use of UL Certified products, equipment, system, devices, and materials.

Authorities Having Jurisdiction should be consulted before construction.

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

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

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Design/System/Construction/Assembly Usage Disclaimer

• 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

· Authorities Having Jurisdiction should be consulted in all cases as to the particular requirements covering the installation and

• 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

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

Design No. U341

August 19, 2020

* Indicates such products shall bear the UL or cUL Certification Mark for

jurisdictions employing the UL or cUL Certification (such as Canada), respectively.

encountered in the field.

Design Criteria and Allowable Variances

Design Criteria and Allowable Variances

and alternate methods of construction.

Only products which bear UL's Mark are considered Certified.

8/28/2020

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2A. Gypsum Board* — (As an alternate to Item 2, not shown) — Nominal 5/8 in. thick, 4 ft wide panels, applied vertically to studs and bearing plates on one side of the assembly with 1-5/8 in. long Type S screws spaced 12 in. OC at perimeter of panels and 8 in. OC in the field. Horizontal joints of vertically applied panels need not be backed by studs. Panel joints covered with

paper tape and two layers of joint compound. Screwheads covered with two layers of joint compound. Batts and Blankets

PABCO BUILDING PRODUCTS L L C, DBA PABCO GYPSUM — Type QuietRock QR-530 (finish rating 23 min).

placed in stud cavity as described in Item 5C. Not evaluated for use with Steel Framing Members, Furring Channels or Fiber,

2B. Gypsum Board* — (As an alternate to Item 2, not shown) — Any 5/8 in. thick gypsum panels that are eligible for use in

Design Nos. L501, G512 or U305, supplied by the Classified companies listed below shown in the **Gypsum Board*** (CKNX)

category. Applied horizontally or vertically and attached to studs and bearing plates with 1-1/4 in. long Type W coarse thread

gypsum panel steel screws spaced a max 8 in. OC, with last screw 1 in. from edge of board. When used in widths other than 48

2C. Gypsum Board* — (As an alternate to Item 2, Not Shown) — 5/8 in. thick gypsum panels applied horizontally or vertically

and attached to studs and bearing plates with 1-1/4 in. long Type W coarse thread gypsum panel steel screws spaced a max 8

in. OC, with last screw 1 in. from edge of board. When used in widths other than 48 in., gypsum board to be installed

NATIONAL GYPSUM CO — Type FSK, Type FSK-G, Type FSW, Type FSW-3, Type FSW-5, Type FSW-G, Type FSK-C, Type FSW-C, Type

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6E. Steel Framing Members* — (Optional, Not Shown) — Used as an alternate method to attach resilient channels to wall

in. O.C. Channel ends butted and centered under the structural members and attached with one accessory at each end.

7. Wall and Partition Facings and Accessories* — (Optional, Not shown) — Nominal 1/2 in. thick, 4 ft wide panels, for

optional use as an additional layer on one or both sides of the assembly. Panels attached in accordance with manufacturer's

recommendations. When the QR-500 or QR-510 panel is installed between the wood framing and the UL Classified gypsum

board, the required UL Classified gypsum board layer(s) is/are to be installed as indicated as to fastener type and spacing,

except that the required fastener length shall be increased by a minimum of 1/2 in. Not evaluated or intended as a substitute

8. Mineral and Fiber Board* — ((Optional, Not Shown) — For optional use as an additional layer on one or both sides of wall.

The required UL Classified gypsum board layer(s) is/are to be installed as indicated as to fastener type and spacing, except that

Nom 1/2 in. thick, 4 ft wide with long dimension parallel and centered over studs. Attached to framing as described in Item 2.

the required fastener length shall be increased by a minimum of 1/2 in. Not evaluated or intended as a substitute for the

9. Non-Bearing Wall Partition Intersection — (Optional) — Two nominal 2 by 4 in. stud or nominal 2 by 6 in. stud nailed

together with two 3in. long 10d nails spaced a max. 16 in. OC. vertically and fastened to one side of the minimum 2 by 4 in.

