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ONLINE CERTIFICATIONS DIRECTORY

Design No. N630
BXUV.N630
Fire-resistance Ratings - ANSI/UL 263

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Design/System/Construction/Assembly Usage Disclaimer

- Authorities Having Jurisdiction should be consulted in all cases as to the particular requirements covering the installation and use of UL Certified products, equipment, system, devices, and materials.
- Authorities Having Jurisdiction should be consulted before construction.
- Fire resistance assemblies and products are developed by the design submitter and have been investigated by UL for compliance with applicable requirements. The published information cannot always address every construction nuance encountered in the field.
- When field issues arise, it is recommended the first contact for assistance be the technical service staff provided by the product manufacturer noted for the design. Users of fire resistance assemblies are advised to consult the general Guide Information for each product category and each group of assemblies. The Guide Information includes specifics concerning alternate materials and alternate methods of construction.
- Only products which bear UL's Mark are considered Certified.

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. N630

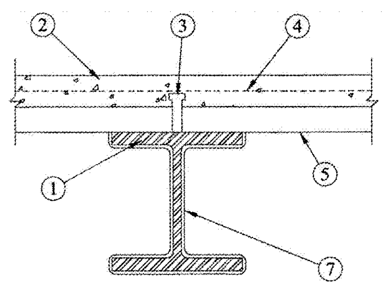
September 16, 2016

Restrained Beam Ratings — 1, 1-1/2, 2 and 3 Hr. (See Item 7)

Unrestrained Beam Ratings — 1, 1-1/2 and 2 Hr. (See Item 7)

This design was evaluated using a load design method other than the Limit States Design Method (e.g., Working Stress Design Method). For jurisdictions employing the Limit States Design Method, such as Canada, a load restriction factor shall be used — See Guide BXUV or BXUV7

*** Indicates such products shall bear the UL or cUL Certification Mark for jurisdictions employing the UL or cUL Certification (such as Canada), respectively.**



1. **Steel Beam** — W8x24 or W6x12 min size. Beams shall be free of dirt, loose scale and oil. Beams shall be primed with a phenolic modified alkyd resin primer at a nominal thickness of 1 mil.

2. **Normal Weight or Lightweight Concrete** — Compressive strength 3500 psi. For normal weight concrete either carbonate or siliceous aggregate may be used. Unit weight 146 lbs/cu ft. for normal weight concrete and 116 lbs/cu ft. for lightweight concrete. Min concrete thickness, as measured from top plane of steel floor and form units is 2-1/2 in.

3. **Shear Connector** — (Optional) Studs, 3/4 in. diam headed type or equivalent per AISC specifications welded to the top flange of beam through the steel floor units.

4. **Welded Wire Fabric** — 6x6-10/10 SWG

5. **Steel Floor or Form Units** — 1-1/2, 2 or 3 in. deep fluted units, welded to beam.

6. **Mineral Wool Insulation** — (not shown) - Min 6 pcf mineral wool insulation cut into pieces and firmly packed into, and completely filling the spaces between the flutes of the steel floor and form units and the top flange of the beam. Mineral wool is not required when the top flange of the beam is protected with intumescent coating at the same thickness shown in the table in Item 7.

7. **Mastic and Intumescent Coatings*** — Coating spray or brush applied in accordance with the manufacturer's instructions at the min dry thickness as shown in the table below. The thickness shown below includes the 1 mil of primer. When mineral wool (Item 6) is used, the top surface of the beam need not be protected with coating.

Beam Size	Beam W/D	Unrestrained Beam Rating, Hr.	Minimum Dry Thickness	
			mils	mm
W8x24	0.70	1	53	1.34
W8x24	0.70	1-1/2	66	1.67
W8x24	0.70	2	115	2.92
W6x12	0.52	1	73	1.83
W6x12	0.52	1-1/2	99	2.50
W6x12	0.52	2	171	4.34

Beam Size	Beam W/D	Restrained Beam Rating, Hr.	Minimum Dry Thickness	
			mils	mm
W8x24	0.70	1	53	1.34
W8x24	0.70	1-1/2	53	[illegible]
W8x24	0.70	2	71	[illegible]
W8x24	0.70	3	158	4.0[illegible]
W6x12	0.52	1	[illegible]	1.83
W6x12	0.52	1 1/2	73	1.83
W6x12	0.52	2	101	2.56

PROMAT S.P.A. — Type PS3, Investigated for Interior General Purpose.

PROMAT INC — Type P3, Investigated for Interior General Purpose.

