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ONLINE CERTIFICATIONS DIRECTORY

System No. CW-D-1004
XHDG.CW-D-1004
Perimeter Fire-containment Systems

New Revision

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XHDG - Perimeter-fire-containment Systems

See General Information for Perimeter Fire-containment Systems

System No. CW-D-1004

Rev. 12-19-2014

F Rating — 1 Hr

T Rating — 1/2 Hr

Integrity Rating — 2 Hr

Insulation Rating — 1/2 Hr

Linear Opening Width — 4 In. Max

L Rating At Ambient — Less Than 1 CFM/Lin Ft

L Rating At 400°F — Less Than 1 CFM/Lin Ft

Class 2E Movement Capabilities — 5% Vertical Shear

3. **Ceiling System — Max separation between edge of floor assembly and face of framing member at time of installation is 4 In; the ceiling system is designed to accommodate vertical shear up to 5 percent of its installed width.** The ceiling system shall incorporate the following construction features:

a. **Furring Materials** — Item 1 or Similar: Minimum nominal 3/4 In. (actual 0.875 In.) wide steel channels spaced a max of 24 In. OC. Channels are formed from 0.018 In. (No. 25 MSG) thick galvanized steel. Channels are spaced 24 In. OC. Furring channels are installed perpendicular to the direction of the floor joists. Furring channels are secured to the bottom chord of the floor joists with No. 8 by 1 In. long Type S-12 self-drilling, self-tapping steel screws. Furring channels are spliced using 6 In. long, 0.018 In. (No. 25 MSG) thick galvanized steel splice plates. Splice plates are secured to the furring channels with a minimum of two No. 8 by 1/2 In. long Type S-12 self-drilling, self-tapping steel screws.

b. **Wall Angle** — Item 2 or Similar: Minimum nominal 1 In. wide by 1 In. high by 0.018 In. (No. 25 MSG) thick galvanized steel wall angle. Wall angle is secured to the wall at the ceiling perimeter with fasteners spaced a max of 24 In. OC. Wall angle is secured to the wall with a minimum of two fasteners per piece.

c. **Hanger Wire** — Item 3: Minimum 12 gauge galvanized steel hanger wire. Hanger wire is spaced a max of 24 In. OC along the furring channels and a max of 24 In. OC perpendicular to the furring channels. Hanger wire is secured to the bottom chord of the floor joists with a direct pull fastener. Hanger wire is secured to the furring channels with a minimum of one 90 degree bend.

d. **Ceiling Board** — Item 4: Minimum 5/8 In. thick Type X gypsum board. Gypsum board is installed perpendicular to the furring channels with the long edges and ends staggered. Gypsum board is secured to the furring channels with No. 6 by 1 In. long Type S-12 self-drilling, self-tapping steel screws spaced a max of 12 In. OC along the furring channels and a max of 12 In. OC along the long edges and ends of the gypsum board.

THERMAFIBER INC — SAF

b. **Fill, Void or Cavity Material*** — Min 3/4 In. and nominal 1-1/16 In. dia. thickness of 3# mineral wool insulation batt stuffed tightly into void spaces. Batts are compressed 25% and installed with friction fit between the floor joist and the bottom side of the floor deck. Batts are installed with the long dimension parallel to the joists.

SPECIFIED TECHNOLOGIES INC — Specified Al600 Environmental Spray or Specified Fast Trak Spray

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Last Updated on 2004-10-29

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1. **Floor Assembly** — Min 4 1/2 In. thick reinforced lightweight or normal weight (100-150 pcf) structural concrete.

2. **Curtain Wall Assembly** — The factory-assembled curtain wall assembly shall incorporate the following construction:

Systems

A. **Hidden Mounting Brackets** — Min 6 In. wide by 24 In. thick extruded aluminum Reflex Mounting Bracket with Slot for Glass Fin, Part No. 6124, as manufactured by Reflex Supply, Inc. and as specified in its latest product literature. Brackets are spaced a max of 48 In. OC and secured to the supporting structure with anchors of the size and type specified in the bracket manufacturer's literature. Mounting bracket attached to top of floor with two min 1/2 In. diam steel machine screws in conjunction with another similar bracket with matching threads.

