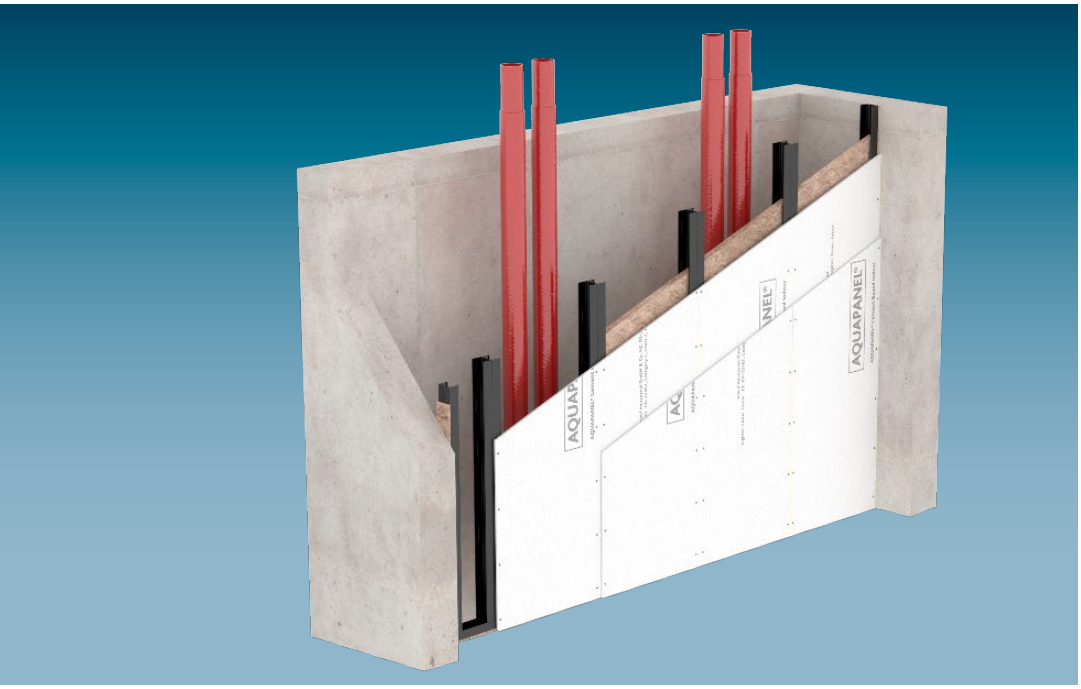

Drywall Systems

W69.de

System Data Sheet 2024-03

Knauf AQUAPANEL® Installation Shaft Walls

W699.de – Knauf AQUAPANEL® Installation Shaft Wall – Stud construction with CW double profiles

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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Information on Sustainability

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 (e.g. abP) valid at the date they are published as well as on the applicable standards. Additionally, design and structural requirements and those relating to building physics (fire resistance and sound insulation) 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 AQUAPANEL Metal Stud Partitions ® W38.de
- Knauf AQUAPANEL® Furring W68.de
- Knauf Board Ceiling AQUAPANEL® D28.de
- Knauf Installation Shaft Walls W62.de

Technical brochures

- Drywall Solutions in Damp and Wet Rooms FN01.de

Folders

- Fire Resistance with Knauf BS1.de (German only)

Product data sheets

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

Symbols in the system data sheet

The following symbols are used in this document:

Insulation layers

(S) Mineral wool insulation layer acc. to EN 13162
non-combustible melting point ≥ 1000 °C acc. to DIN 4102-17
(insulating material, e.g. from Knauf Insulation)

Intended use of Knauf Systems

Please observe the following:

Caution	Knauf systems may only be used in the applications as described in the Knauf documents. 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.

General instructions for Knauf systems

Field of application

Knauf AQUAPANEL® Installation Shaft Walls are clad with AQUAPANEL® Cement Board Indoor Lighter.Easier.Faster. cladding and are adapted to the demands of damp and wet rooms with a suitable corrosion protected substrate.

