DIRTT SOLID WALL / FACE PANEL WALL SYSTEM

1.0 EVALUATION SCOPE

Compliance with the following code:
- 2013 Abu Dhabi International Building Code (ADIBC)†

†The ADIBC is based on the 2009 IBC. 2009 IBC code sections referenced in this report are the same sections in the ADIBC.

For evaluation of compliance with codes adopted by the California Office of Statewide Health Planning and Development (OSHPD) and Division of State Architects (DSA), see the ESR-1947 CBC Supplement.

Properties evaluated:
- Structural stability
- Surface-burning characteristics – interior trim
- Stability – interior finish
- Type I or Type II construction

2.0 USES

The DIRTT Solid Wall / Face Panel Wall System is a relocatable, nonbearing, non-fire-resistance-rated interior wall partition system for use in buildings of any construction type. When used in buildings of Type I or II construction, the partition system must be installed as described in Section 4.1.

3.0 DESCRIPTION

3.1 General:
The DIRTT Solid / Face Panel Wall System consists of a prefabricated aluminum frame assembly with adjustable steel levelers, aluminum base and ceiling tracks, optional insulation core, with or without a steel septum and DIRTT Finished Panels attached to both faces of the partition. The wall system is 4 inches (102 mm) thick with finished tiles applied to both sides, and recognized for wall heights up to 12 feet (3.66 m). The components are illustrated in Figures 1 through 4 of this report. The partition system, installed in accordance with this report and the DIRTT installation instructions, complies with the 5 psf (0.24 KN/m²) transverse load requirements specified in Section 1607.15 of the 2018 IBC, Section 1607.14 of the 2015 and 2012 IBC [Section 1607.13 of the 2009 and 2006 IBC].

3.2 Materials:

3.2.1 DIRTT Solid Wall / Face Panel Wall System – Finished Panels:

DIRTT Finished Panels, also referred to as DIRTT Finished Tiles, are available with factory applied/laminated face materials on ⅛-inch-thick (12.7 mm) Class A medium-density fiberboard (MDF) complying with ANSI A208.2, ⅛-inch-thick (12.7 mm) Class C medium-density fiberboard (MDF) complying with ANSI A208.2, or ⅛-inch-thick (12.7 mm) magnesium oxide (MgO) board, or, in place of the Finished Panels, ⅛-inch-thick (6 mm) tempered glass supplied with the back surface painted with a proprietary DIRTT coating. The DIRTT Finished Panels are supplied in widths from 57/8 inches (149 mm) up to 60 inches (1524 mm) and lengths up to 120 inches (3048 mm) that may be applied vertically or horizontally on a single frame or spanning multiple frames.

The DIRTT Finished Panels comply with the stability requirements of Section 803.14 of the 2018 IBC, Section 803.12 of the 2015 IBC; Section 803.10 of the 2012 and 2009 IBC (Section 803.3 of the 2006 IBC).

The interior finish classification of the DIRTT Finished Panels is outside the scope of this report. See Section 5.8 of this report for additional details regarding the need to determine compliance with interior wall finish material requirements of IBC Section 803 to the satisfaction of the code official.

3.2.2 Framing Members: Solid wall / Face Panel Wall vertical framing members and horizontal sill, intermediate and header framing members are extruded from a minimum 6063-T6 aluminum alloy. The frame assemblies are supplied in 6- to 48-inch (152 to 1219 mm) widths and lengths up to 144 inches (3658 mm).

3.2.3 Ceiling and Base Track: Floor and ceiling tracks are extruded from a minimum 6063-T6 aluminum alloy.

3.2.4 Trim: The wall system is trimmed with flexible polyvinyl chloride (PVC) gaskets press fit to the base building wall, wall-to-wall connections, and ceiling surfaces. A flexible thermoplastic elastomeric (TPE) base trim at the finished floor surface. The trims have a minimum Class C flame spread and smoke developed indices and comply with 2018 and 2015 IBC Section 806.7 [2012, 2009 and 2006 IBC Section 806.5]. As an alternative, an aluminum base trim may be provided.
3.2.5 Fasteners: Fasteners used to support the system must be properly specified (including size, length and location) by a registered design professional, or at the job site by the construction supervisor, based on the material to which the panels are being attached, with the approval of the code official.