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Last Updated on 2016-09-16

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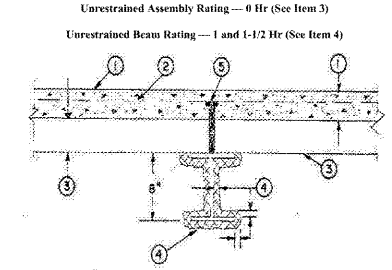
2 UL LISTING
N.T.S.

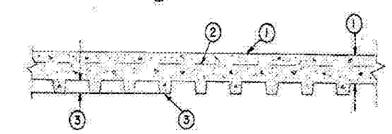
Design No. D918
April 25, 2002

Restrained Assembly Ratings — 1, 1-1/2, 2 and 3 Hr (See Items 1 and 4)

Unrestrained Assembly Rating — 0 Hr (See Item 3)

Unrestrained Beam Rating — 1 and 1-1/2 Hr (See Item 4)





Beam — W8X20, min size.

1. **Normal Weight or Lightweight Concrete** — Normal weight concrete carbonate or siliceous aggregate, 153 + or - 3 pcf unit weight, 3500 psi compressive strength, vibrated. Lightweight concrete, expanded shale, clay or slate aggregate by rotary kiln method 110 + or - 3 pcf unit weight, 3000 psi compressive strength, vibrated, 4 to 7 percent entrained air.

Restrained Assembly Rating Hr	Concrete (Type)	Concrete Unit Weight pcf	Concrete Thkns In.
1	Normal Weight	---	3-1/2
1-1/2	Normal Weight	---	4
2	Normal Weight	---	4-1/2
3	Normal Weight	---	5-1/4
1	Lightweight	107-113	2-1/2
2	Lightweight	107-113	3-1/4
2	Lightweight	107-120	3-1/2
3	Lightweight	107-113	4-3/16
3	Lightweight	107-120	4-7/16

2. **Welded Wire Fabric** — 6 x 6 - W1.4 x W1.4.

3. **Steel Floor and Form Units*** — Composite 1-1/2, 2 or 3 in. deep galv units. Min gauges are 22 MSG for fluted and 20/20 MSG for cellular. Fluted units may be phos/ptd. The following combinations of units may be used:

(1) All fluted.

(2) A blend of one or more fluted units to one 24 in. wide cellular unit.

CONSOLIDATED SYSTEMS INC — 24 or 36 in. wide Type CFD-2 or [illegible], 30 or 36 in. wide Type CFD-1.5. Units may be phos/ptd.

Spacing of welds attaching units to supports shall be 12 in. OC for 12, 24 and 36 in. wide units, four welds per sheet for 30 in. wide units. Adjacent units button-punched or welded together 36 in. OC along side joints.

The Unrestrained Assembly Rating is 1-1/2 Hr. for the following units and limitations:

(a) 1-1/2 in. deep, 24 in. wide, 22 MSG or thicker fluted with clear spans not more than 7 ft 8 in.

(b) 1-1/2 in. deep, 24 in. wide, 20 MSG or thicker fluted with clear spans not more than 8 ft 8 in.

(c) 1-1/2 in. deep, 24 in. wide, 16 MSG or thicker fluted and 18/18 MSG or thicker cellular with clear spans not more than [illegible] 11 in.

(d) 3 in. deep, 36 in. wide, [illegible] MSG or thicker fluted and 24 in. wide, 20/[illegible] MSG or thicker cellular with clear spans not more than [illegible] 2 in.

4. **Spray-Applied Fire Resistive Materials*** — Spray applied in one coat to a final tamped or untamped thickness as shown in table below, to steel surface which must be clean and free of dirt, oil, and loose scale. Use of adhesive and primer is optional. Min avg density of 11 pcf with min ind density of 9 pcf. For areas where the fiber density is between 8 and 11 pcf, the fiber thickness shall be adjusted in accordance with the following formula:

Thickness, in. = (11) (Design Thickness, in.) / Actual Fiber Density, pcf

Fiber density shall not be less than 8 pcf. For method of density determination, see Design Information Section.

Unrestrained Beam Rating Hr	Restrained Assembly Rating Hr	Concrete (Type)	Min. Thkns In. (Beam)
1	1, 1-1/2, 2	Normal Weight	1/2
1	1, 2	Lightweight	5/8
1-1/2	3	Normal Weight	1-1/16
1-1/2	3	Lightweight	1-1/8

A/D FIRE PROTECTION SYSTEMS INC — A/D Type FP.

