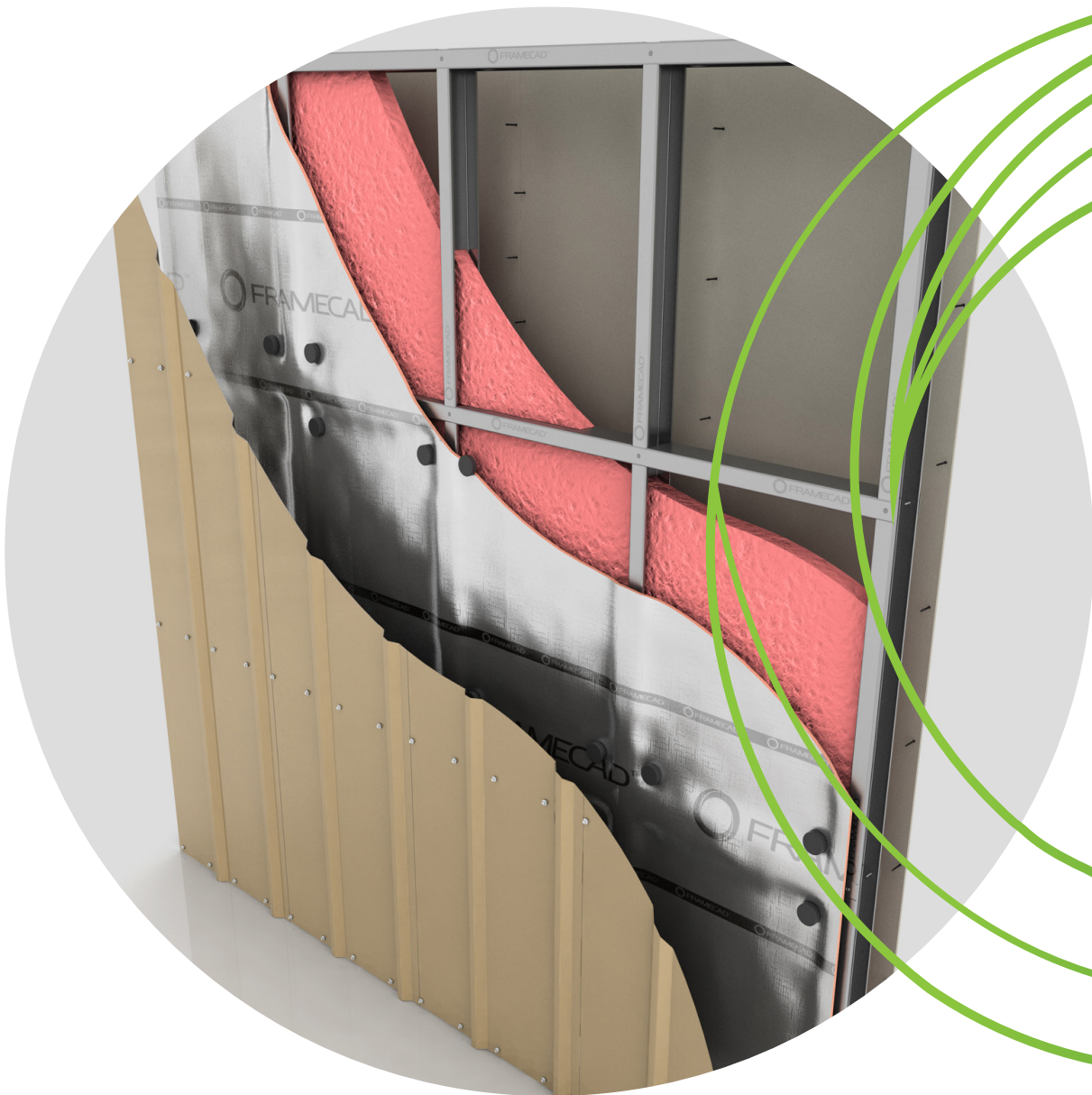


FRAMECAD

Fire & Sound-Rated Steel-Frame
Wall and Floor/Ceiling Assemblies



A more intelligent way to construct



Our solutions work because we have all the knowledge we need within our team. We have building system researchers, software developers, CAD designers, engineers, machine control experts, technicians and on-site construction experts. We also have people who are good at listening to customers – we've always been driven by market needs, because a solution is only worthwhile if it delivers better productivity and quality to our customers.

Mark Taylor

Mark Taylor
CEO/President

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Disclaimer

Assemblies designed by FRAMECAD are produced in accordance with the ICC- International Building Code & International Standards. Information in this document is to be used as a guide only and is subject to project approval as many aspects of construction are not comprehensively covered.

It is also the responsibility of the project to determine if these assemblies are suitable for the intended application. FRAMECAD will not be held responsible for any claims resulting from the installation of its products or other associated products not in accordance with the recommendations of the manufacturer's technical literature or applicable building code.

If you have any questions relating to the information in this manual please visit www.framecad.com/en/contact-us/ to submit an enquiry to contact the FRAMECAD Representative in your region.

The landscape of tomorrow calls for better construction today. Working side by side we can get the most out of your business, constructing a world that's brighter and more efficient than ever.

The FRAMECAD Assemblies Manual

The FRAMECAD Assemblies manual is our new comprehensive technical manual for cold formed steel frame construction offering complete assemblies for walls, ceilings and floors.

This will allow you to confidently design project solutions, whilst keeping in mind fire ratings and acoustic requirements. This manual will keep you safe in the knowledge that all assembly components.

Everything you need to know to design the best value solution for your project is all in one place; Incorporating new and updated complete assemblies, this manual provides a comprehensive and easy to use technical reference guide for commercial and residential engineers, contractors and architects in the application of cold formed steel construction.

For our FRAMECAD Network Partners can use the conveniently located links on each page to download the CAD design files (dwg) for each of these assemblies from the FRAMECAD Knowledge Centre.

To access FRAMECAD Knowledge Centre please make sure you are logged in to your [MyFRAMECAD Account](#)



Terminologies

Fire-Resistance Rating

The time in hours or fractions thereof that a material or assembly of materials will withstand the passage of flame and the transmission of heat when exposed to fire under specified of test and performance criteria, or as determined by extension of interpretation of information derived there from as prescribed by the Code.

Sound Transmission Class (STC)

A rating system used to measure the insulation (or isolation) of airborne sound provided by a barrier. STC is determined from a sound-transmission-loss curve obtained from a standardized test of a large-scale specimen. STC rating is measured in decibels (dB). The higher the STC rating, the more soundproof the construction.

Decibel

A unit adopted in representing vastly different sound pressures. It is 20 times the logarithm to the base 10 of the ratio of the sound pressure to a reference pressure of 0.0002 dyne/cm². This reference pressure is considered the lowest value that the ear can detect.

Thickness Table

Designation Thickness (Mils)	Minimum Thickness (in)	Design Thickness (in)	Reference Gauge No.
18	0.0179	0.0188	25
27	0.0269	0.0283	22
30	0.0296	0.0312	20-Drywall
33	0.0329	0.0346	20-Structural
43	0.0428	0.0451	18
54	0.0538	0.0566	16

Webbed Floor Joist

FC-WFJ-1

Fire Rating: 1 Hour

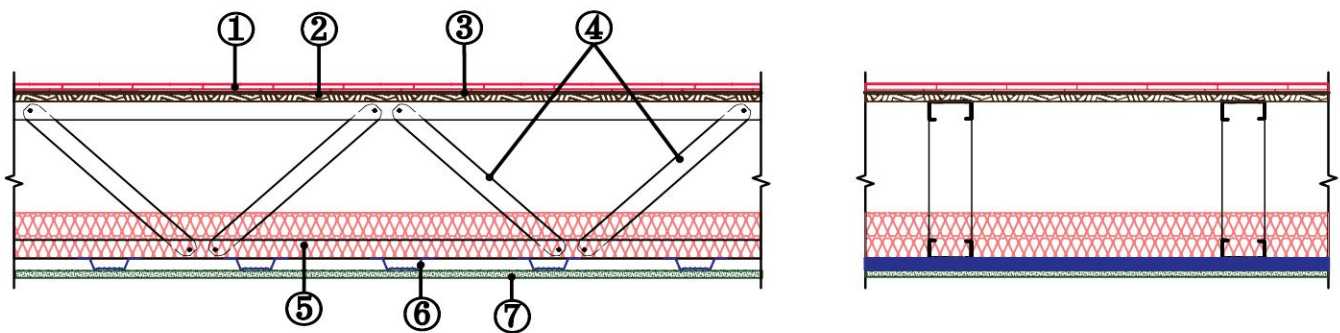
STC: N/A

Reference:

Fire: Intertek FAI/CFMFJF 60-02.

Sound: Intertek F8112.01-113-11-R0

Intertek



1. Finished Flooring: Min. 3/4 in. thick plywood, staggering joints by a min. of 12 in. from the subfloor joints. Secure with screws spaced 16 in. o.c. Approved alternative finished flooring systems: 1x4 T&G lumber, min. 3/4 in. thick, poured cementitious topping, min. 1/2 in. thick mineral and fiber board, corrugated steel deck with poured normal or light weight concrete topping. Top surfaces may be applied as needed (vinyl, carpet, tile, etc.) directly over sub-flooring, if sub-flooring consists of 1 in. thick or thicker concrete, or structural cementitious fiber boards.
2. Vapor Barrier: (Optional): 15# Asphalt saturated organic felt paper on top of the OSB sub-flooring. Use of any vapor barrier of equal or less fuel value is allowed
3. Sub-floor: Min. 23/32 in. thick OSB with construction adhesive and self-tapping screws spaced 12 in. o.c. throughout. Alternative sub-floor materials: Any noncombustible fiber cement, mineral, or fiber structural boards, any corrugated steel deck with nominal or light weight, or foam concrete topping.
4. Min. 16" tall FRAMECAD webbed floor joist spaced @24" on center and constructed of min. 362S162-43 members. Joist shall be designed in accordance with the North American Specification (AISI S100). Approved at full engineered design load for specific joist design and spacing.
5. Batts and blankets: Nominal 4 in. thick, min. R-13, unfaced fiber glass insulation batts fitted into cavities, resting on top of resilient channel and gypsum board. Approved alternate: Any min. R-13 glass or mineral
6. Resilient Channel: Nominal 25 GA galvanized steel resilient channel perpendicular to floor joist spaced at 12 in. o.c., with a min. overlap of 4 in. at all splices. Secure to floor joist using min. #8 x 3/4 in. self-drilling screws. Approved alternate: Furring Channels, min. 25 GA, installed 12 in. o.c. max.
7. One layer of nominal 5/8 in. thick Type C gypsum board (or equivalent) attached to resilient channel with drywall screws 12 in. o.c. along the length of the resilient channel. Apply a Level 2 finish of vinyl or casein, dry or premixed joint compound as follows: Apply to gypsum board in two coats to all exposed fastener heads and gypsum board joints.

Webbed Floor Joist

FC-WFJ-2

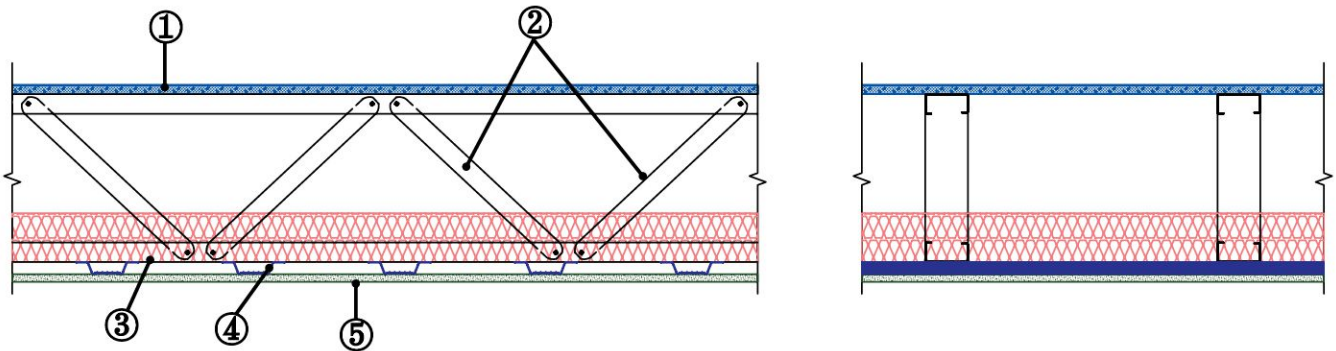
Fire Rating: 1 Hour

STC 54, IIC: 37

Reference:

Intertek FAI/CFMFJF 60-01

Intertek



1. Subfloor: Min. 3/4 in. JetBoard™ glass fiber-mat reinforced MgO cementitious panels perpendicular to floor joist system with min. 1-5/8 in. long, Type S, self-drilling bugle-head screws spaced 6 in. o.c. along the perimeter and 12 in. o.c. in the field along the joists. Apply a Level 2 finish at all joints and fasteners using a cementitious joint compound. Apply to JetBoard™ in two coats to all exposed fastener heads and joints, embedding min. 2 in. wide fiberglass tape in first layer of compound over joints in JetBoard™.
2. Min. 12" tall FRAMECAD webbed floor joist spaced @16" on center and constructed of min. 362S162-43 members. Joist shall be designed in accordance with the North American Specification (AISI S100). Approved at full engineered design load for specific joist design and spacing.
3. Batts and blankets: Nominal 4 in. thick, min. 4 pcf unfaced mineral fiber insulation into cavities, resting on top of resilient channel and gypsum board.
4. Resilient Channel: Min. nominal 2-1/2 in. wide by min. 1/2 in. deep "hat shaped" RC2 channels perpendicular to floor joist. Space resilient channel at 16 in. o.c. and secure to floor joist using min. #8 x 3/4 in. self-drilling screws.
5. One layer of nominal 5/8 in. thick Type X gypsum board (or equivalent) attached to resilient channel with drywall screws 12 in. o.c. along the length of the resilient channel. Apply a Level 2 finish of vinyl or casein, dry or premixed joint compound as follows: Apply to gypsum board in two coats to all exposed fastener heads and gypsum board joints.

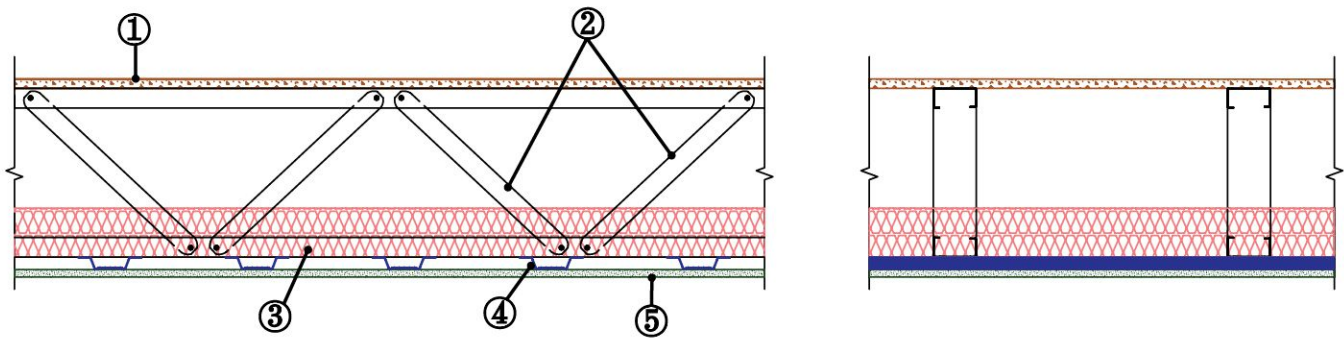
Webbed Floor Joist

FC-WFJ-3

Fire Rating: 1 Hour

STC: N/A

Reference:
UL H515



1. USG structural cement fiber board. Nominal 3/4" thick with long edge tongue and groved. Long dimension of panels to be perpendicular to joists with end joists staggered min. 2 feet and centered over the joists. Panels fastened to joists with #8 self drilling screws spaced at 12" on center in the field and 8" on center at panel perimeter.
2. Min. 12" tall FRAMECAD webbed floor joist spaced @ 24" on center max. Joist shall be designed in accordance with the North American Specification (AISI S100).
3. Batts and blankets: 3-1/2" thick glass fiber batt insulation draped over the resilient channels. Any glass fiber batts bearing the UL classification Marking for Surface Burning Characteristics having a flame spread index of 25 or less and a smoke developed index of 50 or less may be used.
4. Resilient Channel: Min. 25 MSG galvanized steel, 1/2" deep, spaced max. 12" o.c. perpendicular to joists. Channel secured to each joist with one 1/2" long Type S low profile screw.
5. One layer of nominal 5/8 in. thick gypsum panels installed with long dimensions perpendicular to resilient channels. Gypsum board attached to resilient channel with 1" long Type S screws spaced at 8" o.c.