3.2.6 Acoustic Insulation: Batt and blanket insulation, supplied by DIRTT and intended for installation 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 or UL 723. As an alternative, a minimum 3 pcf (48 kg/m³) mineral wool insulation complying with ASTM E136 or a proprietary insulation complying with ASTM E136 supplied by DIRTT may be used. Insulation is optional except as required in Section 4.1.

3.2.7 Leveler Assembly: The leveler assembly consists of components, including drive collars, constructed of ASTM A1008 steel with a minimum yield strength of 36 ksi (248.4 MPa).

3.2.8 Carpet Grippers: Carpet grippers are composed of 16 gage [0.058 inch (1.47 mm) thick] steel with a minimum yield strength of 40 ksi (275 MPa).

3.2.9 Two-way Tapes: Two-way tapes supplied by DIRTT are 6 inches (152.4 mm) long, 1½ inches (38.1 mm) wide and 0.08 inch (2.03 mm) thick, with minimum ultimate dynamic shear strength of 70 psi (483 MPa).

3.2.10 Steel Septum: No. 28 gauge steel sheet used in the construction of the steel septum wall assembly shown in Figure 4.

4.0 INSTALLATION

The DIRTT Solid Wall / Face Panel Wall System must be installed in accordance with the manufacturer’s installation drawings and this report.

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 the carpet (see Figure 3) and two-way tape may be used for connection of base to smooth floor surfaces where permitted by the code official.

The bottom flange of the leveler assembly must be attached to the aluminum base framing track with one No. 10-24 by ½-inch-long (12.7 mm) self-tapping screws. The upper flange of the leveler assembly is held in place by the back-to-back horizontal aluminum sill sections fastened to the vertical aluminum framing members. The vertical aluminum framing members (two per panel with a maximum spacing of 48 inches [1219 mm]) must be fastened to the horizontal aluminum sill with three No. 10 self-tapping screws and header sections with two No. 10 self-tapping screws, and to the horizontal aluminum intermediate sections [with a maximum vertical spacing of 40 inches (1016 mm)] with two or three No. 10-24 Type F self-tapping screws per end based on extrusion type. After the frames are positioned and made plumb, they must be leveled by adjustment of the leveler assembly drive collar. Leveler assemblies must be placed at a maximum spacing of 48 inches (1219 mm) on center and located at each end of the horizontal sill section where sill sections connect to the vertical framing members. Once the frames are leveled, the trims are installed at frame joints and around the perimeter, the DIRTT Finished Panels are to be installed by attaching to the horizontal framing by engaging plastic or metal clips mounted to the tiles.

The ½-inch-thick (12.7 mm) Finished Panels are supplied in sizes determined by project specific design. The minimum size is 5 ⅛ inches (149 mm) by 5 ⅛ inches (149 mm) and the maximum size is 60 inches (1524 mm) by 120 inches (3048 mm). The ¼-inch-thick (6 mm) tempered glass is supplied in a maximum size of 120 inches (3048 mm) by 60 inches (1524 mm).

DIRTT Finished Panels may be full-height (vertically monolithic) or segmented (multiple tiles). The DIRTT Finished Panels may be attached to the framing members in either horizontal or vertical orientation and may span and connect to multiple wall frame assemblies.

DIRTT Finished Panels have plastic or metal clips (HANGERS and 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 with the outside clips located not more than 2 inches (51 mm) from the vertical edges of the DIRTT Finished Panels. Vertical spacing of clips must not exceed 40 inches on center to correspond directly with horizontal extrusion locations.

