FIRESTOP COMPOSITE SHEET CFS-COS

Product Overview and Installation Guide for Firestop Composite Sheet

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FIRESTOP COMPOSITE SHEET OVERVIEW

APPLICATION GUIDELINES FOR FIRESTOP COMPOSITE SHEET

Large opening penetrations

Floor and wall large penetrations are used throughout all types of construction. Whether the applications allow for the pass of water, gas, or electricity through combustible and non-combustible penetrants or a blank opening through various base materials, the composite sheet is your preferred choice to firestop these types of openings.

High-rise residential

Hotels

Hospitals

Commercial buildings

Other projects

Firestop Composite Sheet CFS-COS

Combustible and non combustible pipes

Multiple penetrations (riser banks)

Cable tray, cables, conduits

Large blank openings

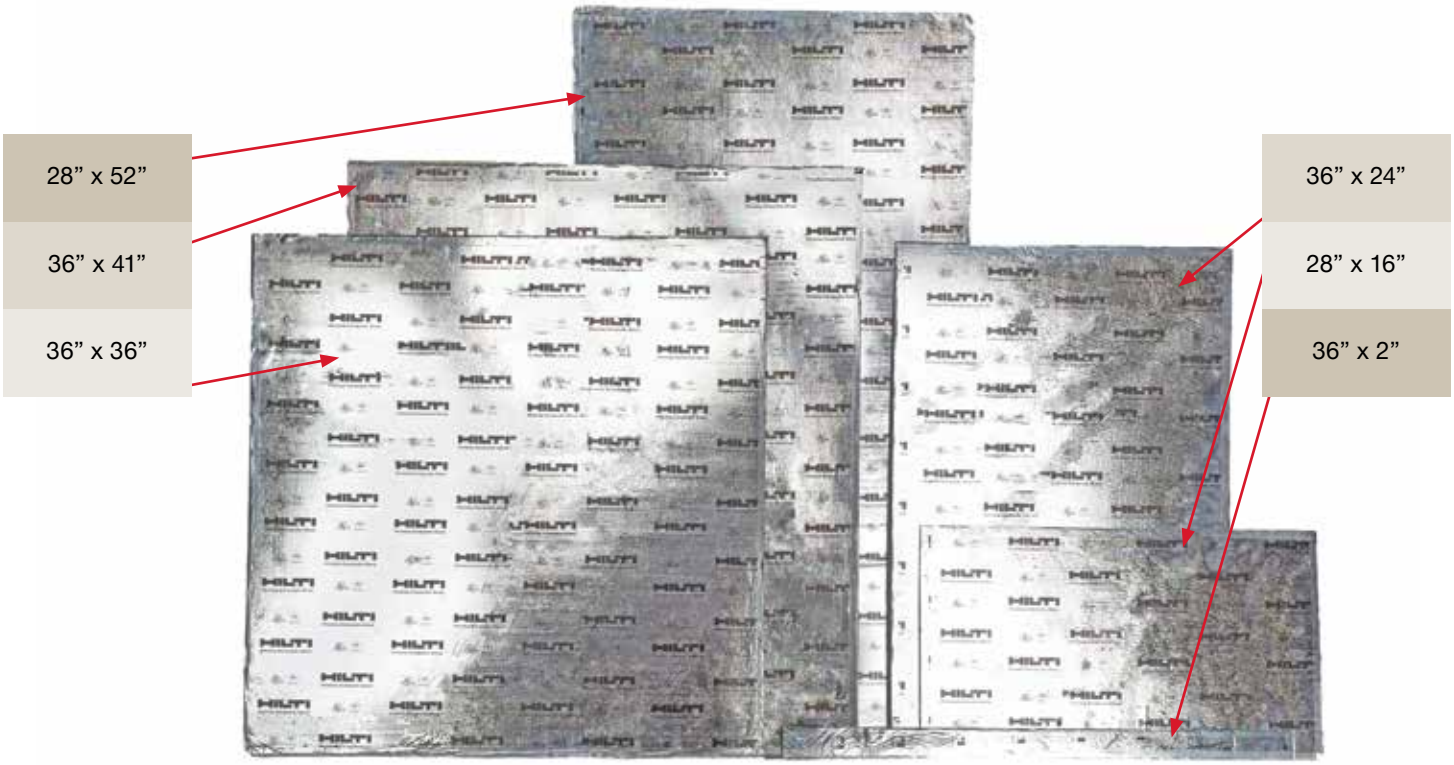
HVAC ductwork

HILTI COMPOSITE SHEET CFS-COS

Conveniently Fast

The new Hilti composite sheet CFS-COS optimizes your firestop usage for large penetrations. Our new range of standard sizes includes:

- Seal penetrations through fire-rated walls and floors in multiple base materials.
- Composite sheet has no restrictions of most shapes or sizes of the opening.
- Non-magnetic #304 stainless steel construction help ensure good weatherability and virtually no inductive loss in cables
- UL approved — meet all model code requirements.
- Can be combined with other Hilti firestop solutions leveraging your options.
- Can be fastened using Hilti Gas or battery actuated tools — no need to drill or set anchors
- Tested in accordance of ASTM E814, UL 1479, CAN/ULC S115
- Firestop testing up to 4 hours per AST E814



Use multiple sizes to cover all variety of large openings and dimensions minimizing the use of material and installation times. Buy what you need for your project.

We adapt our offering to your needs. Whether you need one or 1,000 sheets Hilti will make it happen.