5. **Shear-Connector Studs** — (Optional) — Studs, 3/4 in. diam by 3 in. long, for 1-1/2 in. deep form units to 5-1/4 in. long for 3 in. deep form units, headed type or equivalent per AISC specifications. Welded to the top flange of the beam through the steel form units.

*Bearing the UL Classification Mark

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1 UL LISTING
N.T.S.

BXUV.U415 - Fire-resistance Ratings - ANSI/UL 263 5/31/13 11:14 AM

ONLINE CERTIFICATIONS DIRECTORY

Design No. U415
BXUV.U415
Fire-resistance Ratings - ANSI/UL 263

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Design/System/Construction/Assembly Usage Disclaimer

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- When field issues arise, it is recommended the first contact for assistance be the technical service staff provided by the product manufacturer noted for the design. Users of fire resistance assemblies are advised to consult the general Guide Information for each product category and each group of assemblies. The Guide Information includes specifics concerning alternate materials and alternate methods of construction.
- Only products which bear UL's Mark are considered as Classified, Listed, or Recognized.

Fire-resistance Ratings - ANSI/UL 263

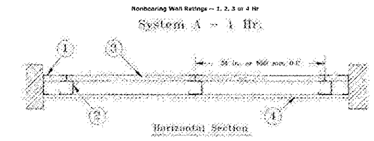
See General Information for Fire-resistance Ratings - ANSI/UL 263

Design No. U415

March 18, 2012

Nonbearing Wall Ratings — 1, 2, 3 or 4 Hr

System A - 1 Hr.

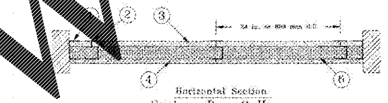


Horizontal Section

System B - 2 Hr.

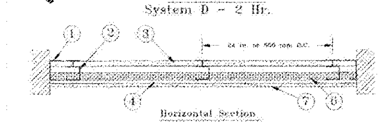
Horizontal Section

System C - 2 Hr.



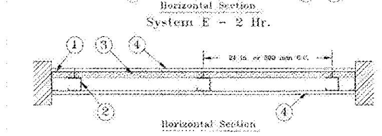
Horizontal Section

System D - 2 Hr.



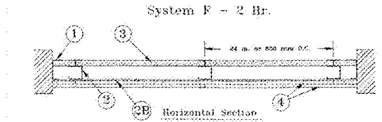
Horizontal Section

System E - 2 Hr.



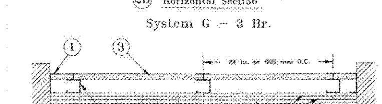
Horizontal Section

System F - 2 Hr.



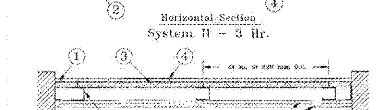
Horizontal Section

System G - 3 Hr.



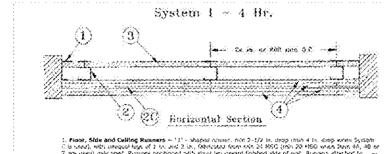
Horizontal Section

System H - 3 Hr.



Horizontal Section

System I - 4 Hr.



Horizontal Section

1. **Floor, Side and Ceiling Runners** — "J" - shaped runner, min 2-1/2 in. deep (min 4 in. deep when System C is used), with unequal legs of 1 in. and 2 in., fabricated from min 24 MSG (min 20 MSG when Item 4A, 4B or 7 are used) galv steel. Runners positioned with short leg toward finished side of wall. Runners attached to structural supports with steel fasteners located not greater than 2 in. from ends and not greater than 24 in. OC. "E" - shaped studs (Item 2A) may be used as side runners in place of "J" - shaped runners.

2. **Steel Studs** — "C-H" - shaped studs, min 2-1/2 in. deep (min 4 in. deep when System C is used), fabricated from min 25 MSG (min 20 MSG when Items 2D, 4A, 4B or 7 is used) galv steel. Cut to lengths 3/8 to 1/2 in. less than floor-to-ceiling height and spaced 24 in. or 600 mm OC.

2A. **Steel Studs** — (Not Shown) -- "E" - shaped studs installed back to back in place of "C-H" - shaped studs (Item 2). "E" - shaped studs secured together with steel screws spaced a maximum 12 in. OC. Fabricated from min 25 MSG (min 20 MSG when Item 2D, 4A, 4B or 7 is used) galv steel, min 2-1/2 in. deep (min 4 in. deep when System C is used), with one leg 1 in. long and two legs 3/4 in. long, [illegible] legs 1 in. apart to engage gypsum liner panels. Cut to lengths 3/8 to 1/2 in. less than floor to ceiling heights.