4.1 Installation in Buildings of Type I or Type II Construction: The DIRTT Solid Wall / Face Panel Wall System intended for use in buildings of Type I or Type II construction must be installed in accordance with the manufacturer’s installation instructions and this report and be constructed as shown in Figure 4 (steel septum wall assembly) or as described in Sections 3.1 and 3.2 except as follows:

(1) Finished Panels, supplied with a medium density fiber board with a Class A classification (flame spread index of 25 or less and smoke developed index of 450 or less), installed with or without Class A fiberglass or Class A cotton-batt insulation filling the cavity, or

(2) Finished Panels, supplied with a medium density fiber board with a Class C classification (flame spread index of 200 or less and smoke developed index of 450 or less), installed with Class A fiberglass or Class A cotton-batt insulation filling the cavities on both sides of the steel septum, or

(3) Finished Panels, supplied with a fire-retardant treated wood (FRTW) plywood, installed with or without Class A fiberglass or Class A cotton-batt insulation filling the cavity, or

(4) Finished Panels, supplied with a Class A, ASTM E136 compliant magnesium oxide (MgO) board, installed with or without Class A fiberglass or Class A cotton-batt insulation filling the cavity.

When installed as described above, ASTM E136 complying 3 pcf mineral wool insulation or ASTM E136 complying proprietary insulation supplied by DIRTT may be used in lieu of the Class A fiberglass or Class A cotton-batt insulation. The interior finish rating of the exposed surface of the DIRTT Finished Panels must comply with the provision in Section 5.8 of this report.

5.0 CONDITIONS OF USE

The DIRTT Solid Wall / Face Panels Wall System described in this 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 The system must be manufactured, identified and installed in accordance with this report and the manufacturer’s instructions.
5.2 The maximum partition height is 144 inches (3658 mm). Wall system heights exceeding 144 inches (3658 mm) are outside the scope of this report and must be justified to the satisfaction of the code official. The maximum frame width is 48 inches (1219 mm) wide. Frame widths exceeding 48 inches (1219 mm) are outside the scope of this report and must be justified to the satisfaction of the code official.

5.3 System installation must be limited to interior nonbearing, non-fire-resistance-rated, applications.

5.4 The use of the panels to support furniture loads, and incorporation of door components or electrical wiring, has not been evaluated and is beyond the scope of this report.

5.5 Adequacy of the ceiling grids to resist lateral loads imposed by the DIRTT Solid Wall / Face Panels Wall System must be justified to the code official, when the ceiling system is used to support the partition system.

5.6 Connectors, including carpet grippers or two-way tape attached to the base track, used to connect the partition system to supporting members must be adequate to resist imposed loads and justified to the satisfaction of 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 The interior finish classification of the DIRTT Finished Panels is outside the scope of this report. For the DIRTT Finished Panels, evidence of compliance with the interior wall finish material requirements of Section 803.1 of the 2018, 2015, 2012 and 2009 IBC (Section 803 of the 2006 IBC) must be submitted at the time of permit application for approval by the code official.

5.9 The components are assembled by DIRTT Environmental Solutions, Ltd., in Calgary, Alberta, Canada, Savannah, Georgia, or Phoenix, Arizona, under a quality control program with inspections by ICC-ES.

6.0 EVIDENCE SUBMITTED

6.1 Data and reports of tests in accordance with the ICC-ES Acceptance Criteria for Sandwich Panels (AC04), dated February 2012 (editorially revised May 2018).

6.2 Engineering analysis to establish compliance with IBC Section 1607.15.

6.3 Report of testing in accordance with ASTM E136 for batt or blanket insulation.

7.0 IDENTIFICATION

7.1 DIRTT Solid Wall / Face Panel Wall System components or packaging are identified with the manufacturer's name (DIRTT), manufacturing location, the product name, UPC barcode, and the evaluation report number (ESR-1947).

DIRTT Finished Panel label description includes “MDF,” “Standard MDF” or “NAF MDF” when the medium density fiberboard substrate has a Class C classification when tested in accordance with ASTM E84. DIRTT Finished Panels label description includes “Fire-rated MDF,” “Fire-retardant MDF,” “Flame-retardant MDF” or “FR MDF” when the medium density fiberboard substrate has a Class A classification when tested in accordance with ASTM E84. DIRTT Finished Panels label description includes “MgO,” “Magnesium Oxide Board” or “Mag Board” when the magnesium oxide board substrate has a Class A classification when tested in accordance with ASTM E84 and is noncombustible when tested in accordance with ASTM E136.