10d nails spaced a max. 16 in. OC. vertically. Maximum one non-bearing wall partition intersection per stud cavity. Non-

stud with 3 in. long 10d nails spaced a max 16 in. OC. vertically. Intersection between partition wood studs to be flush with the 2 by 4 in. studs. The wall partition wood studs are to be framed by with a second 2 by 4 in. wood stud fastened with 3 in. long

10. Mineral and Fiber Board* — For use with Items 10A-10D) —Nom 1/2 in. thick, 4 ft wide with long dimension parallel and

10A. Glass Fiber Insulation — (For use with Item 10) — 3-1/2 in. thick glass fiber batts bearing the UL Classification Marking

as to Surface Burning and/or Fire Resistance, placed to fill the interior of the wall. See Batts and Blankets (BKNV or BZJZ)

10B. Batts and Blankets* — (As an alternate to Item 10B, For use with Item 10), 3 in. thick mineral wool batts, placed to fill

centered over studs. Attached to framing with minimum 1-3/8 in. long ring shanked nails or 1-1/4 in. long Type W steel

screws, spaced 12 in. OC along board edges and 24 in. OC in field of board along intermediate framing. Not evaluated or

screws supplied with the accessory and per the accessory manufacturer's installation instructions.

PABCO BUILDING PRODUCTS L L C, DBA PABCO GYPSUM — Type QuietRock QR-500 and QR-510

bearing wall partition stud depth shall be at a minimum equal to the depth of the bearing wall.

(Optional, Not Shown) Alternate Construction For Use On One Side Of The Wall.

intended as a substitute for the required layer(s) of UL Classified Gypsum Board.

interior of wall, attached to the 3-1/2 in. face of the studs with staples placed 24 in. OC.

studs. A resilient sound isolation accessory shall be used at each attachment point of the resilient channels and spaced max 24

Additional accessories used to hold resilient channels that support the gypsum board end joints. The accessory envelops the

mounting edge of the resilient channel. The accessory and resilient channel are fastened to the structural members with the

NATIONAL GYPSUM CO (View Classification) — CKNX.R3501

PANEL REY S A (View Classification) — CKNX.R21796

PABCO BUILDING PRODUCTS L L C, DBA PABCO GYPSUM (View Classification) — CKNX.R7094

SIAM GYPSUM INDUSTRY (SARABURI) CO LTD (View Classification) — CKNX.R19262

THAI GYPSUM PRODUCTS PCL (View Classification) — CKNX.R27517

UNITED STATES GYPSUM CO (View Classification) — CKNX.R1319

USG BORAL DRYWALL SFZ LLC (View Classification) — CKNX.R38438

USG BORAL DRYWALL SFZ LLC (View Classification) — CKNX.R38438

USG MEXICO S A DE C V (View Classification) — CKNX.R16089

in., gypsum board to be installed horizontally.

AMERICAN GYPSUM CO — Types AGX-1, M-Glass, AG-C, LightRoc

CERTAINTEED GYPSUM INC — Type C, Type X or Type X-1

THAI GYPSUM PRODUCTS PCL — Type C or Type X

PAC INTERNATIONAL L L C — Type RC-1 Boost

for the required layer(s) of UL Classified Gypsum Board.

required layer(s) of UL Classified Gypsum Board.

HOMASOTE CO — Homasote Type 440-32

HOMASOTE CO — Homasote Type 440-32

categories for names of Classified companies.

THERMAFIBER INC — Type SAFB, SAFB FF

UNITED STATES GYPSUM CO

USG BORAL DRYWALL SFZ LLC

FSMR-C, Type FSW-6, Type FSL

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USG MEXICO S A DE C V

2D. Gypsum Board* — (As an alternate to Items 2, 2A, 2B and 2C) — 5/8 in. thick gypsum panels, with square edges, applied

either horizontally or vertically. Gypsum panels fastened to framing with 1-1/4 in. long Type W coarse thread gypsum panel

steel screws spaced a max 8 in. OC, with last 2 screws 1 and 4 in. from edge of board or nailed as described in Item 2. When

2E. Gypsum Board* — (As an alternate to Items 2 through 2D) — 5/8 in. thick, 4 ft. wide, paper surfaced applied vertically only

2F. Gypsum Board* — (As an alternate to Items 2 through 2E) - Installed as described in Item 2. 5/8 in. thick, 4 ft. wide, paper

2G. Gypsum Board* — (As an alternate to Items 2 through 2F) — Nominal 5/8 in. thick, 4 ft wide panels, applied vertically and

2H. Gypsum Board* — (As an alternate to Items 2 through 2G) — Installed as described in Item 2. 5/8 in. thick, 4 ft. wide,

paper surfaced, applied vertically or horizontally fastened to the studs and plates with 1-1/4 in. long Type W coarse thread

21. Wall and Partition Facings and Accessories* — (As an alternate to Items 2 through 2H) — Nominal 5/8 in. thick, 4 ft wide

2J. Gypsum Board* — (As an alternate to 5/8 in. Type FSW in Item 2) — 2 layers nom. 5/16 in. thick gypsum panels applied

vertically or horizontally. Horizontal joints on the same side need not be staggered. Inner layer attached with fasteners, as