Webbed Floor Joist

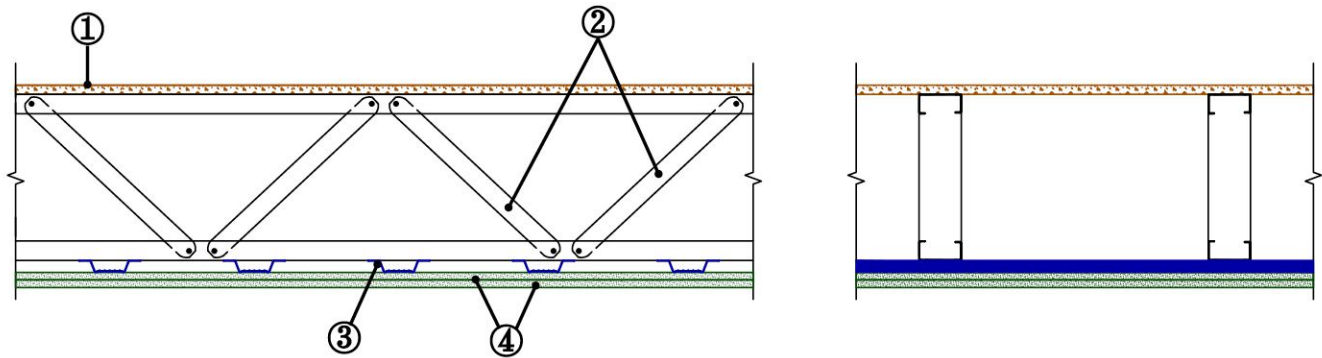
FC-WFJ-4

Fire Rating: 2 Hours

STC: 54

Reference:

UL H515



1. USG structural cement fiber board. Nominal 3/4" thick with long edge tongue and grooved. Long dimension of panels to be perpendicular to joists with end joists staggered min. 2 feet and centered over the joists. Panels fastened to joists with #8 self drilling screws spaced at 12" on center in the field and 8" on center at panel perimeter.
2. Min. 12" tall FRAMECAD webbed floor joist spaced @ 24" on center max. Joist shall be designed in accordance with the North American Specification (AISI S100).
3. Resilient Channel: Min. 25 MSG galvanized steel, 1/2" deep, spaced max. 12" o.c. perpendicular to joists. Channel secured to each joist with one 1/2" long Type S low profile screw.
4. Two Layers — Nom 5/8 in. thick, 48 in. wide gypsum panels. Base layer installed with long dimension perpendicular to resilient channels with 1-1/4 in. long Type S bugle-head screws spaced 12 in. o.c. in the field and the perimeter. Face layer installed with long dimension perpendicular to resilient/furring channels secured with 1-5/8 in. long Type S bugle-head screws spaced 8 in. o.c. in the field and the perimeter.

Webbed Floor Joist

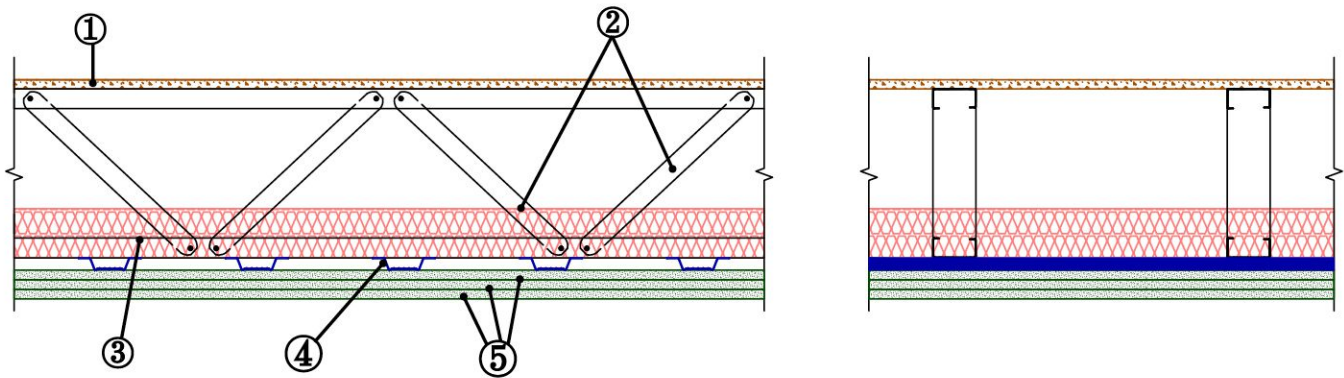
FC-WFJ-5

Fire Rating: 3 Hours

STC: N/A

Reference:

UL H510



1. USG Structo-crete structural cement fiber board. Nominal 3/4" thick with long edge tongue and grooved. Long dimension of panels to be perpendicular to joists with end joists staggered min. 2 feet and centered over the joists. Panels fastened to joists with #8 self drilling screws spaced at 12" on center in the field and 8" on center at panel perimeter.
2. Min. 12" tall FRAMECAD webbed floor joist spaced @ 24" on center max. Joist shall be designed in accordance with the North American Specification (AISI S100).
3. Batts and blankets: 3-1/2" thick glass fiber batt insulation, min density of 0.58 pcf, draped over the resilient channels. Any glass fiber batts bearing the UL classification Marking for Surface Burning Characteristics having a flame spread index of 25 or less and a smoke developed index of 50 or less may be used.
4. Hat Channels - Min 25 MSG galv steel, min 2-5/8 in. wide by min 7/8 in. deep, installed perpendicular to the trusses spaced a max of 12 in. o.c. and secured to each joist with No. 1/2" Type S low profile screws. Resilient Channels - Min. No. 25 MSG galv steel, 1/2 in. deep, spaced max 12 in. o.c., perpendicular to hat channels and secured to each hat channel, through the first two layers of gypsum board, with one 2 in. long Type S bugle head screw.
5. Three layers of nom. 3/4 in. thick, 4 ft. wide boards. Base layer secured to hat channels with 1-1/4 in. long Type S bugle-head screws spaced 12 in. o.c. Middle layer secured to hat channels with 2 in. long Type bugle-head screws. Face layer boards installed with side edges perpendicular to resilient channels. Gypsum boards secured to resilient channels 1-1/4 in. long Type S bugle-head screws spaced 8 in. o.c. UNITED STATES GYPSUM CO — Type UL-TRACODE

Non-Load Bearing Walls

FC-NLBW-1

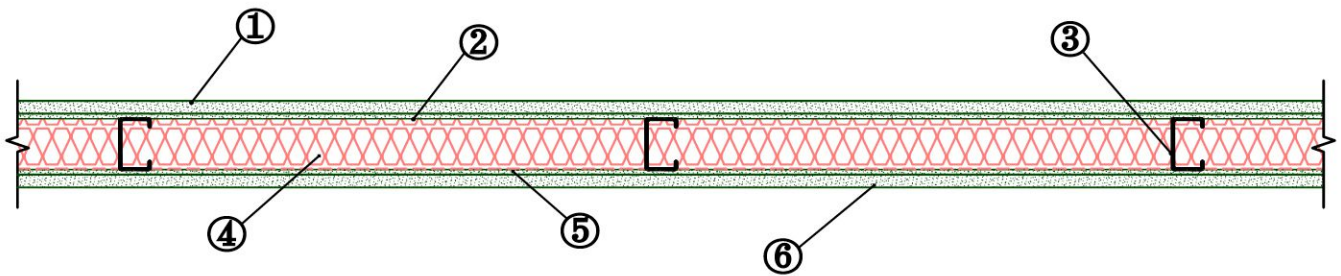
Fire Rating: 1 Hour

STC: 55-59

Reference:

Fire Test: WP 1051(FM WP 152-1, 1-22-69)

Sound Test: CK 684-14, 8-13-68



1. Face layer 5/8" type X gypsum wallboard or gypsum veneer base applied parallel to studs with 15/16" Type S drywall screws spaced 12" o.c.
2. Base layer 1/4" gypsum wallboard applied parallel to each side the studs with 1" Type S drywall screws spaced at 12" o.c.
3. 250S138 steel studs spaced at 24" o.c.
4. Sound tested with 1-1/2" mineral fiber insulation, 3.0 pcf, friction fit in stud space.
5. Face layer 5/8" type X gypsum wallboard or gypsum veneer base applied parallel to studs with 15/16" Type S drywall screws spaced 12" o.c.
6. Base layer 1/4" gypsum wallboard applied parallel to each side the studs with 1" Type S drywall screws spaced at 12" o.c.

Non-Load Bearing Walls

FC-NLBW-2

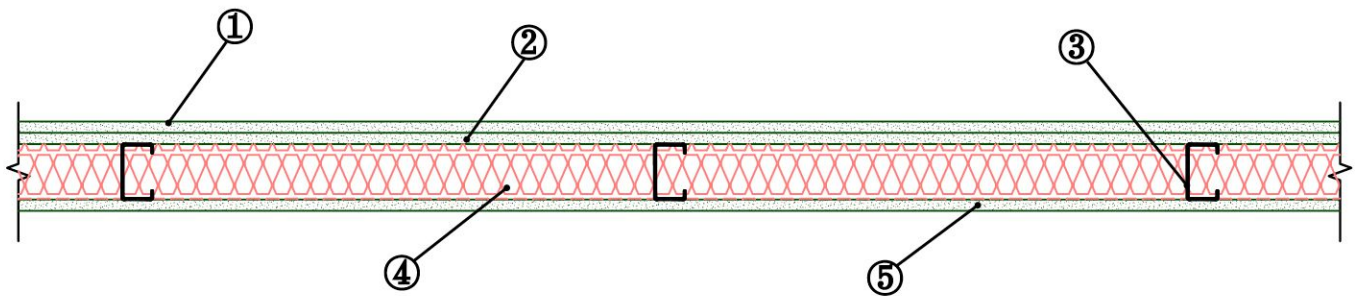
Fire Rating: 1 Hour

STC: 50-54

Reference:

Fire Test: FM WP 66, 12-8-66

Sound Test: RAL TL88-55, 2-18-88



1. Face layer 1/2" type X plain or predecorated gypsum wallboard applied parallel to studs with 15/8" Type S drywall screws 8" o.c. at vertical joints and 5/8" adhesive beads at intermediate studs.
2. Base layer 1/2" type X gypsum wallboard applied parallel to studs with 1" Type S drywall screws 8" o.c. at vertical joints and 12" o.c. at intermediate studs.
3. 250S138 steel studs spaced at 24" o.c.
4. Sound tested with 3-1/2" glass fiber insulation, friction fit in stud space.
5. One layer 1/2" type X plain or predecorated gypsum wallboard applied parallel to steel studs with 1" Type S drywall screws 8" o.c. at vertical joints and 3/8" adhesive beads at intermediate studs.

Non-Load Bearing Walls

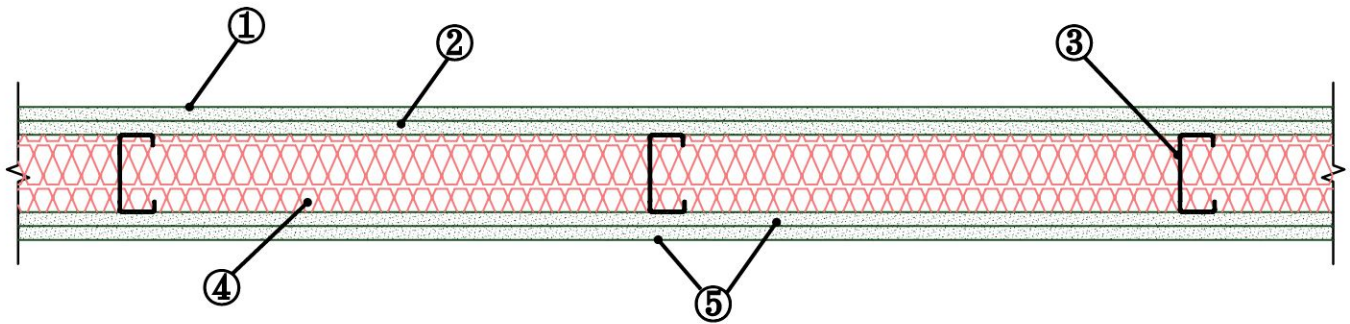
FC-NLBW-3

Fire Rating: 1 Hour

STC: 50-54

Reference:

Fire Test: (FM WP-45, 6-19-68; OSU T-1770, 8-61;
ULC 79T484, 79T500, 79T497, 8-21-81, ULC Design W415)
Sound Test: NRCC 817-NV, 2-3-81



1. Face layer 5/8" type X gypsum wallboard or gypsum veneer base applied parallel or at right angles to one side with 1-5/8" Type S drywall screws 12" o.c.
2. One layer 5/8" type X gypsum wallboard or gypsum veneer base applied parallel or at right angles to steel studs with 1" Type S drywall screws 8" o.c. at vertical joints and 12" o.c. at wall perimeter and intermediate studs.
3. 350S162 steel studs spaced at 24" o.c.
4. Sound tested with 3-1/2" glass fiber insulation, friction fit in stud space.
5. One layer 5/8" type X gypsum wallboard or gypsum veneer base applied parallel or at right angles to steel studs 24" o.c. with 1" Type S drywall screws 8" o.c. at vertical joints and 12" o.c. at wall perimeter and intermediate studs.

Non-Load Bearing Walls

FC-NLBW-4

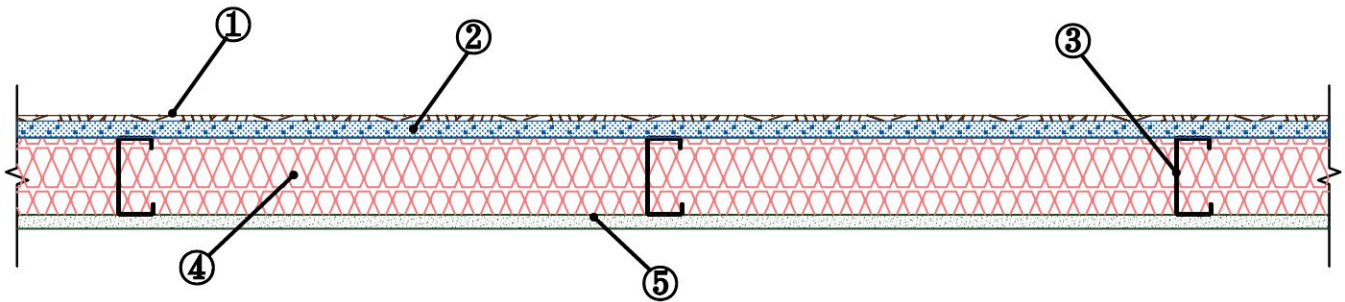
Fire Rating: 1 Hour

STC: N/A

Reference:

Intertek JPL/GFRCP 60-01

Intertek



1. Exterior facings can be: Brick: Any 4 in. wide brick siding. Wood Siding Panels: Plywood or OSB wood based siding. Hardboard Panel Siding: 0.25 in. min thick fiber-cement based siding. Fiber Cement Lap Siding: 0.25 in. min thick fiber-cement based siding, Cementitious Stucco: Portland cement type, 0.75 in. min thick with metal lath or mesh. Vinyl Siding: 0.035 in. min thick vinyl, exterior plastic siding.
2. Min 1/2 in. Jet Board Structural Fireboard attached to studs using min #8 x 2 in., coated, self-drilling screws spaced 6 in. and 12 in. o.c. along the perimeter and in the field, respectively.
3. 350S162-33 studs at 16" o.c. Where required by the design of a specified steel stud wall to provide lateral support of studs, support may be provided by means of steel straps, channels or other similar means.
4. Nominal 4 in. thick, min 3 pcf unfaced mineral fiber insulation into the wall cavity between the structural members.
5. Gypsum board: Apply one layer of 5/8 in. thick, Type X, gypsum board using 1-1/4 in long, Type S self-drilling screws spaced nominally 8 in. and 12 in. o.c. in the perimeter and field, respectively.