7.2 The report holder’s contact information is the following:

DIRTT ENVIRONMENTAL SOLUTIONS, LTD.
7303 30th STREET, SE
CALGARY, ALBERTA T2C 1N6
CANADA
(403) 723-5000
www.dirtt.com
tdidluck@dirtt.com
FIGURE 1—TYPICAL ALUMINUM FRAME

FIGURE 2—EXAMPLES OF FINISHED PANEL PLACEMENT
FIGURE 3—CARPET GRIPPER

<table>
<thead>
<tr>
<th>REV</th>
<th>DESCRIPTION</th>
<th>REVISION DATE</th>
<th>BY</th>
<th>DRAWN-CHECKED</th>
<th>AS</th>
<th>CALIBR</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>FLOOR SEIL SPEC</td>
<td>2-FEB-16</td>
<td>150</td>
<td>25-FEB-66</td>
<td></td>
<td>CALIBR</td>
<td>MONO CARPETGRIPPER</td>
</tr>
</tbody>
</table>

**STEEL SPEC:**
ASTM A1008/A1008M-15, CRS Grade 40, SS  
MINIMUM TENSILE YIELD STRENGTH Fy = 40ksi (276MPa); OR  
CHINA GB STANDARD G275 CRS  
MINIMUM TENSILE YIELD STRENGTH Fy = 41ksi (285MPa)

**MATERIAL:**  
REINFORCED SATIN COPPER  

**GENERAL SHEET METAL TOLERANCES:**

<p>|</p>
<table>
<thead>
<tr>
<th>THICKNESS</th>
<th>LENGTHS</th>
<th>BENDS</th>
<th>RAD</th>
<th>|HOLE LOCATIONS</th>
<th>HOLE DIAMETERS</th>
<th>ANGLES</th>
</tr>
</thead>
<tbody>
<tr>
<td>+/- 0.005</td>
<td>+/- 0.02in</td>
<td>+/- 0.008</td>
<td>+/- 0.01</td>
<td>+/- 0.02in</td>
<td>+/- 0.015in</td>
<td>+/- 0.75</td>
</tr>
</tbody>
</table>

**NOTE:**
1. REMOVE ALL SHARP EDGES AND BURRS  
2. TOLERANCE: INDUSTRY STANDARD, UNLESS OTHERWISE NOTED

---

**STAINLESS STEEL SPEC:**
ASTM A240/SA240, Stainless Steel 304  
MINIMUM TENSILE YIELD STRENGTH Fy = 55ksi (380MPa); OR  
CHINA GB STANDARD 06Cr19Mn10 CRS  
MINIMUM TENSILE YIELD STRENGTH Fy = 55ksi (380MPa)
**FIGURE 4—STEEL SEPTUM WALL ASSEMBLY**

<table>
<thead>
<tr>
<th>DESCRIPTION</th>
<th>PART No.</th>
<th>QTY</th>
</tr>
</thead>
<tbody>
<tr>
<td>THIEF HANGER</td>
<td>11166</td>
<td>2</td>
</tr>
<tr>
<td>ENZO ANTLER</td>
<td>11349</td>
<td>4</td>
</tr>
<tr>
<td>HOLLOW MADONNA</td>
<td>11329</td>
<td>2</td>
</tr>
<tr>
<td>FAT ANGUS (SEPTUM)</td>
<td>16182</td>
<td>2</td>
</tr>
<tr>
<td>BASE TRACK</td>
<td>11013</td>
<td>1</td>
</tr>
<tr>
<td>10-24 X 1/2&quot; FLAT HEAD PHILIP TYPE F</td>
<td>STOCK</td>
<td>2</td>
</tr>
<tr>
<td>LEVELER ASSEMBLY - SOLID WALL</td>
<td>12010</td>
<td>2</td>
</tr>
<tr>
<td>10-16 X 0.5&quot; PAN HEAD TEK SCREW</td>
<td>13630</td>
<td>2</td>
</tr>
<tr>
<td>10-24 X 0.75&quot; FLAT HEAD TYPE F SCREW</td>
<td>14005</td>
<td>64</td>
</tr>
<tr>
<td>CARPET GRIPPER</td>
<td>12075</td>
<td>2</td>
</tr>
<tr>
<td>TEK SCREW 1/2&quot;</td>
<td>STOCK</td>
<td>10</td>
</tr>
<tr>
<td>26 GAUGE STEEL SHEET</td>
<td>210000</td>
<td>1</td>
</tr>
<tr>
<td>LOW PROFILE MADONNA</td>
<td>11881</td>
<td>2</td>
</tr>
<tr>
<td>ENZO PARTIAL UPPER</td>
<td>11430</td>
<td>2</td>
</tr>
<tr>
<td>ENZO PARTIAL LOWER</td>
<td>11481</td>
<td>2</td>
</tr>
<tr>
<td>X-LINK</td>
<td>11349</td>
<td>2</td>
</tr>
<tr>
<td>ENZO UNIVERSAL SPLINE BLOCK</td>
<td>16548</td>
<td>2</td>
</tr>
<tr>
<td>ENZO STACKING SPLINE</td>
<td>12233</td>
<td>2</td>
</tr>
</tbody>
</table>

