

Drywall Systems

**K25H.de**

System Data Sheet

2021-11

# Knauf Fireboard Wooden Beam and Wooden Column Encasements

K254.de – Knauf Fireboard Wooden Beam Encasement

K255.de – Knauf Fireboard Wooden Column Encasement

## Note on English translation / Hinweise zur englischen Fassung

This is a translation of the System Data Sheet valid in Germany.

All stated details and properties are in compliance with the regulations of the German standards and building regulations. They are only applicable for the specified products, system components, application rules, and construction details in connection with the specifications of the respective certificates and approvals.

Knauf Gips KG denies any liability for applications outside of Germany as this requires changes acc. to the respective national standards and building regulations.

Dies ist eine Übersetzung des in Deutschland gültigen Detailblattes. Alle angegebenen Werte und Eigenschaften entsprechen den in Deutschland gültigen Normen und bauaufsichtlichen Regelungen. Sie gelten nur bei Verwendung der angegebenen Produkte, Systemkomponenten, Anwendungsregeln und Konstruktionsdetails in Verbindung mit den Vorgaben der bauaufsichtlichen Nachweise.

Die Knauf Gips KG lehnt jegliche Haftung für Einsatz und Anwendung außerhalb Deutschlands ab, da in diesem Fall eine Anpassung an nationale Normen und bauaufsichtliche Regelungen notwendig ist.

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### Notes on the document

Knauf system data sheets are the planning and application basis for the planners and professional installers with the application of Knauf systems. The contained information and specifications, constructions, details and stated products are based, unless otherwise stated, on the certificates of usability (e.g. National Technical Test Certificate (abP) valid at the date they are published as well as on the applicable standards. In addition, design and structural requirements and those regarding building physics (fire protection) are considered.

The contained construction details are examples and can be used in a similar way for various cladding variants of the respective system. At the same time, the demands made on fire resistance and/or sound insulation as well as any necessary additional measures and/or limitations must be observed.

### References to other documents

#### System data sheets

- [Knauf Metal Stud Partitions W11.de](#)
- [Knauf Wood Frame Partitions W12.de](#)
- [Knauf Structural Wood Frame Walls W55.de](#)
- [Knauf Fireboard Steel Beams and Steel Column Encasements K25S.de](#)

#### Folders

- [Fire resistance with Knauf BS1.de \(German only\)](#)

#### Product data sheets

- Observe the product data sheets of the individual Knauf system components.

### Intended use of Knauf systems

Please observe the following:

#### Caution

Knauf systems may only be used for the application cases specified in the Knauf documentation. In case third-party products or components are used, they must be recommended or approved by Knauf. Flawless application of products / systems assumes proper transport, storage, assembly, installation and maintenance.

### Certificates of Usability

Knauf System	Fire resistance
K254.de	AbP P-3497/3879-MPA BS
K255.de	AbP P-3082/0729-MPA BS

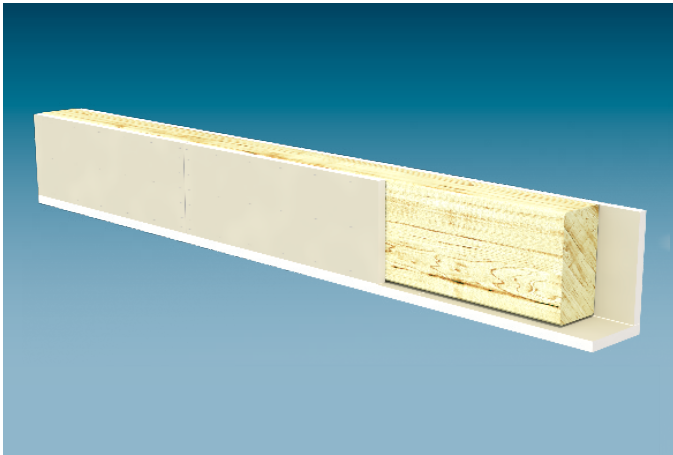
The stated constructional and structural properties, and characteristic building physics of Knauf systems can solely be ensured with the exclusive use of Knauf system components, or other products expressly recommended by Knauf. The validity and up-to-datedness of the stated proofs have to be considered.

### Fire protection encasement of wooden beams and wooden columns

Unclad wooden beams and columns can also be rated for a loadbearing capacity when exposed to fire, but owing to the circumstances may require much larger cross-section dimensions. The reduction of the cross-section dimensions with timber-framed structures can be achieved by the application of cladding with Fireboard. The increase of the constructional component temperatures are retarded by the cladding, and in the event of a fire, assures the required structural loadbearing capacity for a defined period.

- Fire protection encasement of beams and columns made of wood with Fireboard up to fire resistance class F90 (one and a half hours).