Non-Load Bearing Walls

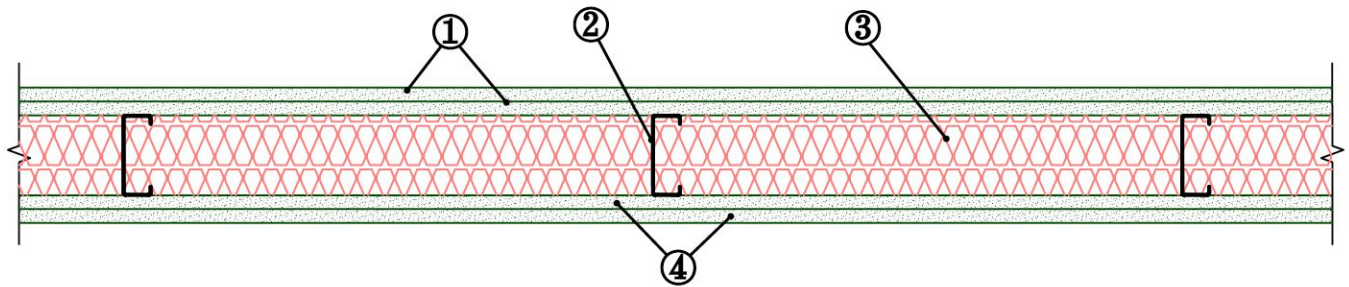
FC-NLBW - 5

Fire Rating: 2 Hours

STC: 58

Reference:

UL U403



1. Two layers of 5/8 in. thick gypsum board Type C sheets. Inner layer applied vertically, attached to studs and floor and ceiling runners with 0.127 in. diameter by 1 in. long self-drilling, self-tapping screws spaced 32 in. o.c., joints located over studs. Outer layer on one side applied vertically and attached to studs and runners with 1-5/8 in. long self-drilling, self-tapping steel screws spaced 12 in. o.c. along ends and edges of boards and 24 in. o.c. in the field. Outer layer joints offset from inner layer joints and located over studs.
2. 362S125-22 steel studs spaced at 24" o.c.
3. Optional mineral wool or glass fiber insulation.
4. 1/2 in. thick gypsum board Type C sheets applied vertically and attached to studs and runners with 1-5/8 in. long self-drilling, self-tapping steel screws spaced 12 in. o.c. along ends and edges of boards and 24 in. o.c. in the field. Joints offset from inner layer joints.

Non-Load Bearing Walls

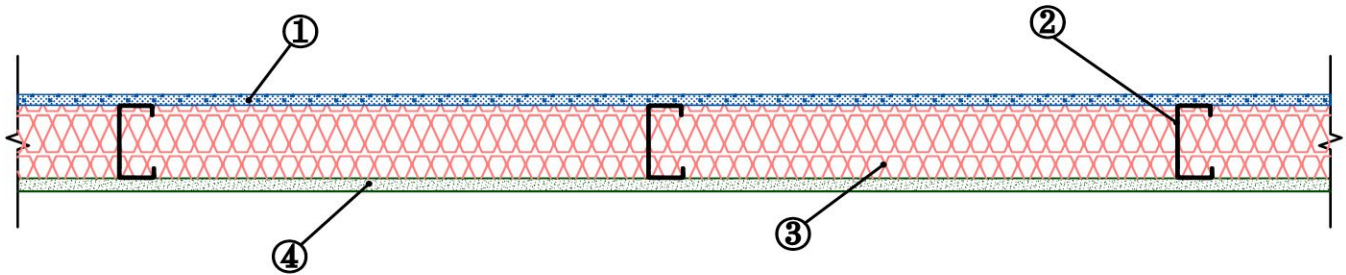
FC-NLBW- 6

Fire Rating: 1 Hour

STC: N/A

Reference:

UL U404



1. USG Type DCB Cementitious backer unit, 1/2 in. or 5/8 in. thick, fastened to studs and runners with min 1-1/4 in. long and corrosion resistant, chamfered, ribbed wafer head screws and spaced a max of 8 in. o.c.
2. 350S162-33 steel studs spaced at 16" o.c.
3. Min 3 in. thick mineral wool insulation batts, friction-fitted between studs.
4. One layer of 5/8 in. thick, gypsum board fastened with 1" Type S-12 screws spaced max 8 in. o.c. at vertical edges and spaced max 12 in. o.c. in the field.

Non-Load Bearing Walls

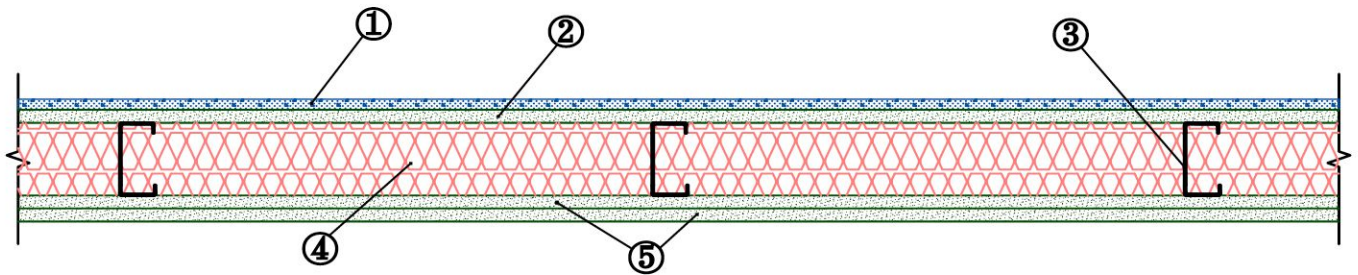
FC-NLBW - 7

Fire Rating: 2 Hours

STC: N/A

Reference:

UL U404



1. USG Type DCB Cementitious backer unit, 1/2 in. or 5/8 in. thick fastened to studs and runners with min 1-1/4 in. long and corrosion resistant, chamfered, ribbed wafer head screws. For the base layer the screws shall be min 1-1/4 in. long and spaced a max of 12 in. o.c. For the face layers, screws shall be 1-5/8 in. long and spaced a max of 8 in. o.c.
2. One layer of 5/8 in. thick, gypsum board fastened with 1" Type S-12 screws spaced max 8 in. o.c. at vertical edges and spaced max 12 in. o.c. in the field.
3. 350S162-33 steel studs spaced at 16" o.c.
4. Min 3 in. thick mineral wool insulation batts, friction-fitted between studs.
5. Two layers of 5/8 in. thick, gypsum board fastened with 1" Type S-12 screws spaced max 8 in. o.c. at vertical edges and spaced max 12 in. o.c. in the field.

Non-Load Bearing Walls

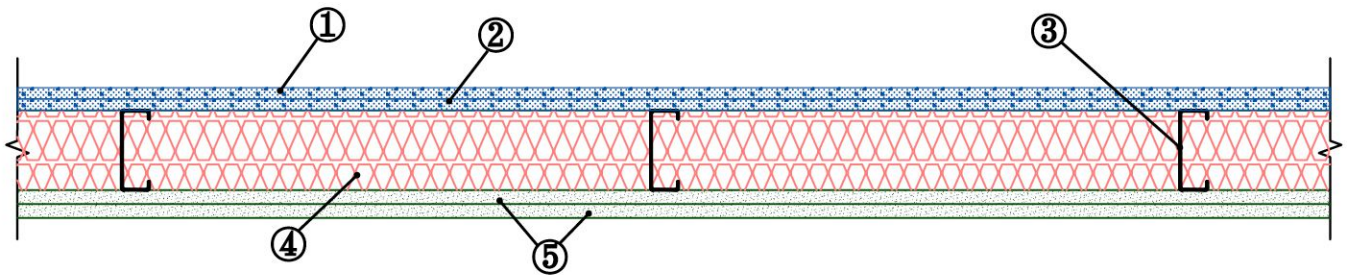
FC-NLBW- 8

Fire Rating: 2 Hours

STC: N/A

Reference:

UL U404



1. One layer of USG Type DCB Cementitious backer unit, 1/2 in. or 5/8 in. thick fastened to studs and runners with min 1-1/4 in. long and corrosion resistant, chamfered, ribbed wafer head screws. For the base layer the screws shall be min 1-1/4 in. long and spaced a max of 12 in. o.c. For the face layers, screws shall be 1-5/8 in. long and spaced a max of 8 in. o.c.
2. One layer of USG Type DCB Cementitious backer unit, 1/2 in. or 5/8 in. thick fastened to studs and runners with min 1-1/4 in. long and corrosion resistant, chamfered, ribbed wafer head screws. For the base layer the screws shall be min 1-1/4 in. long and spaced a max of 12 in. o.c. For the face layers, screws shall be 1-5/8 in. long and spaced a max of 8 in. o.c.
3. 350S162-33 steel studs spaced at 16" o.c.
4. 3" mineral wool insulation
5. Two layers of 5/8 in. thick gypsum board Type C sheets. Inner layer applied vertically, attached to studs and floor and ceiling runners with 0.127 in. diameter by 1 in. long self-drilling, self-tapping screws spaced 32 in. o.c., joints located over studs. Outer layer applied vertically and attached to studs and runners with 1-5/8 in. long self-drilling, self-tapping steel screws spaced 12 in. o.c. along ends and edges of boards and 24 in. o.c. in the field. Outer layer joints offset from inner layer joints and located over studs.

Non-Load Bearing Walls

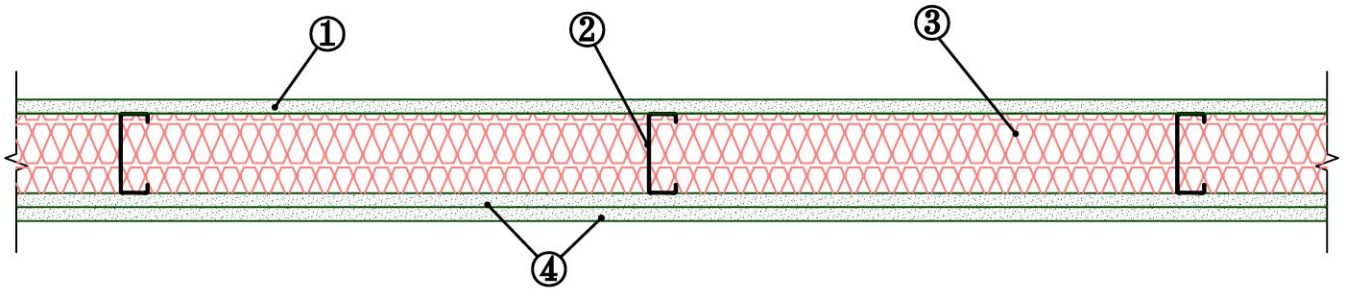
FC-NLBW- 9

Fire Rating: 1 Hour

STC: 48

Reference:

UL U407



1. 5/8 in. thick paper surfaced gypsum board applied either horizontally or vertically. Vertical joints in adjacent layers staggered one stud cavity. Base layer boards secured with 1 in. long Type S steel screws spaced 16 in. o.c. at the perimeter and 16 in. o.c. in the field. Face layer boards secured with 1-5/8 in. long Type S steel screws spaced 16 in. o.c. at the perimeter and 16 in. o.c. in the field. When joints are aligned, screws are offset 8 in. between layers.
(Alternate) 5/8" cementitious board, ceramic tiles and exterior finish.
2. 350S162-33 steel studs spaced at 16" o.c.
3. 3" insulation placed in stud cavities, any glass fiber or mineral wool insulation bearing the UL Classification Marking as to Surface Burning Characteristics and/or Fire Resistance.
4. 5/8" gypsum board base layer secured with 1 in. long Type S steel screws spaced 16 in. o.c. at the perimeter and 16 in. o.c. in the field. Face layer 5/8" gypsum board secured with 1-5/8 in. long Type S steel screws spaced 16 in. o.c. at the perimeter and 16 in. o.c. in the field.

Non-Load Bearing Walls

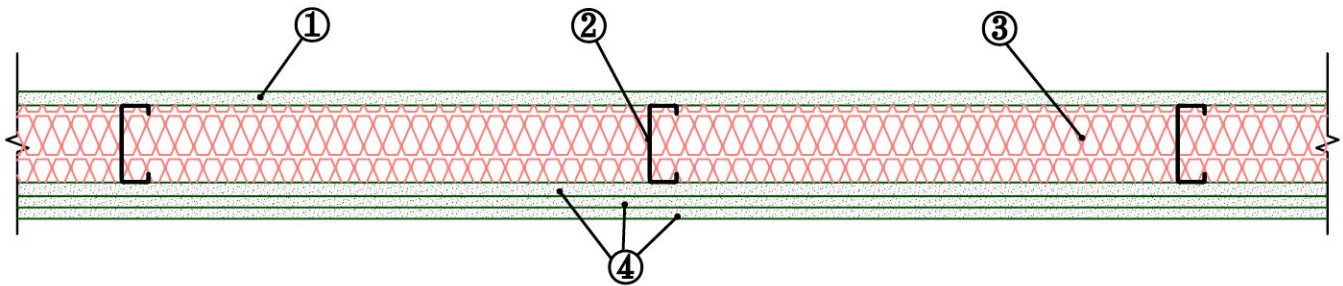
FC-NLBW - 10

Fire Rating: 2 Hours

STC: N/A

Reference:

UL U408



1. One layer of 5/8" thick Type C gypsum panels with beveled, square or tapered edges applied vertically or horizontally on the studs, with vertical joints centered over studs. Gypsum panels attached to studs with 1 in. long Type S crews spaced 8 in. o.c. when applied horizontally, or 8 in. o.c. along the vertical edges and 12 in. o.c. in the field when applied vertically.
2. 350S125-27 steel studs spaced at 16" o.c.
3. Optional glass fibre or mineral wool insulation.
4. Three layers of 5/8" thick Type C gypsum panels with beveled, square or tapered edges. Base layer applied vertically or horizontally on both sides of the studs, with vertical joints centered over studs and staggered one stud cavity on opposite sides of studs. Horizontal edge joints (when applied horizontally) and horizontal butt joints (when applied vertically) on opposite sides of studs need not be staggered or backed. Base layer panels attached to studs with 1 in. long Type S crews spaced 8 in. o.c. when applied horizontally, or 8 in. o.c. along the vertical edges and 12 in. o.c. in the field when applied vertically. Remaining two layers applied vertically or horizontally on one side of the wall. Horizontal butt joints staggered a min of 6 in. on adjacent layers. First of these two layers attached to studs with 1-5/8 in. long Type S screws spaced 12 in. o.c. Face layer attached to studs with 2-3/8 in. Type S screws spaced 8 in. o.c. when applied horizontally, or 8 in. o.c. along the vertical edges and 12 in. o.c. in the field when applied vertically. When used in widths other than 48 in., gypsum panels to be installed horizontally.

