

RDFW Mk. 4 Specification

Product Characteristics

U.S. Patent No. 6,817,806



Geocell Systems Inc.™

Unit Characteristics

Number of Pieces: Each RDFW unit shall ship as a pre-assembled device, ready for use. There shall be no separate tools required for construction.

Unit Assembly: Each RDFW unit shall consist of 14 interwoven plastic struts (as per Figures 1, 2, 3, 4). RDFW units shall not readily come apart.

Shipping and Storage: Each RDFW unit shall fold flat for shipping and storage.

Unit Dimensions & Measurements (all measurements nominal and subject to manufacturing tolerances)

Weight: 17 pounds

Folded Dimensions: Each unit shall collapse flat to 48 x 53.5 x 0.5 inches.

Deployed Dimensions: Each unit shall expand to create a square grid of cells having a footprint of 51.25 inches by 48 inches, and standing 12 inches tall. In use, the units shall overlap and interlock both horizontally and vertically to give an effective volume of 42 inches long by 42 inches wide by 8 inches tall.

Sheet Thickness: RDFW shall be manufactured entirely from 60-mil plastic sheet.

Cell Size: 7" x 7" containment cells. 7" x 3.5" protective cells.

Die Cut Widths: For maximum sand retention and ease of deployment, all die cuts in RDFW shall be 0.060 inches in width, except the interconnection cuts, which are 0.125 inches in width.

Unit Features

Coloring: Piece C shall be an opaque color. Pieces A and B shall be transparent. Some sides of some pieces will be ultraviolet resistant.

Labeling: Each RDFW unit shall have labeling which indicates the direction in which to expand and collapse RDFW. Labeling shall also provide an easy visual cue to align when stacking expanded RDFW units. A colored strip shall appear at the tops of Piece C to give an indicator of proper/improper stacking.

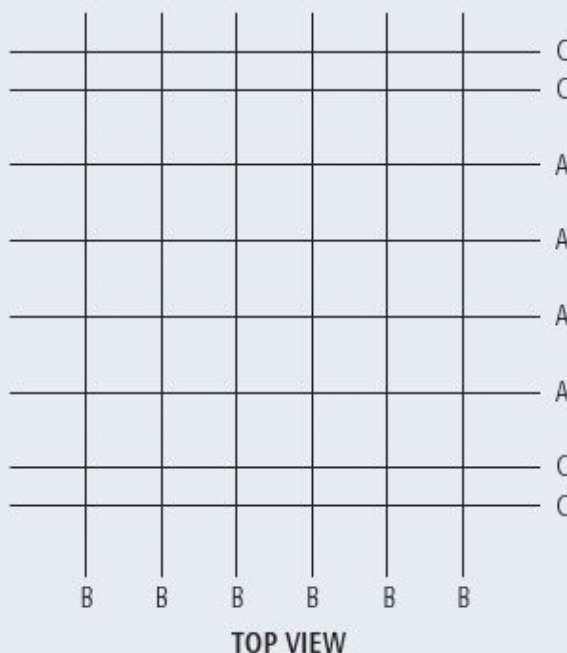
Self-Centering Struts: 12-inch-tall struts (Figure 1, piece C; Figure 4) shall have radii cuts to ease and speed deployment. All pieces shall have corner radius cuts to ease handling.

Industrial Base

Manufacturing Location: RDFW shall be made in USA as per "Buy American" act.

Figure 1—Standard RDFW Mk. 4 Unit Diagram

A standard RDFW Mk. 4 unit consists of 3 types of pieces (A, B, C).



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Figure 2—Dimensions of RDFW Component Strut A

