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Code Compliance Research Report CCRR-1012

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DIVISION: 10 00 00 – SPECIALTIES
Section: 10 22 19 – Demountable Partitions

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REPORT SUBJECT:
DIRTT Solid Wall / Face Tiled Wall System

1.0 SCOPE OF EVALUATION

This Research Report addresses compliance with the following Codes:

- 2015, 2012, 2009, and 2006 *International Building Code*® (IBC)
- 2013 and 2010 *California Building Code*® (CBC)

NOTE: This report references 2015 IBC and 2013 CBC sections with [2012, 2009, and 2006 IBC and 2010 CBC] Code sections shown in square brackets where they differ.

The DIRTT Solid Wall / Face Tiled Wall System has been evaluated for the following properties:

- Interior finish – surface-burning characteristics
- Interior finish - stability
- Interior trim
- Structural

See Table 1 for applicable Code sections related to these properties.

2.0 USES

The DIRTT Solid Wall / Face Tiled Wall System is a relocatable floor-to-ceiling, nonbearing, non-fire-resistance-rated, interior partition system. The wall system may be used in Types I and II Construction in accordance with IBC Section 603.1, Items 2 and 7 [2009 – Exception 6, 2006 – N/A], and CBC 603.1, Item 7.

3.0 MATERIAL DESCRIPTION

3.1 DIRTT Solid / Face Tiled Wall System:

The DIRTT Solid / Face Tiled Wall System consists of a prefabricated aluminum frame assembly with adjustable steel levelers, aluminum base and ceiling tracks, insulation core, and decorative Finished Tiles attached to both faces. The wall system is 4 inches (102 mm) thick and has been evaluated for wall heights up to 144 inches (3658 mm). The components are illustrated in Figure 1 of this report. The partition system, installed in accordance with this report and DIRTT's installation instructions, will comply with the 5 psf (0.24 KN/m²) transverse load requirements specified in IBC Section 1607.14 [1607.13] and CBC Section 1607.14 [1607.13].

3.2 Finished Tiles:

DIRTT Finished Tiles are available with 1/2 inch (12.7 mm) thick medium density fiberboard (MDF) complying with ANSI A208.2, 1/4 inch (6 mm) thick Back Painted Tempered Glass, or 1/4 inch (6 mm) thick fabric tackboard substrates. DIRTT has conducted testing in accordance with ASTM E84 for the combinations of substrate and finish material supplied to the job site. Supporting data must be provided to the Code Official. The Finished Tiles meet the requirements of IBC Section 803.12 [2012, 2009 - 803.10] [2006 – 803.3] and CBC Section 803.10 for stability.

Finished Tiles sizes vary from 5⁵/₈ inches (142 mm) to 48 inches (1219 mm) in width and lengths up to 144 inches (3658 mm).

3.3 Framing Members:

Wall framing members are extruded from a minimum 6063-T6 aluminum alloy. Wall assemblies are supplied in 6 to 48 inch (152 to 1219 mm) widths and lengths up to 144 inches (3038 mm). Larger sizes may be provided upon request.

3.4 Ceiling and Base Track:

Floor and ceiling tracks are extruded from a minimum 6063-T6 aluminum alloy. Refer to Figure 1 of this report for illustration.

3.5 Trim:

The wall system is trimmed with flexible PVC gaskets press fit to the base building wall and ceiling surfaces and with a TPE base trim at the finished floor surface. The trims comply with IBC Section 806.7 [806.5] and CBC Section 806.5.



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3.6 Insulation:

Insulation in the cavities of the wall panels, at thicknesses up to 3 inches (76 mm), has a flame spread index of 25 or less and a smoke developed index of 450 or less when tested in accordance with ASTM E84.

3.7 Anchors:

3.7.1 Carpet Grippers:

Carpet grippers are composed of 16 gage satin coat steel with minimum yield strength of 36 ksi (248 MPa). Refer to Figure 2 of this report for illustration.

3.7.2 Two-way Tape:

Two-way tapes must be 6 inches (152.4 mm) long, 1-1/2 inches (38.1 mm) wide, and 0.08 inches (2.03 mm) thick, with minimum ultimate dynamic shear strength of 70 psi (483 MPa).

4.0 INSTALLATION

4.1 General:

The DIRTT Solid / Face Tile Wall System must be installed in accordance with the manufacturer's installation instructions, the applicable Code and this Research Report. A copy of the manufacturer's drawings must be available on the jobsite during installation.

4.2 Application:

Base and ceiling tracks of the wall system must be mechanically attached to ceilings and floors to the satisfaction of the Code Official. Carpet grippers may be used for connection of the base to carpet and two-way tape may be used for connection of base to smooth floor finishes.

