TECHNICAL MANUAL

Firestopping joints in wood construction

January 2026

Contents

1. Introduction

Over the past 30 years, wood has undergone a remarkable evolution as a primary construction material. This evolution has been mostly driven by regulatory changes enabling broader use of wood in construction and government sustainability initiatives promoting wood as a carbon sink.

Due to its versatility, availability, and aesthetic appeal, there have been significant advancements in the applications and treatments of wood. Wood can be treated very efficiently to enhance its resistance to fire, pests and moisture, making it more durable and safer in construction.

The introduction of engineered wood products such as cross-laminated timber (CLT) and glued laminated timber (Glulam) has revolutionized the construction industry by enabling the construction of multi-story buildings made of wood. These innovations have led to improvements in prefabrication and off-site assembly techniques of wood elements. As a result, construction efficiency improves and reduces labor costs and waste generation.

To achieve these benefits, early planning using building information modelling (BIM) technology is key. To ensure the health and safety of building occupants and to protect assets, early passive firestopping planning must also be considered. This would include fire-related walls and floors penetrations and construction joints.

Overall, the evolution of construction with wood as main construction material reflects a blend of traditional strengths and modern innovations, making wood a competitive and sustainable material choice in contemporary architecture.

The purpose of this document is to present Hilti's approved solutions, with a focus on Europe for various types of joints in wood construction excluding façade joints

2. Basics of joints in wood construction

Wood is used as main construction material in a variety of building types, from single housing units to high-rise multipurpose buildings. The fire resistance of these constructions will vary depending on the type of wood used, wood treatments applied and construction methods.

Most commonly used types of wood in construction

Wood frame

Fig. 1:
Simple timber (no engineered)

Main applications
- Structural elements of frame buildings up to 8 storeys
- Floors
- Roof
- Walls
- Partition walls

CLT (cross-laminated timber)

Fig. 2:
Engineered wood that has perpendicular wood laminates glued together

Main applications
- Structural elements in buildings
- Floors
- Walls
- Partition walls

LVL (laminated veneer lumber)

Fig. 3:
Engineered wood that uses multiple layers of thin wood assembled with adhesives. Often in combination with wood frame

Main applications
- Frames
- Roof (sometimes)
- Floors

Glulam

Fig. 4:
Engineered wood that has parallel wood laminated glued together. Often used in combination with CLT when more flexibility is needed and when there are big open spaces (e.g. offices)

Main applications
- On-site installations to form beams or columns

CLT is the most common type of wood used globally in commercial and multi-storey residential buildings. Its strength characteristics are comparable to those of the reinforced concrete, while delivering a considerable reduction of weight in a building.

CLT is a monolithic building material created by gluing individual layers of wood together crosswise. As a solid prefabricated timber element, it is suitable for use as a wall, ceiling, or roof element. It is subject to expansion and contraction due to changes in temperature, humidity and the material's moisture absorption and release characteristics. This movement or dimensional changes of the wood elements directly affect the spacing between them, thereby influencing the joint gap.
Selecting an appropriate passive fire protection solution for the joint requires a product that can expand and compress to accommodate joint movement, while maintaining fire resistance under varying temperature and humidity conditions.

There are three main types of construction methods using wood: truss construction, panel construction and solid wood construction. Both panel and solid wood construction methods are characterized by a high degree of prefabrication, which enables a high degree of automation in production processes and reduces the time needed to produce complete room cells (modular construction). These methods require early and highly detailed planning, including the firestopping of all mechanical and electrical penetrations and joints between walls, floors and ceilings.

Lightweight wood construction

Skeleton / truss construction

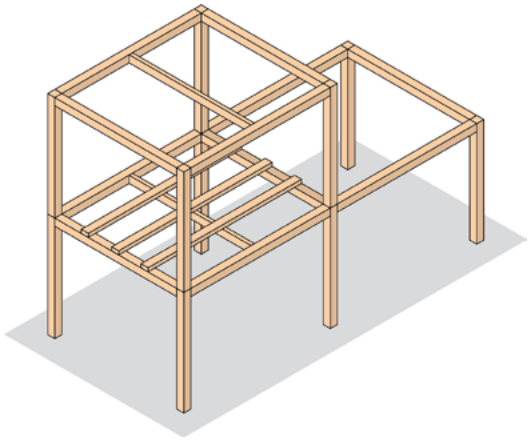


Fig. 5:
- Economical and sustainable due to low material use
- High degree of design possibilities
- Mainly used in large-volume structures with large spans

Frame / panel construction

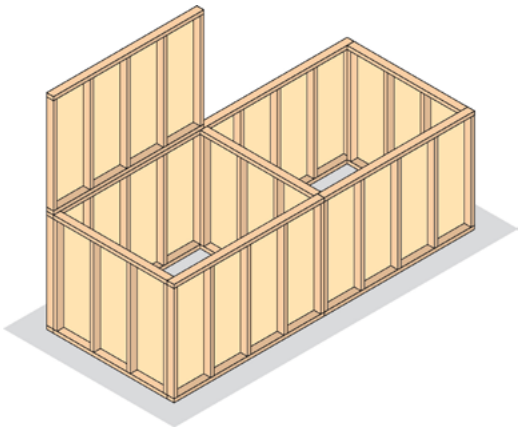


Fig. 6:
- High prefabrication depth
- Prefabricated room cells possible
- Space saving vs. solid wood construction
- Mainly used in prefabricated house construction and modular construction

Solid wood construction

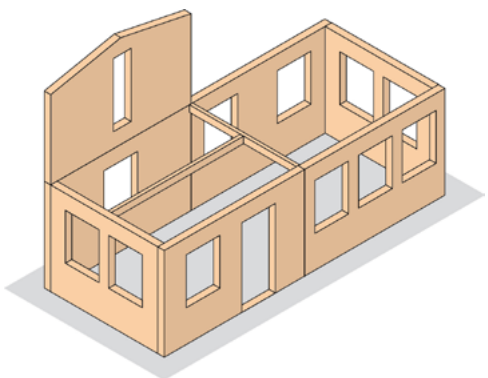


Fig. 7:
- High building rigidity
- Good structural and static properties
- High prefabrication depth
- Prefabricated room cells possible
- Mainly used in multi-storey and modular construction

Joints in wood construction

In terms of passive fire protection, buildings made of wood elements are no different from other buildings: joints and penetrations of fire-rated elements must meet or exceed the fire requirements of those elements.