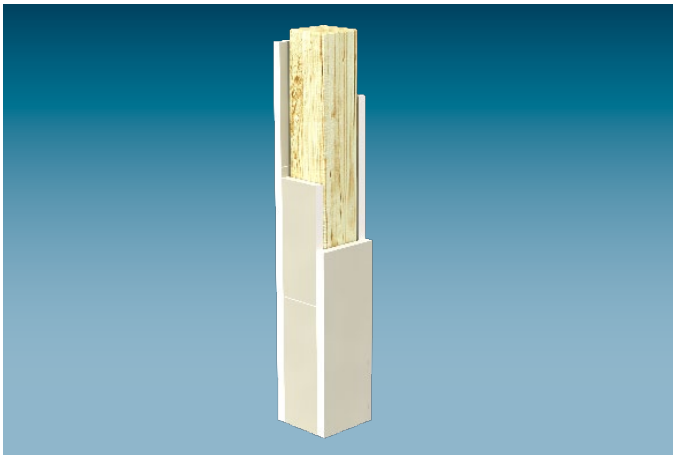
#### K254.de Fireboard Wooden Beam Encasement



The system **K254.de** Knauf Fireboard Wooden Beam Encasement is applied without a grid. The encasement is undertaken by surface stapling with steel staples on the wooden beams.

- Fire resistance class up to F90

#### K255.de Fireboard Wooden Column Encasement



The system **K255.de** Knauf Fireboard Wooden Column Encasement is applied without a grid. The fastening of the encasement undertaken by front side stapling of the Fireboard.

- Fire resistance class up to F90

### Wooden beams and columns with encasement made of Fireboard

When wood is heated, chemical degradation occurs and wood charcoal and combustible gasses are formed. The progress of this carbonisation process is dependent on the type of wood, the level of moisture content, the density and the ratio of surface to volume.

Decisive for the technical fire resistance classification is the burning rate of the timber construction and thus the structurally usable remaining cross-section after a determined fire exposure time. It is thus possible to increase the fire resistance by overdimensioning of the cross-section. A more cost-effective variant is to provide additional encasement of the timber construction with Fireboard instead of overdimensioning the components and thus achieve a fire resistance of up to F90 (one and a half hours).

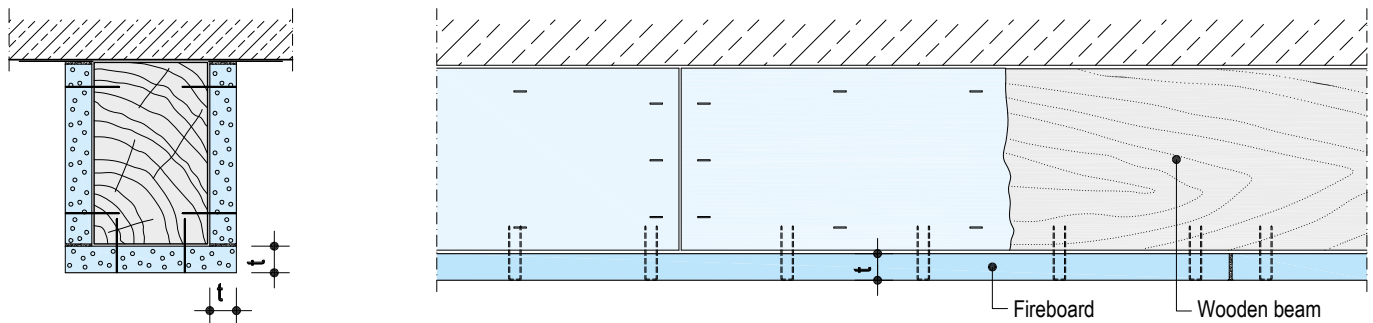
### K254.de Fireboard Wooden Beam Encasements

#### Stapled Fireboard

The encasement of the beams / columns made of wood using Fireboard is fastened by surface stapling with steel staples.

#### Wooden beams

Cross-section, width x height  $\geq 100 \times 160 \text{ mm}$   
 Flexural stress for load class combination fire  $\sigma_{m,d} \leq 10 \text{ N/mm}^2$   
 Sorting class S10 / C24, S13 / C30



#### Minimum thickness of Fireboard in dependence on the fire resistance class

Fire resistance class	Fireboard thickness in mm
F30	15
F60	15
F90	25

### K255.de Fireboard Wooden Column Encasements

#### Stapled Fireboard

The fastening of the encasement of wooden columns with Fireboard is undertaken by front side stapling of the cladding.

