

FASTENING & PENETRATION

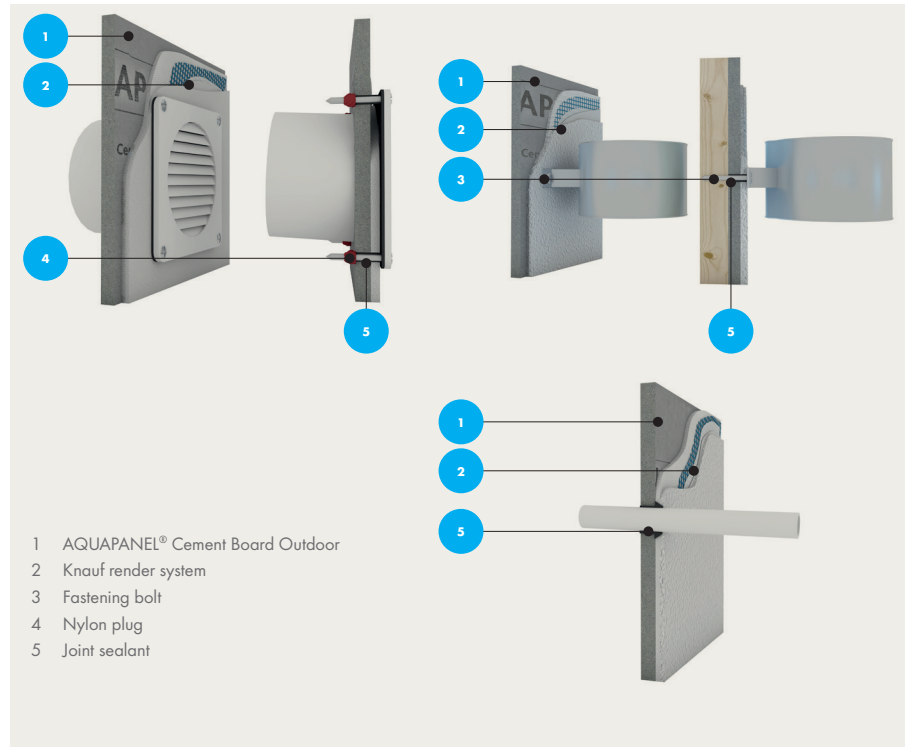
The Knauf Exterior Wall can be penetrated both on the inward and outward sides of the wall structure by fastenings, pipes or electrical cables. It is important to always ensure that the integrity of the wall structure is not compromised. Generally speaking, we always recommend keeping the need for pipelines and cable installations in exterior wall structures to a minimum. If you are expecting a large number of pipelines or cable penetrations, we recommend fitting an installation layer. For all other cases we recommend the following:

Fastenings on the outward side

Fastenings on the outward side of the Knauf Exterior Wall for installing lamps, pipe clamps, vents, letterboxes or similar items can be carried out on a case-by-case basis using suitable drywall plugs. Please note the maximum permitted loads as shown in the table (see below). External bore holes are sealed in the same way as structures using ETICS.

This utilises a plasto-elastic sealant suitable for outside use (these are also available for textured render finishes) that aims to prevent water from entering the bore holes etc. You should also consider suitable covers for penetrations.

Damage to the AQUAPANEL® Water Barrier through subsequent fastening should be avoided where possible, but will not lead to structural failure in isolated instances.



External plug sockets and switches

External sockets or switches should be installed the same way they would inside. See next page.

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Particular loads on façades

AQUAPANEL® Cement Board Outdoor: The combined tensile and shear load in kg is calculated on an assumed leverage force from lamps, signs, etc. that are 30 cm

high and max. 60 cm distance from façade (eccentricity). Spacing of the fastening plugs is > 75 mm. Panel loads must always be installed using at least 2 drywall plugs.

- › Universal plugs: e.g. Fischer FU, UX
- › Plastic drywall plugs: e.g. Hilti HLD
- › Plastic toggle plugs: e.g. Fischer K54
- › Gypsum plasterboard plugs: e.g. Fischer GKS

Steel screws d=4-5 mm are recommended for all plugs.

