



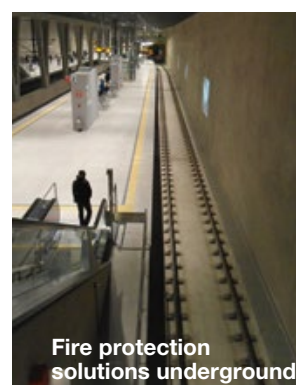
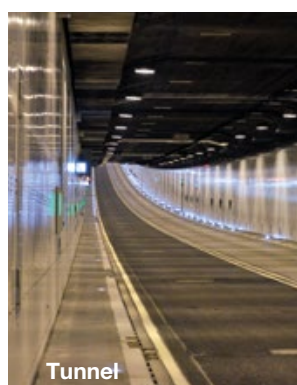
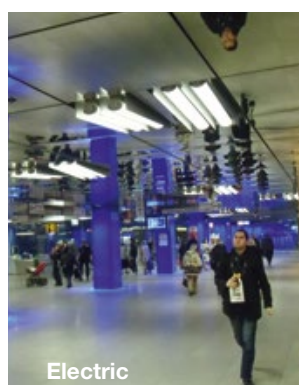
Tailor-made fire protection

Applications and solutions in the
industrial and OEM sector

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Areas of application



01 Introduction

Aestuver® offers a comprehensive range of economical and high performance fire protection and structural engineering solutions for industrial and OEM applications.

The company James Hardie Europe GmbH, under which the products of the Aestuver® brand, are marketed also supports our clients in the different phases of the construction project.

In addition to our optimized solutions with our customized products we can offer extensive services and an interesting selection of other building products.

fermacell® gypsum fibre boards and Aestuver® fire protection boards have always stood for quality and high-grade system solutions to meet the most stringent requirements.

The board materials and accessory products can be further processed in a variety of ways. Of course, we support our partners in solving their individual requirements with our competence and experience. For this purpose, we can rely on a team of experienced engineers from application technology, research and development.

The possible areas of application are as demanding as they are versatile:

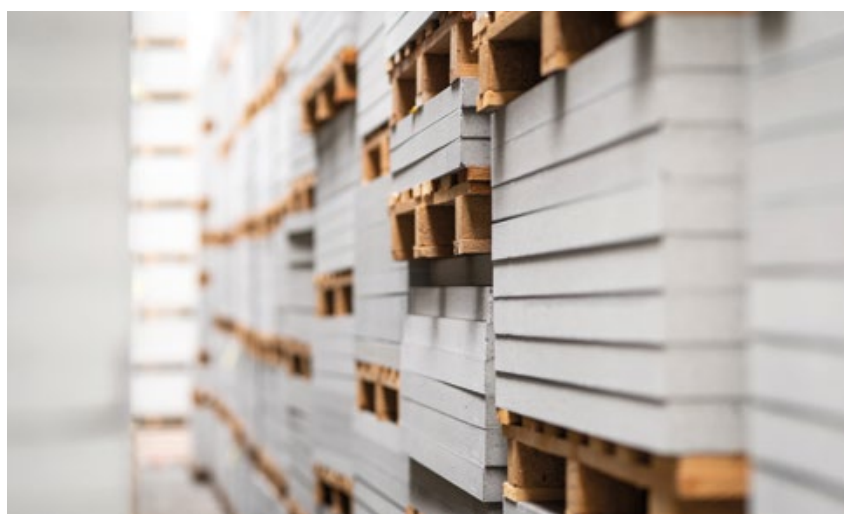
- Fillings for fire doors and gates
- Fire protection inserts for metal components and concrete reinforcements
- Fire protection elements in façade constructions
- Insulating inserts for fire dampers and hatches
- Insulating boards for safety containers
- Support plates for pre-wall installations
- Protective boards for external thermal insulation composite systems
- Insulators and inserts for fire protection profiles



JamesHardie™

fermacell®

AESTUVER®



Aestuver® fire protection boards belong to the highest building material class A1, non-combustible.

It goes without saying that all Aestuver® products and systems have the corresponding national/European and international usability certificates and approvals:

- ETA – European Technical Assessment
- IMO – International Maritime Organization

National application documents (example Germany):

- abP – general test certificates issued by the building authorities
- abZ – general building inspectorate approvals
- aBG – general design approvals
- Expert opinions

Further application documents can be provided on request.

A quality assurance system according to DIN EN ISO 9001 makes it possible to

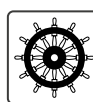
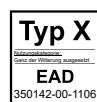
monitor and control all manufacturing processes precisely. Each product is tested several times during the manufacturing process and the quality achievement is documented.

Through constant optimisation of the processes and the processing machines, production is carried out continuously at the highest level.

Manufacturers of components and systems with high fire protection requirements and demands for weather-resistant products will find the right partner in James Hardie.



Aestuver® fire protection board BSP



Cement-bound, glass fiber reinforced concrete boards for high-quality structural fire protection.

- Weather-, frost- and water-resistant
- No combustible components



Fire protection
up to 1200 °C



With special
additives



Easy processing
with wood tools



Used for structural
fire protection

Characteristics

Apparent density ρ_k (dry)	approx. 625 – ca. 965 kg/m ³
Thermal conductivity λ_R (in accordance with DIN EN 12667) ¹⁾	approx. 0.21 W/mK
Specific heat capacity c	approx. 0.9 kJ/kgK
Extension / shrinkage reaction to changes in RH of air of 30 % (20 °C) (in accordance with EN 318)	± 0.1 %
Equilibrium moisture at 65 % RH of air and 20 °C air temp. (in accordance with DIN EN ISO 12570)	approx. 7 Gew.-%
Alkalinity (pH value)	approx. 12
Application category with respect to intended use (in accordance with EAD 350142-00-1106)	Type 1, 2, 3, 4, 5, 6, 7, 8, 9, 10
Application category with respect to climatic conditions (in accordance with EAD 350142-00-1106)	Type X (incl. Z1, Z2, Y)

¹⁾ Value for a 20 mm board | Details for other board thicknesses on request

Dimensional tolerance at equilibrium moisture content for standard board sizes

Length, width	± 1 mm
Diagonal difference	≤ 2 mm
Thickness	± 1 mm

Assessments

European Technical Assessment	ETA-11/0458
Construction material class (in accordance with DIN EN 13501-1)	non-combustible, A1
IMO FTPC part 1	non-combustible
Construction element classification	national/international