- New butt seam for easy board splicing
- Save time and cost using our new 36” x 2” seam
- No need of extra steps firestopping the seam

TECHNICAL DATA

Application temperature range	-22 to 118 °F (-30 to 48 °C)
Temperature resistance range	-22 to 250 °F (-30 to 121 °C)
Expansion ratio (unrestricted, up to)	1:18
Surface burning characteristics UL 723 (ASTM E84)	Flame spread: 5 Smoke development: 20
Shelf life[1)]	Not relevant
Storage and transportation temperature range	-22 to 118 °F (-30 to 48 °C)
Color	Silver
Acoustics performance	Test report available
Dimensions (LxWxH)	36 x 2 x 0.15 in 24 x 36 x 0.15 in 28 x 16 x 0.15 in 36 x 36 x 0.15 in 41 x 36 x 0.15 in 52 x 28 x 0.15 in
Intumescent	Yes

[1)] at 77°F (25°C) and 50% relative humidity; from date of manufacture

HILTI COMPOSITE SHEET SPECIFICATION

The composite sheet shall be lightweight panel comprised of an intumescent layer bonded to a stainless-steel sheet reinforced with steel wire mesh covered with aluminum foil.

The composite sheet shall be UL Classified and tested to the requirements of ASTM E 814 (ANSI/UL 1479).

Specified divisions

- Division 7 07840 Through-Penetration Firestopping
- Division 15 15250 Mechanical Insulation-Fire Protection
- Division 16 16050 Basic Electrical Materials & Methods

Materials used for large openings and complex penetrations made to accommodate cable trays and bundles, multiple steel and copper pipes, electrical busways in raceways, the following products are acceptable:

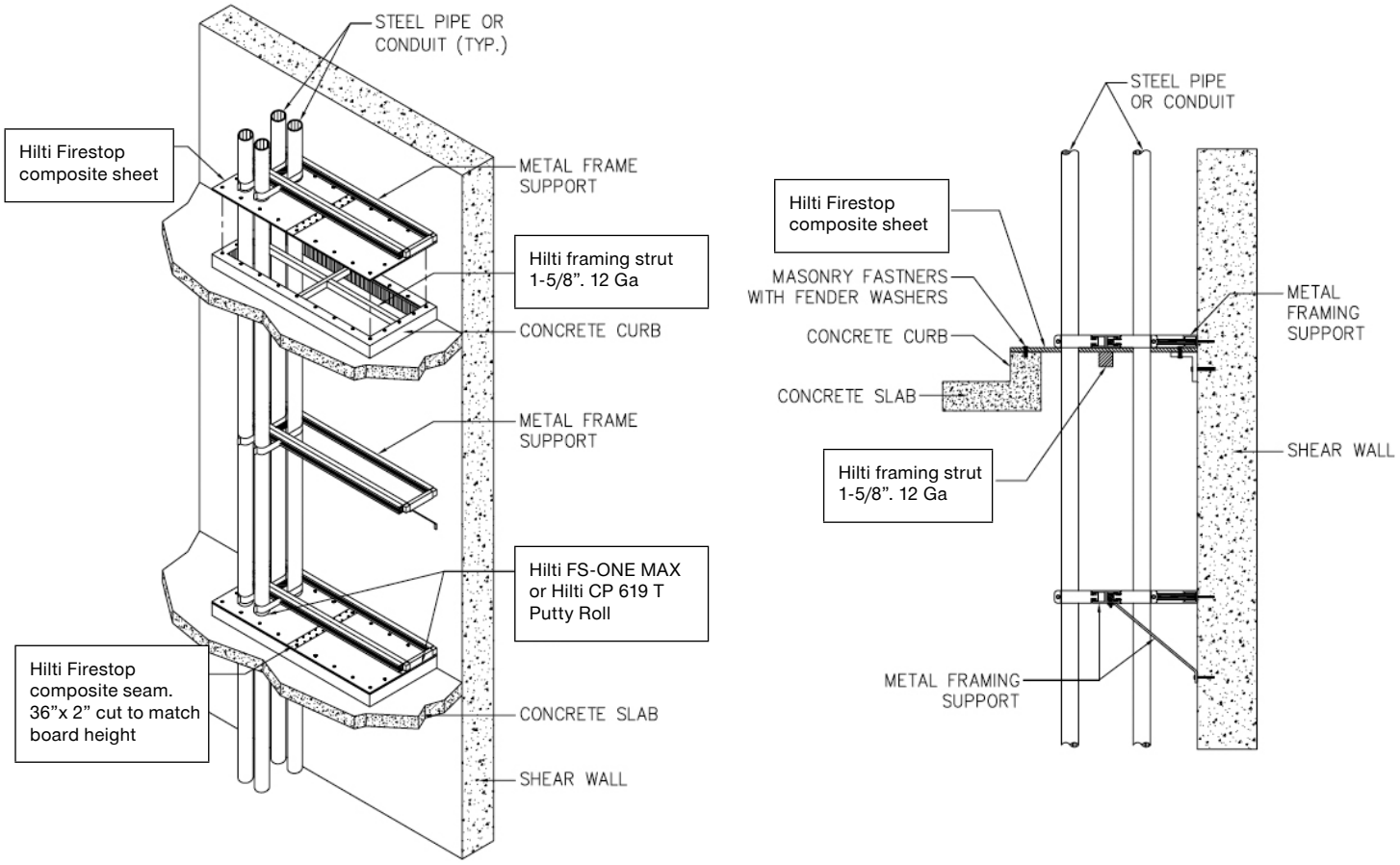
1. Hilti Composite Sheet (CFS-COS)

