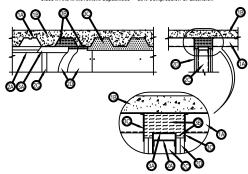


System No. HW-D-0087 Assembly Rating — 1 And 2 Hr (See Items 2 And 3B) Nominal Joint Width — 2 In. L Rating At Ambient — Less Than 1 CFM/Lin Ft L Rating At 400°F — Less Than 1 CFM/Lin Ft

ilities - 20% Compression Or Extension



1. Flood a research was the related induce state described the dissection of searching state of the related search and a state of the search and sear

6. Hotol insulation — min 2-14 mil. (37 min) pinks pound insulating porticete, as insessured until the up plante or time floor units.
19. Beach (Assembly — As an alternale to Items 1 and 1A, a fire rated protected fluted steel deck roof assembly may be used. The tood assembly shall be constituted of the materials and in the manner described in the individual P700 Series Roof-Ceiling Design in the UL Fire Resistance Directory. The hordy rating of the roof assembly shall be equal to or greater than the hordy rating of the wall assembly. The roof assembly shall include the following construction.

to compare then the hourly rating of the wall assembly. The roof assembly shall include the following construction features:

A. Sheel Roof Deck.—Max 3 in. (76 mm) deep galv steel fluted nod feek.

B. Spray—Applied Fire Resistive Materials*—(Not Shown)—Prior to or after the installation of the steel ceiling runners, Forming Material and Fill, Viol or Carely Material (fleme 2A, 3A, 39), the roof assembly shall be sprayed with the type and thickness of fire resistive material indicated in the individual P700 Series design. W R GRACE & CO - CONN — Type Mr6-6-HY

ISOLATER INTERNATIONAL — Type 300

2. Wall Assembly — The 1 or 2 fr fire trated gyperidides shut wail assembly shall be constructed of the resistive material residency and the residency of the residency of

CAFCO STEEL STUD MANUFACTURING CO

METAL-LITE.INC — The System
SCAFCO STEEL STUD MANUFACTURING CO
TELLING NOUSTRIES LI C — True-Action Deflection Track
AZ Lipht Gauge Fraining*-Vertical Deflection Ceiling Runner — Given in applications where the nominal joint
AZ Lipht Gauge Fraining*-Vertical Deflection Ceiling Runner — Given in applications where the nominal joint
deflection calling runner to consist of galv sale channel with stoted vertical deflection cigis mechanically fastened
deflection calling runner to consist of galv sale channel with stoted vertical deflection cigis mechanically fastened
within runner. Stoted clips provided with step bushings for permanent fastening of steal studies. Planges sized to
accommodate steel stude (filem 2C). Vertical deflection ceiling runner installed perpendicular to direction of flutted
steel deck and secured before or after spray-applied materials to valleys with steel masonry anchors, steel
fasteners or welds spaced max 24 in. (610 mm) OC. The use of welds to secure the ceiling runner may only be
used prior to the installation of the optional spray-applied materials. When vertical deflection ceiling runner is used,
deflection channel (filem 3A) shall not be used. When optional spray-applied materials is used on the steel deck,
vertical deflection ceiling runner execured through pray-applied material is used on the steel deck with min
31'6 is. (5 mm) dains steel fasteners or steel masonry anchors spaced max 24 in. (610 mm) OC.
31. Lipht Clauge Framing* - Nother Ceiling Purnner - As an alternate to the outling runners in terms 2A through
2A3, notched ceiling runner to consist of C-shaped galv steel channel with notched return flanges sized to
accommodate steel studs (filem 2C). Notched ceiling runner is used, deflection channel (filem
3A) shall not be used. When optional spray-applied material is used on the steel deck, chotic on if filed steel deck
and secured before or after spray-applied material when notched ceiling runner may only be used prior to the
installation of the optional s

secured through spray-applied material to each valley of steel deck with min 3/16 in. (5 mm) diam steel fasteners spaced max 24 in. (610 mm) 0.C.

OLMAR SUPPLY INC — Type SCR

Steel Attachment Cips — (Optional - Not Shown) - When spray applied fireproofing is used ceiling runner may be secured to deck with 2-shaped cips formed from min. 1 in. (25 mm) long strips of mm 20 ga gal street. Length of spray-applied fire-resistive material on the bottom of the steel deck with 1-1/2 or 2 in. (38 or 51 mm) long upper and lover legs. Legs of clips fastened to valleys of steel deck (prior to application of spray-applied fire-resistive materials) and top of ceiling runner with steel fasteners or welds. Clips aspeed max 24 in. (610 mm) OC.

C. Studs — Steel studs to be min 2-1/2 in. (64 mm) wide. Studs out 1/2 to 3/4 in. (13 to 19 mm) less in length than assembly height with bottom recising in and resting no floor runner and with top resting in ceiling runner without by 1/2 in. (13 mm) long water head steel acrews at midneight of slot on each side of wall. When vertical deflection cips. Them 29.51 is used to steel studs required.

by 12 in, (13 mm) long water head steel screws at midhelight of sixt on each side of wall. When vertical deflection ceiling numer (lime 2A2) is used, steel stude soccured to sketed vertical deflection clings through the bushings, with steel screws at midhelight of each sixt. Stud spacing not to exceed 24 in, (610 mm) OC.