Characteristics depending on board thickness

Thickness in mm	10	12	15	20	25	30	40	50	60
Approx. surface weight per m ² in kg (at 7 % humidity)	10	10	12	15	18	22	28	34	41
Approx. apparent density ρ_k in kg per m ³ (dry)	950	800	800	700	690	680	650	650	640
Flexural strength in N/mm ² (based on EN 12467 ± 10 %) ¹⁾	5	4	3.5	3.5	3.3	2.8	2.8	2.8	2.8
Bending elasticity modulus in N/mm ² (based on EN 12467 ± 10 %)	4300	4200	3450	3000	2750	2400	2250	1900	1450
Compressive strength in N/mm ² (in accordance with EN 789)	20	—*	8.5	9	—*	6.5	6.5	—*	6
Water vapour diffusion resistance factor μ (in accordance with EN ISO 12572)	36	—*	25	54	—*	—*	—*	—*	25
Airborne sound insulation R_w in dB (in accordance with DIN 52210)	31	—*	—*	31	—*	—*	36	—*	39

Dimensions in mm **

2600 × 1250	✓	✓	✓	✓	✓	✓	✓	✓	✓
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* No data available | ** Additional board thicknesses, lengths (up to 3000 mm), widths (up to 1250 mm) and precut sizes on request.

Aestuver® fire protection board T



Cement-bonded, glass fiber reinforced concrete panels for high-quality fire protection in underground transportation systems for direct installation during concrete pouring.



Fire protection
up to 1350°C



Economical
in price



Economical
to process



Used in
tunnels

Characteristics

Apparent density ρ_k (dry)	approx. 690–980 kg/m ³
Flexural strength (based on EN 12467 $\pm 10\%$) ¹⁾	3.5 N/mm ²
Thermal conductivity λ_R (in accordance with DIN 12667)	0.175 W/mK
Extension / shrinkage reaction to changes in RH of air of 30 % (20 °C) (in accordance with EN 318)	$\pm 0.15\%$
Equilibrium moisture at 65 % RH of air and 20 °C air temp. (in accordance with DIN EN ISO 12570) ¹⁾	approx. 7%
Compressive strength (in accordance with EN 789) ¹⁾	9 N/mm ²
Alkalinity (pH value)	approx. 12
Bending elasticity modulus in N/mm ² (based on EN 12467 $\pm 10\%$) ¹⁾	≥ 2000 N/mm ²
Application category with respect to intended use (in accordance with EAD 350142-00-1106)	Type 1, 2, 3, 4, 5, 6, 7, 8, 9, 10
Application category with respect to climatic conditions (in accordance with EAD 350142-00-1106)	Type X (incl. Z1, Z2, Y)

¹⁾ Value for a 20 mm board

Dimensional tolerance at equilibrium moisture content for standard board sizes

Length, width	± 1 mm
Diagonal difference	≤ 2 mm
Thickness	± 1 mm

Assessments

European Technical Assessment	ETA-15/0531
Construction material class (in accordance with DIN EN 13501-1)	non-combustible, A1
Construction element classification for civil engineering structures	international
Tunnel fire tests in accordance with international time-temperature curves for constructions set in concrete	ZTV/EBA RWS120 RWS180 HC180 HCM120 HCM180

Characteristics depending on board thickness

Thickness in mm	10	15	20	25	30	35	40	50	60
Surface weight per m ² in kg (at 7 % humidity)	approx. 11	approx. 13	approx. 17	approx. 21	approx. 25	approx. 29	approx. 33	approx. 42	approx. 50
Apparent density ρ_k in kg per m ³ (dry)	980	800	800	790	780	800	800	780	780

Dimensions in mm*

2600 × 625	✓	✓	✓	✓	✓	✓	✓	✓	✓
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*Additional board thicknesses, lengths (up to 3000 mm), widths (up to 1250 mm) and precut sizes on request.



Aestuver® fire protection board Tx

Cement-bonded, glass fiber reinforced concrete panels for high-quality fire protection in underground transportation systems for retrofitting.



Fire protection
up to 1400 °C



Dimensionally
stable at extreme
temperatures



Reliable chemical
resistance



Used in tunnels

Characteristics

Apparent density ρ_k (dry)	800 kg/m ³ ± 15 %
Flexural strength (based on EN 12467 ±10 %) ¹⁾	≥ 3.1 N/mm ²
Thermal conductivity λ_R (in accordance with DIN EN 12667) ¹⁾	0.2 W/mK
Extension / shrinkage reaction to changes in RH of air of 30 % (20 °C) (in accordance with EN 318)	± 0.1 %
Equilibrium moisture at 65 % RH of air and 20 °C air temp. (in accordance with DIN EN ISO 12570) ¹⁾	approx. 3–5 %
Compressive strength (in accordance with EN 789) ¹⁾	4.3 N/mm ²
Alkalinity (pH value)	8–10
Bending elasticity modulus in N/mm ² (based on EN 12467 ±10 %) ¹⁾	2 400 N/mm ²
Application category with respect to intended use (in accordance with EAD 350142-00-1106)	Type 1, 2, 3, 4, 5, 6, 7, 8, 9, 10
Application category with respect to climatic conditions (in accordance with EAD 350142-00-1106)	Type X (incl. Z1, Z2, Y)
Water vapour diffusion resistance factor μ (in accordance with EN ISO 12572) ¹⁾	12

¹⁾ Value for a 20 mm board

Dimensional tolerance at equilibrium moisture content for standard board sizes

Length, width, thickness	± 1 mm
Diagonal difference	≤ 2 mm
Thickness	± 1 mm

Assessments

European Technical Assessment	ETA-17/0170
Construction material class (in accordance with DIN EN 13501-1)	non-combustible, A1
Construction element classification for civil engineering structures	international
Tunnel fire tests in accordance with international time-temperature curves for constructions set in concrete	RWS120 RWS180 HCM120 ISO240 NFPA 290

Characteristics depending on board thickness

Thickness in mm	20	25	30	35
Surface weight per m ² in kg (at 5 % humidity)	approx. 17	approx. 21	approx. 25	approx. 30
Apparent density ρ_k in kg per m ³ (dry ± 15 %)	820	800	800	800

Dimensions in mm*

2 600 × 625	✓	✓	✓	✓
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* Additional board thicknesses, lengths (up to 3000 mm), widths (up to 1250 mm) and precut sizes on request.

fermacell® gypsum fibre board



Homogeneous gypsum-bonded drywall board with paper fibers, hydrophobised at the factory

- Board material for dry construction solutions with special requirements regarding fire, sound or moisture protection.