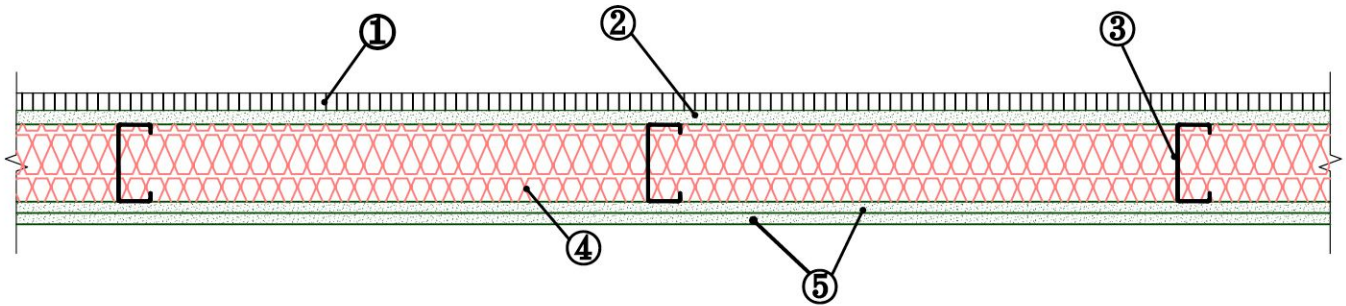
Non-Load Bearing Walls

FC-NLBW- 11

Fire Rating: 1 Hour

STC: N/A

Reference:
UL U424



1. For exterior walls, 1/2 or 5/8 in. thick exterior regular gypsum sheathing applied vertically or horizontally, attached to studs and runners with 1 in. long Type S12 steel screws spaced 12 in. o.c. along studs and runners. One or more of the following exterior facings shall be applied over the gypsum sheathing.
 - A. Siding, Brick or Stucco — Aluminum, vinyl or steel siding, brick veneer or stucco, meeting the requirements of local code agencies. When a min 3-3/4 in. thick brick veneer facing is used, the rating is applicable for exposure on either side. Brick veneer attached to studs with corrugated metal wall ties attached to each stud with steel screws, not more than each sixth course of brick.
 - B. Cementitious Backer Units — 1/2 or 5/8 in. thick panels, attached to steel studs over gypsum sheathing with 1-5/8 in. long, Type S-12, corrosion resistant, wafer-head steel screws, spaced 8 in. o.c. Studs spaced a max of 16 in. o.c. Joints covered with glass fiber mesh tape.
2. One layer 1/2" or 5/8" gypsum board.
3. 350S150-33 steel studs spaced at 24" o.c.
4. Optional glass fiber or mineral wool insulation
5. Placed in stud cavities, any glass fiber or mineral wool insulation bearing the UL Classification Marking as to Surface Burning Characteristics and/or Fire Resistance.

Non-Load Bearing Walls

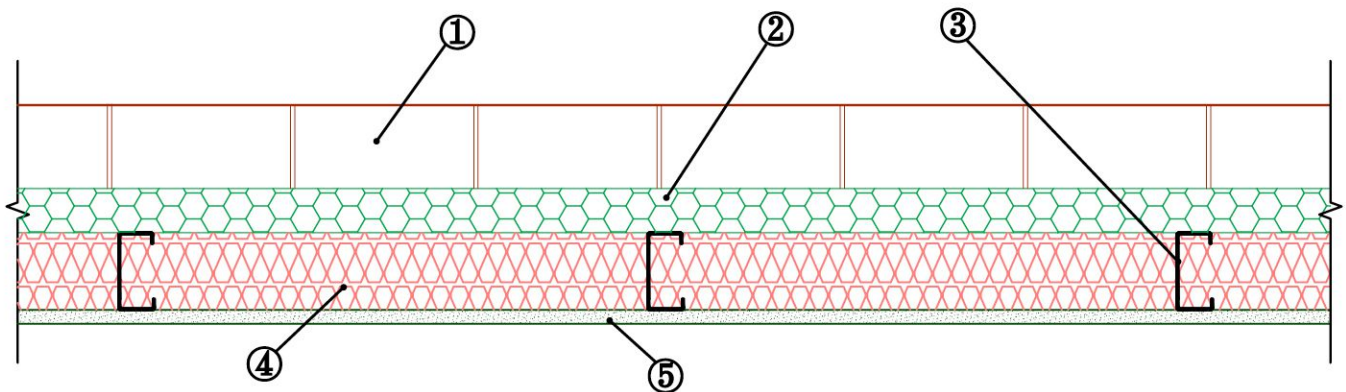
FC-NLBW - 12

Fire Rating: 3 Hours

STC: N/A

Reference:

UL V414



1. Brick Veneer — Any 4 in. wide brick. Min 1 in. air space provided between veneer and foamed plastic. Brick veneer is connected with metal ties attached to steel studs 16 in. o.c. max. Underlay bracket with self-sealing gasket material and secure with 2-1/2 in. long Type S-12 steel screws. Bracket legs penetrate foam plastic and engage steel stud flange.
2. Foamed Plastic — Faced or unfaced max 2 in. thick applied to studs with 2-1/2 in. long Type S-12 steel screws spaced 12 in. o.c.
3. 3 1/2" glass fiber insulation
4. Kraft paper, foil or unfaced glass fiber batts, min 3-1/2 in. thick, having a min density of 0.8 pcf, faced or unfaced mineral wool batts and blankets, 3-1/2 in. thick min, placed to fill the interior of the stud cavities.
5. One layer of Type C gypsum board, 5/8 in. thick applied vertically with joints centered over studs. Fastened to the steel studs with 1 in. long Type S self-drilling, self-tapping steel screws spaced 8 in. o.c. along the edges and 12 in. o.c. in the field of the board.

Non-Load Bearing Walls

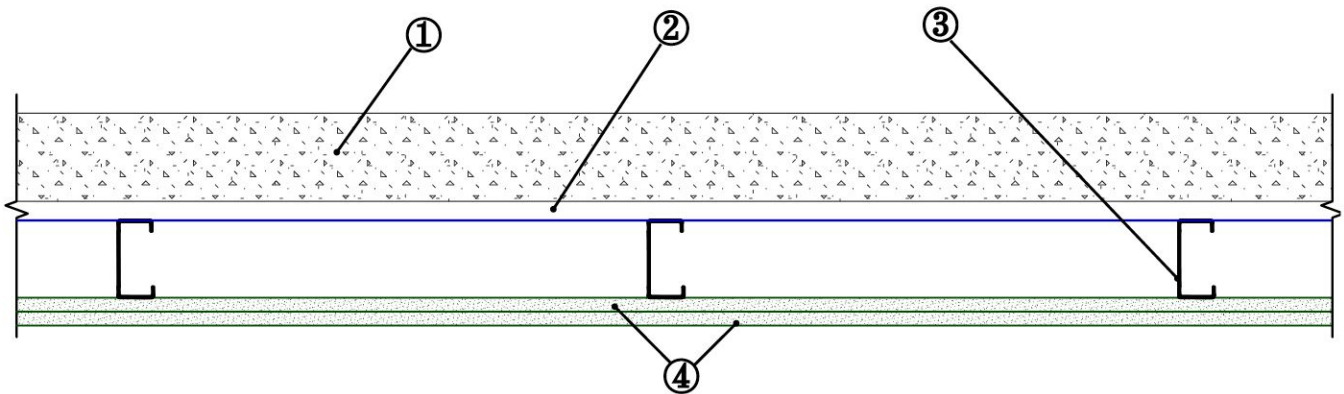
FC-NLBW- 13

Fire Rating: 2 Hours

STC: N/A

Reference:

UL V420



1. Precast Autoclaved Aerated Concrete — Min 3 in. thick and max 2 ft wide panels fastened to the furring channels with 2-1/2 in. long No. 14-10 hex head type self-drilling, self-tapping screws when fastened from the inside of building and with 4 in. long No. 14-10 hex head type self-drilling, self-tapping screws when fastened from the outside of building. Min 4 fasteners per panel per furring channel equal spaced starting 4 in. from each panel edge.
2. Furring Channels — 7/8 in. deep formed of 25 MSG galv steel, spaced 24 in. o.c. perpendicular to the studs. Channels overlap 1/2 in. and fastened to the studs with 1-1/4 in. long screws.
3. 350S162-33 steel studs spaced at 24" o.c.
4. Two layers of 5/8" gypsum Board applied vertically in two layers. Base layer attached to studs with 1 in. long Type S-12 steel screws spaced a max of 24 in. o.c. along the vertical edges. Face layer attached to the studs with 1-5/8 in. long Type S-12 steel screws spaced a max 12 in. o.c. along the vertical edges. Joints exposed or covered with tape and compound.

Non-Load Bearing Walls

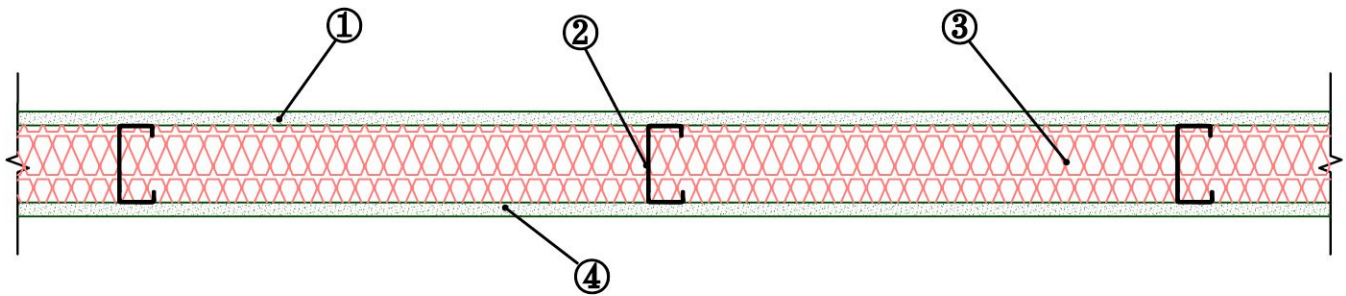
FC-NLBW - 14

Fire Rating: 1 Hour

STC: N/A

Reference:

UL V480



1. One layer of 5/8" thick gypsum Board Type FRX-G attached vertically or horizontally with 1-1/4 in. long Type S-12 steel screws. When applied vertically to studs, joints centered over studs and staggered one stud cavity on opposite sides of studs and attached with screws spaced 8 in. o.c. along the edges and 12 in. o.c. in the field. When applied horizontally to studs, no distance requirement on joints on opposite sides of studs and attached with screws spaced 8 in. o.c. along the edges and in the field. When used in widths other than 48 in., gypsum panels to be installed horizontally.
2. 350S162-33 steel studs spaced at 24" o.c.
3. Optional glass fiber or mineral wool insulation
4. One layer of 5/8" thick gypsum Board Type FRX-G attached vertically or horizontally with 1-1/4 in. long Type S-12 steel screws. When applied vertically to studs, joints centered over studs and staggered one stud cavity on opposite sides of studs and attached with screws spaced 8 in. o.c. along the edges and 12 in. o.c. in the field. When applied horizontally to studs, no distance requirement on joints on opposite sides of studs and attached with screws spaced 8 in. o.c. along the edges and in the field. When used in widths other than 48 in., gypsum panels to be installed horizontally.

Non-Load Bearing Walls

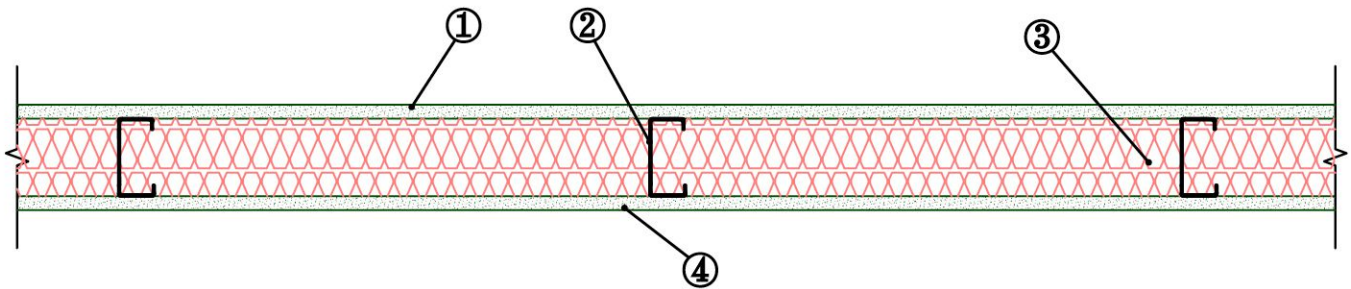
FC-NLBW- 15

Fire Rating: 1 Hour

STC: N/A

Reference:

UL U430



1. Nom 5/8 in. thick gypsum panels with beveled, square or tapered edges secured to studs with 1-1/4 in. long Type S-12 steel screws spaced 8 in. o.c. at perimeter and 12 in. o.c. in the field.
2. 350S162-33 steel studs spaced at 16" o.c.
3. Optional glass fiber or mineral wool insulation
4. Nom 5/8 in. thick gypsum panels with beveled, square or tapered edges secured to studs with 1-1/4 in. long Type S-12 steel screws spaced 8 in. o.c. at perimeter and 12 in. o.c. in the field.

Non-Load Bearing Walls

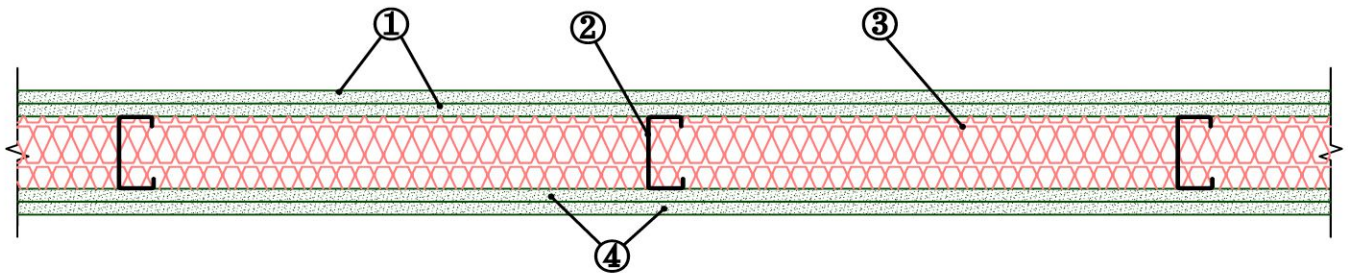
FC-NLBW - 16

Fire Rating: 2 Hours

STC: N/A

Reference:

UL U430



1. Base Layer: Nom 5/8 in. thick gypsum panels with beveled, square or tapered edges secured to studs with 1-1/4 in. long Type S-12 steel screws spaced 8 in. o.c. at perimeter and 12 in. o.c. in the field. Face Layer: Nom 5/8 in. thick gypsum panels with beveled, square or staggered edges.
2. 350S162-33 steel studs spaced at 16" o.c.
3. Optional glass fiber or mineral wool insulation
1. Base Layer: Nom 5/8 in. thick gypsum panels with beveled, square or tapered edges secured to studs with 1-1/4 in. long Type S-12 steel screws spaced 8 in. o.c. at perimeter and 12 in. o.c. in the field. Face Layer: Nom 5/8 in. thick gypsum panels with beveled, square or staggered edges.

Non-Load Bearing Walls

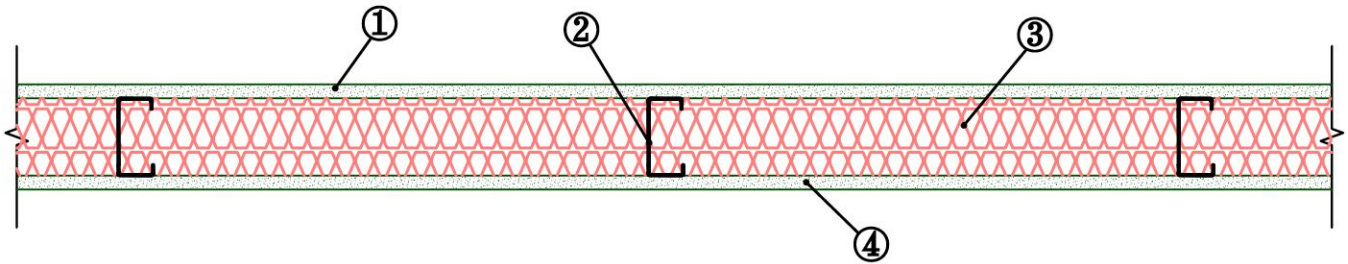
FC-NLBW - 17

Fire Rating: 1 Hour

STC: N/A

Reference:

UL U432



1. Nom 5/8 in. thick attached vertically or horizontally with 1-1/4 in. long Type S-12 steel screws spaced 8 in. o.c. along the edges and 12 in. o.c. in the field. UNITED STATES GYPSUM CO — Type FRX-G.
2. 350S162-33 steel studs spaced at max. 24" o.c.
3. Optional glass fiber or mineral wool insulation.
4. Nom 5/8 in. thick attached vertically or horizontally with 1-1/4 in. long Type S-12 steel screws spaced 8 in. o.c. along the edges and 12 in. o.c. in the field. UNITED STATES GYPSUM CO — Type FRX-G.