These special drywall systems are used as a constructional separation (integrity) for installation shaft in rooms where moisture and/or splash water exposure of the wall surfaces is expected, e.g.:

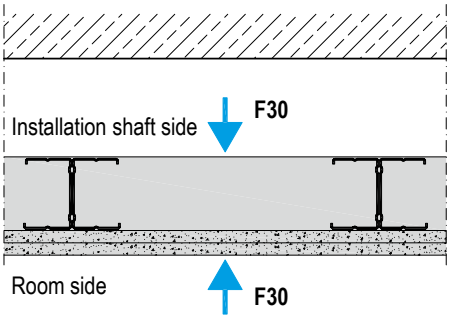
- Showers in sporting arenas
- Wellness areas
- Swimming pools
- Commercial kitchens
- Laundries
- Underground car parks

Term definition

AQUAPANEL® Cement Board Indoor Lighter.Easier.Faster.
The product name is referred to using an abbreviation in this document.
AQUAPANEL® Cement Board Indoor L.E.F.

Notes on fire resistance

The system specifications must be observed to achieve the stated fire resistance. Fire protection is effective from the room side and from the shaft cavity side for all Knauf AQUAPANEL® Installation Shaft Walls.



Reinforcing and supporting connection components must at least feature the same fire resistance class.

Installation zones acc. to DIN 4103-1

Installation zone 1

Partitions in rooms where low numbers of persons gather, e.g. dwellings, hotels, office and hospital rooms including corridors and halls or similar.

Installation zone 2

Partitions in rooms where large numbers of persons gather, e.g. meeting halls, school classrooms, auditoria, exhibition halls and sales rooms as well as rooms with a similar use.

Unless otherwise stated, the value in the table is the maximum permissible partition height for installation zone 2.

Construction notes

Movement joints

Movement joints of the main structure should be integrated into the construction of the Knauf Installation Shaft Walls. Movement joints required at spacings of approx. 7.5 m in case of continuous installation shaft walls with cladding made of AQUAPANEL® Cement Board Indoor L.E.F.

Notes on damp and wet rooms

In case of application in damp and wet rooms, it is essential to ensure the sealing of the construction, and if necessary, the protection against rust and corrosion.

For more detailed information see:

- DIN 18534-1 – Waterproofing for indoor applications
- Code of Practice No. 5 – Bathrooms and wet rooms in timber and drywall, waterproofing for indoor applications acc. to DIN 18534-1 (German only)
- Code of Practice 10 – Corrosion protection in drywalling (German only) issued by the Bundesverband der Gipsindustrie e.V.
- Code of Practice – Aapplication of seals with linings and covering (AIV) of the Zentralverband des Deutschen Baugewerbes e.V. (Association of the German Building Industry)
- As well as on page 7 to 9

In rooms with continuously high levels of moisture and even the presence of chemicals, such as large-scale kitchens, swimming pools, saunas or chemical laboratories, additional measures may need to be observed such as vapour barriers and additional corrosion protection of the profiles.

Note	Vapour barrier to suit the building physics properties

Notes on sound insulation

Requirements for the insulation layer:
Mineral wool insulation layer acc. to EN 13162
(Insulation materials, e.g. from Knauf Insulation);
Length-related flow resistance of 5 kPa·s/m^2 ≤ r ≤ 50 kPa·s/m^2 acc. to DIN 4109-33

R_w = Weighted sound reduction index in dB without sound transmission via flanking building components

Proofs of Usability

Knauf system	Fire protection	Sound insulation Knauf Sound Insulation Proof	Structural engineering
W699.de	AbP P-2100/803/18-MPA BS	L 020-08.09	AbP P-1101/714/18-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

The specifications marked with plus offer additional application options, which are not directly included in the Certificate of Usability. On the basis of our technical assessments, we assume that these marked design solutions can be assessed as a non-significant divergence. We can make the documentation on which this assessment is based, such as surveyors' reports or technical assessments, available to you together with the Certificate of Usability on request. We recommend that a non-significant divergence be coordinated and authorised in advance in consultation between the persons responsible for fire resistance and/or the relevant authorities.

plus Extension of the fire resistance Proof of Usability

Prior consultation with respect to fire resistance notes recommended.