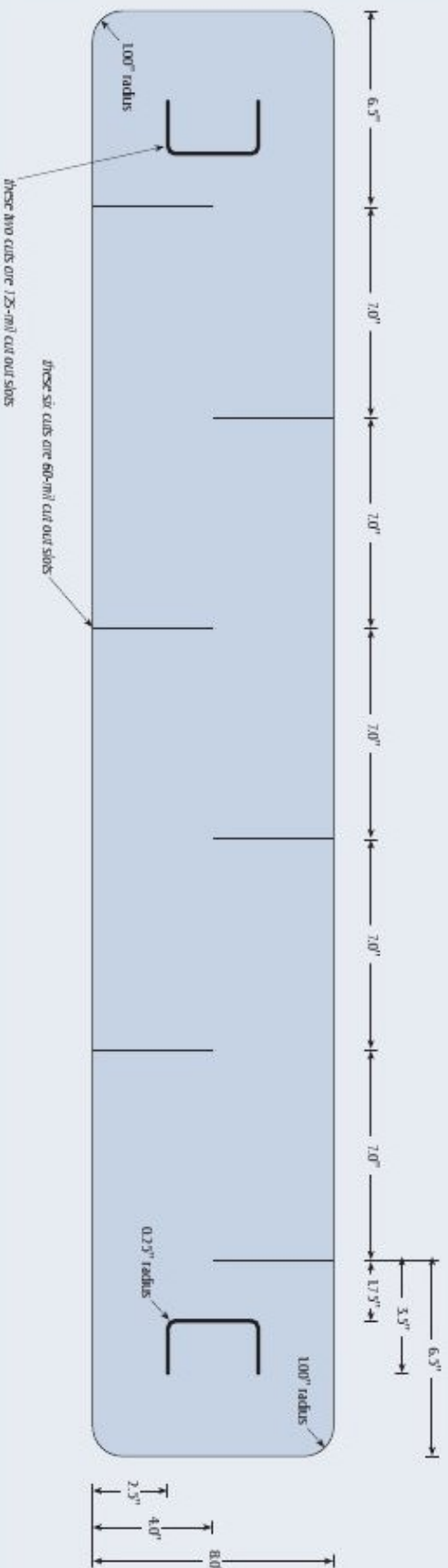
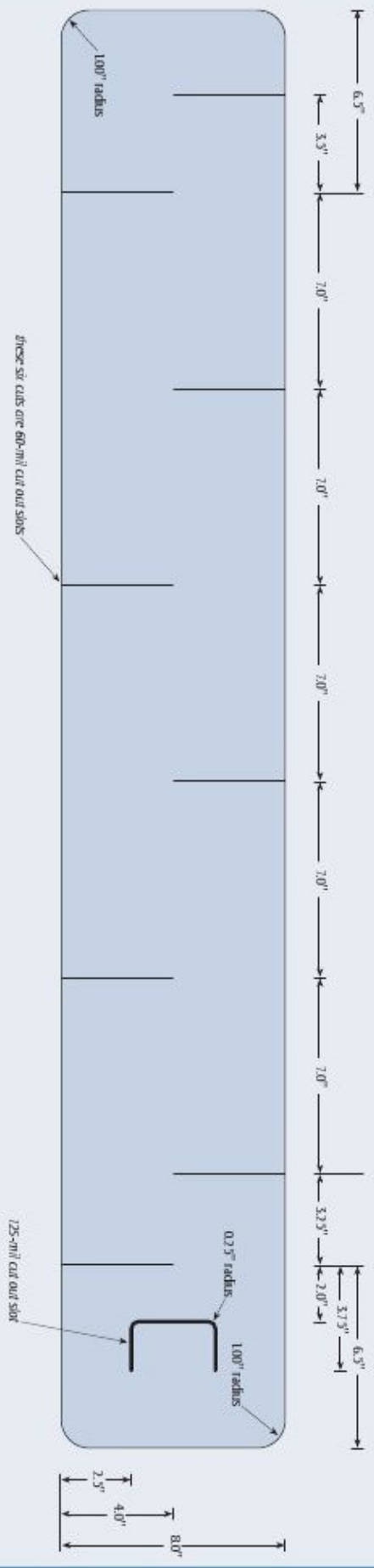