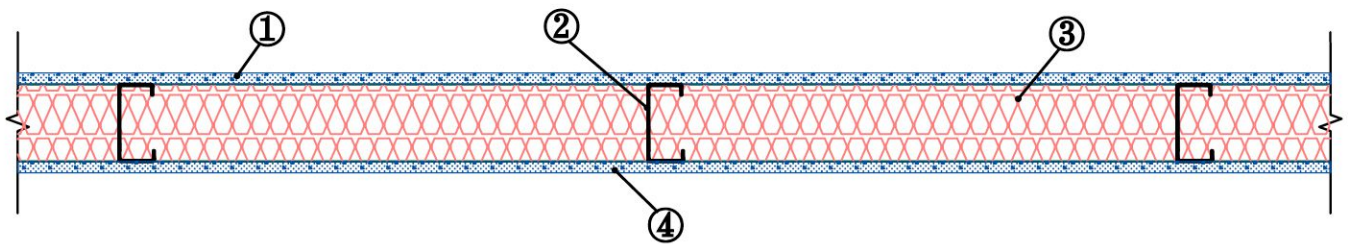
Non-Load Bearing Walls

FC-NLBW- 18

Fire Rating: 1 Hour

STC: N/A

Reference:
UL U433



1. USG Cementitious Backer Units, Type DCB, 1/2 or 5/8 in. thick, applied vertically or horizontally with vertical joints centered over studs with 1-1/4 in. S-12 Rock-On Climacoat screws spaced 8 in. o.c. with screws 1 in. from each horizontal joint. Horizontal joints need not be backed by framing. Horizontal edge joints and horizontal butt joints on opposite sides of studs need not be staggered.
2. 350S162-33 steel studs spaced at max. 16" o.c.
3. Min 3 in. thick mineral wool insulation batts, friction-fitted between studs.
4. USG Cementitious Backer Units, Type DCB, 1/2 or 5/8 in. thick, applied vertically or horizontally with vertical joints centered over studs with 1-1/4 in. S-12 Rock-On Climacoat screws spaced 8 in. o.c. with screws 1 in. from each horizontal joint. Horizontal joints need not be backed by framing. Horizontal edge joints and horizontal butt joints on opposite sides of studs need not be staggered.

Non-Load Bearing Walls

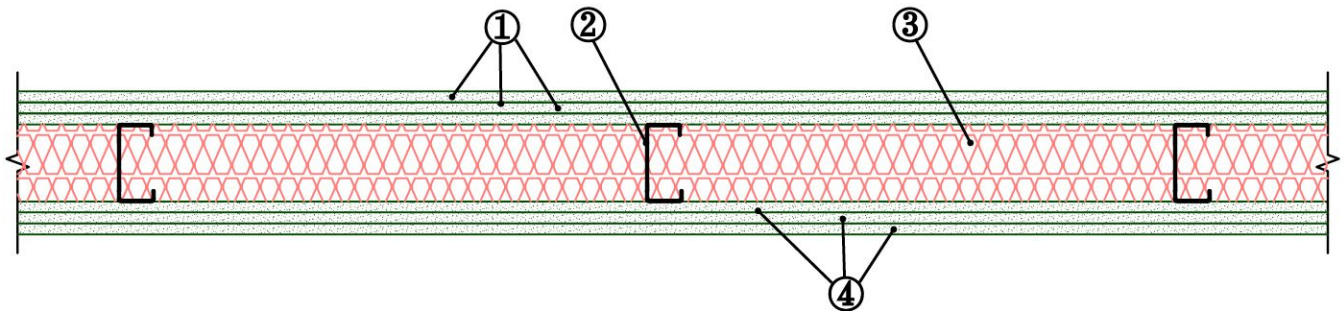
FC-NLBW- 19

Fire Rating: 2 Hours

STC: 61

Reference:

UL U423



1. Three layers of 1/2" gypsum panels with beveled, square or tapered edges, applied vertically or horizontally. Vertical joints centered over studs and staggered one stud cavity on opposite sides of studs. Vertical joints in adjacent layers (multilayer systems) staggered one stud cavity. Horizontal joints need not be backed by steel framing. Horizontal edge joints and horizontal butt joints on opposite sides of studs need not be staggered when load is reduced to 90 percent of max stud capacity. When load is at 100 percent, horizontal edge joints and horizontal butt joints on opposite sides of studs staggered a min of 12 in. Horizontal edge joints and horizontal butt joints in adjacent layers (multilayer systems) staggered a min of 12 in. When used in widths other than 48 in., gypsum panels to be installed horizontally.

Type S-12 steel screws shall be used to attach panels to studs or furring channels. First layer- 1 in. long for 1/2 in. thick panels, spaced 24 in. o.c. Second layer- 1-5/8 in. long for 1/2 in. thick panels, spaced 24 in. o.c. Third layer- 2-1/4 in. long for 1/2 in. thick panels, spaced 12 in. o.c. Screws offset min 6 in. from layer below.

2. 350S162-33 steel studs spaced at max. 24" o.c.
3. Min. 3 in. thick mineral wool batts insulation.
4. Three layers of 1/2 in. thick gypsum board applied horizontally or vertically.

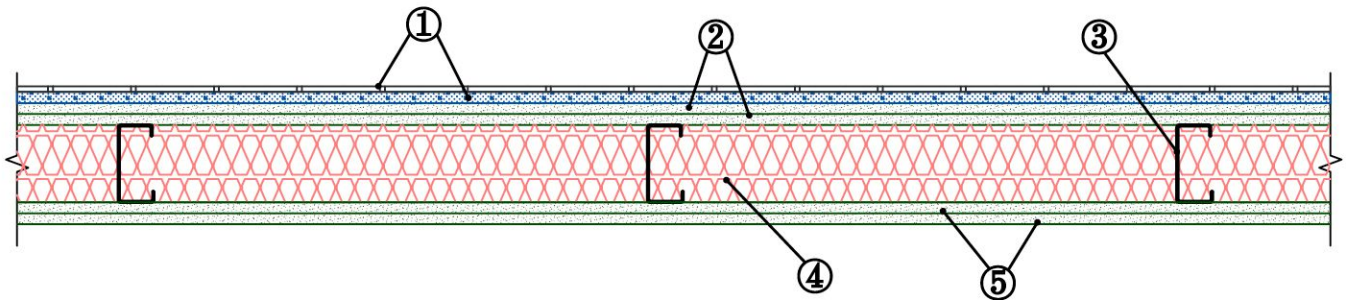
Non-Load Bearing Walls

FC-NLBW- 20

Fire Rating: 2 Hours

STC: 58

Reference:
UL U443



1. 1/4 in. thick ceramic tile on top of USG Type DCB 1/2" or 5/8" thick cementitious Backer Units attached to studs with 1-5/8 in. long, Type S-12, corrosion-resistant wafer-head steel screws spaced 8 in. o.c., joints covered with glass fiber mesh tape.
2. Base layer, 1/2 in. thick gypsum board, applied vertically and attached with 1 in. long, Type S-12 steel screw, spaced 24 in. o.c. at joints and in field. Face layer, 1/2 in. thick, gypsum board applied vertically with joints offset from base layer joints. Attached to studs with 1-5/8 in. long, Type S-12 steel screws, spaced 12 in. o.c. at the joint edges and in the field.
3. 362S125-33 steel studs spaced at max. 24" o.c.
4. Batts and blankets placed to fill interior of stud cavity, 3 in. min thickness.
5. Base layer, 1/2 in. thick gypsum board, applied vertically and attached with 1 in. long, Type S-12 steel screw, spaced 24 in. o.c. at joints and in field. Face layer, 1/2 in. thick, gypsum board applied vertically with joints offset from base layer joints. Attached to studs with 1-5/8 in. long, Type S-12 steel screws, spaced 12 in. o.c. at the joint edges and in the field.

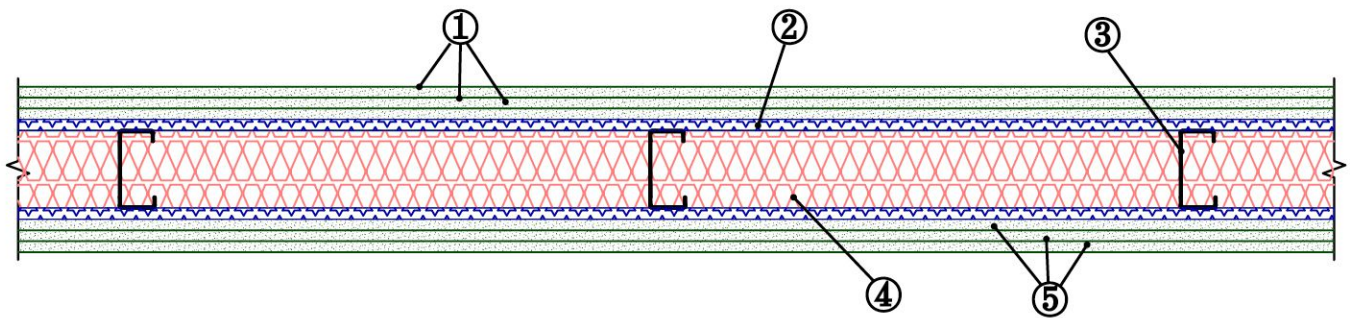
Non-Load Bearing Walls

FC-NLBW- 21

Fire Rating: 3 Hours

STC: 64

Reference:
UL U455



1. Three layers of Type C gypsum board 1/2 in. thick attached to resilient or furring channels, base layer with 1 in. Type S steel screws spaced 24 in. o.c., face layer with 1-5/8 in. Type S screws spaced 12 in. o.c. Wallboard on direct attached side first layer attached to studs with 1 in. Type S-12 steel screws spaced 24 in. o.c. Second layer attached to studs with 1-5/8 in. Type S-12 steel screws spaced 24 in. o.c. third layer attached to studs with 2-1/4 in. Type S-12 steel screws spaced 12 in. o.c.
2. 25 MSG galv steel resilient channels spaced vertically max 24 in. o.c., flange portion attached to each intersecting stud with 1/2 in. long Type S-12 pan head steel screws.
3. Batts and blankets placed to fill interior of stud cavity, 3 in. min thickness.
4. Three layers of Type C gypsum board 1/2 in. thick attached to resilient or furring channels, base layer with 1 in. Type S steel screws spaced 24 in. o.c., face layer with 1-5/8 in. Type S screws spaced 12 in. o.c. Wallboard on direct attached side first layer attached to studs with 1 in. Type S-12 steel screws spaced 24 in. o.c. Second layer attached to studs with 1-5/8 in. Type S-12 steel screws spaced 24 in. o.c. third layer attached to studs with 2-1/4 in. Type S-12 steel screws spaced 12 in. o.c.

Load Bearing Walls

FC-LBW - 1

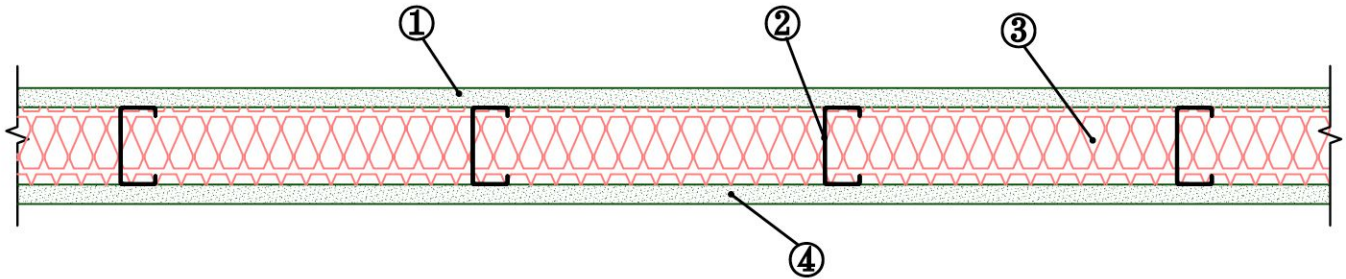
Fire Rating: 1/2 Hour

STC: 48

Reference:

Fire: UL 407

Sound: RAL-TL11-089



1. 5/8 in. thick paper surfaced, with beveled, square, or tapered edges, applied either horizontally or vertically secured to studs with 1-5/8 in. long Type S steel screws spaced 8 in. o.c. at the perimeter and 12 in. o.c. in the field. Horizontal joints need not be backed by steel framing.
2. 350S162-33 @ 16" on center.
3. Any 3" glass fiber or mineral wool insulation bearing the UL Classification Marking as to Surface Burning Characteristics and/or Fire Resistance.
4. 5/8 in. thick paper surfaced, with beveled, square, or tapered edges, applied either horizontally or vertically secured to studs with 1-5/8 in. long Type S steel screws spaced 8 in. o.c. at the perimeter and 12 in. o.c. in the field. Horizontal joints need not be backed by steel framing.

Load Bearing Walls

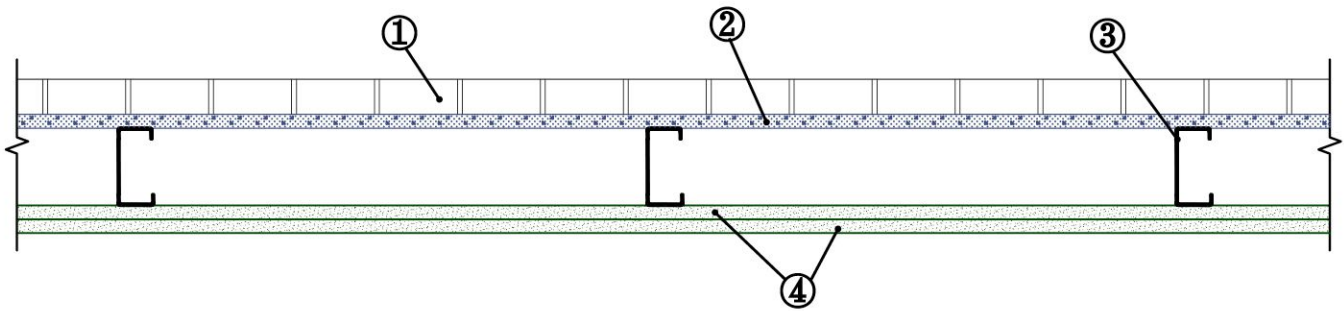
FC - LBW - 2

Fire Rating: 1 Hour

STC: N/A

Reference:

UL U418



1. Aluminum Siding, Steel Siding, Brick Veneer, Stucco, Fiber-Cement Siding, Building Units.
2. One layer of nominal 1/2 in. thick exterior sheathing, applied vertically and secured to the studs and runner tracks with 1 in. long, 0.142 in. diam, Type S-12 bugle head screws spaced 12 in. o.c. along the studs and the runner tracks.
3. 350S150-43 or 550S150-43 @ 24" on center.
4. Two layers of 1/2 in. thick gypsum board applied horizontally or vertically. Inner layer attached to studs and tracks with 1 in. long, Type S-12 bugle head screws spaced 12 in. o.c. beginning 6 in. from the edge. Outer layer attached to the studs and tracks with 1-5/8 in. long, Type S-12 bugle head screws spaced 12 in. o.c. beginning 1 in. from the edge. In addition, the outer layer to be attached to the inner layer at the joints with 1-1/2 in. long, Type G bugle head screws spaced 24 in. o.c. located between studs.