Knauf system	Divergences
W699.de	■ When implementing enhanced details ■ When implementing perimeter connection joint cladding with a permanently elastic seal ■ With horizontal board application

Water action classes acc. to DIN 18534-1

Water action class	Water exposure/impact	Description	Application examples [1) 2)]
Area of application for gypsum boards and cementitious mineral wallboards (moisture sensitive substrates)			
W0-I	Low	Surfaces that are not frequently subjected to splash water	■ Areas of wall surfaces located above washbasins in bathrooms and sinks in domestic kitchens ■ Areas of floor surfaces in domestic areas without drains, e.g. in kitchens, domestic utility rooms, guest WCs
W1-I	Moderate	Surfaces that are not frequently subjected to splash water or infrequent exposure to process water, without intensified exposure to accumulating water	■ Wall surfaces above bath tubs and in showers in bathrooms ■ Floor surfaces in domestic bathrooms with drain ■ Floor surfaces in bathrooms without/with drain without high level of water exposure from the shower area
Area of application for cementitious mineral wallboards (moisture insensitive substrates)			
W2-I[4)]	High	Surfaces that are not frequently subjected to splash water and / or process water, particularly on the floor where partially intensified by exposure to accumulating water	■ Wall surfaces of showers in sports facilities / commercial areas[3)] ■ Floor surfaces with drains and/or chutes ■ Floor surfaces in rooms with showers flush with the floor ■ Wall and floor surfaces of sports facilities / commercial areas[3)]
W3-I[4)]	Very high	Surfaces with frequent or long exposure to splash water and/or process water and / or water from vigorous cleaning processes, intensified by exposure to accumulating water	■ Surfaces in the areas surrounding swimming pools ■ Surfaces in showers and large scale showers in sporting facilities / commercial areas ■ Surfaces in commercial areas[3)] (industrial kitchens, laundries, breweries, etc.)

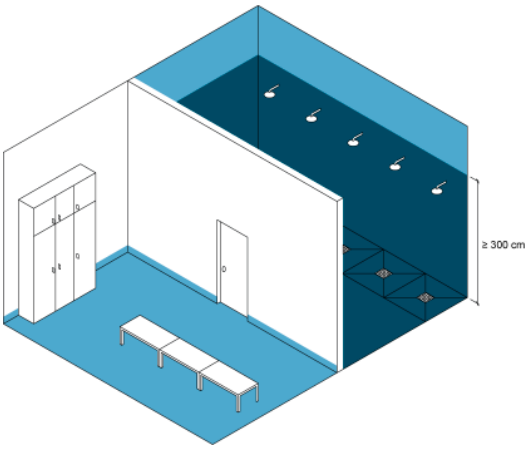
1) *It may be useful to assign adjacent not protected areas with the respective higher water action classes, because of their insufficient physical distance or lack of building measures (e.g. shower screens).*

2) *The application cases can be assigned to various water action classes to comply with the expected water effects.*

3) *Sealing surfaces if applicable with additional chemical exposure.*

4) *In chapter 6.2 "Condition of the Substrate" of the DIN 18534-1 for water action classes W2-I and W3-I, cementitious mineral wallboards are specified as the moisture insensitive substrates (see also page 8).*

Application examples



Example for the water action class W3-I showers in public swimming pools, fitness studios, etc.

Application examples legend

- *No or low exposure to splash water, water action class **W0-I***
- *Moderate exposure to splash water (splash water zone), water action class **W1-I***
- *High exposure to splash water, water action class **W2-I***
- *Very high exposure to splash water, water action class **W3-I***

Definition of the substrates acc. to DIN 18534-1

Moisture sensitive substrates	Moisture insensitive substrates
■ Gypsum plasters and gypsum lime plasters made of dry gypsum mortar acc. to EN 13279-1 ■ Gypsum wallboards acc. to EN 12859 ■ Gypsum boards with fleece reinforcement acc. to EN 15283-1 ■ Gypsum fibre boards acc. to EN 15283-2 ■ Gypsum boards acc. to DIN 18180 or EN 520 ■ Calcium sulphate based screed acc. to EN 13813 ■ Wood and wooden composite materials	■ Concrete acc. to DIN EN 206 ■ Lime cement plaster of mortar group CS II/III acc. to EN 998-1 ■ Cement of mortar group CS IV acc. to EN 998-1 ■ Cavity wallboards made of light concrete acc. to DIN 18148 ■ Cementitious mineral wallboards ■ Composite units made of expanded or extruded polystyrene with coating of mortar and mesh reinforcement ■ Aerated concrete boards acc. to DIN 4166 ■ Cementitious screed ■ Corrosion-protected metallic materials ■ Products with Certificate of Usability (abZ/aBG/ETA) for this area