INSTALLATION GUIDE

INSTALLATION GUIDE FOR COMPOSITE SHEET CFS-COS

Common Electrical application in high-rises

Multiple penetrations: conduit riser banks in high-rises



TYPICAL FIRE STOP DETAIL

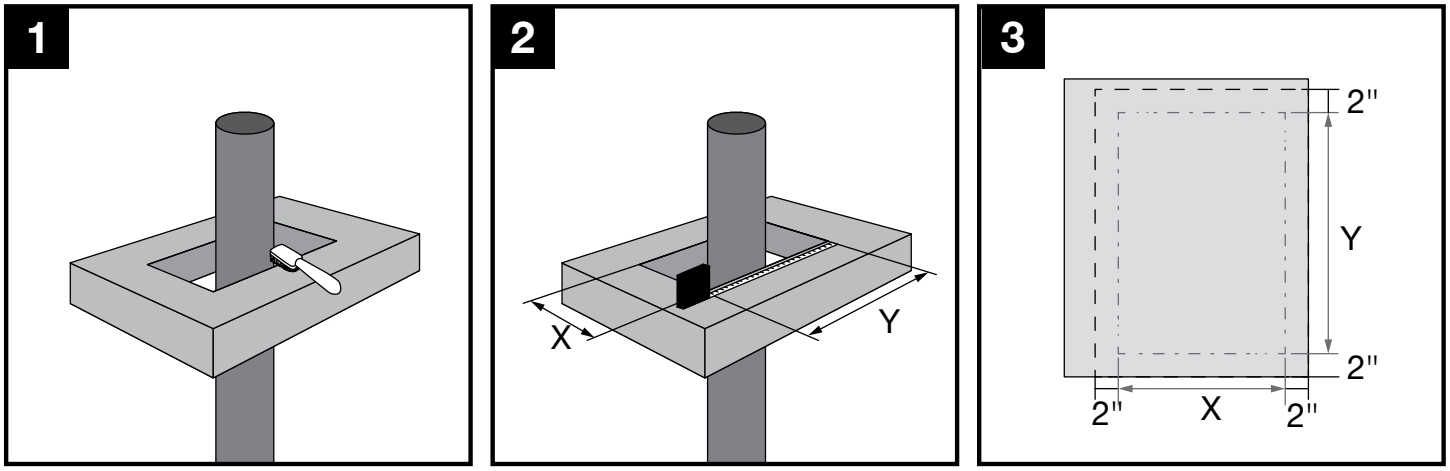
NOT TO SCALE

Notice:

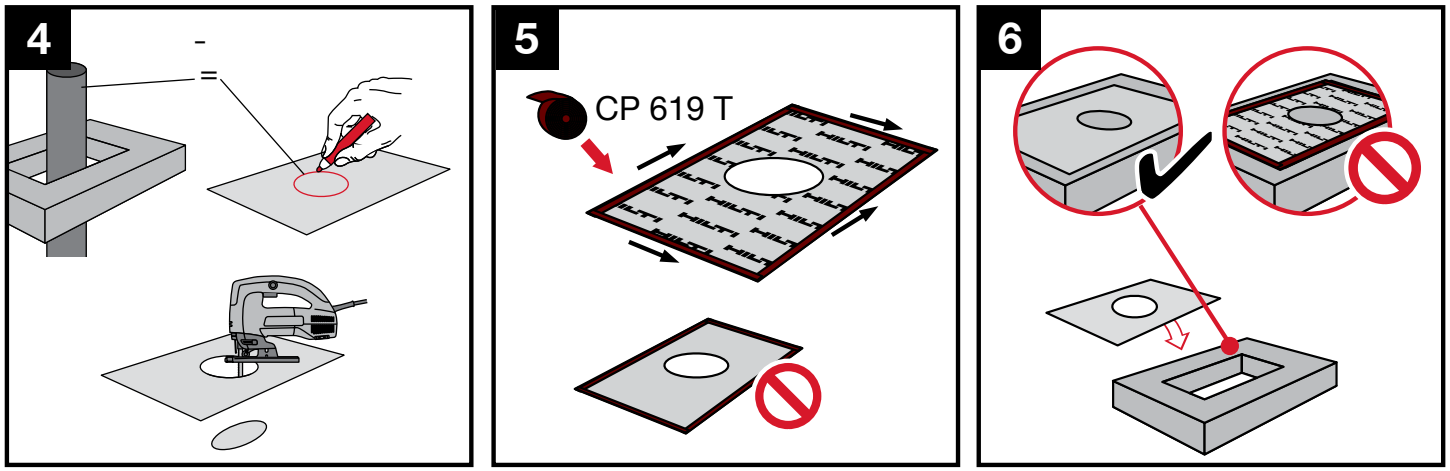
- Before handling, read Product Safety Data Sheet and product label for safe usage and health information
- Instructions above are general guidelines-always refer to the applicable drawing in the UL Fire Resistance Directory or Hilti Firestop Systems Guide for complete installation information
- CFS-COS Composite Sheet is not meant to be load bearing

