



FIRESTOP IN WOOD CONSTRUCTION

Solutions for direct installation



PASSIVE FIRE PROTECTION IS KEY

Massive wood and especially cross-laminated timber (CLT) is increasingly used as a construction material for high-rise buildings as it has a high-load bearing capacity, high fire resistance and is light in weight. It also burns slowly and in case of fire will never burn down completely because the charring of the wood acts as a natural fire barrier. However, this alone is not enough to help ensure occupants' safety.



THE IMPORTANCE OF PASSIVE FIRESTOP

Passive fire protection is vital for creating a safer and code-compliant building. Compartmentation is a general safety requirement that applies to all buildings depending on their height and use class, regardless of their base material. The most common issue in a fire compartment is when building services need to pass through a separation floor or wall. This requires adequate passive fire protection measures to seal the openings.

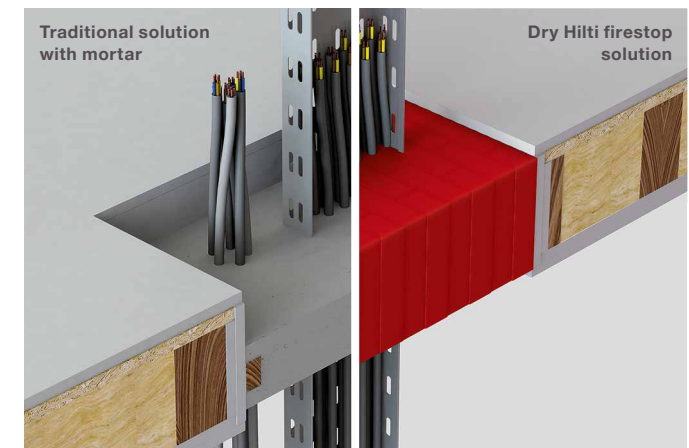
During a fire, an important difference between concrete or drywall and wood is the combustibility of wood. Massive timber such as CLT chars at about 0.7 mm per minute. To fill the gap caused by the burning of the wood and to prevent the spread of smoke and fire, all openings in fire-rated walls and floors must be sealed with intumescent material.

OPTIMIZED CONSTRUCTION PROCESS

So far, designing firestop solutions in wood is a difficult area in building regulations. In the absence of an approved solution for firestopping in timber, mortar has become the default choice today. This reduces productivity significantly, since installation and curing take time.

Our dry solutions, with the use of preformed products, can be directly installed in wood and exclude mortar. This means you can install firestop in pre-fabricated timber elements before they leave the factory – helping to reduce construction time on site by as much as half.

▶ VIDEO: FIRESTOP IN WOOD CONSTRUCTION



✓ Direct product installation without formwork

INNOVATIVE SOLUTIONS FOR DEMANDING SITUATIONS

Building services installations can be very complex which makes firestopping challenging. European and national testing institutes have certified Hilti firestop solutions in CLT and framed wood construction systems. Preformed firestop devices are particularly suitable for timber constructions as they can be directly installed, help reduce installation risk and boost productivity.



ELECTRICAL APPLICATIONS

Solutions for electrical cables and cable bundles:

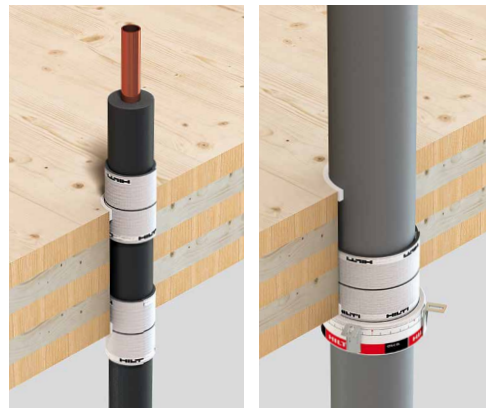
- CFS-SL GA firestop sleeve
- CFS-CC firestop cable collar



MECHANICAL APPLICATIONS

Solutions for wastewater, fresh water and heating pipes:

- CFS-B firestop bandage
- CFS-C EL firestop endless collar



MIXED PENETRATIONS

Solutions for large openings (pipes, cables and cable trays):

- CFS-BL P firestop block



- ✓ Fire rating up to 90 minutes (CLT and framed construction)
- ✓ Clean and quick installation
- ✓ Easy to inspect

APPROVALS FOR ALL APPLICATIONS



European and national approvals of our firestop solutions from independent testing institutes, combined with our engineering judgements, make the planning and the construction processes easier and faster than ever.