0. Oysoum Board" — Oysoum board installed to a min total thinkness of 58 in. (16 mm) or 1-1/4 in. (32 mm) on each side of wall for 1 and 2 hr rated assemblies, respectively. Wall to be constructed as specified in the individual Wall and Paristin Design in the U.E Fire Resistance Directory, except that a now 2 in. (51 mm) gap shall be maintained between the top of the gypsum board and the bottom of the steel deck and the top rov of screws shall be installed in the stude it to 1-1/2 in. (25 to 83 mm) below the bottom of the deflection tack. The houly rating of the wall.

15 ms of the steel of the student of the steel of the steel of wall at time of installation of joint system is 2 in. (53 ms) stem—fine 1 ms. separation between bottom of the care as 20 or 12.5 procent (see team 10) compression or extension from its installed width. The joint system consists of a deflection channel, forming material and a fill material as follows:

is follows:

A Deflection Channel — A nom 3-5/8 in. (92 mm) wide by 3 in. (76 mm) deep min No. 22 gauge steel U-shaped channel. Deflection channel installed perpendicular to direction of futured steel deck and secured to valley switch the steel deck and secured to valley switch the steel deck and secured to valley switch the steel secured to steel the steel secure and the steel secure and secured to valley switched fire resistive martiral is used. The ceiling numer (flew ZA) is installed within the deflection channel to maintain a 1-1/2 in. (38 mm) gap between the tip of the ceiling numer and the top of the deflection channel. The ceiling numer is not statemed to the deflection channel.

numer is not fastered to the deficient contained. The celling numer is not related to the deficient channel. The celling numer is not fastered to the deficient channel. The numer is not fastered to the deficient channel. The numer is not fastered to the deficient channel is not fastered to the numer is not fastered. The numer is not fastered to the numer is not numer is not fastered to the numer is not numer is nu

ROXUL INC — SAFE

THERMAFIBER INC — Type SAF

IIG MINVOOL L.I. C. — MinvVool-1200 Safing

31. Forming Material — Plays (For use with 3-1/2 in. or 80 mm deep studs or larger) — (Optional-Not Shown)
Preformed mineral wool plays, formed to the shape of the fluted floor units, friction fit to completely fill the flutes
above the ceiling numer. The plugs shall project beyond each side of the ceiling numer, fluth with wall surfaces.

Additional forming material, described in Item 38, to be used in conjunction with the plugs to fill the gap between the top of gypsum board and the bottom of plug .

HILTI CONSTRUCTION CHEMICALS. DIV OF HILTI INC — CP777 Speed Plugs

D'us

Assembly Rating — 1 And 2 Hr (See Items 2 And 3B) Nominal Joint Width — 2 In. L Rating At Ambient — Less Than 1 CFMLin Ft L Rating At 400°F — Less Than 1 CFMLin Ft Class II And III Movement Capabilities — 20%

System No. HW-D-0087 (cont.)

B2. Forming Material* - Strips — (Optional) - Nom 5/8 in. (16 mm) and 1-1/4 in. (32 mm) wide by 4 in. (102 mm)

B2. Forming Material* - Sirps — (Optional) - Nom S8 in. (16 mm) and 1-1/4 in. (32 mm) wide by 4 in. (102 mm) thick preact minral wool strips for 1 and 2 hr rated assemblies, respectively. The strips are compressed 50 percent in thickness and firmly packed into the gap between the top of the gypsum board and bottom of the steel foor units on both sides of the wait.

Fig. 10 of FLOW the side of the wait.

Fig. 10 of FLOW the side of the wait.

Fig. 10 of FLOW the side of the wait.

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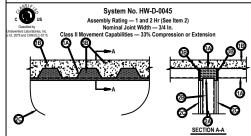
Fig. 10 of Flow the side of the wait.

Fig. 10 of Flow the side of the wait.

Fig. 10 of Flow the side of the wait.

Bearing the UL Classification Mark





and in the manner described in the individual Floor-Ceiling Design in the Fire Resistance Directory and shall include the following construction features: A. Steel Floor and Form Units' — Max 3 in. (76 mm) deep galv steel fluted floor units. B. Concrete — Min-2 Tzl. n. (64 mm) thick reinforced concrete, as measured from the top plane of the floor units. R. Roof Assembly — (Not Shown) — As an alternate to the floor assembly, a fire rated fluted steel deck root assembly may be used. The root assembly shall be constructed of the materials and in the manner described in the individual P900 Series Roof-Ceiling Design in the UL Fire Resistance Directory. The hourly rating of the root assembly shall bote equal to or greater than the houlty arting of the wall assembly. The root assembly shall include the following

direction of fluted steel deck and secured to valleys with steel fasteners or by welds spaced max 24 in, (610 mm) OC.