B. **Framing** — The two pane perimeter sliding mullion (vertical orientation) and transom (horizontal) members, min 6 In. thick by 2 In. wide by 8 In. deep roll formed from min 0.100 In. thick aluminum. Mullions spaced max 30 In. OC and spliced as in other requiring sections (Item 3A) at each floor level in conjunction with extruded aluminum. One behind in the back of the mullions and designed to engage the vertical leg of the Reflex mullion mounting bracket. Mullions are secured to the supporting structure with anchors of the size and type or mullions to be max 4 In. from edge of floor assembly. Transom to be secured min 6 In. OC, 6% of total panel to be located min 24 In. above the surface of floor assembly.

C. **Spandrel Panels** — The following types of spandrel panels are acceptable:

a. **Glass Panels** — Item 1/4 In. thick opaque heat-strengthened glass. Each panel secured in position with aluminum pressure plates in conjunction with glazing gaskets and steel screws.

b. **Aluminum Panels** — Item 1/8 In. thick aluminum sheets with 1/4 In. thick edges. Each panel secured in position with aluminum pressure plates in conjunction with gaskets and steel screws.

c. **Stone Panels** — Item 1 1/2 In. thick perforated granite spandrel panels with 1 In. thick gasket edges. Each panel secured in position with aluminum pressure plates in conjunction with gaskets and steel screws.

D. **Vision Panels** — Item 1 In. thick (double pane) transparent heat-strengthened glass. Each panel secured in position with aluminum pressure plates in conjunction with glazing gaskets and steel screws.

E. **Head Channels** — Item 7-1/2 In. wide by 3-1/4 In. deep No. 20 gauge steel "C" channel with 1/2 In. wide by 1/2 In. deep flanges. Channels secured to the structural floor deck with the following fasteners and/or brackets: Structural steel deck: Fasteners and/or brackets with No. 10 by 3/4 In. long self drilling, self-tapping steel screws. Channels secured at the middle of each stationary panel. Channel additionally secured to steel beam (Item 3H) with No. 10 by 3/4 In. self-drilling, self-tapping steel screws spaced 3 min. from each end and max 12 In. OC. Fasteners are to be recessed 3 In. from exterior face of structure to approximately center of channel.

F. **Spandrel Panel Perimeter Angles** — Item 1-1/2 In. min by 1 In. min by 1/8 In. min thick aluminum angles with a minimum of eight screws spaced max 8 In. OC. Angles secured to the structural floor deck with the following fasteners and/or brackets: Structural steel deck: Fasteners and/or brackets with No. 8 by 1 In. long self drilling, self-tapping steel screws with washers spaced max 8 In. OC. Fasteners are to be recessed 3 In. from exterior face of structure to approximately center of channel and without attachment to transom.

G. **Steel Beam** — Item 3H: Min W6 by 9 lbs/ft steel beam. Beam is to be installed perpendicular to the curtain wall assembly. Beam is to be secured to the structural floor deck with the following fasteners and/or brackets: Structural steel deck: Fasteners and/or brackets with No. 10 by 3/4 In. long self drilling, self-tapping steel screws spaced max 12 In. OC. Beam is to be secured to the structural floor deck with the following fasteners and/or brackets: Concrete: Fasteners and/or brackets with No. 10 by 3/4 In. long self drilling, self-tapping steel screws spaced max 12 In. OC. Beam is to be secured to the structural floor deck with the following fasteners and/or brackets: Steel: Fasteners and/or brackets with No. 10 by 3/4 In. long self drilling, self-tapping steel screws spaced max 12 In. OC. Beam is to be secured to the structural floor deck with the following fasteners and/or brackets: Wood: Fasteners and/or brackets with No. 10 by 3/4 In. long self drilling, self-tapping steel screws spaced max 12 In. OC.

H. **Curtain Wall Insulation** — Item 3: Min 3 In. thick mineral wool batt insulation. Insulation is to be installed in the curtain wall assembly between the floor slab and the bottom side of the spandrel panel. Insulation is to be secured to the curtain wall assembly with the following fasteners and/or brackets: Steel: Fasteners and/or brackets with No. 12 by 3/4 In. long self drilling, self-tapping steel screws spaced max 12 In. OC. Insulation is to be secured to the curtain wall assembly with the following fasteners and/or brackets: Steel: Fasteners and/or brackets with No. 12 by 3/4 In. long self drilling, self-tapping steel screws spaced max 12 In. OC. Insulation is to be secured to the curtain wall assembly with the following fasteners and/or brackets: Steel: Fasteners and/or brackets with No. 12 by 3/4 In. long self drilling, self-tapping steel screws spaced max 12 In. OC. Insulation is to be secured to the curtain wall assembly with the following fasteners and/or brackets: Steel: Fasteners and/or brackets with No. 12 by 3/4 In. long self drilling, self-tapping steel screws spaced max 12 In. OC. Insulation is to be secured to the curtain wall assembly with the following fasteners and/or brackets: Steel: Fasteners and/or brackets with No. 12 by 3/4 In. long self drilling, self-tapping steel screws spaced max 12 In. OC. Insulation is to be secured to the curtain wall assembly with the following fasteners and/or brackets: Steel: Fasteners and/or brackets with No. 12 by 3/4 In. long self drilling, self-tapping steel screws spaced max 12 In. OC.