2B. **Furring Channels** — (Optional, not shown) — For use with [illegible] double layer systems. Resilient furring channels fabricated from min 25MSG corrosion protected steel [illegible] horizontally, and spaced vertically a max 24 in. OC. Flange portion of channel attached to each intersecting [illegible] or "E" stud on side of stud opposite the 1 in. liner panels with 1/2 in. long Type S or S-12 [illegible] screws. When furring channels are used, wallboard to be installed vertically only, [illegible] to be used with [illegible] gypsum wallboard, Type RB-LBG (Item 4A), Type Relco (Item 4B) or cementitious backer units (Item 7).

2C. **Furring Channels** — For use with [illegible] "[illegible]" - shaped, 25 MSG [illegible] furring channels attached directly over the inner layers of wallboard to [illegible] with 2 in. long Type S [illegible] steel screws. Screws alternate from top flange to bottom flange at [illegible] intersection. Furring channels spaced vertically max 24 in. OC.

2D. **Steel Framing Members*** — (Optional, not shown) — For use with single or double layer systems. Furring channels and Steel Framing Members as described below to be used with Type [illegible] gypsum wallboard, Type RB-LBG [illegible] (Item 4B) or cementitious backer units (Item 7).

a. **Furring Channels** — Formed of No. 25 [illegible] steel, 2-9/16 in. or [illegible] wide by 7/8 in. [illegible] max. 24 in. OC perpendicular to studs. Channels [illegible] to studs as described [illegible]. Gypsum board [illegible] vertically only and [illegible] to furring channels as described in Item 3.

b. **Steel Framing Members** — Used to attach furring channels (Item 2Da) to studs (Item 2 or 2A). Clips spaced [illegible] 24 in. OC, and [illegible] to studs with No. 8 x 1-1/2 in. minimum self-drilling, [illegible] screw through [illegible]. Furring channels are friction fitted into clips. [illegible] clip for use with [illegible] wide furring channels. RSIC-1 (2.75) clip for use with [illegible]/32 in. wide furring channels.

PAC INTERNATIONAL INC — Types RSIC-1, RSIC-1 (2.75).

3. **Gypsum Board*** — Gypsum liner panels, 1 in. thick, 24 in. or 600 mm (for metric spacing) wide. Panels cut [illegible] in length than floor to ceiling height. Vertical edges inserted in "H" portion of "C-H" studs or the gap of the two 3/4 in. legs of the "E" studs. Free edge of end panels attached to long leg of vertical "J" - runners with 1-5/8 in. long Type S steel screws spaced not greater than 12 in. OC. When wall height exceeds standard length, panel may be butted to extend to the full height of the wall. Horizontal joints need not be backed by steel framing. In System I, butt joints in liner panels are staggered min 36 in. Butt joints backed by 22 in. strips of 3/4 in. thick gypsum wallboard (Item 4). Wallboard strips centered over butt joints secured to liner panels with six 1-1/2 in. long Type G steel screws, three screws along the 22 in. dimension at the top and bottom of the strips.

CGC INC — Type SLX

UNITED STATES GYPSUM CO — Type SLX

USG MEXICO S A DE C V — Type SLX

4. **Gypsum Board*** —

System A - 1 Hr

Gypsum panels, with beveled, square or tapered edges, nom 5/8 in. thick, 48 in. or 1200 mm wide, applied vertically or horizontally, attached to studs with 1 in. long Type S steel screws spaced 12 in. when installed vertically or 8 in OC when installed horizontally. Horizontal joints need not be backed by steel framing.

CGC INC — Types AR, C, IP-AR, IP-X1, IP-X2, IPC-AR, SCX, SHX, ULX, WRC, WRX

UNITED STATES GYPSUM CO — Types AR, C, FRX-G, IP-AR, IP-X1, IP-X2, IPC-AR, SCX, SGX, SHX, ULX, WRC, WRX, USGX.

USG MEXICO S A DE C V — Types AR, C, IP-AR, IP-X1, IP-X2, IPC-AR, SCX, SHX, ULX, WRC, WRX

System B - 2 Hr

Gypsum panels, with beveled, square or tapered edges, nom 1/2 in. or 5/8 in. thick, 48 in. or 1200 mm wide, applied vertically or horizontally in two layers. Inner or base layer attached to studs with 1 in. long Type S steel screws spaced 24 in. OC when installed vertically or 16 in. OC when installed horizontally. Outer or face layer attached to studs with 1-5/8 in. long Type S steel screws spaced 12 in. OC when installed vertically and staggered 12 in. from base layer screws or 8 in. OC when installed horizontally and staggered 6 in. from base layer screws. Horizontal joints between inner and outer layers staggered a min of 12 in. Horizontal joints need not be backed by steel framing. Vertical joints centered over studs and staggered 24 in.