A1. Light Gauge Framing'-Stotted Ceiling Runner — As an alternate to the ceiling runner in litter 2A, slotted ceiling runner in consist of galv steel channel with slotted flanges sized to accommodate steel stud; (tiem 2B). Stotted ceiling runner in statiled perpendicular to direction of fluted steel deck and secured to valleys with steel fasteners or welds spaced max 24 in. (610 mm) ACS INLC, DBA SLUTPRICK SYSTEMS — SLP-TRK
BRADY DONG TRUCTION OF THE PRODUCTS CO — CST
CLARROITETRICH BULLIDING SYSTEMS — Type SLT, SLT-H
MARINOWARE. DIV OF WARE INDUSTRIES INC — Type SLT
META-LITE INC — The System
SCAFCO STEEL STUD MANUFACTURING CO
TELLING INDUSTRIES I.C — The Action Deflection Track
A2. Light Gauge Framing'-Vertical Deflection Ceiling Runner — As an alternate to the ceiling runners in Item 2A and
2A1, vertical deflection ceiling runner to consist of galv steel channel with slotted vertical deflection cips mechanically fastened within runner. Slotted clips provided with step bushings for permanent fastening of steel studs. Flanges size act to accommodate steel studs (Item 2B). Vertical deflection ceiling runner in stateling perpendicular to direction of fluted steel direction to 1000 statel steel studs (Item 2B). Vertical deflection ceiling runner in stateling perpendicular to direction of fluted steel dusk (Item 2B). Vertical deflection ceiling runner installed perpendicular to direction of fluted steel dusk (Item 2B). Vertical deflection ceiling runner installed perpendicular to direction of fluted steel dusk (Item 2B). Vertical deflection ceiling runner installed perpendicular to direction of fluted steel dusk (Item 2B). Vertical deflection ceiling runner installed perpendicular to direction of fluted steel dusk (Item 2B). Vertical deflection ceiling runner installed perpendicular to direction of fluted steel dusk (Item 2B). Vertical deflection ceiling runner installed perpendicular to direction

n. (610 mm) OC.

THE STEEL NETWORK INC — VertiTrack VTD250, VTD362, VTD400, VTD600 and VTD800 3. Light Gauge Framing*- Notched Ceiling Runner — As an alternate to the ceiling runners in Items 2A through 2A3, notched ceiling runners to consist of C-shaped galv steel channel with notched return flanges sized to accommodate steel studs (Item 2B). Notched ceiling runner installed perpendicular to direction of fluted steel deck

and secured to vallelys with steel fisherness or the secured to vallely such as the secured to vallelys with steel fisherners or welds spaced max 24 in. (610 mm) CC.

JUMAR SUPPLY INC — Type SCR

Studs — Steel Studs to be min 2-112 in. (64 mm) wide. Studs cut 1/2 to 3/4 in. (13 to 19 mm) less in length than D. Stude — Steel stude to be min 2-rize in (46 mm) wide. Stude out 12 to 34 in , (13 to 19 mm) tess in length than S. Stude — Steel stude to be min 2-rize in and restings on foot runner and with top nesting in colling runner without state.hmment. When obtated ceiling runner (tiem 24) is used, steel stude secured to distret ceiling runner with No. 8 by 1/2 in , (13 mm) loan yater head test screen as mithelight of stor on each side of wait. When vertical deflection ceiling runner (tiem 24/5) is used, steel stude secured to storted vertical deflection clies, through the bushings, with steel screenes and minleight of each side. Stude spacing not to acceed 24 in , (61 mm) OC.

C. Oyspum Board* — For 1 has assembly, one layer of 5/8 in. (16 mm) hick. gypsum board is required in the individual Will and Partition Design. For 2 has assembly, we layer of 5/8 in. (16 mm) hick gypsum board sis required in the individual Will and Partition Design. For both hourly ratings, a nominal 3/4 in. (19 mm) gas shall be maintained between the top of the gyssum board and the bottom surface of the steel floor units.

The hourly rating of the joint system is dependent on the hourly fire rating of the wait.
Joint System — Max separation between bottom of floor or roof and top of wall is 3/4 in. (19 mm). The joint system is sectioned to accommendate a max 30 secret compression or extension from its installed with. The joint system is

roof, as follows:

A. Forming Materiai* — Norn 4 pct (64 kg/m3) mineral wool batt insulation, cut to the shape of the fluted deck, aptoro. 20 percent larger than the area of the flutes and compressed rint the flutes of the steel deck flutes show the ceiling runner. The mineral wool insulation is to project beyond each side of the ceiling runner, recessed 12 in. (13 mm) from both wall surfaces. For 2 hr assembly, an additional 1-1/2 in. (38 mm) flutic by 34 in. (19 mm) wide sections of mineral wool batt insulation compressed 50 percent and installed on degle first bill the 34 in. (19 mm) gap between the top of grypsum board and bottom of the steel deck. The forming material shall be recessed 12 in. (13 mm) from each side of the wall.

