187
 2. Drawings and installation specifications are based on manufacturer's proprietary literature from Tile Tech Industries. Other manufacturer's shall comply with the minimum levels of material specifications and detailing indicated on the drawings or specified herein.

2.2 MATERIALS

- A. *Portland Cement*: ASTM C-150 specifications for Portland Cement.
- B. *Aggregates*: All aggregates to meet ASTM C-33 specifications, cleaned and properly graded to size. Aggregate shall be blended to meet individual project requirements. Aggregates to meet ASTM C241 HA 10 minimum.
- C. *Coloring*: Pigments used shall be inorganic, resistant to alkalinity and used per manufacturer's recommendations.
- D. *Color Blending*: Factory-blend pre-cast paver that has a natural color range so products taken from one container will have the same range as products from a separate container.
- E. *Cleaner*: Liquid neutral chemical cleaner with pH factor between 7 and 8, of formulation recommended by sealer manufacturer for type of precast paver used.
- F. *Sealer*: Colorless, slip and stain resistant penetrating or acrylic sealer with pH factor between 7 and 8 that does not affect color or physical properties of precast paver surface.

2.3 MANUFACTURED UNITS

- A. Precast Pavers
1. Sizes: 11.875" x 11.875" (Actual)
11.875" x 23.622" (Actual)
15.75" x 15.75" (Actual)
19.68" x 19.68" (Actual)
15.75" x 15.75" Octagonal
 2. Square face edges or beveled.
 3. Finish: Rough ground and shot blast surface.
 4. Color:
 - a. Custom - Colors selected from blended aggregate and matrix colors.
 - b. Colors to be selected from Tile Tech stocking color chart.
 5. Concrete pavers are not factory sealed.

Division Title:
CONCRETEDivision:
03 31 00Item:
Concrete Foundation PaversManufacturer:
Tile Tech PaversProduct Model:
Concrete PaverWebsite:
<http://www.tiletechpavers.com>Link to Full Data Sheet:
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2.4 MIXES

- A. *Aggregate*: natural, sound, crushed marble chips without excessive flats or flakes.
- B. *Matrix Pigments*: Pure mineral or synthetic pigments, resistant to alkalis and non-fading. Mix pigments with matrix to provide required colors.
- C. *Face layer*: Minimum depth of 3/8" (nominal) and shall include 70% coverage of the Paver face with marble aggregate.

2.5 FABRICATION

- A. Mechanically vibrated in the molds.
- B. Hydraulically pressed by 600 tons of pressure.
- C. Moisture cured with 100% humidity for 24 hours.
- D. Factory finish: In-line grinding and shotblasting.

2.6 SAND BEDDING COURSE

- A. Bedding and joint sand shall be clean, non-plastic, and free from deleterious or foreign matter. The sand shall be natural or manufactured from crushed rock. Limestone screenings or stone dust shall not be used.

PART THREE - EXECUTION

3.1 EXAMINATION

- A. Verify that subgrade preparation, compacted density and elevations conform to the specifications. Compaction of the soil subgrade to at least 95% Standard Proctor Density per ASTM D 698 is recommended. Higher density or compaction to ASTM D 1557 may be necessary for areas subject to vehicular traffic. Stabilization of the subgrade and/or base material may be necessary with weak or saturated subgrade soils. The Architect/Engineer should inspect subgrade preparation, elevations, and conduct density tests for conformance to specifications.
- B. Verify that Geotextiles, if applicable, have been placed according to specifications.
- C. Verify that aggregate base materials, thickness, compaction, surface tolerances, and elevations conform to the specifications.
- D. Verify location, type, installation and elevations of edge restraints around the perimeter area to be paved.
- E. Verify that base is dry, uniform, even, and ready to support sand, pavers, and imposed or anticipated vehicular loads.

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3.2 INSTALLATION

- A. Spread a sand/cement mix evenly over the base course and screed to a nominal 1 in. (25 mm.) thickness, not exceeding 1-1/2 in. (40mm) thickness. The screened sand should not be disturbed. Place sufficient sand to stay ahead of the laid pavers. Do not use the bedding sand to fill depressions in the base surface.
- B. Ensure that pavers are free of foreign materials before installation.
- C. Lay the pavers in the pattern(s) as shown on the drawings. Maintain straight pattern lines.
- D. Fill gaps at the edges of the paved area with cut pavers.
- E. Cut pavers to be placed along the edge with a wet masonry saw.
- G. Tamp into bedding or use a low amplitude, high frequency plate vibrator to vibrate the pavers into the sand (cover vibrator plate to prevent surface damage to pavers).
- H. Sweep dry joint sand into the joints.
- I. Sweep off excess sand when the job is complete.
- J. The final surface elevations shall not deviate more than 1/16 in. under a 10 ft. (3 m) long straightedge.
- K. The surface elevation of pavers shall be 1/8 in. to 1/4 in. (3 to 6 mm) above adjacent drainage inlets, concrete collars or channels.

3.3 CLEANING AND SEALING

- A. Wash entire surface with neutral cleaner.
 - 1. pH factor between 7 and 10.
 - 2. Biodegradable phosphate free.
- B. Rinse with clean water and allow to dry thoroughly.
- C. Apply sealer in accordance with manufacturer's directions.
 - 1. pH factor between 7 and 10
 - 2. Non-discoloring or amber.
 - 3. Penetrating type designed especially for precast concrete pavers.

Division Title:
Metal

Division:
05 00 00

Item:
Floor Jack

Manufacturer:
Ellis

Product Model:
Ellis Bridge Jack

Website:
http://www.ellisok.com/ellisok/products_bridgejacks.html

Link to Full Data Sheet:
http://www.ellisok.com/ellisok/products_bridgejacks.html

For a rugged and durable piece of hardware in the Ellis line, none get it done like the Ellis Bridge Jack. With top and bottom plates measuring 1/2" x 9" x 9" for support, the Acme Screw is 2 and a 1/2" in diameter and greased for easy turning and capable of extending a full 6". For extra leverage, a 1" steel rod can also be used when turning the screw. The Ellis Bridge Jack while weighing 60 lbs can support loads up to 80,000 lbs. The top plate has been attached to swivel freely, allowing the screw to be turned with ease. For added support, gussets on the top and the bottom plate have been added with full length welds.

With this kind of hardware, it's no surprise that the Ellis Bridge Jack can support loads up to 80,000 pounds. A favorite of contractors, they fit directly under concrete slabs or beams in tight spots, as well as with timbers for shoring projects. Just install the Bridge Jack at its closed height of 13.5" and use the 6" of adjustment to screw it into position.

Search and Rescue teams also know the value of the Ellis Bridge Jack. With it's ability to fit in tight spaces to stabilize concrete slabs or steel beams, the Ellis Bridge Jack is a versatile tool for downed buildings and reinforcement in small areas. It is strength in a small package, when time is of the essence.



Division Title:
Metals

 Division:
05 12 00

 Item:
Hot Formed Steel

 Manufacturer:
 Forrest Steel Corp

Product Model:

Website:

[Link to Full Data Sheet:](#)

Location	Quantity	Beam Schedule #	Product Name	Lb/ft	Item Length	Item Length
Core	7	C01	TUBE COLUMN	9.4	4 1/8"	0.4125
	2	B01	W12x22	22	50'-0"	50
	6	B06	W8 x 15	15	15'-8"	15.66
	4	B11, B31	W4 x 13	13	50'-0"	50
	6	B26	W6 x 9	9	15'-8"	15.66
	13	C11	TUBE COLUMN	9.4	6'-10"	6.83
	2	B21	W4 x 13	13	50'-0"	50
	13	C21	TUBE COLUMN	9.4	5'-3 1/16"	5.26
	10	B02, B12, B22, B32	W4 x 13	13	5'-10 1/2"	5.875
	6	LEDGE COLUMN	SEE STL 24	3.13	n/a	n/a
	12	MOMENT BRACE	1/4" PLATE STL	5	n/a	n/a
	4	LIFTING BRACKET		6	n/a	n/a
	4	LIFTING PLATE		10	n/a	n/a
	6	THREADED ROD	1/4" DIA ROD	2	6'-10"	6.83
Pod A	4	C01	TUBE COLUMN	9.4	4 1/8"	0.4125
	2	B03	W8 x 15	15	12'-8"	12.66
	2	B04	W8 x 15	15	5'-10 1/2"	5.875
	4	C12	TUBE COLUMN	9.4	8'-8 5/8"	8.71
	2	B23	W6 x 9	9	12'-8"	12.66
	2	B24	W6 x 9	9	5'-10 1/2"	5.91
	4	LIFTING BRACKET	Sq. Tube Column 4x4x1/4"	9.4	4"	4
	4	LIFTING PLATE	Screw Jack Feet	10	n/a	n/a
Pod B	4	C01	TUBE COLUMN	9.4	4 1/8"	0.4125
	2	B05	W8 x 15	15	10'-4 1/2"	10.375
	2	B07	W8 x 15	15	11'-2"	11.16
	4	C12	TUBE COLUMN	9.4	8'-8 5/8"	8.71
	2	B25	W6 x 9	9	10'-4 1/2"	10.375
	2	B27	W6 x 9	9	11'-2"	11.16
	4	LIFTING BRACKET	Sq. Tube Column 4x4x1/4"	9.4	4"	0.33
	4	LIFTING PLATE	Screw Jack Feet	10	n/a	n/a

Division Title:
Metals

Division:
05 12 00

Item:
Hot Formed Steel Beams

Manufacturer:
Forrest Steel Corp

Product Model:

Website:

[Link to Full Data Sheet:](#)

Location	Quantity	Beam Schedule #	Product Name	Lb/ft	Item Length	Item Length
Pod C	4	C01	TUBE COLUMN	9.4	4 1/8"	0.4125
	2	B05	W8 x 15	15	10'-4 1/2"	10.375
	2	B06	W8 x 15	15	15'-8"	15.66
	4	C12	TUBE COLUMN	9.4	8'-8 5/8"	8.71
	2	B25	W6 x 9	9	10'-4 1/2"	10.375
	2	B26	W6 x 9	9	15'-8"	15.66
	4	LIFTING BRACKET	Sq. Tube Column 4x4x1/4"	9.4	4"	0.4125
	4	LIFTING PLATE	Screw Jack Feet	10	n/a	n/a

Division Title:
Metals

Division:
05 12 00

Item:
Cold Formed Steel Table

Manufacturer:
Washington County Builder

Product Model:

Website:

[Link to Full Data Sheet:](#)

Location	Quantity of Items	Product Name	Item Length	
Core	50	4" CSJ 20ga.	6'-10"	
	52	4" CSJ 20ga.	5'-3"	
	18	4" CSJ 20ga.	2'-9"	
	7	4" CSJ 20ga.	1'-3"	
	76	4" Track	3'	
	28	4" Track	1'-6"	
	14	6" TradeReady Joist	6'	
	28	6" Joist Hangers	n/a	
Pod A	16	4" CSJ 20ga.	8'-8"	
	16	4" CSJ 20ga.	2'-9"	
	16	4" Track	3'	
	9	8" TradeReady Joist	6'	
	9	6" TradeReady Joist	6'	
	18	8" Joist Hangers	n/a	
	18	6" Joist Hangers	n/a	
Pod B	18	4" CSJ 20ga.	8'-8"	
	18	4" CSJ 20ga.	2'-9"	
	6	4" CSJ 20ga.	1'-10"	
	18	4" Track	3'	
	6	4" Track	1'-6"	
	8	8" TradeReady Joist	10'-6"	
	8	6" TradeReady Joist	10'-6"	
	16	8" Joist Hangers	n/a	
	16	6" Joist Hangers	n/a	
Pod C	14	4" CSJ 20ga.	8'-8"	
	14	4" CSJ 20ga.	2'-9"	
	12	4" CSJ 20ga.	1'-10"	
	22	4" Track	3'	
	4	4" Track	1'-6"	
	11	8" TradeReady Joist	10'-6"	
	11	6" TradeReady Joist	10'-6"	
	22	8" Joist Hangers	n/a	
	22	6" Joist Hangers	n/a	

Division Title:
Metals

Division:
05 12 00

Item:
Cold-Formed Steel Framing

Manufacturer:
Washington County Builder

Product Model:

Website:

[Link to Full Data Sheet:](#)

LIGHT GAUGE STEEL FRAME COMPONENT SCHEDULE

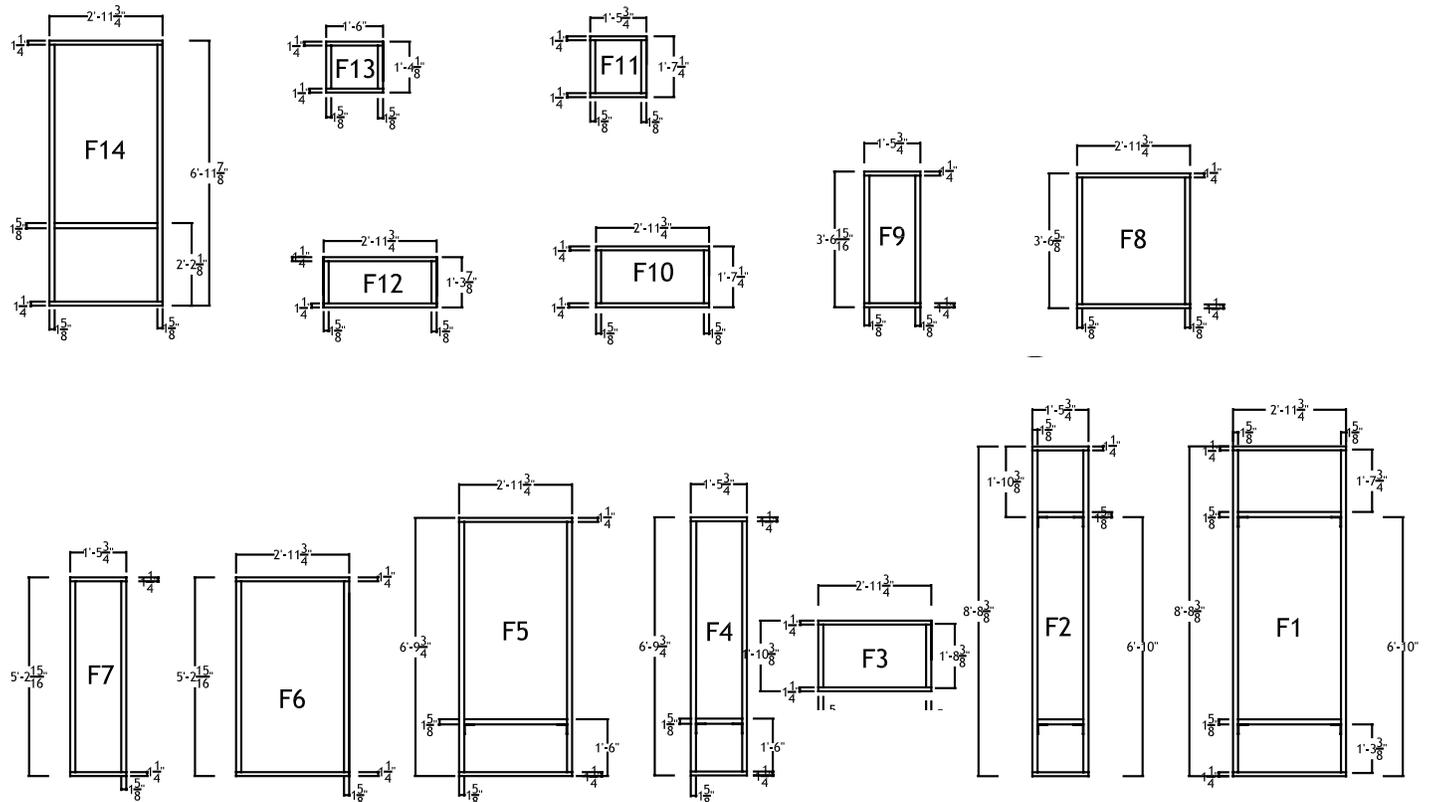
	SSMA REF.	PRODUCT NAME	DEPTH	FLANGE	RETURN	THICKNESS	APPROX. LINEAL FEET
TRACK	1-T100-33	TSA	4"	1-1/4"	-	20 ga.	552
C-STUD	400S162-33	CSJ	4"	1-5/8"	1/2"	20 ga.	1140

LIGHT GAUGE STEEL FRAME SCHEDULE

	LIGHT GAUGE STEEL FRAME SCHEDULE	QTY.
F 1	8'- 8 3/8" x 2'- 11 3/4"	19
F 2	8'- 8 3/8" x 1'- 5 3/4"	5
F 3	1'- 10 3/8" x 2'- 11 3/4"	9
F 4	6'- 9 3/4" x 1'- 5 3/4"	8
F 5	6'- 9 3/4" x 2'- 11 3/4"	17
F 6	5'- 2 15/16" x 2'- 11 3/4"	12
F 7	5'- 2 15/16" x 1'- 5 3/4"	6
F 8	3'- 6 5/8" x 2'- 11 3/4"	3
F 9	3'- 6 5/8" x 1'- 5 3/4"	1
F 10	1'- 7 1/4" x 2'- 11 3/4"	11
F 11	1'- 7 1/4" x 1'- 5 3/4"	1
F 12	1'- 3 7/8" x 1'- 5 3/4"	3
F 13	3'- 6 5/8" x 1'- 5 3/4"	1
F 14	6'- 11 7/8" x 2'- 11 3/4"	2

LIGHT GAUGE STEEL JOIST SCHEDULE

	SSMA REF.	PRODUCT	DEPTH	FLANGE	RETURN	THICKNESS	LENGTH	QTY.
TYPE F1	-	CSJ Joist	8"	1-5/8"	5/8"	18 ga.	5'-11-1/2"	9
TYPE F2	-	CSJ Joist	8"	1-5/8"	5/8"	18 ga.	10'-5-1/2"	19
TYPE C1	600S162-33	CSJ Joist	6"	1-5/8"	1/2"	20 ga.	10'-5-1/2"	19
TYPE C2	600S162-33	CSJ Joist	6"	1-5/8"	1/2"	20 ga.	5'-11-1/2"	39
		Bridle Joist Hangar	6"					134
		Bridle Joist Hangar	8"					60



Division Title:
Metals

Division:
05 41 00

Item:
Cold-Formed Steel Framing

Manufacturer:
Dietrich

Product Model:

Website:
<http://www.dietrichindustries.com>

Link to Full Data Sheet:
<http://www.dietrichindustries.com>

SECTION 05400

COLD-FORMED METAL FRAMING

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Cold-formed metal framing for walls.
- B. Cold-formed metal framing for floors.

1.2 RELATED SECTIONS

- A. Section 07210 - Building Insulation.
- B. Section 09110 - Non-Load-Bearing Wall Framing.
- C. Section 09260 - Gypsum Board Assemblies.

1.3 REFERENCES

- A. ASTM A 780 - Standard Practice for Repair of Damaged and Uncoated Areas of Hot-Dip Galvanized Coatings.
- B. ASTM A 1003 - Standard Specification for Steel Sheet, Carbon, Metallic- and Nonmetallic-Coated for Cold-Formed Framing Members.
- C. ASTM B 633 - Standard Specification for Electrodeposited Coatings of Zinc on Iron and Steel.
- D. ASTM C 955 - Standard Specification for Load-Bearing (Transverse and Axial) Steel Studs, Runners (Tracks), and Bracing or Bridging for Screw Application of Gypsum Panel Products and Metal Plaster Bases.
- E. ASTM C 1513 - Standard Specification for Steel Tapping Screws for Cold-Formed Steel Framing Connections.
- F. ASTM C1007 - Standard Specification for Installation of Load Bearing (Transverse and Axial) Steel Studs and Related Accessories.
- G. AISI - Standard for Cold-Formed Steel Framing General Provisions.
- H. AISI - Specification for the Design of Cold-Formed Steel Structural Members.
- I. AWS D.1.3 - Structural Welding Code - Sheet Steel.

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05 41 00

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Link to Full Data Sheet:
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1.4 SUBMITTALS

- A. Submit under provisions of Section 01300.
- B. [[Product Data](#)]: Submit manufacturer's product literature, data sheets and installation recommendations for specified products.
- C. Structural Calculations: Submit structural calculations prepared by manufacturer for approval. Submittal shall be sealed by a professional engineer registered in the state of the project.
 - 1. Description of design criteria.
 - 2. Engineering analysis depicting stress and deflection (stiffness) requirements for each framing application.
 - 3. Selection of framing components, accessories and welded connection requirements.
 - 4. Verification of attachments to structure and adjacent framing components.
 - 5. Engineer shall have a minimum of 5 years experience with projects of similar scope.
- D. Shop Drawings:
 - 1. Submit shop drawings prepared by the manufacturer showing plans, sections, elevations, layouts, profiles and product component locations, including anchorage, bracing, fasteners, accessories and finishes.
 - 2. Show connection details with screw types and locations, weld lengths and locations, and other fastener requirements.
 - 3. Where prefabricated or prefinished panels are to be provided, provided drawings depicting panel configurations, dimensions and locations.

1.5 QUALITY ASSURANCE

- A. Installer Qualifications: Installer experienced in performing work of this section who has specialized in installation of work similar to that required for this project.
- B. Pre-installation Meetings: Conduct pre-installation meeting to verify project requirements, substrate conditions, and manufacturer's installation instructions.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Deliver materials in manufacturer's original, unopened, undamaged containers with identification labels intact.
- B. Store materials protected from exposure to rain, snow or other harmful weather conditions, at temperature and humidity conditions per the recommendations of ASTM C955.

1.7 PROJECT CONDITIONS

- A. Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside manufacturer's absolute limits.

Division Title:
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Division:
05 41 00

Item:
Cold-Formed Steel Framing

Manufacturer:
Dietrich

Product Model:

Website:
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Link to Full Data Sheet:
<http://www.dietrichindustries.com>

PART 2 PRODUCTS

2.1 MANUFACTURERS

A. Acceptable Manufacturer: Dietrich Metal Framing, Inc., which is located at: 500 Grant St. Suite 2226 ; Pittsburgh, PA 15219; Tel: 412-281-2805; Fax: 412-281-2965; Email: jcollins@dietrichindustries.com; Web: www.dietrichmetalframing.com

1. Dietrich Metal Framing; 8911 Bethlehem Blvd., Baltimore, MD (410) 477-8700
2. Dietrich Metal Framing; 4200 Cedar Blvd., Baytown, TX (281) 383-1617
3. Dietrich Metal Framing; 100 Fulton Street, Boonton, NJ (973) 335-3240
4. Dietrich Metal Framing; 2001 Cooley Drive, Colton, CA (909) 824-9717
5. Dietrich Metal Framing; 6700 Franklin Street, Denver, CO (303) 289-4092
6. Dietrich Metal Framing 978 S. Camino Oro, Goodyear, AZ (623) 932-1407
7. Dietrich Metal Framing; 1435 165th Street, Hammond, IN (219) 931-3741
8. Dietrich Metal Framing; 91-300 Hanua Street, Kapolei, HI (808) 682-5747
9. Dietrich Metal Framing; 1012 W. Wintergreen Rd; Hutchins, TX ((972) 225-1100
10. Dietrich Metal Framing; 3901 Olympic Blvd., Joliet, IL (815) 207-8110
11. Dietrich Metal Framing; 15546 West 108th Street, Lenexa, KS (913) 599-2026
12. Dietrich Metal Framing; 198 Summer Street, Lunenburg, MA (978) 342-9742
13. Dietrich Metal Framing; 330 Greenwood Place, McDonough, GA (678) 304-5500
14. Dietrich Metal Framing; 255 Northeast 181st Street, Miami, FL (305) 652-5423
15. Dietrich Metal Framing; 420 South 53rd Avenue, Phoenix, AZ (602) 447-0204
16. Dietrich Metal Framing; 3351 East Valley Road, Renton, WA (425) 251-1497
17. Dietrich Metal Framing; 1345 Hall Spencer Road, Rock Hill, SC (803) 324-4144
18. Dietrich Metal Framing; 2525 South Airport Way, Stockton, CA (209) 547-9066
19. Dietrich Metal Framing; 1300 Phoenix Road NE, Warren, OH (330) 372-3394
20. Dietrich Metal Framing; 721 Industrial Drive, Wildwood, FL (352) 748-7200

B. Requests for substitutions will be considered in accordance with provisions of Section 01600.

2.2 COMPONENTS

A. Studs: Cold formed galvanized steel C-studs; Dietrich Big "D" Steel C-Studs:

1. Size: 2 inches (51 mm) flange width, 5/8 inch (15.9 mm) returns, and web depth as indicated on drawings; Series CSW.
2. Minimum Yield Strength: 33 ksi (227 MPa) (for 20 through 12 gauges only).
3. Minimum Delivered Thickness: 18 gauge, 0.0428 inch (1.09 mm).

B. Runner Track: Cold formed galvanized steel sheet; Dietrich Big "D" Structural Runner Track:

1. Designation: TSB Standard Leg 1 1/4 inches (32 mm) high.
2. Minimum Yield Strength: 33 ksi (227 MPa) (for 20 through 12 gauges only).
3. Web Sizes: As required to match the system stud size.
4. Material thickness to match stud/joist thickness unless design dictates heavier thickness.

C. Web Stiffeners:

1. Width: 4 inches (102 mm). Minimum Delivered Thickness: 14 gauge, 0.0677 inch (1.72 mm)
2. Length: As shown on drawings.
3. Web Stiffener - 2 piece - Minimum Delivered Thickness: 14 gauge 0.0677 inch (1.72 mm)

Division Title:
Metals

Division:
05 41 00

Item:
Cold-Formed Steel Framing

Manufacturer:
Dietrich

Product Model:

Website:
<http://www.dietrichindustries.com>

Link to Full Data Sheet:
<http://www.dietrichindustries.com>

- D. Floor Joists: Cold formed Galvanized Steel C-Joist, Dietrich TradeReady Floor System:
 - 1. Size: 8 inches (203 mm) deep, with 1-3/4 inches (45 mm) flange, and 4-1/4 by 7 inches (108 by 178 mm) oval holes.
- E. Fasteners: Self-drilling, self-tapping screws; Steel, complying with ASTM C1513; Galvanized coating, plated or oil-phosphate coated complying with ASTM B 633 as needed for required corrosion resistance.

2.3 MATERIALS

- A. Cold-Formed Steel Sheet: Complying with ASTM A 1003/A 1003M; unless indicated otherwise.
- B. Galvanized Coating: G60 coating weight minimum, complying with ASTM C 955.

2.4 FABRICATION

- A. General: Framing components may be pre-assembled into panels prior to erecting.
- B. Fabricate panels square, with components attached in a manner so as to prevent racking or distortion.
- C. Cut all framing components squarely for attachment to perpendicular members, or as required for an angular fit against abutting members. Hold members positively in place until properly fastened.
- D. Provide insulation as specified elsewhere in all double jamb studs and double header members, which will not be accessible to the insulation contractor.
- E. Axially Loaded Studs:
 - 1. Install studs to have full bearing against inside track web (1/8 inches (3.2 mm) maximum gap) prior to stud and track attachment.
 - 2. Splices in axially loaded studs are not permitted.
- F. Fasteners: Fasten components using self-tapping screws or welding.
- G. Welding: Welding is permitted on 18 gauge or heavier material only.
 - 1. Specify welding configuration and size on the Structural Calculation submittal.
 - 2. Qualify welding operators in accordance with Section 6.0 of AWS D.1.3.
 - 3. Touch up all welds with zinc-rich paint in compliance with ASTM A 780.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Prior to installation, inspect previous work of all other trades. Verify that all work is complete and accurate to the point where this installation may properly proceed in strict accordance with framing shop drawings.
- B. If substrate preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.

Division Title:
Metals

Division:
05 41 00

Item:
Cold-Formed Steel Framing

Manufacturer:
Dietrich

Product Model:

Website:
<http://www.dietrichindustries.com>

Link to Full Data Sheet:
<http://www.dietrichindustries.com>

3.2 ERECTION

- A. General Erection Requirements:
1. Install cold-formed framing in accordance with requirements of ASTM C1007.
 2. Weld in compliance with AWS D.1.3.
 3. Install in compliance with applicable sections of the AISI Standard for Cold-Formed Steel Framing General Provisions.
- B. Wall Systems:
1. Erect framing and panels plumb, level and square in strict accordance with approved shop drawings.
 2. Handle and lift prefabricated panels in a manner so as not to cause distortion in any member.
 3. Anchor runner track securely to the supporting structure as shown on the erection drawings. Install concrete anchors only after full compressive strength has been achieved. Provide a sill sealer or gasket barrier between all concrete and steel connections.
 4. Butt all track joints. Securely anchor abutting pieces of track to a common structural element, or butt-weld or splice them together.
 5. Align and plumb studs, and securely attach to the flanges or webs of both upper and lower tracks except when vertical movement is specified.
 6. Install jack studs or cripples below window sills, above window and door heads, at freestanding stair rails and elsewhere to furnish support, securely attached to supporting members.
 7. Attach wall stud bridging in a manner to prevent stud rotation. Space bridging rows according to manufacturer's recommendations.
 8. Frame wall openings to include headers and supporting studs as shown in the drawings.
 9. Provide temporary bracing until erection is completed.
 10. Provide stud walls at locations indicated on plans as "shear walls" for frame stability and lateral load resistance.
 11. Where indicated in the drawings, provide for structural vertical movement using a vertical slide clip or other means in accordance with manufacturer's recommendations.
- C. Steel Joists:
1. Locate joists directly over bearing studs within 3/4" or provide a suitable load distribution member at the top track.
 2. Provide web stiffeners at reaction points where indicated in drawings.
 3. Provide joist bridging as shown in drawings.
 4. Provide end blocking where joist ends are not otherwise restrained from rotation.

3.3 FIELD QUALITY CONTROL

- A. Inspection: Periodic special inspections are required by local code authorities.
1. Owner will hire and pay inspection agency.
 2. Submit schedule showing when the following activities will be performed and resubmit schedule when timing changes.
 3. Notify inspection agency not less than 3 days before the start of any of the following activities.
 4. Inspections are required during welding operations, screw attachment, bolting, anchoring and other fastening of components within the force resisting structural system, including struts, braces, and hold-downs.

3.4 PROTECTION

- A. Protect installed products until completion of project.
- 16 B. Touch-up, repair or replace damaged products before Substantial Completion.

Item:	Division Title:	Division:
Structural Metal Wall Stud	Metal	05 41 00
Website:	Manufacturer:	Product Model:
http://www.dietrichindustries.com	Dietrich	Dietrich CSW 12ga. 4" C-Stud
	Link to Full Data Sheet:	
	http://www.dietrichindustries.com/products/pdf/catalog_58-59.pdf	

Light-gauge C-shaped framing members for axial load-bearing walls, curtain-walls, tall interior partitions, floor joists and roof truss assemblies.

- *Size (Web): 2-1/2", 3-1/2", 3-5/8", 4", 5-1/2", 6", 8", 10", 12", 14".*
- *Flange Sizes: 1-1/4", 1-3/8", 1-5/8", 2", 2-1/2", 3".*
- *Gauges: 20 (33 mils), 18 (43 mils), 16 (54 mils), 14 (68 mils) and 12 (97 mils).*
- *33 and 50 KSI yield strengths. 33 KSI is standard. 50 KSI must be specified at time of order.*
- *G-60 Galvanized coating or equivalent.*
- *Custom sizes, lengths and coatings available.*



C-Stud

Dietrich™ C Studs are light-weight, cold-formed galvanized steel members used in axial load-bearing walls, curtain-walls, floor joists and roof truss framing. C-Studs are available in a wide array of sizes, flanges, gauges and yield strengths to obtain optimal performance at minimal costs.

One of the key differences between the various C-Stud/Joist framing members is the flange and return dimensions. The flange is typically the bearing surface for cladding materials and a key contributor to the load-bearing capacity of the member. Flange sizes include 1-1/4", 1-3/8", 1-5/8", 2", 2-1/2" and 3".



Dietrich™ CSJ™ studs/joist have a 1-5/8" flange and a 1/2" return and are considered the industry standard. CSJ members are the most widely used and specified framing members. They provide the vertical strength necessary for demanding load-bearing structural applications and sufficient strength for many joist applications.

Dietrich™ CSW™ wide studs/joist have a 2" wide flange and a 5/8" return that provides a larger bearing surface for attaching sub-flooring or sheathing materials. This framing member is also used in axial load-bearing wall assemblies.

Dietrich™ CSE™ extra-wide studs/joist have a 2-1/2" wide flange and a 5/8" return and are used in floor joist assemblies and heavy loading conditions.

Dietrich™ CSS™ super-wide studs/joist have a 3" flange and a 1" return and are used in very heavy loading and long spanning conditions.

Division Title:
Metal

Division:
05 41 00

Item:
Structural Metal Wall Stud

Manufacturer:
Dietrich

Product Model:
Dietrich CSW 12ga. 4" C-Stud

Website:
<http://www.dietrichindustries.com>

Link to Full Data Sheet:
http://www.dietrichindustries.com/products/pdf/catalog_58-59.pdf

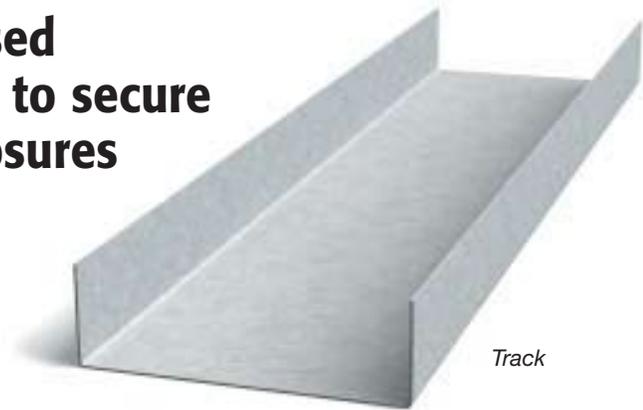
C-Studs

DMF Product Code*	SSMA Reference	Thickness	Depth		Flange		Return	
		Gauge (mils)	Inches	(mm)	Inches	(mm)	Inches	(mm)
CWI (3)	250S125-x	20 (33), 18 (43), 16 (54), 14 (68)	2-1/2	63.5	1-1/4	31.8	1/4	6.4
	362S125-x		3-5/8	92.1	1-1/4	31.8	1/4	6.4
	600S125-x		6	152.4	1-1/4	31.8	1/4	6.4
	800S125-x		8	203.2	1-1/4	31.8	1/4	6.4
CWN (3)	250S137-x	20 (33), 18 (43), 16 (54), 14 (68)	2-1/2	63.5	1-3/8	34.9	3/8	9.5
	362S137-x		3-5/8	92.1	1-3/8	34.9	3/8	9.5
	400S137-x		4	101.6	1-3/8	34.9	3/8	9.5
	600S137-x		6	152.4	1-3/8	34.9	3/8	9.5
	800S137-x		8	203.2	1-3/8	34.9	3/8	9.5
CSJ (3, 5)	250S162-x	20 (33), 18 (43), 16 (54), 14(68), 12 (97)	2-1/2	63.5	1-5/8	41.3	1/2	12.7
	350S162-x		3-1/2	88.9	1-5/8	41.3	1/2	12.7
	362S162-x		3-5/8	92.1	1-5/8	41.3	1/2	12.7
	400S162-x		4	101.6	1-5/8	41.3	1/2	12.7
	550S162-x		5-1/2	149.7	1-5/8	41.3	1/2	12.7
	600S162-x		6	152.4	1-5/8	41.3	1/2	12.7
	800S162-x		8	203.2	1-5/8	41.3	1/2	12.7
	1000S162-x		10	254.0	1-5/8	41.3	1/2	12.7
	1200S162-x		12	304.8	1-5/8	41.3	1/2	12.7
1400S162-x	14	355.6	1-5/8	41.3	1/2	12.7		
CSW (3, 5)	362S200-x	20 (33), 18 (43), 16 (54), 14(68), 12 (97)	3-5/8	92.1	2	50.8	5/8	15.9
	400S200-x		4	101.6	2	50.8	5/8	15.9
	600S200-x		6	152.4	2	50.8	5/8	15.9
	800S200-x		8	203.2	2	50.8	5/8	15.9
	1000S200-x		10	254.0	2	50.8	5/8	15.9
	1200S200-x		12	304.8	2	50.8	5/8	15.9
	1400S200-x		14	355.6	2	50.8	5/8	15.9
CSE (3, 5)	362S250-x	20 (33), 18 (43), 16 (54), 14(68), 12 (97)	3-5/8	92.1	2-1/2	63.5	5/8	15.9
	400S250-x		4	101.6	2-1/2	63.5	5/8	15.9
	600S250-x		6	152.4	2-1/2	63.5	5/8	15.9
	800S250-x		8	203.2	2-1/2	63.5	5/8	15.9
	1000S250-x		10	254.0	2-1/2	63.5	5/8	15.9
	1200S250-x		12	304.8	2-1/2	63.5	5/8	15.9
	1400S250-x		14	355.6	2-1/2	63.5	5/8	15.9
CSS (3, 5)	600S300-x	18 (43), 16 (54), 14(68), 12 (97)	6	152.4	3	76.2	1	25.4
	800S300-x		8	203.2	3	76.2	1	25.4
	1000S300-x		10	254.0	3	76.2	1	25.4
	1200S300-x		12	304.8	3	76.2	1	25.4
	1400S300-x		14	355.6	3	76.2	1	25.4

Item:	Division Title:	Division:
Runner Tracks	Metal	05 41 00
Website:	Manufacturer:	Product Model:
http://www.dietrichindustries.com	Dietrich	Dietrich TSB Standard Leg 1-1/4"
	Link to Full Data Sheet:	
	http://www.dietrichindustries.com/products/pdf/catalog_61.pdf	

U-shaped channel runners used as the top and bottom tracks to secure wall studs or end support closures for floor joist framing.

- Sizes (Web): 2-1/2", 3-1/2", 3-5/8", 4", 5-1/2", 6", 8", 10", 12", 14".
- Leg heights: 1", 1-1/4", 1-1/2", 2" and 3" legs.
- Gauges: 20 (33 mils), 18 (43 mils), 16 (54 mils), 14 (68 mils) and 12 (97 mils).
- 33 KSI yield strength. 50 KSI available on request.
- G-60 Galvanized coating or equivalent.
- Standard 10' lengths.
- Custom sizes, lengths and coatings available.



Dietrich™ structural track is a U-shaped framing component used as top and bottom runners to secure wall studs. Dietrich™ structural track is produced to ASTM C955 standards. Structural track is also used as end support closures for joists at exterior or foundation walls, head and sill plates of wall openings and solid blocking. Track is normally ordered in corresponding size and gauge to the wall studs. Longer leg track is used for deflection conditions or to accommodate uneven or inconsistent floor or ceiling conditions. Slip track for track-over-track assemblies is also available.



Track

DMF Product Code	SSMA Reference	Thickness Gauge (mils)	Leg Height	
			Inches	(mm)
TSA	x-T100-y	20 (33), 18 (43), 16 (54), 14 (68), 12 (97)	1	25.4
TSB	x-T125-y	20 (33), 18 (43), 16 (54), 14 (68), 12 (97)	1-1/4	31.8
TSF	x-T150-y	20 (33), 18 (43), 16 (54), 14 (68), 12 (97)	1-1/2	38.1
TSC	x-T200-y	20 (33), 18 (43), 16 (54), 14 (68), 12 (97)	2	50.8
TSE	x-T300-y	20 (33), 18 (43), 16 (54), 14 (68), 12 (97)	3	76.2
OTSF	z-T150-y	20 (33), 18 (43), 16 (54), 14 (68), 12 (97)	1-1/2	38.1
OTSC	z-T200-y	20 (33), 18 (43), 16 (54), 14 (68), 12 (97)	2	50.8
OTSE	z-T300-y	20 (33), 18 (43), 16 (54), 14 (68), 12 (97)	3	76.2

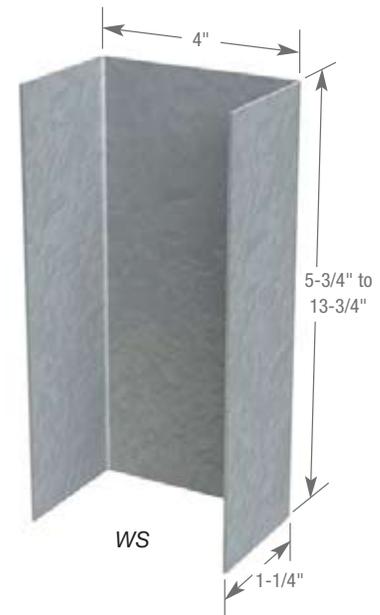
x = Part depth. Tracks are available to match all stud and joist depths.
y = mil thickness of steel.
z = Part depth. Overtracks are available in all standard stud depths. The track width is sized to fit over a standard TS series track.

Item:	Division Title:	Division:
Web Stiffeners	Metal	05 41 00
Website:	Manufacturer:	Product Model:
http://www.dietrichindustries.com	Dietrich	Dietrich WS 4" 14ga.
	Link to Full Data Sheet:	
	http://www.dietrichindustries.com/products/pdf/clipexpress/ClipExp_98_99.pdf	

Web Stiffeners provide excellent reinforcement at critical load points to prevent web crippling.

- *One-piece assemblies.*
- *Prevents web crippling.*
- *Significantly enhances joist carrying capacity.*
- *Available in 14 gauge only.*

Dietrich™ One-Piece Web Stiffeners (WS) are used to provide reinforcement of joist webs to prevent crippling. Web reinforcement is often required by design to enhance the load capacity of joists. Web stiffeners can be installed on the outside of the C-joist or on the inside of the C-joists based on load requirements. When installing between the joist flanges, the one-piece web stiffeners must be installed by sliding it in from the end of the joist.



Product Dimensions

- 1-1/4" x 4" x 1-1/4" x 5-3/4" for 6" Joists
(31.8mm x 102mm x 31.8mm x 146mm for 152mm Joists)
- 1-1/4" x 4" x 1-1/4" x 7" for 7-1/4" Joists
(31.8mm x 102mm x 31.8mm x 178mm for 184mm Joists)
- 1-1/4" x 4" x 1-1/4" x 7-3/4" for 8" Joists
(31.8mm x 102mm x 31.8mm x 197mm for 203mm Joists)
- 1-1/4" x 4" x 1-1/4" x 9" for 9-1/4" Joists
(31.8mm x 102mm x 31.8mm x 229mm for 235mm Joists)
- 1-1/4" x 4" x 1-1/4" x 9-3/4" for 10" Joists
(31.8mm x 102mm x 31.8mm x 248mm for 254mm Joists)
- 1-1/4" x 4" x 1-1/4" x 11" for 11-1/4" Joists
(31.8mm x 102mm x 31.8mm x 279mm for 289mm Joists)
- 1-1/4" x 4" x 1-1/4" x 11-3/4" for 12" Joists
(31.8mm x 102mm x 31.8mm x 299mm for 305mm Joists)
- 1-1/4" x 4" x 1-1/4" x 13-3/4" for 14" Joists
(31.8mm x 102mm x 31.8mm x 349mm for 356mm Joists)

Material Specifications

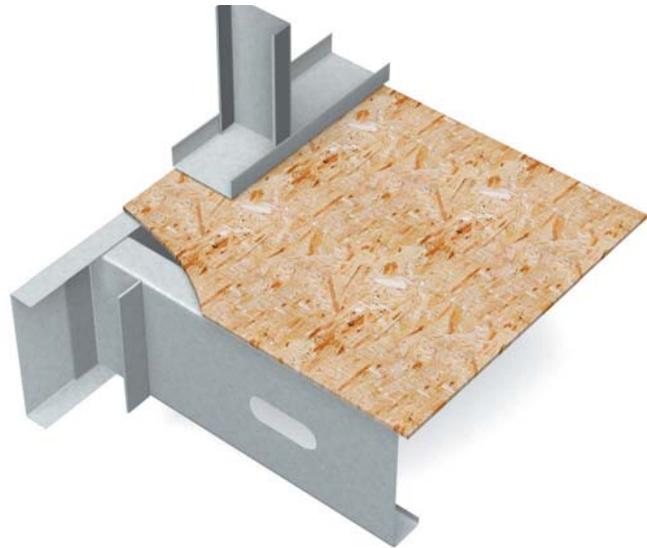
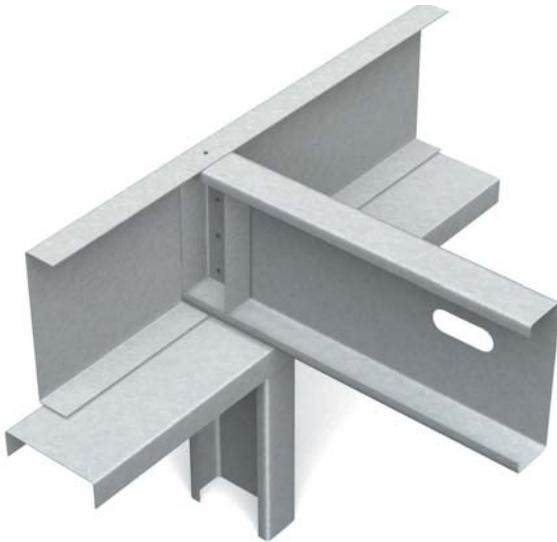
- Gauge:** 14 Gauge (68mils)
- Design Thickness:** 0.0713 inches (2.583 mm)
- Coating:** G90 (Z275) hot-dipped galvanized
- Yield Strength:** Mill-certified SS Grade 50 ksi (340 MPa)
- ASTM:** A 653/A 653M

Installation

Bearing Stiffeners are installed along the outside face of the joist web or within the C-joist, and are centered within the load or reaction bearing width. Bearing Stiffeners require full bearing along their supported ends. End Bearing Stiffeners may be cut back a maximum of 3/8" less than the joist depth to fit inside joist flanges. Three (3) #10-16 x 3/4" screws are required to attach the stiffener to the joist web. The screws shall be centered along the axis of the bearing stiffener, with one at mid-depth of the joist and the other two in the top and bottom quarter.



Item:	Division Title:	Division:
Web Stiffeners	Metal	05 41 00
Website:	Manufacturer:	Product Model:
http://www.dietrichindustries.com	Dietrich	Dietrich WS 4" 14ga.
	Link to Full Data Sheet:	
	http://www.dietrichindustries.com/products/pdf/clipexpress/ClipExp_98_99.pdf	



Web Stiffeners (WS)

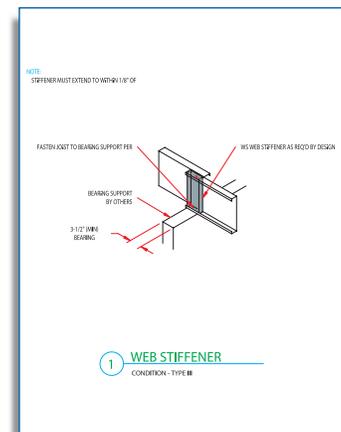
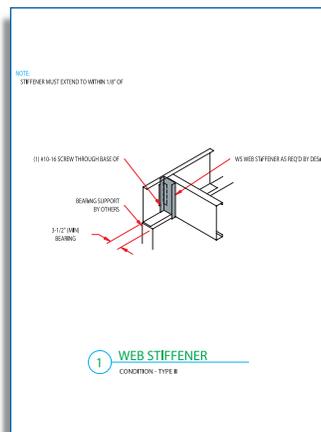
DMF Product Code	Gauge	Thickness		Size		Length		
		Mils	Design Thickness		Inches	mm	Inches	mm
			Inches	mm				
WS	14	68	0.0713	1.811	4	102	5-3/4 to 13-3/4	146 to 349

Allowable Web Crippling Loads (lbs)

Joist Section	33 ksi Joist		50 ksi Joist	
	ITF	ETF	ITF	ETF
7.25" x 18 ga (43 mil)	5,704	5,352	n/a	n/a
7.25" x 16 ga (54 mil)	6,014	5,465	6,434	5,603
7.25" x 14 ga (68 mil)	6,513	5,652	7,190	5,886
7.25" x 12 ga (97 mil)	7,939	6,192	9,351	6,704
8.0" x 18 ga (43 mil)	5,688	5,340	n/a	n/a
8.0" x 16 ga (54 mil)	5,991	5,449	6,400	5,578
8.0" x 14 ga (68 mil)	6,482	5,630	7,144	5,853
8.0" x 12 ga (97 mil)	7,889	6,157	9,275	6,652
9.25" x 18 ga (43 mil)	5,662	5,321	n/a	n/a
9.25" x 16 ga (54 mil)	5,956	5,424	6,347	5,541
9.25" x 14 ga (68 mil)	6,434	5,596	7,071	5,802
9.25" x 12 ga (97 mil)	7,811	6,103	9,157	6,570
10.0" x 16 ga (54 mil)	5,936	5,410	6,317	5,519
10.0" x 14 ga (68 mil)	6,407	5,577	7,030	5,773
10.0" x 12 ga (97 mil)	7,767	6,073	9,090	6,524
11.25" x 16 ga (54 mil)	5,905	5,387	6,269	5,485
11.25" x 14 ga (68 mil)	6,364	5,547	6,965	5,727
11.25" x 12 ga (97 mil)	7,697	6,025	8,984	6,451
12.0" x 16 ga (54 mil)	5,887	5,374	6,242	5,466
12.0" x 14 ga (68 mil)	6,340	5,530	6,928	5,701
12.0" x 12 ga (97 mil)	7,656	5,997	8,923	6,409
14.0" x 14 ga (68 mil)	6,278	5,486	6,835	5,635
14.0" x 12 ga (97 mil)	7,556	5,927	8,770	6,303

(ITF) Interior Two Flange web crippling condition
 (ETF) Exterior Two Flange web crippling condition

Typical Construction Details



Visit our CAD Library at
dietrichmetalframing.com
 to view or download construction details
 in .dwg, .dxf, and .pdf formats.