Environmental Product Declaration (EPD)

Characteristics	
Apparent density ρ_k	1 150 \pm 50 kg/m ³
Water vapour diffusion resistance number μ	13
Thermal conductivity λ_R	0.32 W/mK
Specific heat capacity c	1.1 kJ/kgK
Brinell hardness	30 N/mm ²
Thickness swelling after 24 h Wasserlagerung	< 2 %
Coefficient of thermal expansion	0,001 %/K
Elongation/shrinkage with change of relative humidity by 30 % (20 °C)	0.25 mm/m
Equilibrium humidity at 65 % relative humidity and 20 °C air temperature	1.3 %
Alkalinity (pH value)	7–8
Use category acc. to EN 1995-1-1	Type 1 and 2

Dimensional tolerance at equilibrium moisture content for standard board sizes	
Length, width	+0 / -2 mm
Diagonal difference	\leq 2 mm
Thickness: 10/12,5/15/18	\pm 0.2 mm

Assessments	
European Technical Assessment	ETA-03/0050
Marking according to EN 15283-2	GF-I-W2-C1
Building material class according to EN 13501-1	non-combustible, A2
Component classification	national/international

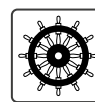
Characteristics depending on board thickness				
Thickness	10 mm	12.5 mm	15 mm	18 mm
Approx. weight per m ²	11.5 kg	14.5 kg	17.5 kg	21 kg

Dimensions in mm*				
1 500 × 1 000	✓	✓	✓	✓
2 000 × 1 250	✓	✓	✓	✓
2 500 × 1 250	✓	✓	✓	✓
2 540 × 1 250	✓	✓	✓	✓
2 600 × 625		✓		
2 750 × 1 250		✓	✓	✓
3 000 × 1 250		✓	✓	✓
Cut to size on request				

Dimensions with drywall edge (TB edge) in mm				
2 500 × 1 250		✓		
2 540 × 1 250		✓		
Cut to size on request				

*Other formats and thicknesses on request

fermacell® Firepanel A1



Homogeneous fiber reinforced gypsum-bonded drywall board with paper fibres and additions of non-combustible fibres, hydrophobised at the factory

- Complies with the highest European building material class A1 (EN13501-1).
- Offers even more efficient and slimmer components in fire protection than the well-known fermacell® gypsum fibre board.
- Processing as simple and fast as the original fermacell® gypsum fibre board.



Characteristics

Apparent density ρ_k (dry)	1 200 ± 50 kg/m ³
Flexural strength (dry)	> 5.8 N/mm ²
Water vapour diffusion resistance number μ according to EN ISO 12572	16
Thermal conductivity λ_R according to DIN EN 12667	0.38 W/mK
Elongation/shrinkage with change of relative humidity by 30 % (20 °C) according to EN 318	0.25 mm/m
Equilibrium humidity at 65 % relative humidity and 20 °C air temperature according to EN 322	1.30 %
Compressive strength perpendicular to the surface	> 18 N/mm ²
Alkalinity (pH value)	7–8
Flexural modulus of elasticity in N/mm ²	> 4500 N/mm ²

Dimensional tolerance at equilibrium moisture content for standard board sizes

Length, width	+0 / -2 mm
Diagonal difference	≤ 2 mm
Thickness	± 0.2 mm

Assessments

Marking according to DIN EN 15283-2	GF-I-W2-C1
Building material class according to DIN EN 13501-1	non-combustible, A1
IMO FTPC part 1	non-combustible
Component classification	national/european

Characteristics depending on board thickness

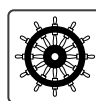
Thickness	10 mm	12.5 mm	15 mm
Approx. weight per m ²	12 kg	15 kg	18 kg

Dimensions in mm*

1 500 × 1 000		✓	
2 000 × 1 250	✓	✓	✓

* Other formats and thicknesses on request

fermacell® Powerpanel HD



Cement-bound, glass-fiber reinforced sandwich panel containing lightweight aggregates in the form of expanded clay granulate (in the middle layer) and recycled glass foam granulate (in both face layers).

- The ideal board material for outdoor use
- Statics, plaster base and fire protection in one panel material



Environmental Product Declaration (EPD)

Characteristics

Apparent density ρ_k (dry)	850–1 050 kg/m ³
Flexural strength according to DIN EN ≥ 310	≥ 2.1 N/mm ²
Water vapour diffusion resistance number μ according to EN ISO 12572	32 (damp); 37 (dry)
Thermal conductivity λ_R according to DIN EN 12664	0.29 W/mK
Elongation/shrinkage with change of relative humidity by 30 % (20 °C)	± 0.1 %
Equilibrium moisture at 65 % relative humidity and 20 °C air temperature according to EN 322	approx. 7 wt. %
Compressive strength according to EN 789 perpendicular to the surface	10.2 N/mm ²
Alkalinity (pH value)	approx. 12
Flexural modulus of elasticity acc. to EN 1995-1-1	4 200 N/mm ²
Use category in terms of weather resistance according to EN 12467	A, B, C, D

Dimensional tolerance at equilibrium moisture content for standard board sizes

Length, width	± 1 mm
Diagonal difference	≤ 2 mm
Thickness	± 1 mm

Characteristics depending on board thickness

Thickness	15 mm
Approx. weight per m ²	14.5 kg

Dimensions in mm*

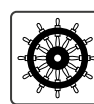
1 000 × 1 250	✓
2 600 × 1 250	✓
3 000 × 1 250	✓

* Other formats and thicknesses on request

Assessments

European Technical Assessment	ETA-13/0609
Building material class according to DIN EN 13501-1	non-combustible, A1
IMO FTPC part 1	non-combustible
Component classification	national/european

fermacell® Powerpanel H₂O



Cement-bound lightweight concrete slab with sandwich structure and top layer reinforcement of alkali-resistant glass fibre mesh on both sides

- Permanently water-resistant, also suitable for chemical stresses



Characteristics

Apparent density ρ_k (dry)	1 000 kg/m ³
Bending tensile strength (EN \geq 12467)	≥ 6.0 N/mm ²
Water vapour diffusion resistance number μ according to EN ISO 12572	56
Thermal conductivity λ_R according to DIN EN 12664	0.17 W/mK
Elongation/shrinkage with change in relative humidity in the range between 30 and 65 % (20 °C) according to EN 318	0.15 mm/m
Elongation/shrinkage with change in relative humidity in the range between 65 and 85 % (20 °C) according to EN 318	0,10 mm/m
Equilibrium humidity at 65 % relative humidity and 20 °C air temperature according to DIN EN 322	≥ 5 %
Compressive strength according to EN 789	11.7 N/mm ²
Alkalinity (pH value)	approx. 10
Modulus of elasticity in bending (based on EN 12467)	4 200 N/mm ²
Use category in terms of weather resistance according to EN 12467	A, B, C, D