The relevance of passive fire protection in construction joints of fire-rated elements

To ensure compartmentation as defined in the fire safety strategy of the building, construction joints must be considered. Failure to apply appropriate fire-rated solutions can compromise fire and smoke barriers, potentially resulting in loss of life and severe structural damage of the entire building.

Fig. 8: Some of the most common fire-rated joint types in buildings with wood elements.

Hilti offers with CFS-S ACR acrylic sealant a firestopping solution for linear component joints for applications in cross-laminated timber (CLT) without additional planking for highly fire-retardant (60 minutes) and fire-resistant (90 minutes) designs, as well as timber frame constructions. The Hilti CFS-S ACR is used in wood-wood and concrete-wood joints (e.g. Fig. 8).

The application details are based on real fire resistance tests carried out at the Institute for Fire Protection Technology and Safety Research (IBS) in Linz.

These test results are summarized in the European Technical Assessment ETA-10/0389 dated July 17, 2023. The detailed technical drawings known as “typicals” (see Section 8) reflect these results in order to facilitate planning and application.

For Hilti firestop solution on other wood applications, please contact your local Hilti representative.

3. Codes and standards for wood construction in Europe

Codes and standards for wood construction in Europe are based on two main codes:
EN 13501-1 (European Norm) applies across European Union countries and DIN 4102-1 (Deutsches Institut für Normung) that applies mostly in Germany.

DIN 4102-1 regulates fire behavior by classifying building materials into two categories:
1) non-combustible materials which do not suppose a fire hazard
2) combustible material that contribute to fire development.

EN 13501-1 classifies building materials into six different categories: from category A materials which do not contribute to fire development, through to category F materials which have no properties determined. In addition to fire behavior, the European standard regulates smoke release and dropping. Table 1 below compares both classifications.

The majority of wood building materials are classified according to European classification as D-s2,d0. This means that wood is normally flammable, has class 2 smoke release and does not produce burning droplets (char layer).

DIN 4102-1[1]	Building inspection requirement	EN 13501-1[2]	Additional requirements	
			No smoke release	No dropping
A1	**Non-combustible**	A1	■	■
A2		A2-s1, d0	■	■
B1	Flame retardant	B-s1,d0; C-s1, d0	■	■
		A2-s2,d0; A2-s3,d0		■
		B-s2,d0; B-s3,d0		■
		C-s2,d0; C-s3,d0		■
		A2-s1,d1;A2-s1,d2	■	
		B-s1,d1; B-s1,d2	■	
		C-s1,d1; C-s1,d2	■	
		A2-s3,d2; B-s3,d2; C-s3,d2		
B2	Normal flammability	D-s1,d0; D-s2,d0		■
		D-s3,d0; E		■
		D-s1,d1; D-s2,d1		
		D-s3,d1; D-s1,d2		
		D-s2,d2; D-s3,d2		
		E-d2		
B3	**Easily flammable**	F		

Table 1: **Flammability of building materials according to German and European classification.**
[1] DIN 4102-1 "Fire behavior of building materials and elements – Part 1: Building materials; concepts, requirements, and tests", 1998
[2] EN 13501-1 "Fire classification of construction products and building elements – Part 1: Classification using data from fire behavior tests", 2019.

4. Passive firestopping in wood construction based on EN (European Norm)

Buildings made of wood or of a combination of wood and other materials like concrete, brickwork and steel must comply with the corresponding building codes and standards. Despite the fact that wood burns in a predictable way, some codes and standards do not consider wood to be a standard building material. Therefore, to comply with the passive fire protection sections of these standards, bespoke testing for the specific type of wood is required.

The European classification system is based on various fire resistance test standards.
The most relevant ones are shown in Table 2 below.

Standard	Description
EN 1363-1 to -3	Fire resistance tests
EN 1364-1 to -4	Fire resistance tests for non-structural components
EN 1365-1 to -6	Fire resistance tests for load bearing components
EN 1366-3	Test standard for penetration seals
EN 1366-4	Test standard for linear joints seals
EN 13501-2	Classification standard for linear joint seals and service penetration seals

Table 2: Excerpt from European standards for fire resistance testing

The European system allows classification according to different criteria, each with the fire resistance period indicated in minutes. The following criteria are primarily relevant for elements with penetration seals.

Criterion	Design	Code
Load capacity or load-bearing capacity	Measurement of the design stability of an element in case of fire	R – Resistance
Flame protection or integrity	Measurement of the ability of an element to prevent exchange of gases and flames in the event of fire	E – Integrity
Insulation or heat insulation	Measurement of the insulation capacity of an element, i.e. the period of time during which the side of the element facing away from the fire does not exceed a temperature rise of 180 K relative to the ambient temperature	I – Insulation
Cladding	Firestopping capacity due to additional cladding	K1, K2
Direction of the classified fire resistance period		i → o i ← o i ↔ o

Table 3: Excerpt of classification criteria according to EN 13501-2

Classification can be from 15 to 360 minutes in the following increments: 15, 20, 30, 45, 60, 90, 120, 180, 240 and 360 minutes.

E	15	20	30	60	90	240	360
EI	15	20	30	60	90	240	360

Table 4: Fire resistance classification for linear joints according to EN 13501-2:2023

5. Passive firestopping in wood construction based on DIN (Deutsches Institut für Normung)

DIN 4102-2 defines the fire resistance for load-bearing or room-enclosing components according to the following time intervals.