2K. Gypsum Board* — (As an alternate to Item 2) — 5/8 in. thick gypsum panels, with beveled, square, or tapered edges, applied either horizontally or vertically. Gypsum panels fastened to framing with 1-1/4 in. long Type W coarse thread gypsum

panel steel screws spaced a maximum 10 in. OC with the last two screws 4 and 1 in. from the edges of the board. When used

CONTINENTAL BUILDING PRODUCTS OPERATING CO, L L C — Type LGFC6A (finish rating 21 min), Type LGFC2A, Type LGFC-C/A, Type

3. Joints and Nailheads — Gypsum board joints of outer layer covered with tape and joint compound. Nail heads of outer

layer covered with joint compound. As an alternate, nom 3/32 in. thick gypsum veneer plaster may be applied to the entire

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10D. Gypsum Board* — (For use with Item 10) — 5/8 in. thick, 4 ft wide, applied vertically over Mineral and Fiber Board (Item

14A) with vertical joints located anywhere over stud cavities. Secured to mineral and fiber boards with 1-1/2 in. Type G Screws

spaced 8 in. OC along edges of each vertical joint and 12 in. OC in intermediate field of the Mineral and Fiber Board (Item 10).

* Indicates such products shall bear the UL or cUL Certification Mark for

jurisdictions employing the UL or cUL Certification (such as Canada),

respectively.

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Secured to outermost studs and bearing plates with 2 in. long Type S screws spaced 8 in. OC. Gypsum Board joints covered

with paper tape and joint compound. Screw heads covered with joint compound. Finish Rating 30 Min.

surfaced, applied vertically only and fastened to the studs and plates with 6d cement coated nails 1-7/8 in. long, 0.0915 in.

used in widths of other than 48 in., gypsum boards are to be installed horizontally.

GEORGIA-PACIFIC GYPSUM L L C — Type X ComfortGuard Sound Deadening Gypsum Board.

GEORGIA-PACIFIC GYPSUM L L C — GreenGlass Type X, Type DGG.

shank diam and 1/4 in. diam heads, 7 in. OC. Not for use with item #6.

PABCO BUILDING PRODUCTS L L C, DBA PABCO GYPSUM — Types QuietRock ES.

PABCO BUILDING PRODUCTS L L C, DBA PABCO GYPSUM — Type QuietRock 527.

described in item 2, spaced 24 in. OC. Outer layer attached per Item 2.

in widths other than 48 in., gypsum panels are to be installed horizontally.

CONTINENTAL BUILDING PRODUCTS OPERATING CO, L L C — Type LGFC-C/A

PABCO BUILDING PRODUCTS L L C, DBA PABCO GYPSUM — Type PG-C

GEORGIA-PACIFIC GYPSUM L L C — Types 5, DAPC, TG-C

UNITED STATES GYPSUM CO — Type CTypes C, IP-X2, IPC-AR

NATIONAL GYPSUM CO — Types FSK-C, FSW-C

THAI GYPSUM PRODUCTS PCL — Type C

USG BORAL DRYWALL SFZ LLC — Type C

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

PANEL REY S A — Type PRC

gypsum panel steel screws spaced a max 8 in. OC, with last screw 1 in. from edge of board.

and secured as described in Item 2.

NATIONAL GYPSUM CO — Type SBWB

CERTAINTEED GYPSUM INC — Type SilentFX

NATIONAL GYPSUM CO — Type FSW.

LGFC-WD, Type LGLLX

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AMERICAN GYPSUM CO — Type AG-C

CERTAINTEED GYPSUM INC — Type C

panels, applied vertically and secured as described in Item 2.

secured as described in Item 2.

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Review before Permit

MARCO POLO - 101 33RD STREET - CITY OF BRYAN TOWNSITE, BLOCK 96, LOT 3-5 & PT OF 6 & PT OF ALLEY - BRYAN, TX 77803

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1. Wood Studs — Nom 2 by 4 in., spaced 24 in. OC max. Cross braced at mid-height and effectively firestopped at top and

2. Gypsum Board* — Any 5/8 in. thick UL Classified Gypsum Board that is eligible for use in Design Nos. L501, G512 or U305. Nom 5/8 in. thick 4 ft wide. Gypsum board applied horizontally or vertically, unless specified below, and nailed to studs and bearing plates 7 in. OC with 6d cement coated nails, 1-7/8 in. long, 0.0915 in. shank diam and 1/4 in. diam head. As an alternate, No. 6 bugle head drywall screws, 1-7/8 in. long, may be substituted for the 6d cement coated nails.

