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

REPORT HOLDER:
TEKNION LIMITED

EVALUATION SUBJECT:
ALTOS, OPTOS AND OPTOS-CLERESTORY WALL SYSTEMS

1.0 EVALUATION SCOPE

Compliance with the following codes:
- 1997 Uniform Building Code® (UBC)
- BOCA© National Building Code/1999 (BNBC)
- 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.

Properties evaluated:
- Structural
- Surface-burning characteristics

2.0 USES

The Altos, Optos and Optos-Clerestory Wall Systems are moveable, floor-to-ceiling, nonload-bearing, combustible interior wall partition systems for use in buildings where combustible partitions are permitted.

3.0 DESCRIPTION

3.1 General:

The partition systems, when installed in accordance with this report and the Teknion Limited installation instructions, have adequate strength to resist the 5 psf (0.24 kN/m²) transverse load requirement specified in 2012 IBC Section 1607.14 (2009 and 2006 IBC Section 1607.13), Section 1606.9 of the BNBC and Section 1611.5 of the UBC.

3.1.1 Altos Wall System: The Altos wall system consists of prefabricated, melamine-covered, particleboard panels that are jobsite-attached to both faces of steel frame members with steel base and ceiling channels. The wall system is 3.94 inches (100 mm) thick and is recognized for wall heights up to 120 inches (3048 mm). The components are illustrated in Figure 1 of this report.

3.1.2 Optos Wall System: The Optos wall system consists of a metal frame and a glass insert. The bottom and top framing members which support the glass insert must be attached to the supporting structure. Vertical posts are provided at the start and end of the wall line. The wall system is recognized for wall heights up to 110 inches (2794 mm). The components are illustrated in Figure 2 of this report.

3.1.3 Optos-Clerestory Wall System: This wall system is similar to the Altos Wall System described in Section 3.1.1. of this report, except that the upper portion of the wall system includes a glass insert. The glazed portion of the wall system is a preassembled glazed subassembly of ¼-inch-thick (6 mm) glass and an aluminum frame. The glass frame assembly connects to the framing members by the use of retainer clips. When installed, the frame members must meet the deflection requirements specified in IBC Section 2403.3 and UBC Section 2404.2 under a 5 psf design load. The wall system is recognized for wall heights up to 120 inches (3048 mm) with a maximum height of 84 inches (2134 mm) for the melanine-covered particle board and a maximum height of 36 inches (914 mm) for the glazed portion. The components are illustrated in Figure 3 of this report.

3.2 Materials:

3.2.1 Melamine-covered Particleboard: The Altos and Optos-Clerestory Wall Systems consist of ⅜-inch-thick (19 mm), melamine-covered particleboard that complies with ANSI A208.1-93, Type M2. The panels have plastic clips on the back for connection to vertical posts, located on the edges and spaced at 0.810 inch (20.6 mm) on center. The panels have a Class C flame-spread index of 200 or less and a smoke-developed index of 450 or less when tested in accordance with ASTM E84 or UBC Standard 8-1. The panels are supplied in 12- to 48-inch (305 to 1219 mm) widths and lengths up to 120 inches (3048 mm).

3.2.2 Glass Inserts: The glass of the Optos wall system is ⅜-inch-thick (10 mm), tempered glass complying with CPSC 16 CFR 1201 Category II or ANSI Z97.1. The glass is supplied in various widths from 20 to 36 inches (508 to 914 mm). The glass used with the Optos-Clerestory wall system is ¼-inch-thick (6 mm), tempered or laminated glass complying with CPSC 16 CFR 1201 Category II or ANSI Z97.1. The glass is supplied in various sizes from 12-by-12-inch (305 by 305 mm) to 36-by-48-inch (914 to 1219 mm). The glass is assembled in an aluminum frame.

3.2.3 Steel Framing Members:

3.2.3.1 Altos Wall System: The Altos Wall System steel framing members consist of 0.0635-inch (1.61 mm) (base-metal thickness) galvanized steel as described in the approved quality documentation, having a minimum tensile strength of 16,000 psi (110 MPa). Vertical posts (Part FKV) measure 1.102 inches by 2.284 inches (28 mm by 58 mm)
in cross section, with \( \frac{3}{8} \) -inch-diameter (4.8 mm) holes on 1-inch (25.4 mm) centers. Horizontal rails (Part FKH), measuring 1.102 inches by 2.284 inches (28 mm by 58 mm), span between the vertical rails. Ceiling (Part FKNI) and base (Part FKIB) C-shaped channels are formed from 0.0456-inch (1.16 mm base-metal thickness) galvanized steel as described in the approved quality documentation, having a minimum tensile strength of 16,000 psi (110 MPa).

3.2.3.2 Optos Wall System: The Optos wall system consist of 6063-T5 extruded aluminum ceiling frame beam (FYFC) and ceiling top spacer (FYFP) and steel vertical posts (Part No. FYFV) and steel base frame beam and channel (Part No. FYFBA). The steel framing members are manufactured from 0.0635-inch-thick (1.61 mm base-metal thickness) galvanized steel as described in the approved quality documentation, having a minimum tensile strength of 16,000 psi (110 MPa). The ceiling frame beam (Part FYFC) and ceiling top spacer (Part FYFP) are used to support the glass at the top. The base frame beam and channel (Part FYFBA) are used to support the glass at the bottom. The vertical posts are used at the start (Part FYFS) and end of a wall line (Part FYFE).

3.2.3.3 Optos-Clerestory Wall System: The steel framing members are the same as for the Altos Wall System described in Section 3.2.3.1, except that the ceiling spacer (Part FYFP) is the same as the Optos Wall system described in Section 3.2.3.2.