Figure 3—Dimensions of RDFW Component Strut B

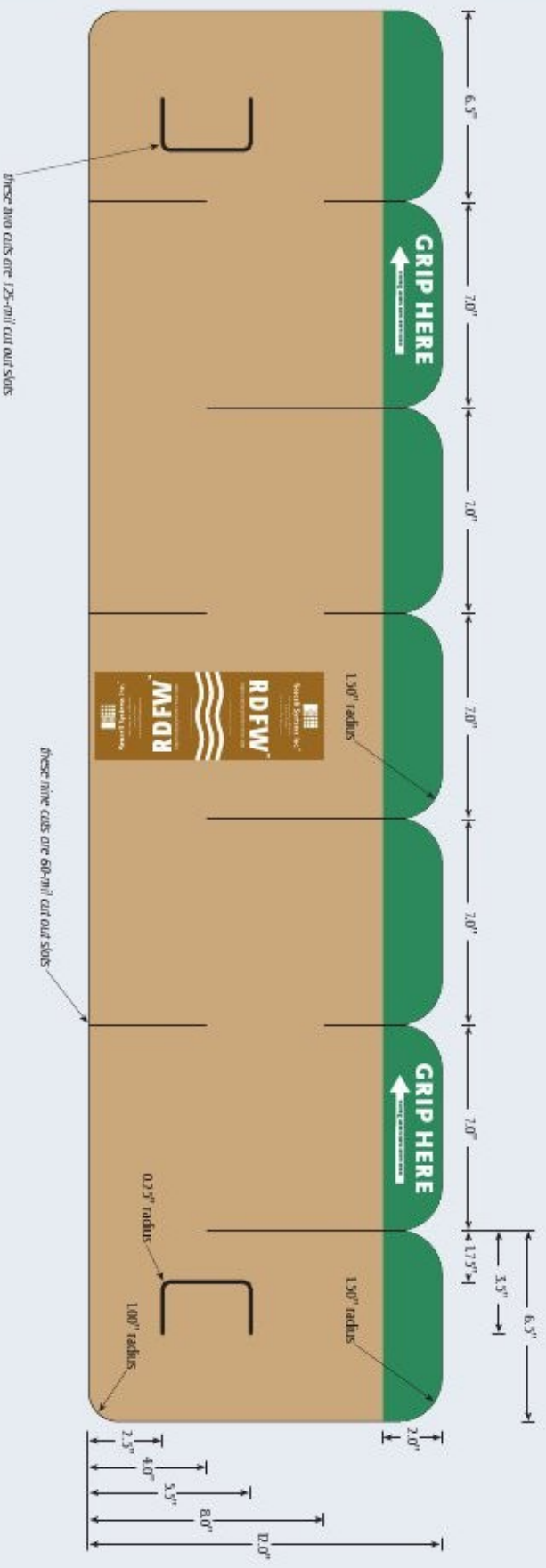


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Figure 4—Dimensions of RDFW Component Strut C



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Plastic Properties

Plastic: RDFW shall be composed entirely of copolyester, with copolyester properties as per Table 1.

Color: RDFW plastic for pieces A and B shall be clear transparent to facilitate inspection while deployed. Plastic for pieces C shall be opaque.

Industrial Base

Manufacturing Location: RDFW shall be made in USA as per "Buy American" act.

Property	ASTM Test Method	Nominal Value
Density	D1505	1.23 g/cm ³
Tensile Stress @ Yield	D882	45 MPa (6,600 psi)
Tensile Stress @ Break	D882	52 MPa (7,600 psi)
Elongation @ Break	D638	340%
Flexural Modulus	D790	1,800 MPa (270,000 psi)
Flexural Strength	D790	66 MPa (9,500 psi)
Rockwell Hardness, R Scale	D785	103
Izod Impact Strength, Notched @23°C (73°F)	D256	NB
Izod Impact Strength, Notched @-40°C (-40°F)	D256	75 J/m (1.4 ft-lbf/in)
Impact Strength, Unnotched @23°C (73°F)	D4812	NB
Impact Strength, Unnotched @-40°C (-40°F)	D4812	NB
Impact Resistance (Puncture), Energy @ Max Load, 23°C (73°F)	D3763	42 J (31 ft-lbf)
Impact Resistance (Puncture), Energy @ Max Load, -40°C (-40°F)	D3763	52 J (38 ft-lbf)
Deflection Temperature @ 0.455 MPa (66 psi)	D648	74°C (165°F)
Deflection Temperature @ 1.82 MPa (264 psi)	D648	65°C (149°F)
Vicat Softening Temperature @ 1Kg Load	D1525	86°C (187°F)
Coefficient of Linear Thermal Expansion (-30°C to 23°C)	D696	.000075 mm/mm °C (.000042 in/in °F)
UL Flammability Classification	UL94	94V-2

Table 1 – Eastman S45 Copolyester Properties

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Storage Performance

Shelf Life: RDFW shall have a storage life of at least 10 years in any working warehouse. RDFW shall be immune to mold and mildew.

Vermin Resistance: RDFW units shall be resistant to vermin.

Deployment Performance

Crew Size: RDFW shall be deployable by a crew of as few as 2 persons.

Stacking Height: RDFW units shall be capable of being stacked vertically and filled with sand to a height of 9 units (72 inches) with no external support.

Infill Material: RDFW units shall be capable of being filled with sand or earth up to a sieve size of 2-inch-minus.

Articulation: Each RDFW unit, interlocked to its neighboring units, shall have an ability to articulate to a vertical deflection of 2 inches up or down (Figure 5) to conform to uneven terrain.

Operating Environment: RDFW shall function normally in temperatures from 0°F to 130°F.

Deployment Duration: RDFW shall be deployable in direct sunlight for a cumulative period of 3 years.

Demobilization Performance

Dismantlement: RDFW units shall be capable of being emptied of sand and disconnected from one another without damage to RDFW units. If filled with clay, RDFW shall strongly resist dismantlement.

Reuse: If filled with sand and not overly exposed to sunlight (see **Deployment Duration** above), RDFW units shall be reusable up to 3 times.

Repair: Used RDFW units shall be repairable by disassembling the unit and replacing any damaged component struts.

Figure 5—Artikulation