#### Solid wood column

Cross-section  $\geq 120 \times 120 \text{ mm}$   
 Compressive stress for load class combination fire  $\sigma_{c,0,d} \leq 3.5 \text{ N/mm}^2$   
 Aspect ratio  $\lambda \leq 87$   
 Sorting class S10 / C24, S13 / C30



#### Minimum thickness of Fireboard in dependence on the fire resistance class

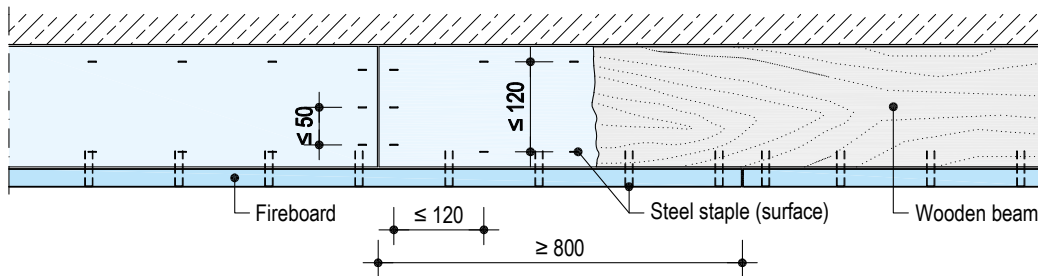
Fire resistance class	Fireboard thickness in mm
F30	15
F60	15
F90	25

Details K254.de Fireboard Wooden Beam Encasements

Dimensions in mm

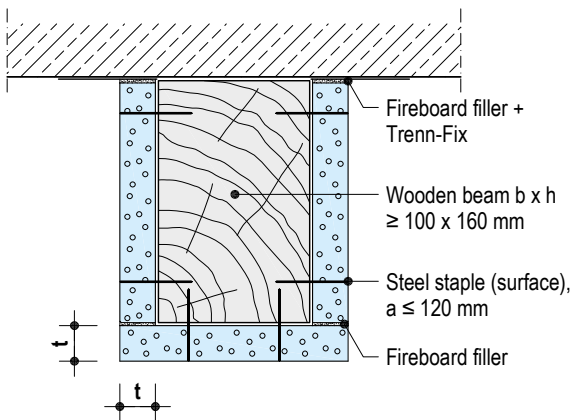
K254.de-VL1 Long section – single-layer cladding

Scale 1:10



K254.de-VQ1 Vertical section lateral – single-layer cladding

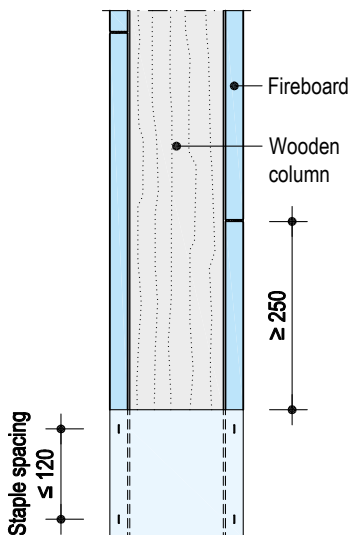
Scale 1:5



Details K255.de Fireboard Wooden Column Encasements

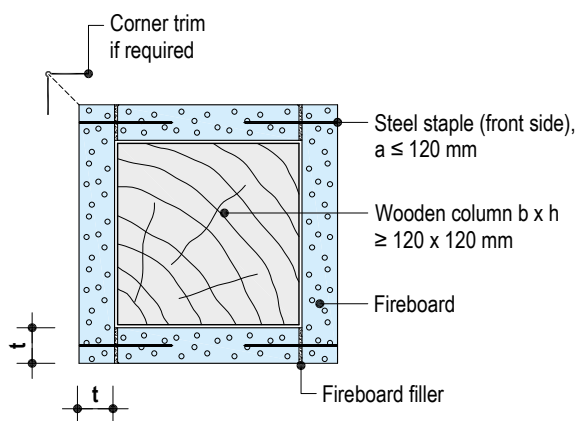
K255.de-VL1 Vertical section longitudinal – single-layer cladding

Scale 1:10



K255.de-HQ1 Horizontal section lateral – single-layer cladding

Scale 1:5

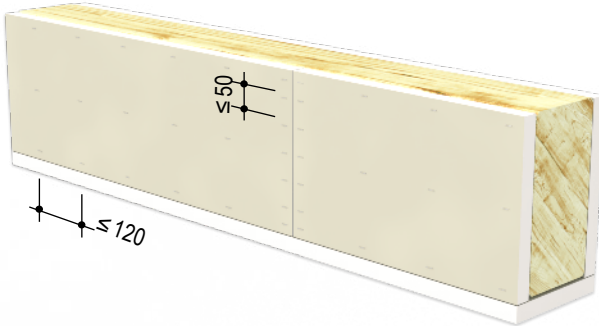


### Cladding

Dimensions in mm

#### K254.de Wooden Beam Encasement

Stapled- without frame



- Fasten Fireboards on the wooden beams by means of staples at a spacing of  $\leq 120$  mm, or of  $\leq 50$  mm at board joints. Use steel staples type D acc. to DIN 18182-2 or alt. EN 14566.
- Stagger the board joints.