The bottom flange of the leveling device is attached to the base track by using No. 10-24 by 1/2 inch (12.7 mm) screws. The upper flange is held in place by back-to-back horizontal extrusions registered to the frame vertical. The frame vertical extrusions (two per frame) are fastened to the horizontal extrusions. After the frames are positioned and made plumb, they must be leveled by adjustment of the leveler drive collar. Leveling devices are placed at a maximum spacing of 48 inches (1219 mm) on center and at each end of the sill section where sill sections connect to frame vertical. All components on a leveler device are composed of A36 Grade steel with minimum yield strength of 30 ksi (207 MPa).

Fasteners used for the wall system anchorage must be specified (including size, length, and location) at the jobsite by the construction supervisor for the material to which the

wall systems are being attached, subject to approval of the Code Official.

DIRTT Finished Tiles have plastic clips (BATS) mounted on the back face for connection to the horizontal framing members at a maximum vertical spacing of 38 inches (965 mm) on center. Horizontal clip spacing varies with tile width but must not exceed 24 inches (610 mm) on center. The Finished Tiles may be attached to the framing members in either horizontal or vertical orientation. When installed horizontally, the Finished Tiles may span multiple wall frame assemblies.

5.0 CONDITIONS OF USE

The DIRTT Solid Wall / Face Tile Wall System described in this Research Report complies with, or is a suitable alternative to, what is specified in those Codes listed in Section 1.0 of this report, subject to the following conditions:

5.1 Installation must comply with this Research Report, the manufacturer's installation instructions, and the applicable Code. In the event of a conflict between the manufacturer's instructions and this report, this report governs.

5.2 The maximum partition height recognized in this Research Report is 144 inches (3658 mm); where the wall system exceeds 144 inches (3658 mm), calculations supporting compliance to the transverse load requirements specified in IBC Section 1607.14 [1607.13] and CBC Section 1607.14 [1607.13] must be prepared by qualified registered design professional and submitted at the time of permit application.

5.3 Use of the wall system is limited to interior nonbearing applications.

5.4 Use of wall system to support furniture loads, and incorporation of door components, or electrical wiring have not been evaluated and are beyond the scope of this report.

5.5 When the ceiling system is used to support the wall system, adequacy of the ceiling grids to resist lateral loads imposed by the wall system must be justified to the Code Official.

5.6 Connectors used to connect the wall system to supporting members must be adequate to resist imposed loads and must be approved by the Code Official.

5.7 Calculations to justify the use of the ceiling grid and connections described in Sections 5.5 and 5.6 of this report must be submitted at the time of permit application. The calculations and/or details submitted must be prepared by a registered design professional where required by the statutes of the jurisdiction in which the project is to be constructed.

5.8 Reports of tests in accordance with ASTM E84 must be provided to the Code Official demonstrating flame spread characteristics for the DIRTТ Finished Tiles being installed.

5.9 The components are assembled by DIRTТ Environmental Solutions Ltd., located in Calgary, Alberta; Savannah, Georgia; and Phoenix, Arizona; under a quality control program with inspections by Intertek Testing Services NA, Inc. (AA-647).

6.0 SUPPORTING EVIDENCE

6.1 Reports of tests in accordance with NFPA 286 and ASTM E84.

6.2 Report of tests in accordance with IBC Section 803.10 [2006 – 803.3] and CBC Section 803.10 for Stability.

6.3 RICE Engineering report R12-01-043, dated September 28, 2012.

6.4 RICE Engineering report R12-01-041, dated October 1, 2012.

6.5 Boricel Corporation dba Bonded Logic, Inc., ICC-ES Evaluation Report ESR-1134.

6.6 Data in accordance with the ICC-ES Acceptance Criteria for Sandwich Panels (AC04), dated February 2012 (editorially revised July 2015).

6.7 Intertek Listing Report "[DIRTT Solid Wall / Face Tiled Wall System](#)".

7.0 IDENTIFICATION

DIRTT Solid Wall / Face Tile frame is identified with the manufacturer's name (DIRTT), manufacturing location, the product name, UPC barcode, name of the inspection agency (Intertek Testing Services NA, Ltd.); the Intertek Mark and the Research Report number (CCRR-1012).

8.0 OTHER CODES

This section is not applicable.

9.0 CODE COMPLIANCE RESEARCH REPORT USE

9.1 Approval of building products and/or materials can only be granted by a building official having legal authority in the specific jurisdiction where approval is sought.

9.2 Code Compliance Research Reports shall not be used in any manner that implies an endorsement of the product by Intertek.

9.3 Reference to the <https://bpdirectory.intertek.com> is recommended to ascertain the current version and status of this report.