Fundamentals

Corrosion

Corrosion is the chemical reaction of metallic materials with substances in the environment. These materials often lose their good surface qualities and structural properties due to corrosion. The changes are measurable. Corrosion is often an electro-chemical phenomenon.

Corrosion protection

In rooms, in which the relative humidity only briefly exceeds 60% in the course of the day and where condensation and corrosive impurities can be excluded with certainty, standard metal profiles are used in wall and ceiling systems. An example here would be domestic applications.

On the other hand, in rooms with high levels of air humidity or special atmospheric conditions, measures for enhanced corrosion protection are required. Knauf offers the wet room stud frame with additional protection against corrosion specially for this field of application. The damp room stud frames fulfil the demands of the corrosivity category C3 (high) and C5 (high).

Definition of corrosion acc. to DIN EN ISO 8044

Corrosion means the physicochemical interaction between a metal and its environment which leads to a change in the properties of the metal and is liable to cause substantial impairment of the function of the metal, the environment or the technical system of which the metal is a part. This interaction is often of an electro-chemical nature. For determination of the required level of corrosion protection or the corrosivity category, the table “Approximate assignment of the atmospheric conditions of the DIN EN ISO 12944” can be used.

Normative background

In order to provide an assessment basis for partition stud frames, the standard DIN EN ISO 12944 “Corrosion protection of steel structures by protective paint systems” or DIN 55634 “Paints, varnishes and coatings – Corrosion protection of supporting thin-walled building components made of steel” can be used as a reference.

Corrosivity, extract from the standard series DIN EN ISO 12944

Corrosivity category Corrosion stress	Corrosivity	Durability		Condensing of water vapour	Influence of salt spray	Examples of typical environments
		Category	Years	Hours	Hours	Interior
C1 negligible	Very low, hardly aggressive, interior	Low	Up to 7	–	–	Heated buildings with a neutral atmosphere, e.g. offices, shops, schools, hotels
		Medium	7 to 15	–	–	
		High	15 to 25	–	–	
C2 low	Very low, Moderately aggressive, exterior/interior	Low	Up to 7	48	–	Unheated building where condensation can occur, e.g. Warehouses, sports halls
		Medium	7 to 15	48	–	
		High	15 to 25	120	–	
C3 moderate	Moderate, hardly aggressive, external/internal	Low	Up to 7	48	120	Production rooms with high levels of moisture and some air pollution, e.g. plants for manufacturing foodstuffs, laundries, breweries, dairies
		Medium	7 to 15	120	240	
		High	15 to 25	240	480	
C4 high	High, moderately aggressive, external/internal	Low	Up to 7	120	240	Chemical plants, swimming pools, coastal dockyards and boathouses.
		Medium	7 to 15	240	480	
		High	15 to 25	480	720	
C5 very high (maritime)	Very high, maritime, external/internal	Low	Up to 7	240	480	Buildings or areas with almost permanent condensation and high degree of contamination.
		Medium	7 to 15	480	720	
		High	15 to 25	720	1440	

Necessary corrosion protection in dependence on the substrate and water action class

Substrate	Corrosion protection							
	W0-I (low)		W1-I (moderate)		W2-I (high)		W3-I (very high)	
	Wall	Ceiling	Wall	Ceiling	Wall	Ceiling	Wall	Ceiling
AQUAPANEL® Cement Board Indoor L.E.F.	Z100	Z100	Z100/C3[1)]	Z100	C3	C3	C3/C5	C3