ROCK WOOL MANUFACTURING CO — Delta Board

ROXUL INC — SAFE

THERMAFIBER INC — Type SAF

At Forming Materiai — Pluga — Optional, Not Shown) - Preformed mineral wool plugs, formed to the shape of the

Intertwer-BEK NUC — type SAF

1. Forming Material—Plugs — (Optional, Not Shown) - Preformed mineral wool plugs, formed to the shape of the fluted floor units, friction fit to completely fill the flutes above the ceiling channel. The plugs shall project beyond each side of the ceiling nunner and shall be recessed 1/2, in (1 mm) from both wall surfaces. Additional forming material, described in Item 3A, to be used in conjunction with the plugs to fill the gap between the top of gypsum board and bottom of steel deck.

board and bottom of steel deck.

HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC — CP777 Speed Plugs

B. Fill, Vold or Cavity Material — Sealant — Min 1/2 in. (13 mm) thickness of fill material installed on each side o
the wall in the fluids of the steel deck and between the top of the gypsum board and the bottom of the steel dec
flush with each surface of the wall.

HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC — CP806 Flexible Firestop Sealant

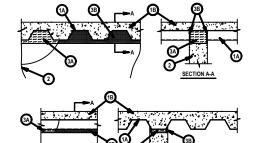
ring the UL Classification Mark





System No. HW-D-0081

Assembly Rating - 2 Hr minal Joint Width - 3/4 in.



Floor Assembly — The fire-rated fluted steel floor unit/concrete floor assembly shall be and in the manner described in the individual D700 or D900 Floor-Ceiling Design in the

shall include the following construction features:

A. Sidee Floor and Form Units* — Max 3 in .deep galv steel fluted floor units.

B. Conrete — Min 2-1/2 in. thick reinforced concrete, as measured from the top plane of the floor units.

H. Roof Assembly — (Not Shown) — As an alternate to the floor assembly, a fire rated fluted steel deck roof assembly may be used. The roof assembly shall be constructed of the materials and in the manner described in the individual P900 Series Roof-Ceiling Design in the U.E Fire Resistance Directory. The horry rating of the root assembly shall be equal to or greater than the hourly rating of the root assembly. The roof assembly shall include the following construction features:

SECTION A-A

Wall Assembly — Min 5 in. thick steel reinforced lightweight or normal weight (100-150 pcf) concrete. Wall may also

e constructed of an U. (Classified Concrete Blocks*).

Sec Concrete Block (CAT) category in the Fire Resistance Directory for names of manufacturers.

Joint System — Max separation between bottom of floor or roof and top of wall is 34 in. The joint system is designe
to accommodate a max 33 persent compression or extension from its installed width. The joint system consists of a

backing material and a fill material between the top of the wall and the bottom of the floor or roof, as follows:

packing material and a fill material between the top of the wall and the bottom of the floor or roof, as follows: Configuration A. A Forming Material — Min A in. thickness of 4 pcd density mineral wool but insulation was cut to the shape of the
fluted deck, approximately 20 percent larger than the area of the flutes and compressed into the flutes of the steel
deck above the wall assembly. The forming material shall be recessed 172 in. from each side of the wall. Additional
pieces of forming material, compressed min 50 percent in hickness and installed degli first into joint opening
pieces with the properties of the properties of

figuration B
A Forming Material — Min 4 in. thickness of 4 pcf density mineral wool batt insulation compressed min 50 pe

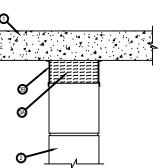
A Forming Material — Min 4 in. thickness of 4 pcf density mineral wool batt insulation compressed min 50 percent in thickness and installed edge first into joint opening between bottom of steel deck and top of wall, parallel with joint direction. Compressed batt sections recessed 1/2 in. from both wall surfaces. Adjoining lengths of batt to be tightly butted with butted seams spaced min 48 in. apart along the length of the joint.
FIBREX INSULATIONS INC — FEX Sating Insulation
B. FILI Void or CANY Material* - Sealand — Min 1/2 in. thickness of fill material installed on each side of the wall between the top of the wall and the bottom of the steel deck, flush with each surface of the wall.
HILT CONSTRUCTION CHEMICALS, DIV OF HILTI INC — CP606 Flexible Firestop Sealant baring the UL Classification Mark.



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System No. HW-D-0097



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

Wall Assembly — Min 8 in. thick steel-reinforced lightweight or normal weight (100-150 pcf) structural concrete. Wall was also be constructed of any II. Classified Concrete Blocker.

ay also be constructed of any UL Classined Concrete Blocks*.