3.2.4 Trim: Edges of the Altos and Optos-Clerestory wall systems are protected with a acrylonitrile butadiene styrene (ABS) or polyvinyl chloride (PVC) trim having a flame-spread index of 75 or less and a smoke-developed index of 450 or less when tested in accordance with ASTM E84 or UBC Standard 8-1. The trim pieces for the Optos wall system are made from extruded aluminum.

3.2.5 Fasteners: Fasteners attaching the Altos and Optos-Clerestory Wall System melamine-covered particle board to the vertical posts consist of male plastic clips (Part FBFM) factory-mounted on the back side of the particleboard, and female clips (Part FBFF) mounted on the vertical post. Fasteners for attaching horizontal rails to the vertical posts are horizontal connector bolts (Part FBN) secured to the vertical post and horizontal end caps attached to the horizontal rail. The glass panel of the Optos wall system is held in place via levelers, security brackets and attachment clips as described in Teknion’s published installation instructions.

4.0 INSTALLATION

General: Base and ceiling channels of the wall system must be mechanically attached to ceilings and floors to the satisfaction of the code official. A structural analysis to determine adequacy of the ceiling grid to support the lateral load imposed by the wall system in accordance with Section 13.5.5 of ASCE 7 (as referenced in Section 1613 of the applicable IBC), Section 1610.6 of the BNBC or Section 25.215 of UBC Standard 25-2, as applicable, must be provided to the code official. Glass in glazed partitions must be designed and installed in accordance with Section 13.5.9 of ASCE 7 (as referenced in Section 1613 of the IBC).

4.1 Altos Wall System:

Leveling devices must be attached to the base channel using four No. 8 tapping screws. Maximum 48-inch-long (1219 mm) horizontal rails must be spaced a maximum of 51 inches (1295 mm) apart and must be connected to the vertical posts by engaging the plastic horizontal clips located on the ends of the rails over the horizontal connector bolts set in the vertical post. After the panels are positioned, they must be leveled and tightened using the top leveler. Faces of all horizontal and vertical members must be covered with 1-inch-wide-by-\( \frac{3}{8} \) -inch-thick (25.4 mm by 3.2 mm) foam tape.

The particleboard panels must be attached to the vertical posts by inserting the male fascia connector mounted on the back of the panel into the female connector mounted on the vertical post. Connectors must be spaced a maximum of 47.89 inches (1216 mm) on center on vertical panel edges.

4.2 Optos Wall System:

The ceiling frame beam and base channel are connected to the base and ceiling top spacer. The vertical wall post start posts are connected to the supporting structure and are connected to the ceiling and base beams with the use of brackets. The glass insert is then installed on glass levelers and secured by glass attachment clips and security brackets. For glass-to-glass connection, silicone tape (Part FZTA) must be used along the glass vertical edges. Vertical trim pieces are installed first, and then the base and ceiling trim pieces with end caps.

4.3 Optos-Clerestory Wall System:

The ceiling top spacer and ceiling frame beam is the same as for the Optos Wall System. The base channel assembly is the same as for the Altos Wall System. The clerestory vertical posts (Part FYCFCV) are connected to the ceiling beams using brackets. The bottom of the vertical post is connected to the base channel with sheet metal screws. The installation of the particleboard to the framing members is as described in Section 4.2 of this report for the Altos Wall System. The clerestory glass module (Part FYCG) subassembly is attached to the framing members by the use of retaining clips. After the glass subassembly is installed, the other aluminum frame subassembly is attached by snapping into the retainer clips.

5.0 CONDITIONS OF USE

The Altos, Optos and Optos-Clerestory Wall Systems described in this report comply with, or are suitable alternatives to what is specified in, those codes listed in Section 1.0 of this report, subject to the following conditions:

5.1 The systems must be manufactured, identified, and installed in accordance with this report and the manufacturer’s instructions.

5.2 The maximum partition height for the Altos and Optos-Clerestory Wall System is 120 inches (3048 mm). The maximum glazing height of the Optos Wall System is 110 inches (2794 mm).

5.3 For the Altos and Optos-Clerestory Wall Systems, panel installation must be limited to interior nonload-bearing applications, where a Class C interior finish rating is permitted, as indicated in Chapter 8 of the IBC and Section 3.2.1 of this report.

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

5.5 Adequacy of the ceiling grids to resist lateral loads imposed by the Altos, Optos and Optos-Clerestory Wall Systems must be justified to the code official, when the ceiling system is used to support the partition system.

5.6 Connectors used to connect the partition system to supporting members must be shown or defined in the
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 glass inserts used with the Optos and Optos-Clerestory Wall Systems comply with the safety glazing provisions in IBC Section 2406, UBC Section 2406 and BNBC Section 2406.

5.9 When installed in accordance with this report and Teknion’s published installation instructions, the Optos wall system glazing complies with the requirements of IBC Section 2403.4 and BNBC Section 2403.3.

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.

6.2 Surface burning characteristic tests in accordance with ASTM E84.

6.3 Data showing compliance with Chapter 24 of the IBC, UBC and BNBC.

7.0 IDENTIFICATION

7.1 Each wall system must be identified by a label visible after the panel is erected. The label notes the Teknion Limited name, and the evaluation report number (ESR-1598). Each bundle of Altos, Optos and Optos-Clerestory wall panels and each carton of metal components must be identified by a label bearing the Teknion Limited name and the evaluation report number (ESR-1598).

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

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FIGURE 1—ALTOS WALL SYSTEM TYPICAL PANEL COMPONENTS
FIGURE 2—OPTOS WALL SYSTEM TYPICAL PANEL COMPONENTS
FIGURE 3—OPTOS-CLERESTORY TYPICAL PANEL COMPONENTS