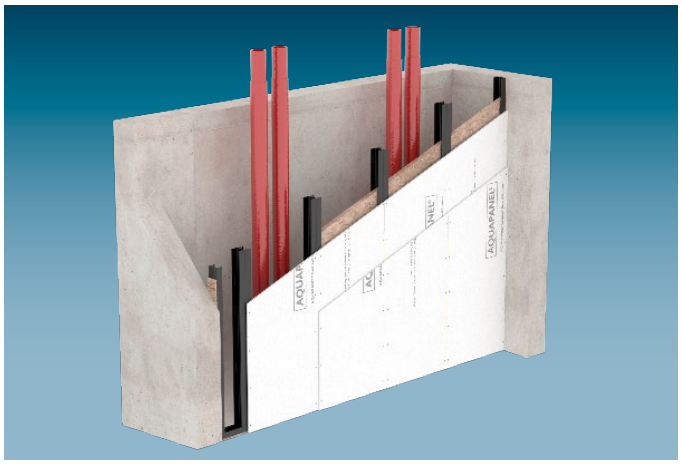
1) Z100 with seal or C3 without seal

Notes	
	When exposed to corrosive substances on the surface or in the air, the minimum requirement is always C5.
	Z100 describes the protective coating of the profiles in acc. to DIN 18182-1 in conjunction with the DIN EN 14195.
	The definition of the necessary corrosion protection is undertaken by the planner.
	For further planning and application details see technical brochure Drywall Solutions in Damp and Wet Rooms FN01.de.

Knauf AQUAPANEL® Installation Shaft Walls

Knauf AQUAPANEL® Installation Shaft Walls are metal stud partitions clad on one side with a fire resistance rating, and if necessary, with a sound insulation rating providing constructional separation of installation shafts. Fire protection is provided both internally (fire in the installation shaft, protects against fire spreading to surrounding rooms) and externally (protection of the equipment as well as the spread of fire to other floors). Knauf AQUAPANEL® Installation Shaft Walls consists of a metal grid and a double-layer cladding made of AQUAPANEL® Cement Board Indoor L.E.F fixed to one side. The grid frame is connected all around to the flanking constructional components.
The protective treatment of the frame influences the suitability as regards the water impact.

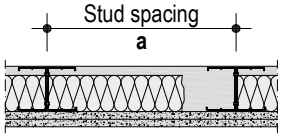
W699.de AQUAPANEL® Installation Shaft Wall with double stud profiles



The installation shaft wall system **W699.de** is applied using a single metal stud frame made of double profiles. This facilitates particularly slim solutions.

- CW metal stud as a double profile
- Perimeter connection with CW studs, upper and lower perimeter with UW runners
- Fire resistance class: F30
- Wall height up to: 3.00 m
- Sound reduction index up to: 38 dB

System variants

Knauf system	Fire resistance class	Cladding: AQUAPANEL® Cement Board Indoor L.E.F.	Cladding: Min. thickness t mm	Weight: Without insulation layer approx. kg/m²	Wall thickness D mm	Profile Knauf CW Z100/C3/C5M Cavity h mm	Insulation layer: Technical fire protection requirement: Minimum thickness mm	Insulation layer: Minimum density kg/m³	Sound insulation: Sound reduction index: Minimum insulation layer thickness 40 mm R_w dB	60 mm R_w dB	80 mm R_w dB
W699.de AQUAPANEL® Installation Shaft Wall with double profile stud partition frame Single metal stud frame with CW double profiles, double-layer cladding											
	F30	•	2x 12.5	25	75	50	Mineral wool (S) 40	39	*38*	≥ *38*	≥ *38*
					100	75					
					125	100					

Sound reduction index values *represented in italics are derived values from measurements on divergent constructions.*

Back the upper and lower profile as well as the lateral perimeter profiles with mineral wool insulation strips (S).