Characteristic values as a function of board thickness

Thickness	12.5 mm
Approx. weight per m ²	12.5 kg

Dimensions in mm*

1 000 × 1 250	✓
2 000 × 1 250	✓
2 600 × 1 250	✓
3 010 × 1 250	✓

Dimensions with drywall edge (TB edge) in mm

1 000 × 1 250	✓
1 500 × 1 250	✓
2 000 × 1 250	✓
2 600 × 1 250	✓
3 010 × 1 250	✓

Assessments

European Technical Assessment	ETA-07/0087
National authorisation (indoor use)	AbZ Z-31.20-163
National approval (outdoor use)	AbZ Z-31.4-181
Building material class according to DIN EN 13501-1	non-combustible, A1
IMO FTPC part 1	non-combustible
Component classification	national/european

Dimensional tolerance at equilibrium moisture content for standard board sizes

Length, width	± 1 mm
Diagonal difference	≤ 2 mm
Thickness	± 0.5 mm

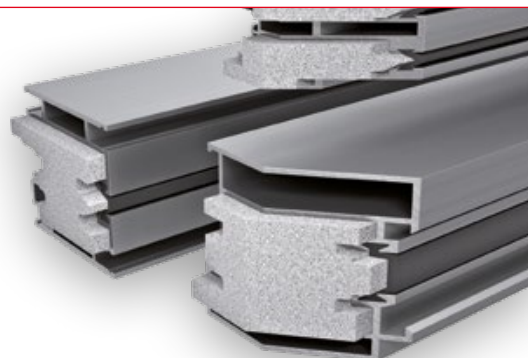
* Other formats and thicknesses on request



Aestuver™ profile filler

Mineral-bound dry mortar, specially developed for aluminium and steel hollow chamber profiles for the purpose of fire protection.

- Can be used in façade systems, windows and doors
- Weather-, frost- and water-resistant
- Glass-fibre reinforced and machinable – stabilising, cooling and insulating effect in case of fire



Characteristics

Apparent density ρ_k (dry)	approx. ~1.1 g/cm ³
Flexural strength according to DIN EN 196	approx. ~4 N/mm ²
Compressive strength according to EN 789	approx. ~20 N/mm ²
Alkalinity (pH value)	12–14
Use category in relation to weather influence according to ETAG 018-1	Type Z1, Z2, Y, X*

* internal proof





Assessments



Building material class according to DIN EN 13501-1	non-combustible, A1
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Processing

Water addition bag	approx. ~7.2 litres each
Water addition kg	approx. ~0.4 litres each
Processing time	approx. ~2 hours
Ambient temperature	> 5 °C
Yield	approx. 18l fresh mortar per bag
Packaging	18kg per bag, 45 bags per pallet
Storage	dry on pallet ~12 months

Technical accessories

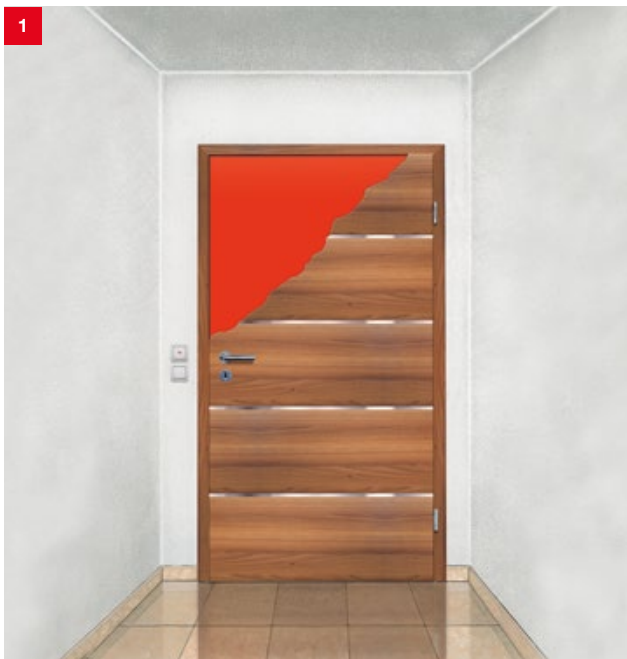
Article	Description	Quantity/Dimension	Article no.
Aestuver™ fire protection adhesive 1300			
	Non-combustible (EN13501-1, building material class A1), solvent-free water glass adhesive with mineral fillers for sealing and joining board materials.	20 pieces à 1 kg	8809903
		40 pieces à 1 kg	8809904
Aestuver™ fire protection mastic			
	European technically rated sealing compound used for the production of linear joint seals or fire barriers. Can be used as a sealant, potting compound or coating material as well as a sealant for fire protection joints in exterior or wet areas and as a cable penetration seal. <div><div>Typ X</div><div>ETAG 026-3</div></div>	310 ml Cartridge	8061011
		580 ml Foil tube	8061020
Aestuver™ Expansion joint tape			
	Compressible joint tape with halogen-free fire protection additives for the fire protection of joints in ceilings and walls.	16 mm	8061012
		24 mm	8061013
		30 mm	8061014
		39 mm	8061015
		49 mm	8061016
		60 mm	8061017
		70 mm	8061018
		80 mm	8061019
Aestuver™ FPM mastic			
	Aestuver™ FPM mastic is a silicone-free, directly paintable fire protection compound suitable for exterior use. With Aestuver™ FPM mastic joints in timber, solid and tunnel construction can be fire-protected.	600 ml	8849959

Article	Description	Quantity/Dimension	Article no.
Aestuver™ tape DSB			
	Fibre-free, high-foaming, graphite-based insulating layer former for system components, and special detailed solutions in structural fire protection.	10 mm	8062001
		20 mm	8062002
		30 mm	8062003
		40 mm	8062004
		50 mm	8062005
		up to 300 mm	8062006
fermacell™ Powerpanel fine surface treatment			
	Light, ready-to-use dispersion filler for overfilling as well as smoothing and filling.	10l	79090