Load Bearing Walls

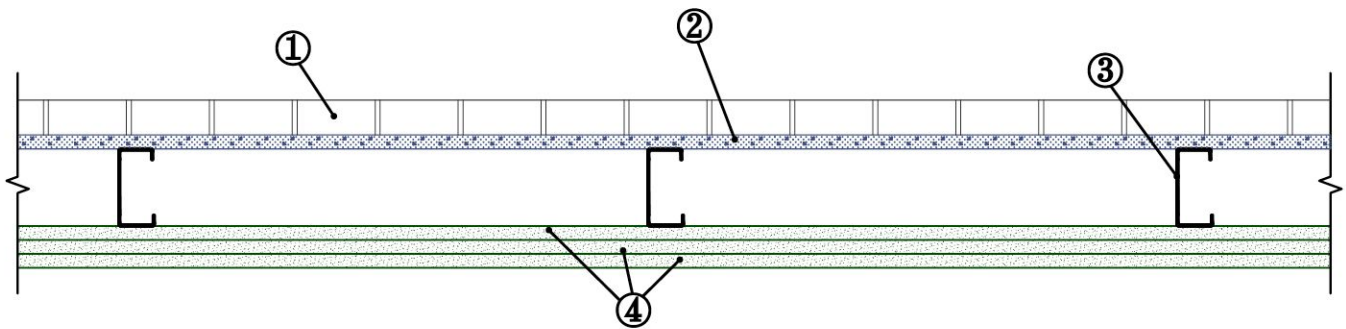
FC - LBW - 3

Fire Rating: 2 Hours

STC: N/A

Reference:

UL U418



1. Aluminum Siding, Steel Siding, Brick Veneer, Stucco, Fiber-Cement Siding, Building Units.
2. One layer of nominal 1/2 in. thick exterior sheathing, applied vertically and secured to the studs and runner tracks with 1 in. long, 0.142 in. diam, Type S-12 bugle head screws spaced 12 in. o.c. along the studs and the runner tracks.
3. 350S150-43 or 550S150-43 @ 24" on center.
4. Three layers of 1/2 in. thick gypsum board applied vertically. Inner layer attached to the studs and tracks with 1 in. long, Type S-12 bugle head screws spaced 12 in. o.c. Middle layer attached to the inner layer of gypsum board with 1-1/2 in. long, Type G bugle head screws spaced 12 in. o.c. and to the end studs with 1-7/8 in. long, Type S-12 bugle head screws spaced 12 in. o.c. Outer layer attached to studs and tracks with 1-7/8 in. long, Type S-12 bugle head screws spaced 12 in. o.c. and into the gypsum board with 1-1/2 in. long Type G screws spaced 12 in. o.c. middle layer of wallboard edge joints staggered 2 ft from joints of inner and lower layer.

Load Bearing Walls

FC - LBW - 4

Fire Rating: 1 Hour

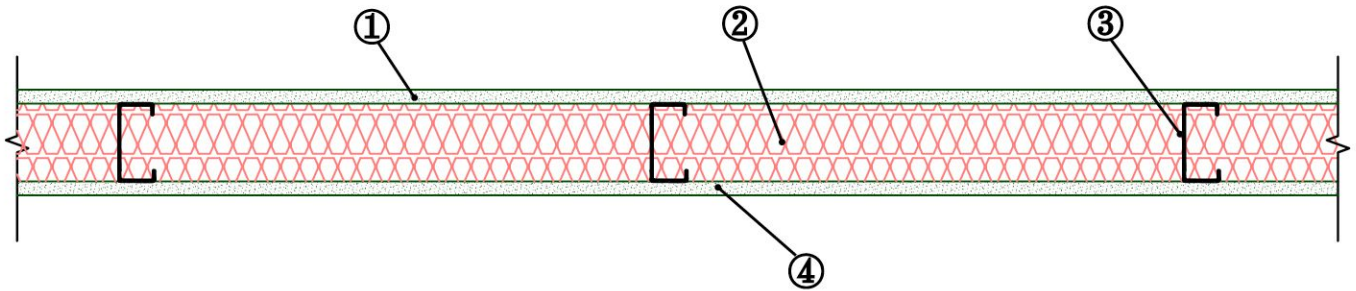
STC: 40

Reference:

USG810518

USG810519

UL U423



1. One layer 5/8" gypsum panels with beveled, square or tapered edges, applied vertically or horizontally. Gypsum board secured to studs with 1-1/4 in. long Type S-12 steel screws spaced 8 in. o.c. to the top and bottom tracks and in the field with screws 1 in and 4 in. from the perimeter.
2. 350S150-33 @ 24" on center 350S162-33 @ 24" on center.
3. Nom 2 in. thick mineral wool batts, friction fitted between studs and runners. Or any glass fiber or mineral wool insulation bearing the UL Classification Marking as to Surface Burning Characteristics and/or Fire Resistance.
4. One layer 5/8" gypsum panels with beveled, square or tapered edges, applied vertically or horizontally. Gypsum board secured to studs with 1-1/4 in. long Type S-12 steel screws spaced 8 in. o.c. to the top and bottom tracks and in the field with screws 1 in and 4 in. from the perimeter.

Load Bearing Walls

FC - LBW - 5

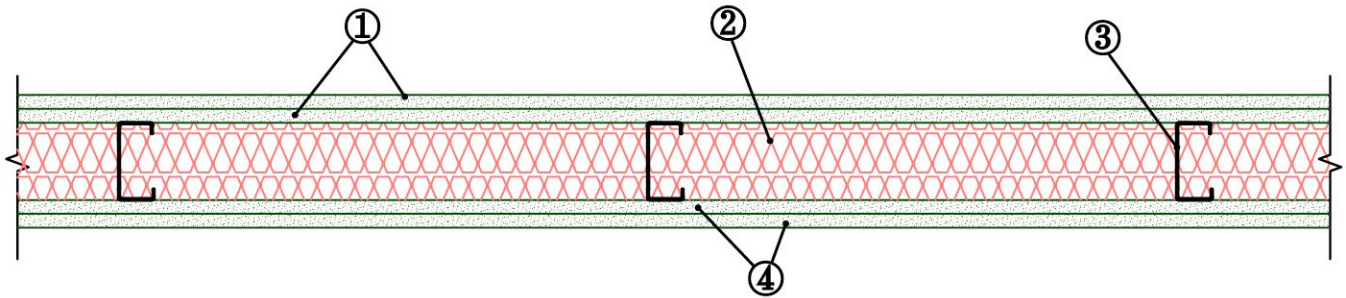
Fire Rating: 2 Hours

STC: 48

Reference:

USG811006

UL U423



1. Two layers 5/8" gypsum panels with beveled, square or tapered edges, applied vertically or horizontally. Base layer secured on each side of the studs with 1-1/4 in. long Type S-12 bugle head steel screws spaced 16 in. o.c. to the top and bottom track and in the field with screws beginning 1 in. and 8 in. from the horizontal joints. Face layer horizontal joints staggered 8 in from base layer joints and secured with 1-5/8 in. long Type S-12 bugle head steel screws spaced 16 in. o.c. to the top and bottom tracks and in the field with screws beginning 1 in. and 8 in. from the horizontal joints. Face layer screws offset 8 in. from base layer screws.
2. 350S150-33 @ 24" on center 350S162-33 @ 24" on center.
3. Nom 2 in. thick mineral wool batts, friction fitted between studs and runners. Or any glass fiber or mineral wool insulation bearing the UL Classification Marking as to Surface Burning Characteristics and/or Fire Resistance.
4. Two layers 5/8" gypsum panels with beveled, square or tapered edges, applied vertically or horizontally. Base layer secured on each side of the studs with 1-1/4 in. long Type S-12 bugle head steel screws spaced 16 in. o.c. to the top and bottom track and in the field with screws beginning 1 in. and 8 in. from the horizontal joints. Face layer horizontal joints staggered 8 in from base layer joints and secured with 1-5/8 in. long Type S-12 bugle head steel screws spaced 16 in. o.c. to the top and bottom tracks and in the field with screws beginning 1 in. and 8 in. from the horizontal joints. Face layer screws offset 8 in. from base layer screws.

Load Bearing Walls

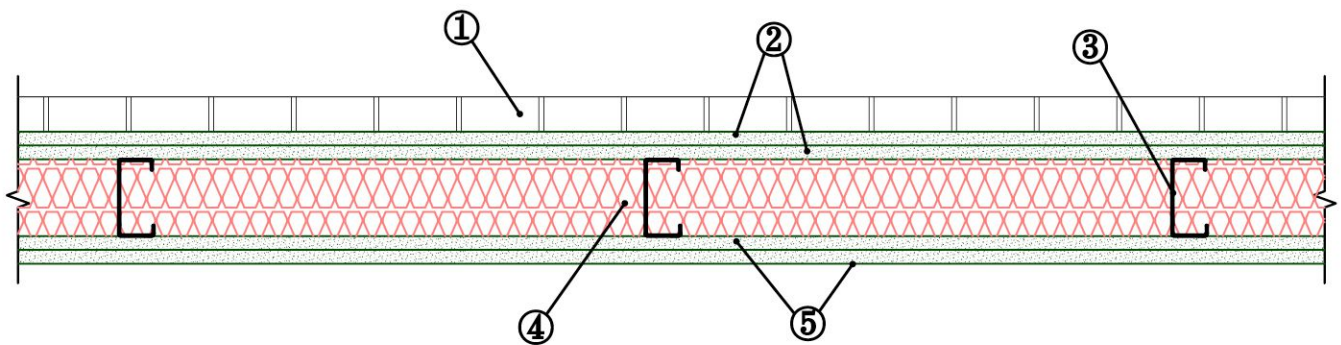
FC- LBW - 6

Fire Rating: 1 Hour

STC: N/A

Reference:

UL U424



1. Aluminum, vinyl or steel siding, brick veneer, cement board or stucco.
2. Two layers 1/2" gypsum panels with beveled, square or tapered edges, applied vertically or horizontally. First layer- 1 in. long spaced 16 in. o.c. Second layer- 1-5/8 in. long spaced 16 in. o.c. with screws offset 8 in. from first layer.
3. 350S150-33 @ 24" on center.
4. Placed in stud cavities, any min. 3-1/2 in. thick glass fiber insulation bearing the UL Classification Marking as to Surface Burning Characteristics and/or Fire Resistance.
5. Two layers 1/2" gypsum panels with beveled, square or tapered edges, applied vertically or horizontally. First layer- 1 in. long spaced 16 in. o.c. Second layer- 1-5/8 in. long spaced 16 in. o.c. with screws offset 8 in. from first layer.

Load Bearing Walls

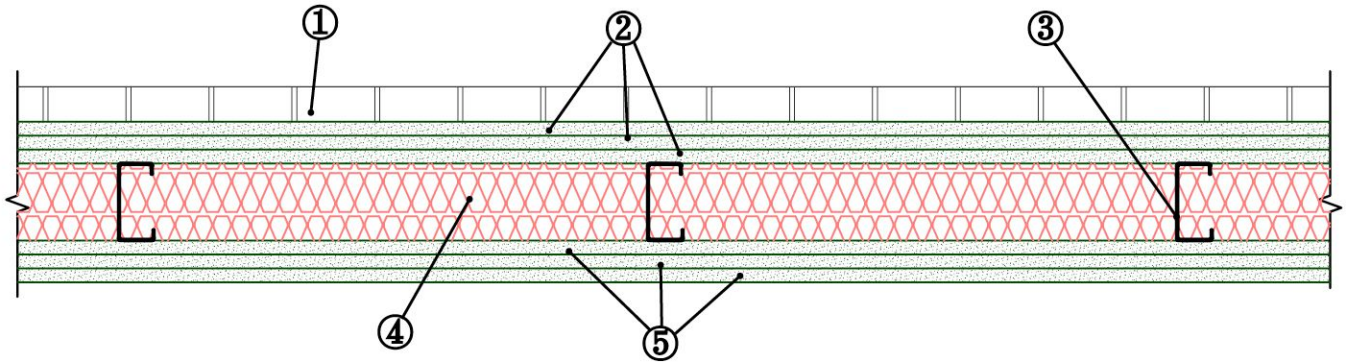
FC - LBW - 7

Fire Rating: 2 Hours

STC: N/A

Reference:

UL U424



1. Aluminum, vinyl or steel siding, brick veneer or stucco.
2. Three layers 1/2" gypsum panels with beveled, square or tapered edges, applied vertically or horizontally. First layer- 1 in. long spaced 24 in. o.c. Second layer- 1-5/8 in. long spaced 24 in. o.c.. Third layer- 2-1/4 in. long spaced 12 in. o.c. Screws offset min 6 in. from layer below.
3. 350S150-33 @ 24" on center.
4. Placed in stud cavities, any min. 3-1/2 in. thick glass fiber insulation bearing the UL Classification Marking as to Surface Burning Characteristics and/or Fire Resistance.
5. Three layers 1/2" gypsum panels with beveled, square or tapered edges, applied vertically or horizontally. First layer- 1 in. long spaced 24 in. o.c. Second layer- 1-5/8 in. long spaced 24 in. o.c.. Third layer- 2-1/4 in. long spaced 12 in. o.c. Screws offset min 6 in. from layer below.

Load Bearing Walls (Interior Walls)

FC - LBW - 8

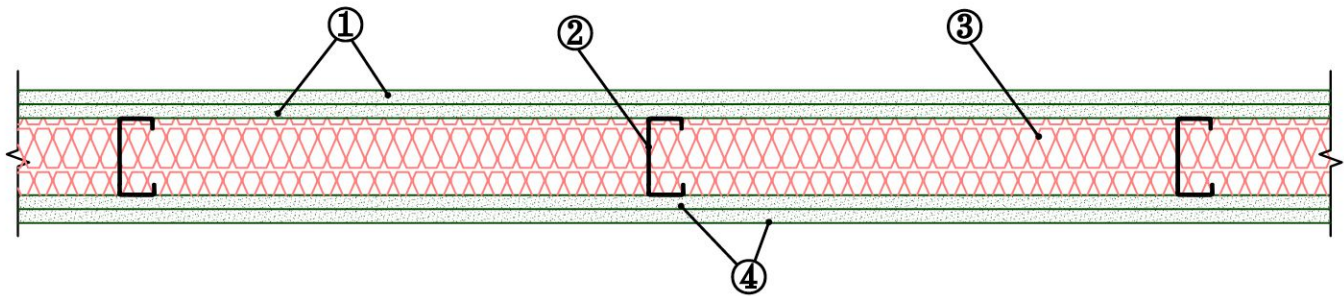
Fire Rating: 1 Hour

STC: 49

Reference:

USG811009

UL 425



1. Two layers 1/2" gypsum panels with beveled, square or tapered edges, applied vertically or horizontally. First layer secured with self-tapping bugle head sheet steel Type S-12 by 1 in. long screws spaced 12 in. o.c. second layer secured with self-tapping bugle head sheet steel Type S-12 by 1-5/8 in. long screws spaced 12 in. o.c.
2. 350S150-33 @ 24" on center.
3. Placed in stud cavities of all exterior walls. May or may not be used in interior walls. Any glass fiber or mineral wool batt material bearing the UL Classification Marking as to Fire Resistance, of a thickness to completely fill stud cavity.
4. Two layers 1/2" gypsum panels with beveled, square or tapered edges, applied vertically or horizontally. First layer secured with self-tapping bugle head sheet steel Type S-12 by 1 in. long screws spaced 12 in. o.c. second layer secured with self-tapping bugle head sheet steel Type S-12 by 1-5/8 in. long screws spaced 12 in. o.c.