THERMAFIBER INC — FIRESPAN 99

J. **Glazing** — Item 4: Min 1 In. thick insulating glass unit. Each unit is secured in position with aluminum pressure plates in conjunction with glazing gaskets and steel screws.

K. **Sealant** — Item 5: Min 1/4 In. wide by 1/4 In. deep fire-rated silicone sealant. Sealant is applied to the perimeter of the curtain wall assembly at the floor slab, head of wall and at the interface of adjacent curtain wall assemblies.

L. **Backer Rod** — Item 6: Min 1/4 In. diam backer rod. Backer rod is installed in the perimeter of the curtain wall assembly at the floor slab, head of wall and at the interface of adjacent curtain wall assemblies.

ONLINE CERTIFICATIONS DIRECTORY

Design No. P541
BXUV.P541
Fire-resistance Ratings - ANSI/UL 263

New Revision

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BXUV - Fire Resistance Ratings - ANSI/UL 263

BXUV7 - Fire Resistance Ratings - CAN/ULC-S101 Certified for Canada

See General Information for Fire Resistance Ratings - ANSI/UL 263

See General Information for Fire Resistance Ratings - CAN/ULC-S101 Certified for Canada

Design No. P541

Design No. P541

Revised 26 2014

Restrained Assembly Rating — 1 Hr

Unrestrained Assembly Rating — 1 Hr

This design was evaluated using a load design method other than the CAN/S Steel Design Method (i.e., Working Stress Design Method). For those applications employing the said Steel Design Method in Canada, a load restriction factor shall be used – See Guide BXUV or BXUV7.

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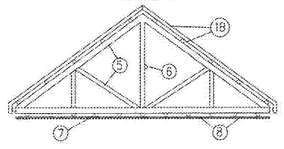

1. **Roof Deck** — Min 1-1/2 In. deep, 0.018 In. thick (No. 25 MSG) galvanized steel roof deck complying with ASTM A653 Structural Steel (SS), Grade 33 (230 MPa) and Structural Steel Corporation's Steel Deck Institute (SDI) Specification for Steel Roof Deck.

2. **Roof Insulation — Mineral and Fiber Boards*** — Mineral wool, glass fiber or cellular polystyrene boards, 2 In. or less in min and, as an option, applied in two or more layers. Boards installed loosely over the roof deck (Dry Deck) or bonded to the deck (Built-Up) as per the system installation. Item 1B – min specific density of substrate shall be 3 pcf. Boards secured to the deck with the system fasteners. Boards to be installed with the long joints perpendicular to the deck flutes. Boards may be installed without a base course. Subsequent layers to be installed with joints offset from those in the first layer. Boards to be installed with joints staggered in both directions. Between layers, apply a continuous layer of asphalt or coal tar pitch mopping. Top layer to be mopped with asphalt or coal tar pitch mopping. Refer to Roof Deck Insulation (BRYZ) Category in the Building Materials Directory.

3. **Roof Membrane** — Optional built-up roofing membrane. Refer to Roof Deck Membrane (BUYS) Category in the Building Materials Directory.

4. **Roof Surfacing** — Optional gravel surfacing. Refer to Roof Deck Surfacing (BUYX) Category in the Building Materials Directory.

5. **Steel Roof Trusses** — Solid formed or open web steel trusses, spaced max 4 ft OC, with a min depth of 10 In. Trusses are to be designed to support the roof deck and the roof loads. Trusses are to be secured to the supporting structure with fasteners. Truss members connected together with No. 10-16 (No 4mm) self-drilling screws or equivalent. Individual prefabricated trusses to be assembled into the desired floor or roof assembly by bolting or welding in accordance with the truss manufacturer's instructions. Refer to Roof Deck Structural Units (BUCR) Category in the Building Materials Directory.

6. **Bridging** — Rods, hardware, straps, lengths of perforated iron and lengths of permanent bracing for truss chords and webs, as required to be shown by truss manufacturer.