Fire resistance	Fire resistance period in minutes
F30	≥ 30
F60	≥ 60
F90	≥ 90
F120	≥ 120
F180	≥ 180

Table 5: Fire resistance classes according to DIN 4102-2

In addition to fire resistance, the classification also includes the fire behavior of the building materials used. This is reflected in the short designation according to DIN 4102-2, which is supplemented by the fire behavior of the building materials used in construction. The following designations are used:

- A – the construction consists exclusively of building materials of class A = non-combustible
- AB – all “essential parts” of the structure are made of class A building materials; other parts may also be made of combustible building materials (class B)
- B – some of the “essential parts” consist of combustible building materials (class B)

Building inspection requirement	Classes according to DIN 4102-2 Table 2	Short designation according to DIN 4102-2
Fire retardant	F30 fire resistance	F30-B
Fire retardant and made of non-combustible building materials	F30 fire resistance class and made of non-combustible building materials	F30-A
Highly fire retardant	F60 fire resistance class and made of non-combustible building materials in the essential parts	F60-AB
	F60 fire resistance class and made of non-combustible building materials	F60-A
Fire resistant	F90 fire resistance class and made of non-combustible building materials in the essential parts	F90-AB
Fire resistant and made of non-combustible building materials	F90 fire resistance class and made of non-combustible building materials	F90-A

Table 6: Building code requirements with respective short designations

6. Hilti is your construction partner, from design to acceptance

Hilti is committed to making construction better and sustainability is at the heart of what we do. With more than 30 years of experience in wood construction, Hilti offers innovation in passive firestopping solutions for joints and penetration applications on standard CLT and also for specific brands.

Hilti would like to become your partner of choice. Hilti offers on-site and off-site support and services to building owners, architects and contractors throughout the project lifecycle, helping you to plan and execute your projects while maximizing benefits and eliminating mistakes.

Plan your firestopping with Hilti. Our specialists are here to assist you, from the first draft to detailed planning and building approval, to implementation and building inspection.

For your CAD and BIM design, you will find our firestopping solutions as 2D and 3D BIM objects in the extensive Hilti BIM/CAD library.

Our technical library can provide you with extensive information. For your planning purposes, you can, for example, transfer 2D drawings of the products and download documents such as approvals, specifications, and tender templates.

The Hilti advantage for you: Firestopping experts are happy to support you. Just talk to your Hilti team about it.

Testing with industry-leading manufacturers

We collaborate closely with international wood manufacturers to cover their unique wall and floor setups with fire tests. With Hilti's state of the art testing facilities we support our customers by providing a firestop system for almost any penetration they need.

On-site support and consultation

During the construction phase, either at the production plant or at the jobsite, our experienced engineers advise you with the selection of the right solution and the installation of the solution to minimize risks and project delays.

"I am really glad that with Hilti we will be able to work in full accordance with all project requirements in the future."

Dr. Dirk Kruse, fire protection engineer, DK Brandschutzingenieure GmbH, Germany

7. Approvals for linear joint seal solutions from Hilti

Hilti solutions for firestopping linear joints seals in wood construction pass the most rigorous fire tests for multiple configurations. These tests are conducted by approved third party institutes. As a result, Hilti can confidently offer ETA approved solutions for most linear joint seals in wood construction. The same principle applies to penetration seals.

Hilti offers a rich library of technical documents to ease the design and selection process of passive firestopping solutions.

For joints in wood construction refer to Section 8. fire rated linear joint seals in wood from Hilti of this document. Additional information can be found on **www.hilti.com**


OiB

Member of EOTA

European Technical Assessment **ETA-10/0389** of 17.07.2023

General part

Technical Assessment Body issuing the European Technical Assessment	Österreichisches Institut für Bautechnik (OIB) Austrian Institute of Construction Engineering
Trade name of the construction product	Hilti Firestop Acrylic Sealant CFS-S ACR
Product family to which the construction product belongs	Fire Stopping and Fire Sealing Products: Linear Joint and Gap Seals
Manufacturer	Hilti AG Feldkirchenstrasse 100 9494 Schaan LIECHTENSTEIN
Manufacturing plant	Hilti production plant 4a
This European Technical Assessment contains	31 pages including Annexes A to E which form an integral part of this assessment
This European Technical Assessment is issued in accordance with Regulation (EU) No 305/2011, on the basis of	European Assessment Document EAD 350141-00-1106 "Fire stopping and fire sealing products – Linear joint and gap seals"
This European Technical Assessment replaces	European Technical Assessment ETA-10/0389 of 04.09.2017

Helpful Engineering judgements

Wood can have a predictable behaviour under fire conditions but it is not considered to be a standardized material. This makes each project in wood different. In addition, there are always applications in projects that, for one reason or another, do not fall under any approval. In such cases, engineering judgments are required.

Hilti's global set up of experts can support any project anywhere to find the right solution through engineering judgments when required.

8. Fire rated linear joint seals in wood from Hilti

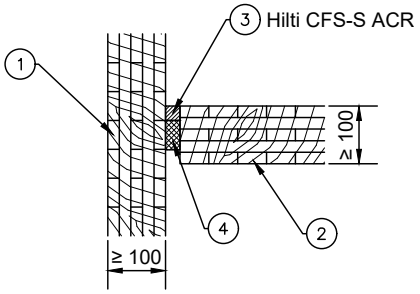
This section focuses on joint applications in wood construction and does not claim to be exhaustive. Hilti has a program of continuous innovation on passive firestopping solutions and the latest innovation can always be found at the Hilti website and through Hilti's representatives.