Load Bearing Walls (Interior Walls)

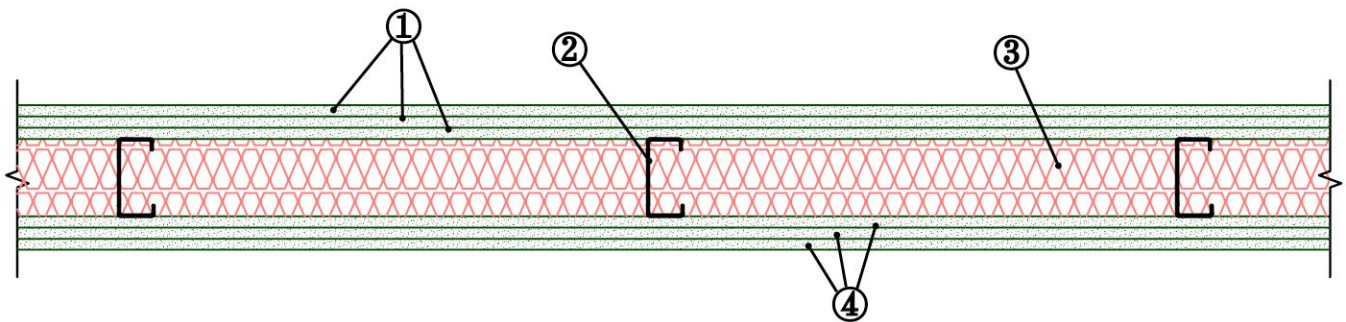
FC-LBW - 9

Fire Rating: 2 Hours

STC: N/A

Reference:

UL 425



1. Three layers 1/2" gypsum panels with beveled, square or tapered edges, applied vertically or horizontally. First layer secured with self-tapping bugle head sheet steel Type S-12 by 1 in. long screws spaced 12 in. o.c. second layer secured with self-tapping bugle head sheet steel Type S-12 by 1-5/8 in. long screws spaced 12 in. o.c. second layer secured with self-tapping bugle head sheet steel Type S-12 by 1-7/8 in. long screws spaced 12 in. o.c.
2. 350S150-33 @ 24" on center.
3. Placed in stud cavities of all exterior walls. May or may not be used in interior walls. Any glass fiber or mineral wool batt material bearing the UL Classification Marking as to Fire Resistance, of a thickness to completely fill stud cavity.
4. Three layers 1/2" gypsum panels with beveled, square or tapered edges, applied vertically or horizontally. First layer secured with self-tapping bugle head sheet steel Type S-12 by 1 in. long screws spaced 12 in. o.c. second layer secured with self-tapping bugle head sheet steel Type S-12 by 1-5/8 in. long screws spaced 12 in. o.c. second layer secured with self-tapping bugle head sheet steel Type S-12 by 1-7/8 in. long screws spaced 12 in. o.c.

Load Bearing Walls (Exterior Walls)

FC - LBW - 10

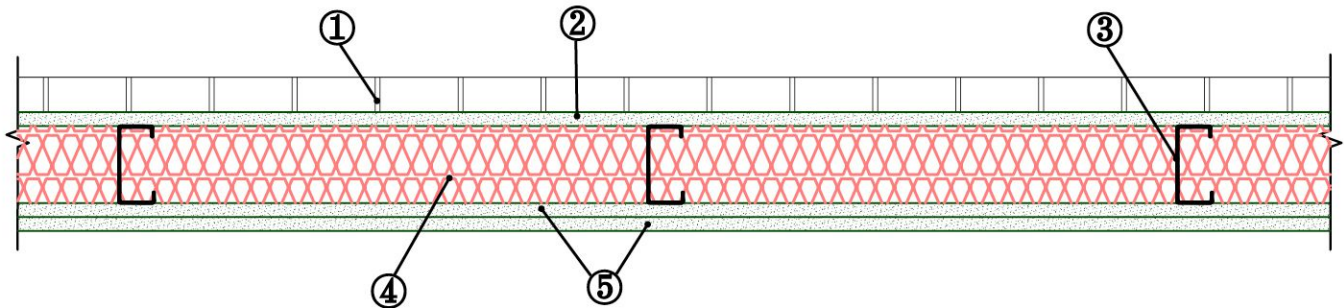
Fire Rating: 1 Hour

STC: 49

Reference:

USG811009

UL 425



1. Aluminum, vinyl or steel siding, brick veneer or stucco. 1/2" or 5/8" thick cementitious Backer Units panels, attached to steel studs over gypsum sheathing with 1-5/8 in. long, Type S-12, corrosion resistant, wafer-head steel screws, spaced 8 in. o.c. Studs spaced a max of 16 in. o.c. APA Rated Siding, Exterior, plywood, OSB or composite panels with veneer faces and structural wood core.
2. 1/2 or 5/8 in. thick Classified or unclassified exterior gypsum sheathing applied vertically and attached to studs and runner tracks with 1 in. long Type S-12 bugle head screws spaced 12 in. o.c. along studs and tracks.
3. 350S150-33 @ 24" on center.
4. Placed in stud cavities of all exterior walls. Any glass fiber or mineral wool batt material bearing the UL Classification Marking as to Fire Resistance, of a thickness to completely fill stud cavity.
5. Two layers 1/2" gypsum panels with beveled, square or tapered edges, applied vertically or horizontally. First layer secured with self-tapping bugle head sheet steel Type S-12 by 1 in. long screws spaced 12 in. o.c. Second layer secured with self-tapping bugle head sheet steel Type S-12 by 1-5/8 in. long screws spaced 12 in. o.c.

Load Bearing Walls (Exterior Walls)

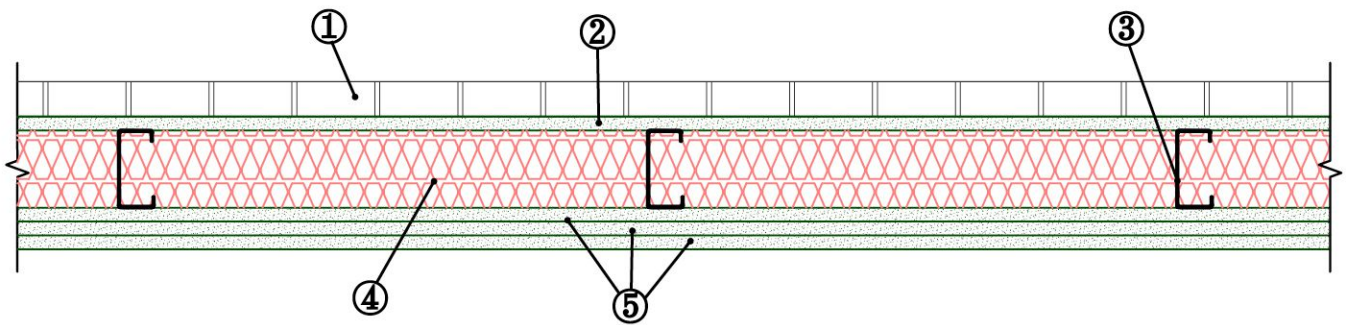
FC - LBW - 11

Fire Rating: 2 Hours

STC: N/A

Reference:

UL 425



1. Aluminum, vinyl or steel siding, brick veneer or stucco. 1/2" or 5/8" thick cementitious Backer Units panels, attached to steel studs over gypsum sheathing with 1-5/8 in. long, Type S-12, corrosion resistant, wafer-head steel screws, spaced 8 in. o.c. Studs spaced a max of 16 in. o.c. APA Rated Siding, Exterior, plywood, OSB or composite panels with veneer faces and structural wood core.
2. 1/2 or 5/8 in. thick Classified or unclassified exterior gypsum sheathing applied vertically and attached to studs and runner tracks with 1 in. long Type S-12 bugle head screws spaced 12 in. o.c. along studs and tracks.
3. 350S150-33 @ 24" on center.
4. Placed in stud cavities of all exterior walls. May or may not be used in interior walls. Any glass fiber or mineral wool batt material bearing the UL Classification Marking as to Fire Resistance, of a thickness to completely fill stud cavity.
5. Three layers 1/2" gypsum panels with beveled, square or tapered edges, applied vertically or horizontally. First layer secured with self-tapping bugle head sheet steel Type S-12 by 1 in. long screws spaced 12 in. o.c. second layer secured with self-tapping bugle head sheet steel Type S-12 by 1-5/8 in. long screws spaced 12 in. o.c. second layer secured with self-tapping bugle head sheet steel Type S-12 by 1-7/8 in. long screws spaced 12 in. o.c.

Load Bearing Walls

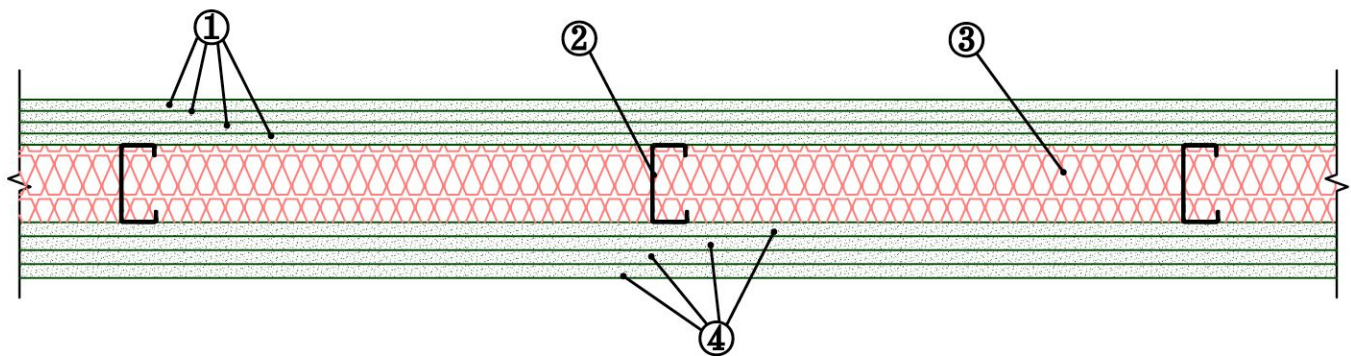
FC - LBW - 12

Fire Rating: 3 Hours

STC: N/A

Reference:

UL U426



1. Four layers of 1/2" thick Type C gypsum board. Inner layers to be applied vertically with joints centered over studs. First layer fastened to each stud with 1 in. long Type S-12, steel screw. Second layer fastened to each stud through the first layer with 1-5/8 in. long, Type S-12, steel screws. Third layer fastened to each stud through the first and second layers with 2-1/4 in. long, Type S-12, steel screws. Fourth layer fastened to each stud through the first, second and third layers with 2-5/8 in. long, Type S-12, steel screws. First, second and third layer screws shall be installed with a maximum spacing of 48 in. o.c. vertically.
2. 350S150-33 @ 24" on center.
3. Optional Mineral wool insulation, partially or completely filling stud cavity or spray applied cellulose material.
4. Four layers of 1/2" thick Type C gypsum board. Inner layers to be applied vertically with joints centered over studs. First layer fastened to each stud with 1 in. long Type S-12, steel screw. Second layer fastened to each stud through the first layer with 1-5/8 in. long, Type S-12, steel screws. Third layer fastened to each stud through the first and second layers with 2-1/4 in. long, Type S-12, steel screws. Fourth layer fastened to each stud through the first, second and third layers with 2-5/8 in. long, Type S-12, steel screws. First, second and third layer screws shall be installed with a maximum spacing of 48 in. o.c. vertically.

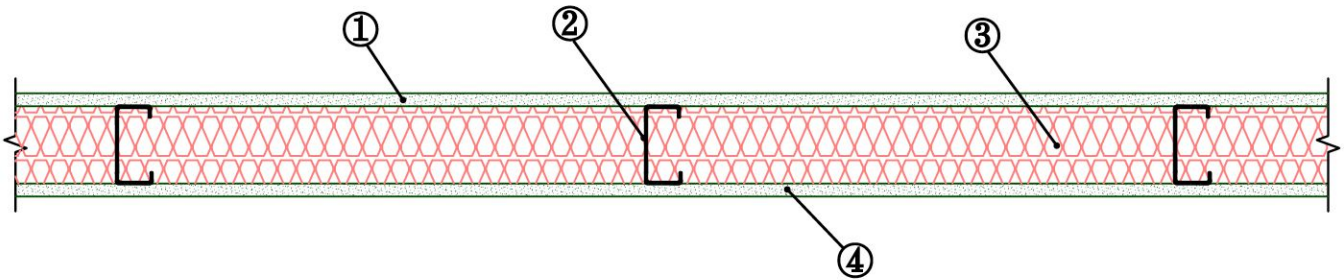
Bearing Walls

FC - BW - 13

Fire Rating: 1 Hour

STC: N/A

Reference:
UL U432



1. Nom 5/8 in. thick attached vertically or horizontally with 1-1/4 in. long Type S-12 steel screws spaced 8 in. o.c. along the edges and 12 in. o.c. in the field. UNITED STATES GYPSUM CO — Type FRX-G.
2. 350S162-33 steel studs spaced at max. 24" o.c.
3. Optional glass fiber or mineral wool insulation.
4. Nom 5/8 in. thick attached vertically or horizontally with 1-1/4 in. long Type S-12 steel screws spaced 8 in. o.c. along the edges and 12 in. o.c. in the field. UNITED STATES GYPSUM CO — Type FRX-G.

Bearing Walls

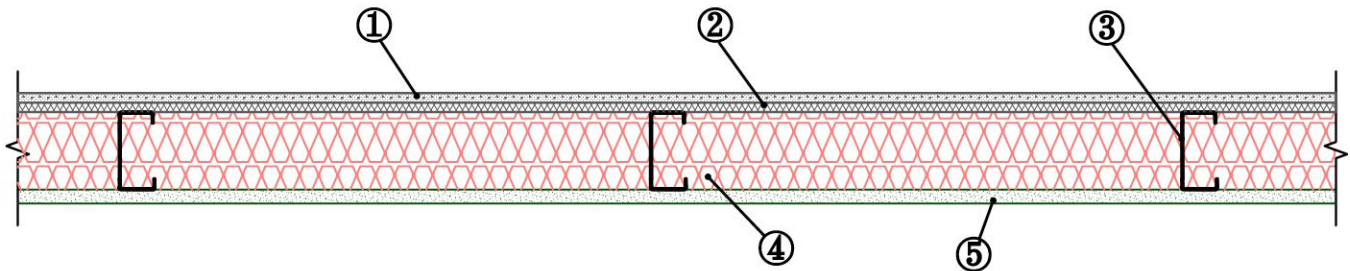
FC - BW - 14

Fire Rating: 1 Hour

STC: N/A

Reference:

UL U434



1. Portland Cement Plaster: 7/8 in. thick. Applied in two coats: Scratch coat consisting of 100 lb cement to 50 lb lime to 5- 1/2 cu ft of sand; brown coat consisting of 100 lb cement to 50 lb lime to 6 cu ft of sand.
2. Paper backed expanded steel diamond mesh, min 3.4 lb/sq yd, attached to studs (or lateral support members) and floor and ceiling runners with 8-18 by 1 in. long steel screws spaced at 6 in. on center. The screw head diameter is a min 1/2 in.
3. 350S162-33 steel studs spaced at max. 24" o.c.
4. Optional Any glass fiber or mineral wool batt material bearing the UL Classification Marking as to Fire Resistance. Max thickness 3-1/2 in.
5. Nom 5/8 in. thick Type X gypsum board attached vertically or horizontally with 1-1/4 in. long Type S-12 steel screws spaced 8 in. o.c. along the edges and 12 in. o.c. in the field.

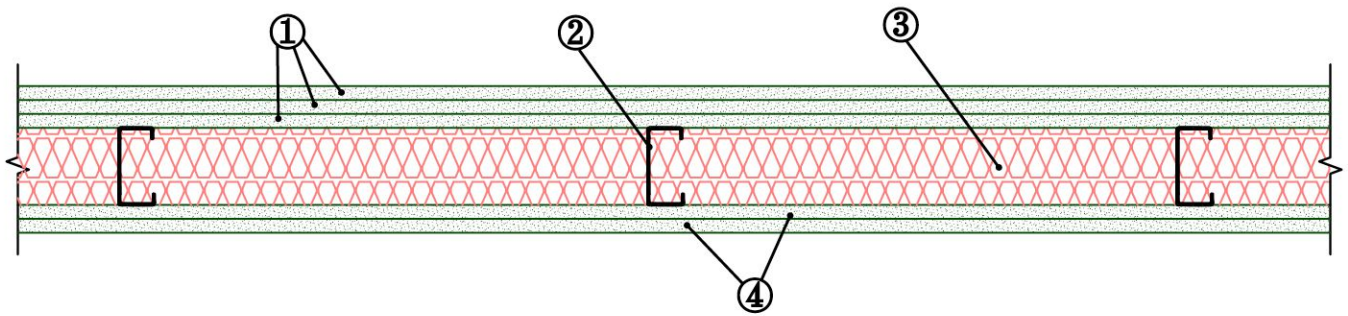
Bearing Walls (80% load capacity)

FC - BW - 15

Fire Rating: 2 Hours

STC: 61

Reference:
UL U423



1. Three layers of Nom 5/8 in. thick gypsum panels applied horizontally or vertically attached to studs as follows: First layer- 1 in. long spaced 24 in. o.c. Second layer- 1-5/8 in. long spaced 24 in. o.c. Third layer- 2-1/4 in. long spaced 12 in. o.c. Screws offset min 6 in. from layer below.
2. 350S162-33 steel studs spaced at max. 24" o.c.
3. Min. 3 in. thick mineral wool batt insulation placed in stud cavities.
4. Two layers of Nom 5/8 in. thick gypsum panels applied horizontally or vertically attached to studs as follows: First layer- 1 in. long spaced 16 in. o.c. Second layer- 1-5/8 in. long spaced 16 in. o.c. with screws offset 8 in. from first layer.