See Concrete Blocks (CAZT) category in the Fire Resistance Directory for names of manufacturers Joint System — Max width of joint (at time of installation of joint system) is 2 in. The joint system is desi commodate a max 14 percent compression or extension from its installed width. The joint system shall are commodate and the properties of the commodate of the properties of the properties of the commodate of the properties of th

accommodate a max 14 percent compression or extension from its installed width. The joint system shall consist of the following:

A Forming Material — Min 4.0 pf mineral wool balt insulation installed in joint opening as a permanent form. Bat cut to min width of 8 in. and installed out edge-first into joint opening, parallel with joint direction, such that batt out to mine with of 8 in. and installed out edge-first into joint opening, parallel with joint direction, such that batt out to mine with the properties of the proper

Difference of the joint.

ROCK WOOL MANUFACTURING CO — Delta Board
ROCK WOOL MANUFACTURING IN the state of th wall.

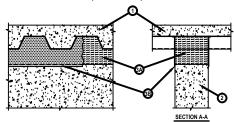
HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC — CP672 Firestop Spray or CFS-SP WB Firestop Joi

g the UL Classification Mark



System No. HW-D-1037 Assembly Rating - 2 Hr

Nominal Joint Width - 3-1/2 In.



and in the manner described in the individual Floro-Ceiling Design in the Fire Resistance Directory and shall include the following construction features:

A. Steel Floor and Form Units* — Max 3 in. (76 mm) deep galv steel fluided floor units.

B. Concrete — Min-2-1/2 in. (64 mm) brick reinforced concrete, as measured from the top plane of the floor units.

C. Spray-Applied Fire Resistive Materials* — (Optional)—(Not Shown)—Prior to the installation of the forming material and flui, void or eavily material (titers 34, 34) the steel floor units may be sprayed with a min Sf16 in. (8 mm) to max 1-34 in. (44 mm) thickness of fire resistive material.

A. Foof Assembly (Not Shown) — As an alternate to the floor assembly, a fire rated fluided steel deck roof assembly may be used. The roof assembly shall be constructed of the materials and in the manner described in the individual P800 Series Roof-Ceiling Design in the U. Fire Resistance Directory. The hourly raing of the roof assembly shall be equal to or greater than the hourly rating of the void statement of the construction for the materials.

onstruction reasures.

A. Steel Roof Deck.— Max 3 in. (76 mm) deep galv steel fluted roof deck.

B. Roof Insulation — Min 2-1/4 in. (57 mm) thick poured insulating concrete, as me

floor units.

B. Roof Assembly — As an alternate to Items 1 and 1A, a fire rated protected fluted steel dock roof assembly may be used. The roof assembly shall be constructed of the materials and in the manner described in the individual P700 Series Roof-Celling Design in the ULT in Resistance Directory. The horly rating of the roof assembly shall be equal to or greater than the hourly rating of the wall assembly. The roof assembly shall include the following construction.

eatures.

A. Sleel Roof Deck.— Max 3 in. (76 mm) deep galv steel fluted roof deck.

B. Spray-Applied Fire Resistive Materials* — (Not Shown) - Prior to the installation of the steel ceiling runners,
Forming Material and Fill, Vold or Covily Material (Items A2, 34, 38), the roof assembly shall be sprayed with the
type and thickness of fire resistive material indicated in the individual P700 Series design.

Wall Assembly — Min B in. (203 mm) thick steel reinforced (pithweight or normal weight (100-150 pcf) (1600-2400
g/m3) structural concrete. Wall may also be constructed of any U. Classified Concrete Blocks*.

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

Is dyin3 structural concrete. Wall tray also be constructed of any fut. Classified Concrete Blocks*.

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

3. Joint System — Max separation between bottom of floor units and top of concrete wall at time of installation is 3-1/2 in (89 mm). The joint system is designed to accommodate a max 14 percent compression or extension from its installed width. The joint system side algorised to accommodate a max 14 percent compression or extension throm its installed width. The joint system shall consists of the following:

A Forming Material — Non-4 in (102 mm) thick pieces of forming joint plant products to station a pieces of batt insulation, min 8 in (203 mm) wide, shall be compressed 50 percent in thickness and installed edge first into joint opening between brottom of fluted floor or roof units and top of concrete wall.

7.1 Forming Material — Pluga — Optional-Not Shown) Performed mineral wool plugs, formed to the shape of the fluted floor units, friction fit to completely fill the flutes above the ceiling runner. The plugs shall be flush with both wall suffaces. Additional forming material, discorded in tem 3d, to be used in computed on with the plugs to fill the HILL CONSTRUCTION CHEMICALS, DIV OF HILT IN C — CP777 Speed Plugs

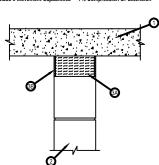
2.2 Forming Material — As an alternate to them 3A, min 6 pcf (69 kg/m3) forming material sized to attain a min compression rate of 50 percent in thickness direction fromly packed to completely fill the flutes. Additional pieces of bart insulation, min 6 in; (203 mm) thick pieces of nominal 6 pcf (69 kg/m3) forming material sized to station and concrete wall. When spray-applied fire resistive material is applied to the self-deck, the fill material is to overlap the wall a min ½ in, and the spray-applied fire resistive material is applied to the self-deck. Hill material is to overlap the wall a min ½ in, and the spray-applied fire resistive material is a min of 2 in, (61 mm) onto bides of the wall.