Demands on the insulation layer (Insulation materials, e.g. from Knauf Insulation):

- Required for fire resistance: See table
- Required for sound insulation: Mineral wool, length-related flow resistance of 5 kPa·s/m² ≤ r ≤ 50 kPa·s/m² acc. to DIN 4109-33

Wall heights

Double-layer cladding

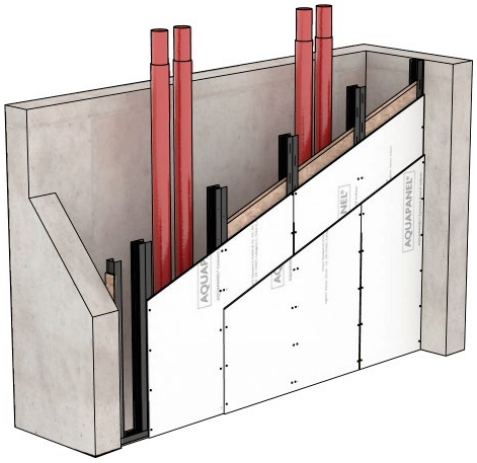
Knauf profiles Metal gauge 0.6 mm	Maximum stud spacing a mm	Maximum partition heights W699.de m
2x CW 50	625	3.00
2x CW 75	625	3.00
2x CW 100	625	3.00

Notes	Observe the notes on pages 4 to 5. For further planning and application details see technical brochure Drywall Solutions in Damp and Wet Rooms FN01.de.

Details

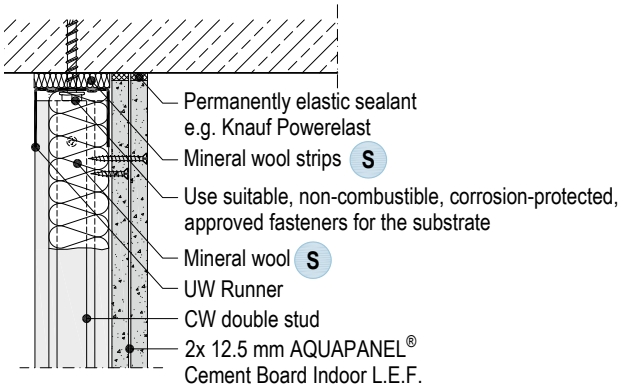
Scale 1:5

W699.de-P1 Vertical board layers



W699.de VO1 Ceiling connection to basic ceiling

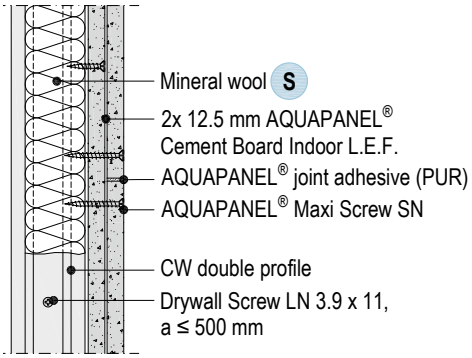
Vertical section



plus **Extension of the fire resistance proof of usability**
Prior consultation in acc. to page 6 recommended

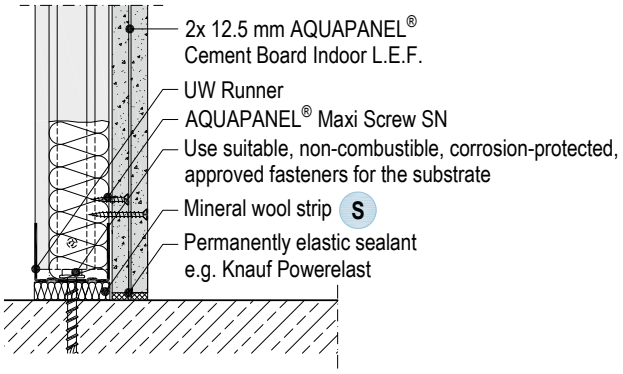
W699.de-VM1 Board joint

Vertical section



W699.de-VU1 Connection to floor on basic floor

Vertical section



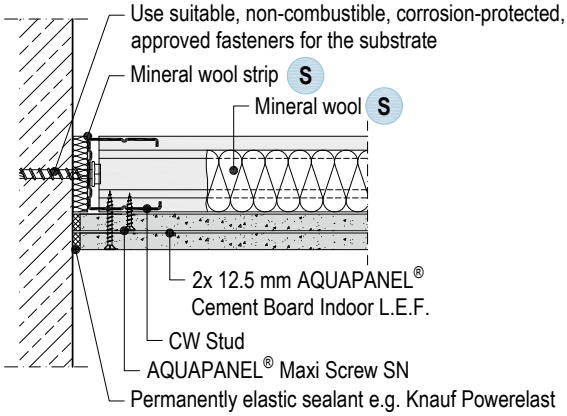
plus **Extension of the fire resistance proof of usability**
Prior consultation in acc. to page 6 recommended