INSTALLED CONDUITS / PENETRANTS

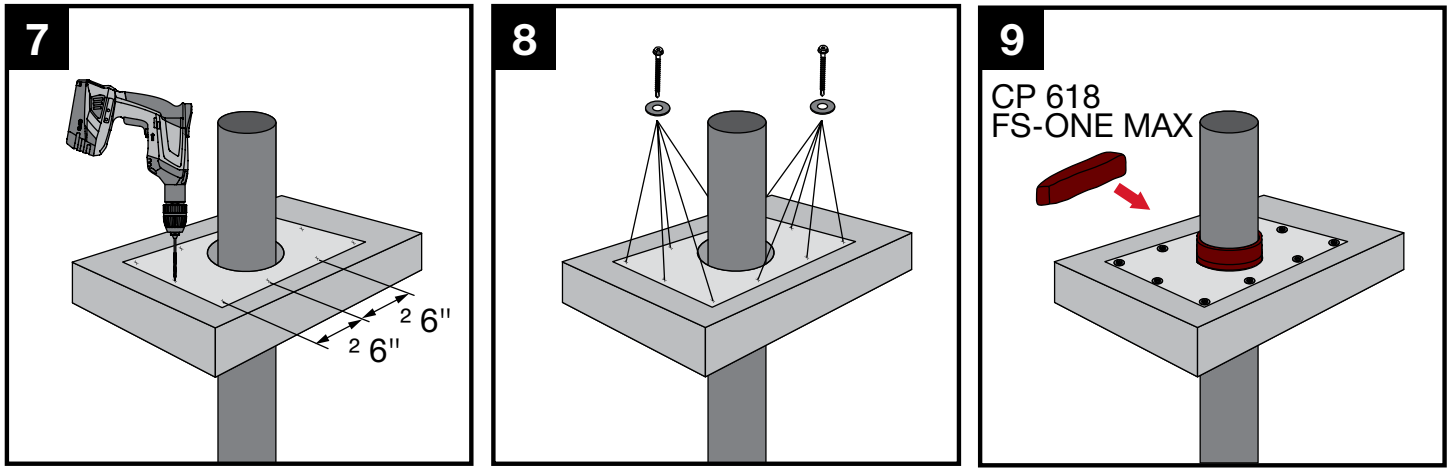
Before handling and for specific application details, refer to Hilti product literature, 3rd party published listings and national approvals. For industrial use only.



Clean surface of opening, measure opening size and mark composite sheet with measured dimensions.



Measure penetrants OD and cut the Hilti Firestop composite sheet to size. Sheet should be cut to follow the contours of the penetrants as closely as possible. Apply Hilti CP 619 T Putty Roll to contour of composite sheet.



Attach Hilti Firestop Composite Sheet, foil facing down with Hilti X-GN 20 MX (3/4") Nails with Hilti R 36-0.6 (1-1/4") ECO fender washers spaced 4" maximum O.C. or Hilti KH-EZ 1/4"x1-7/8" Screw Anchors with 1-1/4" fender washers spaced at 6" (150 mm) maximum O.C. Install appropriate Hilti™ Fire Barrier product to firestop around penetrants as needed per system specs.

HILTI CABLE MANAGEMENT SOLUTIONS

- Cable bundle through floor / wall

Firestop cable collar: **Good** | Firestop sleeve kit: **Better** | Firestop Speed sleeve: **Best**

Hilti Cable Collar CFS-CC

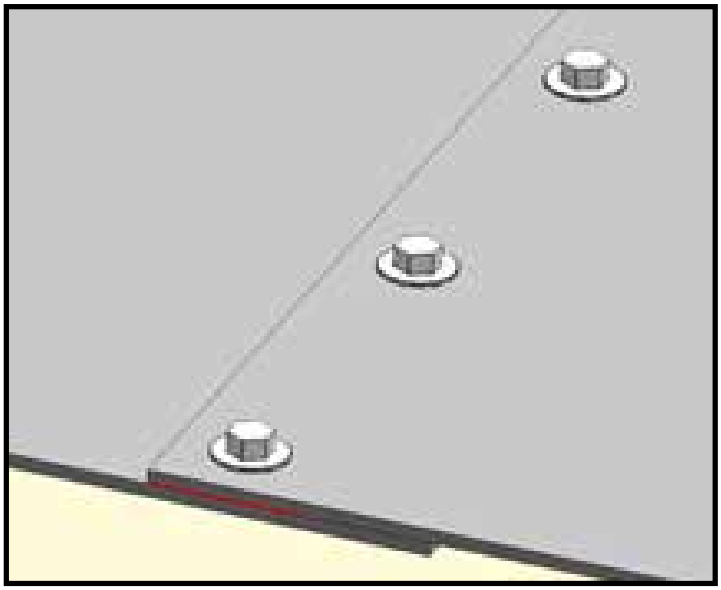
1. Install Hilti CFS-COS Composite Sheet Overlap on concrete per one of the specified methods.
2. Cut hole in Hilti CFS-COS Composite Sheet maximum 3” in diameter.
3. Screw fastening tabs of Hilti Cable Collar CFS-CC to Hilti CFS-COS Composite Sheet with #10 Self-tapping screws and 3/4” OD washers.

Floor Gang Application

1. Size Hilti CFS-COS Composite Sheet to overlap on concrete minimum 2”.
2. Cut 4-1/2” holes in Hilti CFS-COS Composite Sheet for Hilti CP 653 BA Speed Sleeves (4”).
3. Fasten Hilti CP653 BA Speed Sleeves (4”) in Hilti CFS-SL GP Gangplates with screws provided on sleeve.
4. For large blockouts (opening size > gangplate footprint): Fasten Hilti CFS-SL GP Gangplate to Hilti CFS-COS Composite Sheet
5. with #10 Self-tapping screws in each fastening hole.
6. For smaller blockouts (At least 1-1/2” overlap of gangplate onto concrete): Fasten assembled Hilti CFS-SL GP Gangplate and
7. Hilti CFS-COS Composite Sheet to concrete with Hilti KH-EZ 1/4” x 1-7/8” Screw in each fastening hole with a minimum
8. 1-1/2” overlap of gangplate onto concrete.
9. If less than all 4 sides overlap the concrete, refer to point above for securing non-overlapping sides to composite sheet.