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System No. HW-D-1009



3. Joint System — Max separation between bottom of floor and top of wall (at time of installation of joint system) is 3-34 in. The joint system is designed to accommodate a max / percent in compression or extension from its installation with the joint system shall consist of the following: with the joint system shall consist of the following: of the joint system is a simple system of the property of the joint system is a permanent from Percent of the property of the joint system is a permanent from Percent System is a permanent from the joint system is a permanent from Percent System is a permanent System in the joint System is a permanent System in System in System is a permanent System in System is a permanent System in System in System in System is a permanent System in System in System in System in System is a permanent System in System in System in System in System is sufficient System in S

both surfaces of the wall as required to accommodate the required thickness of till material. Adjoining lengths of batt to be tightly-butted with butted seams spaced min 24 in. apart along the length of the joint. FIREX INSULTIONS INC — FISK Staffing Insulation. B. Fill, Vold or Cavity Material* — Sealant — Min 1/2 in. thickness of fill material applied within the joint, flush with both surfaces of the sealant.

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Notes:

Refer to section 07840 of the specifications. For Quality Control requirements, refer to the Quality Control portion of the specification.

2. Details shown are typical details. If field conditions do not match requirements of typical details, approved alternate details shall be utilized. Field conditions and dimensions need to be verified for compliance with the details, including but not limited to the

* Minimum and maximum annular space

* Type and thickness of fire-rated construction. The minimum assembly rating of the firestop assembly shall meet or exceed the highest rating of the adjacent construction.

If alternate details matching the field conditions are not available, manufacturer's engineering judgment drawings are acceptable. Drawings shall follow the International Firestop Council (IFC) Guidelines for Evaluating Firestop Systems Engineering Judgments.

. References:

* 2013 Fire Resistance Directory - Volume III or UL Products Certified for Canada (cUL) Directory

* All governing local, provincial or national building codes

* www.UL.com/database

* www.Intertek.com

Firestop System installations must meet requirements of tested assemblies that provide the required assembly rating CAN/ULC-S115.

6. All rated assemblies shall be prominently labeled with the following information:

* ATTENTION: Fire Rated Assembly

* ULC ,cUL or Intertek #

* Product(s) used * Hourly Rating (Assembly Rating) * Installation Date

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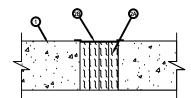
SHEET NAME:

SHEET NUMBER

A.1.2



System No. FF-D-1013 Assembly Rating - 2 Hr Nominal Joint Width - 3-1/2 in.



1. Floor Assembly - Min 4-1/2 in. (114 mm) thick reinforced lightweight or normal weight (100 - 150 pcf or 1600 - 2400

1. Floor Assembly — Min 4-1/2 in. (114 mm) thick reinforced lightweight or normal weight (100 - 150 pcf or 1800 - 2400 kg/m3) structural concrete.

2. Joint System — Max width of joint (at time of installation of joint system) is 3-1/2 in. (89 mm). The joint system is designed to accommodate a max 14 percent compression or extension from its installated with. The joint system shall consist of the following.

A Packing Material — Min 4 pcf (64 kg/m3) mineral wool batti insulation installed in joint opening, parallel with form. Pieces of batt cut to min width of 4-38 in. (111 mm) and installed edge-first into joint opening, parallel with sections are received from long source of the floor as equired in accommodate the required hickness of fill material. Adjoining lengths of batt to be tightly-butted with butted seams spaced min 24 in. (610 mm) apart along the length of the joint.

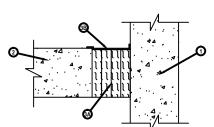
8. Fill, Void or Cavity Material* — Sealant — Min 1/6 in. (3.2 mm) vet thickness of fill material applied within the joint, flush with positions of floor and lapping a min 1/2 in. (13 mm) onto the top surface of the floor.

HITI CONSTRUCTION CHEMICALS, DIV OF HILTI INC — CP672 Firestop Spray or CFS-SP WB Firestop Joint Spray

Spray *Bearing the UL Classification Mark



System No. FW-D-1013 Assembly Rating - 2 Hr Nominal Joint Width - 3-1/2 in.



all Assembly — Min. 4-12 in, 11 ft an mit bids netricool lightenigh or normal weight (100-150 pd or 1600-2400 kg/m3) structural concrete. It also be constructed or struct Courts (Bodon.**)
See Converte Blooks (CACT) netropy in the Fire Resistance Directory for names of manufacturers.
See Converte Blooks (CACT) netropy in the Fire Resistance Directory for names of manufacturers.
See Converte Blooks (CACT) netropy in the Fire Resistance Directory for names of manufacturers.
See Converte Blooks (CACT) netropy in the Fire Resistance Directory for Sports (Sports Sports Sport

owing:
Packing Material — Min 4 pcf (64 kg/m3) mineral wool batt insulation installed in joint opening as a permanent form. Pieces of batt out to make the state of the state of the state section of 438 in. (117 mm) and installed edge-first into joint opening, parallel with joint direction, such that batt sections are compressed mid 42 percent in hickness and that the compressed batt sections are received to section of the floor as required to accommodate the required thickness of fill material. Afgining legistr of batt to be flightly-butted with butted seams spaced min 24m. (1010 mm) apart along the