Division Title:
Metal

Division:
05 41 13

Item:
Cold-Form Metal Floor Joists

Manufacturer:
Dietrich

Product Model:
Dietrich TradeReady 8" C-Joist

Website:
<http://www.dietrichindustries.com>

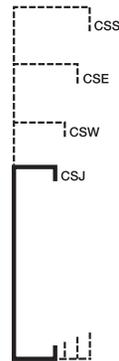
Link to Full Data Sheet:
http://www.dietrichindustries.com/products/pdf/catalog_98-101.pdf

Conventional C-Joist components provide a lightweight, low-cost, rigid floor assembly.

- Precut to exacting sizes and readily available.
- Joist sizes include 8", 10", 12" and 14".
- Available in 18, 16, 14 and 12 gauge.
- Flange widths include 1-5/8", 2", 2-1/2" and 3".



C-Joist



Dietrich™ C-Joist components provide an economical, lightweight alternative to open web trusses, bar joists, engineered lumber, cast-in-place or hollow core floor assemblies. Depending on loads and spans, C-Joists are typically spaced at 12", 16", 19.2" or 24" on-center spacing. Structural track (TSB), usually in the same gauge as the joist, is used as rim or band enclosures. Joist to girder attachments are normally supported with joist hangers, EasyClip™ E-Series™ or S-Series™ support clips. Web stiffeners may be required at supports and other point loads. Solid blocking and strap bridging is required to properly brace the floor assembly.

Consult Dietrich's Technical Design Guide for physical and structural properties, span charts and load tables.

Light-Gauge C-Joist Framing (CS/TS Series™)

DMF Product Code*	SSMA Reference	Thickness Gauge (mils)	Depth		Flange		Return	
			Inches	(mm)	Inches	(mm)	Inches	(mm)
CSJ (3, 5)	800S162-x	18 (43)	8	203	1-5/8	41.3	1/2	12.7
	1000S162-x	16 (54)	10	254	1-5/8	41.3	1/2	12.7
	1200S162-x	14 (68)	12	305	1-5/8	41.3	1/2	12.7
	1400S162-x	12 (97)	14	356	1-5/8	41.3	1/2	12.7
CSW (3, 5)	800S200-x	18 (43)	8	203	2	50.8	5/8	15.9
	1000S200-x	16 (54)	10	254	2	50.8	5/8	15.9
	1200S200-x	14 (68)	12	305	2	50.8	5/8	15.9
	1400S200-x	12 (97)	14	356	2	50.8	5/8	15.9
CSE (3, 5)	800S250-x	18 (43)	8	203	2-1/2	63.5	5/8	15.9
	1000S250-x	16 (54)	10	254	2-1/2	63.5	5/8	15.9
	1200S250-x	14 (68)	12	305	2-1/2	63.5	5/8	15.9
	1400S250-x	12 (97)	14	356	2-1/2	63.5	5/8	15.9
CSS (3, 5)	800S300-x	18 (43)	8	203	3	76.2	1	25.4
	1000S300-x	16 (54)	10	254	3	76.2	1	25.4
	1200S300-x	14 (68)	12	305	3	76.2	1	25.4
	1400S300-x	12 (97)	14	356	3	76.2	1	25.4

*3 or 5 indicates ksi. 33 ksi is standard. 50 ksi must be specified at time of order.
x= SSMA reference of mils at the end of the character string.

Division Title:
Metal

Division:
05 41 13

Item:
Cold-Form Metal Floor Joists

Manufacturer:
Dietrich

Product Model:
Dietrich TradeReady 8" C-Joist

Website:
<http://www.dietrichindustries.com>

Link to Full Data Sheet:
http://www.dietrichindustries.com/products/pdf/catalog_98-101.pdf

Next-generation, high-performance TradeReady® Steel Joists are the premier floor joist system for both commercial and residential framing.



- Clear spans up to 33'.
- Large extruded openings to accommodate electrical, HVAC, plumbing and technology lines.
- Hole sizes range from 4-1/4" oval to 10" round based on member depth.
- Superior strength permits wider O.C. spacing.
- Precut to your exact specifications—no waste.
- Available in 7-1/4", 8", 9-1/4", 10", 11-1/4", 12" and 14" deep members.
- Flange sizes include 1-3/4" and 2".
- Eliminates soffit framing.
- UL** Classified assembly L564.

TradeReady® Joists



Dietrich™ TradeReady® steel joists are one of the primary components that make up the TradeReady® floor system. These joists feature large extruded holes that accommodate HVAC, mechanical, plumbing and sprinkler runs. The joist also features a series of smaller holes for electrical and technology lines.

Dietrich™ TradeReady® steel joists are precision manufactured from corrosion-resistant galvanized steel. Steel joists offer consistent quality, predictable performance and high strength to weight ratio, and they are dimensionally stable. They won't expand, contract or shrink; they won't warp, crack or twist. Steel joists integrate easily with other building materials such as structural steel, concrete, ICF and wood construction.

Joists can be ordered in standard lengths or to your exact specifications to minimize waste. Consult the Dietrich™ Technical Design Guide or the TradeReady® Steel Joist Design Guide for physical and structural properties, span charts and loading data.



TradeReady® Steel Joist (TD Series™)

DMF Product Code*	Thickness Gauge (mils)	Depth		Flange		Return	
		Inches	(mm)	Inches	(mm)	Inches	(mm)
TDJ (3,5)	18(43)	7-1/4	184	1 3/4	44.5	5/8	15.9
	16(54)	8	203	1 3/4	44.5	5/8	15.9
	14(68)	9-1/4	235	1 3/4	44.5	5/8	15.9
	12(97)	11-1/4	286	1 3/4	44.5	5/8	15.9
TDW (3,5)	18(43)	10	254	2	50.8	5/8	15.9
	16(54)	12	305	2	50.8	5/8	15.9
	14(68)	14	356	2	50.8	5/8	15.9
	12(97)						

Item:
Metal Framing

Website:
<http://www.unistrut.com/>

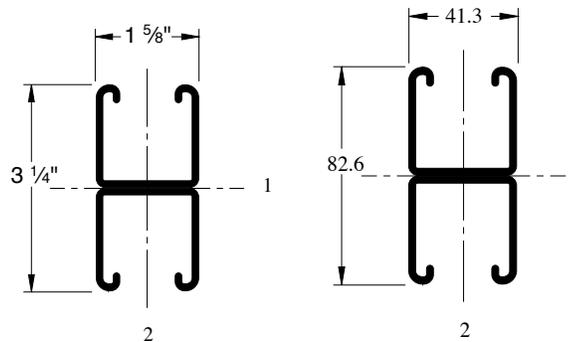
Division Title:
Metal
Manufacturer:
Unistrut

Division:
07 41 13
Product Model:
20' x 1" 5/8 Channel

Link to Full Data Sheet:
http://www.unistrut.com/Browse/cat_detail.php?S=S02&P=P1001



P1001



COLUMN LOADING – P1001

Unbraced Height In	Maximum Allowable Load at Slot Face Lbs	Maximum Column Load Applied at C.G.			
		K = 0.65 Lbs	K = 0.80 Lbs	K = 1.0 Lbs	K = 1.2 Lbs
24	6,430	25,060	24,620	23,900	23,050
36	6,230	24,000	23,050	21,570	19,890
48	5,950	22,590	21,030	18,690	16,170
60	5,620	20,890	18,690	15,540	12,400
72	5,240	18,990	16,170	12,400	8,960
84	4,830	16,970	13,640	9,470	6,580
96	4,390	14,900	11,200	7,250	5,040
108	3,930	12,860	8,960	5,730	3,980
120	3,510	10,910	7,250	4,640	**

MATERIAL

Unistrut channels are accurately and carefully cold formed to size from low-carbon strip steel. All spot-welded combination members, except P1001T, are welded 3" (76 mm) maximum on center.

STEEL: PLAIN

12 Ga. (2.7 mm), 14 Ga. (1.9 mm) and 16 Ga. (1.5 mm)
ASTM A1011 GR33

STEEL: PRE-GALVANIZED

12 Ga. (2.7 mm), 14 Ga. (1.9 mm) and 16 Ga. (1.5 mm)
ASTM A653 GR 33

Item:
Metal Framming

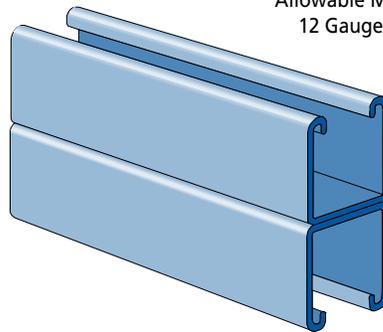
Website:
<http://www.unistrut.com/>

Division Title:
Metal
Manufacturer:
Unistrut

Division:
07 41 13
Product Model:
20' x 1" 5/8 Channel

Link to Full Data Sheet:
http://www.unistrut.com/Browse/cat_detail.php?S=S02&P=P1001

1 5/8" Channel



Wt/100 Ft: 380 Lbs (566 kg/100 m)
Allowable Moment 14,390 In-Lbs (1,630 N•m)
12 Gauge Nominal Thickness .105" (2.7mm)

Channel Finishes:
PL, GR, HG, PG;
Standard Lengths:
10' & 20'

BEAM LOADING – P1001

Span In	Max Allowable Uniform Load Lbs	Defl. at Uniform Load In	Uniform Loading at Deflection		
			Span/180 Lbs	Span/240 Lbs	Span/360 Lbs
24	3,130 *	0.03	3,130 *	3,130 *	3,130 *
36	3,130 *	0.07	3,130 *	3,130 *	3,130 *
48	2,400	0.13	2,400	2,400	2,400
60	1,920	0.20	1,920	1,920	1,630
72	1,600	0.28	1,600	1,600	1,130
84	1,370	0.39	1,370	1,240	830
96	1,200	0.50	1,200	950	640
108	1,070	0.64	1,000	750	500
120	960	0.79	810	610	410
144	800	1.13	560	420	280
168	690	1.54	410	310	210
192	600	2.01	320	240	160
216	530	2.55	250	190	130
240	480	3.15	200	150	100

FINISHES

All channels are available in:

- Perma Green II (GR)
- Pre-galvanized (PG), conforming to ASTM A653 G90
- Hot-dipped galvanized (HG), conforming to ASTM A123
- Plain (PL)

Division Title:
Metal

Division:
07 41 23

Item:
Structural Calculations

Structural Load Calculations

From Specifications:

Weight of Centria panels	3	lbs/sf.	provided by manufacturer
Weight of wood rain screen	4.5	lbs/sf.	
Weight of metal rain screen	4	lbs/sf.	Estimated
Weight of green roof	5	lbs/sf.	
Weight of Windows	4.5	lbs/sf.	Estimated (frame and glass combined)
(TDJ 8 x 1.75 x 14)	2.85	lb per linear ft.	Cold formed steel
(TD 8 x 14)	2.712	lb per linear ft.	Cold formed steel
400S 137-43 (4" stud, 18 gauge)	1.1	lb per linear ft.	Cold formed steel
400T 125-43 (4" stud track, 18 gauge)	1	lb per linear ft.	Cold formed steel
Weight of Solar Panels	528	(33 panels and 16 lb per panel)	
Tile weight	1	lb/sf	

ROOF

	<u>POD A (Kitchen)</u>		<u>POD B (Bedroom)</u>		<u>POD C (Living Room)</u>		<u>Core</u>	
	<u>Area</u>	<u>Weight</u>	<u>Area</u>	<u>Weight</u>	<u>Area</u>	<u>Weight</u>	<u>Area</u>	<u>Weight</u>
Centria panels	84.44	253.3	124.69	374.1	174.94	524.8	335.00	1005.0
solar panels	n/a	n/a	n/a	n/a	n/a	n/a	n/a	528
green roof	84.44	422.2	n/a	n/a	n/a	n/a	n/a	n/a
Roof Total Wt.	1152.3	lbs						

FLOOR FINISH

	<u>Area</u>	<u>Weight</u>	<u>Area</u>	<u>Weight</u>	<u>Area</u>	<u>Weight</u>	<u>Area</u>	<u>Weight</u>
Tile	84.4	84.4	124.7	124.7	174.9	174.9	335.0	335.0
Floor Finish Total Wt.	1438.2	lbs						

Notes: Information for estimatetaken from construction document S0.2 Panel Framing Plan

SIDING

	<u>POD A (Kitchen)</u>		<u>POD B (Bedroom)</u>		<u>POD C (Living Room)</u>		<u>Core</u>	
	<u>Area</u>	<u>Weight</u>	<u>Area</u>	<u>Weight</u>	<u>Area</u>	<u>Weight</u>	<u>Area</u>	<u>Weight</u>
Centria	309.00	927.0	387.00	1161.0	445.74	1337.2	876.15	2628.5
Wood rain screen	292.5	1316.3	318.0	1431.0	363.8	1636.9		
Metal rain screen							563.1	2252.32
Siding Total Wt.	3425.2	lbs						

WINDOWS

	<u>POD A (Kitchen)</u>		<u>POD B (Bedroom)</u>		<u>POD C (Living Room)</u>		<u>Core</u>	
	<u>Area</u>	<u>Weight</u>	<u>Area</u>	<u>Weight</u>	<u>Area</u>	<u>Weight</u>	<u>Area</u>	<u>Weight</u>
	n/a	n/a	61.5	276.75	120	540	40.92	184.14
Windows Total Wt.	1223.31							

Notes: Information taken from construction document S1.0 - S2.C

COLD FORMED

	<u>POD A (Kitchen)</u>		<u>POD B (Bedroom)</u>		<u>POD C (Living Room)</u>		<u>Core</u>	
	<u>Length</u>	<u>Weight</u>	<u>Length</u>	<u>Weight</u>	<u>Length</u>	<u>Weight</u>	<u>Length</u>	<u>Weight</u>
Dietrich Joists and Studs								
Joist (TDJ 8 x 1.75 x 14)	84	239.4	126	359.1			216	615.6
Track (TD 8 x 14)							100	271.2
4" C Stud. 18ga	144	158.4	216	237.6	234	257.4		
4" Stud track (runner track)	48	48	63	63	72	72	100	100
Joist (TDJ 6" not in catalog - use 8")								
Cold Formed Total Wts by section (lbs).	446		660		329		887	

Item:
Structural Calculations

HOT ROLLED		POD A (Kitchen)		POD B (Bedroom)		POD C (Living Room)		Core	
(lbs per linear foot)	Length	Weight	Length	Weight	Length	Weight	Length	Weight	
6 x 16.3	37.34	608.642	43.32	706.116	52.34	853.142	100	1630	
W4 x 13	37	1850	37	1850	37	1850	300	3900	
1x1/4 50	76	1520	88	1760	106	2120	183	9150	
C 8 x 20									
Hot Rolled Total Wt by section (lbs)		3979	4316		4823		14680		
		POD A (Kitchen)	POD B (Bedroom)		POD C (Living Room)		Core		
Total weight by section (lbs):		7428	8343		9366		22500		
Weight of Section (lbs/sq.ft).		88 psf	66.9 psf		53.5 psf		110.8 psf		

Footing Loads

Structural LOADS	POD A (Kitchen)	POD B (Bedroom)	POD C (Living Room)	Core
Dead Load (psf)	88	66.9	53.5	110.8
Interior Floor Live Load (psf)	50	50	50	50
Roof Live Load (psf)	20	20	20	20
TOTAL (psf)	158	136.9	123.5	180.8

Footing #	Location	Area (ft2)	Loads on Footings (lbs)
1	CORE	8.6	1557
2	CORE	26.1	4721
3	CORE	36.1	6529
4a	CORE	38.6	6981
4b	PODA	20.1	3168
5	PODA	22.2	3501
6	PODA	23.2	3659
7a	PODA	22.1	3484
7b	CORE	38.1	6881
8	CORE	18.1	3265
9	CORE	18.1	3265
10a	CORE	38.1	6881
10b	PODC	50.6	6249
11	PODC	45.0	5562
12	PODC	45.0	5562
13a	PODC	34.1	4206
13b	CORE	38.6	6979
14a	CORE	36.1	6527
14b	PODB	30.2	4134
15	PODB	32.1	4394
16	PODB	32.1	4394
17a	PODB	30.2	4134
17b	CORE	26.1	4719
18	CORE	8.6	1557

Total 717.9

112312 lbs

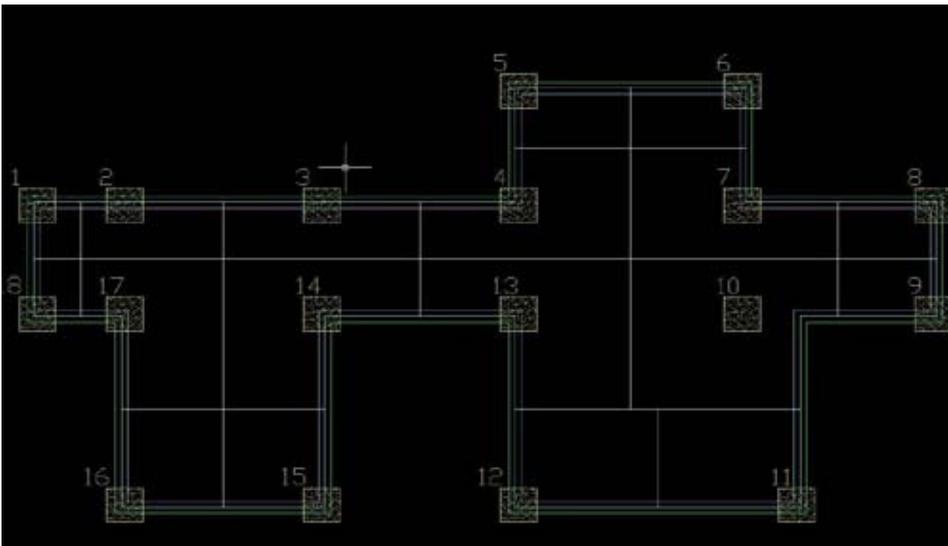
56 tons

18.72 number 2x2 footings re
~ 18 footings (total lbs / 1500lbs / 4 sq.

Item:
Structural Calculations

- Notes: - Dead Loads provided by previous worksheet (Structural Calculations)
 -Interior Live Load taken from competition Rules and Regulations Section 6.2)
 -Roof Live Load taken from competition Rules and Regulations Section 6.2
 - several footing are divided into A and B sections to account for the different loadings conditions (i.e. footing supports core and pod)
 - Assigned number footings can be seen on image below
 - number of footings based on a 1500 psf bearing capacity (see Solar Decathlon Rules and Regs. Section 6.2)

Figure 1. Footing Assigned Numbers and Tributary Areas



Overturning Analysis

Given:

- | | | |
|---|------|---------|
| 1 Factor of Safety | 2 | |
| 2 Wind Load | 60 | mph |
| 3 Gust duration | 3 | seconds |
| 4 Roof Angle | 0-10 | degrees |
| 5 Zone | 1 | |
| 6 Exposure Category | C | |
| 7 Mean Roof Height | 15 | feet |
| 8 Height and Exposure Adjustment Coeff. | 1.21 | |

Notes:

- | |
|--|
| 1 Provided by Competition Rules and Reg. Section 6.2 |
| 2 Provided by Competition Rules and Reg. Section 6.2 |
| 3 Provided by Competition Rules and Reg. Section 6.2 |
| 4 IRC Figure 301.2(7) |
| 5 IRC Figure 301.2(7) |
| 6 Provided by Competition Rules and Reg. Section 6.2 |
| 7 Closest Value to actual House height |
| 8 Table IRC 301.2(2) |

Design Wind Speed = Factor of Safety x Wind Load = 60mph x 2 = 120mph

Determine Height and Exposure Adjustment Coefficient based off exposure category, zone, and roof angle (IRC Table 301.2(2))

Design Wind Load from Design Wind Speed = 25.9 psf (IRC Section 301)

Design Wind Load x Height and Exposure Adjustment Coefficient = 25.9psf * 1.21 = 31.34 psf

Analysis:

factored Design Wind Load = 31.3 psf
 Effective Wind Area = 762sf (CORE height * CORE width)

Wind Gust from the North Face

	Area (ft ²)	Dead load (psf)	Dead load (lbs)	Orientation	Moment Arm (ft)	Moment (ft-lbs)
POD A (kitchen)	87.4	88	7691	+	10.17	78220
POD B (bedroom)		n/a	F _y	+	11.5	11.5 F _y * 0.5
POD C (Living Room)		n/a	F _y	+	11.5	11.5 F _y * 0.5
CORE	331	110.8	36675	+	3.33	122127
Wind Load	762	31.3	23851	-	-10.1	-240891

Moment Sum = -40544

Item:
Structural Calculations

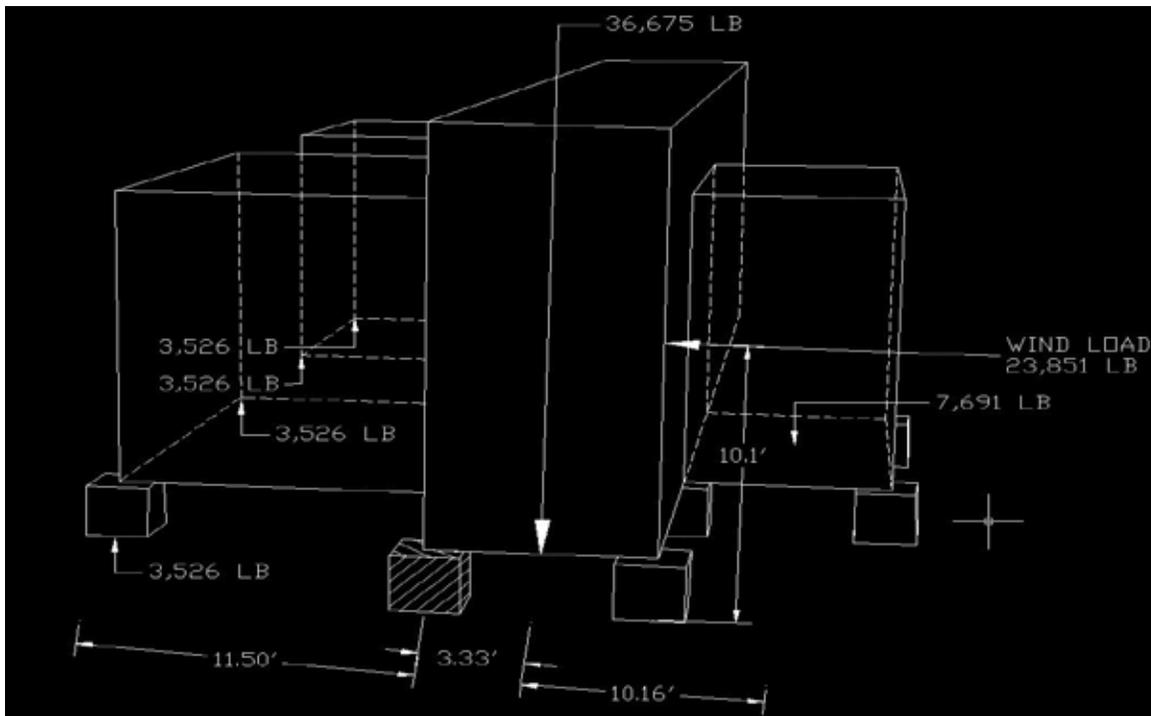
The resulting NEGATIVE moment (-40544 ft-lbs) suggests that the building is subject to overturning. Therefore the footings on the opposite side (i.e. South Side) of the gust must account for additional positive moments in order to maintain equilibrium about the point of analysis (i.e. Force- F_y @ a moment arm distance of 11.5 ft. = 40544 ft-lbs)

The analysis concludes as follows:

$$F_y * 11.5 = 40544 \text{ ft-lbs}$$

$$F_y = 3526 \text{ lbs}$$

Since there are 4 footings on the South Side, assume the forces distribute equally. Therefore each footing carries an additional 882 lbs.



Overturning Analysis - continued

Wind Gust from the South

	Area (ft ²)	Dead load (psf)	Dead load (lbs)	Orientation	Moment Arm (ft)	Moment (ft-lbs)
POD A (kitchen)		n/a	F_y	+	7	$7 * F_y$
POD B (bedroom)	124.6	66.9	8336	+	12.42	103530
POD C (Living Room)	174.7	53.5	9346	+	12.42	116083
CORE	331	110.8	36675	+	3.33	122127
Wind Load	762	31.3	23851	-	-10.1	-240891
Moment Sum =						100849

The resulting POSITIVE moment (100849 ft-lbs) suggests that the building is not subject to overturning. Therefore the footings on the opposite side (i.e. North Side POD A) of the gust feel no effect. Furthermore this scenario is much less prone to overturning than with the Wind Gust from the North; needing an additional 100849 ft-lbs to force an equilibrium around the point of analysis.

The analysis concludes as follows:

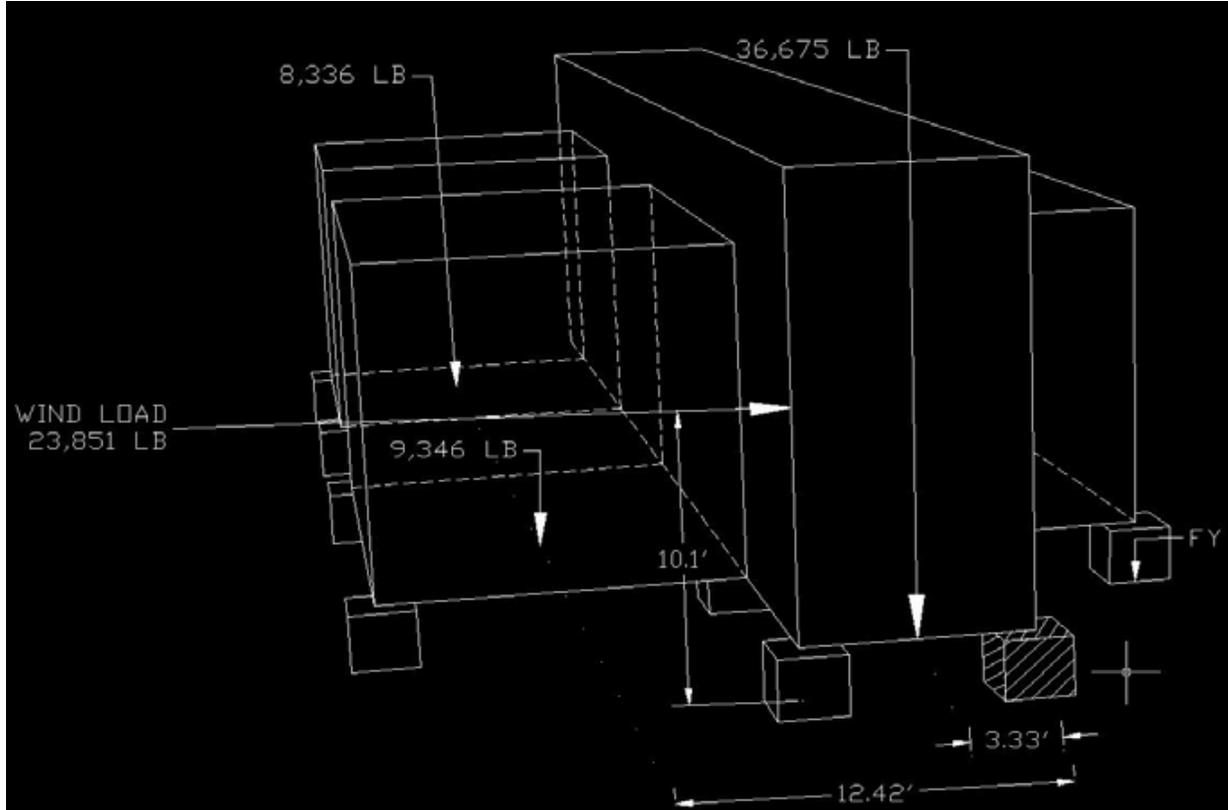
$$F_y * 7 = 100849 \text{ ft-lbs}$$

$$F_y = 14406 \text{ lbs}$$

$$F_y * 0.5 = 7203 \text{ lbs per footing}$$

This means that even with an additional 7203lbs on each of POD A's footings the house could still resist overturning.

Figure 2. Illustration of Moments on the Solar House as a result of a Wind Gust from the South face of the House.



Item:
Substrate: Tongue and Groove OSB
Website:
www.huberwood.com

Division Title:
Woods, Plastics, Composites
Manufacturer:
Advantech

Division:
06 00 00
Product Model:
4' x 8' 23/32" Sheet

Link to Full Data Sheet:
<http://www.huberwood.com/main.aspx?pagename=advanTechFloorSpec>



DESCRIPTION

AdvanTech® Flooring and Sheathing are high performance structural panels specifically engineered to provide more water resistance and stability than plywood.

BASIC USES

A premium-quality alternative to plywood, AdvanTech Flooring is used in single-layer and subfloor applications. AdvanTech Sheathing is used for roof and wall sheathing, as well as subflooring in two-layer systems.

COMPOSITION & MATERIALS

AdvanTech engineered wood panels are made using sustainable, fast-growing tree species and an advanced resin technology system that may include phenolic resin. Results reported by the U.S. Forest Products Laboratory and Oak Ridge National Laboratory have found that panels manufactured with phenolic resins have insignificant formaldehyde emissions. AdvanTech formaldehyde emissions are lower than the levels permitted by the EPA and HUD.

CERTIFICATION AND CODE COMPLIANCE

AdvanTech Flooring and Sheathing panels are manufactured in conformance with PS-2, Performance Standard for Wood-Based Structural-Use Panels. Design capacities of AdvanTech VIP+ are available in ICC ES ESR-5866. AdvanTech panels bear the stamp of TECO, an approved inspection and testing agency. Panels certified to PS-2 are recognized in the model building codes, the 2000 International Residential Code, and the 2000 International Building Code. Panels may bear stamps certifying conformance to both PS-2 and CAN/CSA-Q325. CSA-Q325 is a panel performance standard maintained by the Canadian Standards Association. For additional information, go to www.huberwood.com.

AdvanTech Flooring and Sheathing panels, certified to be in conformance with requirements for U.S. Department of Housing and Urban Development (HUD-FHA) Use of Materials Bulletin #40C, bear the designation HUD-UM-40C within the stamp.

Flame Spread

AdvanTech Flooring and Sheathing panels are recognized as having a Class C (III) flame spread rating without need for test or label by HUD/FHA Manual of Acceptance Practices, Section 405-8 to the Minimum Property Standards.

Storage

- Ship panels under tarp.
- Set bundles on three supports to keep off the ground.
- Outdoors, cover panels loosely with waterproof protective material.
- Anchor covers on the top of the stack, but keep away from sides and bottom to assure good air circulation.
- When high moisture exists, cut banding on the stack to prevent edge damage.

Handling

- Avoid dropping panels on corners or edges.
- When using a forklift, put the stack on a pallet or supports to minimize damage from forks.

Exposure

As with all wood-based products, properly installed AdvanTech panels will not decay in service. Building code provisions establish minimum clearances from grade and ventilation requirements for crawl spaces and attics. Short-term exposure to moisture, as typical in normal construction delays, will not result in wood decay. AdvanTech panels should not be used in applications that will permanently expose the panels to the weather nor where moisture will be at elevated levels for extended periods of time. AdvanTech panels are not approved or certified for exterior exposure. As a panel classified as Exposure 1 under PS-2, AdvanTech panels are intended to resist the effects of moisture due to construction delays or other conditions of similar severity, but are not suitable for permanent exposure to the weather.

Installation

Refer to TECO (www.tecosted.com) and OSB Design and Construction Guides for general installation details. Additional installation requirements are in the following sections.

FLOORING INSTALLATION

Span and Spacing

Install panels over two or more spans with the long dimension perpendicular to the floor framing. Install panels with the certification stamp facing down for ease of viewing by local building officials.

Tongue and Groove (T&G) panels are designed to self-space on T&G edges. Do not use excessive force when placing panels together. Space 4' panel ends a minimum of 1/8" at time of installation. End joints of adjacent panel runs should be staggered. Square edge panels should be installed with a minimum spacing of 1/8" on all panel edges at time of installation.

Fastening

In accordance with general floor fastening recommendations, adhesive and nails or adhesive and screws should be used. Use only polyurethane or solvent-based adhesives which conform to industry standard AFG-01 and follow manufacturer's recommendations. For optimal floor stiffness, polyurethane glue and screws should be used. Gluing helps eliminate nail-popping and floor squeaks.

Before each panel is placed, a line of polyurethane or solvent-based adhesive should be applied to the clean, dry joist. A 1/4" bead of adhesive is recommended. Apply only enough adhesive to lay one or two panels at a time. Glue the T & G joint at installation with a small amount of construction adhesive to minimize squeeze-out.

Fully secure panel with fasteners immediately after placing adhesive on joists. Fasteners should penetrate framing members at least 1". For ease of installation, panels are printed with pre-spaced fastening symbols for 16", 19.2" and 24" o.c. spacings.

Apply fasteners a maximum of 3/8" to 1/2" from panel edges.

Space fasteners 6" o.c. on supported edges (4' ends) and 12" o.c. at intermediate support locations. Ensure that all corners are securely fastened. Note: 1-1/8" panels spaced 48" o.c. should be fastened 6" o.c. at intermediate support locations.

Use 8d ring shank nails, screw shank nails, or other code-approved fasteners for panels up to 3/4" thick. Use 10d ring shank nails, screw shank nails, or other code-approved

fasteners for panels greater than 3/4" thick. Fastener heads should slightly penetrate the panel surface.

Cutouts

Cutouts for plumbing and electrical components should be oversized by at least 1/4" to avoid a forced fit.

Finish Floor Covering

AdvanTech panels must be dry prior to finished floor installation.

Residential carpet and pad: May be installed directly over AdvanTech Flooring panels. Follow carpet manufacturer's instructions.

Commercial carpet: A minimum 1/4" underlayment is required. Follow commercial carpet manufacturer's instructions.

Vinyl: A minimum 1/4" underlayment is recommended. Follow finish flooring manufacturer's instructions.

Hardwood floors: May be applied directly over 23/32" AdvanTech Flooring panels. For installation of the hardwood flooring, follow the recommendations of the finish flooring manufacturer.

Ceramic tile: Underlayment is required per ANSI Standard A-108 with noted exception of 1-1/4" cement mortar application method. Follow tile and mortar manufacturer's instructions.

Lightweight concrete: May be applied over AdvanTech Flooring following lightweight concrete manufacturer's instructions.

Radiant heating: AdvanTech Flooring products may be used with building code approved radiant heating systems provided these systems are properly installed and maintained per manufacturer's recommendations.

Please contact Huber for applications not listed above.

Product service conditions: It is recommended that adequate ventilation be provided (per applicable building code) and that ground cover vapor barriers be used in crawlspace applications. In addition, panels should be acclimated to service moisture conditions before applying necessary finish flooring. Water seals and other water repellent coatings may not be used with AdvanTech Flooring products.

Uniform Floor Loads¹ for AdvanTech VIP+, loads in psf, normal duration of load

PANEL SPAN RATING	NOMINAL PANEL THICKNESS (inch)	MAXIMUM SPAN ² (inches, c-c)	PRIMARY AXIS PERPENDICULAR TO SUPPORTS Span, in., c-c											
			12	16	19.2	24	30	32	36	40	48			
20 oc	19/32	20	300+	300+	210	100	50	40	35	25				
24 oc	23/32	24	300+	300+	300+	160	80	65	55	40	25			
Str. 1 32/16	1/2	16	300+	220	120	60	30	25	20					
Str. 1 40/20	5/8	20	300+	300+	230	110	55	45	40	30				
		Continuous Spans	3-span	3-span	3-span	3-span	3-span	3-span	2-span	2-span	2-span	2-span	2-span	2-span

¹ Load-Span Tables for AdvanTech VIP+ Panels, HUB 160. See Huberwood.com for additional load-span tables. Total load deflection limited to L/360. ² 2000 International Residential Code, Table R602.2.1(1).

SHEATHING INSTALLATION

Cutouts

Cutouts for plumbing and electrical components should be oversized by at least 1/4" to avoid a forced fit.

Finishing

Interior panels can be left natural, stained, varnished or painted. AdvanTech Sheathing is not recommended, approved or certified for exterior exposure. Options for painting include urethane coatings, epoxy coatings and oil-based primer followed by an acrylic latex paint.

Roof Sheathing

AdvanTech Sheathing panels are typically installed over two or more spans, staggered with the long dimension perpendicular to the roof framing. End joints must lie over supports. Shear surface should be installed up to maximize skid-resistance. Follow OSHA safety requirements for proper roof construction practices. All panels must be spaced 1/8" at time of installation.

To ensure adequate edge spacing, H-clips are recommended for use with square edge roof sheathing. Designers may specify sheathing panels for parallel-to-support applications.

Fastening: Roof Sheathing

- Use minimum 6d common nails for panels 1/2" or less.
- Use minimum 8d common nails for panels 5/8" to 1".
- Apply fasteners a maximum of 3/8" from panel edges.
- Space fasteners 6" o.c. along supported edges, 12" o.c. at intermediate supports.
- Ensure that all corners are securely fastened.
- For 48" o.c., all fastener spacing should be 6" o.c.
- Check local code provisions for high wind areas.

Division Title: **Thermal & Moisture Protection** Division: **07 41 13**

Item: **Structural Insulated Panel** Manufacturer: **Centria** Product Model: **Versawall: 4" deep x 36" wide**

Website: www.centria.com/C10/Versawall436/default.aspx Link to Full Data Sheet: portal.centria.com/portal/shareddocs%5C5DJG0YU8PAOAll2X%5CUY3AZ6X5NO1BNSLN%5CKSAE7IJS5N6POWYQ%5CVer sawall%20Spec%201-29%20-07.pdf

SECTION 07410

WALL PANEL SYSTEMS

[VERSAWALL WALL PANEL SYSTEMS]

PART 1 GENERAL

1.01 DESCRIPTION OF WORK

- A. Steel faced, pre-finished, foamed-in-place, insulating composite wall panels with double interlocking side joints, integral vapor seals, and concealed structural fastening.
- B. Metal and extruded trim, accessories, fasteners, and sealants related to the wall panel system.

1.02 QUALITY ASSURANCE

- A. CENTRIA, 1005 Beaver Grade Road, Moon Township, Pennsylvania 15108 products will establish the minimum level of quality and performance required. Questions regarding interpretation of this specification should be directed to (CENTRIA sales person, address, phone number).
- B. Manufacturer shall demonstrate a minimum of five years experience in the specified products and applications and submit projects with contacts and phone numbers that the architect and contractor can use to confirm satisfactory performance.

1.03 SUBSTITUTIONS

- A. Materials, accessories, testing, and processes specified should establish the minimum level of quality, performance, dimension, and appearance required of any substitution.
- B. No substitution will be considered unless written request for approval has been received by the specifying architect at least ten days prior to the established bid date.
- C. Proposed substitutions shall include a complete description of the proposed substitute including testing, samples, and other information necessary to demonstrate the equivalency of the substitute.

1.04 PANEL PERFORMANCE TESTING

- A. Structural designs shall have been established from tests per ASTM E72 chamber method. Ultimate loads shall be established without the use of exposed or back-side fastening.

Division Title: **Thermal & Moisture Protection** Division: **07 41 13**

Item: **Structural Insulated Panel** Manufacturer: **Centria** Product Model: **Versawall: 4"deep x 36" wide**

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- B. Thermal transmission performance shall have been established from tests per ASTM C236 including panel joints, and C518 for k values and corrected to 15 mph wind outside and still air inside.
- C. Air infiltration shall not exceed .03 cfm per square foot when tested at a static pressure of 1.56 psf (equivalent to 25 MPH wind) per ASTM 283-73.
- D. There shall be no uncontrolled water penetration at a static pressure of 10 psf (equivalent to 62.5 MPH wind) when tested per ASTM E331-70.
- E. All performance testing shall have been witnessed or conducted by independent agencies.

1.05 BUILDING CODE ACCEPTANCE

- A. Wall panel system shall comply with requirements for foam plastics and finished panel performance as established by the applicable building code. Laboratory and full scale testing including, but not limited to, the following shall be available.
 - 1. Foam core and interior surface of the complete panel system shall demonstrate compliance with the following criteria for surface burning characteristics per ASTM E84.
Flame spread – 25* or less
Smoke developed – 450 or less

* Numerical flame spread ratings are not intended to reflect hazards presented by these materials under actual fire conditions.
 - 2. Wall panel units shall be classified as a component of fire resistant non-load bearing construction per UL Standard 263.
 - 3. Wall panel units shall be approved as a Class 1 insulated wall or ceiling panel per FM Standard 4880.
 - 4. Ignition temperature testing of the foam plastic insulation shall have been established per ASTM D1929.

1.06 SUBMITTALS

- A. Product Data: Manufacturer’s data sheets for metal wall panels and accessories.

Division Title: **Thermal & Moisture Protection** Division: **07 41 13**

Item: **Structural Insulated Panel** Manufacturer: **Centria** Product Model: **Versawall: 4"deep x 36" wide**

Website: www.centria.com/C10/Versawall436/default.aspx Link to Full Data Sheet: portal.centria.com/portal/shareddocs%5C5DJG0YU8PAOAll2X%5CUY3AZ6X5NO1BNSLN%5CKSAE7IJS5N6POWYQ%5CVer sawall%20Spec%201-29%20-07.pdf

- B. Product Test Reports: Indicating compliance of products with requirements, from a qualified independent testing agency.
- C. LEED Submittals:
 - a. Credit MR 4.1/MR4.2: Manufacturer's Product Data indicating the following:
 - b. Percentages by weight of post-consumer and pre-consumer recycled content.
 - c. Indicate total weight of products provided.
 - d. Include statement indicating costs for each product having recycled content.
- D. Cradle to Cradle Certification:
 - a. Manufacturer to submit a minimum of a silver level Cradle to Cradle certification or an independent sustainability audit that evaluates and validates Materials, Material Reutilization/Design for Environment, Energy Use, Water Usage and Social Responsibility of the product and manufacturing process.
- E. Shop Drawings: Prepared by manufacturer. Include elevations showing metal wall panels, and details of each condition of installation and attachment. Indicate coordination dimensions related to structural support system elements provided by others.
- F. Include structural data indicating compliance with performance requirements.
- G. Selection Samples: For each finish product specified, two complete sets of color chips representing manufacturer's full range of available colors and patterns.
- H. Verification Samples: For each finish product specified, two samples, minimum size 6 inches (150 mm) square, representing actual product, color, and patterns.
- I. Qualification Information: For Installer firm, proof of installer's manufacturer trained field supervisor.
- J. Warranty: Submit proposed warranty meeting requirements of this Section.

1.07 WARRANTY

Division Title: **Thermal & Moisture Protection** Division: **07 41 13**

Item: **Structural Insulated Panel** Manufacturer: **Centria** Product Model: **Versawall: 4" deep x 36" wide**

Website: www.centria.com/C10/Versawall436/default.aspx Link to Full Data Sheet: portal.centria.com/portal/shareddocs%5C5DJG0YU8PAOAI2X%5CUY3AZ6X5NO1BNSLN%5CKSAE7IJS5N6POWYQ%5CVer sawall%20Spec%201-29%20-07.pdf

- A. Manufacturer shall warrant for a period of one year that panels, trim, and accessories furnished by the manufacturer will be free from defects in material and factory workmanship.
- B. Paint finish warranties shall be the paint manufacturers standard for wall panels and trim.
- C. Duracast textured finish shall carry a 20 year warranty backed by the suppliers of both base coat and texture coat.

PART 2 PRODUCTS

2.01 PANEL DESIGN

- A. Panel units shall consist of roll formed steel face and liner elements chemically bonded to a continuously foamed-in-place isocyanurate core.
- B. Panel edges shall be double tongue and groove design with factory applied vapor seal. Structural fasteners and clips shall be concealed within the side joint, mechanically engage both face and liner elements and be designed to prevent crushing of the foam core during fastener installation.
- C. Panel unit shall be selected from one of the following:
 - 1. Versawall 2.00 in 36" or 30" module with a tested R value of 14
 - 2. Versawall 2.75 in 36" or 30" module with a tested R value of 22
 - 3. Versawall 4.00 in 36" or 30" module with a tested R value of 30

2.02 MATERIALS AND FINISHES

- A. Panel exterior skin shall be selected from the following:
 - 1. ASTM A653, Grade 37, G90 galvanized steel in non-directionally embossed, flat, striated or planked. Striated or planked are available in 26, 24, 22 & 20 gage. Flat non-striated & non-planked is available in 22 & 20 gage.
- B. Panel interior skin shall be selected from the following:
 - 1. ASTM A653, Grade 37, G90 galvanized steel or Galvalume Grade 37 in accordance with ASTM 792; non-directionally embossed and planked in

Division Title: **Thermal & Moisture Protection** Division: **07 41 13**

Item: **Structural Insulated Panel** Manufacturer: **Centria** Product Model: **Versawall: 4"deep x 36" wide**

Website: www.centria.com/C10/Versawall436/default.aspx Link to Full Data Sheet: portal.centria.com/portal/shareddocs%5C5DJG0YU8PAOAll2X%5CUY3AZ6X5NO1BNSLN%5CKSAE7IJS5N6POWYQ%5CVer sawall%20Spec%201-29%20-07.pdf

26, 24, 22, 20 gage.

- C. Panel exterior finish shall be selected from one of the following in manufacturer's standard color for that finish.
 - 1. FLUOROFINISH, consisting of a nominal 0.2 mil primer with a nominal 0.8 mil 70% Hylar 5000 or Kynar 500 color coat.
 - 2. DURAGUARD, consisting of a nominal 0.8 mil primer with a nominal 0.8 mil 70% Hylar 5000 or Kynar 500 color coat.
 - 3. DURAGARD PLUS, consisting of a nominal 0.8 mil primer with a nominal 0.8 mil 70% Hylar 5000 or Kynar 500 color coat and a 0.8 mil 70% Hylar 5000 or Kynar 500 clear coat.
 - 4. Versacor Plus, a premium high build coating for applications where corrosion resistance is most important. Consisting of a nominal 0.2 mil Epoxy Primer, nominal 2.7 mil Epoxy Barrier Coat and a nominal 1.5 mil Urethane Exterior Coat.
 - 5. DURACAST consisting of a nominal 0.2 mil primer with a nominal 0.8 mil polyester and a matching spray applied acrylic and natural aggregate texture coat.

- D. Panel interior finish shall consist of a nominal 0.2 mil primer with a nominal 0.6 mil polyester in Arctic Ice color or other finish and color from the manufacturer's standards.

- E. Urethane modified isocyanurate core shall be poured in place between the steel face and liner to fill all voids in the panel and have the following minimum physical properties:
 - 1. Density – 2.6 pcf
 - Shear stress – 20 psi
 - Compressive strength – 20 psi
 - Tensile strength – 25 psi

2.03 FABRICATION

- A. Strippable plastic film shall be used to protect the exterior finish through all stages of roll forming and fabrication.

- B. Steel trim shall be the same finish and gage as the exterior and/or interior of the panels. Where Duracast is specified for the panel finish, trim shall be

Division Title: **Thermal & Moisture Protection** Division: **07 41 13**

Item: **Structural Insulated Panel** Manufacturer: **Centria** Product Model: **Versawall: 4" deep x 36" wide**

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furnished in a matching low gloss Kynar.

- C. Panels and trim bundles shall be protected with water resistant materials during shipping and storage.

PART 3 EXECUTION

3.01 INSPECTION

- A. Building tolerances on the panel support steel shall not exceed those established by the panel manufacturer.
 - 1. 3/8 inch in any 20 foot length vertically or horizontally.
 - 2. 3/4 inch in any building elevation.
- B. Alignment of the panel support system should be checked and defects corrected prior to installing panels.
- C. No gaps are permitted @ the panel end support members.

3.02 INSTALLATION

- A. Panel erector shall demonstrate at least five years of experience installing similar products and applications.
- B. Panels, trim, accessories, and sealants shall be installed in accordance with approved shop drawings to insure a functional and weather tight installation.
- C. Strippable film shall be removed and dry wipe-down of the exterior surface done as the panels are installed.