EFFICIENT AND SPACE-SAVING PLANNING

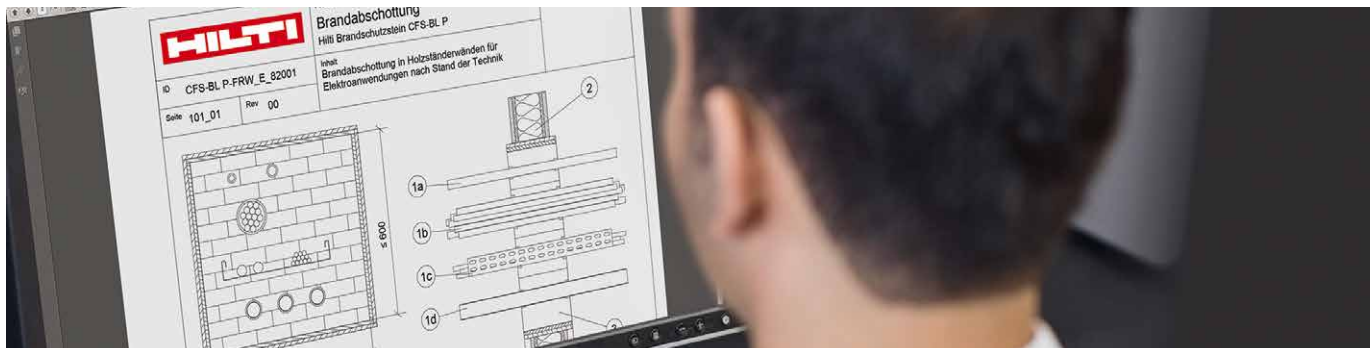
Based on sophisticated fire tests, our products have been approved for a broad range of firestop applications in wood. The use of a compliant product range and system significantly increases efficiency during the planning process. The solutions have been tested with a minimum distance between the penetrations allowing for more usable space.

A rich library of technical drawings, containing all the key details that usually get buried in the approval texts, supports a quick design process.



HELPFUL ENGINEERING JUDGEMENTS

Wood is not a standardized base material like concrete. This makes each application different. Although our approvals cover a wide range of applications, there can be project-specific needs that are not approved by international guidelines. In this case, our experts help by providing engineering judgements for project-based solutions covering the most demanding firestop applications.



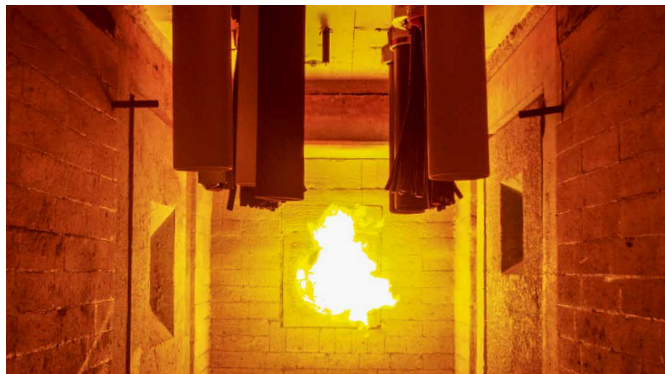
YOUR FIRESTOP PARTNER

We test our firestop range with custom solutions from leading wood manufacturers. This helps our customers all over the world to build in accordance with project requirements. Thanks to the on-site support from our firestop engineers, we help to reduce risk and increase productivity during construction.



TESTING WITH INDUSTRY-LEADING MANUFACTURERS

We collaborate closely with international wood manufacturers to cover their unique wall and floor setups with fire tests. Our tailor-made tests support their 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 consult you on the installation process and help you tackle all challenges. We help you to avoid unnecessary project delays and to choose the right solution.



“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

PROJECT REFERENCES

We have been part of high-profile construction projects with demanding firestop requirements. Each project had very specific firestop needs that we covered with a variety of solutions to ensure that we create a safer living environment.



WALDEN 48: A TIMBER MULTI-STORY BUILDING IN BERLIN, GERMANY

The challenge was to meet the high safety standards required when firestopping in wood. Every pipe and cable penetration in the fire-rated CLT walls had to be sealed with firestop products rated for 90 minutes.

The solution offered by our experts was a custom proposal with an engineering judgement. Our firestop blocks CFS-BL P were specified to seal the large openings with mixed penetrations.



Architecture: ARGE Scharabi | Raupach
Berlin, www.scharabi.de
Rendering: © Rieder-Manufaktur, Berlin

RIEDPARK: A FOUR-STORY MULTI-FAMILY HOUSE IN LAUCHRINGEN, GERMANY

The 90-minute fire rating requirements of a building designed without gypsum board insulation had to be met. The non-standard configuration of the mechanical penetrations made the design of the right firestop solution even more challenging.

Our solution was a joint fire test with the manufacturer Lignotrend. All mechanical and electrical penetrations were tested on their floor. For the mechanical applications, our CFS-C EL endless collar was used. Our CFS-BL P firestop blocks were selected to seal the large cable penetration openings.



Picture: Lignotrend / Foto&Design, Waldshut-Tiengen



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