8.1. Horizontal joint between CLT floor and CLT wall

	Product Fire protection seal Hilti Firestop Acrylic Sealant CFS-S ACR	Building Project
ID CFS-S ACR_CLTF_CLTW_J_8X006	Content Fire protection seal of horizontal joint between cross laminated timber floor and cross laminated timber wall	
Page 01 / Rev 01		

EI90

Fire resistance 90 min.
Fire resistant



without scale
all units in [mm]

① Cross laminated timber wall:

The fire protection functionality and fire resistance duration of the wall must be considered separately, and the wall thicknesses shown correspond to the minimum thicknesses required by the tested penetration seal.

② Cross laminated timber floor:

The fire protection functionality and fire resistance duration of the floor must be considered separately, and the floor thicknesses shown correspond to the minimum thicknesses required by the tested penetration seal.

③ Firestop product info

Hilti Firestop Acrylic Sealant CFS-S ACR
- European Technical Assessment ETA-10/0389

- Joint width: 5 - 15 mm; sealant depth: ≥ 15 mm
- Joint width: 5 - 25 mm; sealant depth: ≥ 25 mm
- Fill the remaining annular gap with Hilti firestop acrylic sealant "CFS-S ACR" from upperside in the corresponding depth

④ Backfilling

- Backfill joint with:
  - Combustible sealing tape as backfilling material:
    PU precompressed sealing tape, width ≥ 56 mm; ≥100 kg/m³ (combustibilitiy class: E, D, C, B acc. to EN 13501-1)
  - Alternative backfilling material for PU:
    glass wool, slag/clinker wool, mineral, stone or ceramic wool class A1 acc. to EN 13501-1

Basic documents that form the respective proof of applicability:
- European Technical Assessment ETA-10/0389
- Reaction to fire acc. to EN 13501-1
- Fire resistance acc. to EN 13501-2
- Installation according to Hilti installation instructions

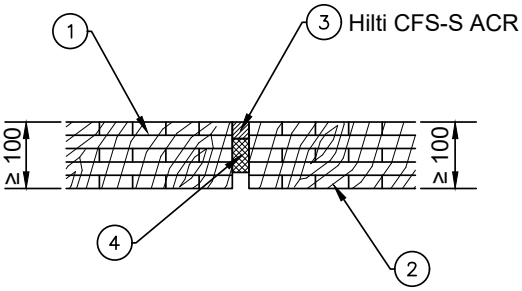
A "Typical" is a fire protection solution consisting of specific components preconfigured for a specific application, to which an assumed fire resistance duration is assigned. Typicals are selected according to their fire resistance duration and are subject to Technical Product Documentation and Proof of Applicability published by Hilti from time to time. They are subject to generic assumptions and are not selected on a project or design specific basis. The proposed typicals may therefore not meet the project or design specific requirements and must therefore be evaluated by the customer or by a relevant expert appointed by the customer for their suitability with regard to the actual, project specific design criteria and requirements.

8.2. Horizontal joint between CLT floor and CLT floor

HILTI	Product Fire protection seal Hilti Firestop Acrylic Sealant CFS-S ACR	Building Project
ID CFS-S ACR_CLTF_CLTF_J_8X003	Content Fire protection seal of horizontal joint between cross laminated timber floors	
Page 01 / Rev 01		

EI90

Fire resistance 90 min.
Fire resistant



without scale
all units in [mm]

① Cross laminated timber floor:

The fire protection functionality and fire resistance duration of the floor must be considered separately, and the floor thicknesses shown correspond to the minimum thicknesses required by the tested penetration seal.

② Cross laminated timber floor:

The fire protection functionality and fire resistance duration of the floor must be considered separately, and the floor thicknesses shown correspond to the minimum thicknesses required by the tested penetration seal.

③ Firestop product info

Hilti Firestop Acrylic Sealant CFS-S ACR
- European Technical Assessment ETA-10/0389

- Joint width: 5 - 15 mm; sealant depth: ≥ 15 mm
- Joint width: 5 - 25 mm; sealant depth: ≥ 25 mm
- Fill the remaining annular gap with Hilti firestop acrylic sealant "CFS-S ACR" from upperside in the corresponding depth

④ Backfilling

- Backfill joint with:
  - Combustible sealing tape as backfilling material:
    PU precompressed sealing tape, width ≥ 56 mm; ≥ 100 kg/m³ (combustibilitiy class: E, D, C, B acc. to EN 13501-1)
  - Alternative backfilling material for PU:
    glass wool, slag/clinker wool, mineral, stone or ceramic wool class A1 acc. to EN 13501-1

Basic documents that form the respective proof of applicability:
- European Technical Assessment ETA-10/0389
- Reaction to fire acc. to EN 13501-1
- Fire resistance acc. to EN 13501-2
- Installation according to Hilti installation instructions

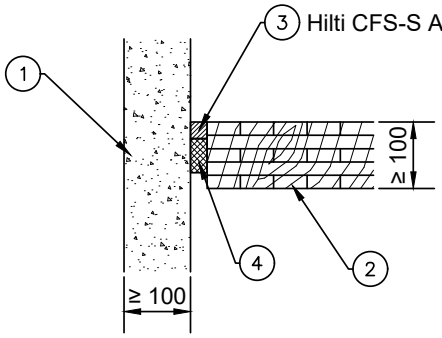
A "Typical" is a fire protection solution consisting of specific components preconfigured for a specific application, to which an assumed fire resistance duration is assigned. Typicals are selected according to their fire resistance duration and are subject to Technical Product Documentation and Proof of Applicability published by Hilti from time to time. They are subject to generic assumptions and are not selected on a project or design specific basis. The proposed typicals may therefore not meet the project or design specific requirements and must therefore be evaluated by the customer or by a relevant expert appointed by the customer for their suitability with regard to the actual, project specific design criteria and requirements.