END OF SECTION

Division Title: **Thermal & Moisture Protection** Division: **07 46 19**

Item: **Steel Siding** Manufacturer: **Follansbee** Product Model: **TCS II**

Website: www.follansbeeroofing.com Link to Full Data Sheet: http://www.follansbeeroofing.com/products/TCSII_specs.aspx

PRODUCT DESCRIPTION

Basic Use: TCS II is used for all types of roofing (standing seam, batten seam, Bermuda seam and flat lock), for perimeters, for mansards, for fascia, for coping, for gravel stops, for wall covering and for all flashing, exposed or concealed. TCS II is suitable for all types of weathersealing and drainage (gutters, all styles and downspouts).

Limitations: TCS II, due to its corrosion resistant qualities, is recommended for use in severe industrial, chemical or marine environments.

Composition and Materials: TCS II is a type 304 (Non-Magnetic) dead soft stainless steel covered on both sides with the new ZT ALLOY (50% tin, 50% zinc) to a thickness of 20 microns.

The chromium-nickel content and the annealed properties make TCS II one of the most versatile and one of the most corrosion resistant roofing and flashing materials available today.

Sizes: Sheets - widths 20, 24, and 36 inches. Lengths 96 and 120 inches. Special sizes available up to 36 by 144 inches. 50 foot rolls in widths of 20, 24, and 36 inches. Also available in all widths are 2000# to 4000# mill coils.

Gauges: 24, 26, and 28 plus coating. Only 36" wide available in 24 gauge.

Weight: 28 gauge - .67# per sq. foot; 26 gauge - .77# per sq. foot; 24 gauge - 1.02# per sq. foot (Note: All weights are theoretical, and could vary.)

Color: Under most atmospheric conditions, TCS II will weather to an attractive, warm gray. However, since the weathering of TCS II is accomplished through atmospheric exposure color may vary relative to the local environment. TCS II does not require painting. However, if painting is desired TCS II may be painted using Rapidri primer and Rapidri finish in desired color. Apply paint in accordance with Follansbee's published instructions.

TECHNICAL SERVICES

Call 800-624-6906 for any additional information or technical assistance.

**See Appendix A
for full text on specification**

Division Title: **Thermal & Moisture Protection** Division: **07 50 00**

Item: **Vertical Wood Siding** Manufacturer: **Mackeys Ferry Sawmill** Product Model: **Cypress Sidings, Boards**

Website: <http://www.mackeysferrysawmill.com> Link to Full Data Sheet: <http://cypressinfo.org/index.php?page=mechanical-and-design-properties>

Mechanical and Design Properties of Cypress	
Specific Gravity (>12% moisture content)	.46
Density (lbs/ft ³)	31.4
Static Bending - 12% mc	
Modulus of Rupture (lbf/in ²)	10,600
Modulus of Elasticity	1.44
Work to Maximum Load (in-lbf/in ³)	8.2
Impact Bending - 12% mc	
Height of drop causing complete failure (in)	24
Tension Perpendicular to Grain - 12% mc	
Maximum tensile strength (lbf/in ²)	270
Shear Parallel to Grain - 12% mc	
Maximum shearing strength (lbf/in ²)	1000
Side Hardness (lbf)	
(load required to embed a 0.444 ball to half its diameter)	510
Flame Spread Rating	145-150
Source: Wood Handbook, USDA Agriculture Handbook 72	

DECK & RAILING
No. 3 Commons Cypress

- Thicknesses: 4/4
- Widths: 6"
- Lengths: 8'

DECK STRUCTURE
no. 3 Commons Cypress

- Thicknesses: 8/4
- Widths: 6"
- Lengths: 8'

SIDING
no. 3 Commons Cypress

- Thicknesses: 2/4
- Widths: 3.5"
- Lengths: 12'

Item: Membrane Roofing System	Division Title: Thermal & Moisture Protection	Division: 07 50 00
Manufacturer: Sika Sarnafil Inc.	Product Model: G-410, S-327	
Website: www.sarnafilus.com	Link to Full Data Sheet: http://www.sarnafilus.com/index/technical_data_td/roofing_tdr/specifications_tdr.htm	

**INTRODUCTION TO
SIKA SARNAFIL S327 MECHANICALLY-ATTACHED SARNAFAST SYSTEM**

Sika Sarnafil has three Mechanically-Attached Systems using Sarnafil membrane, “Sarnafast®”, “Express” and “Engineered”. Each system uses polyester reinforced Sarnafil S327 roof membrane. S327 is available in three widths; 5-feet (5S327), 6.5-feet (6S327), and 10-feet (10S327). The S327 membrane is fastened directly into the structural deck or the structural framing in any mechanically-attached configuration. The Sarnafast System is described as follows:

System Description

Sarnafast is a seam-attached system. The S327 membrane is fastened in the seam overlap along one long side of the membrane directly into the roof deck. The adjacent membrane panels are then heat-welded with a Sarnamatic hot-air welder.

The advantage of the Sarnafast System is speed of installation and simplicity of design. The Sarnafast System is often the most cost-effective mechanically-attached system available using Sarnafil membrane.

S327 utilizes a high-strength polyester reinforcement that allows the Sarnafast system to exceed Factory Mutual requirements for wind uplift testing. The manufacturing process imparts dimensional stability and eliminates water-wicking by the reinforcement. S327 is lacquer-coated on the weathering surface for dirt resistance; a Sarnafil membrane exclusive feature. It is available in EnergySmart® white and in other colors.

S327 is marked at the factory with seam overlap lines and fastener location markings for ease of installation. We also provide pre-cut “half width rolls” of S327 are available for use in the critical perimeter and corner areas of the building.

The attached Guide Specification is generic in nature and should be amended as required to meet the project’s needs. Prior to bid, submit amended Specifications with Detail Drawings to Sika Sarnafil’s Technical Department for review and comment.

We welcome you to review the following Guide Specification and Detail Drawings and we ask that you contact us if you have any questions or need any additional information.

**See Appendix B
for full text on specification**

Item: Main Door	Division Title: Openings	Division: 08 10 00
Website: www.pella.com	Manufacturer: Pella	Product Model: Entry Door System, Steel, Full lite
Link to Full Data Sheet: http://www.pellaadm.com/UserDocs/Documents/EDS/pdf		

PREMIUM STEEL



Pella's premium steel doors not only provide exceptional durability; they complement any Pella window and patio door, right down to the exterior frame color.

- Low profile (ADA compliant) sill available on doors with 4-9/16" wall depth
- Panel surfaces are factory-primed
- 12" solid wood lock block reinforces latch and deadbolt installations

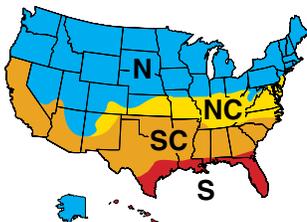
Premium Steel

Size:

6' 8" Door Heights
3' W

In-Swing Performance₂

Air Infiltration (cfm/ft ² of frame @ 1.57 psf wind pressure)	0.07
Water Resistance—Standard Sill	1.57 psf
Water Resistance—Low Profile Sill	0 psf
Wind Load Resistance	82.5 psf



Product	Type of Glazing	U-Factor	SHGC	VLT, %	Meets U.S. ENERGY STAR Performance Criteria in Region Shown			
					N	NC	SC	S
IN-SWING CLAD FRAME								
Wood-Grain and Smooth-Grain — Full Lite	1" clear IG with 3 mm glass	0.37	0.36	37				
	1" Low-E IG with argon with 3 mm glass	0.27	0.36	33				
	1" Low-E HA IG with 3 mm glass	0.29	0.20	33				
	1" triple IG with 3 mm glass	0.30	0.29	30				
In-Swing Entry Door, Clad Frame, SteelSlab — Full Lite	1" clear IG with 3 mm glass	0.36	0.36	37				
	1" Low-E IG with argon with 3 mm glass	0.25	0.19	33				
	1" Low-E HA IG with 3 mm glass	0.27	0.20	33				
	1" triple IG with 3 mm glass	0.29	0.23	23				
IN SWING-WOOD FRAME								
Wood-Grain and Smooth-Grain—Full Lite	1" clear IG with 3 mm glass	0.37	0.36	37				
	1" Low-E IG with argon with 3 mm glass	0.26	0.19	33				
	1" Low-E HA IG with 3 mm glass	0.29	0.20	33				
	1" triple IG with 3 mm glass	0.30	0.23	23				

Division Title:
Openings

Division:
08 00 00

Item:
Sliding Patio Doors & Windows

Manufacturer:
Traco

Product Model:
Various

Website:
<http://www.traco.com/spz/indexframe.html>

[Link to Full Data Sheet:](#)



Carnegie Mellon Solar Decathlon 2007 Window Order

Item	Unit	Model #	Rough.Opening	IGU	UC-Ext/Int.	Quantity
W1	Fixed	NX-380	32 1/2" X 64"	1"-1/4 clr-1/2Argon-1/4 clr SBXL70 Surface#4	95934XL / 43350	1
W2	Fixed(Top)Projected (Bottom)	NX-350	35 1/2" X 79 7/8"	1"-1/4 clr-1/2Argon-1/4 clr SBXL70 Surface#4	95934XL / 43350	3
W3	Fixed(Top)Projected (Bottom)	NX-350	144"X 80 3/8"	1"-1/4 clr-1/2Argon-1/4 clr SBXL70 Surface#4	95934XL / 43350	1
W5	Projected	NX-350	144"X 18"	1"-1/4 clr-1/2Argon-1/4 clr SBXL70 Surface#4	95934XL / 43350	2
W6	Projected/Fixed	NX-350	126"X 18"	1"-1/4 clr-1/2Argon-1/4 clr SBXL70 Surface#4	95934XL / 43350	1

Division Title: **Openings** Division: **08 00 00**

Item: **Sliding Patio Doors & Windows** Manufacturer: **Traco** Product Model: **Various**

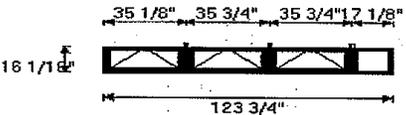
Website: <http://www.traco.com/spz/indexframe.html> Link to Full Data Sheet:



Quote Detail Report

Friday July 13, 2007

JMH 111209 OE Version 12
CMU-2007 DECATHALON

Item	Qty	Opening Description	Windows/Options in Opening															
1	1	Ribbon Opening w/4 Windows @ 123 3/4" by 16 1/16" UC43350 Bone White ACC Shape: R (Rectangle (Default)) Mullion V2: IF-0118 STACK Receptor Location: HJ Receptor/Clip Jamb Adj: {4"} Subsill: SUBSILL IF-0120	1 @ NX350 NexGen Single Project Out Top Hinge NX350 446 AAMA Override : YES (NX300 Product Line Does not currently have an AAMA Test) Frame - Accessory Validation : Receptor can not be use with the Standard NL Frame Frame Type : STANDARD NL (Standard No Leg) Performance Grade : STD (Seal per standard sealing procedures) Subsill Weep : STD WEEP (Do not Weep to Subsill - Std Weeps) VALIDATION : Receptor can not be used with the Standard NL Frame Wdw Shape : R (Rectangle (default)) Window Mark : W6-1 Light I Vent Cam Lock Qty : 1 Glazing Pocket Type : SINGLE (Single Glazing Pocket) Hinge Type : CONCEALED (Concealed Hinge) Limited Travel : NA (Needs Addressed for Limit Arms) Locks : SC (Standard Cam) Manufacturing Min/Max Override : YES (Window Size is outside TRACO recommended guidelines. Operation, installation and warranties must be addressed separate from remaining units) Bead Frame Field/Temp Glazing Override : N/A (N/A) Glazing Assembly : STANDARD (STANDARD) Infill Thickness : {1"} Muntin Tape : NA (Needs Addressed) GLAZING Glazing Type : IN (insulated) GLAZING UNIT Exterior Value : [FIL:TRACO:LE/4X7T] Gas Filled Unit : ARGON (Argon Gas) Interior Value : [FIL:TRACO:CL/4XXT] Override Capillary - TPS : DEFAULT (Not addressed) Perimeter Sealant System : DUAL (Dual Seal) Soft Coat Ext Validation : The SoftCoat you have selected for the exterior lite requires Purchasing Approval for Quotation Spacer Finish : NEXGEN (NexGen Black) Unit Thickness : 1 1 @ NX350 NexGen Single Project Out Top Hinge NX350 447 AAMA Override : YES (NX300 Product Line Does not currently have an AAMA Test) Frame - Accessory Validation : Receptor can not be use with the Standard NL Frame Frame Type : STANDARD NL (Standard No Leg) Performance Grade : STD (Seal per standard sealing procedures) Subsill Weep : STD WEEP (Do not Weep to Subsill - Std Weeps) VALIDATION : Receptor can not be used with the Standard NL Frame Wdw Shape : R (Rectangle (default)) Window Mark : W6-2 Light I Vent															
	3 1/4"	Depth																
	W6	Mark																
		Mullion V1: IF-0118 STACK Mullion V3: IF-0118 STACK Receptor/Clip Head Adj: {4"} Receptors: RCPT IF-0119/S-4059 Subsill Adj: {1/2"} 																
		Viewed from exterior. Starting at the top left corner of the configuration, light openings are numbered from left to right, top to bottom.																
		<table border="1"> <thead> <tr> <th>Qty</th> <th>Description</th> <th>Glass Size</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>*1/4 CLEAR TEMPERED</td> <td>14 7/16" by 14"</td> </tr> <tr> <td>3</td> <td>*1/4 CLEAR TEMPERED</td> <td>30 7/16" by 12"</td> </tr> <tr> <td>1</td> <td>1/4 SOLARBAN 70XL VT TEMPERED (Clear)</td> <td>14 7/16" by 14"</td> </tr> <tr> <td>3</td> <td>1/4 SOLARBAN 70XL VT TEMPERED (Clear)</td> <td>30 7/16" by 12"</td> </tr> </tbody> </table>	Qty	Description	Glass Size	1	*1/4 CLEAR TEMPERED	14 7/16" by 14"	3	*1/4 CLEAR TEMPERED	30 7/16" by 12"	1	1/4 SOLARBAN 70XL VT TEMPERED (Clear)	14 7/16" by 14"	3	1/4 SOLARBAN 70XL VT TEMPERED (Clear)	30 7/16" by 12"	
Qty	Description	Glass Size																
1	*1/4 CLEAR TEMPERED	14 7/16" by 14"																
3	*1/4 CLEAR TEMPERED	30 7/16" by 12"																
1	1/4 SOLARBAN 70XL VT TEMPERED (Clear)	14 7/16" by 14"																
3	1/4 SOLARBAN 70XL VT TEMPERED (Clear)	30 7/16" by 12"																

Division Title:
Openings

Division:
08 00 00

Item: **Sliding Patio Doors & Windows** Manufacturer: **Traco**

Product Model:
Various

Website:
<http://www.traco.com/spz/indexframe.html>

[Link to Full Data Sheet:](#)

Glazing Pocket Type : SINGLE (Single Glazing Pocket)
Hinge Type : CONCEALED (Concealed Hinge)
Limited Travel : NA (Needs Addressed for Limit Arms)
Locks : SC (Standard Cam)
Manufacturing Min/Max Override : YES (Window Size is outside TRACO recommended guidelines. Operation, installation and warranties must be addressed separate from remaining units)

Bead Frame

Field/Temp Glazing Override : N/A (N/A)
Glazing Assembly : STANDARD (STANDARD)
Infill Thickness : {1"}
Muntin Tape : NA (Needs Addressed)

GLAZING

Glazing Type : IN (Insulated)

GLAZING UNIT

Exterior Value : [FIL:TRACO:LE/4X7T]
Gas Filled Unit : ARGON (Argon Gas)
Interior Value : [FIL:TRACO:CL/4XXT]
Override Capillary - TPS : DEFAULT (Not addressed)
Perimeter Sealant System : DUAL (Dual Seal)
Soft Coat Ext Validation : The SoftCoat you have selected for the exterior lite requires Purchasing Approval for Quotation
Spacer Finish : NEXGEN (NexGen Black)
Unit Thickness : 1

**1 @ NX350 NexGen Single Project Out Top Hinge
NX350 448**

AAMA Override : YES (NX300 Product Line Does not currently have an AAMA Test)
Frame - Accessory Validation : Receptor can not be use with the Standard NL Frame
Frame Type : STANDARD NL (Standard No Leg)
Performance Grade : STD (Seal per standard sealing procedures)
Subsill Weep : STD WEEP (Do not Weep to Subsill - Std Weeps)
VALIDATION : Receptor can not be used with the Standard NL Frame
Wdw Shape : R (Rectangle (default))
Window Mark : W6-3

Light 1 Vent

Cam Lock Qty : 1
Glazing Pocket Type : SINGLE (Single Glazing Pocket)
Hinge Type : CONCEALED (Concealed Hinge)
Limited Travel : NA (Needs Addressed for Limit Arms)
Locks : SC (Standard Cam)
Manufacturing Min/Max Override : YES (Window Size is outside TRACO recommended guidelines. Operation, installation and warranties must be addressed separate from remaining units)

Bead Frame

Field/Temp Glazing Override : N/A (N/A)
Glazing Assembly : STANDARD (STANDARD)
Infill Thickness : {1"}
Muntin Tape : NA (Needs Addressed)

GLAZING

Glazing Type : IN (Insulated)

GLAZING UNIT

Exterior Value : [FIL:TRACO:LE/4X7T]
Gas Filled Unit : ARGON (Argon Gas)
Interior Value : [FIL:TRACO:CL/4XXT]
Override Capillary - TPS : DEFAULT (Not addressed)
Perimeter Sealant System : DUAL (Dual Seal)
Soft Coat Ext Validation : The SoftCoat you have selected for the exterior lite requires Purchasing Approval for Quotation

Spacer Finish : NEXGEN (NexGen Black)
Unit Thickness : 1

**1 @ NX380-IN NexGen Fixed Int Glazed
NX380-IN 449**

AAMA Override : YES (NX300 Product Line Does not currently have an AAMA Test)
Frame Type : STANDARD NL (Standard No Leg)
Performance Grade : STD (Seal per standard sealing procedures)
Subsill Weep : WEEP FOR SUBSILL (Prep for Weeping to Subsill)
Wdw Shape : R (Rectangle (default))
Window Mark : W6-4

Light 1 Fix

Glazing Orientation : STANDARD INT (Interior Glaze - set to the exterior)

NX300 IN SI STD

Field/Temp Glazing Override : N/A (N/A)
Glazing Assembly : STANDARD (STANDARD)
Heel Bead : FULL (Full Perimeter Heel Bead)
Infill Thickness : {1"}
Muntin Tape : NA (Needs Addressed)

GLAZING

Glazing Type : IN (Insulated)

GLAZING UNIT

Exterior Value : [FIL:TRACO:LE/4X7T]
Gas Filled Unit : ARGON (Argon Gas)
Interior Value : [FIL:TRACO:CL/4XXT]
Override Capillary - TPS : DEFAULT (Not addressed)
Perimeter Sealant System : DUAL (Dual Seal)
Soft Coat Ext Validation : The SoftCoat you have selected for the exterior lite requires Purchasing Approval for Quotation
Spacer Finish : NEXGEN (NexGen Black)
Unit Thickness : 1

Division Title:
Openings

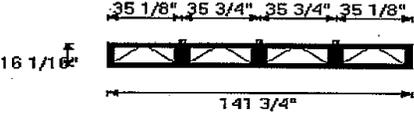
Division:
08 00 00

Item: **Sliding Patio Doors & Windows** Manufacturer: **Traco**

Product Model:
Various

Website:
<http://www.traco.com/spz/indexframe.html>

[Link to Full Data Sheet:](#)

Item	Qty	Opening Description	Windows/Options in Opening									
2	2	Ribbon Opening w/4 Windows @ 141 3/4" by 16 1/16" UC43350 Bone White ACC Shape: R (Rectangle (Default)) Mullion V1: IF-0118 STACK Mullion V2: IF-0118 STACK Mullion V3: IF-0118 STACK Receptor Location: HJ Receptor/Clip Head Adj: {4"} Receptor/Clip Jamb Adj: {4"} Receptors: RCPT IF-0119/S-4059 Subsill: SUBSILL IF-0120 Subsill Adj: {1/2"}  <p>Viewed from exterior. Starting at the top left corner of the configuration, light openings are numbered from left to right, top to bottom.</p> <table border="1"> <thead> <tr> <th>Qty</th> <th>Description</th> <th>Glass Size</th> </tr> </thead> <tbody> <tr> <td>8</td> <td>*1/4 CLEAR TEMPERED</td> <td>30 7/16" by 12"</td> </tr> <tr> <td>8</td> <td>1/4 SOLARBAN 70XL VT TEMPERED (Clear)</td> <td>30 7/16" by 12"</td> </tr> </tbody> </table>	Qty	Description	Glass Size	8	*1/4 CLEAR TEMPERED	30 7/16" by 12"	8	1/4 SOLARBAN 70XL VT TEMPERED (Clear)	30 7/16" by 12"	<p>1 @ NX350 NexGen Single Project Out Top Hinge NX350 446</p> <p>AAMA Override : YES (NX300 Product Line Does not currently have an AAMA Test) Frame - Accessory Validation : Receptor can not be use with the Standard NL Frame Frame Type : STANDARD NL (Standard No Leg) Performance Grade : STD (Seal per standard sealing procedures) Subsill Weep : STD WEEP (Do not Weep to Subsill - Std Weeps) VALIDATION : Receptor can not be used with the Standard NL Frame Wdw Shape : R (Rectangle (default)) Window Mark : W5-1</p> <p>Light 1 Vent Cam Lock Qty : 1 Glazing Pocket Type : SINGLE (Single Glazing Pocket) Hinge Type : CONCEALED (Concealed Hinge) Limited Travel : NA (Needs Addressed for Limit Arms) Locks : SC (Standard Cam) Manufacturing Min/Max Override : YES (Window Size is outside TRACO recommended guidelines. Operation, installation and warranties must be addressed separate from remaining units)</p> <p>Bead Frame Field/Temp Glazing Override : N/A (N/A) Glazing Assembly : STANDARD (STANDARD) Infill Thickness : {1"} Muntin Tape : NA (Needs Addressed)</p> <p>GLAZING Glazing Type : IN (Insulated)</p> <p>GLAZING UNIT Exterior Value : [FIL:TRACO:LE/4X7T] Gas Filled Unit : ARGON (Argon Gas) Interior Value : [FIL:TRACO:CL/4XXT] Override Capillary - TPS : DEFAULT (Not addressed) Perimeter Sealant System : DUAL (Dual Seal) Soft Coat Ext Validation : The SoftCoat you have selected for the exterior lite requires Purchasing Approval for Quotation Spacer Finish : NEXGEN (NexGen Black) Unit Thickness : 1</p> <p>1 @ NX350 NexGen Single Project Out Top Hinge NX350 447</p> <p>AAMA Override : YES (NX300 Product Line Does not currently have an AAMA Test) Frame - Accessory Validation : Receptor can not be use with the Standard NL Frame Frame Type : STANDARD NL (Standard No Leg) Performance Grade : STD (Seal per standard sealing procedures) Subsill Weep : STD WEEP (Do not Weep to Subsill - Std Weeps) VALIDATION : Receptor can not be used with the Standard NL Frame Wdw Shape : R (Rectangle (default)) Window Mark : W5-2</p> <p>Light 1 Vent Cam Lock Qty : 1 Glazing Pocket Type : SINGLE (Single Glazing Pocket) Hinge Type : CONCEALED (Concealed Hinge) Limited Travel : NA (Needs Addressed for Limit Arms) Locks : SC (Standard Cam)</p>
Qty	Description	Glass Size										
8	*1/4 CLEAR TEMPERED	30 7/16" by 12"										
8	1/4 SOLARBAN 70XL VT TEMPERED (Clear)	30 7/16" by 12"										

Division Title:
Openings

Division:
08 00 00

Item: **Sliding Patio Doors & Windows**
Manufacturer: **Traco**

Product Model:
Various

Website:
<http://www.traco.com/spz/indexframe.html>

[Link to Full Data Sheet:](#)

Manufacturing Min/Max Override : YES (Window Size is outside TRACO recommended guidelines. Operation, installation and warranties must be addressed separate from remaining units)

Bead Frame

Field/Temp Glazing Override : N/A (N/A)
Glazing Assembly : STANDARD (STANDARD)
Infill Thickness : {1"}
Muntin Tape : NA (Needs Addressed)

GLAZING

Glazing Type : IN (Insulated)

GLAZING UNIT

Exterior Value : [FIL:TRACO:LE/4X7T]
Gas Filled Unit : ARGON (Argon Gas)
Interior Value : [FIL:TRACO:CL/4XXT]
Override Capillary - TPS : DEFAULT (Not addressed)
Perimeter Sealant System : DUAL (Dual Seal)
Soft Coat Ext Validation : The SoftCoat you have selected for the exterior lite requires Purchasing Approval for Quotation
Spacer Finish : NEXGEN (NexGen Black)
Unit Thickness : 1

**1 @ NX350 NexGen Single Project Out Top Hinge
NX350 448**

AAMA Override : YES (NX300 Product Line Does not currently have an AAMA Test)
Frame - Accessory Validation : Receptor can not be use with the Standard NL Frame
Frame Type : STANDARD NL (Standard No Leg)
Performance Grade : STD (Seal per standard sealing procedures)
Subsill Weep : STD WEEP (Do not Weep to Subsill - Std Weeps)
VALIDATION : Receptor can not be used with the Standard NL Frame
Wdw Shape : R (Rectangle (default))
Window Mark : W5-3

Light 1 Vent

Cam Lock Qty : 1
Glazing Pocket Type : SINGLE (Single Glazing Pocket)
Hinge Type : CONCEALED (Concealed Hinge)
Limited Travel : NA (Needs Addressed for Limit Arms)
Locks : SC (Standard Cam)
Manufacturing Min/Max Override : YES (Window Size is outside TRACO recommended guidelines. Operation, installation and warranties must be addressed separate from remaining units)

Bead Frame

Field/Temp Glazing Override : N/A (N/A)
Glazing Assembly : STANDARD (STANDARD)
Infill Thickness : {1"}
Muntin Tape : NA (Needs Addressed)

GLAZING

Glazing Type : IN (Insulated)

GLAZING UNIT

Exterior Value : [FIL:TRACO:LE/4X7T]
Gas Filled Unit : ARGON (Argon Gas)
Interior Value : [FIL:TRACO:CL/4XXT]
Override Capillary - TPS : DEFAULT (Not addressed)
Perimeter Sealant System : DUAL (Dual Seal)
Soft Coat Ext Validation : The SoftCoat you have selected for the exterior lite requires Purchasing Approval for Quotation
Spacer Finish : NEXGEN (NexGen Black)
Unit Thickness : 1

**1 @ NX350 NexGen Single Project Out Top Hinge
NX350 449**

AAMA Override : YES (NX300 Product Line Does not currently have an AAMA Test)
Frame - Accessory Validation : Receptor can not be use with the Standard NL Frame
Frame Type : STANDARD NL (Standard No Leg)
Performance Grade : STD (Seal per standard sealing procedures)
Subsill Weep : STD WEEP (Do not Weep to Subsill - Std Weeps)
VALIDATION : Receptor can not be used with the Standard NL Frame
Wdw Shape : R (Rectangle (default))
Window Mark : W5-4

Light 1 Vent

Cam Lock Qty : 1
Glazing Pocket Type : SINGLE (Single Glazing Pocket)
Hinge Type : CONCEALED (Concealed Hinge)
Limited Travel : NA (Needs Addressed for Limit Arms)
Locks : SC (Standard Cam)
Manufacturing Min/Max Override : YES (Window Size is outside TRACO recommended guidelines. Operation, installation and warranties must be addressed separate from remaining units)

Bead Frame

Field/Temp Glazing Override : N/A (N/A)
Glazing Assembly : STANDARD (STANDARD)
Infill Thickness : {1"}
Muntin Tape : NA (Needs Addressed)

GLAZING

Glazing Type : IN (Insulated)

GLAZING UNIT

Exterior Value : [FIL:TRACO:LE/4X7T]
Gas Filled Unit : ARGON (Argon Gas)
Interior Value : [FIL:TRACO:CL/4XXT]
Override Capillary - TPS : DEFAULT (Not addressed)
Perimeter Sealant System : DUAL (Dual Seal)
Soft Coat Ext Validation : The SoftCoat you have selected for the exterior lite requires Purchasing Approval for Quotation
Spacer Finish : NEXGEN (NexGen Black)
Unit Thickness : 1

Division Title:
Openings

Division:
08 00 00

Item:
Sliding Patio Doors & Windows

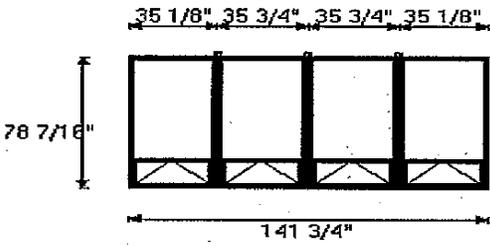
Manufacturer:
Traco

Product Model:
Various

Website:
<http://www.traco.com/spz/indexframe.html>

[Link to Full Data Sheet:](#)

Item	Qty	Opening Description
3	1	Ribbon Opening w/4 Windows @ 141 3/4" by 78 7/16" UC43350 Bone White
Depth	3 1/4"	ACC Shape: R (Rectangle (Default)) Mullion V1: IF-0118 STACK
Mark	W3	Mullion V2: IF-0118 STACK Mullion V3: IF-0118 STACK
		Receptor Location: HJ Receptor/Clip Head Adj: {4"} Receptors: RCPT IF-0119/S-4059
		Subsill: SUBSILL IF-0120 Subsill Adj: {1/2"}



Viewed from exterior. Starting at the top left corner of the configuration, light openings are numbered from left to right, top to bottom.

Qty	Description	Glass Size
4	*1/4 CLEAR TEMPERED	30 7/16" by 13 5/16"
4	*1/4 CLEAR TEMPERED	32 7/16" by 60 1/8"
4	1/4 SOLARBAN 70XL VT TEMPERED (Clear)	30 7/16" by 13 5/16"
4	1/4 SOLARBAN 70XL VT TEMPERED (Clear)	32 7/16" by 60 1/8"

Division Title:
Openings

Division:
08 00 00

Item: **Sliding Patio Doors & Windows** Manufacturer: **Traco**

Product Model:
Various

Website:
<http://www.traco.com/spz/indexframe.html>

[Link to Full Data Sheet:](#)

Windows/Options in Opening

1 @ NX350-2-S-1 NexGen Stack Fix / Vent NX350-2-S-1 450

AAMA Override : YES (NX300 Product Line Does not currently have an AAMA Test)
Frame - Accessory Validation : Receptor can not be use at the right jamb with the Standard NL Frame
Frame Type : STANDARD.NL (Standard No Leg)
HDM1 : 16.875
Performance Grade : STD (Seal per standard sealing procedures)
Subsill Weep : STD WEEP (Do not Weep to Subsill - Std Weeps)
VALIDATION : Receptor can not be used at the right jamb with the Standard NL Frame
Wdw Shape : R (Rectangle (default))
Window Mark : W3-1

Light 1 Fix

Glazing Orientation : STANDARD INT (Interior Glazer - set to the exterior)

NX300 IN SI STD

Field/Temp Glazing Override : N/A (N/A)
Glazing Assembly : STANDARD (STANDARD)
Infill Thickness : {1"}
Muntin Tape : NA (Needs Addressed)

GLAZING

Glazing Type : IN (Insulated)

GLAZING UNIT

Exterior Value : [FIL:TRACO:LE/4X7T]
Gas Filled Unit : ARGON (Argon Gas)
Interior Value : [FIL:TRACO:CL/4XXT]
Override Capillary - TPS : DEFAULT (Not addressed)
Perimeter Sealant System : DUAL (Dual Seal)
Soft Coat Ext Validation : The SoftCoat you have selected for the exterior lite requires Purchasing Approval for Quotation
Spacer Finish : NEXGEN (NexGen Black)
Unit Thickness : 1

Light 2 Vent

Cam Lock Qty : 1
Glazing Pocket Type : SINGLE (Single Glazing Pocket)
Hinge Type : CONCEALED (Concealed Hinge)
Limited Travel : NA (Needs Addressed for Limit Arms)
Locks : SC (Standard Cam)
Manufacturing Min/Max Override : YES (Window Size is outside TRACO recommended guidelines. Operation, installation and warranties must be addressed separate from remaining units)

Bead Frame

Field/Temp Glazing Override : N/A (N/A)
Glazing Assembly : STANDARD (STANDARD)
Infill Thickness : {1"}
Muntin Tape : NA (Needs Addressed)

GLAZING

Glazing Type : IN (Insulated)

GLAZING UNIT

Exterior Value : [FIL:TRACO:LE/4X7T]
Gas Filled Unit : ARGON (Argon Gas)
Interior Value : [FIL:TRACO:CL/4XXT]
Override Capillary - TPS : DEFAULT (Not addressed)
Perimeter Sealant System : DUAL (Dual Seal)
Soft Coat Ext Validation : The SoftCoat you have selected for the exterior lite requires Purchasing Approval for Quotation
Spacer Finish : NEXGEN (NexGen Black)

Page 7

Division Title:
Openings

Division:
08 00 00

Item: **Sliding Patio Doors & Windows**
Manufacturer: **Traco**

Product Model:
Various

Website:
<http://www.traco.com/spz/indexframe.html>

[Link to Full Data Sheet:](#)

Unit Thickness : 1

**1 @ NX350-2-S-1 NexGen Stack Fix / Vent
NX350-2-S-1 451**

AAMA Override : YES (NX300 Product Line Does not currently have an AAMA Test)

Frame - Accessory Validation : Receptor can not be use at the right jamb with the Standard NL Frame

Frame Type : STANDARD NL (Standard No Leg)

HDM1 : 16.875

Performance Grade : STD (Seal per standard sealing procedures)

Subsill Weep : STD WEEP (Do not Weep to Subsill - Std Weeps)

VALIDATION : Receptor can not be used at the right jamb with the Standard NL Frame

Wdw Shape : R (Rectangle (default))

Window Mark : W3-2

Light 1 Fix

Glazing Orientation : STANDARD INT (Interior Glazex - set to the exterior)

NX300 IN SI STD

Field/Temp Glazing Override : N/A (N/A)

Glazing Assembly : STANDARD (STANDARD)

Infill Thickness : {1"}

Muntin Tape : NA (Needs Addressed)

GLAZING

Glazing Type : IN (Insulated)

GLAZING UNIT

Exterior Value : [FIL:TRACO:LE/4X7T]

Gas Filled Unit : ARGON (Argon Gas)

Interior Value : [FIL:TRACO:CL/4XXT]

Override Capillary - TPS : DEFAULT (Not addressed)

Perimeter Sealant System : DUAL (Dual Seal)

Soft Coat Ext Validation : The SoftCoat you have selected for the exterior lite requires Purchasing Approval for Quotation

Spacer Finish : NEXGEN (NexGen Black)

Unit Thickness : 1

Light 2 Vent

Cam Lock Qty : 1

Glazing Pocket Type : SINGLE (Single Glazing Pocket)

Hinge Type : CONCEALED (Concealed Hinge)

Limited Travel : NA (Needs Addressed for Limit Arms)

Locks : SC (Standard Cam)

Manufacturing Min/Max Override : YES (Window Size is outside TRACO recommended guidelines. Operation, installation and warranties must be addressed separate from remaining units)

Bead Frame

Field/Temp Glazing Override : N/A (N/A)

Glazing Assembly : STANDARD (STANDARD)

Infill Thickness : {1"}

Muntin Tape : NA (Needs Addressed)

GLAZING

Glazing Type : IN (Insulated)

GLAZING UNIT

Exterior Value : [FIL:TRACO:LE/4X7T]

Gas Filled Unit : ARGON (Argon Gas)

Interior Value : [FIL:TRACO:CL/4XXT]

Override Capillary - TPS : DEFAULT (Not addressed)

Perimeter Sealant System : DUAL (Dual Seal)

Soft Coat Ext Validation : The SoftCoat you have selected for the exterior lite requires Purchasing Approval for Quotation

Spacer Finish : NEXGEN (NexGen Black)

Unit Thickness : 1

@ NX350-2-S-1 NexGen Stack Fix / Vent

Item:	Division Title:	Division:
Sliding Patio Doors & Windows	Openings	08 00 00
Manufacturer:	Product Model:	
Traco	Various	

Website:
<http://www.traco.com/spz/indexframe.html>

[Link to Full Data Sheet:](#)

NX350-2-S-1 452

AAMA Override : YES (NX300 Product Line Does not currently have an AAMA Test)
 Frame - Accessory Validation : Receptor can not be use at the right jamb with the Standard NL Frame
 Frame Type : STANDARD NL (Standard No Leg)
 HDM1 : 16.875
 Performance Grade : STD (Seal per standard sealing procedures)
 Subsill Weep : STD WEEP (Do not Weep to Subsill - Std Weeps)
 VALIDATION : Receptor can not be used at the right jamb with the Standard NL Frame
 Wdw Shape : R (Rectangle (default))
 Window Mark : W3-3

Light 1 Fix

Glazing Orientation : STANDARD INT (Interior Glazex - set to the exterior)

NX300 IN SI STD

Field/Temp Glazing Override : N/A (N/A)
 Glazing Assembly : STANDARD (STANDARD)
 Infill Thickness : {1"}
 Muntin Tape : NA (Needs Addressed)

GLAZING

Glazing Type : IN (Insulated)

GLAZING UNIT

Exterior Value : [FIL:TRACO:LE/4X7T]
 Gas Filled Unit : ARGON (Argon Gas)
 Interior Value : [FIL:TRACO:CL/4XXT]
 Override Capillary - TPS : DEFAULT (Not addressed)
 Perimeter Sealant System : DUAL (Dual Seal)
 Soft Coat Ext Validation : The SoftCoat you have selected for the exterior lite requires Purchasing Approval for Quotation
 Spacer Finish : NEXGEN (NexGen Black)
 Unit Thickness : 1

Light 2 Vent

Cam Lock Qty : 1
 Glazing Pocket Type : SINGLE (Single Glazing Pocket)
 Hinge Type : CONCEALED (Concealed Hinge)
 Limited Travel : NA (Needs Addressed for Limit Arms)
 Locks : SC (Standard Cam)
 Manufacturing Min/Max Override : YES (Window Size is outside TRACO recommended guidelines. Operation, installation and warranties must be addressed separate from remaining units)

Bead Frame

Field/Temp Glazing Override : N/A (N/A)
 Glazing Assembly : STANDARD (STANDARD)
 Infill Thickness : {1"}
 Muntin Tape : NA (Needs Addressed)

GLAZING

Glazing Type : IN (Insulated)

GLAZING UNIT

Exterior Value : [FIL:TRACO:LE/4X7T]
 Gas Filled Unit : ARGON (Argon Gas)
 Interior Value : [FIL:TRACO:CL/4XXT]
 Override Capillary - TPS : DEFAULT (Not addressed)
 Perimeter Sealant System : DUAL (Dual Seal)
 Soft Coat Ext Validation : The SoftCoat you have selected for the exterior lite requires Purchasing Approval for Quotation
 Spacer Finish : NEXGEN (NexGen Black)
 Unit Thickness : 1

1 @ NX350-2-S-1 NexGen Stack Fix / Vent
 NX350-2-S-1 453

Division Title:
Openings

Division:
08 00 00

Item: **Sliding Patio Doors & Windows**
Manufacturer: **Traco**

Product Model:
Various

Website:
<http://www.traco.com/spz/indexframe.html>

[Link to Full Data Sheet:](#)

AAMA Override : YES (NX300 Product Line Does not currently have an AAMA Test)

Frame - Accessory Validation : Receptor can not be use at the right jamb with the Standard NL Frame

Frame Type : STANDARD NL (Standard No Leg)

HDM1 : 16.875

Performance Grade : STD (Seal per standard sealing procedures)

Subsill Weep : STD WEEP (Do not Weep to Subsill - Std Weeps)

VALIDATION : Receptor can not be used at the right jamb with the Standard NL Frame

Wdw Shape : R (Rectangle (default))

Window Mark : W3-4

Light 1 Fix

Glazing Orientation : STANDARD INT (Interior Glazer - set to the exterior)

NX300 IN SI STD

Field/Temp Glazing Override : N/A (N/A)

Glazing Assembly : STANDARD (STANDARD)

Infill Thickness : {1"}

Muntin Tape : NA (Needs Addressed)

GLAZING

Glazing Type : IN (Insulated)

GLAZING UNIT

Exterior Value : [FIL:TRACO:LE/4X7T]

Gas Filled Unit : ARGON (Argon Gas)

Interior Value : [FIL:TRACO:CL/4XXT]

Override Capillary - TPS : DEFAULT (Not addressed)

Perimeter Sealant System : DUAL (Dual Seal)

Soft Coat Ext Validation : The SoftCoat you have selected for the exterior lite requires Purchasing

Approval for Quotation

Spacer Finish : NEXGEN (NexGen Black)

Unit Thickness : 1

Light 2 Vent

Cam Lock Qty : 1

Glazing Pocket Type : SINGLE (Single Glazing Pocket)

Hinge Type : CONCEALED (Concealed Hinge)

Limited Travel : NA (Needs Addressed for Limit Arms)

Locks : SC (Standard Cam)

Manufacturing Min/Max Override : YES (Window Size is outside TRACO recommended guidelines. Operation, installation and warranties must be addressed separate from remaining units)

Bead Frame

Field/Temp Glazing Override : N/A (N/A)

Glazing Assembly : STANDARD (STANDARD)

Infill Thickness : {1"}

Muntin Tape : NA (Needs Addressed)

GLAZING

Glazing Type : IN (Insulated)

GLAZING UNIT

Exterior Value : [FIL:TRACO:LE/4X7T]

Gas Filled Unit : ARGON (Argon Gas)

Interior Value : [FIL:TRACO:CL/4XXT]

Override Capillary - TPS : DEFAULT (Not addressed)

Perimeter Sealant System : DUAL (Dual Seal)

Soft Coat Ext Validation : The SoftCoat you have selected for the exterior lite requires Purchasing

Approval for Quotation

Spacer Finish : NEXGEN (NexGen Black)

Unit Thickness : 1

Division Title:
Openings

Division:
08 00 00

Item:
Sliding Patio Doors & Windows

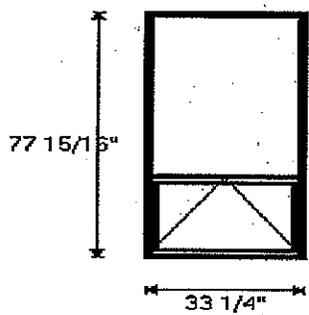
Manufacturer:
Traco

Product Model:
Various

Website:
<http://www.traco.com/spz/indexframe.html>

[Link to Full Data Sheet:](#)

Item	Qty	Opening Description
4	3	Single Opening 1 Window @ 33 1/4" by 77 15/16" UC43350 Bone White
Depth	3 1/4"	ACC Shape: R (Rectangle (Default)) Receptor Location: HJ
Mark	W2	Receptor/Clip Head Adj: {4"} Receptor/Clip Jamb Adj: {4"} Receptors: RCPT IF-0119/S-4059 Subsill: SUBSILL IF-0120 Subsill Adj: {1/2"}



77 15/16"

33 1/4"

Viewed from exterior. Starting at the top left corner of the configuration, light openings are numbered from left to right, top to bottom.