When used in widths other than 48 in., gypsum board to be installed horizontally.

AMERICAN GYPSUM CO (View Classification) — CKNX.R14196

BEIJING NEW BUILDING MATERIALS PUBLIC LTD CO (View Classification) — CKNX.R19374

CABOT MANUFACTURING ULC (View Classification) — CKNX.R25370

CERTAINTEED GYPSUM INC (View Classification) — CKNX.R3660

CGC INC (View Classification) — CKNX.R19751

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

LOADMASTER SYSTEMS INC (View Classification) — CKNX.R11809

PLITEQ INC — Type Genie Clip

friction fitted into clips.

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BXUV.U341 | UL Product iQ fitted into clips. RSIC-1 clip for use with 2-9/16 in. wide furring channels. RSIC-1 (2.75) clip for use with 2-23/32 in. wide furring channels.

6A. Steel Framing Members* — (Optional, Not Shown) — Furring channels and Steel Framing Members as described below: a. Furring Channels — Formed of No. 25 MSG galv steel. 2-3/8 in. wide by 7/8 in. deep, spaced 24 in. OC perpendicular to studs. Channels secured to studs as described in Item b. Ends of adjoining channels are overlapped 6 in. and tied together with double strand of No. 18 SWG galv steel wire near each end of overlap. As an alternate, ends of adjoining channels may be overlapped 6 in. and secured together with two self-tapping #6 framing screws, min. 7/16 in. long at the midpoint of the overlap, with one screw on each flange of the channel. Gypsum board attached to

furring channels as described in Item 2. b. Steel Framing Members* — Used to attach furring channels (Item a) to studs. Clips spaced 48 in. OC. Genie clips secured to studs with No. 8 x 1-1/2 in. coarse drywall screw through the center hole. Furring channels are friction fitted

6B. Steel Framing Members* — (Optional, Not Shown) — Furring channels and Steel Framing Members as described below: a. Furring Channels — Formed of No. 25 MSG galv steel. Spaced 24 in. OC perpendicular to studs. Channels secured

No. 18 AWG galvanized steel wire. Gypsum board attached to furring channels as described in Item 2. b. Steel Framing Members* — Used to attach furring channels (Item 6Ba) to studs. Clips spaced 48 in. OC., and secured to studs with 2 in. coarse drywall screw with 1 in. diam washer through the center hole. Furring channels are

to studs as described in Item b. Ends of adjoining channels overlapped 6 in. and tied together with double strand of

6C. Steel Framing Members* — (Optional, Not Shown) — Furring channels and Steel Framing Members as described below: A. Furring Channels — Formed of No. 25 MSG galv steel. Spaced 24 in. OC perpendicular to studs. Channels secured

STUDCO BUILDING SYSTEMS — RESILMOUNT Sound Isolation Clips - Type A237R

No. 18 AWG galvanized steel wire. Gypsum board attached to furring channels as described in Item 2. B. Steel Framing Members* — Used to attach furring channels (Item 6CA) to studs. Clips spaced 48 in. OC., and

6D. Steel Framing Members* — (Optional, Not Shown) — Resilient channels and Steel Framing Members as described below: a. Resilient Channels — Formed of No. 25 MSG galv steel, spaced 24 in. OC, and perpendicular to studs. Channels

b. Steel Framing Members* — Used to attach resilient channels (Item 6Da) to studs. Clips spaced 48 in. OC., and

secured to studs with No. 8 x 2-1/2 in. coarse drywall screw through the center hole. Resilient channels are secured to clips with one No. 10 x 1/2 in. pan-head self-drilling screw.

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beads down the length of both vertical edges of Mineral and Fiber Board (Item 14A).

10C. Adhesive — (For use with Item 10) — Construction grade adhesive applied in vertical, serpentine, nominal 3/8 in. wide

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WALL - FIRE RATED ASSEMBLY DETAIL - U341

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secured to studs with No. 8 x 2-1/2 in. coarse drywall screw through the center hole. Furring channels are friction fitted **REGUPOL AMERICA** — Type SonusClip

KEENE BUILDING PRODUCTS CO INC — Type RC+ Assurance Clip

CONTINENTAL BUILDING PRODUCTS OPERATING CO, L L C (View Classification) — CKNX.R18482 GEORGIA-PACIFIC GYPSUM L L C (View Classification) — CKNX.R2717

to studs as described in Item 6Cb. Ends of adjoining channels overlapped 6 in. and tied together with double strand of

secured to studs as described in Item b. Ends of adjoining channels overlapped 6 in. and secured in place with two No.