CGC INC — 1/2 in. Type C, IP-X2, IPC-AR or WRC; 5/8 in. Types AR, C, IP-AR, IP-X1, IP-X2, IPC-AR, SCX, SHX, ULX, WRC, WRX

UNITED STATES GYPSUM CO — 1/2 in. Types C, IP-X2, IPC-AR, or WRC; 5/8 in. Types AR, C, FRX-G, IP-AR, IP-X1, IP-X2, IPC-AR, SCX, SGX, SHX, ULX, USGX, WRC, WRX

USG MEXICO S A DE C V — 1/2 in. Types C, IP-X2, IPC-AR or WRC; 5/8 in. Types AR, C, IP-AR, IP-X1, IP-X2, IPC-AR, SCX, SHX, ULX, WRC, WRX

System C - 2 Hr

Gypsum panels, with beveled, square or tapered edges, nom 3/4 in. thick, 48 in. or 1200 mm wide, applied vertically or horizontally, secured with 1-1/4 in. long Type S steel screws spaced 8 in. OC along vertical edges and 12 in. OC in the field when installed vertically or 8 in. OC along the vertical edges and in the field when installed horizontally. Horizontal joints need not be backed by steel framing. Screws along side joints offset 4 in. Requires min 4 in. deep framing per Items 1, 2 and 3. Requires min 3 in. thick mineral wool batts per Item 6.

CGC INC — Types IP-X3, or ULTRACODE

UNITED STATES GYPSUM CO — Types IP-X3, or ULTRACODE

USG MEXICO S A DE C V — Types IP-X3, or ULTRACODE

System D - 2 Hr

Gypsum panels, with beveled, square or tapered edges, nom 5/8 in. thick, 48 in. or 1200 mm wide, applied vertically or horizontally, attached directly to studs with 1 in. long Type S steel screws spaced 24 in. when installed vertically or 16 in. OC when installed horizontally. Horizontal joints need not be backed by steel framing. Requires face layer of 1/2 or 5/8 in. thick cementitious backer units per Item 7 and min 1-1/2 in. thick mineral wool batts per Item 6.

CGC INC — Types AR, C, IP-AR, IP-X1, IP-X2, IPC-AR, SCX, SHX, ULX, WRC, WRX

UNITED STATES GYPSUM CO — Types AR, C, FRX-G, IP-AR, IP-X1, IP-X2, IPC-AR, SCX, SGX, SHX, ULX, USGX, WRC, WRX.

USG MEXICO S A DE C V — Types AR, C, IP-AR, IP-X1, IP-X2, IPC-AR, SCX, SHX, ULX, WRC, WRX

System E - 2 Hr

Gypsum panels, with beveled, square or tapered edges, nom 1/2 in. or 5/8 in. thick, 48 in. or 1200 mm wide, applied vertically or horizontally, attached to studs with 1 in. long Type S steel screws spaced 12 in. OC when installed vertically or 8 in. when installed horizontally. Horizontal joints need not be backed by steel framing.

CGC INC — 1/2 in. Types C, IP-X2, IPC-AR; 5/8 in. Types AR, C, IP-AR, IP-X1, IP-X2, IPC-AR, SCX, SHX, ULX, WRC, WRX

UNITED STATES GYPSUM CO — 1/2 in. Types C, IP-X2, IPC-AR; 5/8 in. Types AR, C, FRX-G, IP-AR, IP-X1, IP-X2, IPC-AR, SCX, SGX, SHX, ULX, USGX, WRC, WRX.

USG MEXICO S A DE C V — 1/2 in. Types C, IP-X2, IPC-AR; 5/8 in. Types AR, C, IP-AR, IP-X1, IP-X2, IPC-AR, SCX, SHX, ULX, WRC, WRX

System F - 2 Hr

Gypsum panels, with beveled, square or tapered edges, nom 1/2 in. or 5/8 in. thick, 48 in. or 1200 mm wide, applied vertically in two layers. Inner or base layer attached to resilient furring channels (Item 2B) with 1 in. long Type S steel screws spaced 24 in. Outer or face layer attached to resilient furring channels (Item 2B) with 1-5/8 in. long Type S steel screws spaced 12 in. OC and staggered 12 in. from base layer screws. Joints between inner and outer layers staggered 24 in.