Qty	Description	Glass Size
3	*1/4 CLEAR TEMPERED	29 3/16" by 21 25/32"
3	*1/4 CLEAR TEMPERED	31 3/16" by 51 5/32"
3	1/4 SOLARBAN 70XL VT TEMPERED (Clear)	29 3/16" by 21 25/32"
3	1/4 SOLARBAN 70XL VT TEMPERED (Clear)	31 3/16" by 51 5/32"

Division Title:
Openings

Division:
08 00 00

Item: **Sliding Patio Doors & Windows** Manufacturer: **Traco**

Product Model:
Various

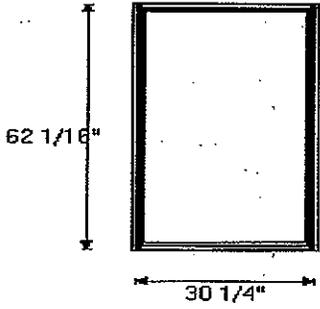
Website:
<http://www.traco.com/spz/indexframe.html>

[Link to Full Data Sheet:](#)

Windows/Options in Opening	Bead Frame
<p>I @ NX350-2-S-1 NexGen Stack Fix / Vent NX350-2-S-1 480 AAMA Override : YES (NX300 Product Line Does not currently have an AAMA Test) Frame - Accessory Validation : Receptor can not be use at the right jamb with the Standard NL Frame Frame Type : STANDARD NL (Standard No Leg) HDM1 : 25.3296875 Performance Grade : STD (Seal per standard sealing procedures) Subsill Weep : STD WEEP (Do not Weep to Subsill - Std Weeps) VALIDATION : Receptor can not be used at the right jamb with the Standard NL Frame Wdw Shape : R (Rectangle (default)) Window Mark : W2-1</p> <p>Light 1 Fix Glazing Orientation : STANDARD INT (Interior Glaze - set to the exterior)</p> <p>NX300 IN SI STD Field/Temp Glazing Override : N/A (N/A) Glazing Assembly : STANDARD (STANDARD) Infill Thickness : {1"} Muntin Tape : NA (Needs Addressed)</p> <p>GLAZING Glazing Type : IN (Insulated)</p> <p>GLAZING UNIT Exterior Value : [FIL:TRACO:LE/4X7T] Gas Filled Unit : ARGON (Argon Gas) Interior Value : [FIL:TRACO:CL/4XXT] Override Capillary - TPS : DEFAULT (Not addressed) Perimeter Sealant System : DUAL (Dual Seal) Soft Coat Ext Validation : The SoftCoat you have selected for the exterior lite requires Purchasing Approval for Quotation Spacer Finish : NEXGEN (NexGen Black) Unit Thickness : 1</p> <p>Light 2 Vent Cam Lock Qty : 1 Glazing Pocket Type : SINGLE (Single Glazing Pocket) Hinge Type : CONCEALED (Concealed Hinge) Limited Travel : NA (Needs Addressed for Limit Arms) Locks : SC (Standard Cam) Manufacturing Min/Max Override : YES (Window Size is outside TRACO recommended guidelines. Operation, installation and warranties must be addressed separate from remaining units)</p>	<p>Field/Temp Glazing Override : N/A (N/A) Glazing Assembly : STANDARD (STANDARD) Infill Thickness : {1"} Muntin Tape : NA (Needs Addressed)</p> <p>GLAZING Glazing Type : IN (Insulated)</p> <p>GLAZING UNIT Exterior Value : [FIL:TRACO:LE/4X7T] Gas Filled Unit : ARGON (Argon Gas) Interior Value : [FIL:TRACO:CL/4XXT] Override Capillary - TPS : DEFAULT (Not addressed) Perimeter Sealant System : DUAL (Dual Seal) Soft Coat Ext Validation : The SoftCoat you have selected for the exterior lite requires Purchasing Approval for Quotation Spacer Finish : NEXGEN (NexGen Black)</p>

Item:	Division Title:	Division:
Sliding Patio Doors & Windows	Openings	08 00 00
Manufacturer:	Product Model:	
Traco	Various	

Website: <http://www.traco.com/spz/indexframe.html> Link to Full Data Sheet:

Item	Qty	Opening Description	Windows/Options in Opening
5	1	Single Opening 1 Window @ 30 1/4" by 62 1/16" UC43350 Bone White ACC Shape: R (Rectangle (Default)) Receptor Location: HJ Receptor/Clip Head Adj: {4"} Receptor/Clip Jamb Adj: {4"} Receptors: RCPT IF-0119/S-4059 Subsill: SUBSILL IF-0120 Subsill Adj: {1/2"}	1 @ NX380-IN NexGen Fixed Int Glazed NX380-IN 480 AAMA Override : YES (NX300 Product Line Does not currently have an AAMA Test) Frame Type : STANDARD NL (Standard No Leg) Performance Grade : STD (Seal per standard sealing procedures) Subsill Weep : WEEP FOR SUBSILL (Prep for Weeping to Subsill) Wdw Shape : R (Rectangle (default)) Window Mark : W1-1 Light 1 Fix Glazing Orientation : STANDARD INT (Interior Glazer - set to the exterior) NX300 IN SI STD Field/Temp Glazing Override : N/A (N/A) Glazing Assembly : STANDARD (STANDARD) Heel Bead : FULL (Full Perimeter Heel Bead) Infill Thickness : {1"} Muntin Tape : NA (Needs Addressed) GLAZING Glazing Type : IN (Insulated) GLAZING UNIT Exterior Value : [FIL:TRACO:LE/4X7T] Gas Filled Unit : ARGON (Argon Gas) Interior Value : [FIL:TRACO:CL/4XXT] Override Capillary - TPS : DEFAULT (Not addressed) Perimeter Sealant System : DUAL (Dual Seal) Soft Coat Ext Validation : The SoftCoat you have selected for the exterior lite requires Purchasing Approval for Quotation Spacer Finish : NEXGEN (NexGen Black) Unit Thickness : 1
Depth	3 1/4"		
Mark	WI		
 <p>Viewed from exterior. Starting at the top left corner of the configuration, light openings are numbered from left to right, top to bottom.</p>			
<u>Qty</u>	<u>Description</u>	<u>Class Size</u>	
1	*1/4 CLEAR TEMPERED	28 3/16" by 60"	
1	1/4 SOLARBAN 70XL VT TEMPERED (Clear)	28 3/16" by 60"	

Division Title:
Openings

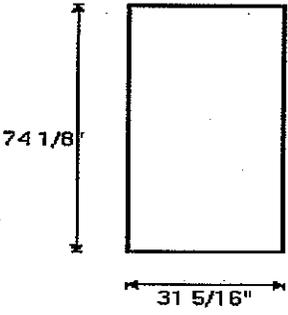
Division:
08 00 00

Item: **Sliding Patio Doors & Windows**
Manufacturer: **Traco**

Product Model:
Various

Website:
<http://www.traco.com/spz/indexframe.html>

[Link to Full Data Sheet:](#)

Item	Qty	Opening Description	Windows/Options in Opening
6	8	Replacement Glazing @ 31 5/16" by 74 1/8" UC43350 Bone White RPL Glazing Type: RPL-GLZ (Glazing Only) Mark W4 IG ¹	1 @ RPL-GLZ Replacement Glazing (Inner Frame) Replacement Type Infill Thickness : {1"} GLAZING Glazing Type : IN (Insulated) GLAZING UNIT Exterior Value : [FIL:TRACO:LE/4X7T] Gas Filled Unit : ARGON (Argon Gas) Interior Value : [FIL:TRACO:CL/4XXT] Override Capillary - TPS : DEFAULT (Not addressed) Perimeter Sealant System : DUAL (Dual Seal) Soft Coat Ext Validation : The SoftCoat you have selected for the exterior lite requires Purchasing Approval for Quotation Spacer Finish : NEXGEN (NexGen Black) Unit Thickness : 1
 <p>Viewed from exterior. Starting at the top left corner of the configuration, light openings are numbered from left to right, top to bottom.</p>			
Qty	Description	Glass Size	
8	*1/4 CLEAR TEMPERED	31 5/16" by 74 1/8"	
8	1/4 SOLARBAN 70XL VT TEMPERED (Clear)	31 5/16" by 74 1/8"	

Division Title:
Openings

Division:
08 00 00

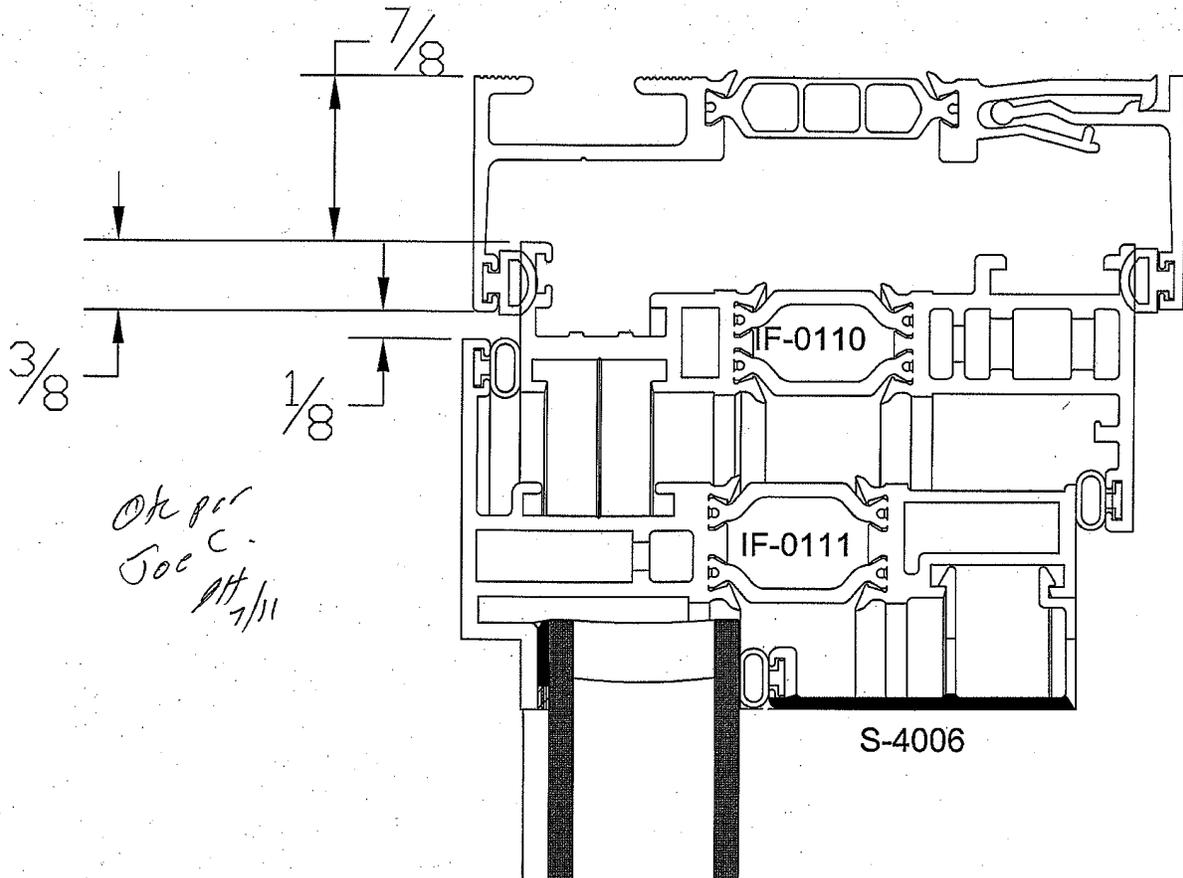
Item:
Sliding Patio Doors & Windows

Manufacturer:
Traco

Product Model:
Various

Website:
<http://www.traco.com/spz/indexframe.html>

[Link to Full Data Sheet:](#)



Division Title:
Openings

Division:
08 00 00

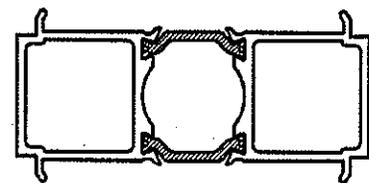
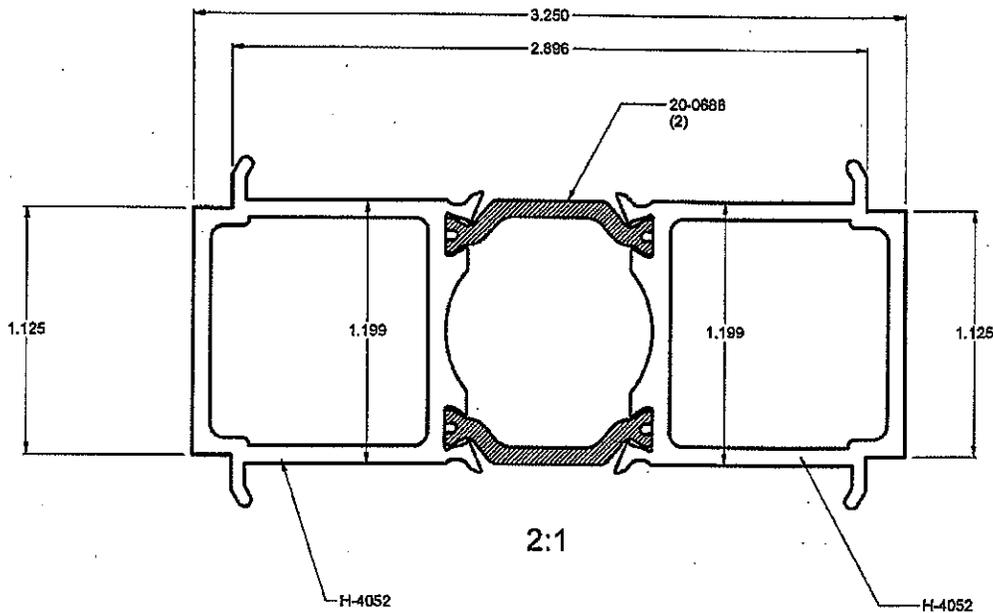
Item:
Sliding Patio Doors & Windows

Manufacturer:
Traco

Product Model:
Various

Website:
<http://www.traco.com/spz/indexframe.html>

[Link to Full Data Sheet:](#)



1:1

NOTE:

1) ENDS MUST BE FLUSH AFTER THE ROLLING PROCESS.

2) THE OVERALL DIMENSIONS NEED TO BE CHECKED AFTER THE ROLLING PROCESS TO ENSURE PROPER ASSEMBLY DIMENSIONS.

3) AFTER BEING ROLLED THE ASSEMBLED PART WILL BE NUMBERED IF-0118 AS SHOWN ON THIS DRAWING.

Division Title:
Openings

Division:
08 00 00

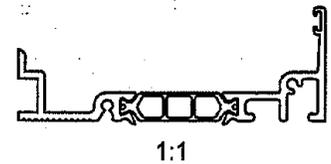
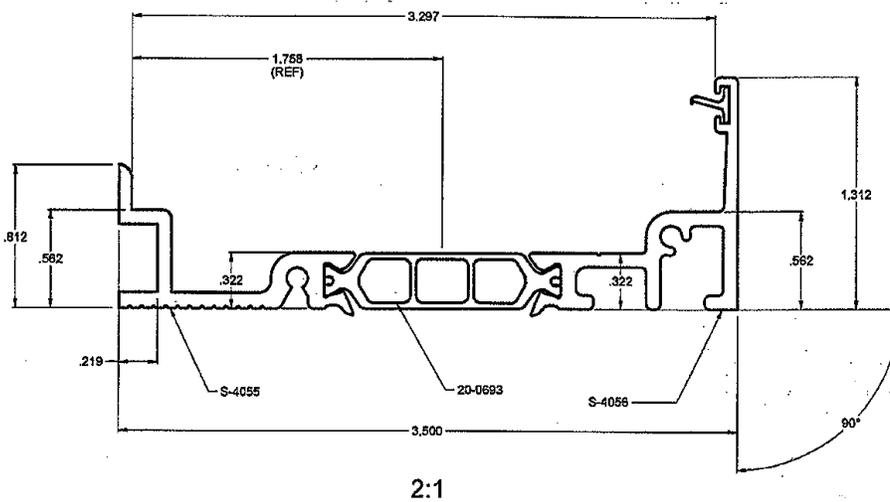
Item:
Sliding Patio Doors & Windows

Manufacturer:
Traco

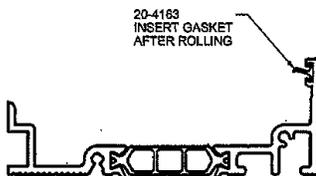
Product Model:
Various

Website:
<http://www.traco.com/spz/indexframe.html>

[Link to Full Data Sheet:](#)



- NOTE:**
- 1) ENDS MUST BE FLUSH AFTER THE ROLLING PROCESS.
 - 2) THE OVERALL DIMENSIONS NEED TO BE CHECKED AFTER THE ROLLING PROCESS TO ENSURE PROPER ASSEMBLY DIMENSIONS.
 - 3) AFTER BEING ROLLED THE ASSEMBLED PART WILL BE NUMBERED IF-0120 AS SHOWN ON THIS DRAWING.



Division Title:
Openings

Division:
08 00 00

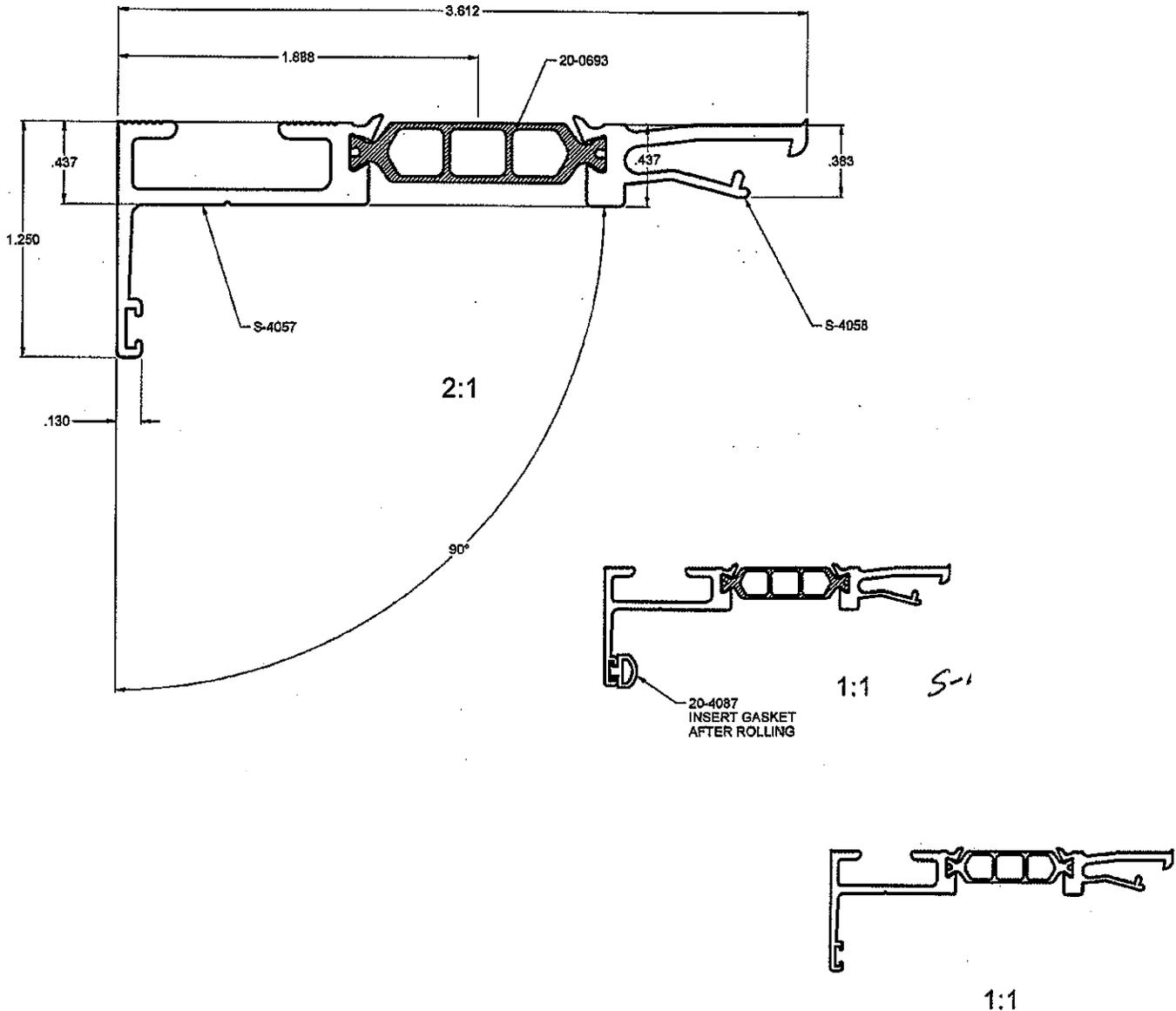
Item:
Sliding Patio Doors & Windows

Manufacturer:
Traco

Product Model:
Various

Website:
<http://www.traco.com/spz/indexframe.html>

[Link to Full Data Sheet:](#)



- NOTE:**
- 1) ENDS MUST BE FLUSH AFTER THE ROLLING PROCESS.
 - 2) THE OVERALL DIMENSIONS NEED TO BE CHECKED AFTER THE ROLLING PROCESS TO ENSURE PROPER ASSEMBLY DIMENSIONS.
 - 3) AFTER BEING ROLLED THE ASSEMBLED PART WILL BE NUMBERED IF-0119 AS SHOWN ON THIS DRAWING.

Item: **Sliding Patio Doors & Windows**

Division Title: **Openings**

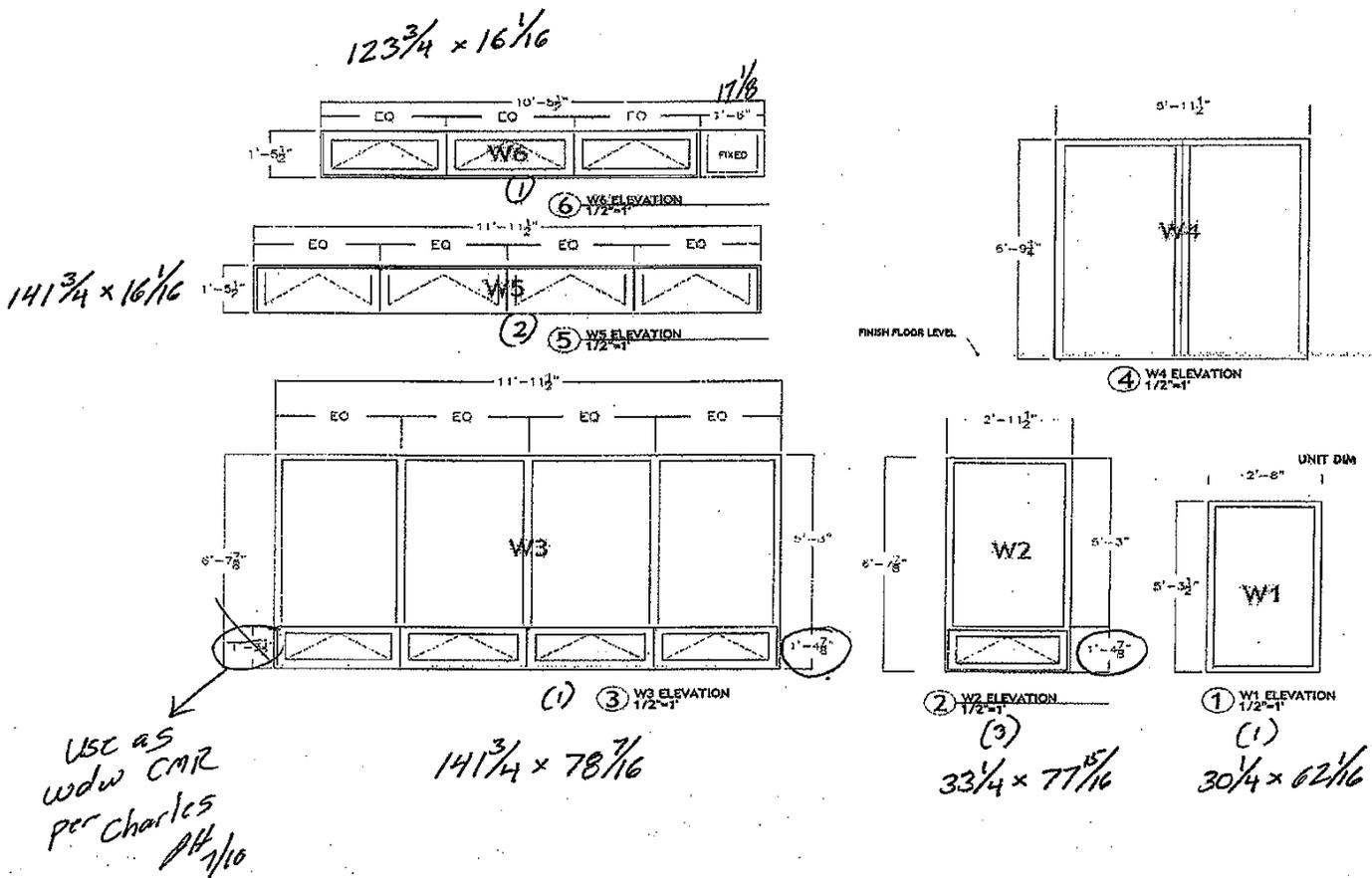
Division: **08 00 00**

Manufacturer: **Traco**

Product Model: **Various**

Website: <http://www.traco.com/spz/indexframe.html>

Link to Full Data Sheet:



Division Title:
Openings

Division:
08 63 53

Item:
Bathroom Skylight

Manufacturer:
Vellux

Product Model:
VCE curb mounted 33.5" x 49.5"

Website:
www.domwebx.com

Link to Full Data Sheet:
[http://www.domwebx.com/inet/literature.nsf/vcurrlytbyalias/vcepricing/\\$file/VCE_pricing.pdf](http://www.domwebx.com/inet/literature.nsf/vcurrlytbyalias/vcepricing/$file/VCE_pricing.pdf)

VCE | Electric venting curb mounted skylights



Size code	2222	2234	2246	3030	3046	3434	4646	
Inside curb (W" x H")	22½ x 22½	22½ x 34½	22½ x 46½	30½ x 30½	30½ x 46¼	34½ x 34½	46½ x 46½	
Outside curb (W" x H")	25½ x 25½	25½ x 37½	25½ x 49½	33½ x 33½	33½ x 49½	37½ x 37½	49½ x 49½	
Maximum skylight clearance (W" x H")	26¼ x 26¼	26¼ x 38¼	26¼ x 50¼	34¼ x 34¼	34¼ x 50¼	38¼ x 38¼	50¼ x 50¼	
Glazings / Claddings	\$	\$	\$	\$	\$	\$	\$	Delivery
VCE Tempered / Aluminum	569	662	698	705	749	728	859	T
VCE Laminated / Aluminum	599	703	739	746	798	785	926	S
VCE Impact / Aluminum	Please call for pricing and availability							N
VCE White laminated / Aluminum	Please call for pricing and availability							N
VCE SageGlass® / Aluminum	1800	N/A	2625	N/A	N/A	N/A	N/A	T
Flashing systems	\$	\$	\$	\$	\$	\$	\$	Delivery
ECL Step flashing	61	61	61	67	67	69	72	T

Optional controls	\$	Delivery
WLI 160 Wall mounted keypad	95	S
WLR 160 Extra remote control	67	S
WLF 111 Sensor interface to home automation systems	236	T



Product / Pricing notes
VCE can now be installed flat at a 0° roof pitch.
VCE 4646 with any type laminated glass is limited to roof pitches of 10° - 60°.
VCE package includes the remote WLR 160 and insect screen.
Retail prices are not valid in Alaska, Hawaii or Mexico due to additional freight cost.

Division Title:
Equipment

Division:
11 31 13

Item:
Electric Induction Range

Manufacturer:
KitchenAid

Product Model:
Cooktop KICU508SBL

Website:
www.kitchenaid.com

Link to Full Data Sheet:
<http://www.kitchenaid.com/catalog/product.jsp?src=ModelNumberLookup&productId=1352>

PRODUCT FEATURES

PERFORMANCE

Control Type	Touch-Activated
Touch-Activated Controls	✓
Total Elements	4
Burner Type	Induction
Number of Burners	4

COOKTOP FEATURES

Power-On Light	✓
Hot Surface Indicators	✓
Grate Finish	NOT APPLICABLE

BURNER POSITION & OUTPUT

Left Front Burner/Element Output	1,800 Watts
Left Rear Burner/Element Output	1,800 Watts
Right Front Burner/Element Output	1,400 Watts
Right Rear Burner/Element Output	2,400 Watts

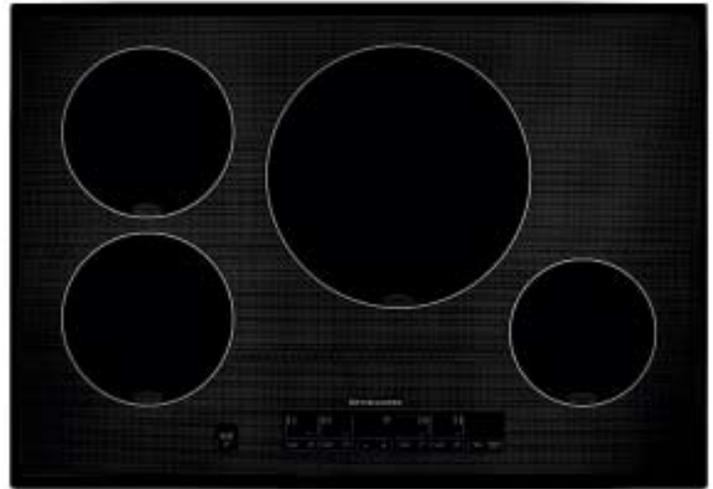
DIMENSIONS**

Cutout Depth	20 1/2 in.
Cutout Width	29 1/2 in.
Depth	21 9/16 in.

Height	3 1/4 in.
Width	31 in.
Width at Center	31 in.

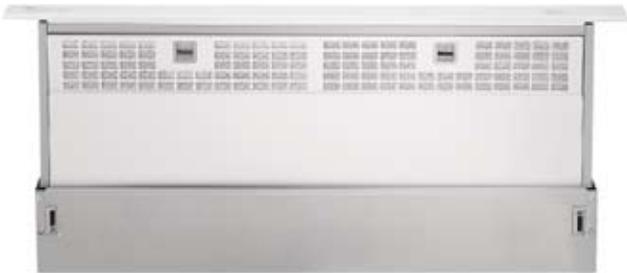
ELECTRICAL

40 Ampere, 240 Volts, 60 Hertz (1/second). AC-ONLY. USE COPPER WIRE ONLY. A FOUR-WIRE OR THREE-WIRE, SINGLE PHASE ELECTRICAL SUPPLY REQUIRED. A TIME-DELAY FUSE OR CIRCUIT BREAKER AND SEPARATE CIRCUIT IS RECOMMENDED.



- Induction technology offers incredible speed, precise control, and enhanced energy efficiency
- 9 heat-level settings provide various levels of heat to achieve precise temperatures for optimal cooking results
- Performance boost function increases the temperature level above heat setting 9 to bring liquids to a rapid boil
- 11 in., 6 in., and two 7 in. single induction elements provide the ability to use different sizes of cookware at the same time
- Pan size detection provides feedback on whether pan size is suitable for element
- Keep warm function provides a low temperature at which foods can be kept warm while others finish cooking
- Hot surface indicator light provides a clear indication that a surface is too warm to touch

Division Title: Equipment	Division: 11 31 13
Item: Cooktop Hood	Product Model: Cooktop Hood GZ7930XH
Manufacturer: Whirlpool	
Website: http://www.insideadvantage.com/home.jsp	Link to Full Data Sheet: http://www.insideadvantage.com/catalog/product.jsp?categoryId=8&productId=130



**Whirlpool Gold® 30 in. Pop-Up Downdraft Vent System
GZ7930XH**

DIMENSIONS

Depth 2 1/8 in.
 Height 26 1/8 in.
 Width 30 in.
 Canopy Height 0 in.
 Dimensions shown are for planning purposes only. For complete information, see Installation Instructions packed with product.

ELECTRICAL

15 Ampere, 120 Volts, 60 Hertz (1/second), USE COPPER WIRE ONLY. GROUNDED CIRCUIT IS REQUIRED. A TIME-DELAY FUSE OR CIRCUIT BREAKER AND SEPARATE CIRCUIT IS RECOMMENDED.

KEY FEATURES

Dual Centrifugal Fan Blower
 Exhausts 600 CFM with 3-1/4 in. x 10 in. Rectangular Duct
 Pop-Up Retractable Downdraft Vent System
 This Model Can Only be Used Behind Cooktops
 Variable-Speed Fan with Automatic Off in Down Position
 Brushed Aluminum Intake Cover Standard
 Optional Black, White or Custom Panels Available

SPECIFICATIONS

Division Title:
Equipment

Division:
11 31 13

Item:
Cooktop Hood

Manufacturer:
Whirlpool

Product Model:
Cooktop Hood GZ7930XH

Website:
<http://www.insideadvantage.com/home.jsp>

Link to Full Data Sheet:
<http://www.insideadvantage.com/catalog/product.jsp?categoryId=8&productId=130>



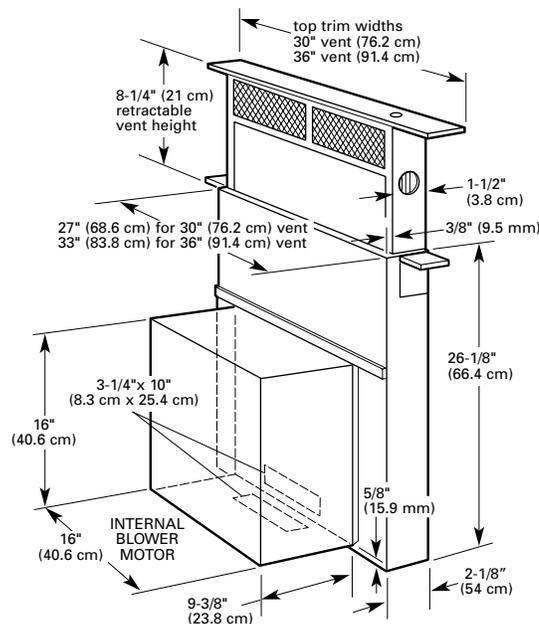
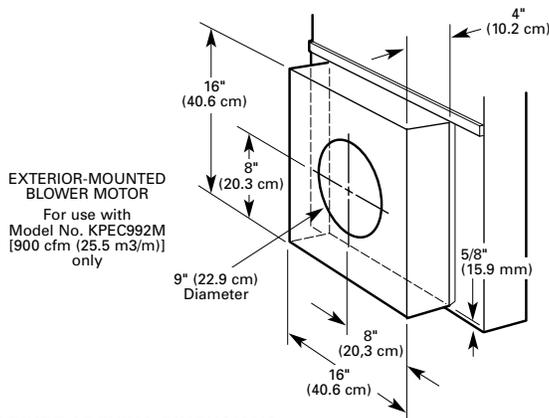
Retractable Downdraft Vent System

PRODUCT MODEL NUMBERS

GZ7930XG GZ7936XG
GZ7930XH GZ7936XH

Electrical: 120-volt, 60-Hz, AC-only, 15 amp electrical supply. Use copper wire only. A time-delay fuse or circuit breaker and separate circuit is recommended.

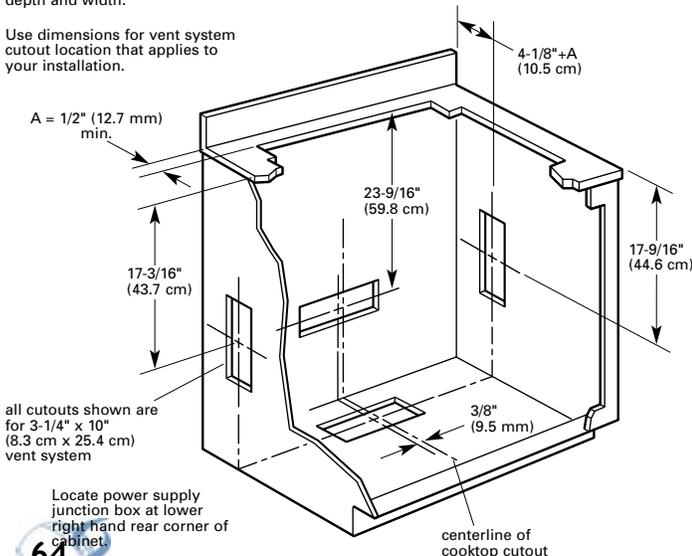
OVERALL DIMENSIONS



CABINET OPENING DIMENSIONS

See cooktop manufacturer's instructions for cooktop cutout depth and width.

Use dimensions for vent system cutout location that applies to your installation.



Maximum length of vent system

Vent	Length
6" (15.2 cm) round	35 feet (8.9 m)
3-1/4" x 10" (8.3 cm x 25.4 cm)	35 feet (8.9 m)

For best performance, use no more than three 90° elbows. If more than one elbow is used, make sure that there is a minimum of 24" (61 cm) of straight vent between any two elbows. Do Not install two elbows together. It is recommended that you use round vent instead of rectangular vent, especially if elbows are required. If rectangular vent is required, it should be transitioned to 6" (15.2 cm) round vent as soon as possible.

Determining the length of system you need:

To calculate the length of system you need, add the equivalent feet for each vent piece that will be needed. See example for 6" (15.2 cm) round vent system.

Item:	Division Title:	Division:
Electric Built-In Oven	Equipment	22 33 00
Website:	Manufacturer:	Product Model:
www.insideadvantage.com	Whirlpool	RBS245PR
	Link to Full Data Sheet:	
	http://www.insideadvantage.com/catalog/product.jsp?categoryId=2&productId=3	

Whirlpool® 24 in. Electric Single Built-In Oven RBS245PR

DIMENSIONS

Depth 23 1/4 in.
 Height 29 in.
 Width 23 3/4 in.
 Dimensions shown are for planning purposes only. For complete information, see Installation Instructions packed with product.

ELECTRICAL

30 OR 40 Ampere, 208/240 Volts, 60 Hertz (1/second), AC-ONLY. A FOUR-WIRE OR THREE-WIRE, SINGLE PHASE ELECTRICAL SUPPLY REQUIRED. A TIME-DELAY FUSE OR CIRCUIT BREAKER AND SEPARATE CIRCUIT IS RECOMMENDED.

KEY FEATURES

- 3.1 Cu. Ft. Capacity
- Self-Cleaning Oven with Auto Latch
- AccuBake® Heat Distribution System
- EZ-Touch™ 300 Electronic Oven, Timer, & Clock Controls
- Control Lockout Function
- Large Oven Window
- 2 Oven Racks with 5 Guides
- 2 Incandescent Oven Lights
- Flush-to-Cabinet Installation
- Approved for Under-the-Counter Installation



Item:
Electric Built-In Oven

Division Title:
Equipment

Division:
22 33 00

Website:
www.insideadvantage.com

Manufacturer:
Whirlpool

Product Model:
RBS245PR

Link to Full Data Sheet:
<http://www.insideadvantage.com/catalog/product.jsp?categoryId=2&productId=3>



24" (61 CM) ELECTRIC SINGLE AND DOUBLE BUILT-IN OVEN

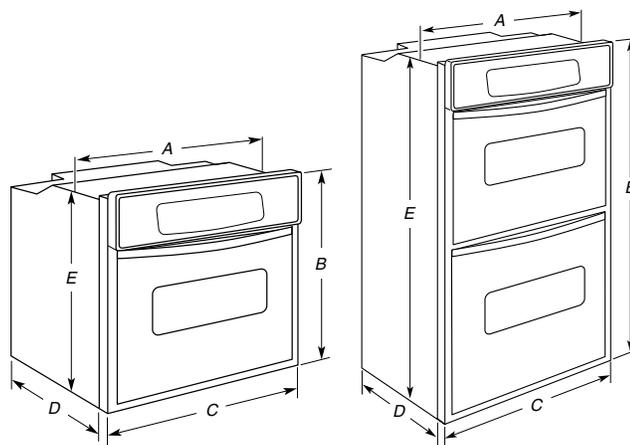
PRODUCT MODEL SERIES

RBD245PR
RBS245PR

Electrical: Oven must be connected to the proper electrical voltage and frequency as specified on the model/serial number rating plate. (The model/serial number rating plate is located on the oven door or on the oven frame.) Models rated from 7.3 to 9.6 kW at 240 volts (5.5 to 7.2 kW at 208 volts) require a separate 40-amp circuit. Models rated at 7.2 kW and below at 240 volts (5.4 kW and below at 208 volts) require a separate 30-amp circuit.

A time-delay fuse or circuit breaker is recommended. Connect directly to the fused disconnect (or circuit breaker box) through flexible, armored or nonmetallic sheathed, copper cable (with grounding wire).

OVERALL DIMENSIONS

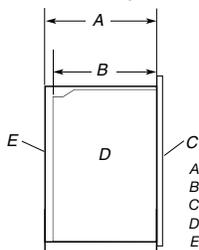


A. 22⁵/₈" (56.8 cm) max. recessed width
B. 29" (73.7 cm) max. overall height
C. 23³/₄" (60.3 cm) overall width
D. 23" (58.4 cm) max. recessed depth
E. 27¹/₂" (69.9 cm) recessed height

A. 22⁵/₈" (56.8 cm) max. recessed width
B. 51" (129.5 cm) max. overall height
C. 23³/₄" (60.3 cm) overall width
D. 23" (58.4 cm) max. recessed depth
E. 49¹/₂" (125.7 cm) recessed height

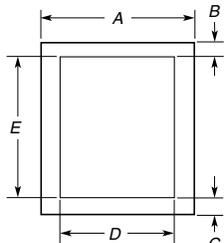
CABINET OPENING DIMENSIONS

Cabinet Side View - Double or Single Oven



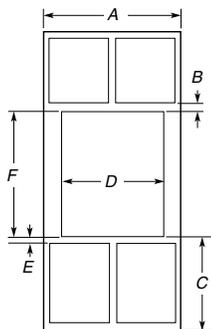
A. 23¹/₄" (59.1 cm) min. cutout depth
B. 23" (58.4 cm) recessed oven depth
C. Oven front
D. Recessed oven
E. Cabinet

Single Oven Undercounter (without cooktop installed above)



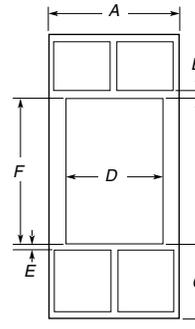
A. 24" (61 cm) min. cabinet width
B. 1¹/₂" (3.8 cm) min. top of cutout to underside of countertop
C. 5¹/₄" (13.3 cm) bottom of cutout to floor
D. 22¹/₂" (57.2 cm) cutout width
E. 27³/₄" (70.5 cm) min. cutout height

Single Oven Installed in Cabinet



A. 24" (61 cm) min. cabinet width
B. 1" (2.5 cm) top of cutout to bottom of upper cabinet door
C. 32" (81.3 cm) bottom of cutout to floor
D. 22¹/₂" (57.2 cm) cutout width
E. 1¹/₂" (3.8 cm) min. bottom of cutout to top of cabinet door
F. 27³/₄" (70.5 cm) min. cutout height

Double Oven Installed in Cabinet



A. 24" (61 cm) min. cabinet width
B. 1" (2.5 cm) top of cutout to bottom of upper cabinet door
C. 14³/₄" (37.5 cm) bottom of cutout to floor
D. 22¹/₂" (57.2 cm) cutout width
E. 1¹/₂" (3.8 cm) min. bottom of cutout to top of cabinet door
F. 49³/₄" (126.4 cm) min. cutout height

Division Title: **Equipment** Division: **11 31 13**

Item: **Garbage Disposal** Manufacturer: **Whirlpool** Product Model: **GC1000PE**

Website: www.whirlpool.com Link to Full Data Sheet: <http://www.insideadvantage.com/catalog/product.jsp?categoryId=45&productId=441#specifications>



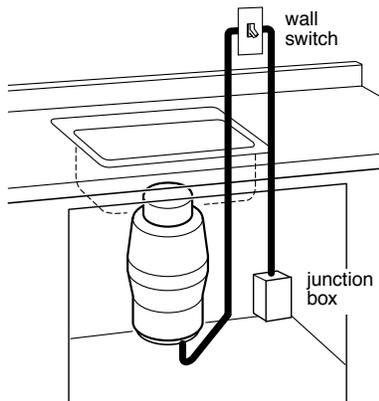
Whirlpool® Food-Waste Disposer

PRODUCT MODEL NUMBER

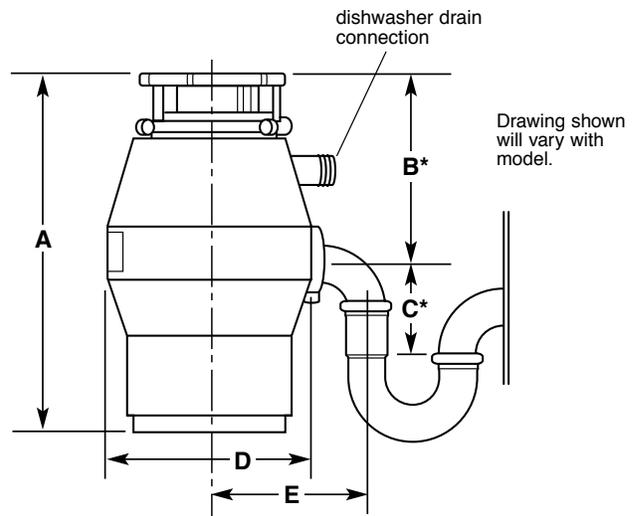
GC1000PE GC3000XE
GC1000XE GC5000XE
GC2000PE
GC2000XE

Electrical: A 120-volt, 60-Hz, AC-only 15- or 20-amp fused, grounded electrical supply is required. It is recommended that a separate circuit serving only your food-waste disposer be provided. Time-delay fuse of circuit breaker is recommended.

For continuous feed models, install a 15- or 20-amp wall switch above the countertop and junction box inside cabinet as shown. (Switch and electrical wiring can be obtained locally.) Position switch in a convenient location. Connect switch to junction box.



OVERALL DIMENSIONS



Model No.	A	B*	C*	D	E
GC1000PE	11-3/8"	5-15/16"	4"	6-5/16"	5"
GC1000XE	11-3/8"	5-15/16"	4"	6-5/16"	5"
GC2000PE	11-3/8"	5-15/16"	4"	6-5/16"	5"
GC2000XE	11-3/8"	5-15/16"	4"	6-5/16"	5"
GC3000XE	12-5/8"	5-15/16"	4"	6-5/16"	5"
GC5000XE	12-7/8"	6-11/16"	4"	7-3/4"	5-3/4"

B* – Distance from bottom of sink to center line of disposer outlet. Add 1/2 inch when stainless steel sink is used.

C* – Length of waste line pipe from center line of disposer outlet to end of waste line pipe.

IMPORTANT: Plumb waste line to prevent standing water in disposer motor housing.

Division Title:
Equipment

Division:
11 31 13

Item:
Sink Stopper with strainer

Manufacturer:
IKEA

Product Model:
ATLANT

Website:

[Link to Full Data Sheet:](#)

PRODUCT DESCRIPTION & MEASUREMENTS

Seals: Synthetic rubber
Strainer/ Strainer basket: Stainless steel
Tubes: Polypropylene plastic
Diameter: 8 cm



Item:	Division Title:	Division:
Refrigerator 18-20 cf	Equipment	11 31 13
Website:	Manufacturer:	Product Model:
www.insideadvantage.com	Whirlpool	GB9SHDXP
	Link to Full Data Sheet:	
	d	

Whirlpool Gold® 18.6 cu. ft. Bottom Mount Refrigerator GB9SHDXP

DIMENSIONS

Depth 32 1/2 in.
 Height 66 7/8 in.
 Width 29 5/8 in.
 Height Including Hinge Cap: 66 7/8 in.
 Depth with Door: Open 90 Degrees: 59 1/2 in.
 Depth Including Handles: 32 1/2 in.
 Dimensions shown are for planning purposes only. For complete information, see Installation Instructions packed with product.

ELECTRICAL

15 Ampere, 115 Volts, 60 Hertz (1/second), GROUNDED CIRCUIT IS REQUIRED. A SEPARATE CIRCUIT IS RECOMMENDED.

KEY FEATURES

- ENERGY STAR® Qualified
- Flat Textured Door Styling
- Reversible Door Swing
- 12.9 Cu. Ft. Refrigerator Compartment Volume
- 5.7 Cu. Ft. Freezer Compartment Volume
- 18.6 Cu. Ft. Capacity
- Easy-to-Read Electronic Controls
- Accu-Chill™ Temperature Management System
- Slide-Out SpillGuard™ Glass Shelves
- Clear Humidity-Controlled Crispers
- Clear Meat Pan
- Clear Dairy Compartment
- Egg Bin
- Wine Rack
- EZ-Tote® Adjustable Door Bins
- Pull-Out Freezer Drawer
- Slide-Out Freezer Baskets
- Freezer Light
- Optional Ice Maker



Division Title:
Equipment

Division:
11 31 13

Item:
Refrigerator 18-20 cf

Manufacturer:
Kenmore

Product Model:
GB9SHDXP

Website:
www.insideadvantage.com

Link to Full Data Sheet:
<http://www.whirlpool.com/catalog/product.jsp?parentCategoryId=74&categoryId=96&subCategoryId=99&productId=543&view=1#tabs>



Bottom Mount Refrigerator

PRODUCT MODEL NUMBERS

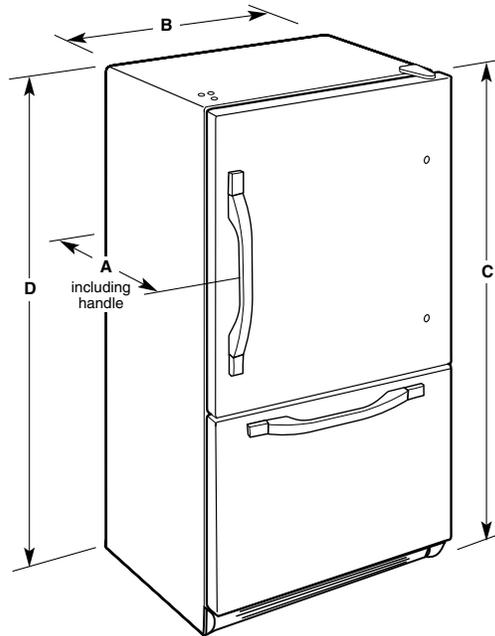
GB2SHDXP
GB9SHDXP

Electrical: A 115 Volt, 60 Hz., AC only 15 or 20 ampere fused, grounded electrical supply is required. It is recommended that a separate circuit serving only your refrigerator be provided. Use an outlet that cannot be turned off by a switch. Do not use an extension cord.

Water: A cold water line with water pressure between 30 and 120 psi (241-689 kPa) is required for the ice maker.

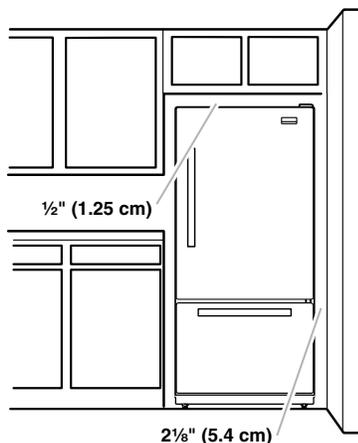
If a reverse osmosis water filtration system is connected to your cold water supply, the water pressure to the system needs to be a minimum of approximately 60 psi (414 kPa).

OVERALL DIMENSIONS



Model	Depth "A"	Width "B"	Height "C"	Cabinet Height "D"
GB9SHDXP	32 1/2"	29 5/8"	66 7/8"	65 5/8"
GB2SHDXP	32 1/2"	32 5/8"	69 7/8"	68 5/8"

LOCATION REQUIREMENTS



To ensure proper ventilation for your refrigerator, allow for 1/2" (1.25 cm) space at the top and behind the refrigerator for ease of installation.

When installing your refrigerator next to a fixed wall, leave 2-1/8" (5.4 cm) minimum on each side (depending on your model) to allow for the door to swing open.

If your refrigerator has an ice maker, allow extra space at the back for the water line connections.

NOTE: Do not install the refrigerator near an oven, radiator, or other heat source, nor in a location where the temperature will fall below 55°F (13°C).

Division Title:
Equipment

Division:
11 31 13

Item:
Microwave Oven

Manufacturer:
Whirlpool

Product Model:
GT4175SP

Website:
www.insideadvantage.com

Link to Full Data Sheet:
<http://www.insideadvantage.com/assets/product/ZDIMENSION/8205088-D-WH.pdf>

Whirlpool Gold® 1.7 cu. ft. Countertop Microwave Oven GT4175SP



DIMENSIONS

Depth 17 5/16 in.

Height 13 17/32 in.

Width 22 19/32 in.

Dimensions shown are for planning purposes only. For complete information, see Installation Instructions packed with product.

ELECTRICAL

15 OR 20 Ampere, 120 Volts, 60 Hertz (1/second), AC-ONLY. FUSED ELECTRICAL SUPPLY IS REQUIRED. GROUNDED CIRCUIT IS REQUIRED. A TIME-DELAY FUSE OR CIRCUIT BREAKER AND SEPARATE CIRCUIT IS RECOMMENDED.

KEY FEATURES

- 1.7 Cu. Ft. Capacity
- 1,200 Watts Cooking Power
- 10-Level Variable Cooking Power Control
- Maxwave™ Cooking System
- Sensor Cooking Cycles
- Sensor Reheat, Defrost Cycles
- Staged Cooking
- Warm Hold Cycle
- Jet Start™ Control - 30 Seconds
- Turntable
- Electronic Child Lockout Feature
- Optional Trim Kit Available

Item: Microwave Oven	Division Title: Equipment	Division: 11 31 13
Website: www.insideadvantage.com	Manufacturer: Whirlpool	Product Model: GT4175SP
	Link to Full Data Sheet: http://www.insideadvantage.com/assets/product/ZDIMENSION/8205088-D-WH.pdf	



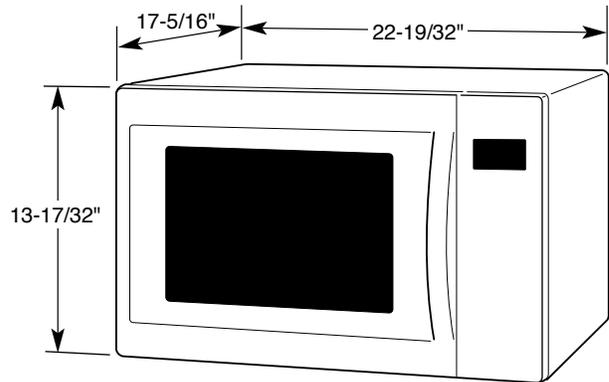
Whirlpool Countertop Microwave Ovens

PRODUCT MODEL NUMBERS

GT4175SP

Electrical: A 120-volt, 60-Hz, AC-only, 15- or 20-amp fused electrical supply is required. (A time-delay fuse is recommended.) It is recommended that a separate circuit serving only this appliance be provided.