8.3. Horizontal joint between CLT floor and rigid wall

	Product Fire protection seal Hilti Firestop Acrylic Sealant CFS-S ACR	Building Project
ID CFS-S ACR_RW_CLTF_J_8X004	Content Fire protection seal of horizontal joint between cross laminated timber floor and rigid wall	
Page 01 / Rev 01		

EI90

Fire resistance 90 min.
Fire resistant



without scale
all units in [mm]

① Rigid wall

Made of aerated concrete, concrete or masonry with a minimum density of 550 kg/m^3

② Cross laminated timber floor:

The fire protection functionality and fire resistance duration of the floor must be considered separately, and the floor thicknesses shown correspond to the minimum thicknesses required by the tested penetration seal.

③ Firestop product info

Hilti Firestop Acrylic Sealant CFS-S ACR
- European Technical Assessment ETA-10/0389

- Joint width: 5 - 25 mm
- Fill the remaining annular gap with Hilti firestop acrylic sealant "CFS-S ACR" from upperside to a depth of at least 25 mm

④ Backfilling

- Backfill joint with:
  - Combustible sealing tape as backfilling material:
    PU precompressed sealing tape, width ≥ 56 mm; ≥ 100 kg/m³ (combustibilitiy class: E, D, C, B acc. to EN 13501-1)
  - Alternative backfilling material for PU:
    glass wool, slag/clinker wool, mineral, stone or ceramic wool class A1 acc. to EN 13501-1

Basic documents that form the respective proof of applicability:
- European Technical Assessment ETA-10/0389
- Reaction to fire acc. to EN 13501-1
- Fire resistance acc. to EN 13501-2
- Installation according to Hilti installation instructions

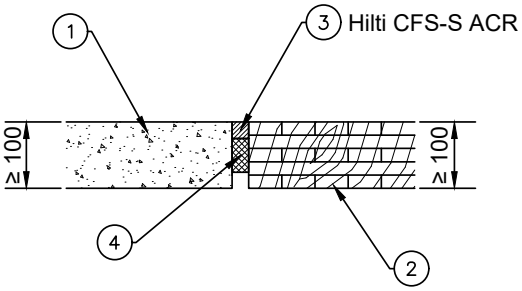
A "Typical" is a fire protection solution consisting of specific components preconfigured for a specific application, to which an assumed fire resistance duration is assigned. Typicals are selected according to their fire resistance duration and are subject to Technical Product Documentation and Proof of Applicability published by Hilti from time to time. They are subject to generic assumptions and are not selected on a project or design specific basis. The proposed typicals may therefore not meet the project or design specific requirements and must therefore be evaluated by the customer or by a relevant expert appointed by the customer for their suitability with regard to the actual, project specific design criteria and requirements.

8.4. Horizontal joint between rigid floor and CLT floor

HILTI	Product Fire protection seal Hilti Firestop Acrylic Sealant CFS-S ACR	Building Project
ID CFS-S ACR_RF_CLTF_J_8X002	Content Fire protection seal of horizontal joint between rigid floor and cross laminated timber floor	
Page 01 / Rev 01		

EI90

Fire resistance 90 min.
Fire resistant



without scale
all units in [mm]

① Rigid floor

Made of aerated concrete or concrete with a minimum density of 550 kg/m^3

② Cross laminated timber floor:

The fire protection functionality and fire resistance duration of the floor must be considered separately, and the floor thicknesses shown correspond to the minimum thicknesses required by the tested penetration seal.

③ Firestop product info

Hilti Firestop Acrylic Sealant CFS-S ACR
- European Technical Assessment ETA-10/0389

- Joint width: 5 - 25 mm
- Fill the remaining annular gap with Hilti firestop acrylic sealant "CFS-S ACR" from upperside to a depth of at least 25 mm

④ Backfilling

- Backfill joint with:
  - Combustible sealing tape as backfilling material:
    PU precompressed sealing tape, width ≥ 56 mm; ≥100 kg/m³ (combustibilitiy class: E, D, C, B acc. to EN 13501-1)
  - Alternative backfilling material for PU:
    glass wool, slag/clinker wool, mineral, stone or ceramic wool class A1 acc. to EN 13501-1

Basic documents that form the respective proof of applicability:
- European Technical Assessment ETA-10/0389
- Reaction to fire acc. to EN 13501-1
- Fire resistance acc. to EN 13501-2
- Installation according to Hilti installation instructions

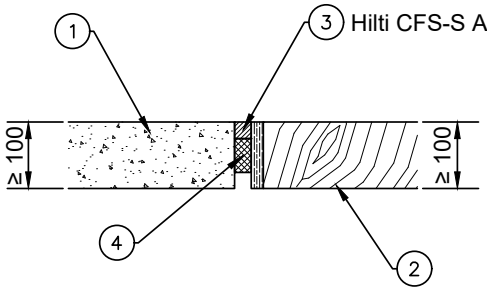
A "Typical" is a fire protection solution consisting of specific components preconfigured for a specific application, to which an assumed fire resistance duration is assigned. Typicals are selected according to their fire resistance duration and are subject to Technical Product Documentation and Proof of Applicability published by Hilti from time to time. They are subject to generic assumptions and are not selected on a project or design specific basis. The proposed typicals may therefore not meet the project or design specific requirements and must therefore be evaluated by the customer or by a relevant expert appointed by the customer for their suitability with regard to the actual, project specific design criteria and requirements.