11: SHEET FASTENED WITH 1/2" TEK SCREWS
1 EVERY 18", MIN. 3 SCREWS PER SIDE.

**STEEL SEPTUM WALL ASSEMBLY - ENZO**

**DETAIL A**

**DETAIL B**

**DIRTT**

DIRTT Environmental Solutions Ltd.
555 - 3rd Ave SW, Calgary, AB Canada T2P 1N6
403 223 6880 Fax 403 223 6844 www.dirtt.com

**ESR-1947 | Most Widely Accepted and Trusted**

**Page 6 of 7**
DIVISION: 10 00 00—SPECIALTIES
Section: 10 22 19—Demountable Partitions

REPORT HOLDER:
DIRTT ENVIRONMENTAL SOLUTIONS, LTD.

EVALUATION SUBJECT:
DIRTT SOLID WALL / FACE PANEL WALL SYSTEM

1.0 REPORT PURPOSE AND SCOPE
Purpose:
The purpose of this evaluation report supplement is to indicate that DIRTT Solid Wall / Face Panel Wall System, recognized in ICC-ES evaluation report ESR-1947, has also been evaluated for compliance with the code noted below.

Applicable code edition:
2019 California Building Code® (CBC)

For evaluation of applicable chapters adopted by the California Office of Statewide Health Planning and Development (OSHPD) and Division of State Architect (DSA), see Sections 2.1.1 and 2.1.2 below.

2.0 CONCLUSIONS
2.1 CBC:
The DIRTT Solid Wall / Face Panel Wall System, described in Sections 2.0 through 7.0 of the evaluation report ESR-1947, complies with CBC Sections 602, 803.14, 806.7, 1607.15 and CBC Table 1604.3, provided the design and installation are in accordance with the 2018 International Building Code® (IBC) provisions noted in the evaluation report and the additional requirements of CBC Sections 806.7 and 1607.15, as applicable.

2.1.1 OSHPD:
The DIRTT Solid Wall / Face Panel Wall System, described in Sections 2.0 through 7.0 of the evaluation report ESR-1947, complies with CBC Sections 602, 803.14, 806.7, 1607.15, 1607A.15 and CBC Tables 1604.3 and 1604A.3, provided the design and installation are in accordance with the 2018 International Building Code® (IBC) and the following requirements:
1. Additional requirements of CBC Section 806.7 [OSHPD 1, 1R, 2, 4 and 5] as applicable.
2. Additional requirements of CBC Section 1607.15 [OSHPD 1R, 2, 3 and 5] as applicable
3. Additional requirements of CBC Section 1607A.15 [OSHPD 1 and 4] as applicable.

2.1.2 DSA:
The DIRTT Solid Wall / Face Panel Wall System, described in Sections 2.0 through 7.0 of the evaluation report ESR-1947, complies with CBC Sections 602, 803.14, 806.7, 1607.15, 1607A.15 and CBC Tables 1604.3 and 1604A.3, provided the design and installation are in accordance with the 2018 International Building Code® (IBC) and the following requirements:
1. Additional requirements of CBC Section 806.7 [DSA-SS and DSA-SS/CC] as applicable.
2. Additional requirements of CBC Section 1607.15 [DSA-SS/CC] as applicable
3. Additional requirements of CBC Section 1607A.15 [DSA-SS] as applicable.

This supplement expires concurrently with the evaluation report, reissued February 2019 and revised July 2020.