OVERALL DIMENSIONS



The microwave oven should be at a temperature above 50°F (10°C) for proper operation.

This microwave oven can be built-in over approved electric single ovens only using approved trim kits. See dealer for details.

Do not block the exhaust vents or air intake openings. Allow a few inches of space at the back and side of the oven where the exhaust vents are located. Blocking the exhaust vents could cause damage to the oven and poor cooking results.

Item:	Division Title:	Division:
Dishwasher	Equipment	11 31 13
Website:	Manufacturer:	Product Model:
www.insideadvantage.com	KitchenAid	KUDD01SSSS
	Link to Full Data Sheet:	
	http://www.insideadvantage.com/assets/product/ZDIMENSION/8573714-D-KA.pdf	

**KitchenAid® Single Drawer Dishwasher
KUDD01SSSS Stainless Steel
Model: KUDD01SSSS**



DIMENSIONS

Height 16 3/32 in.
Width 23 7/16 in.
Depth 22 7/16 in.
Dimensions shown are for planning purposes only. For complete information, see Installation Instructions packed with product.

ELECTRICAL

15 OR 20 Ampere, 120 Volts, 60 Hertz (1/second), AC-ONLY. USE COPPER WIRE ONLY. GROUNDED CIRCUIT IS REQUIRED. A TIME-DELAY FUSE OR CIRCUIT BREAKER AND SEPARATE CIRCUIT IS RECOMMENDED.

KEY FEATURES

ENERGY STAR® Qualified - Requires 33% Less Energy
5 Cycles
3 Options
Sensored Rinse Aid Dispenser

VERSATILITY

5 Place Setting Capacity
Fits 11-inch Plates
Removable Nylon-Coated Racks with Cushion-Tip™ Tines
Sure-Hold® Removable Rack Inserts
Sure-Hold® Light Item Clips
Fold-Down Nylon-Coated Cup Shelves and Stemware Holders
Flexi-Basket™ Silverware Basket
Start/Pause Button
Control Lockout Function

Item:	Division Title:	Division:
Dishwasher	Equipment	11 31 13
Website:	Manufacturer:	Product Model:
www.insideadvantage.com	KitchenAid	KUDD01SSSS
	Link to Full Data Sheet:	
	http://www.insideadvantage.com/assets/product/ZDIMENSION/8573714-D-KA.pdf	

KitchenAid® Single Drawer Dishwasher

HOME APPLIANCES

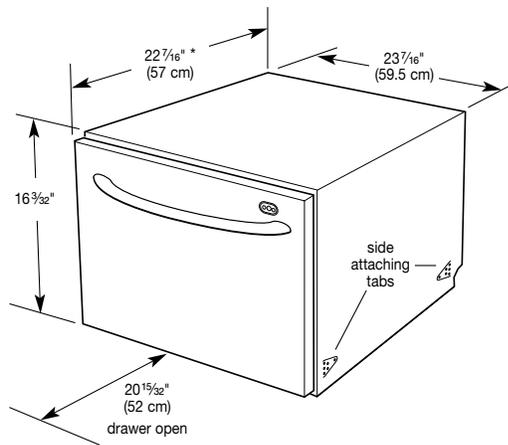
PRODUCT MODEL SERIES

KUDD01SS

Electrical: 120-volt, 60 Hz, AC-only, 15 or 20 amp fused electrical supply is required. A time-delay fuse or circuit breaker and separate circuit is recommended.

Water: A hot water line with 4.3-145 psi (30-1000 kPa) water pressure. Water temperature must be minimum 120°F (49°C) at dishwasher. An easily accessible valve with 3/8" compression fitting must be installed in the hot water supply line.

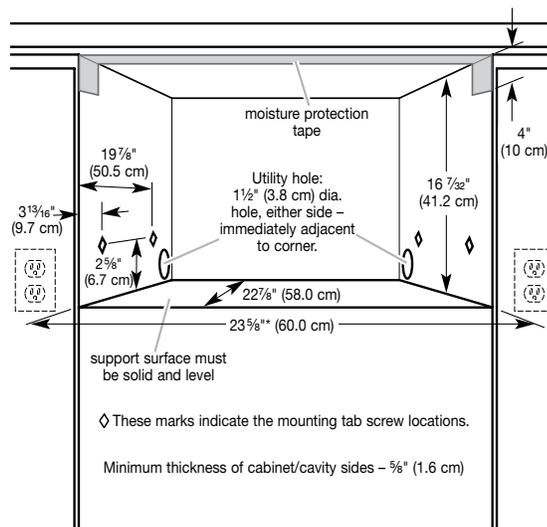
OVERALL DIMENSIONS



* If custom wood panels are to be used, the product depth is specified with an 1 1/16" (18 mm) door panel thickness.

NOTE: Product shown with front panels for dimension purposes.

CABINET DIMENSIONS



Install the dishwasher in a cabinet cutout that is level, will hold weight up to 104lbs. (47kg), and is in an area suitable for its size and use.

Capacity

Dimensions
Depth: 28 21/32 in.
Width: 27 in.
Maximum Height: 36 in.

Division Title: **Equipment** Division: **11 31 23**

Item: **Washer** Manufacturer: **Whirlpool** Product Model: **WFW8500SR**

Website: <http://www.whirlpool.com> Link to Full Data Sheet: <http://www.whirlpool.com/assets/pdfs/product/ZDIMENSION/8540321-D-WH.pdf>

**Whirlpool® Duet Sport Washer
WFW8500SR
White w/ Sterling Bright Accents**

DIMENSIONS

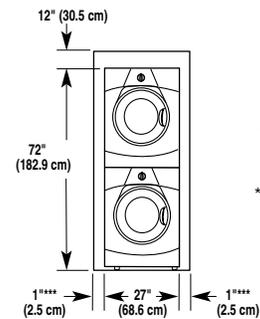
Dimensions
Depth: 30 in.
Width: 27 in.
Maximum Height: 36 in.

ELECTRICAL REQUIREMENTS

15 OR 20 Ampere, 120 Volts, 60 Hertz (1/second).
GROUNDED CIRCUIT IS REQUIRED. A TIME-DELAY
FUSE OR CIRCUIT BREAKER AND SEPARATE CIRCUIT IS
RECOMMENDED.

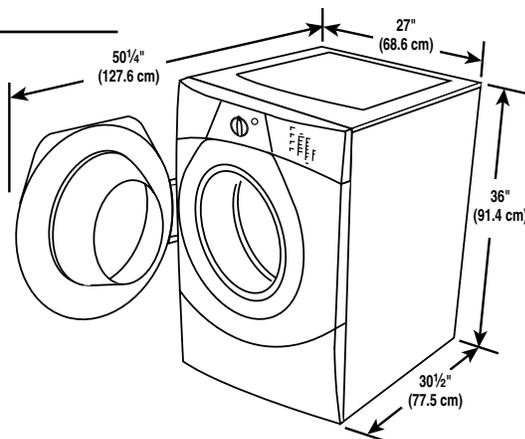
KEY FEATURES

- ENERGY STAR® Qualified
- Ultra Capacity
- Ultra Efficient Design
- Quiet Wash
- Built In Water Heater
- 10 Factory Pre-Set Cycles and Options
- Automatic Water Level Control
- Stackable Installation with Matching Dryer



*Min. top and bottom air openings for closet door.
**External exhaust elbow requires additional space.
***Wall, door and floor molding may require additional spacing.

OVERALL DIMENSIONS



Item: **Dryer** Division Title: **Equipment** Division: **11 31 13**

Manufacturer: **Whirlpool** Product Model: **WED8500SR**

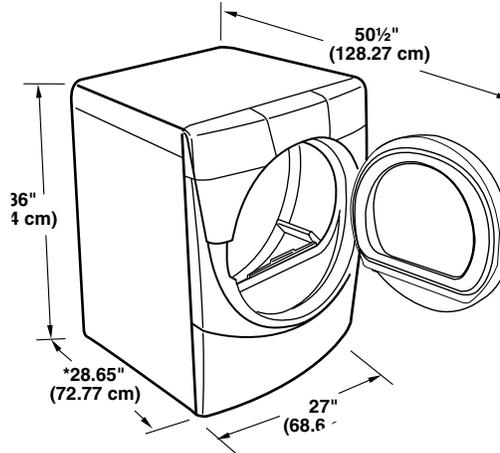
Website: www.whirlpool.com Link to Full Data Sheet: <http://www.whirlpool.com/assets/pdfs/product/ZDIMENSION/8578899-D-WH.pdf>

Capacity

6.7 CF

Dimensions

Depth: 28 21/32 in.
Width: 27 in.
Maximum Height: 36 in.



Electrical Requirements

30 Ampere, 120/240 Volts, 60 Hertz (1/ second). AC-ONLY. USE COPPER WIRE ONLY. A FOUR-WIRE OR THREE-WIRE, SINGLE PHASE ELECTRICAL SUPPLY REQUIRED. A TIME-DELAY FUSE OR CIRCUIT BREAKER AND SEPARATE CIRCUIT IS RECOMMENDED.

Construction

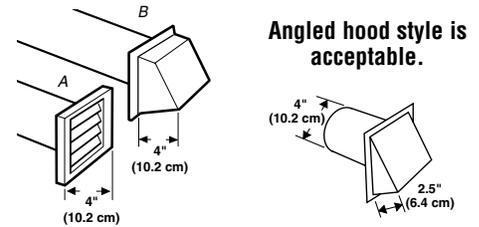
- Front Access
- Reversible Side-Swing Door Style
- Powder Coat Drum Material
- Front Mount Lint Screen
- Power Cord & Venting Accessories
- Stackable

Performance

- Auto Dry Control
- Cool Down Cycle
- 9 Cycles
- Damp Dry
- Delicate Cycle
- Drum Light
- Electronic Sensor Drying
- End-of-Cycle Signal
- Extended Tumbling Cycle
- Interior Light
- 1/3 HP Motor
- Electric Power
- Quiet Dry Sound Package
- AccelerCare™ Temperature Control
- 5 Temperature Settings

EXHAUST VENTING

Recommended hood styles



A. Louvered hood style
B. Box hood style

Number of 90° turns or elbows	Type of vent	Box or Louvered hoods	Angled hoods
0	Rigid metal	64 ft (20 m)	58 ft (17.7 m)
	Flexible metal	36 ft (11 m)	28 ft (8.5 m)
1	Rigid metal	54 ft (16.5 m)	48 ft (14.6 m)
	Flexible metal	31 ft (9.4 m)	23 ft (7 m)
2	Rigid metal	44 ft (13.4 m)	38 ft (11.6 m)
	Flexible metal	27 ft (8.2 m)	19 ft (5.8 m)
3	Rigid metal	35 ft (10.7 m)	29 ft (8.8 m)
	Flexible metal	25 ft (7.6 m)	17 ft (5.2 m)
4	Rigid metal	27 ft (8.2 m)	21 ft (6.4 m)
	Flexible metal	23 ft (7 m)	15 ft (4.6 m)

NOTE: Side and bottom exhaust installations have a 90° turn inside the dryer. To determine maximum exhaust length, add one 90° turn to the chart.

Because Whirlpool Corporation policy includes a continuous commitment to our products, we reserve the right to change materials and specifications.

Division Title: **Residential Plumbing Fixtures** Division: **22 33 00**

Item: **Potable and Waste Water Tanks** Manufacturer: **US Plastics Corporation** Product Model: **Cylindrical Polypropylene Tank**

Website:
<http://www.usplastic.com/catalog/variant.asp?catalog%5Fname=USPlastic&category%5Fname=30&product%5Fid=11791&variant%5Fid=9622>

Link to Full Data Sheet:
<http://www.usplastic.com/catalog/variant.asp?catalog%5Fname=USPlastic&category%5Fname=30&product%5Fid=11791&variant%5Fid=9622>



200 Gallon, 36x51 Cylindrical Polypropylene Tank With Cover

Cylindrical, square and rectangular tanks available. Smooth easy to clean finish, service temperature to 220 degree F. Applications include metal cleaning, pickling, plating, high purity water storage and silicon wafer processing. Not for fuels or oils. Excellent stress crack resistance. Tanks are graduated and covers are included. Meets FDA standards.

Product Description

200 Gallon, 36x51 Cylindrical Polypropylene Tank With Cover
Qty 2: 5% off; Qty 4: 10% off; Qty 12: 15% off;

Product Information

Item No.: 9622
Sold By: Each
In Stock: Drop Ship
Catalog Page Number: P-52
Manufacturer: Saint-Gobain
Square/Rectangular Tank Image

Division Title: **Residential Plumbing Fixtures** Division: **22 33 13**

Item: **Instantaneous Electric DW Heater** Manufacturer: **SEISCO** Product Model: **SH-5**

Website:
<http://www.seisco.com>

Link to Full Data Sheet:
<http://www.plumbingworld.com/waterheatersbyseisco.html>

Division Title: **Residential Plumbing Fixtures** Division: **22 33 13**

Item: **Instantaneous Electric DW Heater** Manufacturer: **SEISCO** Product Model: **SH-5**

Website: <http://www.seisco.com> Link to Full Data Sheet: <http://www.plumbingworld.com/waterheatersbyseisco.html>

Division Title: **Residential Plumbing Fixtures** Division: **22 33 00**

Item: **Solar Domestic Hot Water Tank** Manufacturer: **Viessmann** Product Model: **Vitocell-H 300**

Website: www.viessmann-us.com/web/canada/ca_publish.nsf/Content/Speicher_ca_english Link to Full Data Sheet: [http://www.viessmann-us.com/web/canada/ca_publish.nsf/AttachmentsByTitle/ppr-vitocell.pdf/\\$FILE/5167-511-Vitocell-Brochure.pdf](http://www.viessmann-us.com/web/canada/ca_publish.nsf/AttachmentsByTitle/ppr-vitocell.pdf/$FILE/5167-511-Vitocell-Brochure.pdf)



VITOCCELL-H 300

Model No.		EHA-160	EHA-200	EHA-350	EHA-450	
Storage capacity	USG	42	53	92	120	
	ltr	160	200	350	450	
Total dimensions	Depth	inches	42 ¹ / ₈	48 ³ / ₈	62 ¹ / ₈	65
		mm	1072	1236	1590	1654
	Width	inches	25 ¹ / ₈	25 ¹ / ₈	32 ³ / ₈	35 ³ / ₈
		mm	640	640	830	910
	Height	inches	25 ³ / ₈	25 ³ / ₈	31	35
		mm	654	654	786	886
Total weight	lbs	168	185	379	421	
	kg	76	84	172	191	

North American and Canadian Head Office
Viessmann Manufacturing Company Inc.
Waterloo, ON Canada
Tel. (519) 885-6300
Fax (519) 885-0887
www.viessmann.ca

U.S. Head Office
Viessmann Manufacturing Company (U.S.) Inc.
Warwick, RI U.S.A.
Tel. (401) 732-0667
Fax (401) 732-0590
www.viessmann-us.com

Viessmann Sales Center
Langley, BC Canada (604) 533-9445

Viessmann Sales Offices
Waterloo, ON Canada (519) 574-7937
Toronto, ON Canada (416) 657-4333
Stoney Creek, ON Canada (905) 664-4426
Plainfield, IN U.S.A. (317) 839-8212
Reno, NV U.S.A. (775) 849-0725

- **No worries**
Lifetime warranty for all residential Vitocell 300 DHW tanks.
- **Convenience**
Fast recovery rates ensure abundant supply of domestic hot water at all times.
- **Comfort**
Tank coil extends to tank bottom guaranteeing consistently even water temperatures.
- **High level of operational reliability and a long service life** due to highalloy stainless steel construction.
- **Extremely efficient indirect hot water production via boiler.**
Save up to 50% of your operating cost compared to most conventional direct-fired hot water production.
- Highly effective insulation keeps standby losses and operating cost at a minimum.
- **Space-saving options**
Mount a boiler or additional tanks onto the horizontal Vitocell-H 300 version.

- Zero clearance to combustibles for all Vitocell 300 tanks.**
- Scale- and corrosion-resistant, ideal for areas with poor water quality. Completely hygienic!
 - High-volume hot water
Several Vitocell 300 tanks can be combined into tank batteries.

Division Title: **Residential Plumbing Fixtures** Division: **22 35 00**

 Item: **Solar Collector** Manufacturer: **Apricus** Product Model: **AP-30**

 Website: www.apricus.com Link to Full Data Sheet: www.apricus.com

Overall Dimensions

Model	AP-10	AP-22	AP-30
Number of tubes	10	22	30
Overall Length (inches)	77.9	77.9	77.9
Overall Width (inches)*	31.3	64.4	86.4
Overall Height (inches)*	6.1 (including flush roof mounting frame)		
Absorber Area (ft ²)	8.6	18.9	25.8
Gross Area (ft ²)	16.95	34.8	46.8
Fluid Capacity (ounces)	9.8	18.6	28.2
Dry Weight (pounds)	77	157	209

* Width does not include the inlet and outlet which protrude from either end of the manifold.

General Specifications for all Models	
Manifold Casing Material	Powder Coated Aluminium (grade 3A21)
Frame Material	304 Stainless Steel
Header Pipe Material	Copper (45% silver brazing rod)
Insulation	Compressed Glass Wool
Rubber Seals and Rings	UV stabilized high temperature silicone rubber
Optimal installation angle	20-70 degrees vertical, -5 to +5 degrees horizontal
Maximum Operating Pressure	116 psi
Optimal flow rate (gph)	.026 gal/min/tube

Glass Evacuated Tubes (Absorber)

Tube Length (inches)	72
Outer tube diameter (inches)	2.3
Inner tube diameter (inches)	1.9
Glass thickness (inches)	.06 or 1/16
Weight (ounces)	70.5
Evacuated Tubes Glass	Borosilicate Glass
Evacuated Tube Coating	Graded-index coating Al N on Al on glass
Absorptance	>92%
Emittance	<8%
Stagnation Temperature	>392°F

Item: Solar Collector	Division Title: Residential Plumbing Fixtures	Division: 22 35 00
Manufacturer: Apricus	Product Model: AP-30	
Website: www.apricus.com	Link to Full Data Sheet: www.apricus.com	

Header Pipe / Manifold (Water Flow)

Header Material	99.7% pure copper
Brazing Rod Material	45% Silver, 30% copper, 25% Zinc
Standard Inlet/Outlet	.22mm outside diameter (compression fitting only)
Temperature Sensor Port Inside Diameter	5/16 inches
Recommended Flow Rate	1.8 gallons/tube/hour
Max Flow Rate	158 gallons/hour
Maximum Allowable Temperature	482°F
Maximum Pressure Rating	85 psi

Manifold Casing

<i>Model</i>	<i>AP-10</i>	<i>AP-22</i>	<i>AP-30</i>
Length (inches)*	31.2	64.3	86.3
Height (lid on)	5.1	5.1	5.1
Width	5.5	5.5	5.5
Tube Spacing	2.76	2.76	2.76

* Add ¼ inch for lid overhang.

Insulation

Material	Compressed Fiberglass*
Max Working Temp	572°F

Item: Solar Collector	Division Title: Residential Plumbing Fixtures	Division: 22 35 00
Website: www.apricus.com	Manufacturer: Apricus	Product Model: AP-30
Link to Full Data Sheet: www.apricus.com		

<p>SOLAR COLLECTOR CERTIFICATION AND RATING</p>  <p>SRCC OG-100</p>	<p>CERTIFIED SOLAR COLLECTOR</p> <p>SUPPLIER: Focus Technology Co, Ltd 13th Floor Unicom Mansion 32 Zhong Yang Road Nanjing, Jiangsu 210008</p> <p>MODEL: Apricus AP-30 COLLECTOR TYPE: Tubular CERTIFICATION #: 100-2004-003B</p>
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COLLECTOR THERMAL PERFORMANCE RATING							
Megajoules Per Panel Per Day				Thousands of Btu Per Panel Per Day			
CATEGORY (Ti-Ta)	CLEAR DAY 23 MJ/m ² -d	MILDLY CLOUDY 17 MJ/m ² -d	CLOUDY DAY 11 MJ/m ² -d	CATEGORY (Ti-Ta)	CLEAR DAY 2000 Btu/ft ² -d	MILDLY CLOUDY 1500 Btu/ft ² -d	CLOUDY DAY 1000 Btu/ft ² -d
A (-5°C)	41	31	21	A (-9°F)	39	29	20
B (5°C)	39	29	19	B (9°F)	37	28	18
C (20°C)	37	27	17	C (36°F)	35	25	16
D (50°C)	32	22	12	D (90°F)	30	21	12
E (80°C)	27	17	8	E (144°F)	26	16	7

A-Pool Heating (Warm Climate) B-Pool Heating (Cool Climate) C-Water Heating (Warm Climate) D-Water Heating (Cool Climate) E-Air Conditioning

Original Certification Date: March 11, 2004

COLLECTOR SPECIFICATIONS

Gross Area:	4.053 m ²	43.63 ft ²	Net Aperture Area:	3.795 m ²	40.85 ft ²
Dry Weight:	82.5 kg	182 lb	Fluid Capacity:	0.7 l	0.2 gal
Test Pressure:	1103 kPa	160 psig	Max. Oper. Temp.:	100 °C	212 °F

COLLECTOR MATERIALS

Frame:	Stainless Steel
Cover (Outer):	Glass Vacuum Tube
Cover (Inner):	None
Absorber Material:	Tube - Copper & steel / Plate - Glass
Absorber Coating:	Sputtered aluminum nitride
Insulation (Side):	Vacuum
Insulation (Back):	Vacuum

PRESSURE DROP

Flow		Δ P	
ml/s	gpm	Pa	in H ₂ O

TECHNICAL INFORMATION

Efficiency Equation [NOTE: (P) = Ti-Ta]		Y Intercept	Slope
SI Units: $\eta = 0.416 - 0.9646 (P)/I - 0.0023 (P)^2/I$		0.418	-1.17 W/m ² -°C
IP Units: $\eta = 0.416 - 0.1700 (P)/I - 0.0002 (P)^2/I$		0.418	-0.206 Btu/hr-ft ² -°F

Incident Angle Modifier [(S) = 1/cos θ - 1, 0° ≤ θ ≤ 60°]	
K _{inc} = 1.0 +1.1718 (S) -0.8470 (S) ²	
K _{inc} = 1.0 +0.29 (S) (Linear Fit)	

Model Tested:	AP-20
Test Fluid:	Water
Test Flow Rate:	55 ml/s 0.86 gpm

REMARKS: Collector tested with long axis of tubes oriented north-south. IAM perpendicular to the tubes is listed above. IAM parallel to the tubes = 1.0 - 0.13/(S). Absorber is a heat wire.

Item: Heat Dissipator	Division Title: Residential Plumbing Fixtures	Division: 22 35 00
Website: http://www.apricus.com	Manufacturer: Apricus	Product Model: Apricus HD-25
	Link to Full Data Sheet: www.apricus.com	

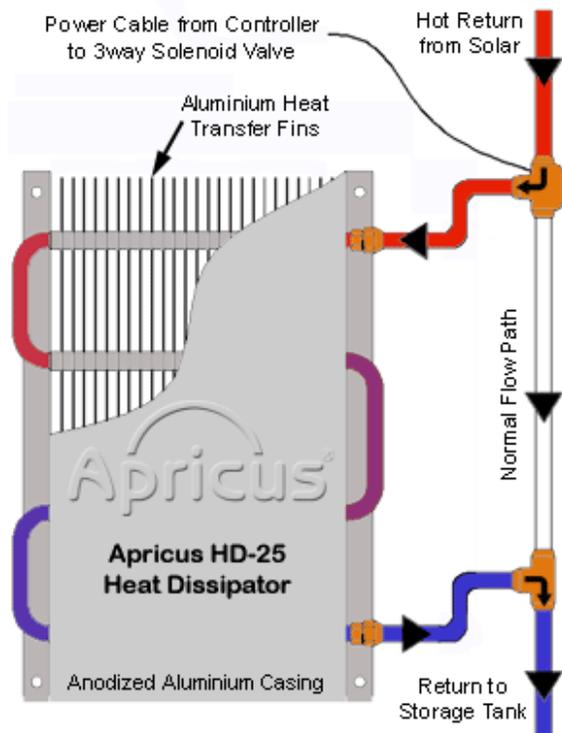
The Apricus heat dissipator (HD) is specifically designed for use with [Apricus solar collector](#) installations that are sized for optimal winter, spring and autumn output. The HD can dissipate the excessive heat produced during summer periods, or periods of non-use. This protects systems from overheating and/or excessive hot water dumping.

Key Features

1. >1.3kW heat dissipation capacity*
2. Suitable for fresh water or glycol/water systems.
3. Anodized aluminium fins and outer casing for excellent corrosion resistance
4. Silver brazed copper piping with 1/2" BSP inlet and outlet.
5. Easy mounting on exterior wall or in roof space.
6. Able to be connected in series for greater heat dissipation capacity.
7. Minimal pressure drop.
8. May be used as a simple hydronic space heating panel.
9. Neat, attractive design.

* Based on 80°C / 176°F water temp, 40°C / 104°F ambient, no forced air flow.

Installation Overview



The HD is installed on the return line from the solar collector(s). When the temperature in the storage tank exceeds the pre-set limit (-80°C / 176°F), the controller switches a solenoid which directs the solar return flow through the HD before returning it back into the standard flow line. Alternatively a thermostatic mixing valve/tempering valve set to a suitable temperature can be used, providing mechanic, automatic regulation of flow through the heat dissipator.

As the hot water passes through the HD, heat is dissipated via the aluminium fins to surrounding air, the vertical fin arrangement promoting a passive air current.

One HD-25 unit can dissipate 100% of the heat produced by an [AP-30](#) collector in full sun, during very high ambient temperatures.

The copper pipe to and from the collector should be heavily insulated, as should the lengths of pipe to and from the HD. The solenoid valve prevents flow of collector return water through the HD during normal temperature operation, thus preventing unnecessary heat loss.

Division Title: **Residential Plumbing Fixtures** Division: **22 35 00**

Item: **Circulation Pump**

Manufacturer: **Grundfos**

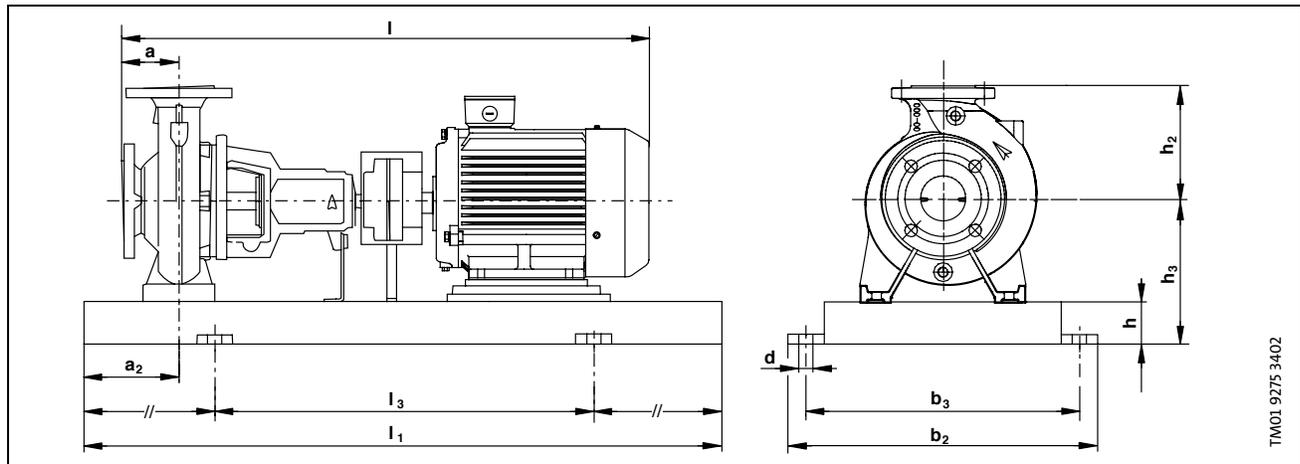
Product Model: **32-160.1**

Website: www.grundfos.com

Link to Full Data Sheet:
[http://www.grundfos.com/web/homefi.nsf/ad40134eb90502a6c1256ac400234192/7c35a1d7ff384d14c1256fea00384c2e/\\$FILE/NK.pdf](http://www.grundfos.com/web/homefi.nsf/ad40134eb90502a6c1256ac400234192/7c35a1d7ff384d14c1256fea00384c2e/$FILE/NK.pdf)

Technical data

NK 32-160.1, 2-pole
Standard pumps



Dimensions and weights

Pump type	Motor [kW]	2900 min ⁻¹ (2-pole motors)																				
		Common			With standard coupling							With spacer coupling										
		[mm]			[mm]							[mm]							Standard range	Premium range		
a	a ₂	h ₂	l ⁽¹⁾	h	h ₃	l ₁	l ₃	b ₂	b ₃	d	Standard range Net weight [kg]	Premium range Net weight [kg]	l ⁽¹⁾	h	h ₃	l ₁	l ₃	b ₂	b ₃	d	Standard range Net weight [kg]	Premium range Net weight [kg]
32-160.1	1.1	80	60	160	715/765	65	197	800	540	360	320	75	78	817/867	65	197	800	540	360	320	77	80
	1.5				775/775			81	84	877/877	83	86										
	2.2				1775/815			89	93	877/917	91	95										
	3.0				839/876			93	102	941/978	95	104										
	4.0				876/876			102	108	978/978	104	110										
	5.5				915/915			80	212	1000	660	450	400	24			119	122	1017/1017	80	212	1000

⁽¹⁾ In the column some models are stated with two l dimensions.
 The first figure applies to the standard motor range and the second figure to the premium motor range.

Division Title:

Residential Plumbing Fixtures

Division:
22 35 00

Item:
Water Pressurizer Booster

Manufacturer:
Flexcon Industries

Product Model:
Flexcon PBS-8

Website:
<http://www.flexconind.com/html/pbs.html>

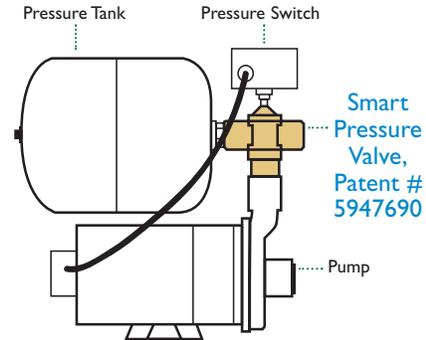
Link to Full Data Sheet:
www.flexconind.com/pdf/pbs_specs.pdf

PBS-8 & PBS-18

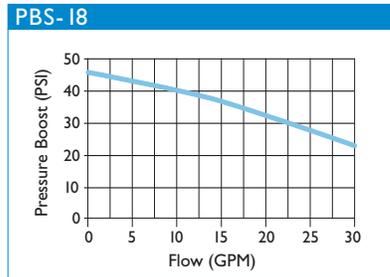
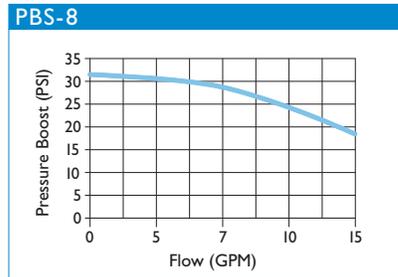
The PBS Series booster systems feature a patented Smart Pressure valve. This unique product delivers constant water pressure at any given flow rate. It works by isolating the system's pressure switch when the pump is running, thus enabling the pump to deliver its full flow output without nuisance pressure fluctuations.

The PBS system is field adjustable to a maximum inlet pressure of 40 PSI and outlet pressures of up to 80 PSI for adaptation to most residential and light commercial water systems.

When water pressure is a problem, the PBS Series Booster system is the solution!



Performance Curves



Note: Pressure boost as listed on the above pump curves is in addition to the inlet pressure from the water supply.

Pressure Booster Sizing Chart

Outlets	Flow Rate GPM	Total Usage (gallons)	Bathrooms in Home			
			1	1.5	2 - 2.5	3 - 4
Shower or Bath Tub	5	35	35	35	53	70
Lavatory	4	2	2	4	6	8
Toilet	4	5	5	10	15	20
Kitchen Sink	5	3	3	3	3	3
Automatic Dishwasher	5	35		18	18	18
Dishwasher	2	14			3	3
* Normal seven minute peak demand (gallons)			45	70	98	122
Minimum flow rate required to meet peak demand without supplemental supply			7 GPM (420 GPH)	10 GPM (600 GPH)	14 GPM (840 GPH)	17 GPM (1020 GPH)
** Recommended Model			PBS-8 or PBS-18	PBS-8 or PBS-18	PBS-18	PBS-18

NOTE: Values given are average and do not include higher or lower extremes
* Peak demand can occur several times during morning and evening hours
** Refer to individual pump curves to confirm corresponding pressure boost

Dimensions and Capacities

Model	Pump Data			Dimensions			Weight (lbs)
	HP	Inlet	Outlet	Height	Length	Width	
PBS-8	3/4	1 1/4" F	1" M x 3/4" F	16"	16"	10"	30
PBS-18	1	1 1/4" F	1" M x 3/4" F	19"	19"	10"	41

Pump motor: CSA & CE listed • Pressure switch: UL & CE listed • Pressure tank: NSF 61 listed



Flexcon Industries
300 Pond Street
Randolph, Massachusetts 02368

For More Information
Call 1.781.986.2424
Fax 1.781.986.2029
www.flexconind.com

Division Title: **Residential Plumbing Fixtures** Division: **22 35 00**

Item: **Expansion Tank** Manufacturer: **Amtrol** Product Model: **Amtrol 30 Extrol**

Website: <http://www.amtrol.com/extrol.htm> Link to Full Data Sheet: www.flexconind.com/pdf/pbs_specs.pdf

EXTROL® Expansion Tanks

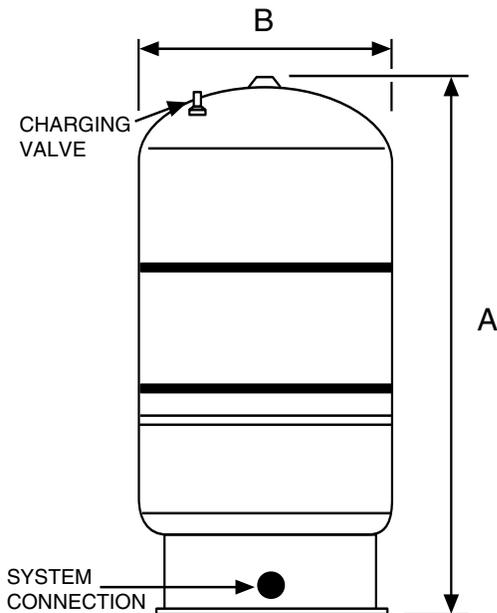
SX Series (Non-ASME)

100 PSIG Working Pressure

Specifications and Dimensions

Model No.	Tank Volume		Acceptance Volume		A Height		B Diameter		C		D		System Conn. ¹	Ship Wt.	
	Liters	Gallons	Liters	Gallons	mm	inches	mm	inches	mm	inches	mm	inches		inches	kg
SX-30V	53	14	43	11.3	629	24 ³ / ₄	391	15 ³ / ₈	132	5 ³ / ₁₆	46	1 ¹³ / ₁₆	1	11.5	25
SX-40V	76	20	43	11.3	826	32 ¹ / ₂	391	15 ³ / ₈	132	5 ³ / ₁₆	46	1 ¹³ / ₁₆	1	15	33
SX-60V	121	32	43	11.3	1207	47 ¹ / ₂	391	15 ³ / ₈	132	5 ³ / ₁₆	46	1 ¹³ / ₁₆	1	20	43
SX-90V	165	44	128.7	34	913	36	559	22	197	7 ³ / ₄	56	2 ³ / ₁₆	1 ¹ / ₄	31	69
SX-110V	235	62	128.7	34	1186	46 ³ / ₄	559	22	197	7 ³ / ₄	56	2 ³ / ₁₆	1 ¹ / ₄	41	92
SX-160V	326	86	174.1	46	1199	47 ¹ / ₄	660	26	234	9 ¹ / ₄	56	2 ³ / ₁₆	1 ¹ / ₄	56	123

¹System Connection: NPTF

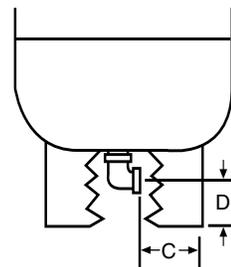


Maximum Operating Conditions

Operating Temperature	240°F (115°C)
Working Pressure	100 PSIG (7 kg/cm ²)

Specifications

Description	Standard Construction
Shell	Steel
Diaphragm	Heavy Duty Butyl/EPDM
Factory Precharge	12 PSIG (.84 kg/cm ²)

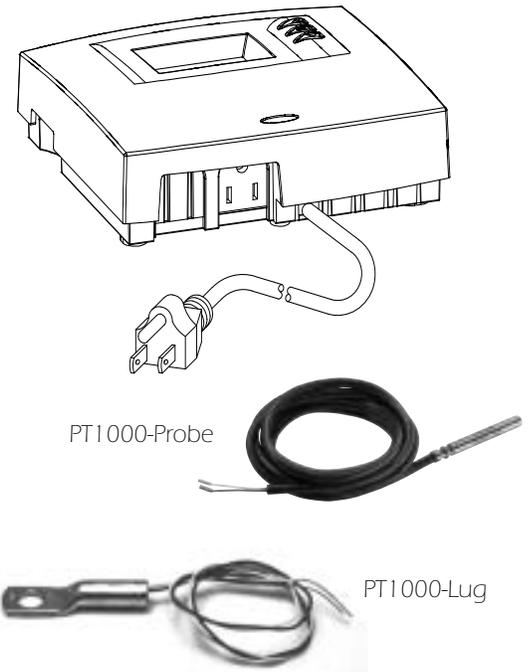


Division Title: **Residential Plumbing Fixtures** Division: **22 35 00**

Item: **Differential Temperature Control** Manufacturer: **SunEarth** Product Model: **SETR 0301U**

Website: <http://www.sunearthinc.com> Link to Full Data Sheet: <http://www.sunearthinc.com/SE%20Product%20Spec%20Sheets/SunEarth%20Controller%20v18r>

SETR 0301 U Technical Specifications	
Dimensions	(H)6.18" X (W)6.3" X (D)1.85"
Operating Voltage	120VAC/60HZ
Line Cord	7', 18 AWG Rated At 221° F
Control Power Consumption	≤ 1 Watt
Inputs – 3 For Temperature Sensors, Varistor Protected	PT1000-Probe, PT1000-Lug
Output – 1 For Circulating Pump, Fuse Protected	Max Load At 120VAC Is 0.5 HP (Littelfuse 215.004)
Temperature Sensors 1 X PT1000-Probe (-40 F To +356 F) 1 X PT1000-Lug (-40 F To +221 F)	RTD Type 4.2' Silicone Cable With Probe 10" Teflon Wire Leads With Lug
Graphic Display	Animated LCD Display, 2 Color Background
Protection Class	IP 20/Din 40050
Ambient Temperature Operating Range	32° F - 113° F
Installation	Wall Mounted With Screw
Weight	1 lb. 5 oz.
Case	Recyclable 3-Piece Plastic



Manufactured for SunEarth Inc. by



A World Leader in Solar Electronics. Steca GmbH, Memmingen, Germany. www.stecasolar.com

Due to SunEarth's policy of continuous product improvement, specifications are subject to change without notice.

Division Title: **Residential Plumbing Fixtures** Division: **22 35 00**

Item: **Feedline, Distribution Piping** Manufacturer: **Wirsbo** Product Model: **aquaPex tubing**

Website: http://www.pexsupply.com/product_dtl.asp?PID=2141&brand=Wirsbo%20 Link to Full Data Sheet: <http://www.roberts-hamilton.com/pdf/055.pdf>

Replacing page dated November 1, 2002



ROBERTS-HAMILTON CO.

September 1, 2003

PAGE 55-1



Wirsbo / Aquapex

Control#	Description	Code
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AQUAPEX Tube (Engel method cross-linked polyethylene) is tubing for hot and cold potable water distribution systems. AQUAPEX (Engel) is manufactured and listed to ASTM F876 and F877 and certified to NSF Standards 14 & 61. AQUAPEX (Engel) tubing is rated and listed by the Hydrostatic Design Stress Board of PPI at: 73.4°F at 160 psi, and 180°F at 100 psi and 200°F at 80psi. (Copper Tube Sizes)

White with RED PRINT

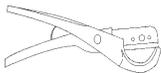
F0040500	Aquapex Tubing 1/2" x 100' Coil	55-0090
F0060500	Aquapex Tubing 1/2" x 300' Coil	55-0096
F0120500	Aquapex Tubing 1/2" x 1000' Coil	55-0101
F0040750	Aquapex Tubing 3/4" x 100' Coil	55-0103
F0060750	Aquapex Tubing 3/4" x 300' Coil	55-0104
F0100750	Aquapex Tubing 3/4" x 500' Coil	55-0106

White with BLUE PRINT

F1060500	Aquapex Tubing 1/2" x 300' Coil	55-0100
F1120500	Aquapex Tubing 1/2" x 1000' Coil	55-0102
F1040750	Aquapex Tubing 3/4" x 100' Coil	55-0107
F1060750	Aquapex Tubing 3/4" x 300' Coil	55-0105
F1041000	Aquapex Tubing 1" x 100' Coil	55-0108
F1061000	Aquapex Tubing 1" x 300' Coil	55-0110
F1101000	Aquapex Tubing 1" x 500' Coil	55-0112
F1930500	Aquapex Tubing 1/2" x 20'	55-0115
F1930750	Aquapex Tubing 3/4" x 20'	55-0120
F1921000	Aquapex Tubing 1" x 20'	55-0125



Tube UnCoiler



Tube Cutter



Aquacenter

E6061000	Wirsbo Tube Uncoiler	413-2502
E6081125	Tube Cutter	413-2530

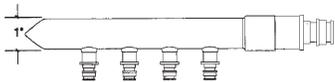
ProPEX PLS Manifold - The Aquacenter Wirsbo's Aquacenter Valveless Manifold with ProPEX outlets. ProPEX tool required.

Q2200400	Aquacenter, 4 loop valveless with 3/4" ProPEX end	55-0135
Q2200800	Aquacenter, 8 loop valveless with 3/4" ProPEX end	55-0137



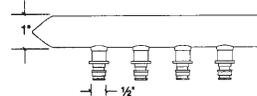
Aquacenter PLS Branch Manifold - Flow Through 3/4" inlets & outlets with 1/2" ProPEX branch outlets.

Q2227557	Flow-Through Manifold, 2 outlets	55-0183
Q2237557	Flow-Through Manifold, 3 outlets	55-0184
Q2247557	Flow-Through Manifold, 4 outlets	55-0185
Q2247550	Aquacenter 3/4" EP Branch Manifold - One 3/4" inlet with 1/2" branch outlets. Manifold, 4 ProPEX branch outlets	55-0188

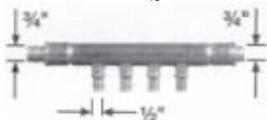


ProPEX 1" manifolds (type "L" copper) with 1/2" ProPEX brass fittings brazed to manifold trunk. Available in 4, 6, 8 outlet configurations. Can be sweated together to get the correct number of outlets. ProPEX tool required.

Q2801050	Copper Manifold 4-outlet, 1" Copper Inlet	55-0150
Q2811050	Copper Manifold 6-outlet, 1" Copper Inlet	55-0155
Q2821050	Copper Manifold 8-outlet, 1" Copper Inlet	55-0160



Q2905050	Propex Manifold 3-outlet, 3/4" Propex Inlet	55-0164
Q2807550	Propex Manifold 4-outlet, 3/4" Propex Inlet	55-0165
Q2817550	Propex Manifold 6-outlet, 3/4" Propex Inlet	55-0170
Q2827550	Propex Manifold 8-outlet, 3/4" Propex Inlet	55-0175



Q2817557	Propex Manifold 6-outlet, two 3/4" Propex ends	55-0180
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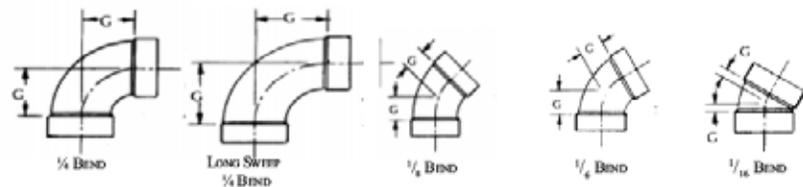
Designs and specifications are for reference only and are subject to change without notice. Reprinted from manufacturer's material.

Item: Waste Water Piping	Division Title: Residential Plumbing Fixtures	Division: 22 35 00
Manufacturer: ABS	Product Model: Schedule 40	

Website:
http://www.pexsupply.com/product_dtl.asp?PID=2141&brand=Wirsbo%20

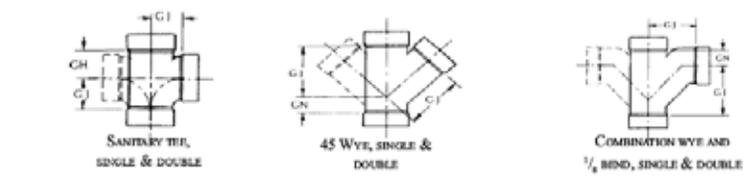
Link to Full Data Sheet:
<http://www.roberts-hamilton.com/pdf/055.pdf>

TABLE 1 LAYING LENGTHS (IN.)



	1/4 Bend	Long Sweep 1/4 Bend	1/8 Bend	1/4 Bend	1/16 Bend
Pipe size	G	G	G	G	G
1 1/2	1 9/16	2 1/2	1	7/8	7/16
1 3/4	1 3/4	2 3/4	1 1/8	1	1/2
2	2 1/16	3 1/4	1 1/2	1 1/16	1 1/16
3	3 1/16	4 1/16	1 3/4	1 11/16	1 1/16
4	3 7/8	4 9/16	2 1/16	2 1/16	1
6	5 (MIN)	9	2 (MIN)	3 7/8	1 1/2

TABLE 2 LAYING LENGTHS (IN.)



	SANITARY TEE, SINGLE & DOUBLE		45 WYE, SINGLE & DOUBLE		COMBINATION WYE AND 1/4 BEND, SINGLE & DOUBLE	
Pipe size	GN	GJ	GN	GJ	GN	GJ
1 1/2	3/4	1 1/16	1 1/16	2 1/16	7/16	2 1/16
1 3/4	1	1 3/8	1 1/8	2 7/8	1/2	3 1/8
2	1 1/2	2 1/8	1 3/8	3 3/8	1	4 1/8
3	1 13/16	3 1/16	1 7/8	5	1 1/8	6 1/16
4	2 1/4	3 7/8	1 7/8	6 1/8	1 9/16	8 1/16
6	3 1/2	5	1 3/4	8 1/16	B	B

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PPFA ACRYLONITRILE BUTADIENE STYRENE (ABS) PLASTIC PIPE AND FITTINGS FOR DRAINAGE, WASTE AND VENT SYSTEMS

Item: Toilet	Division Title: Residential Plumbing Fixtures	Division: 22 41 00
Website: http://www.caromausa.com/	Manufacturer: Caroma	Product Model: Royale 305
Link to Full Data Sheet: http://www.caromausa.com/products/toilets.php		



Royale 305

1.6/0.8 GPF (6/3 l) Water Saving, Dual Flush High Efficiency Toilet (HET), Two Piece Ultra Low Flush (ULF) Vitreous China Washdown Toilet

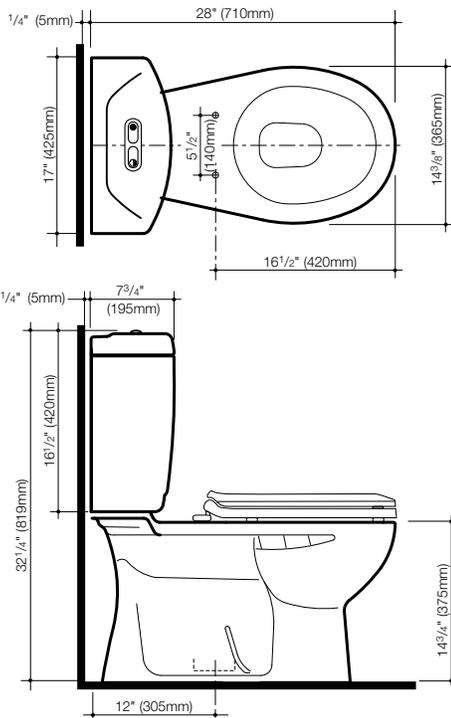


Royale 305

- 1.6/0.8 gpf (gallons per flush). 6/3 liters.
- Vitreous china
- Open flushing rim
- S Trap washdown
- Matching white low profile half/full flush push buttons
- Water control valve – super quiet water control assembly
- Shipping Weight: 83lbs (37kg).