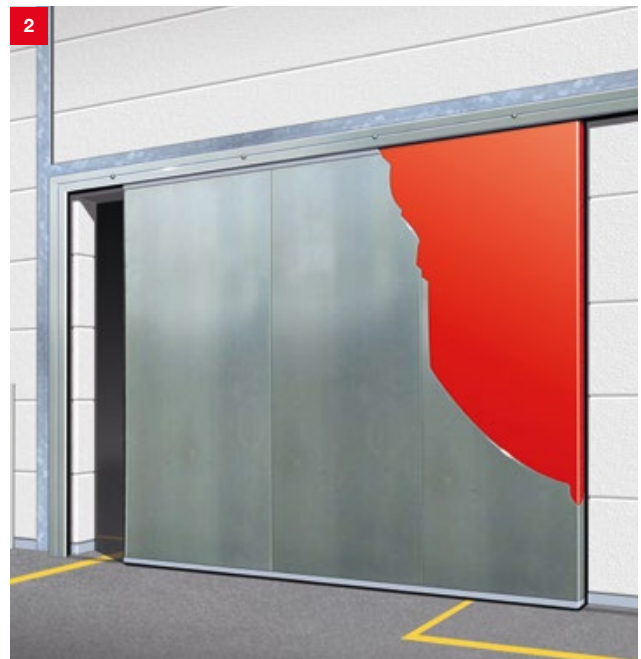
03 Application areas

fermacell® gypsum fibre boards and Aestuver® fire protection boards are always used when the highest demands are placed on the end product in terms of fire protection, weather and frost resistance. In the following different areas of application are presented as examples.