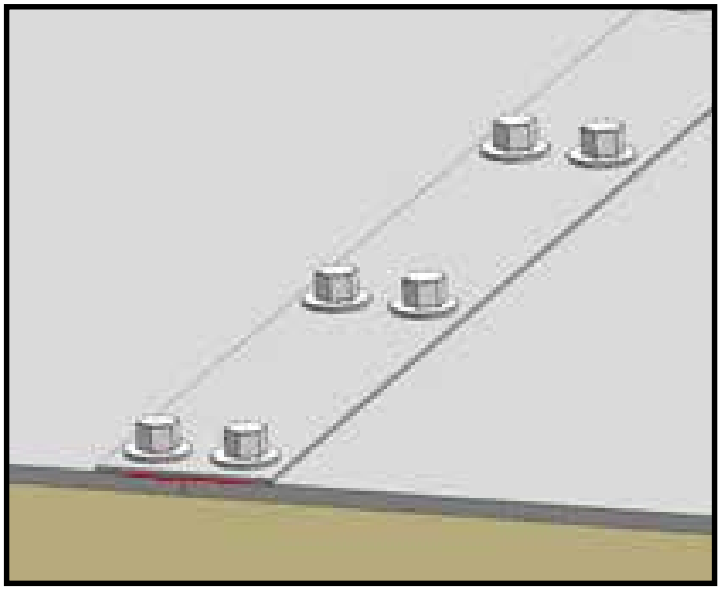
HILTI COMPOSITE SHEET SEAMING DETAILS — BOARD SEAMING

Overlap Seam onto Composite Sheet



- Overlap seam between Hilti CFS-COS Composite Sheets minimum 2” with Hilti CP 619T Putty Roll between sheets.
- #10 Self-tapping screws with 1-1/4” fender washers spaced 6” maximum O.C.

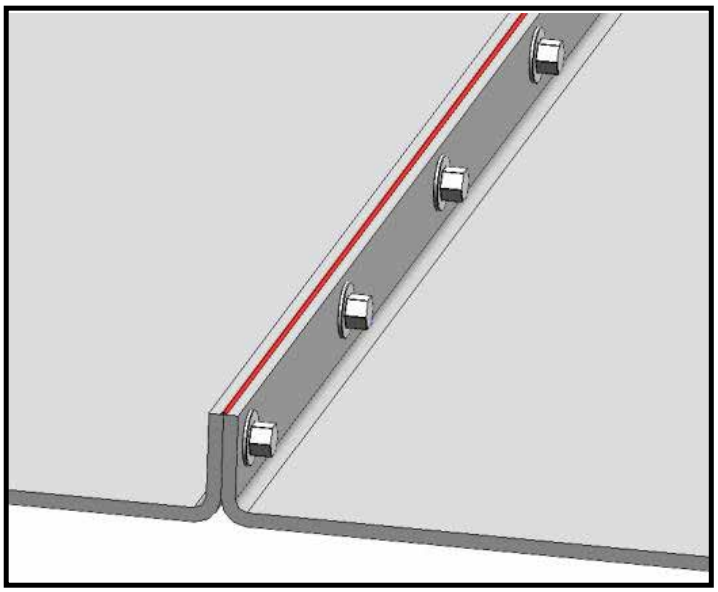
Butt Seam



- 2” (50 mm) strip of Hilti CFS-COS Composite Sheet **OR**
- 2” (50 mm) x 26 Ga (Stainless) Steel Strip centered over the seam with 1/4” (6 mm) minimum bead of Hilti FS-ONE MAX **OR**
- Hilti CP 619 T Putty Roll applied directly on the joint prior to installation.
- #10 Self-tapping screws with 1-1/4” fender washers spaced 3” maximum O.C. each side of seam.

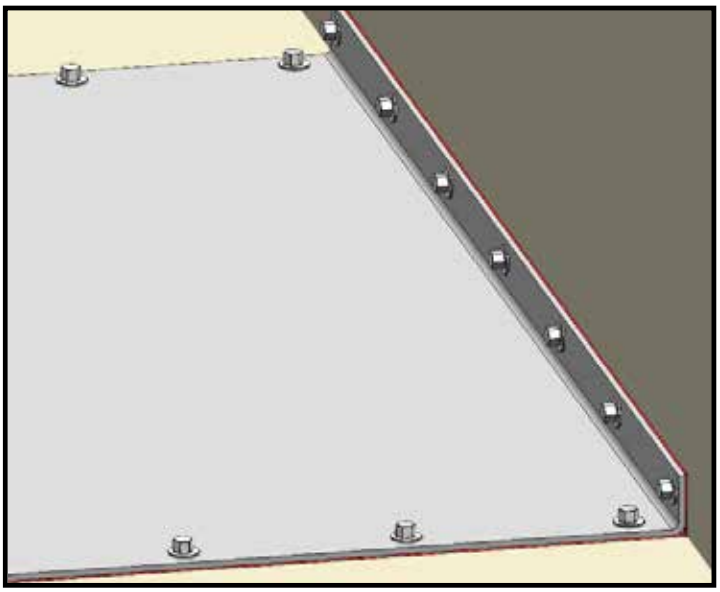
HILTI COMPOSITE SHEET SEAMING DETAILS — BOARD SEAMING

Flange Seam



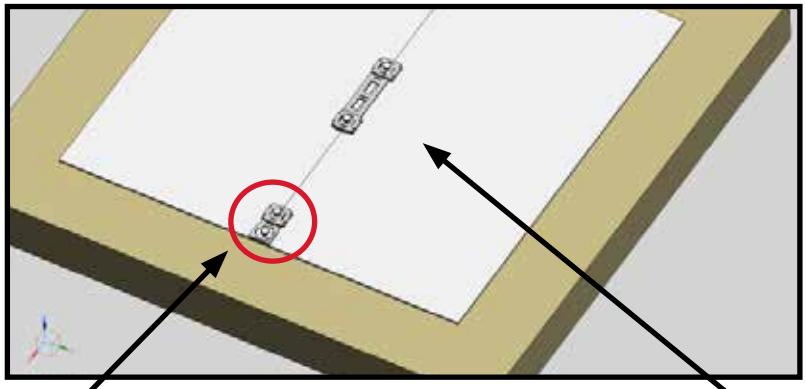
- 1/4” dia. bolt, washer (both sides) and nut, spaced at 6” maximum O.C.
- Bend a 2” (50 mm) lip of each Hilti CFS-COS Composite Sheet. Butt together and bolt completely through both sheets.
- Apply a 1/4” (6 mm) minimum bead of Hilti FS-ONE MAX Sealant or Hilti CP 619T Putty Roll between the Hilti CFS-COS Composite Sheet seam.