Combined tensile and shear loads in kg					
AQUAPANEL® Cement Board Outdoor	Universal plug		Plastic drywall plug	Plastic tipping plug	Gypsum plaster plug
	d = 6 mm	d = 8 mm			
1 x 12.5 mm	35	45	45	40	25

Fastenings on the internal side

Fastenings using pin-shaped fastening materials on the internal board layer, incl. vapour control layer may be carried out as long as a double layer of board is installed on the internal side.

You must ensure that penetrations in the vapour control layer between the two gypsum plasterboards remain sealed by the fastening material itself and is subject to sufficient compression from the second layer of gypsum board.

(For more information please refer to DIN 4108-7:2011-01 chapter 6.1.2)

Any penetrations that are no longer needed should be sealed air-tight using filler or sealant.

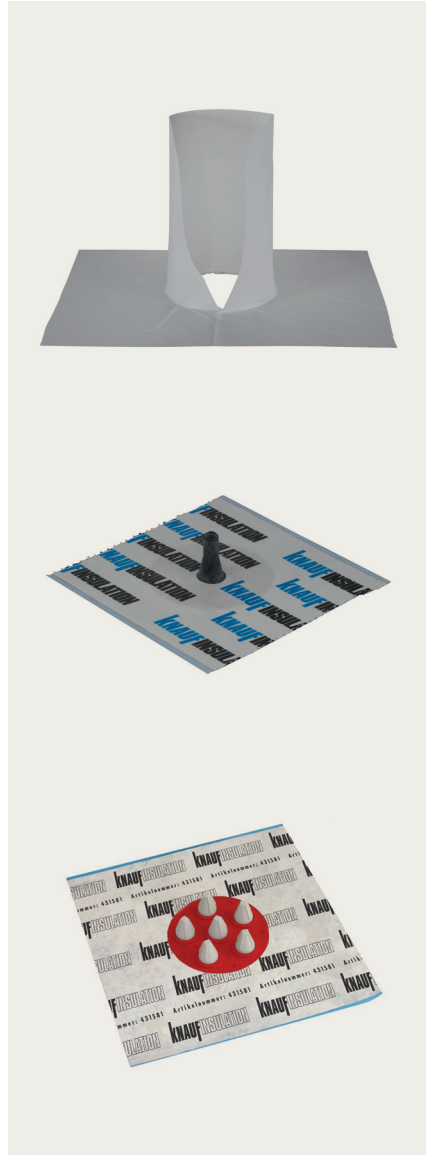
Cables and pipes on the internal side

For cables and pipes run through internal board layers incl. the vapour control layer. For further details please refer to the product datasheets:

- › Knauf Insulation LDS Universalmanschette
- › Knauf Insulation LDS Leitungsmanschette

Cables and pipes running parallel to the wall plane inside the Knauf Exterior Wall can be installed through the supporting structure on the internal side or through the area of intermediate insulation. The airtight

inward-facing board is installed afterwards and is not penetrated.



Plug sockets and switches on the internal side

Sockets and switches can be installed on the internal side of the Knauf Exterior wall, as long as airtight drywall pattress boxes are used. With an inward-facing board structure using two layers of board and a vapour barrier between, the airtight junction between a drywall pattress box and a vapour control layer is ensured as long as the hole required is the exact size and is made using a suitable hole cutter.

Installation layer on the internal side

If a large number of penetrations through the inward-facing airtight layer (vapour control layer) are expected, an additional installation layer should be included, e.g. using horizontal CD profiles. An installation depth of 60 mm (for drywall pattress boxes) can be achieved for example with a CD profile incl. CD clip (30 mm) + 2 x 15 mm Knauf Diamant boards.



Up to 65 kg - Drywall plug For fixing panel loads up to 0.4 kN/m or 0.7 kN/m

Knauf Diamant board thickness	Maximum plug load		
	Plastic drywall plug Ø 8 mm oder 10 mm	Metal drywall plug screw, M5 or M6	Knauf drywall plug Hartmut, screw, M5
2 x 12,5 mm	45	55	60
≥ 2 x 15 mm	50	60	65

¹e.g. Tox Universal, Fischer Universal, Molly Schraubanker or equivalent.