3.1 Fillings and support boards for fire doors and gates

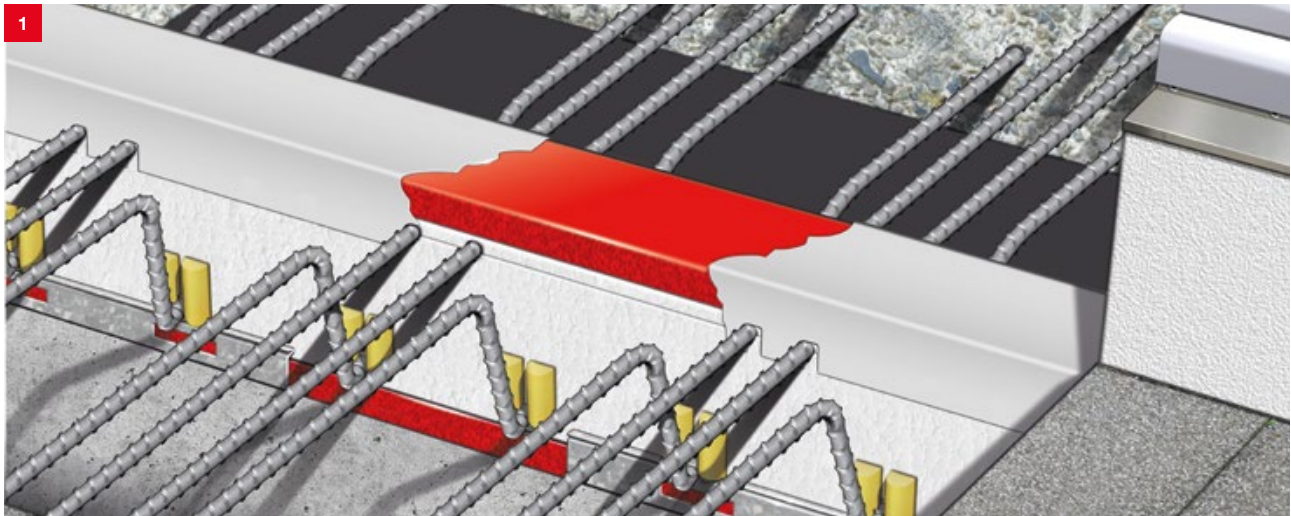


1 Metal and wooden fire doors



2 Fire doors for power stations or tunnels

3.2 Fire protection inserts for reinforcement elements

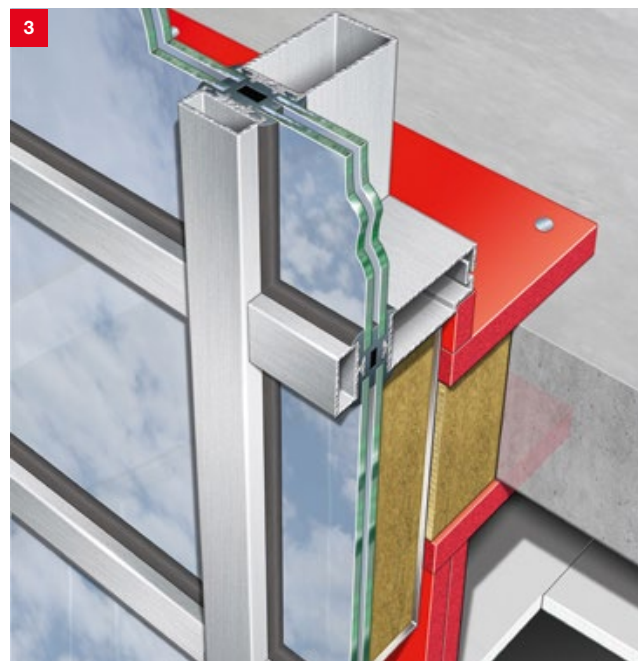


1 Fire protection strips in reinforcement elements in reinforced concrete construction

3.3 Fire protection elements in façade constructions



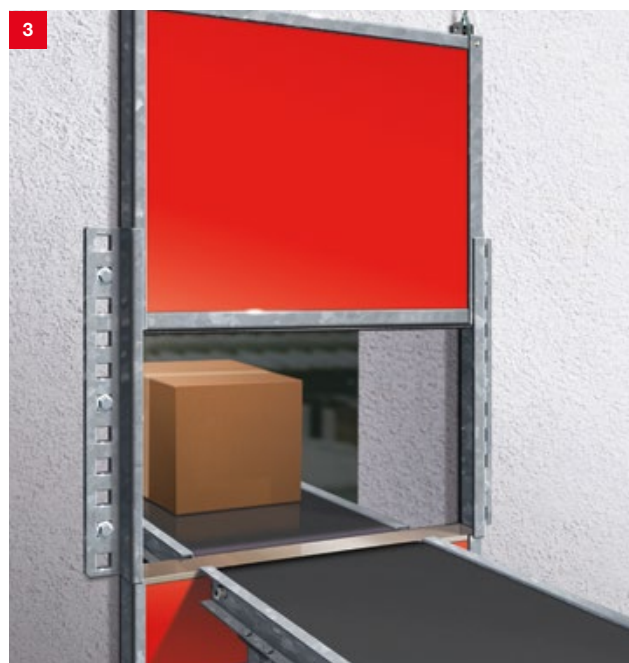
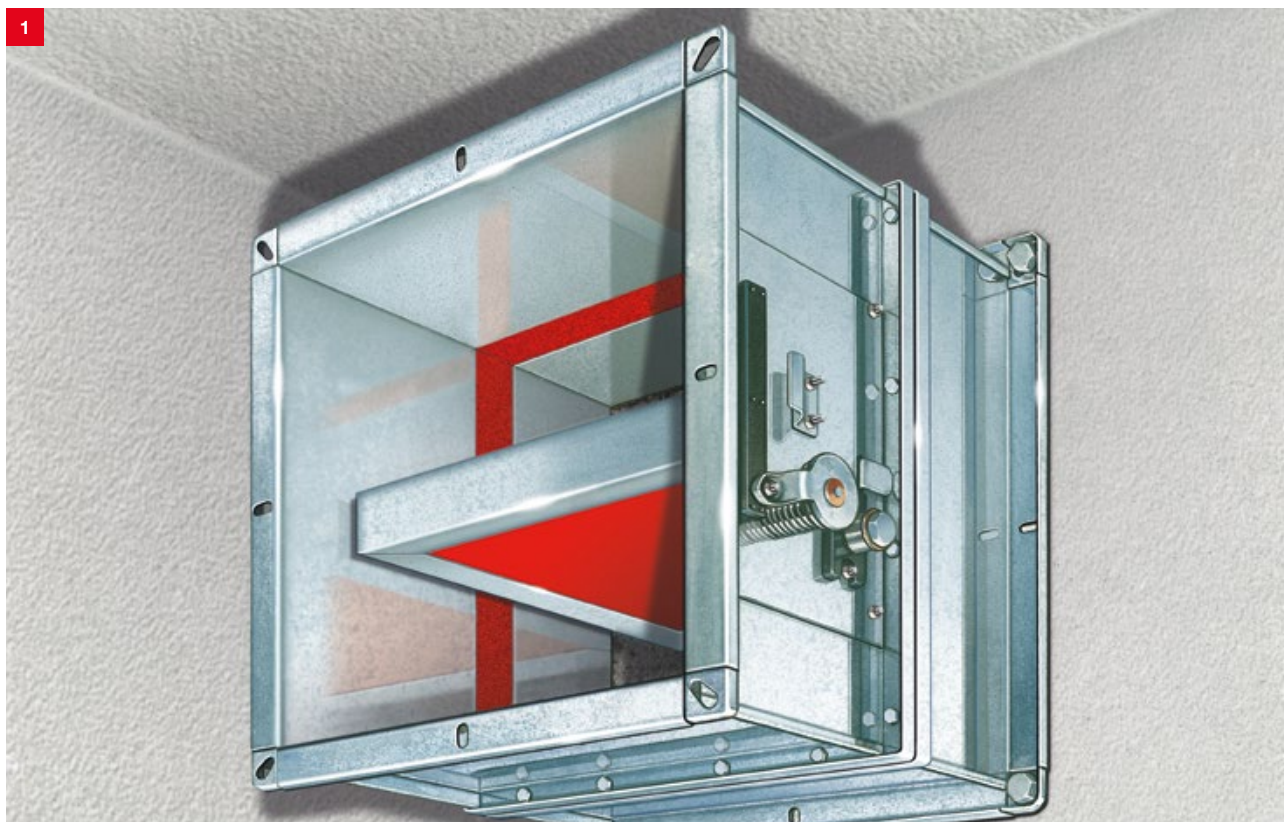
2 Fire protection insulators in façade systems



3 Blanks for fire protection parapet elements

2 + 3 Fire flashover in curtain wall glass facades

3.4 Insulation inserts and sheet material for fire dampers and hatches



1 Fire dampers or frames

2 Fire hatches and manhole covers

3 Fire barriers in track-bound conveyor systems

3.5 Insulating boards for safety containers



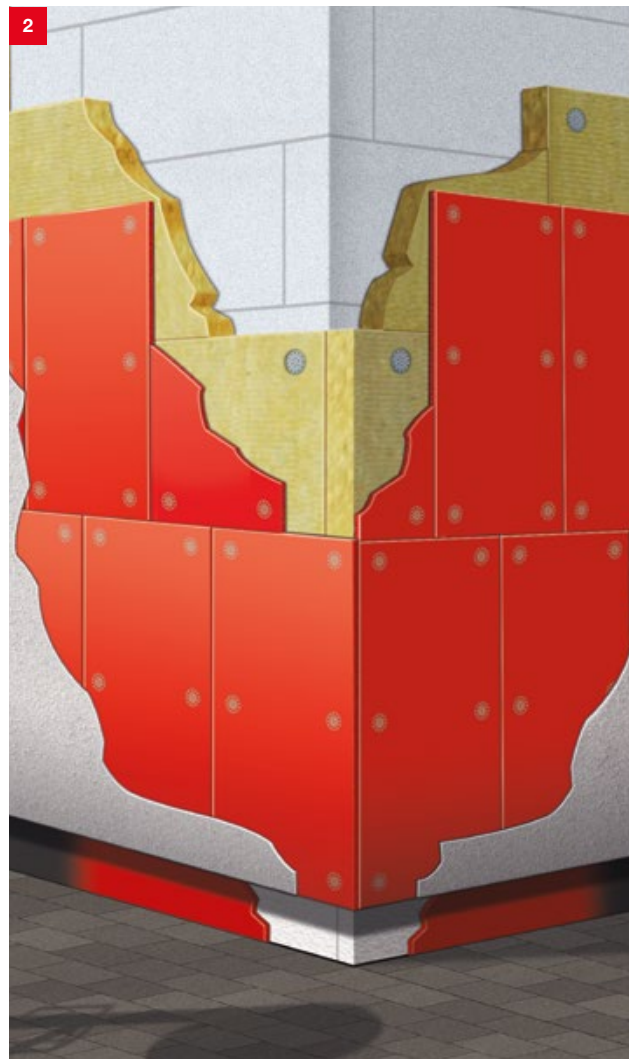
- 1 Insulation inserts and support boards for fire protection cabinets and safety containers as well as fire protection cladding for room cells and modular construction
-