8.5. Horizontal joint between rigid floor and solid timber or timber frame floor

	Product	Building Project
	Fire protection seal Hilti Firestop Acrylic Sealant CFS-S ACR	
ID CFS-S ACR_RF_MTF-FRF_J_8X007	Content Fire protection seal of horizontal joint between rigid floor and solid timber or timber frame floor	
Page 01 / Rev 01		

EI60

Fire resistance 60 min.
Highly fire retardant



without scale
all units in [mm]

① Rigid floor

Made of aerated concrete or concrete with a minimum density of 550 kg/m^3

② Solid timber or timber frame floor

Made of solid timber or timber frame EN 14081, strength class C 24 according to EN 338,
joint side covered with 18 mm OSB board acc. EN 13986, EN 312 'LivingBoard face contiprotect P5'

③ Firestop product info

Hilti Firestop Acrylic Sealant CFS-S ACR
- German Approval abP P-MPA-E-17-010
- European Technical Assessment ETA-10/0389

- Joint width: 5 - 25 mm
- Fill the remaining annular gap with Hilti firestop acrylic sealant "CFS-S ACR" from upperside to a depth of at least 25 mm

④ Backfilling

- Backfill joint with:
  - Combustible sealing tape as backfilling material:
    PU precompressed sealing tape, width ≥ 56 mm; ≥100 kg/m³ (combustibilitiy class: E, D, C, B acc. to EN 13501-1)
  - Alternative backfilling material for PU:
    glass wool, slag/clinker wool, mineral, stone or ceramic wool class A1 acc. to EN 13501-1

Basic documents that form the respective proof of applicability:
- German Approval abP P-MPA-E-17-010
- European Technical Assessment ETA-10/0389
- Reaction to fire acc. to EN 13501-1
- Fire resistance acc. to EN 13501-2
- Installation according to Hilti installation instructions

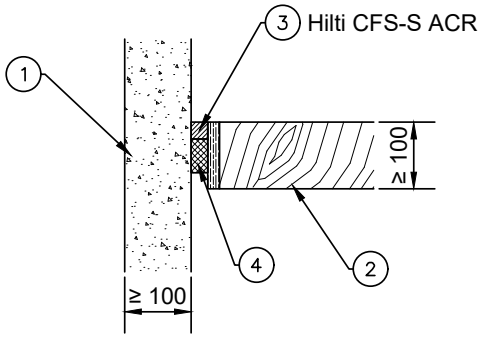
A "Typical" is a fire protection solution consisting of specific components preconfigured for a specific application, to which an assumed fire resistance duration is assigned. Typicals are selected according to their fire resistance duration and are subject to Technical Product Documentation and Proof of Applicability published by Hilti from time to time. They are subject to generic assumptions and are not selected on a project or design specific basis. The proposed typicals may therefore not meet the project or design specific requirements and must therefore be evaluated by the customer or by a relevant expert appointed by the customer for their suitability with regard to the actual, project specific design criteria and requirements.

8.6. Horizontal joint between solid timber or timber frame floor and rigid wall

HILTI	Product Fire protection seal Hilti Firestop Acrylic Sealant CFS-S ACR	Building Project
ID CFS-S ACR_RW_MTF-FRF_J_8X009	Content Fire protection seal of horizontal joint between solid timber or timber frame floor and rigid wall	
Page 01 / Rev 01		

EI60

Fire resistance 60 min.
Highly fire retardant



without scale
all units in [mm]

① Rigid wall

Made of aerated concrete, concrete or masonry with a minimum density of 550 kg/m^3

② Solid timber or timber frame floor

Made of solid timber or timber frame EN 14081, strength class C 24 according to EN 338,
joint side covered with 18 mm OSB board acc. EN 13986, EN 312 'LivingBoard face contiprotect P5'

③ Firestop product info

Hilti Firestop Acrylic Sealant CFS-S ACR
- European Technical Assessment ETA-10/0389

- Joint width: 5 - 25 mm
- Fill the remaining annular gap with Hilti firestop acrylic sealant "CFS-S ACR" from upperside to a depth of at least 25 mm

④ Backfilling

- Backfill joint with:
  - Combustible sealing tape as backfilling material:
    PU precompressed sealing tape, width ≥ 56 mm; ≥100 kg/m³ (combustibilitiy class: E, D, C, B acc. to EN 13501-1)
  - Alternative backfilling material for PU:
    glass wool, slag/clinker wool, mineral, stone or ceramic wool class A1 acc. to EN 13501-1

Basic documents that form the respective proof of applicability:
- European Technical Assessment ETA-10/0389
- Reaction to fire acc. to EN 13501-1
- Fire resistance acc. to EN 13501-2
- Installation according to Hilti installation instructions

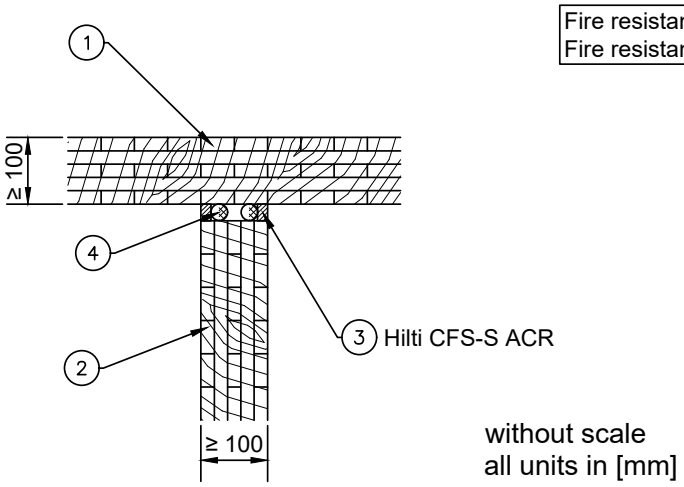
A "Typical" is a fire protection solution consisting of specific components preconfigured for a specific application, to which an assumed fire resistance duration is assigned. Typicals are selected according to their fire resistance duration and are subject to Technical Product Documentation and Proof of Applicability published by Hilti from time to time. They are subject to generic assumptions and are not selected on a project or design specific basis. The proposed typicals may therefore not meet the project or design specific requirements and must therefore be evaluated by the customer or by a relevant expert appointed by the customer for their suitability with regard to the actual, project specific design criteria and requirements.