Engineering Specification:

Royale 305 Vitreous china, close coupled, dual flush 1.6/0.8 gal (6/3 liter) low water consumption, boxed rim, washdown, S trap, floor mounted two-piece toilet.



These dimensions and specifications are subject to change without notice.
 Fixture dimensions meet ANSI/ASME standard A 112.19.2M and CAN/CSA B45 requirements.

See Caroma for suggested packages.

Division Title: **Residential Plumbing Fixtures** Division: **22 41 00**

Item: **Showerhead** Manufacturer: **Grohe** Product Model: **27085**

Website: <http://www.grohecatalog.com/product/27085/> Link to Full Data Sheet: <http://db.grohecatalog.com/upload/pdf/27085.pdf>



Rainshower 27 085
Hand-held



Description

GROHE DreamSpray® technology
4 spray patterns
6 1/4" face
SpeedClean anti-lime system
Multiple shell handle construction prevents heat transfer

Spray patterns:
Rain spray
Jet spray
Champagne spray
Laminar

Flow Rate

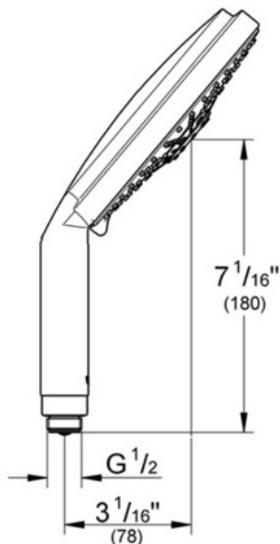
2.5 gpm at 80 psi

Code Compliance

* ASME/ANSI A112.18.M

Finish Options

27 085 No Data Available
27 085 OOO Chrome
27 085 AVO Infinity Satin Nickel
27 085 ENO Infinity Brushed Nickel



Division Title: **Residential Plumbing Fixtures** Division: **22 41 00**

Item: **Bathroom Sink** Manufacturer: **Caroma** Product Model: **Leda Vasque**

Website: <http://www.caromausa.com/>

Link to Full Data Sheet: <http://www.caromausa.com/products/lavatories.php>

Leda Vasque

Vitreous China Above Counter Lavatory Vessel
Lavatory Size: 17" (430mm) diameter (nominal)

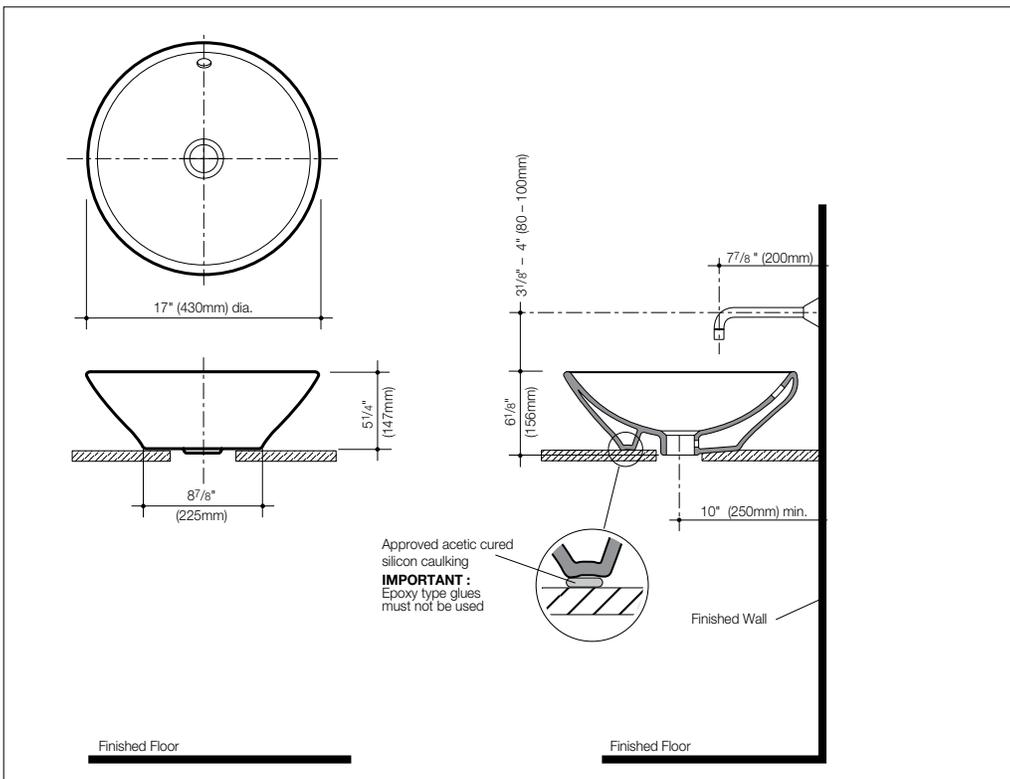


A premium designed new concept above counter lavatory vessel incorporating generous size and distinctive curved bowl area. The **Leda Vasque** has been designed to compliment other products in the Leda range and is ideal for use with the Leda faucet range. The lavatory is sealed to the counter top with an approved acetic cured silicon caulking.

- Faucet Holes:** The lavatory is available in no faucet hole only, Code No.651048.
- Drain Outlet:** Drain outlets use 1 1/4" (32mm) diameter drain outlet assemblies.
- Bowl Capacity:** 2.3 gal (8.5 l).
- Weight:** 15.5 lbs (7 kg).
- Overflow:** Rear overflow.
- Fixing:** An approved acetic cured silicon caulking is to be used to secure the lavatory to the counter top.

Epoxy type glues must not be used.
The lavatory is supplied with a template which must be used for the counter top cut-out.

- Colors:** White and colors as specified in color selector.
- Dimension:** All dimensions are in inches and millimetres and are subject to normal manufacturing variations. Caroma pursues a policy of continuing improvement in design and performance of its products. The right is therefore reserved to vary specifications without notice.



Division Title:
Residential Plumbing Fixtures

Division:
22 41 00

Item:
Kitchen Sink

Manufacturer:
IKEA

Product Model:
DOMSJÖ Double Bowl

Website:
<http://www.ikea.com>

Link to Full Data Sheet:
<http://www.ikea.com/us/en/catalog/products/S99822037>



Product information

Key features
designer:
Nike Karlsson
Product dimensions
Width: 36 5/8 "
Depth: 27 "
Height: 9 1/8 "

Width: 93 cm
Depth: 68.5 cm
Height: 23.2 cm

Good to know

Fits cabinet frames 36" wide.
Strainer included.
Sink stoppers with strainer included.
care instructions
Wipe clean using a damp cloth and a mild cleaner.
Wipe dry with a clean cloth.
product description & measurements
Double bowl:
Main parts: Ceramic, Colored glaze
Front rail: Steel, Pigmented epoxy powder coating

Waste strainer:
Seals: Synthetic rubber
Strainer/ Strainer basket: Stainless steel
Tubes: Polypropylene

Division Title: **Residential Plumbing Fixtures** Division: **22 41 00**

Item: **Kitchen Faucet** Manufacturer: **IKEA** Product Model: **ALSVIK**

Website:
<http://www.ikea.com>

Link to Full Data Sheet:
<http://www.ikea.com/us/en/catalog/products/20054619>

Product information

Key features

High spout. Practical when washing big pots, etc.
Chrome-plated brass gives a hard and durable surface that is easy to clean.

Designer:

Mikael Warnhammar

Product dimensions

Height: 13 3/4 "

Height: 35 cm

This product requires assembly environment

Good to know

Ceramic seals.
Bendable flexible hoses with 1/2" connection included. Length: 15 3/4".
Approved according to CSA/IAPMO.
1 1/4" hole in the bench.
care instructions
Wipe clean with a damp cloth. Use only water or a non-abrasive detergent.
Wipe dry with a clean cloth.

Product description & measurements

Brass, Chrome plated



Division Title: **Residential Plumbing Fixtures** Division: **22 41 00**

Item: **Bathroom Faucet** Manufacturer: **Grohe** Product Model: **Atrio 19 291**

Website: <http://www.grohecatalog.com/product/19291/> Link to Full Data Sheet: <http://db.grohecatalog.com/upload/pdf/19291.pdf>



Atrio 19 291 2-Hole Wall Mount Vessel Trim



Description

Single lever handle
GROHE SilkMove® ceramic cartridge
7 1/8" spout

Trim only, requires vessel rough-in valve 33 78

For vessel sink pop-up drain, order 28 754.

Flow Rate

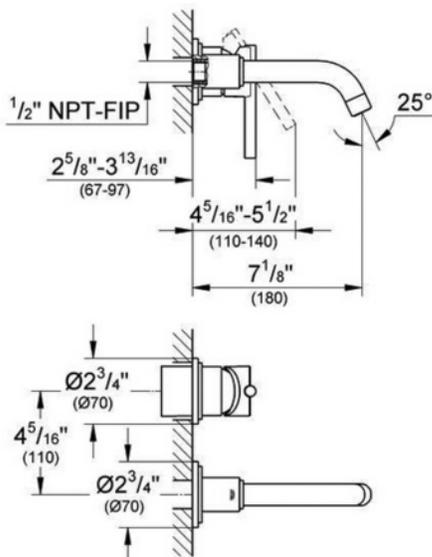
2.2 gpm at 60 psi, 2.5 gpm at 80 psi

Code Compliance

- * ASME/ANSI A112.18.M
- * ADA Compliant

Finish Options

- 19 291 OOO Chrome
- 19 291 AVO Infinity Satin Nickel
- 19 291 BEO Sterling Infinity Finish
- 19 291 ENO Infinity Brushed Nickel



Division Title:
HVAC

Division:
23 72 00

Item:
ERV

Manufacturer:
UltimateAir RecoupAerator

Product Model:
200DX

Website:
<http://www.ultimateair.com>

Link to Full Data Sheet:
http://www.ultimateair.com/Ultimate_Air_pdfs/200DX_Overview.pdf

EV130



Indoor Unit



Specifications

Ventilation Type: Static Plate, Heat and Humidity Transfer				
Typical Airflow Range: 50-140 CFM				
Unit may be mounted in any orientation				
Number Motors: One, 0.1 hp				
V	HZ	Phase	Input Watts	FLA
120	60	Single	121 @ 124 CFM	1.3
Control Voltage: 24 VAC				
Filters: Cleanable, spun polyester media. 10 1/2" x 10 1/2" x 1"				
Weight: 58 lbs (unit), 65 lbs (in carton)				
Shipping Dimensions: 21"W x 32"L x 15 1/2"H				
Options: PT - Percentage timer control PB - Push Button point-of-use controls FM - Percentage timer control with furnace interlock DH24 - Dehumidistat control Wall caps				

G4 Performance

Airflow CFM	ESP in H ₂ O	Temp EFF%	Total EFF% Winter/Summer*
52	0.70	83	75/60
69	0.60	80	72/57
94	0.50	76	67/52
113	0.40	73	64/48
124	0.35	71	62/46
132	0.30	70	60/44
141	0.20	68	59/43
148	0.10	67	57/41

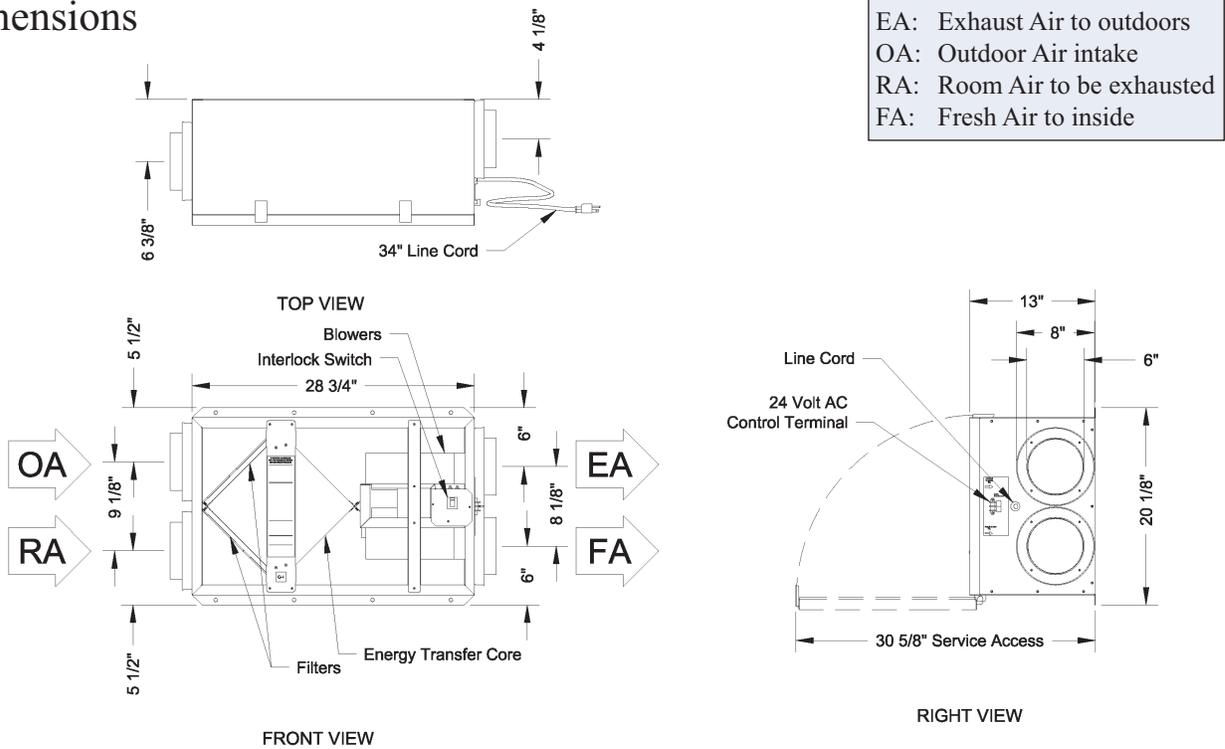
* (See HVI certification report on page 11 for complete certified rating).

Item: ERV	Division Title: HVAC	Division: 23 72 00
Manufacturer: UltimateAir RecoupAerator	Product Model: 200DX	

Website:
<http://www.ultimateair.com>

Link to Full Data Sheet:
http://www.ultimateair.com/Ultimate_Air_pdfs/200DX_Overview.pdf

Dimensions



Division Title:
HVAC

Division:
26 36 00

Item:
VRV

Manufacturer:
Daikin

Product Model:
VRV-S:RXMQ36MVJU

Website:
<http://www.daikin.com>

Link to Full Data Sheet:
http://www.daikin.com/global_ac/products/vrv/vrv3s/outline.html



Submittal Data: RXMQ36MVJU
3 Ton Outdoor Unit – Heat Pump VRV-S

Job Name: _____ Location: _____
Purchaser: _____
Engineer: _____
Submitted To: _____ For: Reference Approval Construction
Submitted By: _____ Date: _____
Unit Designation: Schedule #: _____ Model No.: _____

Capacities:	
Cooling Capacity	36,000 Btu/h
Cooling Input Power	3.05 kW
Heating Capacity	40,000 Btu/h
Heating Input Power	3.27 kW (11,157 Btu/h)

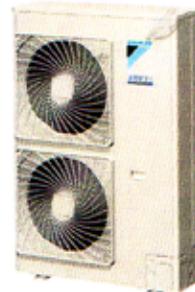


Cooling Mode Nominal Conditions:		Heating Mode Nominal Conditions:	
Indoor: 80°F DB / 67°F WB		Indoor: 70°F DB	
Outdoor: 95°F DB		Outdoor: 47°F DB / 43°F WB	
Pipe Length: 25 ft		Pipe Length: 25 ft	
Level Difference: 0 ft		Level Difference: 0 ft	

Operating Range:	
Cooling	23°F – 115°F DB
Heating	0°F DB – 64°F DB -5°F WB – 60°F WB

R-410A

INVERTER



Compressor:	
Type	Hermetically Sealed Scroll
Quantity	1
Capacity Control Range	29% - 100%
Motor Rating Output	2.3 kW

Fan:	
Fan Type x Quantity	Propeller Fan x 2
Fan Motor Output	0.070 kW
Airflow Rate	3,740 CFM
Drive	Direct Drive

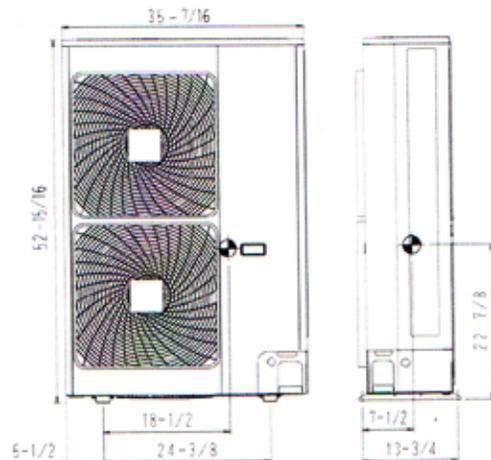
Power Supply:	
V/PH/Hz	208-230/1/60
Minimum Circuit Amps (MCA)	27 Amps
Maximum Fuse Amps (MFA)	30 Amps
Maximum Starting Current (MSC)	17.6 Amps
Total Overcurrent Amps (TOCA)	27 Amps

Refrigerant & Piping:	
Refrigerant Type/Charge	R-410A / 12.8 lbs
Control	Electronic Expansion Valve
Liquid Refrigerant Piping	3/8" Flare
Suction Gas Refrigerant Piping	5/8" Flare

Unit Data:	
Max. Number of Indoor Units	6
Sound Pressure Level at 3 ft	58 dBA
Weight	310 lbs

Standard Features:

- Six year compressor warranty
- One year parts warranty
- One year limited labor warranty
- Heating or cooling operation
- Inverter driven (variable speed) scroll compressor
- VFD controlled outdoor motor fan



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SDS RXMQ36MVJU 07-08

www.daikinac.com

(Daikin's products are subject to continuous improvements. Daikin reserves the right to modify product design, specifications and information in this data sheet without notice and without incurring any obligations)

Division Title:
HVAC

Division:
26 36 00

Item:
VRV evaporator-wall mounted

Manufacturer:
Daikin

Product Model:
VRVS: FXAQ09MVJU

Website:
<http://www.daikin.com>

Link to Full Data Sheet:
http://www.daikin.com/global_ac/products/vrv/vrv3s/outline.html



Submittal Data: FXAQ09MVJU
Indoor Unit – Wall Mounted Type

Job Name: _____ Location: _____
Purchaser: _____
Engineer: _____
Submitted To: _____ For: Reference Approval Construction
Submitted By: _____ Date: _____
Unit Designation: Schedule #: _____ Model No.: _____

Capacities:	
Cooling	9,500 Btu/h
Sensible Heat Ratio	0.74
Heating	10,500 Btu/h

Cooling Mode Nominal Conditions:		Heating Mode Nominal Conditions:	
Indoor: 80°F DB / 67°F WB		Indoor: 70°F DB	
Outdoor: 95°F DB		Outdoor: 47°F DB / 43°F WB	
Pipe Length: 25 ft		Pipe Length: 25 ft	
Level Difference: 0 ft		Level Difference: 0 ft	

Fan:	
Fan Type	Cross Flow Fan
Fan Motor Output	40 Watts
Airflow Rate (H/L)	280/175 cfm
Drive	Direct Drive

Power Supply:	
V/PH/Hz	208-230/1/60
Minimum Circuit Amps (MCA)	0.3 Amps
Nominal Power Input - Cooling	22 Watts
Nominal Power Input - Heating	27 Watts
Maximum Fuse Amps (MFA)	15 Amps
Full Load Amps (FLA)	0.2 Amps

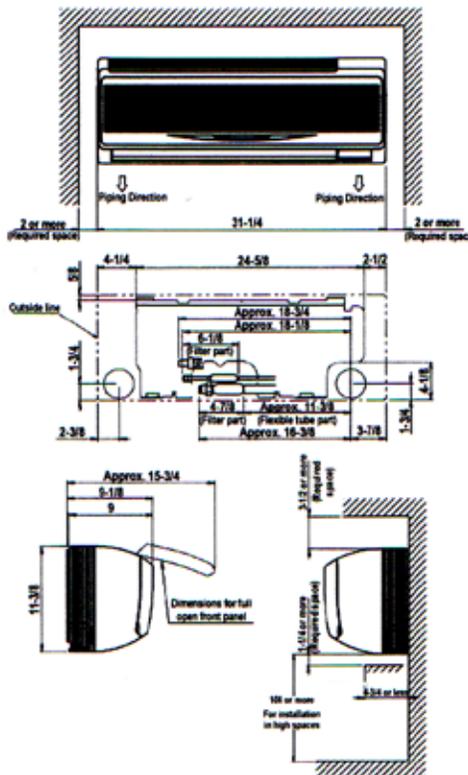
Refrigerant & Piping:	
Refrigerant	R-410A
Control	Electronic Expansion Valve
Liquid Refrigerant Piping	1/4" Flare
Gas Refrigerant Piping	1/2" Flare
Condensate Drain Piping (OD)	1 1/16"

Dimensions:	
Unit Height	11 3/8"
Unit Width	31 1/4"
Unit Depth	9"

Unit Data:	
Sound Pressure Level (H/L)	
- at 3.3 ft below and from the unit	36/29 dBA
Weight	25 lbs

- Standard Features:**
- One year limited labor warranty
 - One year parts warranty
 - Washable long life filter with mildew proof resin

- Options:**
- Wired remote controller
 - Wireless remote controller
 - Simplified controller
 - Condensate pump



Division Title:
HVAC

Division:
26 36 00

Item: **VRV evaporator-ceiling mounted Daikin**

Manufacturer:
FXDQ09MVJU

Website:

Link to Full Data Sheet:

<http://www.daikin.comn.com>

http://www.daikin.com/global_ac/products/vrv/vrv3s/outline.html



Submittal Data: FXDQ09MVJU
Indoor Unit - Concealed Ceiling Unit

Job Name: _____ Location: _____
Purchaser: _____
Engineer: _____
Submitted To: _____ For: Reference Approval Construction
Submitted By: _____ Date: _____
Unit Designation: Schedule #: _____ Model No.: _____

Capacities:	
Cooling	9,500 Btu/h
Heating	10,500 Btu/h
Cooling Mode Nominal Conditions:	
Indoor: 80°F DB / 67°F WB	
Outdoor: 95°F DB	
Pipe Length: 25 ft	
Level Difference: 0 ft	
Heating Mode Nominal Conditions:	
Indoor: 70°F DB	
Outdoor: 47°F DB / 43°F WB	
Pipe Length: 25 ft	
Level Difference: 0 ft	

VRV SYSTEM
THE INTELLIGENT AIR CONDITIONING SYSTEM

R-410A

Fan:	
Fan Type	Sirocco Fan
Fan Motor Output	62 Watts
Airflow Rate (H/L)	280/226 cfm
External Static Pressure (H/L)	0.12 - 0.04" WG
Drive	Direct Drive



Power Supply:	
V/PHz	208-230/1/60
Minimum Circuit Amps (MCA)	0.9 Amps
Nominal Power Input - Cooling	92 Watts
Nominal Power Input - Heating	73 Watts
Maximum Fuse Amps (MFA)	15 Amps
Full Load Amps (FLA)	0.7 Amps

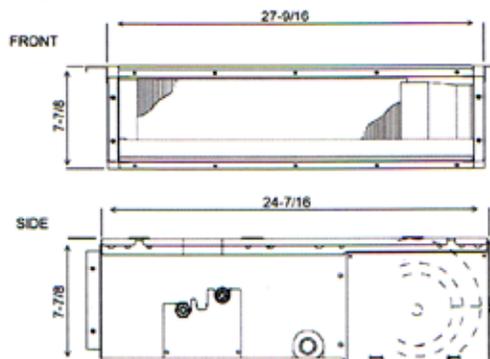
Refrigerant & Piping:	
Refrigerant	R-410A
Control	Electronic Expansion Valve
Liquid Refrigerant Piping	1/4" Flare
Gas Refrigerant Piping	1/2" Flare
Condensate Drain Piping (OD)	1-1/4"

Unit Data:	
Sound Pressure Level (H/L)	
- at 5 ft below bottom suction grill of unit	33/29 dBA
Weight	49 lbs

Ductwork Opening:	
Supply Opening Height	6-11/16"
Supply Opening Width	26"
Return Opening Height	7-1/16"
Return Opening Width	23-5/8"

- Standard Features:**
- One year limited labor warranty
 - One year parts warranty
 - Built-in condensate pump
 - Washable long life filter with micro proof resin

- Options:**
- Wired remote controller
 - Wireless remote controller
 - Simplified controller
 - Remote sensor kit



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SDS FXDQ09MVJU 07-06

www.daikinac.com

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Item:
VRV controller

Division Title:
HVAC

Division:
23 57 19

Manufacturer:
Daikin

Product Model:
BRC1D71

Website:
<http://www.daikin.com>

Link to Full Data Sheet:
http://www.daikin.com/global_ac/products/vrv/vrv3s/outline.html



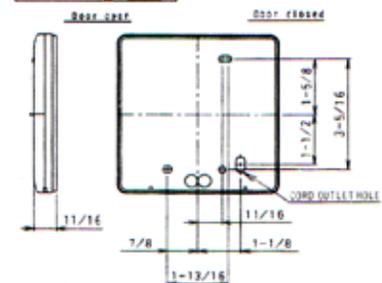
Submittal Data: BRC1D71
7 Day Programmable Controller

Job Name: _____ Location: _____
 Purchaser: _____
 Engineer: _____
 Submitted To: _____ For: Reference Approval Construction
 Submitted By: _____ Date: _____
 Unit Designation: Schedule #: _____ Model No.: _____

For use with the following Daikin VRV Models: FXAQ; FXFQ; FXHQ; FXLQ; FXMQ; FXNQ; FXSQ; FXDQ
 For use with the following Daikin SkyAir Models: FCQ, FHQ

FEATURES / BENEFITS	
	• 1 group/maximum of 16 units controllable
	• Constantly monitors the system for malfunctions (total of 80 components) – self diagnosis function
	• Immediate display of fault location and condition
	• Built in 7 Day Timer functionality with up to 5 timer actions per day
	• LCD lets you display set point temperature in 1°F units
	• Equipped with a thermostat sensor in the remote controller making possible more comfortable room temperature control
	• Monitors room temperature and preset temperature by microcomputer and can select cool/heat operation mode automatically (heat recovery series only)
	• Select cool / heat / fan operation mode with indoor remote controller of choice without using the cool / heat selector
	• Approximately two hour battery backup
	• A secondary AC controller in a separate location can be used

OPERATION	Start/Stop
	Operation Mode
	Temperature Setting
	60°F – 90°F Set Point Range
	Fan Speed
MONITORING	Airflow Direction
	Status
	Malfunction Flashing
	Malfunction Content
	Filter Sign
	Operation Mode
	Temperature Setting
	Permit/Prohibit Selection
	Fan Speed
	Airflow Direction
CONTROL MANAGEMENT	Field Setting Mode
	Group Setting
	Min. and Max. Temperature Setting
	Auto Re-Start
	7-Day Time Clock
SCHEDULING	5-Temp Settings (Actions) Per Day
	Away Temp Set-Back Function



SPECIFICATIONS OF CORD	
TYPE	2-core sheathed vinyl cord or cable
SIZE	AWG18-2
TOTAL LENGTH	1640 ft

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SDS BRC1D71 07-08

www.daikinec.com

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Division Title:
Electrical

Division:
26 05 13.16

Item:
Wiremold Electrical Distribution Wiremold

Manufacturer:

Product Model:
NCS211AL5M/F

Website:
<http://www.wiremold.com>

Link to Full Data Sheet:
<http://www.wiremold.com>

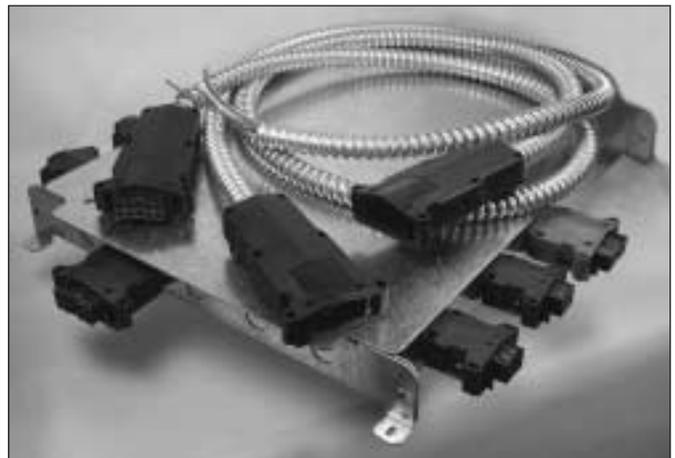
WIREMOLD

 **legrand®**

Walkerflex®
Wiring System

New Walkerflex® Modular Wiring System Offers Labor Savings Compared To Hard-Wired Systems

The new Walkerflex Modular Wiring System is a factory assembled connector and cable set system, designed to interface with various power applications: raised floor boxes, poke-thru systems, service poles, surface raceways, wireways, and convenience outlets. This design, with its plug-in feature, provides tremendous wire management flexibility and labor savings vs. traditional pipe and box wiring methods. Walkerflex is ideal for use in raised floor systems in combination with FloorSource™ Raised Floor Boxes. Both products are suited for commercial offices, computer rooms, schools or any facility with demand for high flexibility in wiring requirements



Walkerflex system components.

Features & Benefits

- **Modular system design, with flexible metal clad cables that plug into each other.** Save up to 60% on labor installation compared to pipe and wire or BX and J-box wiring.
- **Modular components.** Provides system flexibility. Can reuse and relocate components easily. Relocation cost is reduced.
- **Plug-in components.** Can reuse and relocate components easily. Relocation cost is reduced.
- **Pin and sleeve contact design.** Provides reliability of electrical connections. Allows “First-to-Mate, Last-to-Break” which reduces potential electrical shocks.
- **System components rated for 20 amps and tested to 480 volts.** Available in 10-Wire 10ga. or 10-Wire 12ga.
- **Designed for up to six circuit maximum in the 8-10 wire power applications.** Provides a wide variety of labor savings wiring solutions.
- **10-Wire Systems available.** Provides a flexible wiring solution for the more demanding workstation power requirements, e.g. extra neutral, isolated ground, and up to six phase conductors.
- **Audible locking feature.** Ensures that there is solid contact between connectors.
- **A system integrator.** Will interface with various wire management solutions: Poke-Thru Systems, Tele-Power® Poles, raised floor boxes, and surface raceways for additional labor savings and flexibility.
- **Modular wiring system utilizes a standard stranded MC cable which incorporates a #10 neutral on both the 12 & 10 gage systems.**
- **Meets NEC Section 300-22(c).** Products are suitable for use in air handling spaces and raised floor plenums.

Division Title:
Electrical

Division:
26 05 13.16

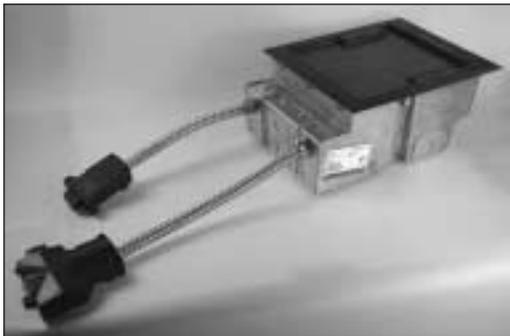
Item:
Wiremold Electrical Distribution Wiremold

Manufacturer:

Product Model:
NCS211AL5M/F

Website:
<http://www.wiremold.com>

Link to Full Data Sheet:
<http://www.wiremold.com>



Prewired AF Series Box



*Walkerflex Power Adapters, Cable Splitters,
and male and female Wire Connectors.*

ED755R6 - Updated March 2007 - For latest specs visit www.wiremold.com

Division Title:
Electrical

Division:
26 05 13.16

Item:
Wiremold Electrical Distribution Wiremold

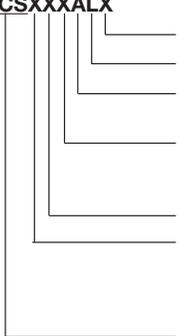
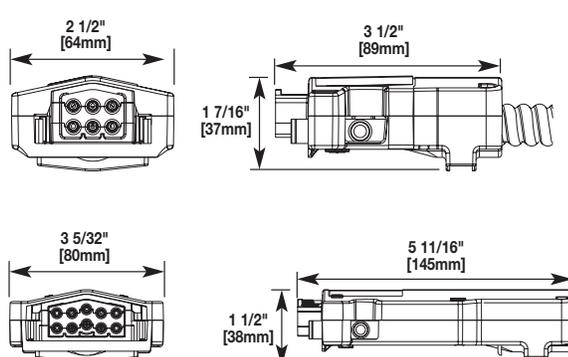
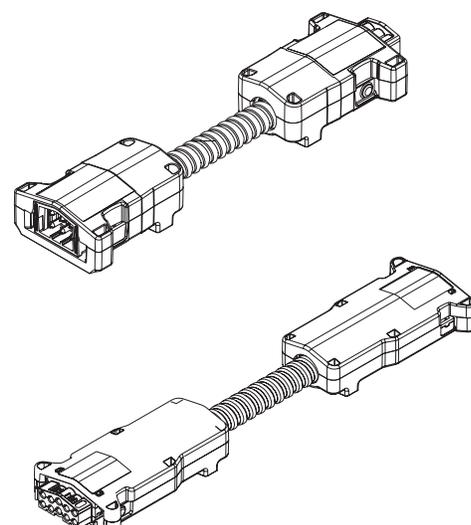
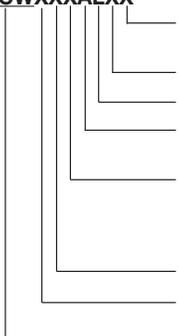
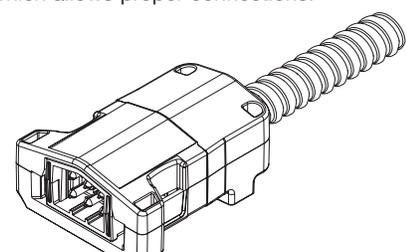
Manufacturer:

Product Model:
NCS211AL5M/F

Website:
<http://www.wiremold.com>

Link to Full Data Sheet:
<http://www.wiremold.com>

System Components

Catalog No.	Item/Description/Specifications
<p>NCSXXXALX</p>  <p>Length of MC cable. "L" stands for length, remains constant. Insert A = 12ga. or B = 10ga. Both with 10ga. neutral. Number of ground conductors, insert "1" for one system ground, or "2" for one system ground and one isolated ground. Number of neutral conductors. Number of circuits, also number of hot conductors, insert "1" for single-circuit, "2" for two-circuit, "3" for three-circuit, "4" for four-circuit, or "6" for six-circuit. "NCS" stands for new Cable Set, remains constant.</p> 	<p>Cable Sets – Carries power from distribution unit to other components in flex system.</p> <p>Standard lengths: 1, 5, 10, 15, 25, 30, 40, and 50 ft. [305mm, 1.52m, 3.05m, 4.57m, 7.62m, 9.14m, 12.19m, 15.24m]. Consult factory for all other lengths.</p> 
<p>NCWXXXALXX</p>  <p>Insert "M" for power out or "F" for power in. Length of MC cable. "L" stands for length, remains constant. Insert A = 12ga. or B = 10ga. Both with 10ga. neutral. Number of ground conductors, insert "1" for one system ground, or "2" for one system ground and one isolated ground. Number of neutral conductors. Number of circuits, also number of hot conductors, insert "1" for single-circuit, "2" for two-circuit, "3" for three-circuit, "4" for four-circuit, or "6" for six-circuit. "NCW" stands for new cable whip, remains constant.</p>	<p>Cable Whip – Carries Power from distribution unit to other components in flex system.</p> <p>Standard lengths: 1, 5, 10, 15, 25, 30, 40, and 50 ft. [305mm, 1.52m, 3.05m, 4.57m, 7.62m, 9.14m, 12.19m, and 15.24m]. Consult factory for all other lengths.</p> <p>Cable set can have a plug on both ends. Coded "M" on one end ("Out") and coded "F" on the other end ("In") which allows proper connections.</p> 

Division Title:
Electrical

 Division:
26 05 13.16

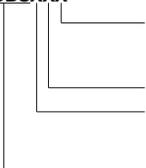
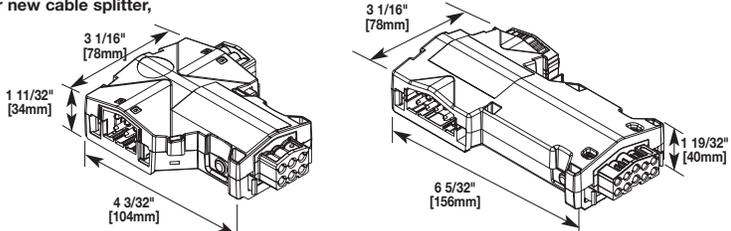
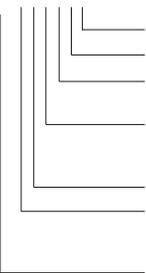
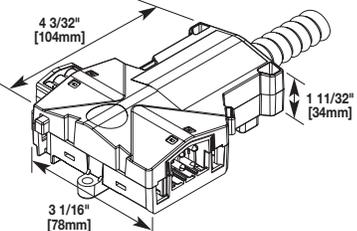
 Item:
Wiremold Electrical Distribution Wiremold

Manufacturer:

 Product Model:
NCS211AL5M/WF

 Website:
<http://www.wiremold.com>

 Link to Full Data Sheet:
<http://www.wiremold.com>
System Components (Continued)

Catalog No.	Item/Description/Specifications
NCBSXXX  <p>Number of ground conductors, insert "1" for one system ground, or "2" for one system ground and one isolated ground. Number of neutral conductors. Number of circuits, also number of hot conductors, insert "1" for single-circuit, "2" for two-circuit, or "3" for three-circuit. "NCBS" stands for new cable splitter, remains constant.</p>	<p>Cable Splitter – Used to split one or more circuits so that it can be used in more than one direction from a given point. Circuit loading limitation will still apply</p>  <p>3 1/16" [78mm] 1 11/32" [34mm] 4 3/32" [104mm] 6 5/32" [156mm] 1 19/32" [40mm]</p>
NPAXXXALX  <p>Length of MC cable drop. "L" stands for length, remains constant. Insert A = 12ga. or B = 10ga. Both with 10ga. neutral. Number of ground conductors, insert "1" for one system ground, or "2" for one system ground and one isolated ground. Number of neutral conductors. Number of circuits, also number of hot conductors, insert "1" for single-circuit, "2" for two-circuit or "3" for three-circuit. "NPA" stands for new power adapter, remains constant.</p>	<p>Power Adapters – All adapters are interface components that connect the flex system to an item that is to be energized, such as raised floor boxes, power poles, and convenience outlets. PA adapter is for 120V applications with a standard 8' [2.4m] MC cable drop and 12" [305mm] leads on the end. Used for power drops for convenience outlets. Not available in 8- and 10-wire.</p>  <p>4 3/32" [104mm] 1 11/32" [34mm] 3 1/16" [78mm]</p>

Walkerflex Wiring Configurations
3-6 WIRE CONFIGURATION

COLOR	CONFIGURATION	H	N	G	120V	120V/IG	120V
BLACK	111	1	1	1			
	211	2	1	1			
	311	3	1	1			
	411	4	1	1			
ORANGE	112	1	1	2			
	212	2	1	2			
	222	2	2	2			
NATURAL	221	2	2	1			

8-10 WIRE CONFIGURATION

COLOR	CONFIGURATION	H	N	G	120V	120V/IG	120V	120V	120V
BLACK	422	4	2	2					
ORANGE	442	1	1	2					
NATURAL	332	3	3	2					
BLUE	631	6	3	1					
IVORY	622	6	2	2					

Item:
Cable Tray

Division Title:
Cablofil

Division:
26 05 36

Website:
www.wiremold.com

Manufacturer:
Wiremold

Product Model:
Cablofil CF 30

Link to Full Data Sheet:
<http://www.wiremold.com/commerical/index/asp>



CABLOFIL®
Wire Cable Tray

The World's Most Specified Wire Cable Tray

Cablofil is the wire cable tray market leader with more than 80,000 miles installed worldwide. For over 30 years engineers and contractors around the world have found Cablofil to be the solution to any installation, large or small.

Cablofil Wire Cable Tray installs faster than traditional cable management methods. Every component of our product line has been designed to reduce installation time and costs. It can be configured to any installation, with simple tools, on the job site. Our Fast Installation System (FAS) line of mounting accessories can make installation even faster.

Cablofil products are available in a wide variety of tray sizes and finishes to meet any application need, from telecommunication systems to supporting power cables in harsh environments. To see the complete line of Cablofil products, visit our updated website at www.cablofil.com.



CABLOFIL®
INNOVATORS IN CABLE MANAGEMENT



Electrical Power Cable Support



Telecommunications Installation



Instrumentation for Industry

THE WORLD'S MOST SPECIFIED WIRE CABLE TRAY

Ever since we invented the wire cable tray industry more than 30 years ago, we have focused on developing products that **save both time and money**. To support this effort Cablofil offers engineering services and are dedicated to helping our customers design the most efficient cable management system possible.

Visit our website to download Cablofil "CSI Three Part" specifications in word or pdf format.

Division Title:

Cablofil

Division:

26 05 36

 Item:
Cable Tray

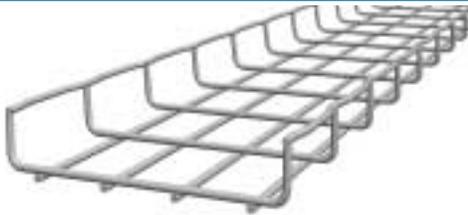
 Manufacturer:
Wiremold

 Product Model:
Cablofil CF 30

 Website:
www.wiremold.com

 Link to Full Data Sheet:
<http://www.wiremold.com/commerical/index/asp>
Cablofil® Wire Cable Tray

Available in 10' straight sections, Cablofil wire cable tray is available in a variety of sizes and finishes to suit any application. Our unique Safe-T-Edge design eliminates frayed cables.

CF 30 – CABLOFIL CABLE TRAY


	H		W		L		Weight	
	INCHES	MM	INCHES	MM	FEET	M	LBS	KG
ZF 30/50*	1"	30	2"	50	10'	3	3.3	1.5
CF 30/100	1"	30	4"	100	10'	3	4.5	2.0
CF 30/150	1"	30	6"	150	10'	3	5.7	2.6
CF 30/200	1"	30	8"	200	10'	3	7.4	3.3
CF 30/300	1"	30	12"	300	10'	3	9.4	4.3

CF 54 – CABLOFIL CABLE TRAY


	H		W		L		Weight	
	INCHES	MM	INCHES	MM	FEET	M	LBS	KG
CF 54/50	2"	54	2"	50	10'	3	5.3	2.4
CF 54/100	2"	54	4"	100	10'	3	6.5	3.0
CF 54/150	2"	54	6"	150	10'	3	7.8	3.5
CF 54/200	2"	54	8"	200	10'	3	9.0	4.1
CF 54/300	2"	54	12"	300	10'	3	13.4	6.1
CF 54/450	2"	54	18"	450	10'	3	22.8	10.3
CF 54/500	2"	54	20"	500	10'	3	24.4	11.0
CF 54/600	2"	54	24"	600	10'	3	27.5	12.5

CF 105 – CABLOFIL CABLE TRAY


	H		W		L		Weight	
	INCHES	MM	INCHES	MM	FEET	M	LBS	KG
CF 105/100	4"	105	4"	100	10'	3	9.0	4.1
CF 105/150	4"	105	6"	150	10'	3	10.2	4.6
CF 105/200	4"	105	8"	200	10'	3	13.4	6.1
CF 105/300	4"	105	12"	300	10'	3	21.2	9.6
CF 105/450	4"	105	18"	450	10'	3	25.9	11.8
CF 105/500	4"	105	20"	500	10'	3	27.5	12.5
CF 105/600	4"	105	24"	600	10'	3	30.4	13.8

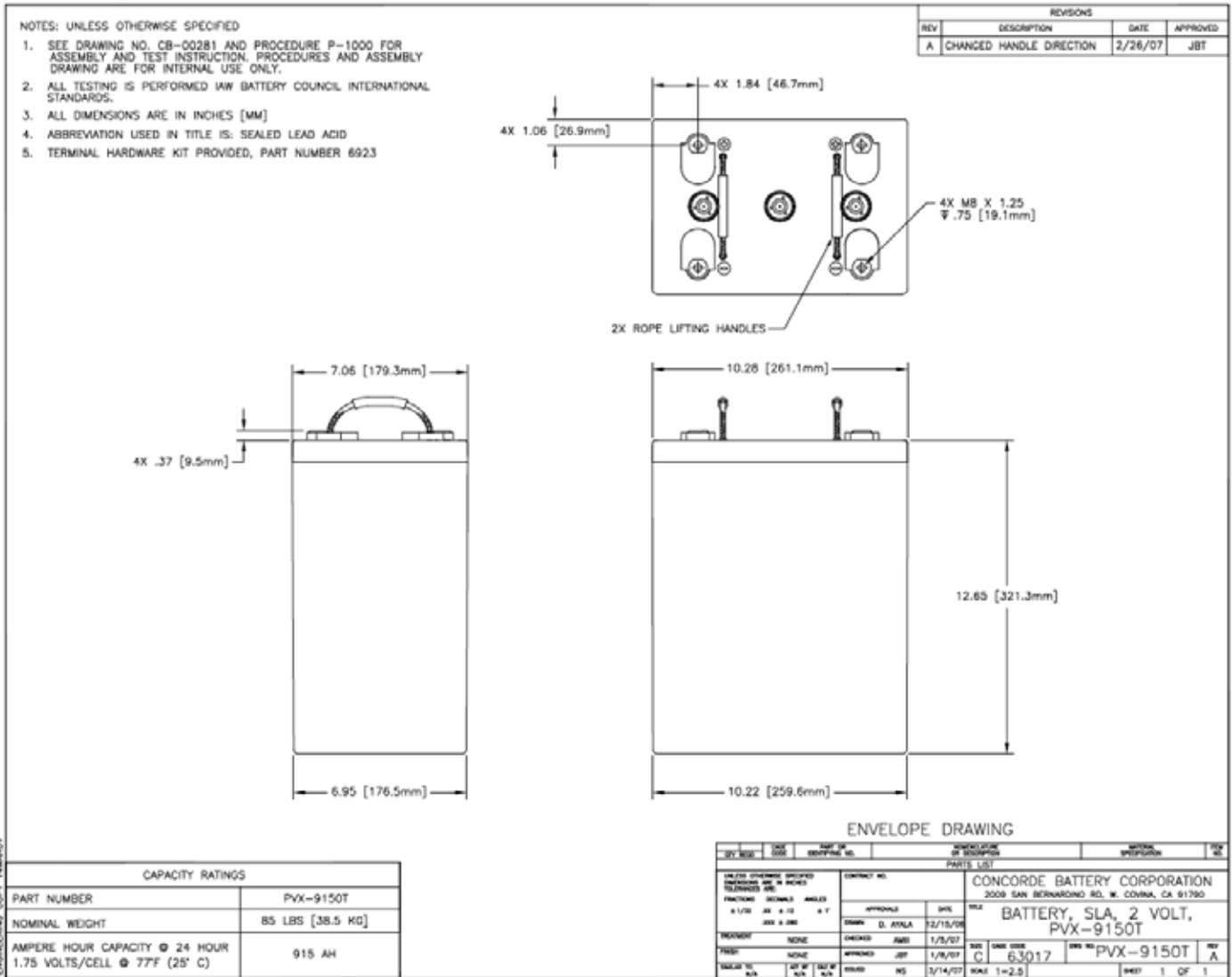
Item:
Batteries

Division Title:
Electrical
Manufacturer:
Concorde Battery

Division:
26 33 13
Product Model:
2 Volt PVX -9150

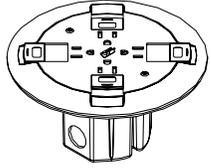
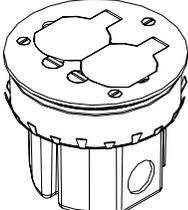
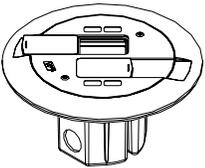
Website:
www.concordebattery.com

Link to Full Data Sheet:
www.concordebattery.com



The data/information contained herein has been reviewed and approved for general release on the basis that this document contains no export-controlled information.