7. **Furring Channels** — Resilient Channels, No 25 MSG galv steel for interior as required by Category, 2 5/8 In. wide by 7/8 In. deep, spaced 16 In. OC perpendicular to trusses. Ties spaced at furring channel spacing not to exceed 6 In. OC, 2 In. from each end of wallboard. Channel splices overlapped 8 In. Beneath steel trusses, channels secured to each truss with Type S-12 self-drilling screws through the bottom chord of the truss. Channels secured to each truss with Type S-12 self-drilling screws through the bottom chord and the webs of the truss.

7A. **As an alternate to Item 7, Resilient Channels** — No 25 MSG galv steel, 2 5/8 In. wide by 7/8 In. deep, spaced 16 In. OC perpendicular to trusses. Ties spaced at furring channel spacing not to exceed 6 In. OC, 2 In. from each end of wallboard. Channel splices overlapped 8 In. Beneath steel trusses, channels secured to each truss with Type S-12 self-drilling screws through the bottom chord of the truss. Channels secured to each truss with Type S-12 self-drilling screws through the bottom chord and the webs of the truss.

7B. **As an alternate to Item 7 and 7A, Resilient Channels,** — 3/4 In. deep by 2-3/8 In. wide at the base and 1-3/8 In. wide at the top, formed from 0.027 In. (No. 22 MSG) galv steel. Ties spaced at furring channel spacing not to exceed 6 In. OC, 2 In. from each end of wallboard. Channels installed perpendicular to trusses and secured with screws. Channel splices overlapped 8 In. Beneath steel trusses, channels secured to each truss

with Type S12 by 1/2 In. long screws on one leg. At bridging and splices, apply heavy duty corrugated fastener with double prongs on all sides. Fasteners shall not be used within 1 In. of ends.

8. **Gypsum Board** — Two layers of 5/8 In. thick Type X gypsum board. Base layer applied at right angles to the furring channels and secured with 1 In. long Type S screws spaced max 12 In. OC along the edges and joints and 24 In. OC at the field. End joints of each layer to be offset at least 24 In. Face layer applied with long dimension parallel to furring channels so that no end joints occur over the same furring channel as the end joints in the base layer. Face layer end joints staggered at least 24 In. from those in the base layer. Face layer fastened with Type S screws spaced max 8 In. OC along the edges and joints and max 12 In. OC in the field. Screws shall penetrate the furring channels by at least 1/2 In. Screws shall not penetrate the furring channels more than 1/4 In. beyond the back surface of the base layer. Screws shall be driven so that the face layer surface is firm with the face surface of the base assembly. Fastening method of furring channel to supporting material to be rigidly fixed with fasteners spaced max 24 In. OC. Furring material to be continuous beneath resilient mounting brackets (Item 2H).

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9. **Fill, Void or Cavity Material*** — Min 3/8 In. and nominal 1-1/16 In. dia. thickness of 3# mineral wool insulation batt stuffed tightly into void spaces. Batts are compressed 25% and installed with friction fit between the floor joist and the bottom side of the floor deck. Batts are installed with the long dimension parallel to the joists. When Specified Fast Track Spray is used, see the Guidelines of Option A item (Min no. 12 mils).

SPECIFIED TECHNOLOGIES INC — Specified Al600 Environmental Spray or Specified Fast Track Spray

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Last Updated on 2004-10-29

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ONLINE CERTIFICATIONS DIRECTORY

System No. FF-D-0008
XHBN.FF-D-0008
Joint Systems

New Revision

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XHBN - Joint Systems

See General Information for Joint Systems

System No. FF-D-0008

March 13, 2009

Assembly Rating — 3 Hr

Nominal Joint Width — 2 In.

Class II and III Movement Capabilities — 50% Compression

1. **Floor Assembly** — Min 4-1/2 In. thick reinforced lightweight or normal weight (100-150 pcf) structural concrete.

2. **Wall Assembly** — Min 4-1/2 In. thick, reinforced lightweight or normal weight (100-150 pcf) structural concrete. Wall may also be constructed of one UL Classified **Concrete Blocks***.

See **Concrete Blocks** (CAZT) category in the Fire Resistance Directory for names of manufacturers.