CGC INC — 1/2 in. Type C, IP-X2, IPC-AR or WRC; 5/8 in. Types AR, C, FRX-G, IP-AR, IP-X1, IP-X2, IPC-AR, SCX, SHX, ULX, WRC, WRX

UNITED STATES GYPSUM CO — 1/2 in. Type C, IP-X2, IPC-AR or WRC; 5/8 in. Types AR, C, FRX-G, IP-AR, IP-X1, IP-X2, IPC-AR, SCX, SGX, SHX, ULX, USGX, WRC, WRX.

USG MEXICO S A DE C V — 1/2 in. Type C, IP-X2, IPC-AR or WRC; 5/8 in. Types AR, C, IP-AR, IP-X1, IP-X2, IPC-AR, SCX, SHX, ULX, WRC, WRX

System G - 3 Hr

Gypsum panels, with beveled, square or tapered edges, nom 5/8 in. thick, 48 in. or 1200 mm wide, applied vertically or horizontally in three layers. Inner or base layer attached to studs with 1 in. long Type S steel screws spaced 24 in. OC when installed vertically or 16 in. OC when installed horizontally. Middle layer attached to studs with 1-5/8 in. long Type S steel screws spaced 24 in. when installed vertically or 16 in. OC when installed horizontally. Outer or face layer attached to studs with 2-1/4 in. long Type S steel screws spaced 12 in. when installed vertically or 12 in. OC when installed horizontally. Screws offset 6 in. from layer below. Horizontal joints on adjacent layers staggered a min of 12 in. Horizontal joints need not be backed by steel framing. Vertical joints centered over studs and staggered 24 in. on adjacent layers.

CGC INC — Types C, IP-X2, IPC-AR, WRC

UNITED STATES GYPSUM CO — Types C, IP-X2, IPC-AR, WRC

USG MEXICO S A DE C V — Types C, IP-X2, IPC-AR, WRC

System H - 3 Hr

Gypsum panels, with beveled, square or tapered edges, nom 5/8 in. [illegible] or 1200 mm wide, applied vertically or horizontally, two layers over the flange of the "C" section of the studs, one layer over the flange of the "H" section of the studs. Inner or base layer attached to studs with [illegible] Type S steel screws spaced 24 in. OC when installed vertically or 16 in. OC when installed horizontally [illegible] attached to studs with 1-5/8 in. long Type S steel screws [illegible] when installed vertically or [illegible] horizontally. Screws offset 6 in. from layer [illegible] joints on adjacent layers staggered [illegible]. Horizontal joints need not be backed by steel framing. Vertical joints centered over studs and [illegible] in. on adjacent layers.

CGC INC — Types C, IP-X2, IPC-AR, WRC

UNITED STATES GYPSUM CO — Types C, IP-X2, IPC-AR, WRC

USG MEXICO S A DE C V — [illegible] WRC

System I - 4 Hr

Gypsum panels, with [illegible], square or tapered edges, nom 3/4 in. thick, 4 ft wide (or 1200 mm for metric spacing) wallboard with [illegible] or tapered edges. Total of four layers to be used. First and second (inner) layers applied vertically or horizontally over the steel studs. Horizontal joints need not be backed by steel framing. When applied vertically, joints centered over studs and staggered min 24 in., otherwise all joints staggered min 12 in. First layer secured to studs with 1-1/4 in. long Type S self-drilling, self-tapping bugle-head steel screws spaced 24 in. OC. Second layer secured to studs with 2-1/4 in. long Type S self-drilling, self-tapping bugle-head steel screws spaced 12 in. OC. Third layer applied vertically over the furring channels (Item 2C) with 1-1/4 in. long Type S self-drilling, self-tapping bugle-head steel screws spaced 12 in. OC. Fourth layer applied vertically or horizontally with 2-1/4 in. long Type S self-drilling, self tapping bugle-head steel screws spaced 12 in. OC. When applied vertically, joints to be staggered min 24 in. from third layer, otherwise all joints staggered min 12 in.

CGC INC — Types IP-X3, or ULTRACODE

UNITED STATES GYPSUM CO — Types IP-X3, or ULTRACODE

USG MEXICO S A DE C V — Types IP-X3, or ULTRACODE

4A. **Gypsum Board*** — (As an alternate to Item 4 Systems A, B, C, D, E, G, H, and I when used as the base layer, For direct attachment only) - Nom 5/8 in. or 3/4 in. thick lead backed gypsum panels with beveled, square or tapered edges, applied vertically. Vertical joints centered over 20 MSG steel studs and staggered min 1 stud cavity on opposite sides of studs. See Items 1, 2, 2A, 2B and 2D. Wallboard secured to studs with 1-1/4 in. long Type S-12 steel screws spaced 8 in. OC at perimeter and 12 in. OC in the field. For Joint Compound see Item 5. To be used with Lead Batten Strips (see Item 9) or Lead Discs or Tabs (see Item 10).