861 Wood Floor Box Ordering Information

Catalog No./Item	Description/Specifications	Catalog No./Item	Description/Specifications
861 	Wood Floor Box – Die-cast aluminum construction with three 1/2" trade size knockouts; two on the sides and one on the bottom. 18 cu. in. [295 cu. cm] capacity. Requires a 4" [102mm] diameter hole. Comes complete with a disposable cover. Receptacle and activation sold separately.	861QTCGY 861QTCBK 861QTCAL 861QTCBS 861QTCAB 861QTCVY 	Wood Floor Box Assembly – Complete with prewired 15A quad receptacle can be wired as standard or isolated ground. Flush poke-thru style cover which is available in painted gray (GY), black (BK), ivory (VY), or brushed metal finishes in aluminum (AL) and brass (BS). Slide covers match painted flange colors: gray, black, ivory. Aluminum and brass flanges shipped with black slide cover. Brass flange also available with nonmetallic brass color slide holder (AB). Die-cast aluminum construction with three 1/2" trade size knockouts; two on the sides and one on the bottom, 18 cu. in. [295 cu.cm] capacity. Requires a 4" [102mm] diameter hole and overall floor depth of 1" [25mm].
861DB 	Wood Floor Box Assembly – Complete with 20A duplex receptacle and brass cover plate. Die-cast aluminum construction with three 1/2" trade size knockouts; two on the sides and one on the bottom. 18 cu. in. [295 cu. cm] capacity. Requires a 4" [102mm] diameter hole and overall floor depth of 1" [25mm].	NOTE: Assembled with scrub water gasket. For use on tile, wood, or carpet floors.	
861AMDTCGY 861AMDTCBK 861AMDTCAL 861AMDTCBS 861AMDTTAB 861AMDTCVY 	Wood Floor Box Assembly – All communication floor boxes accept up to four UTP connectors. Flush poke-thru style flanges available in painted gray (GY), black (BK), ivory (VY), or brushed metal finishes in aluminum (AL) and brass (BS). Slide covers match painted flange colors: gray, black, ivory. Aluminum and brass flanges shipped with black slide cover. Brass flange also available with nonmetallic brass-color (AB) slide holder. Die-cast aluminum construction with three 1/2" trade size knock outs; two on the sides and one on the bottom. 18 cu. in. [295 cu.cm.] capacity. Requires a 4" [102mm] diameter hole and overall floor depth of 1" [25mm].	861AMDRTTTCGY 861AMDRTTTCBK 861AMDRTTTCAL 861AMDRTTTCBS 861AMDRTTTCAB 861AMDRTTTCVY 	Wood Floor Box Assembly –All communication floor boxes accept up to four UTP connectors. Flush poke-thru style flanges available in painted gray (GY), black (BK), ivory (VY), or brushed metal finishes in aluminum (AL) and brass (BS). Slide covers match painted flange colors: gray, black, ivory. Aluminum and brass flanges shipped with black slide cover. Brass flange also available with nonmetallic brass color slide holder (AB). Die-cast aluminum construction with three 1/2" trade size knockouts; two on the sides and one on the bottom, 18 cu. in. [295 cu. cm.] capacity. Requires a 4" [102mm] diameter hole and overall floor depth of 1" [25mm].
	<input type="checkbox"/> ORT <input type="checkbox"/> P&S <input type="checkbox"/> OPEN		<input type="checkbox"/> ORT <input type="checkbox"/> P&S <input type="checkbox"/> OPEN

Division Title:
Electrical

Division:
26 11 13

Item:
AC Energy Metering Schedule

Manufacturer:

Product Model:

Website:

[Link to Full Data Sheet:](#)

Category	Description	Product Information	Manufacturer	Manufacturer Model #
AC energy meters	Non-metallic 18" H x 16" W x 8" D enclosure	AutomationDirect order page	AutomationDirect	HW-J181608CHTLW
AC energy meters	Carbon steel 18" H X 16" W backplate	AutomationDirect order page	AutomationDirect	HW-MP1816CS
AC energy meters	2 pair twisted shielded stranded wire	Newark order page	Belden	8723
AC energy meters	Universal multi-pole circuit breaker lock-off	Grainger order page	Brady	66320
AC energy meters	Grounding screw		Halex	63299
AC energy meters	Universal Smart Wire 14 AWG stranded THHN wire		Windy City	112-3401J
AC energy meters	Bi-directional WattNode w/ positive and negative pulse outputs	Continental Control Systems product page	Continental Control Systems	WNB-3Y-208-P-050Hz
AC energy meters	Per phase WattNode w/ three pulse outputs	Continental Control Systems product page	Continental Control Systems	WNB-3Y-208-P3-050Hz
AC energy meters	5 A split core current transformer w/ 0.750" inside diameter	Continental Control Systems product page	Continental Control Systems	CTS-0750-005
AC energy meters	15 A split core current transformer w/ 0.750" inside diameter	Continental Control Systems product page	Continental Control Systems	CTS-0750-015
AC energy meters	20 A split core current transformer w/ 0.750" inside diameter	Continental Control Systems product page	Continental Control Systems	CTS-0750-020
AC energy meters	30 A split core current transformer w/ 0.750" inside diameter	Continental Control Systems product page	Continental Control Systems	CTS-0750-030
AC energy meters	50 A split core current transformer w/ 0.750" inside diameter	Continental Control Systems product page	Continental Control Systems	CTS-0750-050
AC energy meters	70 A split core current transformer w/ 0.750" inside diameter	Continental Control Systems product page	Continental Control Systems	CTS-0750-070

Division Title:
Electrical

 Division:
26 11 13

 Item:
Data logging & Communication

Manufacturer:

Product Model:

Website:

[Link to Full Data Sheet:](#)

Communications	CS I/O to 9-pin RS-232 DCE synchronous interface	Allows high-speed Raven communications with datalogger	Campbell Scientific catalog	Campbell Scientific	SC105
Communications	SC105 mounting kit	Allows SC105 mounting inside enclosure	Campbell Scientific catalog	Campbell Scientific	16987
Communications	Cellular antenna	Antenna for Raven modem	Campbell Scientific catalog	Campbell Scientific	18285
Communications	Airlink Raven CDMA cellular digital modem for Verizon	Transmits datalogger data to cell tower for eventual download by NREL server	Campbell Scientific catalog	Campbell Scientific	RAVEN100
Datalogger and peripherals	5-conductor wire	Connects SDM device to datalogger and SDM device to SDM device	Campbell Scientific catalog	Campbell Scientific	SDMCBL
Datalogger and peripherals	Wall charger for PS100	General purpose transformer used to supply 18 VAC power to power supply charging inputs	Campbell Scientific catalog	Campbell Scientific	9591
Datalogger and peripherals	16 or 32 channel relay multiplexer	Increases number of analog channels of the datalogger	Campbell Scientific catalog	Campbell Scientific	AM16/32A
Datalogger and peripherals	8-channel switch closure input module	Outputs pulse counts of WattNodes and flowmeters	Campbell Scientific catalog	Campbell Scientific	SDM-SW8A
Datalogger and peripherals	Weather-Resistant 16" W x 18" H enclosure	Provide mounting surface and protection for datalogger and peripherals	Campbell Scientific catalog	Campbell Scientific	ENC16/18
Datalogger and peripherals	12 Vdc power supply w/ rechargeable battery	Provides 12 VDC, 7 Ahr rechargeable power supply for datalogger	Campbell Scientific catalog	Campbell Scientific	PS100
Datalogger and peripherals	Measurement and control datalogger	Central datalogging	Campbell Scientific catalog	Campbell Scientific	CR1000
Datalogger and peripherals	A105 additional 12 V terminals adapter for PS100	Provides 4 additional 12 VDC and 4 additional ground terminals for PS100	Campbell Scientific catalog	Campbell Scientific	A105

Division Title:
HVAC

Division:
26 11 13

Item:
Sensors Schedule

Manufacturer:
Uponer

Product Model:
Joist Trak™

Website:

[Link to Full Data Sheet:](#)

3 Flowmeters	3/4" pulse output flow meter	Measures flow rate in 3/4" pipe	Omega	FTB4607
2 Pyranometers	LI-COR Silicon pyranometer	Measures global solar radiation	LI-COR	LI-200SZ
Temp and RH probes	Vaisala probe and wire	Carries output signal to multiplexer	Campbell Scientific	HMP50
Thermocouples	Naturally aspirated radiation shield Surface thermocouple with self-adhesive backing Hermetically sealed tip insulated thermocouple Insulated thermocouple wire		Campbell Scientific	41303-5A
Wind vane and anemometer			Campbell Scientific	03001
Wind vane and anemometer	Right angle bracket			
Wind vane and anemometer	Sensor crossarm w/ one CM210 mounting kit			

Item:
Interior Lights

Division Title:
Electrical

Division:
26 51 00

Website:

[Link to Full Data Sheet:](#)

Product Model:

92 **PH 4/3 Pendant**



pendants



Weblink
121

2700 Colorado Building, Santa Monica, California, USA. Architect: Frederick Fische Partners Architects. Photo: Henry Cabala Photography

Design
Poul Henningsen

Concept
PH 4/3 Pendant (1966) provides a primarily downward illumination. PH 4/3 is based on the principle of a reflecting multi-shade system, creating a harmonious and glare free illumination. The shades are drawn over a logarithmic spiral, with the center of the light source placed in the spiral's focal point.

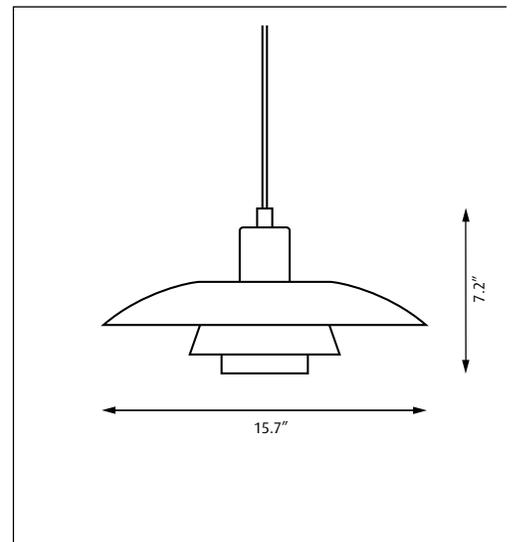
Finish
Aluminum, brushed and lacquered. White, wet painted.

Material
Shades: Spun aluminum.

Mounting
Canopy: White. Cord type: 3-conductor, 18 AWG PVC power cord. Cord color: Aluminum version: Black cord or white version: white cord. Cord length: 12".

Weight
Max. 2 lbs.

Label
cUL, Dry location. IBEW.





14W/835 Min Bipin T5 HE ALTO UNP

Product family description
Ultra-slim design with extraordinary light output.

Features/Benefits

- Improved optical control.
- Fixtures can be 40% smaller than T8 systems.
- Design flexibility for cove and cabinet lighting.
- Better fit in 2 x 2 and 2 x 4 grid ceilings.
- Up to 104 lumens per watt.
- 95% lumen maintenance.
- 85 CRI in 3000, 3500 and 4100K.
- High system efficacy.
- Fail-safe operation at end of life.
- 20,000 hours rated average life.

Applications

- Ideal for general, decorative and architectural lighting in offices, retail stores, hotels, schools and hospitals.

Notes

- Silhouette: T5 nominal lamp lengths are shorter than standard sizes. See dimension chart for details.

Product data	
Product Number	230797
Full product name	14W/835 Min Bipin T5 HE ALTO UNP
Ordering Code	F14T5/835/ALTO
Pack type	Unpacked
Pieces per Sku	1
Skus / Case	40
Pack UPC	046677230791
EAN2US	
Case Bar Code	50046677230796
Successor Product number	
Watts[W]	14W
Color Code	835 [CCT of 3500K]
Base	Min Bipin [Miniature Bipin]
Bulb	T5 [16mm]
Special packing	ALTO
Packing Type	UNP [Unpacked]
Packing Configuration	40
System Description	High Efficiency
Base Information	Green[Green Base]
Rated Avg. Life[hr]	24000



A-Shape 14W Med EL/SWP 3BC

Product family description

Screw-in Compact Fluorescent with an electronic, integral ballast. Direct replacement for incandescent, offering energy savings, high color rendering and long life.

Features/Benefits

- Energy Savings - Saves up to 73% in electricity costs compared to incandescent lamps.
- Provides soft, white light in an incandescent like shape.
- Long Life - Lasts 6 years, based on 3- 4 hours average daily usage, 7 days per week (up to 8 times longer than standard incandescent lamps).
- Available in 60W and 75W equivalents.
- Amalgam Technology - Provides stable light output over a broad range of temperatures.
- ENERGY STAR Qualified.
- Long Life - 8,000 hrs.

Applications

- Ideal for sconces and table and standing floor lamps.

Notes

- The use of Amalgam Technology results in relatively stable light output across a broad range of ambient temperatures and operating positions. (216)
- Use in recessed cans or enclosed indoor fixtures could result in reduced lamp life. (228)
- All Marathon® lamps are suitable for indoor or outdoor use down to - 10F. Outdoor use requires a weather-protected fixture. All these products comply with

- part 18 of the FCC rules. These products may cause interference with AM radios, cordless telephones, and remote control devices. Interference may be caused after a brief 90- second lamp warm- up period. If interference continues, relocate the lamp away from the device or plug into a different outlet. (217)
- All lamps are electronically ballasted and designed for 120 volt operation. Lamps operated in extreme environments will have reduced life (ie. recessed or enclosed lighting fixtures with elevated line voltage). Caution: except for lamps marked dimmable, do not use with dimmers. Before using these lamps with electronic timing or photocell devices, check to determine whether the device is compatible with compact fluorescent lamps. Use with incompatible devices will result in premature lamp failure. These products are UL listed. (218)
- Average life under specified test conditions with lamps turned off and restarted no more frequently than once every 3 operating hours. (230)
- Approximate initial lumens. The lamp lumen output is based upon lamp performance after 100 hours of operating life under standard laboratory conditions. (231)

Product data

Product Number	152744
Full product name	A-Shape 14W Med EL/SWP 3BC
Ordering Code	BC- EL/A SWP 14W
Pack type	3 Lamps in a Blister Card
Pieces per Sku	3
Skus / Case	4
Pack UPC	046677152741

EAN2US



SPECIFICATIONS



The ColorBlast® 12 Powercore fixture combines rich, saturated wall-washing color and color-changing effects with high-performance, operational efficiency, and simplified installation. Powercore® technology and low-profile mounting are combined in a stylish and durable housing.

Projecting a soft-edge beam of light, ColorBlast 12 Powercore is a sealed product designed for both indoor and outdoor installations. The fixture is fully enclosed in a rugged die-cast aluminum housing and meets or exceeds specifications for use in wet locations. ColorBlast 12 Powercore has a single 4-conductor cable and attaches to standard junction boxes with 3.5" center-to-center hole spacing. The pre-assembled mounting base provides smooth, friction-free rotation. The base is designed to simplify installation by minimizing parts and allowing for after-installation rotation, eliminating the need for precise junction box positioning. With up to 350° rotation, the locking base swivel, along with 110° locking fixture rotation, offers a versatile range of light positioning. Four mounting screws ensure a water-tight, maximum longevity seal.

Powercore technology is a digital power processing technology to drive LED systems, integrating power and data management directly into the fixture and eliminating the need for an external power supply. Powercore surpasses traditional power supply technology by streamlining multiple conversion and regulation stages into a single, flexible, microprocessor-controlled power stage that controls power output to LED systems directly from line voltage and significantly increases overall system efficiency. Built-in active power factor correction (PFC) yields higher system efficiencies and minimizes stress on building wiring, making the installation and system more cost effective.

ColorBlast 12 Powercore can be controlled by Color Kinetics' line of controllers or a third-party DMX controller and receives data via Color Kinetics' Data Enabler—a data formatting device that accepts DMX or Color Kinetics Ethernet protocol. An Installation Tool is available at <http://www.colorkinetics.com> to calculate the number of fixtures per Data Enabler for specific installations. For example, in an installation using a 60 foot (18.3 m), 12AWG leader cable with 12AWG, 5 feet of cable between fixtures, each Data Enabler can support up to 25 fixtures at 120VAC (15A), 34 fixtures at 120VAC (20A), or 60 fixtures at 240VAC (20A). ColorBlast 12 Powercore.

CHROMACORE™
BY COLOR KINETICS

POWERCORE™
BY COLOR KINETICS

OPTIBIN™
BY COLOR KINETICS

 DRY

 DAMP

 WET

CE **cUL** **US**
LISTED
13PE

COLORBLAST 12 POWERCORE PRELIMINARY SPECIFICATIONS

COLOR RANGE	16.7 million (24bit) additive RGB colors; continuously variable intensity
SOURCE	36 High intensity RGB LEDs
BEAM ANGLE	10° clear lens, 23° ground lens
HOUSING	Die cast aluminum, powder coated
LENS	Clear tempered glass or soft-focus tempered glass
CONNECTORS	Unified power and data cable
LISTINGS	UL/cUL, CE
COMMUNICATION SPECIFICATIONS	
DATA INTERFACE	Color Kinetics Data Enabler
CONTROL	Color Kinetics full line of controllers or another DMX512 (RS485) source
ELECTRICAL SPECIFICATIONS	
INPUT	100-240VAC, 50-60 Hz
POWER CONSUMPTION	50W @ 110-240VAC (60W @ 100VAC)
POWER FACTOR	0.95 or greater @ 120VAC
ENVIRONMENTAL SPECIFICATIONS	
TEMPERATURE RANGE	-40°F to 122°F (-40°C to 50°C) operating temperature -4°F to 122°F (-20°C to 50°C) starting temperature
PROTECTION RATING	IP66 (Suitable for wet locations.)

LED SOURCE LIFE

In traditional lamp sources, lifetime is defined as the point at which 50% of the lamps fail. This is also termed Mean Time Between Failure [MTBF]. LEDs are semiconductor devices and have a much longer MTBF than conventional sources. However, MTBF is not the only consideration in determining useful life. Color Kinetics uses the concept of useful light output for rating source lifetimes. Like traditional sources, LED output degrades over time (lumen depreciation) and this is the metric for SSL lifetime.

LED lumen depreciation is affected by numerous environmental conditions such as ambient temperature, humidity, and ventilation. Lumen depreciation is also affected by means of control, thermal management, current levels, and a host of other electrical design considerations. Color Kinetics systems are expertly engineered to optimize LED life when used under normal operating conditions. Lumen depreciation information is based on LED manufacturers' source life data as well as other third party testing. Low temperatures and controlled effects have a beneficial effect on lumen depreciation. Overall system lifetime could vary substantially based on usage and the environment in which the system is installed.

Temperature and effects will affect lifetime. Color Kinetics rates product lifetime using lumen depreciation to 50% of original light output. When the fixture is running at room temperature using a color wash effect, the range of lifetime is in the range of 80,000-100,000 hours. This is LED manufacturers' test data. High output is defined as any LED device that is 1/2 watt or above. For more detailed information on source life, please see www.colorkinetics.com/lifetime.

ITEM# 123-000009-00 (UL, White, Frosted Lens)
123-000009-01 (UL, Black, Frosted Lens)
123-000009-02 (CE, White, Frosted Lens)
123-000009-03 (CE, Black, Frosted Lens)
123-000009-04 (UL, White, Clear Lens)
123-000009-05 (UL, Black, Clear Lens)
123-000009-06 (CE, White, Clear Lens)
123-000009-07 (CE, Black, Clear Lens)

This product is protected by one or more of the following U.S. Patents and their foreign counterparts: 6,016,038, 6,150,774, 6,292,901, 6,340,868, 6,777,891, 6,788,011, 6,806,659, 6,969,954, and 6,975,079. Other patents pending.

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BROXXX Rev 00

Specifications subject to change without notice.

Refer to www.colorkinetics.com for the most recent data sheet versions.

FreeJack	MonoRail	Two-Circuit MonoRail	Wall MonoRail	Kable Lite	TwinRail	T-trak™
N/A	N/A	N/A	N/A		N/A	N/A

K-Hello

ARCHITECTURAL HEAD

DESCRIPTION

Highly adjustable head tilts between cables and rotates 140° within its ring. Integral louver lens holder can hold a single lens (sold separately) or eggcrate louver (included). Specify low-voltage MR16 lamp with 3.5" or 5.5" cable separation or PAR36 AR111 with 6.5" separation.

SYSTEM

Available for Kable Lite only.

COLOR

None.

FINISH

Satin aluminum only.

LAMP

Low-voltage Halogen MR16 lamp up to 50 watts or PAR36 AR111 up to 75 watts (not included).

ACCESSORIES AND OPTICAL CONTROLS

MR16 Snout (for MR16 type only), Glass Lens (sold separately).

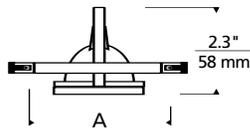
WEIGHT

0.30 lb./0.14 kg. ±



hds_khello_spec.pdf

K-HELLO
Shown approximately 70% actual size.



Bare Cable

DESCRIPTION

Bare cable is #10 gauge tin-plated copper cable with kevlar core.

Rated for 300 watts at 12 volts, 600 watts at 24 volts.
Load: 300 watt maximum at 12 volts to 30' before voltage drop occurs; 600 watt maximum at 24 volts to 60' before voltage drop occurs.

Cable is sold by the foot (0.3 m). Order the length of the Kable Lite run x 2 and add 10 percent to feed through turnbuckles.

FINISH

Chrome only.

WEIGHT

0.15 lb./0.07 kg. ± per foot



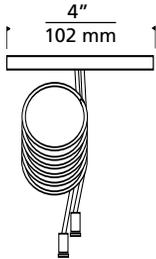
Shown actual size.



Center Power Feed



Shown approx. 20% actual size.



DESCRIPTION

Center Power Feeds are generally used to bring power to a Kable Lite system when the transformer or canopy cannot be located directly above the run. The center power feed can be used anywhere within the run and includes a removable 4" round canopy and 12' of field-cutttable softwire leads. Specify dual-feed when using a dual-feed transformer. Dual-feed canopy includes isolating connectors.

INSTALLATION

This product can mount to either a 4" square electrical box with round plaster ring or an octagon electrical box (not included), directly to a remote transformer, or to a Kable Lite Surface Transformer (sold separately).

FINISH

Chrome, satin nickel.

WEIGHT

1.95 lb./0.89 kg. ±

ORDERING INFORMATION

700KPCEN

STYLE

SINGLE-FEED
4 DOUBLE-FEED

FINISH

C CHROME
S SATIN NICKEL

Slimline Anchors



Shown approx. 35% actual size.

DESCRIPTION

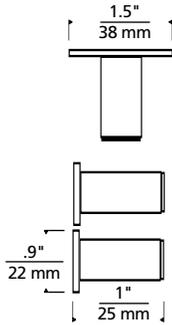
For short, straight runs, slimline anchors secure cables at one end of run (with turnbuckles at other end). Mount to wall or ceiling. 1.5" washer (included) is recommended for ceiling mount support. Pair.

FINISH

Chrome, satin nickel.

WEIGHT

0.15 lb./0.07 kg. ±



ORDERING INFORMATION

700PRTT0

FINISH

C CHROME

S SATIN NICKEL

Slimline Turnbuckles

DESCRIPTION

For short, straight runs mount to wall or ceiling. When ceiling mounted, cables drop 1" from ceiling. Pair. If mounting to metal, order isolating version.

USAGE

Turnbuckles tighten and secure the cables and provide the necessary tension for a clean look. All turnbuckles include mounting hardware for drywall. Special hardware is available for brick, cement, or plaster surfaces (sold separately). For all runs of over twenty feet, turnbuckles should be reinforced with wood blocking behind the wall.

FINISH

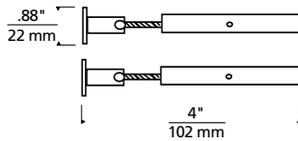
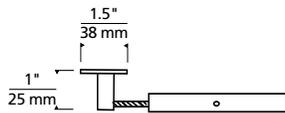
Chrome, satin nickel.

WEIGHT

0.40 lb./0.18 kg. ±



Shown approx. 35% actual size.



ORDERING INFORMATION

700PRTT1

FINISH

- C CHROME
- S SATIN NICKEL
- IC ISOLATING CHROME
- IS ISOLATING SATIN NICKEL

FreeJack	MonoRail	Two-Circuit MonoRail	Wall MonoRail	Kable Lite	TwinRail	T-trak™
N/A	N/A	N/A	N/A	N/A		N/A

TW-Pivot

ARCHITECTURAL HEAD

DESCRIPTION

Minimal, adjustable head. Swivels 220°, pivots on vertical and horizontal axes. Specify for MR16 or MR11 lamp.

SYSTEM

Available for TwinRail only.

COLOR

None.

FINISH

Chrome only.

LAMP

Low-voltage MR16 lamp up to 75 watts or MR11 lamp up to 35 watts (not included).

ACCESSORIES AND OPTICAL CONTROLS

MR16: Wild Thing, Sun Louver Lens Holder, Flight Paper, MR16 Snout, Round Glass Shield, Cone Glass Shield, Lil Egypt, Lil Wok, Barndoors, Snap Barndoors, Backlight Shield, Louver Lens Holder, Snap Louver Lens Holder, Eggcrate Louver, Glass Lens (sold separately).

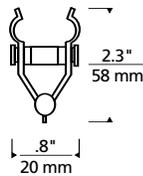
MR11: Flight Paper, Backlight Shield, Louver Lens Holder, Eggcrate Louver, Glass Lens (sold separately).

WEIGHT

0.10 lb./0.05 kg. ±



TW-PIVOT WITH
CONE GLASS SHIELD ACCESSORY
Shown approximately 50% actual size.

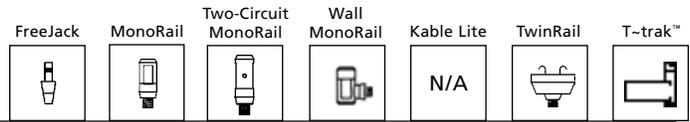


ORDERING INFORMATION

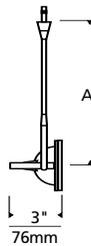
700TWPIV	TYPE	FINISH
	MR16	C CHROME
	1 MR11	

John

ARCHITECTURAL HEAD



JOHN
Shown approximately 60% actual size.



Socket terminates with FreeJack male connector, which may be installed into a system connector. Elements ordered with a system prefix include a connector for that system.

DESCRIPTION

Adjustable head tilts and rotates infinitely. Integral louver lens holder can hold a single glass lens (sold separately) or an eggcrate louver (included).

SYSTEM

Available for FreeJack, MonoRail, Two-Circuit MonoRail, Wall MonoRail, and TwinRail. For use on T~trak, order FreeJack version and T~trak FreeJack Connector (sold separately).

COLOR

None.

FINISH

Chrome, satin nickel.
TwinRail available in chrome only.

LAMP

Low-voltage MR16 lamp up to 50 watts (not included).

ACCESSORIES AND OPTICAL CONTROLS

Glass Lens (sold separately).

WEIGHT

0.20 lb./0.09 kg. ±

ORDERING INFORMATION

700	SYSTEM	JON	LENGTH (A)	FINISH
	FJ	FREEJACK	03 3"	C CHROME
	MO	MONORAIL	06 6"	S SATIN NICKEL
	MO2	TWO-CIRCUIT MONORAIL	12 12"	
		MONORAIL	18 18"	
	WMO	WALL MONORAIL	24 24"	
	TW	TWINRAIL		

90° Sharp Bend Rails

DESCRIPTION

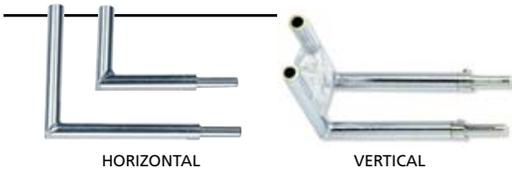
These conductive connectors join sections of rail together end to end at a 90° horizontal or vertical angle. Vertical 90° sharp bend rails are used to change the plane.

FINISH

Chrome. Custom finishes available.

WEIGHT

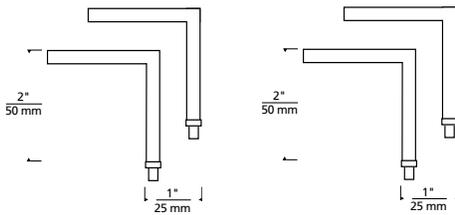
0.60-1.20 lb./0.27-0.54 kg. ±



HORIZONTAL

VERTICAL

Shown at approx. 50% of actual size



HORIZONTAL 90° CURVE

VERTICAL 90° CURVE

End Caps

DESCRIPTION

Decorative end caps fit into ends of TwinRail run for a finished look. Pair, order one pair for each end.

FINISH

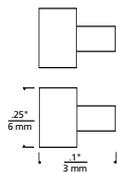
Chrome. Custom finishes available.

WEIGHT

0.05 lb./0.02 kg. ±



Shown approx. actual size.



tw_endCaps_spec.pdf



28W/835 Min Bipin T5 HE ALTO UNP

Product family description
Ultra-slim design with extraordinary light output.

Features/Benefits

- Improved optical control.
- Fixtures can be 40% smaller than T8 systems.
- Design flexibility for cove and cabinet lighting.
- Better fit in 2 x 2 and 2 x 4 grid ceilings.
- Up to 104 lumens per watt.
- 95% lumen maintenance.
- 85 CRI in 3000, 3500 and 4100K.
- High system efficacy.
- Fail-safe operation at end of life.
- 20,000 hours rated average life.

Applications

- Ideal for general, decorative and architectural lighting in offices, retail stores, hotels, schools and hospitals.

Notes

- Silhouette T5 nominal lamp lengths are shorter than standard sizes. See dimension chart for details.



14W/841 Min Bipin T5 HE ALTO UNP

Product family description

Ultra- slim design with extraordinary light output.

Features/Benefits

- Improved optical control.
- Fixtures can be 40% smaller than T8 systems.
- Design flexibility for cove and cabinet lighting.
- Better fit in 2 x 2 and 2 x 4 grid ceilings.
- Up to 104 lumens per watt.
- 95% lumen maintenance.
- 85 CRI in 3000, 3500 and 4100K.
- High system efficacy.
- Fail- safe operation at end of life.
- 20,000 hours rated average life.

Applications

- Ideal for general, decorative and architectural lighting in offices, retail stores, hotels, schools and hospitals.

Notes

- Silhouette T5 nominal lamp lengths are shorter than standard sizes. See dimension chart for details.



ESX 20W GU5.3 12V MR16 10D 1CT

Product family description

Low- voltage halogen burner optically positioned in a glass reflector with or without front glass.

Features/Benefits

- Dichroic reflector coating is heat- transmitting and light- reflecting.
- UV- Block burner.
- Color temperature 3000K.
- Lifetime 3000 hours.
- Universal burning position.
- Variety of wattages and beam spreads.

Applications

- Ideal for retail stores, hotels, restaurants, museums and art gallery lighting.

Notes

- Rated average life is the length of operation (in hours) at which point an average of 50% of the lamps will still be operational and 50% will not. (93)

Division Title:
Electical

Division:
26 56 00

Item:
Exterior Lighting

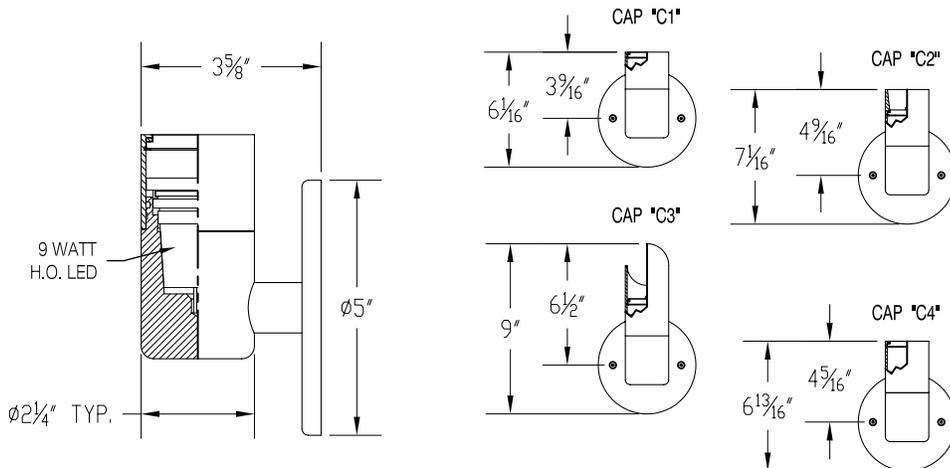
Manufacturer:

Website:

[Link to Full Data Sheet:](#)

WINSCAPE™ SUBMITTAL - GEM LED SERIES

PROJECT NAME: _____ TYPE: _____



PROJECT SPECIFICATION

GELED - 3001 - 12V

1. LIGHT SOURCE	2. VOLTAGE	3. ACCESSORY LENS	4. FINISH COLOR	5. COLOR FILTER	6. SHIELDING	7. CAP STYLE	8. SPECIAL
3001 = 9W/10°/6500K LED 135 LUMEN	12V = 12 VOLT	L0 = NONE L1 = PRISMATIC (40° BEAM SPREAD) L3 = SOFTENING (20° BEAM SPREAD)	BKS = BLACK SMOOTH BKT = BLACK TEXTURED BRS = BRONZE SMOOTH BRT = BRONZE TEXTURED WHS = WHITE SMOOTH WHT = WHITE TEXTURED SIS = SILVER SMOOTH IVS = IVORY SMOOTH CHS = CHROME SMOOTH NBS = NATURAL BRONZE VET = VERDE TEXTURED SAT = SAND TEXTURED SPF = STANDARD POWDER -COAT T.B.D. CPF = CUSTOM FINISH	FO = NONE FM = MERCURY VAPOR FR = RED FRD = RED DICHROIC FP = PINK FA = AMBER FG = GREEN FGD = GREEN DICHROIC FLB = LIGHT BLUE FMB = MED BLUE FMBD = MED BLUE DICHROIC F35 = 3500 K FILTER (ADJUSTS COLOR TEMP FROM 6500K TO 3500 K) F41 = 4100 K FILTER (ADJUSTS COLOR TEMP FROM 6500K TO 4100 K)	SH0 = NONE SH6 = HONEYCOMB LOUVER	C1 = SHORT FLUSH C2 = LENS RECESSED C3 = 45° CUTOFF C4 = LONG FLUSH	STD = STANDARD MOD = MODIFIED

MODIFICATION DESCRIPTION:
(IF NEEDED)

SPECIFICATIONS:

CONSTRUCTION: Body, cap, stem & mount plate machined from 6061-T6 ALUMINUM. Lens cut from tempered borosilicate glass for superior clarity and strength.

LED UNIT: L.E.D. unit is our perporitary unit with three watt High output LEDs and an intergral low voltage (10.5V - 15.5V) AC LED driver. Beam spread is a 10° Spot (20° & 40° beam spreads can be obtained using accessory lenes). Color temp is 6500 K(3500K & 4100K color temps can be obtained using color filters).

FINISHES: Available in 12 standard TGIC polyester powder coat finishes. Custom powder coat finishes available (contact factory for more info).

FEATURES: Field replaceable lens. Can be mounted in any position. Any combination of up to 3 lens accessories / color filter / shielding can be specified in any cap style and are held securely by a removable stainless steel clip ring. All fixtures come standard with WATERSHED LENS™.

GENERAL: This fixture requires a low voltage MAGNETIC transformer to function properly. Transformer must be purchased separately, see accessories section.

 UL Listed: Wet location, outdoor & indoor.
cUL Listed: Wet location, outdoor & indoor.

PAGE 1 of 1

WINONA LIGHTING
P.O. BOX 1205
WINONA, MN 55987

winona
lighting
WINSCAPE™

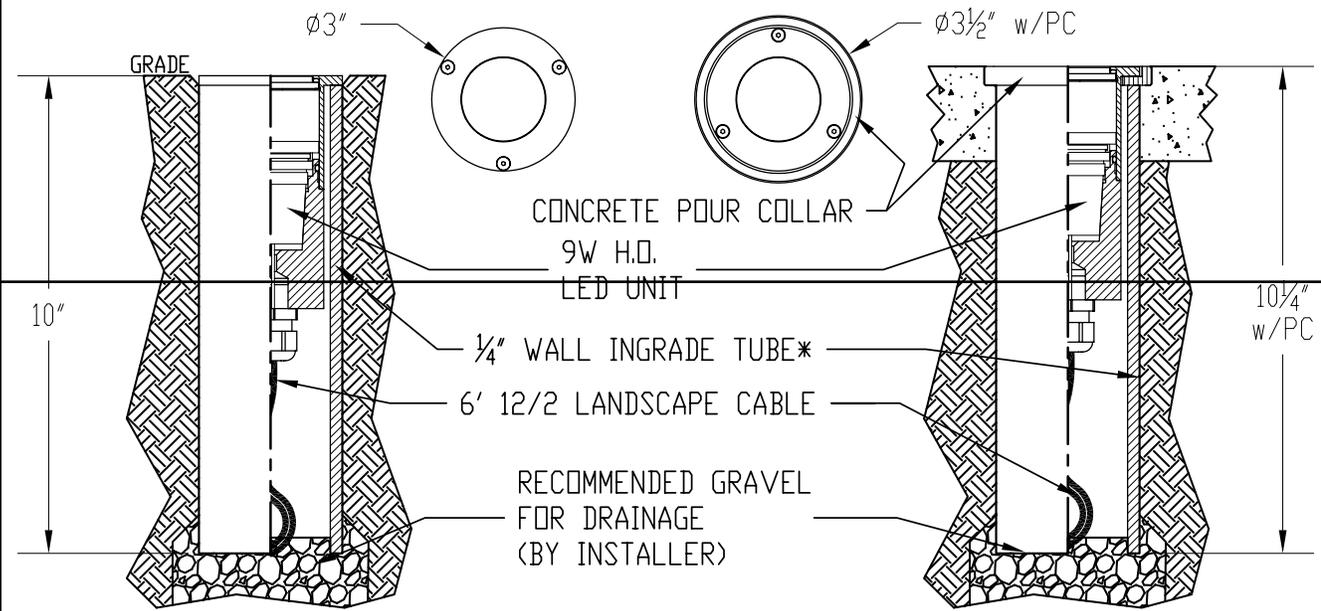
Phone: 800-328-5291
FAX: 507-454-1814
www.WINONALIGHTING.com

Updated: 4/26/07

WINSCAPE™ SUBMITTAL - LAUREL LED SERIES

PROJECT NAME: _____

TYPE: _____



PROJECT SPECIFICATION

LALED - 3001 - 12V

1. LIGHT SOURCE

3001 = 9W/10°/6500K LED
135 LUMEN

2. VOLTAGE

12V = 12 VOLT

3. ACCESSORY LENS

L0 = NONE
L1 = PRISMATIC
(40° BEAM SPREAD)
L3 = SOFTENING
(20° BEAM SPREAD)

4. FINISH COLOR

BKS = BLACK SMOOTH
BKT = BLACK TEXTURED
BRS = BRONZE SMOOTH
BRT = BRONZE TEXTURED
WHS = WHITE SMOOTH
WHT = WHITE TEXTURED
SIS = SILVER SMOOTH
IVS = IVORY SMOOTH
CHS = CHROME SMOOTH
NBS = NATURAL BRONZE
VET = VERDE TEXTURED
SAT = SAND TEXTURED
SPF = STANDARD POWDER
-COAT T.B.D.
CPF = CUSTOM FINISH

5. COLOR FILTER

F0 = NONE
FM = MERCURY VAPOR
FR = RED
FRD = RED DICHROIC
FP = PINK
FA = AMBER
FG = GREEN
FGD = GREEN DICHROIC
FLB = LIGHT BLUE
FMB = MED BLUE
FMBD = MED BLUE DICHROIC
F35 = 3500 K FILTER
(ADJUSTS COLOR TEMP FROM 6500K TO 3500K)
F41 = 4100 K FILTER
(ADJUSTS COLOR TEMP FROM 6500K TO 4100 K)

6. SHIELDING

SH0 = NONE
SH6 = HONEYCOMB
LOUVER

7. OPTIONS

0 = NONE
PC = CONCRETE
POUR COLLAR

8. SPECIAL

STD = STANDARD
MOD = MODIFIED

MODIFICATION DESCRIPTION:
(IF NEEDED) _____

SPECIFICATIONS:

CONSTRUCTION: Body, cap, pour collar & ingrade tube machined from 6061-T6 ALUMINUM. Lens cut from tempered borosilicate glass for superior clarity and strength.

LED UNIT: L.E.D. unit is our proprietary unit with three 3 watt High output LEDs and an integral low voltage (10.5V - 15.5V) AC LED driver. Beam spread is a 10° Spot (20° & 40° beam spreads can be obtained using accessory lenses). Color temp is 6500 K (3500K & 4100K color temps can be obtained using color filters).

FINISHES: Available in 12 standard TGIC polyester powder coat finishes. Custom powder coat finishes available (contact factory for more info). Ingrade tube* is always powder coated black.

FEATURES: Watershed™ lens included standard and is field replaceable. Ingrade tube made from heavy 1/4" wall aluminum and can be drilled & tapped in the field to suit mounting conditions. Any combination of up to 3 lens accessories / color filter / shielding can be specified and are held securely by a removable stainless steel clip ring. Concrete pour collar available. Includes 6ft of 12/2 Landscape cable.

GENERAL: This fixture requires a low voltage MAGNETIC transformer to function properly. Transformer must be purchased separately, see accessories section.

 UL Listed: Wet location, outdoor & indoor.
cUL Listed: Wet location, outdoor & indoor.

Division Title:
Solar Electrical Power Generation

Division:
48 14 00

Item:
P.V.Panels

Manufacturer:
Sunpower

Product Model:
SPR-215

Website:
<http://www.sunpowercorp.com>

Link to Full Data Sheet:
<http://www.sunpowercorp.com/pdf/SPR-215.pdf>

SPR-215-BLK RESIDENTIAL PV MODULE

The SunPower SPR-215-BLK is designed specifically for on-grid residential systems where a combination of high module efficiency and outstanding appearance is desirable. Utilizing 72 series-connected A-300 solar cells, the SPR-215-BLK delivers industry-leading power density in a unique all-black module package with exceptionally uniform appearance.

SunPower modules—innovative design, proven materials, outstanding performance.

FEATURES & BENEFITS

- All-black module package eliminates harsh reflections and other noticeable cosmetic module features to provide optimum array appearance
- Unique all-back-contact solar cells with conversion efficiency up to 21.5%
- Low voltage temperature coefficient, exceptional low-light performance, and high sensitivity to light across the entire solar spectrum maximize yearly energy delivery
- Highest quality, high-transmission tempered glass provides enhanced stiffness and impact resistance
- Aerospace style cell interconnects with in-plane strain relief provide extremely high reliability
- Advanced EVA encapsulation system with multi-layer backsheets meets the most stringent safety requirements for high-voltage operation
- A sturdy, black anodized aluminum frame allows modules to be easily roof-mounted with a wide variety of standard mounting systems



SPR-215-BLK RESIDENTIAL PV MODULE
An unequalled combination of power and grace

 LISTED UL 1703, Class C Fire Rating

 IEC 61215, Safety Class II Certified

Division Title:
Solar Electrical Power Generation

Division:
48 14 00

Item:
P.V.Panels

Manufacturer:
Sunpower

Product Model:
SPR-215

Website:
<http://www.sunpowercorp.com>

Link to Full Data Sheet:
<http://www.sunpowercorp.com/pdf/SPR-215.pdf>

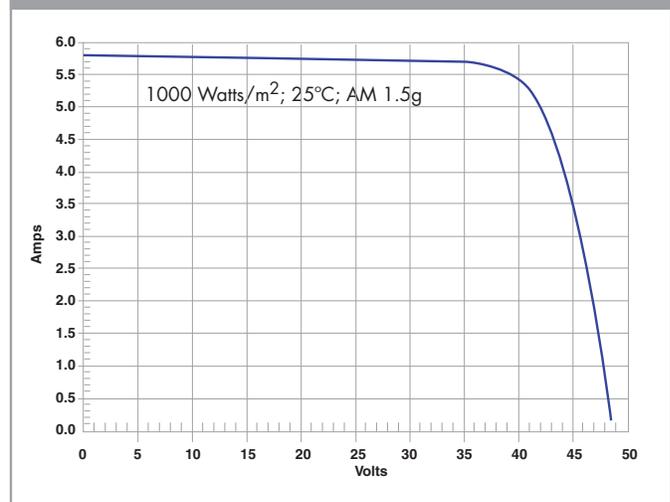
SPR-215-BLK
RESIDENTIAL PV MODULE

ELECTRICAL CHARACTERISTICS AT STANDARD TEST CONDITIONS (STC)

STC is defined as: irradiance of 1000W/m², spectrum AM 1.5g and cell temperature of 25°C

Peak Power ^{1,2}	P _{max}	215W
Rated Voltage	V _{mp}	39.8V
Rated Current	I _{mp}	5.40A
Open Circuit Voltage	V _{oc}	48.3V
Short Circuit Current	I _{sc}	5.80A
Series Fuse Rating		15A
Maximum System Voltage		600V (UL)
		1000V (IEC)
Temperature Co-efficients	Power	-0.38%/°C
	Voltage	-136.8mV/°C
	Current	2.3mA/°C
Module Efficiency		17.3%
Peak Power per Unit Area		16W/sq.ft. ; 173W/m ²
PTC Rating		197.6W

IV CURVE



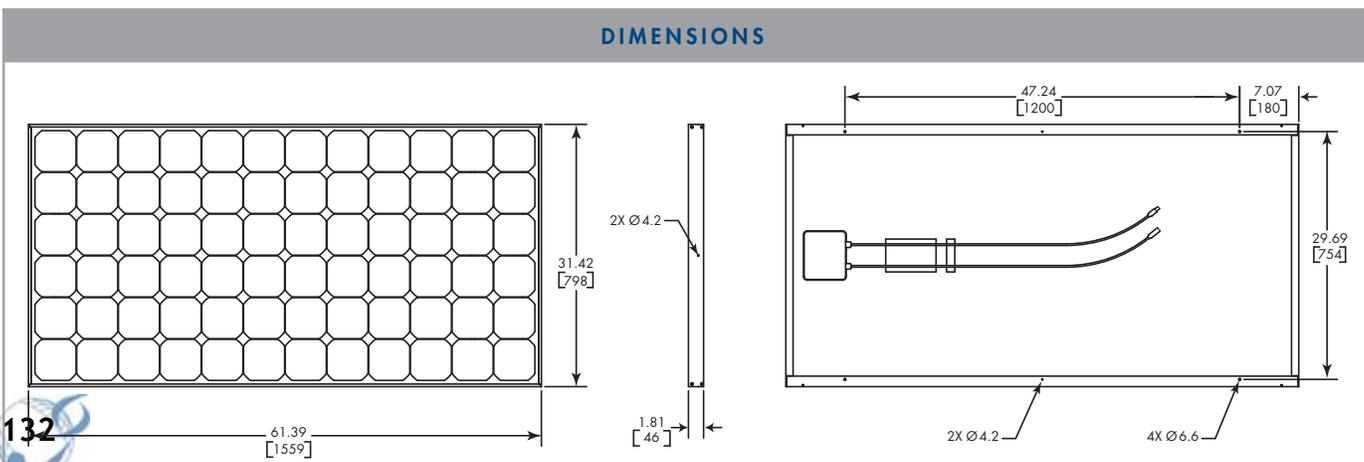
¹ Peak Power Tolerance: +/- 8%

² Power guaranteed for 25 years. See SunPower Limited Warranty for details.

MECHANICAL SPECIFICATIONS

Length	61.39 in x 31.42 in [1559 mm x 798mm]
Thickness, including junction box	1.81 in [46 mm]
Weight	33 lbs [15 kg]

DIMENSIONS



Division Title:
Solar Electrical Power Generation

Division:
48 14 00

Item:
Inverter

Manufacturer:
Sunpower

Product Model:
SPR3300x

Website:
<http://www.sunpowercorp.com>

Link to Full Data Sheet:
http://www.sunpowercorp.com/pdf/sprx_inverter.pdf

SPRx HIGH EFFICIENCY INVERTERS

SunPower high performance photovoltaic (PV) string inverters offer high efficiency, low installed cost, clean design and high reliability.