 $8.15 \times 1/2$ in. Philips Modified Truss screws spaced 2-1/2 in. from the center of the overlap. Gypsum board attached to resilient channels as described in Item 2.

bottom of wall. No min. air space between stud rows except to accommodate attachment of sheathing, where required. See

When Steel Framing Members* (Item 6-6C) are used, wallboard attached to furring channels with 1 in. long Type S bugle-head steel

Bearing Wall Rating — 1 Hr. Finish Rating — Min 20 min. 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

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surface of Classified veneer baseboard with joints reinforced with paper tape.

See Batts and Blankets (BZJZ) category for list of Classified companies.

cavities. See Batts and Blankets Category (BKNV) for names of manufacturers.

APPLEGATE HOLDINGS L L C — Applegate Advanced Stabilized Cellulose Insulation

See Mineral and Fiber Boards (CERZ) category for names of Classified companies.

dry density of 3.5 lb/ft³, in accordance with the application instructions supplied with the product.

"Sheathing" or min 1/2 in, thick Mineral and Fiber Boards*.

used on both halves of wall.

INS773LD are to be used for dry application only.

INTERNATIONAL CELLULOSE CORP — Celbar-RL

the studs. The minimum dry density shall be 5.79 lbs/ft³.

attached to furring channels as described in Item 2.

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4. Sheathing — (Optional) — Septum may be sheathed with min 7/16 in. thick wood structural panels min grade "C-D" or

5. Batts and Blankets* — 3-1/2 in. max thickness glass or mineral fiber batt insulation. Optional when sheathing (Item 4) is

5A. Fiber, Sprayed* — As an alternate to Batts and Blankets (Item 5) — Spray applied cellulose material. The fiber is applied

a nominal dry density of 2.7 lb/ft³. Alternate Application Method: The fiber is applied without water or adhesive at a nominal

with water to completely fill the enclosed cavity in accordance with the application instructions supplied with the product with

U S GREENFIBER L L C — INS735, INS745 and INS750LD for use with wet or dry application. INS515LD, INS541LD, INS735, INS765LD, and

5B. Fiber, Sprayed* — As an alternate to Batts and Blankets (Item 5) when Sheathing (Item 4) is used on both halves of wall -

application instructions supplied with the product. Applied to completely fill the enclosed cavity. Minimum dry density of 4.3

Spray applied cellulose insulation material. The fiber is applied with water to interior surfaces in accordance with the

pounds per cubic ft. NU-WOOL CO INC — Cellulose Insulation 5C. Batts and Blankets* — (Required for use with Wall and Partition Facings and Accessories, Item 2A. Use of Sheathing, Item

4, does not nullify requirement of Item 5C for use with Item 2A) — Glass fiber insulation, nom 3-1/2 in. thick, min. density of

5D. Fiber, Sprayed* — As an alternate to Batts and Blankets (Item 5) and Item 5A when Sheathing (Item 4) is used on both

5E. Fiber, Sprayed* — As an alternate to Batts and Blankets (Item 5) - Spray-applied cellulose material. The fiber is applied

with water to completely fill the enclosed cavity in accordance with the application instructions supplied with the product. To

facilitate the installation of the material, any thin, woven or non-woven netting may be attached by any means possible to the

outer face the studs. The material shall reach equilibrium moisture content before the installation of materials on either face of

6. Steel Framing Members* — (Optional, Not Shown) — Furring channels and Steel Framing Members as described below:

OC perpendicular to studs. Channels secured to studs as described in Item b. Ends of adjoining channels are

A. Furring Channels — Formed of No. 25 MSG galv steel. 2-9/16 in. or 2-23/32 in. wide by 7/8 in. deep, spaced 24 in.

overlapped 6 in. and tied together with double strand of No. 18 SWG galv steel wire near each end of overlap. As an

alternate, ends of adjoining channels may be overlapped 6 in. and secured together with two self-tapping #6 framing

screws, min. 7/16 in. long at the midpoint of the overlap, with one screw on each flange of the channel. Wallboard

with the application instructions supplied with the product. The minimum dry density shall be 4.30 lbs/ft³.

halves of wall - Spray applied cellulose fiber. The fiber is applied with water to completely fill the enclosed cavity in accordance

0.80 pcf, with a flame spread of 25 or less and a smoke developed of 50 or less, friction-fitted to completely fill the stud

B. Steel Framing Members* — Used to attach furring channels (Item a) to studs (Item 1). Clips spaced 48 in. OC., and secured to studs with No. 8 x 2-1/2 in. coarse drywall screw through the center grommet. Furring channels are friction

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