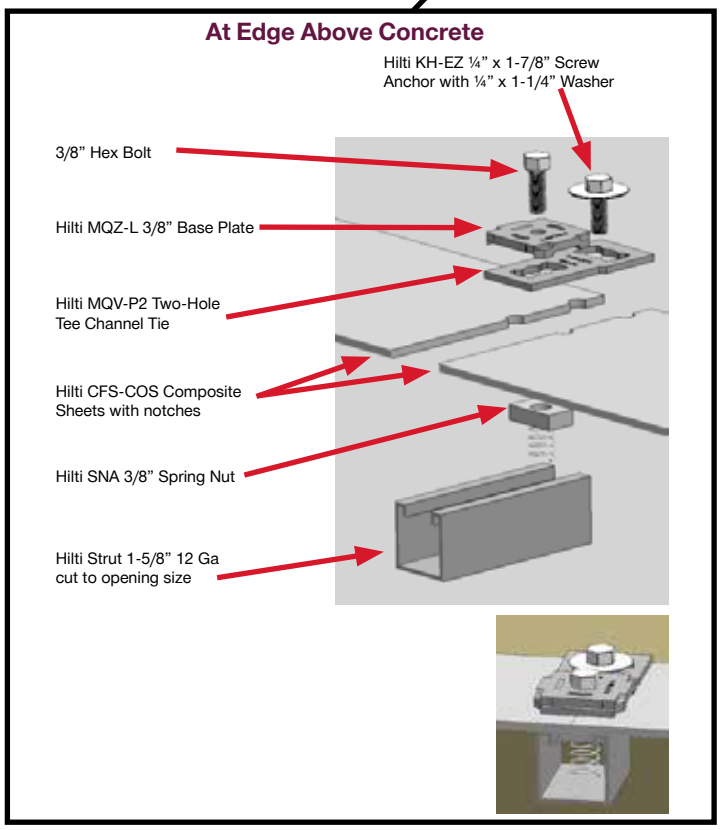
Bending Composite Sheet for Corner Applications

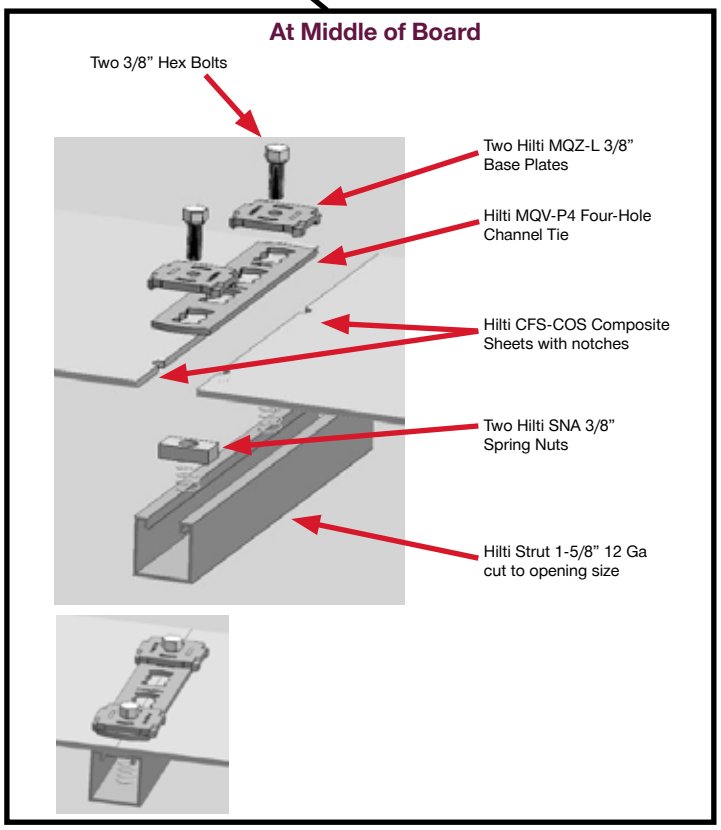


- Hilti CFS-COS Composite Sheet bent 2” minimum on wall.
- Apply 1/2” (13 mm) bead of Hilti FS-ONE MAX or Hilti CP 619 T Putty Roll between the Hilti CFS-COS Composite Sheet and wall.
- For rated concrete walls: Hilti KH-EZ 1/4” Screw Anchors or Hilti 3/16” Kwik-Con II Screw Anchors with 1-1/4” fender washers spaced at 6” (150 mm) maximum O.C.
- For rated gypsum walls: minimum 3/16” (5 mm) diameter by 1-1/4” (32 mm) long steel drywall screws in conjunction with minimum 1” (25 mm) diameter steel washers.

SUPPORTED SEAM FOR MULTI-SHEET — BOARD SEAMING







❶ Size Hilti CFS-COS Composite Sheet with overlap on concrete minimum 2".

❷ Pre-assemble loosely the base plates, channel ties, hex bolts and spring nuts to a single Hilti Strut 1-5/8" 12 Ga (which is cut to the opening size with no gap between strut and concrete on each side).

❸ Lower strut assembly in concrete opening, resting the brackets on the concrete.