3.6 Support plates pre-wall installations



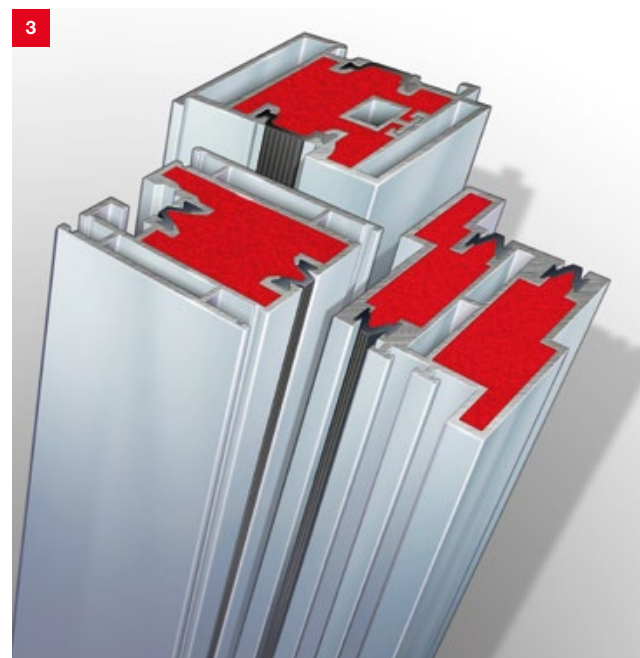
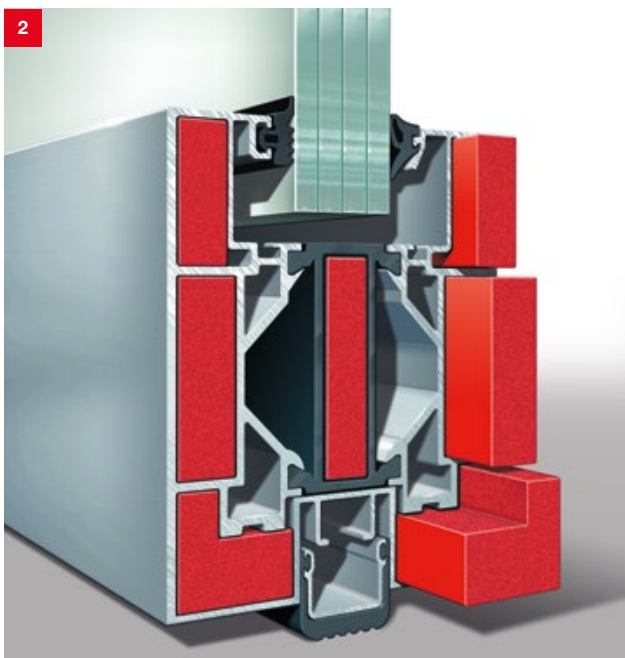
1 Support for pre-wall installations

3.7 Protective plates for ETIC systems



2 Facade and vandalism protection boards in ETIC systems

3.8 Insulators and inserts for fire protection profiles made of steel or aluminium



1 Fire protection insulators and boards in façade systems

2 Insulators and inserts for fire protection profiles

3 Profile filler for fire protection in complex hollow chamber profiles

04 Solutions and services

Manufacturer of components and systems with high fire protection requirements.

The proven fire and moisture resistance properties make James Hardie board materials a preferred product in industrial processing.

The fire protection requirements to be met, the geometry of the components and the production-specific requirements of our industrial and OEM customers determine the shape, processing and packaging of the products used.

In our component production, we implement your requirements with modern machinery.

The board materials are cut to size and processed according to individual customer specifications. In addition to the production of board blanks, the manufacture of prefabricated fittings and components is also possible.

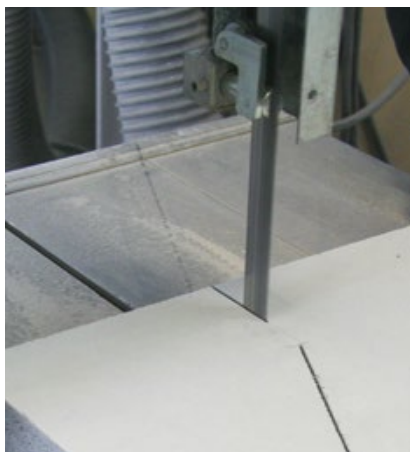
The board materials are cut to size, calibrated and individually confectioned, as well as packaged, labelled and shipped according to customer specifications in fixed packaging units. In addition, orienting fire tests can be carried out. New fire protection concepts can thus be tested for their safe function in a first step.

What component production offers you:

- Precisely cut boards according to your specifications
- Complex CNC machining
- Prefabricated fire protection components for all applications
- Holes and cut-outs
- Customer-related order picking
- orienting fire tests



Machine saw cutting in cutting line



Aestuver® fire protection boards can be easily machined with woodworking machines.



Aestuver® fire protection boards are first calibrated and the surfaces are sanded.



Sharp-edged corners and edges can also be created during sawing, milling and drilling.



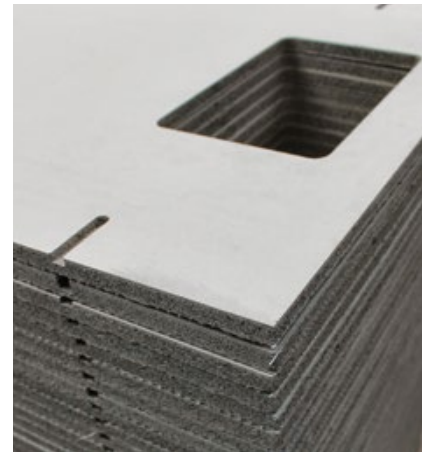
Even small and complex components can be produced without any problems.



Duct elements and moulded parts are prefabricated to exact dimensions.



Precisely fitting CNC machining in large-scale production is guaranteed.



The CNC centre processes the fire protection boards precisely and quickly.

05 Processing instructions

Board storage and transport

Aestuver® fire protection boards are delivered horizontally packed on pallets. They should always be stored flat on a level surface. Storage on edge can lead to deformation of the boards and damage to the edges.

If the board stacks are placed on slabs, it is imperative that their load-bearing capacity is taken into account. Storage outdoors is not permitted due to the frost and water resistance possible. However, due to the subsequent surface treatment and if boards are fixed to rigid substructures in the later application, the boards should be covered with a water-repellent cover and external contamination due to construction site operations should be excluded.