#### Flush stapling of the cladding

Fireboard Thickness mm	Staple length mm	Maximum staple spacings	
		On the surface mm	On board joint mm
15	40	120	50
25	50	120	50

#### K255.de Wooden Column Encasement

Stapled- without frame



- Staple the face side of the Fireboard at a spacing of  $\leq 120$  mm. Use steel staples type D acc. to DIN 18182-2 or alt. EN 14566.
- Stagger the board joints.

#### Front side stapling of the cladding

Fireboard Thickness mm	Staple length mm	Maximum staple spacings
		Front side mm
15	50	120
25	64	120

### Jointing

With Fireboard, a skim coating of the entire surface with, e.g. Fireboard-Spachtel filler is additionally required before application of direct coatings or linings.

Fill in visible screw heads / staple backing.

#### Suitable jointing materials

Fireboard Filler hand filling of Fireboard with Fibre Glass Joint Tape.

#### Suitable finish filling compounds

Fireboard Spachtel filler for full surface skimming of Fireboard.

#### Joint filling of the connection joints

Apply Trenn-Fix when filling joints to flanking construction components.

#### Sanding

Lightly sand visible surfaces after drying of the filler material, if required.

#### Application temperature / climate

Filling and covering of joints should only take place when no more longitudinal changes can be expected, i.e. expansion or contraction due to humidity or temperature changes.

Do not apply filling at room or substrate temperatures below approx.  $+10$  °C.

In case of mastic asphalt screed, cementitious screed and self-levelling screed, fill in board joints after screed has been applied. Observe code of practice no. 1 "Baustellenbedingungen - Building site conditions" <sup>1)</sup>.

### Coatings and linings

#### Pretreatment

Before further coating or lining is applied, the filled surface must be free of dust. Gypsum board surfaces should always be primed before the application of subsequent surface coatings.

Ensure that the primer and the subsequent paint / coating / lining are compatible.

In order to compensate for the differences in absorption of surfaces, coatings of primer such as Knauf Tiefengrund primer are suitable.

Where a wallpaper lining is used, a primer that facilitates easier removal of wallpaper for redecoration is recommended.

#### Suitable coatings and linings

The following coatings/linings can be applied to Knauf boards:

- Wallpapers
  - Paper, fleece, textile and synthetic wallpapers
  - Use only adhesives made of methyl cellulose according to Code of Practice no. 16 "Technische Richtlinien für Tapezier- und Klebearbeiten" <sup>1)</sup>.
- Plaster and filler materials
  - Top coats (e.g. Noblo, Raumklima Spritzputz spray plaster, Rotkalk Filz)
  - Full surface skimming (e.g. Fireboard-Spachtel, Spritzspachtel Plus).
- Decorative coats
  - Dispersion paint (e.g. Intol E.L.F., Malerweiss E.L.F.),
  - Silicate-based emulsion paints with suitable primer
  - Further on request

#### Unsuitable coatings and linings

- Alkaline coats such as lime, water glass paints and silicate-based paints.

#### Notes

After wallpapering or after application of plasters, quick drying must be ensured through adequate airing.

Other coatings or layers and vapour barriers up to about 0.5 mm thickness as well as claddings (with the exception of sheet steel), do not have any influence on the technical fire resistance classification of Knauf Fireboard Wooden Beam / Column Encasements.

1) Released by the Bundesausschuss Farbe und Sachwertschutz in Frankfurt/Main.

### Information on sustainability of Knauf Fireboard Wooden Beam and Wooden Column Encasements

Building assessment systems ensure the sustainable quality of buildings and constructional structures by a detailed assessment of ecological, economic, social, functional and technical aspects.

In Germany, the following certification systems are of particular relevance

- DGNB system  
Deutsches Gütesiegel Nachhaltiges Bauen der DGNB (*German association for environmentally sustainable building*)
- BNB  
(Quality rating system for environmentally sustainable building)
- LEED  
(Leadership in Energy and Environmental Design).

Knauf products and Knauf Fireboard Wooden Beam / Column Encasements can positively influence many of these criteria.

#### DGNB/BNB

##### Ecological quality

- Criterion: Risks for the local environment  
Gypsum as an ecological material

##### Economic quality

- Criterion: Building related life-cycle costs  
Cost-effective Knauf Drywalling
- Flexibility and suitability for conversion  
Flexible Knauf Drywalling

##### Technical quality

- Criteria: Ease of dismantling and recycling,  
Possible with Knauf drywalling

#### LEED

##### Indoor Environmental Quality

- Low-Emitting Materials:  
Knauf products are regularly subject to VOC measurement



Videos for Knauf systems and products can be found under the following link:

[youtube.com/knauf](https://youtube.com/knauf)



Find the right system for your requirements!

[knauf.de/systemfinder](https://knauf.de/systemfinder)



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