RAY-BAR ENGINEERING CORP — Type RB-LBG

4B. **Gypsum Board*** — (As an Alternate to Item 4 Systems A, B, C, D, E, G, H, and I when used as the base layer, For direct attachment only) - Nominal 5/8 in. thick lead backed gypsum panels with beveled, square or tapered edges, applied vertically. Vertical joints centered over studs and staggered min 1 stud cavity on opposite sides of studs. Wallboard secured to studs with 1-1/4 in. long Type S-12 (or #6 by 1-1/4 in. long bugle head fine driller) steel screws spaced 8 in. OC at perimeter and 12 in. OC in the field.

NEW ENGLAND LEAD BURNING CO INC, DBA NELCO — Nelco

4C. **Gypsum Board*** — (As an alternate to Item 4 Systems A, B, C, D, E, G, H, and I when used as the base layer, For direct attachment only) - Nom 5/8 or 3/4 in. thick lead backed gypsum panels with beveled, square or tapered edges, applied vertically. Vertical joints centered over 20 MSG steel studs and staggered min 1 stud cavity on opposite sides of studs. See Items 1, 2, 2A, 2B and 2D. Wallboard secured to studs with 1-1/4 in. long Type S-12 steel screws spaced 8 in. OC at perimeter and 12 in. OC in the field. For Joint Compound see Item 5. To be used with Lead Batten Strips (see Item 9A) or Lead Discs (see Item 10A). Lead batten strips required behind vertical joints of lead backed gypsum wallboard and optional at remaining stud locations. Lead batten strips, min 2 in. wide, max 10 ft long with a max thickness of 0.140 in. placed on the face of studs and attached to the stud with two 1 in. long Type S-8 pan head steel screws, one at the top of the strip and one at the bottom of the strip.

MAYCO INDUSTRIES INC — Type X-Ray Shielded Gypsum

4D. **Gypsum Board*** — (As an alternate to Item 4 Systems A, B, C, D, E, G, H, and I when used as the base layer, For direct attachment only). Nom 5/8 in. thick lead backed gypsum panels with beveled, square or tapered edges, applied vertically. Vertical joints centered over studs and staggered min 1 stud cavity on opposite sides of studs. Wallboard secured to studs with 1-1/4 in. long Type S-12 steel screws gypsum panel steel screws spaced 8 in. OC at perimeter and 12 in. OC in the field. Lead batten strips required behind vertical joints of lead backed gypsum wallboard and optional at remaining stud locations. Lead batten strips, min 2 in. wide, max 8 ft long with a max thickness of 0.14 in. placed on the face of studs and attached to the stud with construction adhesive and two 1 in. long Type S-12 pan head steel screws, one at the top of the strip and one at the bottom of the strip. Lead discs, nominal 3/8 in. diam by max 0.085 in. thick. Compression fitted or adhered over the screw heads. Lead batten strips and discs to have a purity of 99.9% meeting the Federal specification QQ-L-201f, Grade "C".

RADIATION PROTECTION PRODUCTS INC — Type RPP - Lead Lined Drywall

5. **Joint Tape and Compound** — (Not Shown)

Systems A, B, C, E, F, G, H, I

Joints on outer layers of gypsum boards (Item 4 and 4A) covered with paper tape and joint compound. Paper tape and joint compound may be omitted when gypsum boards are supplied with square edges. Exposed screw heads covered with joint compound.

6. **Batts and Blankets*** —

Systems A, B, E, F, G, H, I

(Optional) — Mineral wool or glass fiber batts partially or completely filling stud cavity. Any mineral wool or glass fiber batt material bearing the UL Classification Marking as to Fire Resistance.

Systems C & D

Min 3 in. (System C) and min 1-1/2 in. (System D) thick mineral wool batts, friction fitted between the studs and floor and ceiling runners.

THERMAFIBER INC — Type SAFB

7. **Cementitious Backer Units*** — (System D) — Nom 1/2 or 5/8 in. thick panels, square edge, attached to studs over gypsum wallboard with 1-5/8 in. long, Type S-12, corrosion resistant steel screws spaced 8 in. OC and staggered 6 in. from gypsum wall board screws. Joints covered with glass fiber mesh tape. Vertical joints staggered one stud cavity from gypsum wallboard joints. Horizontal joints staggered a min of 12 in. from the gypsum wallboard joints.