3. **Joint System — Max width of joint (at time of installation of joint system) is 2 In. The joint system is designed to accommodate a max 50 percent compression, extension or two-directional shear from its installed width.** The joint system consists of the following:

A. **Mechanical Joint Assembly** — Five barrier material encased in corrugated metal and extruded ends (metal flanges), designed to be installed in flats in accordance with the installation instructions provided with the product. The following assemblies are to be used with the different joint sizes:

Nom Joint Width In.	Mechanical Joint Dsg.
1	HVAC-0102
2	HVAC-0202

WATSON BOWMAN ACME CORP

B. **Retaining Angles** — Min 2½ gauge (or thicker) galvanized steel angles installed over steel deck flutes, spaced max 24 In. OC and secured with suitable fasteners spaced max 24 In. OC. Angles secured to concrete or masonry substrates with min 3/16 In. dia. concrete anchors spaced a max of 24 In. OC.

C. **Joint Cover** — Min 0.034 In. thick extruded aluminum plates installed on top side of floor, centered over the gap in joint. Cover plates attached only to metal with min 1-1/2 In. long fasteners; fastener spacing a max of 16 In. OC.

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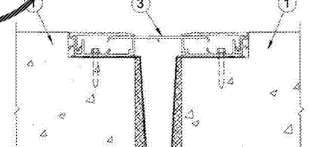

1. **Floor Assembly** — Reinforced lightweight or normal weight (100-150 pcf) structural concrete having a min thickness of 4-1/2 In. at the point of joint opening.

2. **Mechanical Joint Assembly*** — Max width of joint is 2 In. Flexible membrane seal material with galv steel covering and/or an Angle Shape at edges. The mechanical joint assembly shall be installed in accordance with the installation instructions accompanying the units.

CONSTRUCTION SPECIALTIES INC — Metro-Jac

3. **Joint Cover** — Min 0.020 in. thick zinc-coated aluminum, stainless steel or galv steel, as applicable, wings that span the joint opening and overlap the floor surface on each side. Wings supported by a formed steel shape or cold-rolled channel shape that engages with a leg of the angle shape on each side of the joint opening. Cover held in place with 1 in. wide stainless steel spring clips at 24 in. OC maximum spacing. Cover plates anchored to floor slabs on each side of joint opening, centered over joint length at one end and to be attached at floor with min 3/16 in. diam by 1-1/2 in. long masonry anchors spaced a max of 16 in. OC apart.

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Last Updated on 2003-09-17

ONLINE CERTIFICATIONS DIRECTORY

System No. W-J-0003
XHEZ.W-J-0003
Through-penetration Firestop Systems

New Revision

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XHEZ - Through-penetration Firestop Systems

See General Information for Through-penetration Firestop Systems

System No. W-J-0003

December 01, 1993

F Rating — 2 Hr

T Rating — 0 Hr

1. **Floor Assembly** — Min 4-1/2 In. thick reinforced lightweight or normal weight (100-150 pcf) structural concrete.

2. **Wall Assembly** — Min 4-1/2 In. thick, reinforced lightweight or normal weight (100-150 pcf) structural concrete. Wall may also be constructed of one UL Classified **Concrete Blocks***.

See **Concrete Blocks** (CAZT) category in the Fire Resistance Directory for names of manufacturers.

3. **Fill, Void or Cavity Material*** — Min 7-15/16 In. thick mineral wool batt insulation. Batts are compressed 25% and installed with friction fit between the floor joist and the bottom side of the floor deck. Batts are installed with the long dimension parallel to the joists.

3M COMPANY

1. **Forms** — (Not Shown) — Steel or 1 basis to prevent leakage of 3M intumescent plastic installation. Foams to be rigid steel materials, cut to fit the contour of the penetrating item and fastened to both sides of walls. Forms to be removed after 3M material has cured.

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DOE FACILITY CODE: 660 -3066
RIVERWOOD HIGH SCHOOL-PHASE 3-8
AUDITORIUM/GYMNASIUM ADDITION
5800 RAIDER DRIVE NW SANDY SPRINGS, GA 30328
FULTON COUNTY SCHOOLS RFP No. 411-19

Architecture Planning Facilitation Design

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REGISTERED ARCHITECT

DATE	NO.	DESCRIPTION
03/27/18		CODE PRELIMINARY SUBMITTAL - DESIGN DEVELOPMENT
05/19/18		100% CONSTRUCTION DOCUMENTS
09/17/18		CODE CHECK - SET/PERMIT SET
12/10/18		FINAL CODE SUBMITTAL
1/01/19		ISSUED FOR PERMITS

SHEET TITLE
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PROJECT NO. 16015.02

DATE: 09/17/18

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