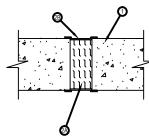
required bitchies of 18 intention. Implaining any one-second consistency of the property of the control of the



System No. WW-D-0017

Assembly Rating — 2 Hr lominal Joint Width — 2 In. Nominal John Width — 2 III.

L Rating At Ambient — Less Than 1 CFM/Lin Ft
L Rating At 400°F — Less Than 1 CFM/Lin Ft
Movement Capabilities — 12.5% Compression or



(eal Assembly — Min 4-1/2 in (114 mm), thick steel-reinforced lightweight or normal weight (100-150 pd or 1600-2400 kg/m3) structural procede. Well may also be constructed of any U. Classefied Concrete Blocks*.

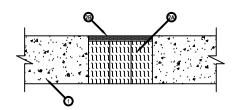
or System — Max wind of pirit of time of installation of pirit system is 2 n. (si mm). The pirit system is designed to accommodate a max of System— Max wind of pirit of time of installation of pirit system is all consist of the following: 2.5 percent compression or extension from its installation of pirit system is all consist or five following: 2.6 percent compression. — May 6 pirit of kg/m1 linear valored that calculation installation prior designing as permanent form. Best cut to min width 4-14 in. (108 mm) and installation of design-first into joint opening, parallel with joint direction, such that that sections are compressed min 50 percent in this/clease and such that the compressed that sections are excessed from this butters of will be accommodate the required percent in this/clease and such that the compressed that sections are excessed from this butters of will be accommodate the required to the compression of the compression of the commodate of the procedure of the section of hickness of fill material. Adjoining lengths of batt to be tightly butted with butted seams spaced min 48 in. (1.2 m) apart along the lengths of he joint.

CK WOOL MANUFACTURING CO — Delta Board OU.N. WOUL MANUTAU LINING OU — Use began F. III, Vidor C and Walkerial* — 116 in, II, IS mm) dry thickness (min 118 in. or 3.2 mm wet thickness) of fill material applied within the joint, flush with both surfaces of well and lapping 1/2 in, (13 mm) onto surfaces of well on both sides of well assembly. HILT CONSTRUCTION OF LEHILOALS, DV OF HILTI INC — OPPET? Finestop Sparry or CPS-SP WE Frestop Joint Sparry





	ANSI/UL2079	CAN/ULC S115
c. 5	Assembly Rating —2 Hr	F Rating — 2 Hr
	Nominal Joint Width - 6 In.	FT Rating — 2 Hr
	Class II Movement Capabilities — 10% Compression or Extension	FH Rating — 2 Hr
		FTH Rating — 2 Hr
		Nominal Joint Width - 6 In.
		Class II Movement Capabilities — 10% Compression or Extension



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

2 bont System — Max width of joint (af time of installation of joint system) is 6 in. The joint system is designed to accommodate a max 10 percent compression or settention from its installation with. The joint system and consist of the following.

A Forming Material — Min 4 pcf mineral wood best insulation installed in joint opening as a permanent from. Pieces of batt out to min width of 4 in. and installed edgelets into (pint opening, parallel with joint effection, such that bate sections are compressed min 50 percent in thickness and that the compressed batts sections are recessed at min of 1/2 in. I tom top surface of the floor to accommodate the required nichness of fill material application plength of but the beingth-buddeel with buddeels areas spaced min 2.5 in apart allong the length of the joint.

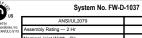
1 HET MAX-BEST MC — Type 2M of the properties of the material applied within the joint, flush with bop surface of floor.

1 HET TOWN THE LIGHT OF CHEMICALS, DIV OF HILTI INC.—CPRIA Seel earling Firestop Sealant, CFS-S SIL Go or CFS-S SIL 5L (floors only) Sealant.