Details

Scale 1:5

W699.de-A1 Connection to solid wall

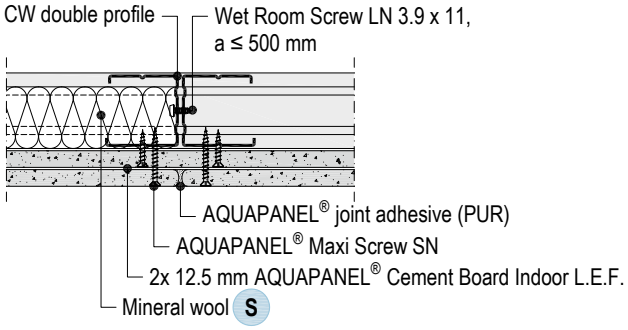
Horizontal section



plus **Extension of the fire resistance proof of usability**
Prior consultation in acc. to page 6 recommended

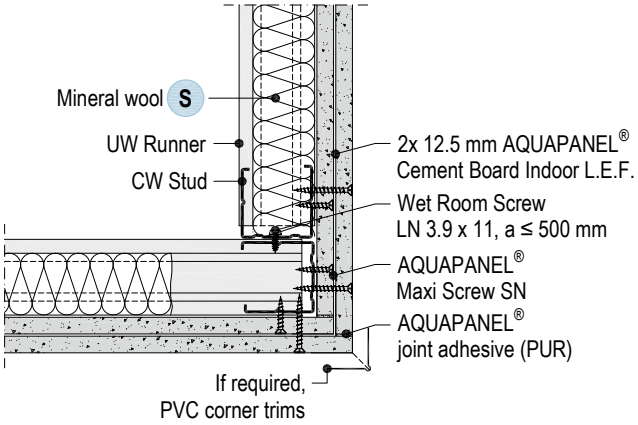
W699.de-B1 Board joint

Horizontal section



W699.de-D1 Corner

Horizontal section



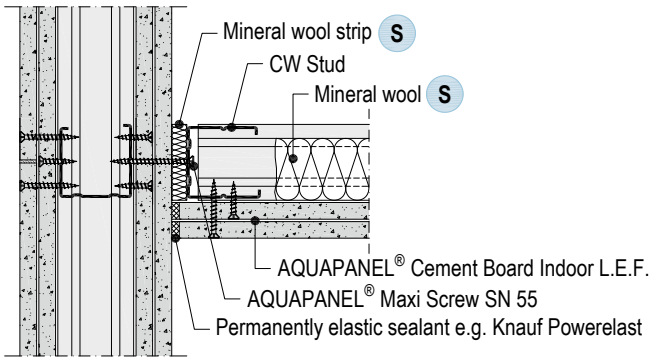
plus **Extension of the fire resistance proof of usability**
Prior consultation in acc. to page 6 recommended

Details

Scale 1:5 I Dimensions in mm

W699.de-SO1 Connection to metal stud partition

Horizontal section

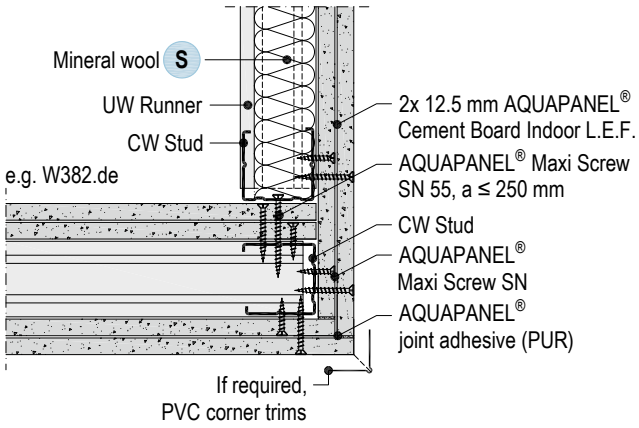


e.g. W382.de

plus **Extension of the fire resistance proof of usability**
Prior consultation in acc. to page 6 recommended