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TABLE 1 – PROPERTIES EVALUATED

PROPERTY	IBC SECTION	CBC SECTION
Interior Finish – Surface Burning Characteristics	803.11 [2012 - 803.9] [2009, 2006 - 803.5]	803.9
Interior Finish – Stability	803.12 [2012, 2009 - 803.10] [2006 - 803.3]	803.10
Interior trim	806.7 [806.5]	806.5
Structural	1607.14 [1601.13]	1607.14 [1607.13]

Section numbers in parenthesis refer to the 2012, 2009 and 2006 IBC and the 2010 CBC.

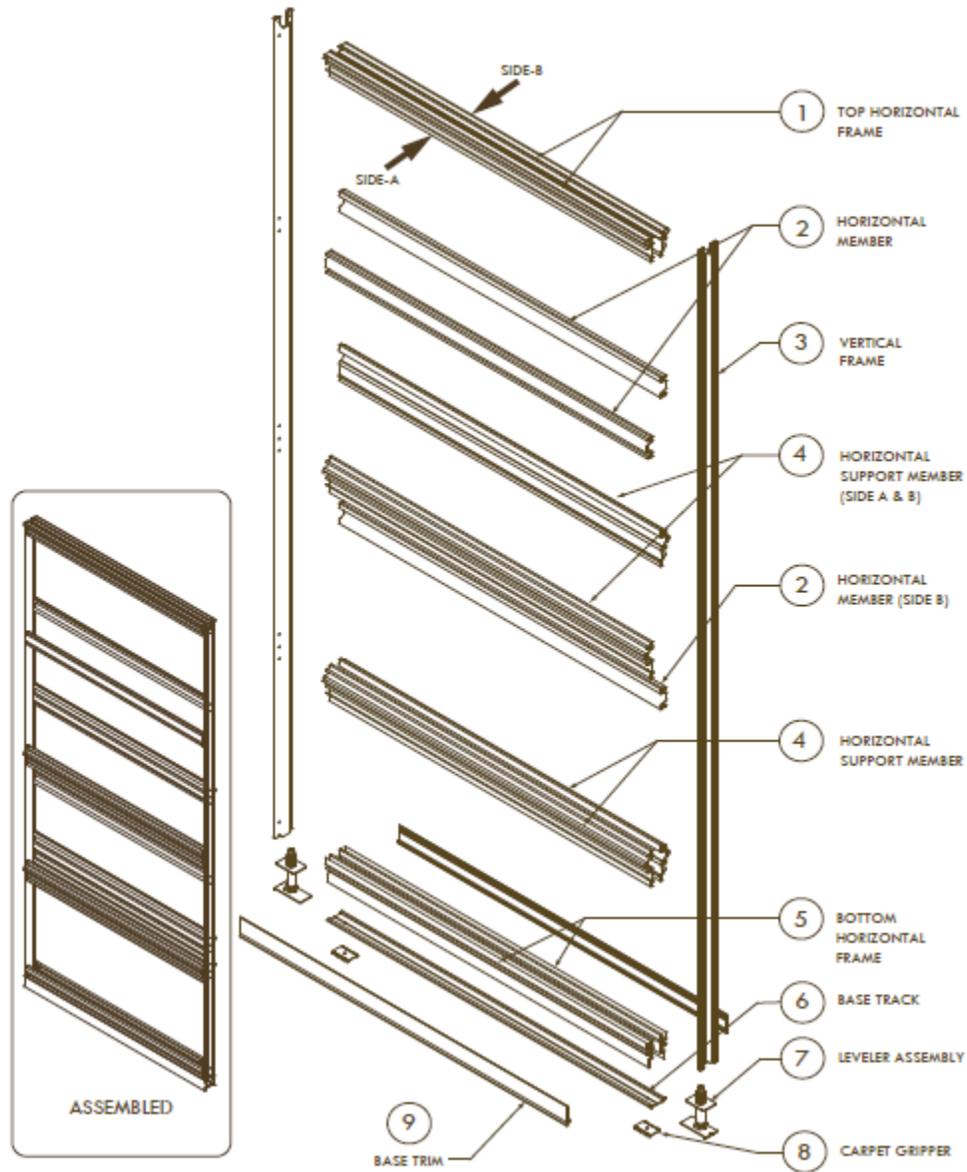


FIGURE 1 – WALL FRAME

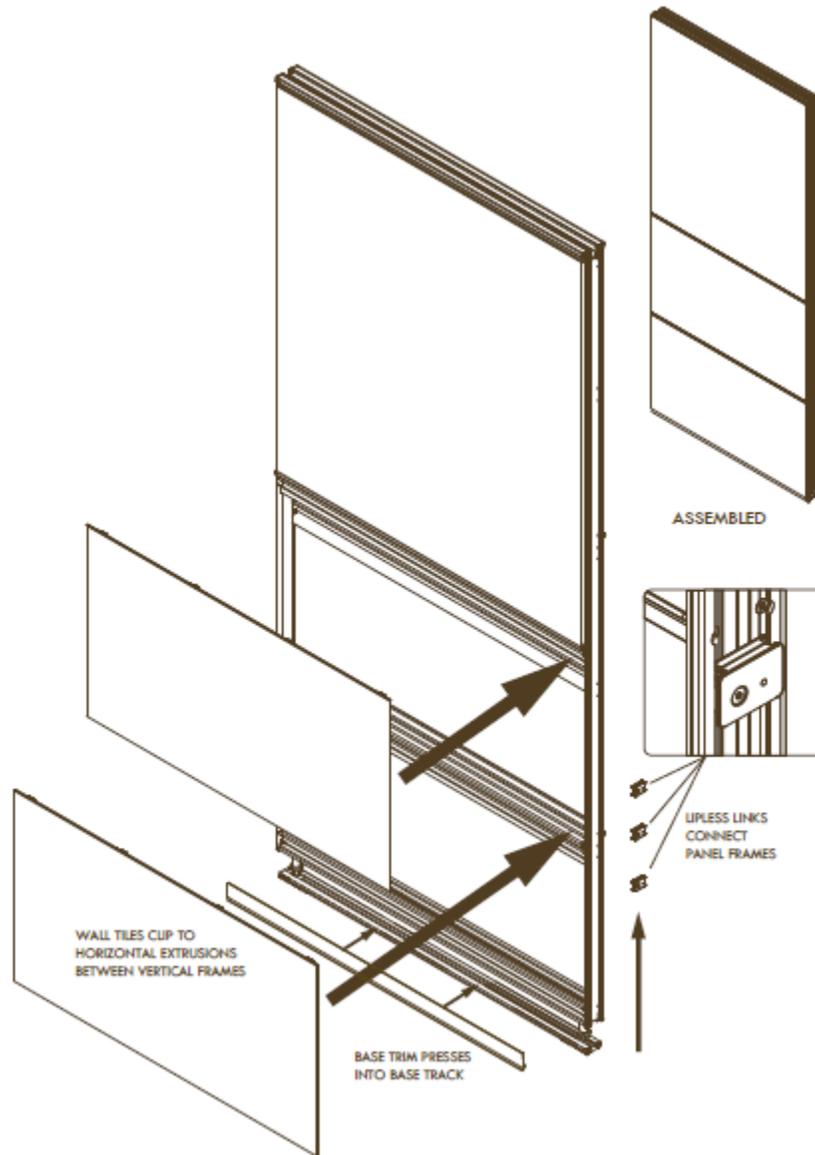


FIGURE 1 – WALL FRAME (continued)

NOTES: REMOVE ALL SHARP EDGES AND BURRS
DO NOT SCALE DRAWING
ALL DIMENSIONS ARE IN MILLIMETERS

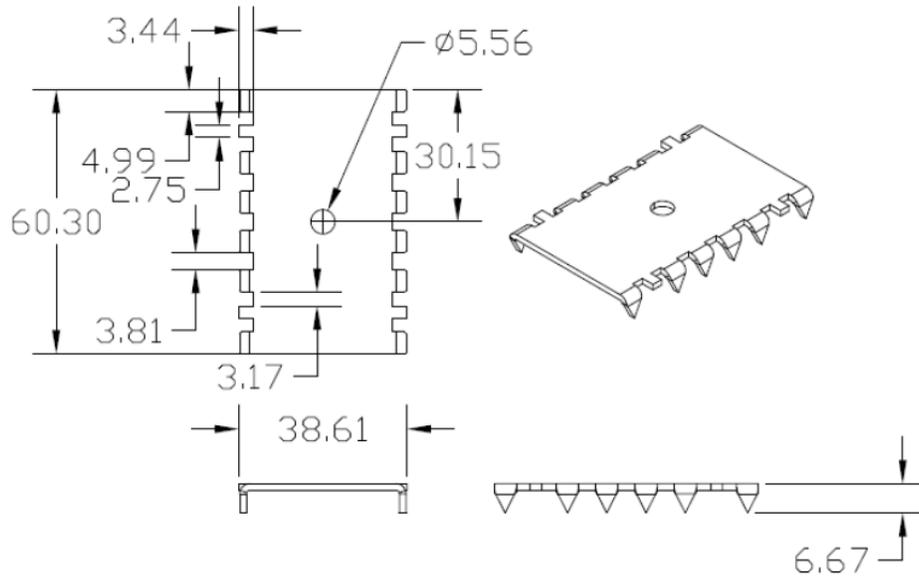


FIGURE 2 – CARPET GRIPPER