❹ Pre-drill holes through channel tie in concrete for Hilti KH-EZ Screw Anchors maintaining minimum edge distance of 1-3/8".

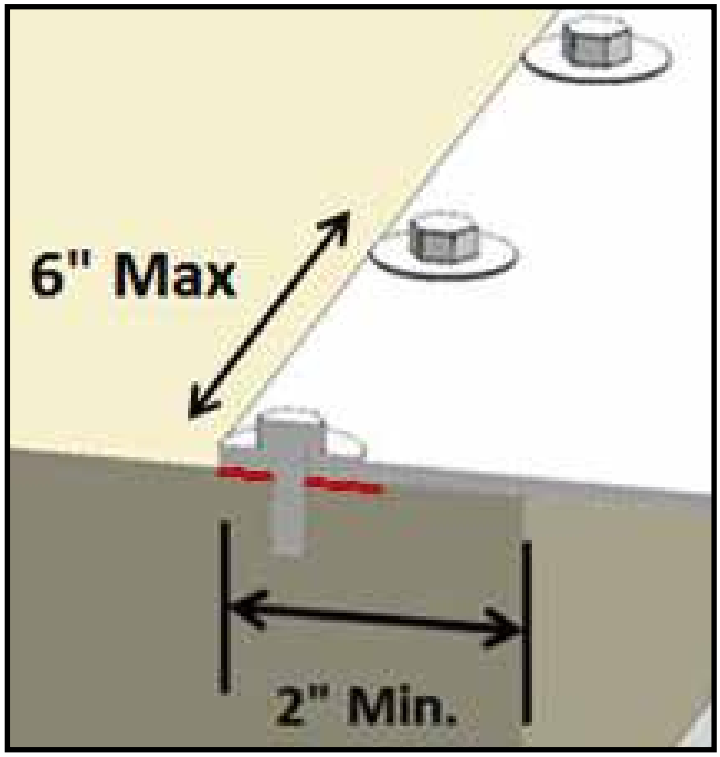
❺ Partly screw in the Hilti KH-EZ Screw Anchors with washer to concrete.

❻ Slide composite sheets tightly together underneath the channel ties until the seam is centered under the ties and there is no gap between the sheets.

❼ Fully tighten the hex bolts and the Hilti KH-EZ Screw Anchors.

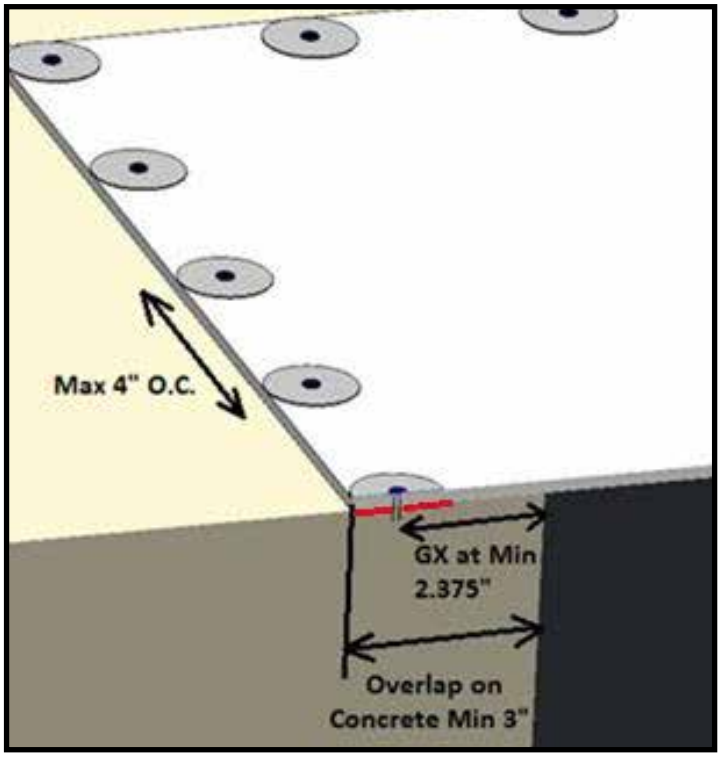
HILTI COMPOSITE SHEET FASTENING DETAILS — BOARD FASTENING