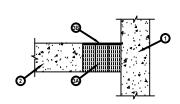
*Rearing the LII Classification Mark



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US		
dby	ANSI/UL2079	CAN/ULC S115
oratories, Inc. ANULC-S115	Assembly Rating — 2 Hr	F Rating — 2 Hr
	Nominal Joint Width - 6In.	FT Rating — 2 Hr
	Class II Movement Capabilities - 10% Compression or Extension	FH Rating — 2 Hr
		FTH Rating — 2 Hr
		Nominal Joint Width - 6 In.
		Class II Movement Capabilities - 10% Compression or Extension



1. Wall Assembly — Man 4-10: In thick restrored lightweight or normal weight (100-150 pct) structural concrete. Wall may also be constructed of any UL Classified Concrete Blocks (CAT) classopy in the Fire Resistance Directory for names of manufactures. See Concrete Blocks (CAT) classopy in the Fire Resistance Directory for mans or manufactures. 2 Dona Assembly — Min 4-12 in. In this retinine disjuhesight or more weight (100-150 of structural concrete. 3. Joint System — Mans separation between edge of floor and face of wall fait time of installation of joint systems is 6 in. The joint system is 4 consisted of the floor of the system is 6 in. The joint system is 4 consisted of the floor of the system is 6 in. The following:
A Forming Material — Min 4 pc mineral wool batt installation installed in joint opering as a personant from Pieces of batt out to min with of 4 in. and installed deploying in 150 personal in his following consistency of the floor to accommodate the required thickness and that the compressed batt sections are recessed and in of 10. In. from top surface of the floor to accommodate the required thickness of 18 in material. Algority in legistry 6 of the 10 pictly butted with butter desams spaced min 4 in., apart along the insight of the joint.

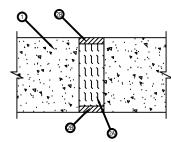
THE EMANFEER INC — Type SAF
B. Fill Void or Cavil Material". Sealant — Min 12 in. thickness of fill material applied within the joint, flush with top surface of floor.

THERMAPSER NC. — Type SA: It lived or Cavity Materia: Sealant — Min 1/2 in. thickness of fill material applied within the joint, flush with top surface of floor. HILT I CONSTRUCTION CHEMICALS, DIV OF HILT I NOC.) CP664 Self-Leveling Friestop Sealant, CFS-S Sit. SG or CFS-S Sit. St. (Boors only the light of the control o

aring the UL Classification Mark



System No. WW-D-1047 Assembly Rating - 4 Hr Nominal Joint Width - 2 In.



Vali Assembly — Min 6 in. thick reinforced lightweight or normal weight (100-150 pdf) structural concrete. Wall may also be cons L Classified Concrete Blocks: See Concrete Blocks: (CAT) category in the Fire Resistance Directory for names of manufacturers.

See Concrete Blocks (CAZ) category in the Fire Resistance Directory for names of manufactures.

If System—Mass separation between dept of force and face of wall fails from of installation of joint system) is 2 in. The joint system is designed accommodate a max 12.5 percent compression or extension from its installed width. The joint system shall consist of the following.

A Comman Martina — Man 4 of minneal void set installation stellads in joint opening as a personament from Prises of bett at to the mixth of its in and installed edge-first into joint opening, a personal with joint direction, such that but sections are compressed mix 30 percent in thickness and that the compressed bat sections are recessed and 12 in not host furtises of the value als required to accommodate the required thickness of till material. Adjoining lengths of batt to be lightly-butted with butted seams spaced mix 3 kin. apart along the length of the joint. THETEMAMPERE NO.—Type SAF

B. Fill, Void or Carely Material* - Sasalest — Mixth 12 in. thickness of fill material applied within the joint, flush with both surfaces of wall.

HILL CONSTRUCTION CHEMICALS, DIV OF



Notes:

- . Refer to section 07840 of the specifications. For Quality Control requirements, refer to the Quality Control portion of the specification.
- 2. Details shown are typical details. If field conditions do not match requirements of typical details, approved alternate details shall be utilized. Field conditions and dimensions need to be verified for compliance with the details, including but not limited to the following:

* Minimum and maximum annular space

- * Type and thickness of fire-rated construction. The minimum assembly rating of the firestop assembly shall meet or exceed the highest rating of the adjacent construction.
- 3. If alternate details matching the field conditions are not available, manufacturer's engineering judgment drawings are acceptable. Drawings shall follow the International Firestop Council (IFC) Guidelines for Evaluating Firestop Systems Engineering Judgments.
- 4. References:
- * 2013 Fire Resistance Directory Volume III or UL Products Certified for Canada (cUL) Directory
- * All governing local, provincial or national building codes
- * www.UL.com/database
- * www.Intertek.com
- 5. Firestop System installations must meet requirements of tested assemblies that provide the required assembly rating CAN/ULC-S115.
- 6. All rated assemblies shall be prominently labeled with the following information:
- * ATTENTION: Fire Rated Assembly
- * ULC ,cUL or Intertek #
- * Product(s) used
- * Hourly Rating (Assembly Rating)
- * Installation Date

rand replace result in an a to designer (delete this note after reading and 1. Any modification to these details could resu or the intended temperature or fire ratings. 2. Details shown are up to date as of Februan 3. For additional information on the details, rea Resistance Directory Volume III" or "Undern 57. Sign

2015. er to the

JOB NUMBE
DRAWN:

CHECKED:

ISSUE DATE:

REVISIONS TYPICAL FIRESTOP JOINT DETAILS

SHEET NAME:

SHEET NUMBER:

A.2.2