UNITED STATES GYPSUM CO — Type DCB

8. **Laminating Adhesive*** — (Optional, Not Shown) — Used to bond outer layer of Cementitious Backer Units (Item 7) to inner layers of Gypsum Board (Item 4) in System D. ANSI A136.1 Type 1 organic adhesive applied with 1/4 in. square notched trowel. See Adhesives (BYWR) in the Fire Resistance Directory or Adhesives (SGLZ) in the Building Materials Directory for names of Classified companies.

9. **Lead Batten Strips** — (Not Shown, For Use With Item 4A) - Lead batten strips, min 1-1/2 in. wide, max 10 ft long with a max thickness of 0.125 in. Strips placed on the interior face of studs and attached from the exterior face of the stud with two 1 in. long Type S-12 pan head steel screws, one at the top of the strip and one at the bottom of the strip. Lead batten strips to have a purity of 99.9% meeting the Federal specification QQ-L-201f, Grade "C". Lead batten strips required behind vertical joints of lead backed gypsum wallboard (Item 4A) and optional at remaining stud locations. Required behind vertical joints.

9A. **Lead Batten Strips** — (Not Shown, for use with Item 4C) Lead batten strips, 2 in. wide, max 10 ft long with a max thickness of 0.140 in. Strips placed on the face of studs and attached to the stud with two min. 1 in. long min. Type S-8 pan head steel screws, one at the top of the strip and one at the bottom of the strip or with one min. 1 in. long min. Type S-8 pan head steel screw at the top of the strip. Lead batten strips to have a purity of 99.9% meeting the Federal specification QQ-L-201f, Grades "A, B, C or D". Lead batten strips required behind vertical joints of lead backed gypsum wallboard (Item 4C) and optional at remaining stud locations.

10. **Lead Discs or Tabs** — (Not Shown, For Use With Item 4A) - Used in lieu of or in addition to the lead batten strips (Item 9) or optional at other locations - Max 3/4 in. diam by max 0.125 in. thick lead discs compression fitted or adhered over steel screw heads or max 1/2 in. by 1-1/4 in. by max 0.125 in. thick lead tabs placed on gypsum boards (Item 4A) underneath screw locations prior to the installation of the screws. Lead discs or tabs to have a purity of 99.9% meeting the Federal specification QQ-L-201f, Grade "C".

10A. **Lead Discs** — (Not Shown, for use with Item 4C) Max 5/16 in. diam by max 0.140 in. thick lead discs compression fitted or adhered over steel screw heads. Lead discs to have a purity of 99.9% meeting the Federal Specification QQ-L-201f, Grades "A, B, C or D"

11. **Lead Batten Strips** — (Not Shown, For Use With Item 4B) Lead batten strips, 2 in. wide, max 10 ft long with a max thickness of 0.142 in. Strips placed on the face of studs and attached to the stud with two min. 1 in. long min. Type S-8 pan head steel screws, one at the top of the strip and one at the bottom of the strip or with one min. 1 in. long min. Type S-8 pan head steel screw at the top of the strip. Lead batten strips to have a purity of 99.9% meeting the Federal specification QQ-L-201f, Grade "C". Lead batten strips required behind vertical joints of lead backed gypsum wallboard (Item 4B) and optional at remaining stud locations.

12. **Lead Tabs** — (Not Shown, For Use With Item 4B) 2 in. wide, 5 in. long with a max thickness of 0.142 in. Tabs friction-fit around front face of stud, the stud folded back flange, and the back face of the stud. Tabs required at each location where a screw (that secures the gypsum boards, Item 4B) will penetrate the steel stud. Lead tabs to have a purity of 99.9% meeting the Federal specification QQ-L-201f, Grade "C". Lead tabs may be held in place with standard adhesive tape if necessary.

*Bearing the UL Classification Mark

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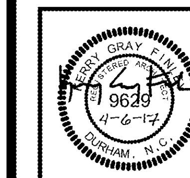

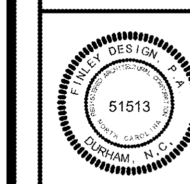

WESTPOINT 2
DURHAM, NC

REVISIONS

PROJECT:	1342
DATE:	04/06/17
DRAWN BY:	JHB
CHECKED BY:	JDL

FIRE RATINGS

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