Standard Anchoring solution



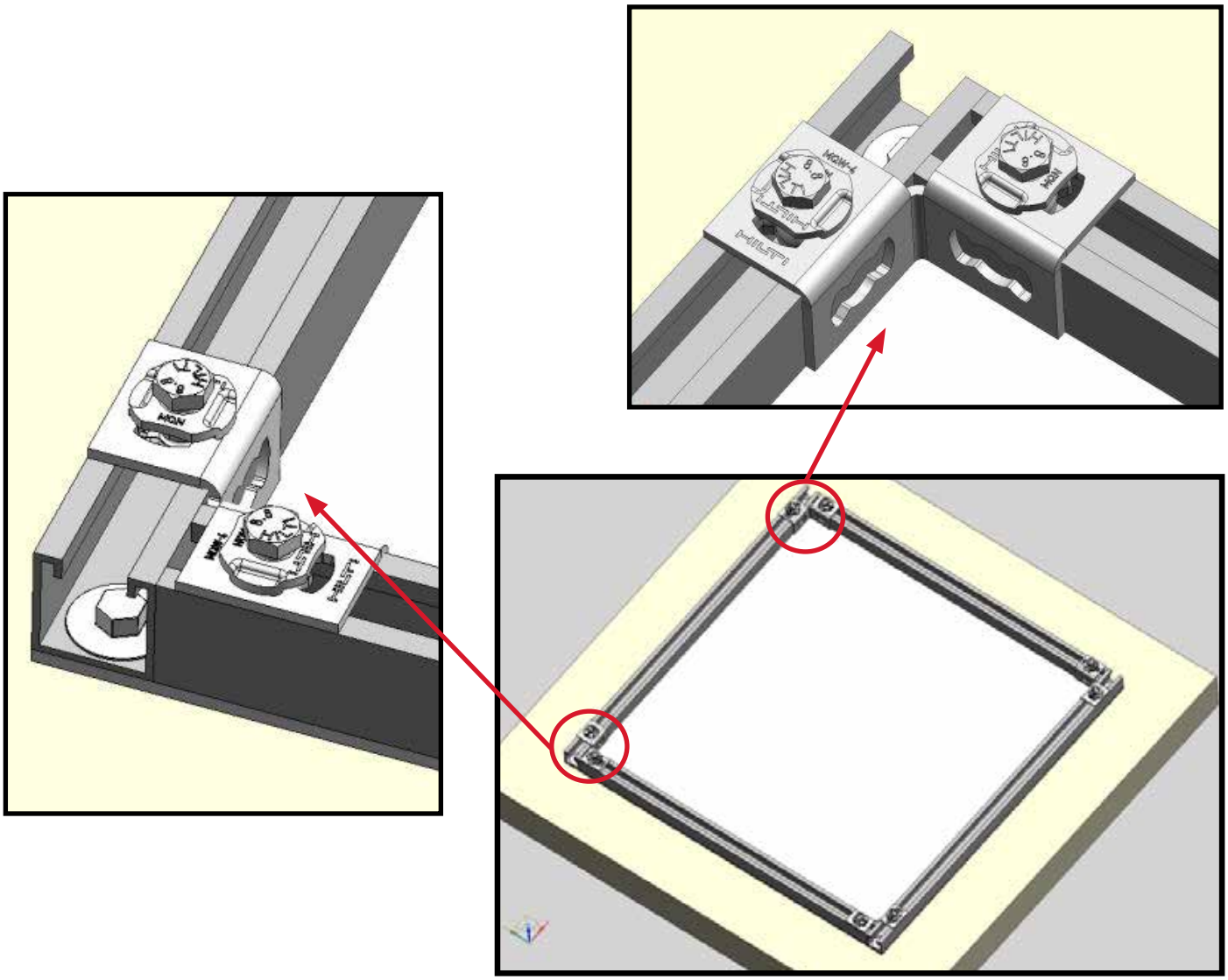
- Minimum 2” overlap Hilti CFS-COS Composite Sheet onto concrete.
- Apply a 1/2” (13 mm) minimum bead of Hilti FS-ONE MAX or Hilti CP 619T Putty Roll between the Hilti CFS-COS Composite Sheet and the concrete.
- Hilti KH-EZ 1/4”x1-7/8” Screw Anchors with 1-1/4” fender washers spaced at 6” (150 mm) maximum O.C. at perimeter of overlap. In normal-weight concrete, minimum edge distance for anchor is 1-3/8”.

Hilti GX (Gas) or BX (Battery) Driven Nails



- The minimum floor slab thickness required for GX/BX installation is 2-1/2” over metal deck, or 4-1/2” flat/PT (post-tension) with light-weight/normal-weight concrete.
- Hilti CFS-COS Composite Sheet overlap on concrete minimum 3”.
- Hilti X-GN 20 MX (3/4”) Nails with Hilti R 36-0.6 (1-1/4”) ECO fender washers spaced 4” maximum O.C. In normal-weight concrete, minimum edge distance for nail is minimum 2-3/8”.

STRUT AROUND PERIMETER WITH CORNER ANCHORS — BOARD FASTENING



- Hilti CFS-COS Composite Sheet overlap on concrete minimum 2”.
- Hilti Strut 1-5/8” 12 Ga. around the perimeter, flush with outside edges of Hilti CFS-COS Composite Sheet.
- Hilti KH-EZ 1/4” x 1-7/8” Screw Anchors with fender washers at corners (quantity 4) and in normal-weight concrete, minimum edge distance for anchor is 1-3/8”.
- 90° Four Hole Angle Hilti MQW-3 to connect struts at corners.
- Connect angles to strut with Hilti Push Buttons MQN.

TECHNICAL SUPPORT

FIRESTOP ENGINEERING JUDGEMENTS

Expert solutions for unique firestop applications

When it comes to firestop applications, you want to reduce the level of risk. That's why fire protection specialists have performed extensive testing in both throrugh-penetration and construction joint firestop applications.

Still, there will always be situations when a current UL listed system doesn't accomodate your particular application. When that happens, bring your questions to the Hilti **firestop experts**.

Simply download, complete and submit an **Engineering Judgement Request From.**

SUPPORT SERVICES

Software

Automate the most time-consuming tasks, from planning to documentation to report-generating

- Hilti Firestop plug-in for Autodesk
- Firestop Documentation Manager (CFS-DM)
- Get a free trial at **hilti.com/cfs-dm** (U.S.) or **hilti.ca/cfs-dm** (Canada)

Website

All firestop resources, from products to software to support

- Hilti Online — **hilti.com** (U.S.) or **hilti.ca** (Canada)
- Firestop Design Center — **hilti.com/firestop** (U.S.) or **hilti.ca/firestop** (Canada)

People

Our experts in the field and in the office have approximately 30,000 collective years of experience in firestop — and we're here to help. Just call **1-800-879-8000** (U.S.) or **1-800-363-4458** (Canada) or contact us at **hilti.com** (U.S.) or **hilti.ca** (Canada)

Education

Maintain your license and stay current by keeping both yourself ane your team educated through webinars and continuing education seminars

- Webinars — **hilti.com/webinar** (U.S.) or **hilti.ca/webinar** (Canada)
- Continuing Education Seminars — **hilti.com/continuing-education**

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