FEATURES & BENEFITS

- Peak and average efficiency greater than 94% maximizes your PV investment
- Fast MPPT algorithm ensures maximum energy harvest from your array under any conditions
- Includes integrated lockable AC/DC disconnect that is NEC compliant as a DC disconnect
- Includes a lightweight and versatile mounting bracket that simplifies installation
- Modular design allows SunPower SPRx inverters with the same or different power levels to be mounted side-by-side using the wiring box as a wiring raceway
- Sealed inverter can be separated from the wiring box enclosure allowing DC/AC connections to remain intact
- Bright LED indicators provide system status at a glance
- LCD providing instantaneous feedback on power, energy production, PV array voltage and current and much more
- Works with all SunPower modules



SPRx HIGH EFFICIENCY INVERTER

Division Title:
Solar Electrical Power Generation

 Division:
48 14 00

 Item:
Inverter

 Manufacturer:
Sunpower

 Product Model:
SPR3300x

 Website:
<http://www.sunpowercorp.com>

 Link to Full Data Sheet:
http://www.sunpowercorp.com/pdf/sprx_inverter.pdf
SPRx
HIGH EFFICIENCY INVERTERS
ELECTRICAL SPECIFICATIONS

Model	SPR-3300x	SPR-3300x-208	SPR-4000x
Maximum AC Power Output	3300 W	3300 W	4000 W
AC Output Voltage (nominal)	240 VAC	208 VAC	240 VAC
AC Voltage Range	211-264 VAC	183-228 VAC	211-264 VAC
AC Frequency (nominal)	60 Hz	60 Hz	60 Hz
AC Frequency Range	59.3-60.5 Hz	59.3-60.5 Hz	59.3-60.5 Hz
Maximum Continuous Output Current	13.8 A	15.9 A	16.7 A
Current THD	< 3%	< 3%	< 3%
Power Factor	> 0.9	> 0.9	> 0.9
DC Input Voltage Range	195-600 VDC	195-600 VDC	195-600 VDC
Max DC current	18.5 Adc	18.5 Adc	22.1 Adc
Peak Power Tracking Voltage Range	195-550 VDC	195-550 VDC	195-550 VDC
Peak Inverter Efficiency	95.3%	94.6%	95.7%
CEC Efficiency	94.5%	94.0%	95.0%
Night Time Power Consumption	< 1 W	< 1 W	< 1W
Output Overcurrent Protection	20 A	25 A	25 A
Grounding	Positive ground for SunPower modules		

MECHANICAL SPECIFICATIONS

Operating Temperature Range	-13F to 149F (-25°C to +65°C)
Enclosure Type	NEMA3R (outdoor rated)
Unit Weight	49.0 to 51 lbs
Shipping Weight	57 to 59 lbs
Shipping Dimensions (HxWxD)	34.1 x 20.4 x 10.3" (86.6 x 51.8 x 26.2 cm)
Inverter Dimensions (HxWxD)	28.5 x 15.9 x 5.7" (72.4 x 40.3 x 14.6 cm)
Mounting	Wall Mount (mounting bracket included)

FEATURES

PV/Utility Disconnect	Eliminates need for external PV (DC) disconnect. Complies with UL and NEC requirements
Cooling	Convection cooled, no fan required
Display	Backlit, 2-line, 16-character Liquid Crystal Display provides instantaneous power, daily and lifetime energy production, PV array voltage and frequency, time online "selling" today and fault messages
Communications	RS 232 and Two Canbus RJ45 ports
Wiring Box	PV, utility, ground, and communications connections. Inverter can be separated from the wiring box
Warranty	10 years

Division Title:
Solar Electrical Power Generation

 Division:
48 19 16

 Item:
Inverter

 Manufacturer:
Xantrex

 Product Model:
XW 6048

 Website:
www.xantrex.com

 Link to Full Data Sheet:
www.xantrex.com
Table A-3 Mechanical Specifications for the XW Power System

Model	XW6048-120/240-60	XW4548-120/240-60	XW4024-120/240-60
	XW6048-230-50	XW4548-230-50	XW4024-230-50
Supported Battery Types	Flooded (default), Gel, AGM, Custom		
Battery bank size	100 to 2000 Amp-hr		
Non Volatile Memory	Yes		
Display Panel	Status-at-a-glance LEDs indicate AC in Status, Faults/Warnings, Equalize mode, Battery State-Of-Charge 3 Character display indicates output power or charge current On/Off and Equalize Button		
Multiple Unit Configurations	up to 3 parallel units in 120/240 split-phase configuration up to 10 parallel units in series-stacked configuration (5 / phase) up to 9 units in 3ph 120Y configuration (3 / phase)		
Auxiliary Relay Output	Configurable 0 - 12 Vdc output, maximum 250 mA DC Adjustable triggers: low/high battery voltage or temp, fault condition		
System Network	Plug-n-Play Xanbus network Publish-subscribe network, no need for hubs or special cards		
Emissions	FCC Class B		
Regulatory approvals	UL 1741 1st Edition: 2005 Version CSA 107.1-01		
Standard Warranty	5 Years		
Field Serviceable	Yes, all components can be replaced while unit is installed on wall		
Enclosure Type	NEMA Type 1 - Indoor (sensitive electronic components sealed inside enclosure)		
Mounting	Wall Mount. Backplate included		
Ambient Temperature	Operational temperature range: -25 to 70 °C Rated temperature range (meets all specs): 0 to 40 °C		
Inverter Dimensions (W × L × D)	16" x 23" x 9" (41 cm x 58 cm x 23 cm)		
Inverter Weight (lbs)	125 (57 kg)	115 (52 kg)	115 (52 kg)
Battery Temperature Sensor	included		
Power Distribution Panel and Conduit Boxes	Optional Balance of System Components for NEC compliant installations Includes prewired AC and DC circuit breakers, busbars and multiple knockouts for conduit and additional breakers		
Remote Display	Optional System Control Panel II (SCPII) monitors all devices connected to Xanbus network		
Generator Support	Optional XW Automatic Generator Start Module (XW AGS) Connects to Xanbus network		
Communications	Optional Communication Gateway Connects to Xanbus network, 10BaseT(Ethernet) / 802.11b/g		

Division Title:
Solar Electrical Power Generation

 Division:
48 19 16

 Item:
Inverter

 Manufacturer:
Xantrex

 Product Model:
XW 6048

 Website:
www.xantrex.com

 Link to Full Data Sheet:
www.xantrex.com

Inverter Specifications

Table A-2 Electrical Specifications for 230 Vac, 50 Hz XW Power System

Model	XW6048-230-50	XW4548-230-50	XW4024-230-50
AC1 Frequency range - Sell Mode (automatically adjusts when goes into Sell Mode)	n/a		
AC Output Voltage	230 Vac +/-3%		
AC Output Current (maximum 75% imbalance between L1-n, L2-n)	26.1 A	19.6 A	17.4 A
AC Output Breaker	60 A double-pole	60 A double-pole	60 A double-pole
AC Output Frequency	50.0 Hz +/-0. 1Hz		
Total Harmonic Distortion	< 5%		
Automatic Transfer Relay	60 Amps		
Utility-Interactive	Disabled		
CEC Weighted Efficiency	n/a	n/a	n/a
CEC Power Rating (Watts)	n/a	n/a	n/a
DC Input Voltage (Nominal)	50.4 Vdc	50.4 Vdc	25.2 Vdc
DC Input Voltage Range	44 to 64 Vdc	44 to 64 Vdc	22 to 32 Vdc
DC Current at Rated Power (amps)	127	95	171
Continuous Charge Rate at L-L voltage (amps)	100	85	150
Power Factor Corrected Charging	PF (0.98)		

Division Title:
Solar Electrical Power Generation

 Division:
48 19 16

 Item:
Inverter

 Manufacturer:
Xantrex

 Product Model:
XW 6048

 Website:
www.xantrex.com

 Link to Full Data Sheet:
www.xantrex.com

Electrical Specifications

Table A-1 Electrical Specifications for 120/240 Vac, 60 Hz XW Power System

Model	XW6048-120/240-60	XW4548-120/240-60	XW4024-120/240-60
CEC Weighted Efficiency	93.5%	TBD	TBD
CEC Power Rating (Watts)	6000	4500	4000
DC Input Voltage (Nominal)	50.4 Vdc	50.4 Vdc	25.2 Vdc
DC Input Voltage Range	44 to 64 Vdc	44 to 64 Vdc	22 to 32 Vdc
DC Current at Rated Power (amps)	127	95	171
Continuous Charge Rate at L-L voltage (amps)	100	85	150
Power Factor Corrected Charging	PF (0.98)		

Table A-2 Electrical Specifications for 230 Vac, 50 Hz XW Power System

Model	XW6048-230-50	XW4548-230-50	XW4024-230-50
Continuous Output Power (watts)	6,000	4,500	4,000
5 second Surge (watts)	12,000	9,000	8,000
Waveform	True Sine	True Sine	True Sine
Peak Efficiency	95% (1975 W)	95% (TBD)	95% (TBD)
Low Load Efficiency (~ 1000 Watts)	94%	94%	94%
Full Load Efficiency	91%	91%	91%
Idle Consumption - invert mode, no load (watts)	28	26	24
Idle Consumption - search mode (watts)	< 2	< 2	< 2
Search mode threshold range	25 W to 255 W (25 W default)		
AC Inputs	AC1 (Grid), AC2 (Generator)		
AC Voltage	230 Vac Single Phase		
AC Input voltage range (Bypass/ Charge Mode)	160 - 270 Vac (230 V nominal)		
AC1 voltage range - Sell Mode (automatically adjusts when goes into Sell Mode)	n/a		
AC Input Current (maximum 75% imbalance between L1-n, L2-n)	28.7 A	21.5 A	19.1 A
AC Input Breaker	60 A double-pole	60 A double-pole	60 A double-pole
AC Input Frequency Range (Bypass/Charge Mode)	45 - 55 Hz (default) 44 - 70 Hz (allowable)		

Division Title:
Solar Electrical Power Generation

 Division:
48 19 16

 Item:
Inverter

 Manufacturer:
Xantrex

 Product Model:
XW 6048

 Website:
www.xantrex.com

 Link to Full Data Sheet:
www.xantrex.com

Electrical Specifications

Table A-1 Electrical Specifications for 120/240 Vac, 60 Hz XW Power System

Model	XW6048-120/240-60	XW4548-120/240-60	XW4024-120/240-60
Continuous Output Power (watts)	6,000	4,500	4,000
5 second Surge (watts)	12,000	9,000	8,000
Waveform	True Sine	True Sine	True Sine
Peak Efficiency	95% (1975 W)	95% (TBD)	95% (TBD)
Low Load Efficiency (~ 1000 Watts)	94%	94%	94%
Full Load Efficiency	91%	91%	91%
Idle Consumption - invert mode, no load (watts)	28	26	24
Idle Consumption - search mode (watts)	< 2	< 2	< 2
Search mode threshold range	5 W to 255 W (10 W default)		
AC Inputs	AC1 (Grid), AC2 (Generator)		
AC Voltage	120/240 Vac Split Phase		
AC Input voltage range (Bypass/ Charge Mode)	L-n: 80 - 150 Vac (120 V nominal) L-L: 160 - 270 Vac (240 V nominal)		
AC1 voltage range - Sell Mode (automatically adjusts when goes into Sell Mode)	L-n: 106 - 132 Vac L-L: 211 - 264 Vac		
AC Input Current (maximum 75% imbalance between L1-n, L2-n)	L-n: 41.2 A L-L: 27.5 A	L-n: 30.9 A L-L: 20.6 A	L-n: 27.5 A L-L: 18.3 A
AC Input Breaker	60 A double-pole	60 A double-pole	60 A double-pole
AC Input Frequency Range (Bypass/ Charge Mode)	55 - 65 Hz (default) 44 - 70 Hz (allowable)		
AC1 Frequency range - Sell Mode (automatically adjusts when goes into Sell Mode)	59.3 - 60.5 Hz		
AC Output Voltage	L-n: 120 Vac +/-3% L-L: 240 Vac +/-3%		
AC Output Current (maximum 75% imbalance between L1-n, L2-n)	L-n: 37.5 A L-L: 25.0 A	L-n: 28.1 A L-L: 18.8 A	L-n: 25.0 A L-L: 16.7 A
AC Output Breaker	60A double-pole	60A double-pole	60A double-pole
AC Output Frequency	60.0 Hz +/-0.1 Hz		
Total Harmonic Distortion	< 5%		
Automatic Transfer Relay	60 Amps		
Utility-Interactive	Yes		

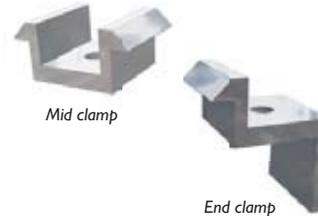
Item: Solar Mounting System	Division Title: Solar Electrical Power Generation	Division: 48 14 00
Website: http://www.unirac.com/solarmount.htm	Manufacturer: Unirac	Product Model: Unirac Solar Mount
	Link to Full Data Sheet: http://www.unirac.com/solarmount/sm_pdf/sm_price.pdf	

Top Mounting

Size installations using top mounting clamps with SolarMount® light or standard rails

Sizing can take place as soon as you know the make, model, and number of modules you plan to mount. Call UniRac for modules not listed. When sizing is complete, rails, clamps, splices, and L-feet may be ordered in either of two ways:

- Kits (pp. 8, 11–14) contain just the right component quantities for a given installation.
- Pro-Pak pricing (pp. 9–14) offers bulk components, best for installers who regularly use SolarMount.



Required rail lengths (inches) and top mounting clamp sizes

Module make and model	Clamp size	Number of modules to be mounted per row										
		2	3	4	5	6	7	8	9	10	11	12
BP Solar												
BP365	E	48	72	96	106	132	156	180	192	216	240	252
BP380, -485	E	48	72	96	120	144	168	180	204	226	252	276
BP3125	E	60	96	120	144	168	204	226	252	288	312	336
BP3150, -3160, -4175	E	72	106	132	168	204	240	264	300	324	360	396
BPSX160B, -170B	E	72	106	132	168	204	240	264	300	324	360	396
Evergreen												
EC102, -110, -115	C	60	84	120	144	168	192	216	252	276	300	324
ES170RL, -180RL, -190RL	K	84	120	156	204	240	276	312	360	396	-	-
GE Energy												
GEPV072, -085	C	48	72	96	120	144	156	180	204	226	252	264
GEPV100, -110	C	60	84	120	144	168	192	226	252	276	300	336
GEPVp130	C	60	84	120	144	168	204	226	252	276	312	336
GEPV173	C	84	132	168	204	240	288	324	360	396	-	-
GEPVp185, -200	C	84	132	168	204	240	288	324	360	408	-	-
Isofoton												
I-100	D	60	84	120	144	168	192	216	252	276	300	324
I-150S	D	96	132	180	216	264	300	348	384	432	-	-
I-165	D	84	120	168	204	240	288	324	360	396	-	-
Kaneka												
G-EA060, G-SA060	D	84	132	168	204	252	288	324	372	408	-	-
Kyocera												
KC65T, -85T, -130GT, -130TM	C	60	84	120	144	168	192	216	252	276	300	324
KCI75GT	C	84	132	168	204	252	288	324	372	408	-	-
KC200GT	C	84	132	168	204	252	288	324	372	408	-	-
Mitsubishi												
PVMF110EC3, -120EC3	F	60	84	120	144	168	192	216	240	276	300	324
PVMF125EA2LF, -130EA2LF	F	72	106	144	168	204	240	264	300	336	372	396
PVMF165EB3	F	72	106	132	168	204	240	264	300	336	360	396
Photowatt												
PW750	A	48	72	96	120	144	168	192	216	240	264	288
PWI650	D	96	144	180	226	264	312	360	396	-	-	-
Schott Solar												
ASE300, -315, -330	E	106	168	216	264	312	372	420	-	-	-	-

Division Title:
Metal

Division:
05 10 00

Item:
Green Structure Steel Schedule

Manufacturer:

Product Model:

Website:

[Link to Full Data Sheet:](#)

Frame type	A	B	C	D	E	F	G	
Steel Tubing		928	636	382	452	48	48	96
Steel Angle		0	490	196	392	154	96	96
Flat Bar		0	120	48	96	24	0	0
Quantity		4	3	1	1	1	12	8
Total Tubing		3712	1908	382	452	48	576	768
Total Angle		0	1470	196	392	154	1152	768
Total Flat Bar		0	360	48	96	24	0	0
Global Gardens								
Quantity		3						
					Tubing Total (feet)		Angle Total (feet)	
					711		440	
Steel Tubing (inches)		144						
1" Angle (inches)		380						
2" Flat Bar (inches)		108						
Totals (inches)			(feet)					
Tubing		432	36					
1"Angle		1140	95					
2"Flat		324	27					

Item:	Division Title:	Division:
Furring Strips	Metal	07 77 00
Website:	Manufacturer:	Product Model:
http://www.phillipsmfg.com	Phillips	Z-Furring Channel 20 ga
	Link to Full Data Sheet:	
	http://www.phillipsmfg.com	

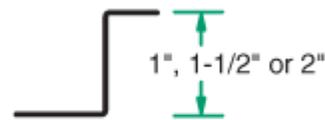
Z-Furring Channel

Phillips Z-Furring Channel is used to furr out interior masonry, poured concrete and other applications. This product supports insulation while providing a uniform plane for gypsum panel attachment. Phillips Z-furring channel is available in 1", 1-1/2", and 2" for your convenience. Also, we offer this product in 25, 22, and 20 gauge steel to suit all needs.



SIZES & PACKAGING Z-Furring Channel (All Sizes)

Length	Pieces Per Bundle	Bundles Per Pallet	Feet Per Bundle
20 Gauge			
10'	10	60	100
12'	10	60	120
22 & 25 Gauge			
10'	20	60	200
12'	20	60	240



[Click to Enlarge](#)

UPC labeling available upon request

Division Title:
Thermal & Moisture Protection

Division:
07 46 00

Item:
Core Rainscreen

Manufacturer:
Follansbee

Product Model:
TCSII 1.5" Corrugated, 26 ga

Website:
<http://www.follansbeeroofing.com/products/TCSII.aspx>

Link to Full Data Sheet:
<http://www.follansbeeroofing.com/products/TCSII.aspx>

TCS II
Terne-Coated Stainless Steel

Beach homes where salt spray abounds, and harsh polluted environments where corrosives can quickly react with construction materials, are no match for Follansbee TCS II. TCS II is our second generation Terne-Coated Stainless Steel.

TCS II is armored with Follansbee's patented ZT Alloy, an electrochemically bonded coating of tin and zinc applied uniformly to both sides of Type 304 stainless steel - itself extremely resistant to chemical attack.

This formula has set new standards in the test lab. TCS II, exposed for five years at an oceanside test stand showed no signs of red rust. Researchers at California State University exposed TCS II samples to a 5% salt spray for over 12,500 hours with no evidence of corrosion. Other well-known metal roof materials showed signs of corrosion in less than 1200 hours, and no other has ever reached anywhere close to the 5,000-hour mark.

Follansbee TCS II adds beauty to any building. One of its most attractive features is the soft-looking, protective patina that's developed after exposure to the elements. Yet, the metal is not degraded by heat or UV light and never needs to be painted. TCS II is oxygen reactive, so the patina is formed by exposure to even pollution-free air in rural areas and on coastal breezes.

TCS II is versatile. In addition to the traditional standing seam roof, TCS II has adapted to use as a vertical panel, in barrel roof applications, as shingles, and as specially constructed sections in flat or spherical shapes. Because TCS II is readily solderable, architects and owners can be assured that tight solder joints will not degrade because of heat or cold as is often the case with adhesives and sealants.

Division Title: **Thermal & Moisture Protection** Division: **07 50 00**

Item: **Vertical Wood Siding** Manufacturer: **Mackeys Ferry Sawmill** Product Model: **Cypress Sidings, Boards**

Website: <http://www.mackeysferrysawmill.com> Link to Full Data Sheet: <http://cypressinfo.org/index.php?page=mechanical-and-design-properties>

Mechanical and Design Properties of Cypress	
Specific Gravity (>12% moisture content)	.46
Density (lbs/ft ³)	31.4
Static Bending - 12% mc	
Modulus of Rupture (lbf/in ²)	10,600
Modulus of Elasticity	1.44
Work to Maximum Load (in-lbf/in ³)	8.2
Impact Bending - 12% mc	
Height of drop causing complete failure (in)	24
Tension Perpendicular to Grain - 12% mc	
Maximum tensile strength (lbf/in ²)	270
Shear Parallel to Grain - 12% mc	
Maximum shearing strength (lbf/in ²)	1000
Side Hardness (lbf)	
(load required to embed a 0.444 ball to half its diameter)	510
Flame Spread Rating	145-150
Source: Wood Handbook, USDA Agriculture Handbook 72	

DECK & RAILING
No. 3 Commons Cypress

- Thicknesses: 4/4
- Widths: 6"
- Lengths: 8'

DECK STRUCTURE
no. 3 Commons Cypress

- Thicknesses: 8/4
- Widths: 6"
- Lengths: 8'

SIDING
no. 3 Commons Cypress

- Thicknesses: 2/4
- Widths: 3.5"
- Lengths: 12'



Division Title: Finishes	Division: 09 64 00
Item: Flooring: Core	Product Model: Perforated Steel Panel
Manufacturer: Amico	
Website: http://amico-genesis.com	Link to Full Data Sheet: http://amico-genesis.com/technical/technical.htm#panels

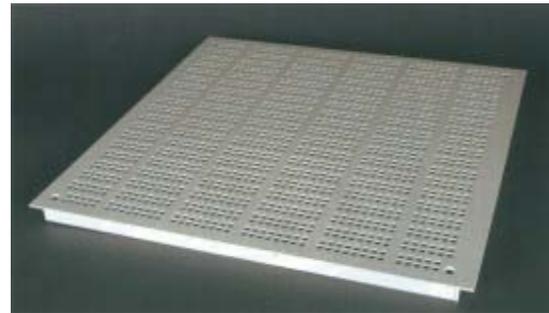
Heavy Duty Access Floor Systems Steel Panel/Perforated Steel Panel

- Rolling load rating of 3000 lbs. (1000 passes)
- Ultimate load of 10,000 lbs. at panel mid-point
- Concentrated load rating of 3000 lbs. with permanent set .010 or less.
- Panel thickness not to exceed 1.375" plus laminate.
- Chemical resistant: Epoxy powder coat, conductive seal.
- Edge detail: Monolithic
- Nested Bolted-Stringer System
- Stringer Capable of supporting 2500 lb at midpoint with .010 permanent Set
- No contaminate fill.
- Airflow - 40% and 55% open area.
- C.I.S.C.A., F.A.T. and ASTM Paint Adhesion Tested.

Note: Additional load testing continues on this product. Please contact AMICO-Genesis for updated information.

Pressure

Panel	Static Pressure	CFM
Perforated	.10	818
Slotted	.10	1497



Solid and Perforated Panels Have the Same Load Rating

Panel Type	Rolling Load*	Concentrated Load*	Ultimate Load*	Uniform Load*
Solid	3000lb./1350kg	3000lb./1350kg	10,000lb./4500kg	20,000lb./9000kg
Perforated, 40%	3000lb./1350kg	3000lb./1350kg	10,000lb./4500kg	20,000lb./9000kg
Slotted, 55%	3000lb./1350kg	3000lb./1350kg	10,000lb./4500kg	20,000lb./9000kg
Deflection	N/A	0.119	N/A	N/A
Set	0.057	0.004	N/A	N/A

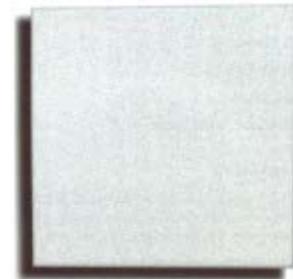
* C.I.S.C.A., F.A.T. Tested

Division Title: Finishes	Division: 09 64 00
Item: Flooring: Core	Product Model: Perforated Steel Panel
Manufacturer: Amico	
Website: http://amico-genesis.com	Link to Full Data Sheet: http://amico-genesis.com/technical/technical.htm#panels

Flooring Panels

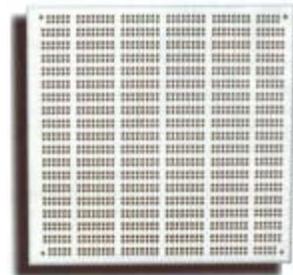
Encapsulated Steel Panel

Descriptive Loads*	Imperial Rating	Metric Rating
Rolling	3000 lb.	1350 kg
Concentrated	3000 lb.	1350 kg
Ultimate	10,000 lb.	4500 kg
Uniform	20,000 lb.	9000 kg
* C.I.S.C.A., F.A.T. Tested		



Encapsulated Steel Perforated Panel

Descriptive Loads*	Imperial Rating	Metric Rating
Rolling	3000 lb.	1350 kg
Concentrated	3000 lb.	1350 kg
Ultimate	10,000 lb.	4500 kg
Uniform	20,000 lb.	9000 kg
** Airflow: 40% open area, 818 cfm @ .10 static pressure		
* C.I.S.C.A., F.A.T. Tested		



Encapsulated Steel Slotted Panel

Descriptive Loads*	Imperial Rating	Metric Rating
Rolling	3000 lb.	1350 kg
Concentrated	3000 lb.	1350 kg
Ultimate	10,000 lb.	4500 kg
Uniform	20,000 lb.	9000 kg
** Airflow: 55% open area, 1497 cfm @ .10 static pressure		
* C.I.S.C.A., F.A.T. Tested		



Division Title: Finishes	Division: 09 64 00
Manufacturer: Salvaged	Product Model: Long Leaf Yellow Pine
Item: Flooring: living/kitchen/bed	

[Link to Full Data Sheet:](#)



The flooring material in the pods is salvaged Southern Heart Pine recovered from a Pittsburgh nunnery that was recently demolished. Construction Junction, a local non-profit organization that retails recycled/ surplus building materials recovered as much salvageable parts from the building as possible, including the hardwood flooring. The boards are de-nailed and re-planed in Construction Junction, with the help of Carnegie Mellon University Solar Decathlon members. They are retailed in lots of roughly 175 square feet for approximately \$5 per square foot in Construction Junction.

The team has made the decision to use the salvaged pine flooring instead of the originally intended oak flooring material as to demonstrate sustainability in construction.



Division Title:
Finishes

Division:
09 64 00

Item:
Ceiling & Wall

Manufacturer:
Alcoa

Product Model:
Reynobold

Website:

[Link to Full Data Sheet:](#)



Alcoa Architectural Products

Alcoa Architectural Products

Manufacturing Plant
50 Industrial Boulevard
Eastman, GA 31023-4129

Section 07420

Fire Resistant Aluminum Composite Material (FR)

Part 1 - GENERAL

1.01

Summary

- A. An aluminum composite material (building panel) used as the exterior cladding of new buildings and retrofit applications.

1.02

Related Sections

- A. 05100 Structural Metal Framing
- B. 05400 Metal Framing
- C. 07200 Insulation
- D. 07600 Metal Flashing
- E. 07900 Sealants
- F. 09800 Finishes

1.03

Submittals

- A. Shop drawings shall show panel system including attachment methods, joinery, sealing methods and accommodation of thermal movement. Details shall not be drawn less than one-half size.
- B. Samples
 - 1. If required, _____ samples of panel material shall be furnished.
 - 2. _____ samples of each custom color shall be submitted for architect's approval.
- C. Two copies of manufacturer's literature for the aluminum composite material.
- D. An affidavit certifying that the panel meets or exceeds requirements specified.

1.04

Quality Assurance

- A. Panel fabricator and installer shall be experienced and acceptable to panel manufacturer.
- B. Maximum deviation from the vertical and horizontal alignment of erected panels shall be no more than 1/4" in 20'0" (6mm in 6m).
- C. Panel supplier shall furnish calculations confirming structural adequacy if requested.
- D. Painted surfaces of composite panels shall meet all criteria printed in the manufacturer's literature.
- E. Where possible, field measurements shall be taken prior to completion of shop fabrication.

1.05

Product Delivery, Handling and Storage

- A. Protect panel finish and edges per panel manufacturer's recommendations.
- B. Store material in accordance with panel manufacturer's recommendations.

Part 2 - PRODUCTS

2.01

Aluminum Composite Material Panels

- A.** Panels shall be REYNOBOND® FR, fire resistant panels as manufactured by Reynolds Metals Company, Architectural Products, P.O. Box 27003, Richmond, Virginia 23261 (phone (804) 281-4186 and fax (804) 281-3602).
- B.** Panels shall be furnished by an approved dealer/distributor of Reynolds Metals Company.
- C.** Composite panels, where applicable, shall meet or exceed all Model Code requirements for fire safety and shall have a Class A building material classification. The following test requirements shall be met:
1. RB200FR core material alone shall have a flame spread rating of 15 and a smoke developed rating of 30 when tested in accordance with ASTM E84 (Steiner Tunnel Test).
 2. UBC 17-6 Multi-Story Fire Evaluation.
 3. ASTM E108 Modified (and damaged).
 4. ASTM D2015-77 (fuel content test) - core only, less than 6000 BTU/ft².
 5. University of Pittsburgh Toxicity Test.
 6. UBC 17-5 Interior Room Corner Burn Test.
 7. UBC 26-9 Intermediate Scale Multi-Story Fire Test for rout and return and continuous edge grip REYNOBOND systems.
 8. UBC 26-3 Interior Room Corner Burn Test.
- D.** Panel Thickness: (choose desired thickness)
RB200FR(5mm) = 0.197" RB160FR (4mm) = 0.157"
- E.** Panel Weight. RB200FR(5mm)=2.02 lbs/sf. RB160FR (4mm) = 1.63 lbs/sft
- F.** Panel Finishes
1. Coating shall be Colorweld 300 (or Colorweld 300XL), a fluoropolymer coating utilizing 70% Kynar 500 resins.
 - a. Color: As selected by architect from manufacturer's standard or custom colors.
 - b. Coating shall be factory applied on a continuous process paint line. Coating shall consist of a 0.2 mil (approx.) prime coat and a 0.8 mil (approx.) finish coat containing 70% Kynar resins (If Colorweld 300XL, coating shall consist of a 0.2 mil (approx.) Barrier prime coat, a 0.80 mil (approx.) color coat, containing 70% Kynar resins, and a 0.5 mil (approx.) clear coat containing 70% Kynar resins.) Nominal dry film thickness is 1.50 mils.
 2. Pencil Hardness - ASTM D3363-74
Shall be HB-H minimum (Eagle Turquoise).
 3. Impact Adhesion - ASTM D2794-84
Coating shall show no cracking and no loss of adhesion.
 4. Cure Test - NCCA 11-18
Coating shall withstand 50+ double rubs of MEK soaked cloth.
 5. Humidity Resistance - ASTM D2247-87
Coating shall show no blisters after 3000 hours of 100% humidity at 95°F.
 6. Salt Spray Resistance - ASTM B117-85
After 3000 hours of exposure to 5% salt fog, at 95°F, scored sample shall show none or few #8 blisters, and less than 1/8" average creepage from scribe.
 7. Weatherometer Test — ASTM D822-86/G23-81
Coating shall show no cracking, peeling, blistering or loss of adhesion after 2000 hours.
 - a. Chalking Resistance — ASTM D659-86 No chalk greater than #8 after 10 years Florida exposure at 45°S.
 - b. Color Change — ASTM D2244-74
Color change shall not exceed 5 NBS units after 10 years Florida exposure at 45°S.
 - c. After 5000 hours in Atlas Weatherometer
coating shall show no objectionable chalking or color change. Abrasion Resistance — ASTM D968-81
 8. Coating shall resist 65±15 liters/mil minimum of falling sand.

2.02

Panel Fabrication

A. Composition

1. Fire resistant composite material shall be composed of a thermoplastic compound core sandwiched between two aluminum sheets formed into a continuous process.

B. Aluminum Face Sheets

1. RB200FR = .028" RB160FR = 0.020" Aluminum alloy shall be 3105 H25.

C. Tolerances

1. Panel bow shall not exceed 0.8% of panel overall dimension in width or length.
2. Panel dimensions shall be such that there will be an allowance for field adjustment and thermal movement.
3. Panel lines, breaks and curves shall be sharp, smooth and free of warps or buckles.

- D. Panel surfaces shall be free of scratches or marks caused during fabrication.

2.03

Accessories

- A. All exposed fasteners shall be self-tapping 300 Series Stainless Steel.

- B. All self-drilling fasteners shall be protected with a corrosion resistant finish.

- C. All sealants shall be compatible with panel materials.

Part 3 -Execution

3.01

Inspection

- A. Panel substructure shall be level and plumb.

- B. Panel substructure shall be structurally sound as determined by Architect/Engineer.

- C. Panel substructure shall be free of defects detrimental to work.

- D. Panel installer shall inspect substructure and shall not proceed with panel erection until any deviations are corrected.

3.02
Installation

- A. Erect panels level and plumb, in proper alignment and relation to substructure framing and established lines.
- B. Panels shall be erected in accordance with an approved set of shop drawings.
- C. Panel anchorage shall be structurally sound and per engineering recommendations, if required.
- D. Where aluminum materials come in contact with dissimilar materials, a bituminous paint or caulking tape shall be installed to insulate between the dissimilar materials. Factory applied protective paint or G-90 galvanized steel is considered adequate insulation.

3.03
Adjusting and Cleaning

- A. Replace panels that have received irreparable damage.
- B. Repair panels with minor damage.
- C. Clean all foreign material from panel gutter system when applicable.
- D. Remove strippable film coating (if used) as soon as possible after surrounding material has been installed. Panel joints shall not be caulked before strippable is removed. (Glass above should typically be washed prior to removing strippable film below.)

(END OF SECTION)

Item: Wall: Bathroom West	Division Title: Finishes	Division: 09 70 00
Website: http://www.3-form.com	Manufacturer: 3Form	Product Model: Varia Spa Texture Panel
	Link to Full Data Sheet: https://www.3-form.com/downloads/3form_ecoresin_spec_sheet.pdf	

- Pixel - Micro-grid look, creates moiré when applied to both sides, cannot be used in pieces > 1/2"
- Sandstone - Grainy texture, slightly frosted look
- Stucco - Pebble-like finish
- Supermatte - MicroGrain texture, frosted look
- Topo - Larger pebble-like finish
- Opaque White Backer
- Vision Plus

PANEL SIZES AND TOLERANCES

3form ecoresin panels are offered in 4' x 8' (1.2 m x 2.4 m) and 4' x 10' (1.2 m x 3 m). All dimensions and squareness (standard with custom) are subject to a 1/16" (1.5 mm) tolerance. 5' x 10' (1.5 m x 1.3 m) is also available though some restrictions apply.

Ecoresin is available in gauges from 1/16 inch to 1 inch.

All 'Solo' Sheets

NOMINAL GAUGE	MINIMUM ALLOWANCE GAUGE	MAXIMUM ALLOWANCE GAUGE
1/16" (0.0625")	0.050	0.070
1/8" (0.125")	0.104	0.132
3/16" (0.1875")	0.168	0.192
1/4" (0.250")	0.212	0.260
3/8" (0.375")	0.324	0.384
1/2" (0.500")	0.436	0.508
3/4" (0.750")	0.648	0.768
1" (1.000")	0.850	1.060

Non 'Solo' product sheets

NOMINAL THICKNESS	MINIMUM ALLOWANCE GAUGE	MAXIMUM ALLOWANCE GAUGE
1/8" (0.125")	0.098	0.138
3/16" (0.1875")	0.155	0.205
1/4" (0.250")	0.196	0.306
3/8" (0.375")	0.304	0.434
1/2" (0.500")	0.412	0.562
3/4" (0.750")	0.618	0.798
1" (1.000")	0.850	1.090

Sheet tolerance readings are based on an average of several on measurements along both long edges of each panel. These measurements are taken 2-3 inches (50-75 mm) from the edges of the panel.

Item: Wall: Bathroom Partition	Division Title: Finishes	Division: 09 70 00
Website: http://www.3-form.com	Manufacturer: 3Form	Product Model: Varia Chroma Panel
	Link to Full Data Sheet: https://www.3-form.com/downloads/3form_ecoresin_spec_sheet.pdf	

Specifications

FLAMMABILITY & SMOKE TEST RESULTS – BUILDING CODE APPROVALS

ecoresin panels (a polyester-based material), have been independently tested and meet the criteria for approved interior finishes and “light transmitting” resin materials as described in the 2003 International Building Code®.

TEST	3FORM ECORESIN	RESULT
ASTM D 2843 Smoke Density	71.6%	PASS Less than 75
ASTM D 635 Flame Spread	Self extinguishing	PASS CC1
ASTM D 1929 Self-ignition Temperature	716°F	PASS Greater than 650°F
ASTM E84-03 Flame Spread, 1/4" to 1" thickness	65	Class B: 26-75
Smoke generated	425	<450
ASTM E84-03 Flame Spread, 1" thickness	20	Class A: 0-25
Smoke generated	250	<450
NFPA 286, 1/4" thickness	Pass	Class A

PANEL WEIGHT

THICKNESS (INCHES)	WEIGHT FLUX (LB/FT ²)
1/16" (1.5 mm)	0.4 lb/ft ² (2.0 kg/m ²)
1/8" (3 mm)	0.8 lb/ft ² (4.0 kg/m ²)
3/16" (4.5 mm)	1.2 lb/ft ² (6.1 kg/m ²)
1/4" (6 mm)	1.7 lb/ft ² (8.1 kg/m ²)
3/8" (9.5 mm)	2.5 lb/ft ² (12.2 kg/m ²)
1/2" (12.5 mm)	3.3 lb/ft ² (16.1 kg/m ²)
3/4" (19 mm)	5.0 lb/ft ² (24.4 kg/m ²)
1.0" (25 mm)	6.6 lb/ft ² (32.2 kg/m ²)

EXPANSION/CONTRACTION ALLOWANCES

Like all resin products, 3form ecoresin will expand and contract nominally with fluctuations in temperature. The following formula provides allowances that should be made in framed or fitted applications:

$$\text{Longest length of panel (inches)} \times \text{temperature change of the sheet (°F)} \times 0.00004 = \text{Amount of Linear Expansion/Contraction (inches)}$$

Division Title: Furnishes	Division: 12 35 50	
Item: Residential Cabinetry	Manufacturer: Self Manufactured	Product Model: White Oak
Website:	Link to Full Data Sheet:	

Division Title: **Planting** Division: **12 93 33**

Item: **Manufactured Planters** Manufacturer: Product Model: **2' x 4' x 4"**

Website: <http://www.greengrid.com> Link to Full Data Sheet:



The PREMIER Green Roof System

Specifications Summary

ELEMENT	DESCRIPTION
<p>Module sizes (nominal)</p>	<p>2 ft. x 2 ft. x 2.5 in. 2 ft. x 2 ft. x 4 in. 2 ft. x 4 ft. x 4 in. 40 in. x 40 in. x 4 in. 2 ft. x 2 ft. x 2.8 ft. x 4 in. (triangle) 2 ft. x 2 ft. x 8 in. 2 ft. x 4 ft. x 8 in.</p>
<p>Depth of modules (three depths)</p>	<p>2.5 in., 4 in., and 8 in. (nominal)</p>
<p>Weight of planted modules (when wet)</p>	<p>2 in. depth – Approx. 10-12 lb. per sq. ft. 4 in. depth – Approx. 15-18 lb. per sq. ft. 8 in. depth – Approx. 30+ lb. per sq. ft. <i>(Weight may vary based on requirements for project-specific vegetation selections and variations in regional materials incorporated in growth media.)</i></p>
<p>Module material</p>	<p>60% post-industrial recycled High Molecular Weight Polyethylene – 150 mil. (2.5 and 4 in.) – 175 mil. (8 in.)</p>
<p>Module drainage clearance above roof</p>	<p>0.5 in.</p>
<p>Color of modules</p>	<p>Black</p>
<p>Drainage/root resistance medium</p>	<p>3 oz. spunbonded polypropylene geotextile</p>
<p>Growth media</p>	<p>Proprietary mixture consisting of organic and inorganic material</p>
<p>Slip sheet protection fabric</p>	<p>6 oz. non-woven geotextile slip sheet. <i>(Installation of slip sheet between GreenGrid® modules and roof surface is recommended.)</i></p>
<p>Vegetation</p>	<p>Perennials, grasses, or shrubs specifically selected for climate, hardiness zone, color, and size.</p>
OPTIONAL ELEMENTS	
<p>Paver size</p>	<p>2 ft. x 2 ft. (various depths available)</p>
<p>Paver material</p>	<p>100% recycled rubber</p>
<p>Paver colors (standard)</p>	<p>Forest green, charcoal, brick red, black, and blue <i>(other, non-standard colors available)</i></p>
<p>Paver weight</p>	<p>7.5 lb. per sq. ft. <i>(based on 1.75 in. depth)</i></p>
<p>Edge treatments</p>	<p>Aluminum or steel, available in various colors and designs.</p>



Item:

Wildflower and Native Plants

Indian Grass



American Bittersweet



Blue Vervain



Woodland Carex



Brown Eyed Susan

Division Title:
Planting

Division:
07 33 63

Item:
Vegetated Roof

Manufacturer:

Product Model:



Ox-Eye False Sunflower



Wild Sweet William



Sedum Tarentum



other Stonecrop and sedum varieties

Tall Coreopsis

Division Title:
Finishes

Division:
09 97 13

Item:
PPG Steel Primer

Manufacturer:
PPG

Product Model:

Website:

[Link to Full Data Sheet:](#)



Pitt-Tech®

90-712 Series

HPC/Industrial Maintenance

Pitt-Tech® Int./Ext. Primer/Finish DTM Industrial Enamel

GENERAL DESCRIPTION

Recommended for use on properly prepared interior or exterior metal surfaces, in light to moderate industrial climates for maintenance or new construction. Use wherever an easy to use, low VOC primer is required to prepare most metal surfaces. Enhances adhesion of the final finish. Can be used as a primer under Pitt-Tech® or other PITTSBURGH® Paints topcoat products. **For Professional Use Only; Not Intended for Household Use.**

RECOMMENDED USES

Aluminum
Ferrous Metal
Galvanized Metal

FEATURES AND BENEFITS

Excellent adhesion
Low odor, low VOC primer
Easy clean up
Accepts most topcoats
Performance offsets to Federal Standards TT-P-1975, Mil-P-28577; Mil-P-53032
Meets MPI Category #107, Rust Inhibitor Primer (Water Based)
Can earn LEED NC Version 2.2 Credits

MIXING AND APPLICATIONS INFORMATION

Mix thoroughly before and during use.

Permissible temperatures during application:

Material:	60° to 90° F	15°C to 32°C
Ambient:	50° to 100° F	10°C to 38°C
Substrate:	50° to 130° F	10°C to 54°C

Application Equipment: Changes in application equipment, pressures and/or tip sizes may be required depending on ambient temperatures and application conditions.

Brush: High Quality Polyester/Nylon Brush

Roller: 3/16" - 3/4" nap roller cover

Airless Spray: Pressure 2000 - 2600 psi, tip 0.015" to .0023"

Conventional Spray: Fluid Nozzle: DeVilbiss MBC gun, with 704 or 777 air cap with E or FF tip and needle, or comparable equipment.

Atomization Pressure: 55-70

Fluid Pressure: Can not specify, dependent on numerous factors.

Thinning: Thinning is not usually required. Excessive thinning or insufficient film thickness may cause rust staining. If rust staining occurs, apply an additional coat. Do not add oils, paint thinners, or any paint additives.

TINTING AND BASE INFORMATION

90-708	Red Inhibitive
90-709	Gray Primer
90-712	White

PRODUCT DATA

PRODUCT TYPE: 100% Acrylic Formula
GLOSS: Flat
VOC*: 1.07 lbs./gal. (123 g/L)
COVERAGE: 208 to 312 sq. ft./gal.
(19 to 29 sq. m/3.78L)

Note: Does not include loss due to varying application method, surface porosity, or mixing.

DFT: 2.0 to 3.0 mils
WEIGHT/GALLON*: 10.2 lbs.(4.6 kg)+/-0.2 lbs. (91g)
VOLUME SOLIDS*: 39% +/- 2%
WEIGHT SOLIDS*: 50% +/- 2%

*Product data calculated on mixed product.

Wet Film Thickness: 5.1 to 7.7 mils
Wet Microns: 129.5 to 195.6
Dry Film Thickness: 2.0 to 3.0 mils
Dry Microns: 51.0 to 76.2

IN SERVICE TEMP.: Dry Heat 250°F (121°C)

DRYING TIME: Dry time @77°F (25°C); 50% relative humidity.

To Touch: 1 hour
To Handle: 4 hours
To Recoat: 4 hours

Drying times listed may vary depending on temperature, humidity, color and air movement.

CLEAN UP: Soap and Water

FLASH POINT: Over 200°F (93°C)

PACKAGING

1-Gallon (3.78L)
5-Gallon (18.9L)

Item:	Division Title:	Division:
PPG Steel Paint	Finishes	09 93 13
Website:	Manufacturer:	Product Model:
	PPG	
		Link to Full Data Sheet:

PPG PITTSBURGH PAINTS **SPEEDHIDE®** **6-411 Series**
One brand. Infinite solutions.

Architectural Coatings **SPEEDHIDE® Interior Enamel Eggshell Latex**
Generic Type **Tinting and Base Information**

Vinyl Acrylic Latex

General Description

Our best professional interior latex formulated to meet the performance requirements of professional applicators. SPEEDHIDE® Interior Eggshell Latex is designed as a high hiding product with excellent touch up ability when applied by brush, roller or spray. The quick dry allows faster recoat and provides a uniform, washable eggshell finish on interior walls, ceilings and trim surfaces. Recommended for all interior walls, ceilings, and trim where a washable, durable latex eggshell finish is desirable. Use on plaster, wallboard, masonry, concrete and previously painted or primed wood and metal surfaces.

Recommended Uses

Ceilings	Masonry
Primed Metal	Wallboard
Walls	Wood Trim

Features / Benefits

- High Hiding
- Excellent Touch Up Properties
- Scrubable
- Soap & Water Clean Up
- Available in More Than 1800 Colors from THE VOICE OF COLOR® Design Collection
- MPI Approval in category #44, Interior Latex, MPI Gloss Level 2
- Can earn LEED NC Version 2.2 Credits

Limitations of Use

Apply when air, surface and product temperatures are above 50°F (10°C). PROTECT FROM FREEZING. Not recommended for use on floors. Drying times listed may vary depending on temperature, humidity, color and air movement.

Use PITTSBURGH® Paints Custom Colorants to achieve hundreds of colors. Refer to THE VOICE OF COLOR® formula book for tinting instructions.

6-411	White and Pastel Base
6-415	Midtone Base
6-416	Deeptone Base
6-417	Neutral Base

Product Data

Gloss: Eggshell: 4 to 8 (60° Gloss Meter)
VOC*: 0.60 lbs/gal (73.00 g/L)
DFT: 1.50 minimum to 1.70 maximum mils
Coverage: 400 to 500 sq. ft./gal. (37 to 46 sq. m/3.78L)
Note: Does not include loss due to varying application method, surface porosity, or mixing.
Volume Solids*: 37% +/- 2.0%
Weight Solids*: 51% +/- 2.0%
Weight/Gallon*: 10.9 lbs. (4.9 kg) +/- 0.2 lbs. (91 g)
Cleanup: Soap and Water
*Product data calculated on product 6-411.

Drying Time:
 To Touch: 1 hour
 To Handle: 2 hours
 To Recoat: 4 hours
 To Full Cure: 30 days
Dry Time @77°F (25°C); 50% relative humidity
Flash Point: Over 200°F, (93°C)

Division Title:
Finishes

Division:
09 93 13

Item:
PPG Exterior Wood Finishing

Manufacturer:
PPG

Product Model:

Website:

[Link to Full Data Sheet:](#)

Division Title:
Finishes

Division:
09 93 13

Item:
Interior Wood Finish

Manufacturer:
Olympic

Product Model:

Website:

[Link to Full Data Sheet:](#)

Division Title:
Finishes

Division
07 19 19

Item:
Caulk

Manufacturer:

Product Model:

Website:

[Link to Full Data Sheet:](#)

Division Title:
Finishes

Division:
07 21 29

Item:
Sealant

Manufacturer:

Product Model:

Website:

[Link to Full Data Sheet:](#)



GREAT STUFF® Window and Door
GMID 00241585

MATERIAL SAFETY DATA SHEET

1) PRODUCT AND COMPANY IDENTIFICATION

THE DOW CHEMICAL COMPANY
Midland Michigan 48674
USA

24-Hour Emergency Phone Number: 989-636-4400

Customer Service: 800-366-4740

PRODUCT NAME : GREAT STUFF® Window and Door

MATERIAL TYPE : One component system

ISSUE DATE : 06/21/2007

REVISION DATE : 05/09/2007

2) COMPOSITION/INFORMATION ON INGREDIENTS

Ingredient	CAS Number	%
Prepolymer of MDI and Polyether polyol	mixture	40-70, 60-100%
Polymethylene polyphenyl isocyanate containing approx. 40-50% MDI (4,4'methylene bisphenyl isocyanate) CAS# 101-68-8	9016-87-9	5-10,10-30%
Liquified Petroleum Mixture containing Isobutane (CAS#75-28-5), propane (CAS# 74-98-6) and dimethyl ether (CAS# 115-10-6)	mixture	10-30%

3) HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

DANGER! Flammable

CAUTION! Contents under pressure.

May cause skin sensitization or allergic reactions.

May cause moderate eye irritation.

Sprayed or heated material harmful if inhaled. May cause allergic skin reaction. May cause allergic respiratory reaction and lung injury. Avoid temperatures above 105F (41C). Toxic flammable gases and heat are released under decomposition conditions. Toxic fumes may be released in fire situations. Reacts slowly with water, releasing carbon dioxide, which can cause pressure buildup and rupture of closed containers. Elevated temperatures accelerate this process.

EYE

May cause moderate eye irritation. May cause very slight transient (temporary) corneal injury.

SKIN

Prolonged or repeated exposure may cause slight skin irritation. May cause allergic skin reaction in susceptible individuals. Animal studies have shown that skin contact with isocyanates may play a role in respiratory sensitization. May stain skin. A single prolonged exposure is not likely to result in the material being absorbed in harmful amounts.

INGESTION

Single dose oral toxicity is considered to be low. No hazards anticipated from swallowing small amounts incidental to normal handling operations.