8.7. Horizontal joint between CLT wall and CLT floor

	Product Fire protection seal Hilti Firestop Acrylic Sealant CFS-S ACR	Building Project
ID CFS-S ACR_CLTW_CLTF_J_8X001	Content Fire protection seal of horizontal joint at the top of cross laminated timber wall in connection to cross laminated timber floor	
Page 01 / Rev 01		

EI90

Fire resistance 90 min.
Fire resistant



without scale
all units in [mm]

① Cross laminated timber floor:

The fire protection functionality and fire resistance duration of the floor must be considered separately, and the floor thicknesses shown correspond to the minimum thicknesses required by the tested penetration seal.

② Cross laminated timber wall:

The fire protection functionality and fire resistance duration of the wall must be considered separately, and the wall thicknesses shown correspond to the minimum thicknesses required by the tested penetration seal.

③ Firestop product info

Hilti Firestop Acrylic Sealant CFS-S ACR
- European Technical Assessment ETA-10/0389

- Joint width: 5 - 25 mm
- Fill the remaining annular gap with Hilti firestop acrylic sealant "CFS-S ACR" from both sides to a depth of at least 25 mm

④ Backfilling

- Backfill joint with:
  - Combustible backfilling material:
    PE ≥ 19.5 kg/m³, PU ≥ 18.5 kg/m³ (combustibilitiy class: F, E, D, C, B acc. to EN 13501-1)
  - Alternative backfilling material for PU/PE:
    glass wool, slag/clinker wool, mineral, stone or ceramic wool class A1 acc. to EN 13501-1

Basic documents that form the respective proof of applicability:
- European Technical Assessment ETA-10/0389
- Reaction to fire acc. to EN 13501-1
- Fire resistance acc. to EN 13501-2
- Installation according to Hilti installation instructions

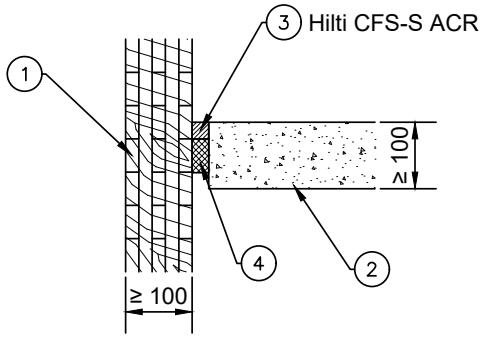
A "Typical" is a fire protection solution consisting of specific components preconfigured for a specific application, to which an assumed fire resistance duration is assigned. Typicals are selected according to their fire resistance duration and are subject to Technical Product Documentation and Proof of Applicability published by Hilti from time to time. They are subject to generic assumptions and are not selected on a project or design specific basis. The proposed typicals may therefore not meet the project or design specific requirements and must therefore be evaluated by the customer or by a relevant expert appointed by the customer for their suitability with regard to the actual, project specific design criteria and requirements.

8.8. Horizontal joint between CLT wall and rigid floor

HILTI	Product Fire protection seal Hilti Firestop Acrylic Sealant CFS-S ACR	Building Project
ID CFS-S ACR_CLTW_RF_J_8X005	Content Fire protection seal of horizontal joint between rigid floor and cross laminated timber wall	
Page 01 / Rev 01		

EI90

Fire resistance 90 min.
Fire resistant



without scale
all units in [mm]

① Cross laminated timber wall:

The fire protection functionality and fire resistance duration of the wall must be considered separately, and the wall thicknesses shown correspond to the minimum thicknesses required by the tested penetration seal.

② Rigid floor

Made of aerated concrete or concrete with a minimum density of 550 kg/m^3

③ Firestop product info

Hilti Firestop Acrylic Sealant CFS-S ACR
- European Technical Assessment ETA-10/0389

- Joint width: 5 - 25 mm
- Fill the remaining annular gap with Hilti firestop acrylic sealant "CFS-S ACR" from upperside to a depth of at least 25 mm

④ Backfilling

- Backfill joint with:
  - Combustible sealing tape as backfilling material:
    PU precompressed sealing tape, width ≥ 56 mm; ≥100 kg/m³ (combustibilitiy class: E, D, C, B acc. to EN 13501-1)
  - Alternative backfilling material for PU:
    glass wool, slag/clinker wool, mineral, stone or ceramic wool class A1 acc. to EN 13501-1

Basic documents that form the respective proof of applicability:
- European Technical Assessment ETA-10/0389
- Reaction to fire acc. to EN 13501-1
- Fire resistance acc. to EN 13501-2
- Installation according to Hilti installation instructions

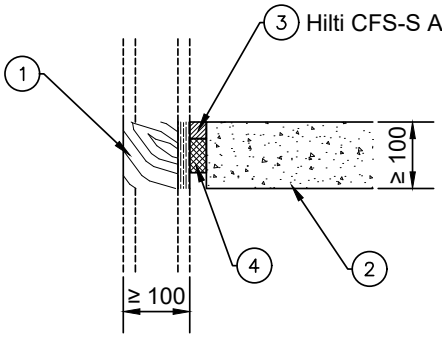
A "Typical" is a fire protection solution consisting of specific components preconfigured for a specific application, to which an assumed fire resistance duration is assigned. Typicals are selected according to their fire resistance duration and are subject to Technical Product Documentation and Proof of Applicability published by Hilti from time to time. They are subject to generic assumptions and are not selected on a project or design specific basis. The proposed typicals may therefore not meet the project or design specific requirements and must therefore be evaluated by the customer or by a relevant expert appointed by the customer for their suitability with regard to the actual, project specific design criteria and requirements.