Bearing Walls

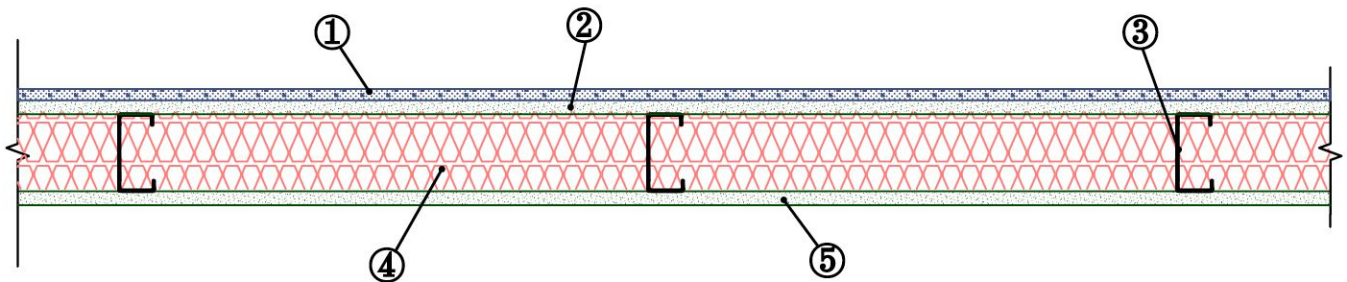
FC - BW - 16

Fire Rating: 1 Hour

STC: N/A

Reference:

UL U473



1. Cementitious Backer Units — Board 1/2 or 5/8 in. thick attached to studs with 1-5/8 in. long corrosion resistance, wafer-head steel screws, spaced 8 in. o.c. Joints covered with glass fiber mesh tape. UNITED STATES GYPSUM CO—Type DCB
2. One layers of 5/8" Type X gypsum board applied vertically and attached to studs with 1 in. Type S-12 steel screws, spaced 8 in. o.c. along the edges of the board and 12 in. o.c. in the field of the board.
3. 350S162-33 steel studs spaced at max. 24" o.c.
4. Min. 3 in. thick mineral wool batt insulation placed in stud cavities.
5. One layers of 5/8" Type X gypsum board applied vertically and attached to studs with 1 in. Type S-12 steel screws, spaced 8 in. o.c. along the edges of the board and 12 in. O.c. in the field of the board.

Bearing Walls

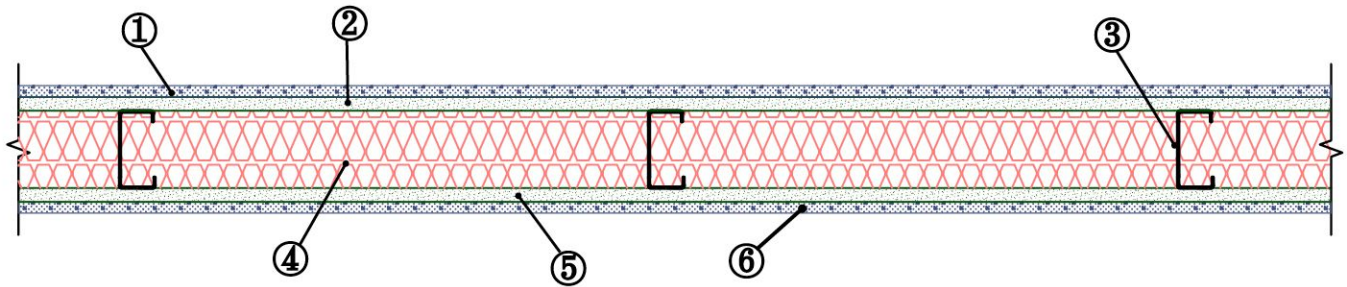
FC - BW - 17

Fire Rating: 1 Hour

STC: N/A

Reference:

UL U485



1. Cementitious Backer Units — Board 1/2 or 5/8 in. thick attached to studs with 1-1/4 in. long corrosion resistance, wafer-head steel screws, spaced 24 in. o.c. Joints covered with glass fiber mesh tape. UNITED STATES GYPSUM CO—Type DCB.
2. One layers of 5/8" Type X gypsum board applied vertically and attached to studs with 1 in. Type S-12 steel screws, spaced 8 in. o.c. along the edges of the board and 12 in. o.c. in the field of the board.
3. 350S162-33 steel studs spaced at max. 16" o.c.
4. Min. 3 in. thick mineral wool batt insulation placed in stud cavities.
5. One layers of 5/8" Type X gypsum board applied vertically and attached to studs with 1 in. Type S-12 steel screws, spaced 8 in. o.c. along the edges of the board and 12 in. O.c. in the field of the board.
6. Cementitious Backer Units — Board 1/2 or 5/8 in. thick attached to studs with 1-1/4 in. long corrosion resistance, wafer-head steel screws, spaced 24 in. o.c. Joints covered with glass fiber mesh tape. UNITED STATES GYPSUM CO—Type DCB.

Bearing Walls (Chase wall) (80% Design Load)

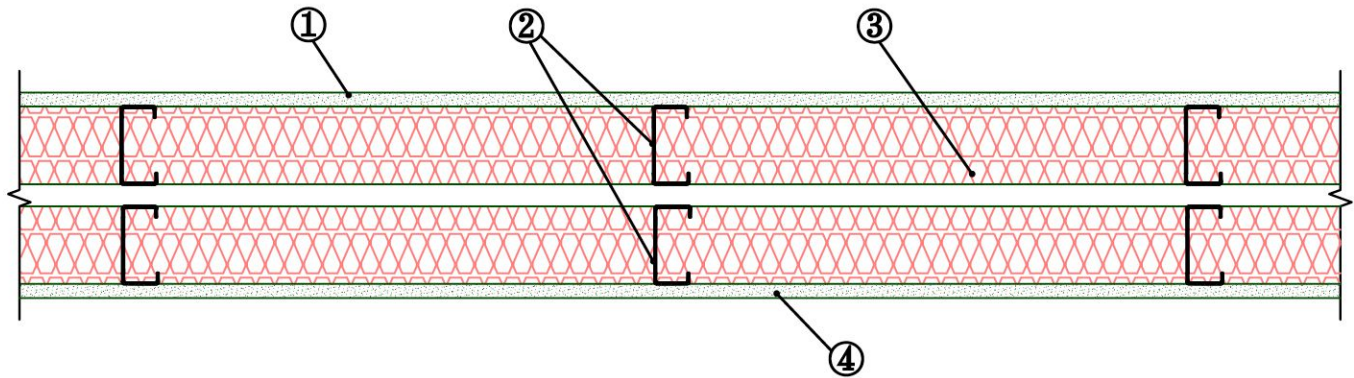
FC - BW - 18

Fire Rating: 1 Hour

STC: N/A

Reference:

UL V446



1. One layer of 5/8" gypsum board applied vertically and attached to one side of double stud wall with 1 in. Type S-12 steel screws, spaced 8 in. o.c. along the edges of the board and 12 in. o.c. in the field of the board. 1" gap in between the walls.
2. Two layers of 350S162-33 steel studs spaced at max. 24" o.c. with 1" gap in between.
3. Min. 3 in. thick mineral wool batt insulation placed in stud cavities.
4. One layer of 5/8" gypsum board applied vertically and attached to opposite side of double stud wall with 1 in. Type S-12 steel screws, spaced 8 in. o.c. along the edges of the board and 12 in. o.c. in the field of the board.

Bearing Walls (Chase wall)

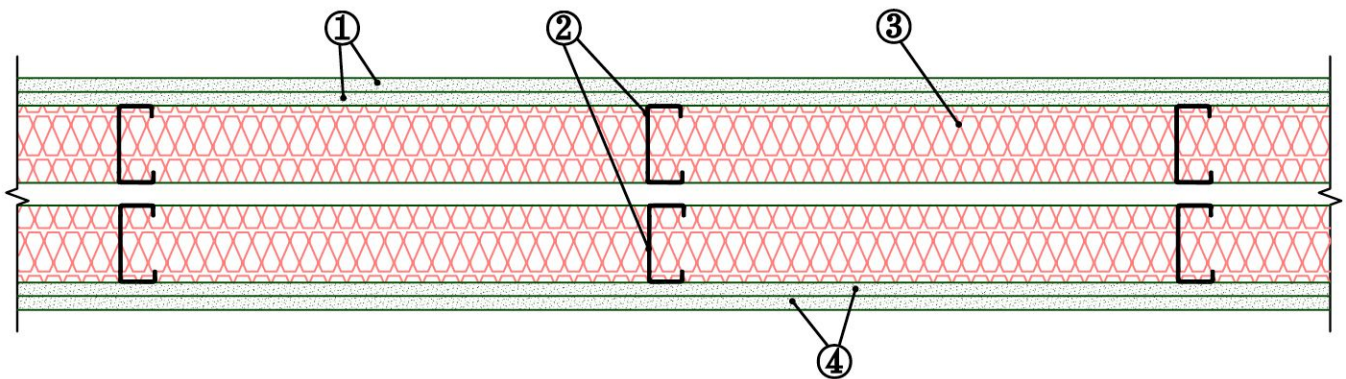
FC - BW - 19

Fire Rating: 2 Hours

STC: N/A

Reference:

UL V446



1. Two layers of 5/8" gypsum board applied vertically and attached to one side of double stud wall with 1 in. Type S-12 steel screws, spaced 8 in. o.c. along the edges of the board and 12 in. o.c. in the field of the board. 1" gap in between the walls.
2. Two layers of 350S162-33 steel studs spaced at max. 24" o.c. with 1" gap in between.
3. Optional mineral and fiber board insulation as an additional layer on one or both sides of the wall.
4. Two layers of 5/8" gypsum board applied vertically and attached to opposite side of double stud wall with 1 in. Type S-12 steel screws, spaced 8 in. o.c. along the edges of the board and 12 in. o.c. in the field of the board.

Bearing Walls

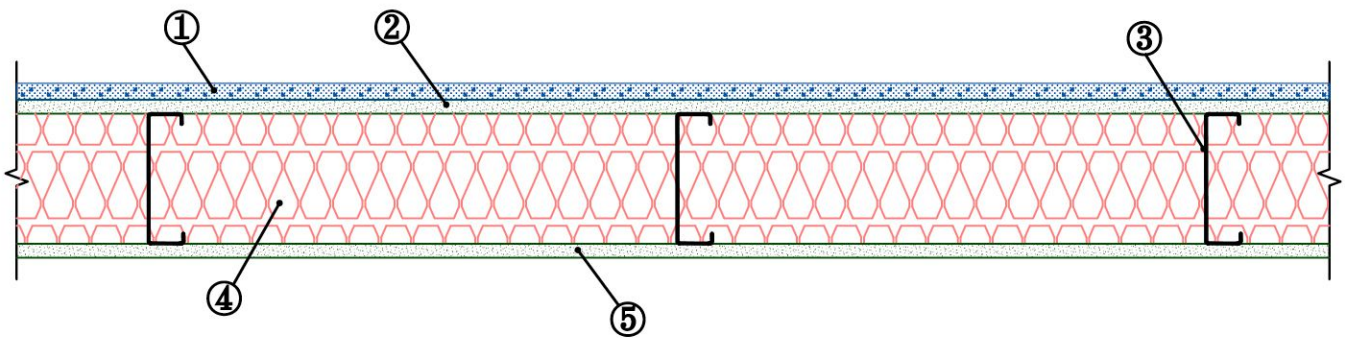
FC - BW - 20

Fire Rating: 3 Hours

STC: N/A

Reference:

UL V471



1. USG Structo-crete Structural Cement-Fiber Unit-3/4 in. applied horizontally on each side of stud, attached to studs and track with #8 by 1-5/8 in. self-drilling wing screws @ 8 in. o.c. in the field and at vertical joints of each panel.
2. One layer of 5/8" gypsum board applied vertically and attached to one side of double stud wall with 1 in. Type S-12 steel screws, spaced 8 in. o.c. along the edges of the board and 12 in. o.c. in the field of the board. 1" gap in between the walls.
3. 600S162-43 steel studs spaced at max. 24" o.c.
4. Optional mineral and fiber board insulation as an additional layer on one or both sides of the wall.
5. Single layer (face layer) Type SCX or ULX, 5/8 in. thick gypsum panels applied vertically or horizontally and attached to studs and track with #6 by 2 in. long bugle head self-drilling screws spaced 8 in. o.c. in the field and at butt joints of each panel.

Bearing Walls

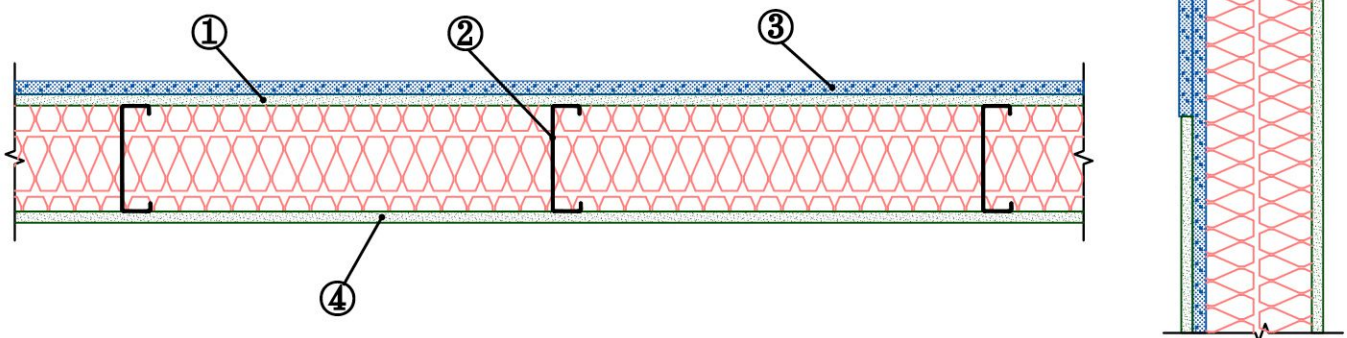
FC - BW - 21

Fire Rating: 3 Hours

STC: N/A

Reference:

UL V471



1. USG Structo-crete Structural Cement-Fiber Unit-3/4 in. applied horizontally on each side of stud in the field and two layers on each side of stud at top wall. Base layer at top of wall min. 12 in wide, face layer min. 10 in. wide. Base layer attached to studs and track with #8 by 1-5/8 in. self-drilling wing screws @ 8 in. o.c. in the field and at vertical joints of each panel. Face layer at top of wall attached to stud and track with 2-1/4 bugle head self-drilling screws spaced 8 in. o.c. in the field and at butt joints of each panel.
2. 600S162-43 steel studs spaced at max. 24" o.c.
3. Optional mineral and fiber board insulation as an additional layer on one or both sides of the wall.
4. Single layer (face layer) Type SCX or ULX, 5/8 in. thick gypsum panels. Applied vertically or horizontally and attached to studs and track with #6 by 2 in. long bugle head self-drilling screws spaced 8 in. o.c. in the field and at butt joints of each panel.



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