The horizontal board transport is possible with lift trucks or other board transport trolleys. Manual carrying of the boards is facilitated by tools, e.g. board lifters / carriers. If these tools are not available, the boards should be the processors wear gloves.

Cutting and machining

The Aestuver® fire protection boards are cut to size using a conventional rail-guided

Single boards must always be supported on edge.

circular saw with extraction (preferably as a plunge-cut saw) or with stationary boardsizing saws **1**

For precise and sharp-edged cuts, the use of carbide-tipped saw blades with alternating teeth is recommended. The dust content is reduced by using saw blades with a small number of teeth and at low rotational speeds.

Further processing, such as creating curves and adjustments, can be carried out with a jigsaw / router or with a cavity can drill.

CNC machining centres are predominantly used in the stationary sector. This enables the production of precisely fitting components and board blanks.

As is usual in the processing of board materials, we recommend the use of suction devices with run-on. Filigree contours can also be cut into Aestuver® sheet materials by water jet cutting.

Fasteners and spacing

For screw connections, we recommend the use of drywall screws with milled ribs on the countersunk head. For connections with resin-coated staples, we recommend using suitable for all commercially available makes.

To avoid surface damage, staplers should always be operated with a drive-in limiter according to the manufacturer's instructions.

Screwing or stapling is possible both in the board surface and in the board edge.

Distances to board edge

Screws **2**

- horizontal ≥ 15 mm
- vertical ≥ 40 mm

Staples

- horizontal ≥ 10 mm

Furthermore, the size and distances of the fasteners must be observed in accordance with the corresponding usability certificates!

For environments with increased requirements for corrosion protection, special requirements are placed on the quality of the substructure and fasteners. These requirements must be taken into account by the specialist planner – by specifying the materials to be used and suitable protective measures.



Aestuver® fire protection boards are cut to size with a rail-guided hand-held circular saw.

Fastener spacing				
	1-layer constructions	2-layer constructions 1 st and 2 nd layer in substructure	2-layer constructions 1 st layer in substructure and 2 nd layer board in board	
1. layer	Screws: ≤ 250 mm 4	Screws: ≤ 400 mm	Screws: ≤ 250 mm	
2. layer	–	Screws: ≤ 250 mm	Screws: ≤ 250 mm Row spacing: 400 mm 5	Screws: ≤ 150 mm Row spacing: 400 mm 7

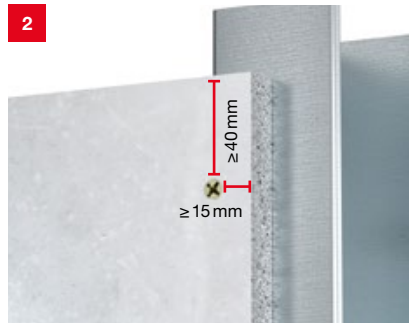
Joint formation

Aestuver® fire protection boards are always butt-jointed (joint width ≤ 1 mm) and, depending on the surface requirements, provided with a corresponding system for further surface build-up.

- Existing movement joints must be adopted.
- Separations of the construction must also be separated in the planking.

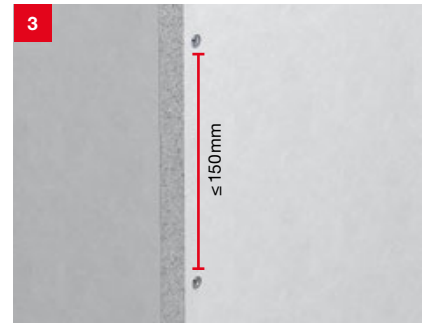
Bonding

Given the wide range of possible applications for Aestuver® fire protection boards, we recommend carrying out bonding tests depending on the application in order to determine the suitability of the selected bonding. Check the suitability of the joint for the respective application. It is not possible to bond the butt joints (in the surface) to achieve a closed joint pattern. To bond Aestuver® fire protection boards (corner bonding), use Aestuver™ fire protection adhesive 1300 or Aestuver™ assembly mortar **6**



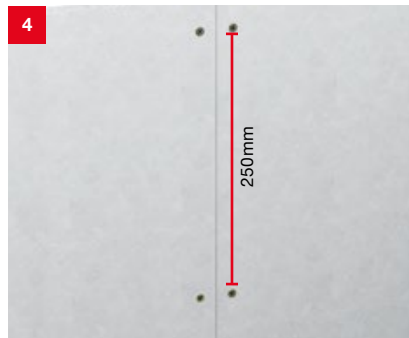
Edge distances

Board edge (horizontal): ≥ 15 mm
Board edge (vertical): ≥ 40 mm



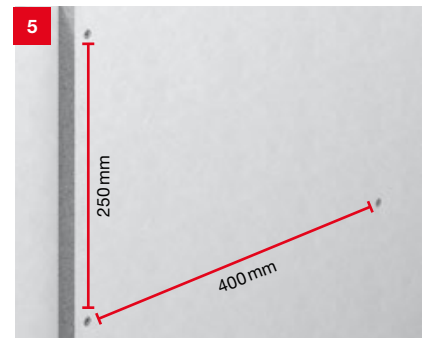
Fastener spacing

Corner connection, screws: ≤ 150 mm



Fastening in substructure

1-layer constructions



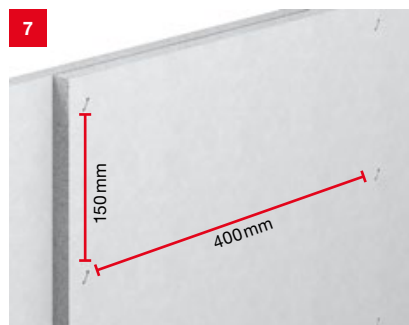
Fastening 2nd layer in 1st layer

2-layer constructions with screws



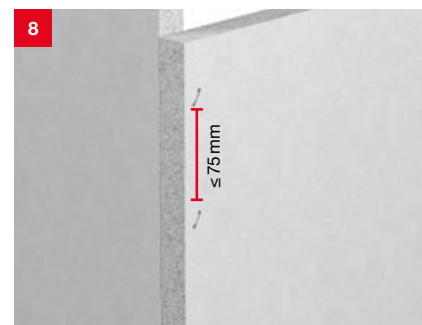
Bonding

with Aestuver™ fire protection adhesive 1300



Fastening 2nd layer in 1st layer

2-layer constructions with brackets



Fastener spacing

Corner joint, brackets: ≤ 75 mm

Bonding of corner joints or corner butt joints is not usually required, except fire protection cable ducts.

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Last updated 09/2024

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aes-420-00023/k/09.2024



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