8.9. Horizontal joint between solid timber or timber frame wall and rigid floor

	Product Fire protection seal Hilti Firestop Acrylic Sealant CFS-S ACR	Building Project
ID CFS-S ACR_MTW_FRW_RF_J_8X008	Content Fire protection seal of horizontal joint between rigid floor and solid timber or timber frame wall	
Page 01 / Rev 01		

EI60

Fire resistance 60 min.
Highly fire retardant



without scale
all units in [mm]

① Solid timber or timber frame wall

Made of solid timber or timber frame EN 14081, strength class C 24 according to EN 338,
joint side covered with 18 mm OSB board acc. EN 13986, EN 312 'LivingBoard face contiprotect P5'

② Rigid floor

Made of aerated concrete or concrete with a minimum density of 550 kg/m^3

③ Firestop product info

Hilti Firestop Acrylic Sealant CFS-S ACR
- European Technical Assessment ETA-10/0389

- Joint width: 5 - 25 mm
- Fill the remaining annular gap with Hilti firestop acrylic sealant "CFS-S ACR" from upperside to a depth of at least 25 mm

④ Backfilling

- Backfill joint with:
  - Combustible sealing tape as backfilling material:
    PU precompressed sealing tape, width ≥ 56 mm; ≥100 kg/m³ (combustibilitiy class: E, D, C, B acc. to EN 13501-1)
  - Alternative backfilling material for PU:
    glass wool, slag/clinker wool, mineral, stone or ceramic wool class A1 acc. to EN 13501-1

Basic documents that form the respective proof of applicability:
- European Technical Assessment ETA-10/0389
- Reaction to fire acc. to EN 13501-1
- Fire resistance acc. to EN 13501-2
- Installation according to Hilti installation instructions

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9. Annex 1: Hilti CFS-S ACR technical document

Applications

- Sealing low-movement joints in flexible wall, rigid wall, rigid floor, steel and wood constructions
- Sealing metal pipe penetrations
- For use in concrete, masonry, drywall, steel, aerated concrete and wood

Advantages

- Easy to dispense, apply and tool
- Strong adhesion to various base materials
- Low shrinkage after curing
- Excellent sound insulation property
- Easy clean up with water



Technical Data

Chemical basis	Water-based acrylic dispersion
Colours	Grey, White
Application temperature range	1.5 – 40 °C
Storage temperature	1.5 – 35 °C
Temperature resistance	-30 – 80 °C
Movement	12.5% (ISO 11600)
Shelf life (@23 °C and 50% relative humidity	24 months
Mold and mildew performance	Class 0 (EN ISO 846, Method A)
Tack free time	approx. 23 min. (ventilated at 25 °C, 80% rel. humidity)
Curing time	approx. 3 mm / 3 days (at 23 °C, 50% rel. humidity)
Paintable	Yes
VOC	refer to the MSDS for the value

Order designation	Packaging	Volume	Color	Sales Quantity	Item Number
Firestop Acrylic Sealant CFS-S ACR CG	Cartridge	310 ml	Grey	1 pc	00435862
Firestop Acrylic Sealant CFS-S ACR CW	Cartridge	310 ml	White	1 pc	00435859
Firestop Acrylic Sealant CFS-S ACR FW	Foil pack	580 ml	White	20 pc	00435863
Firestop Acrylic Sealant CFS-S ACR PW	Pail	5000 ml	White	1 pc	00435864
Firestop Acrylic Sealant CFS-S ACR PW L	Pail	10000 ml	White	1 pc	02046766

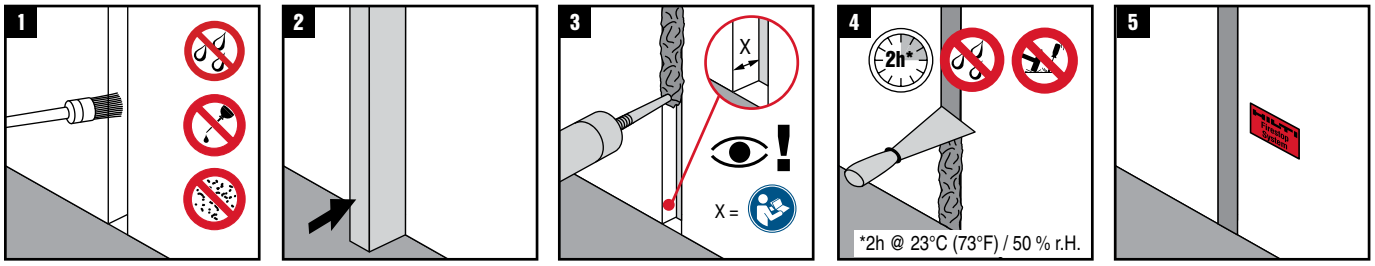
Accessories

Ordering designation		USE	Sales pack quantity	Item number
CFS-DISP		Cartridge	1 pc	2005843
CS 270-P1		Foil	1 pc	24669
CD 4-A22 Cordless Dispenser		Cartridge & Foil	1 pc	2217418*

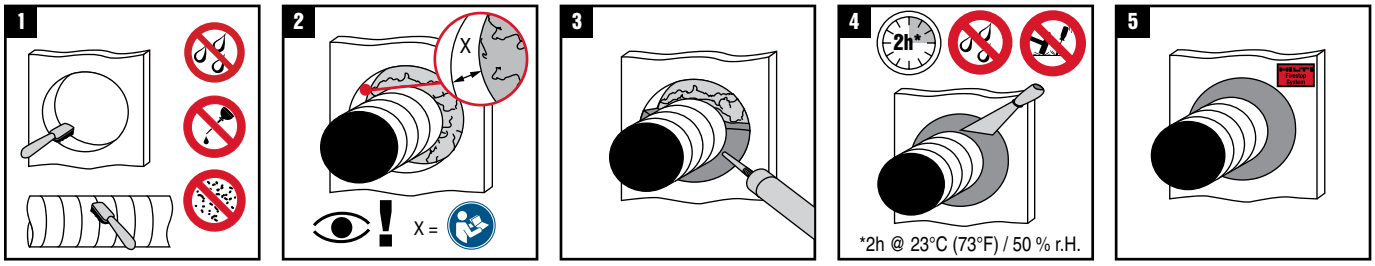
***2217418: This item number only includes the tool body without the cartridge or the foil dispenser**

Instructions for use: Hilti firestop acrylic sealant CFS-S ACR

Joint



Penetration



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