W699.de-SO2 Corner – Connection to metal stud partition

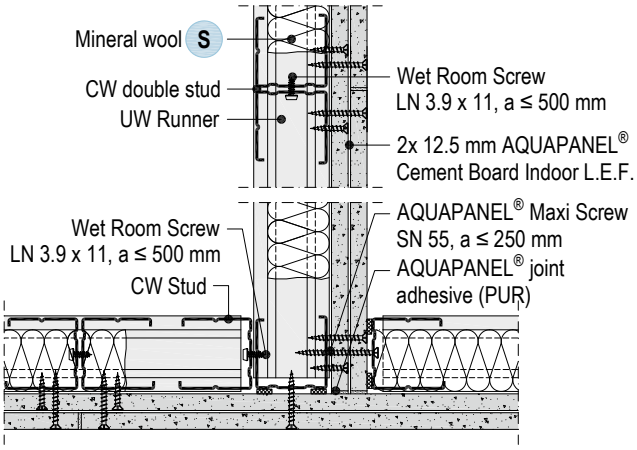
Horizontal section



plus **Extension of the fire resistance proof of usability**
Prior consultation in acc. to page 6 recommended

W699.de-SO3 T connection Installation Shaft Wall

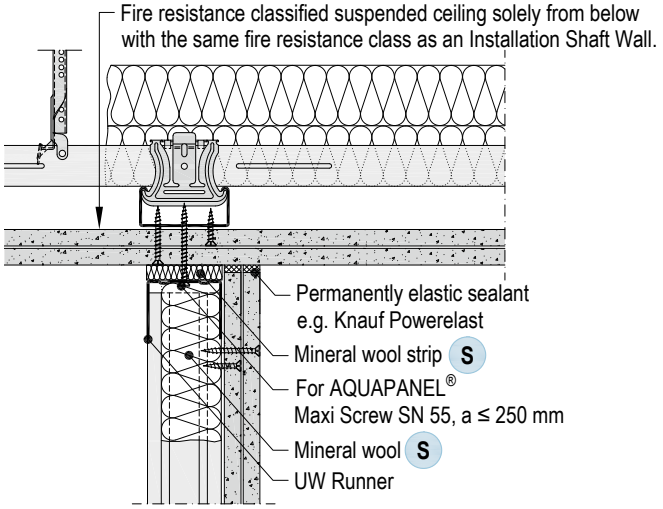
Horizontal section



plus **Extension of the fire resistance proof of usability**
Prior consultation in acc. to page 6 recommended

W699.de-SO5 Ceiling connection on board ceiling

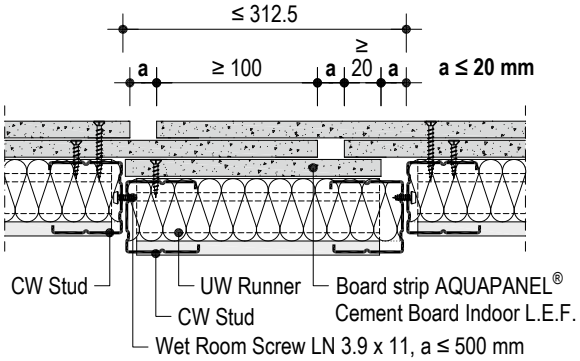
Vertical section



plus **Extension of the fire resistance proof of usability**
Prior consultation in acc. to page 6 recommended

W699.de-SO4 Movement joint

Horizontal section



plus **Extension of the fire resistance proof of usability**
Prior consultation in acc.to page 6 recommended

Frame

Scheme drawings

Corrosion protected profile

Depending on the requirements for the building, use galvanized (Z100) or corrosion protected (C3/C5M) profiles, accessories and fasteners. See also the technical brochure Drywall Solutions in Damp and Wet Rooms FN01.de. The cut edges of the C3/C5M profiles or small parts must always be recoated. We recommend the grey Drystar corrosion protection lacquer C3/C5M. On-site, it will be immediately recognizable if all the required subsequent work has been carried out.

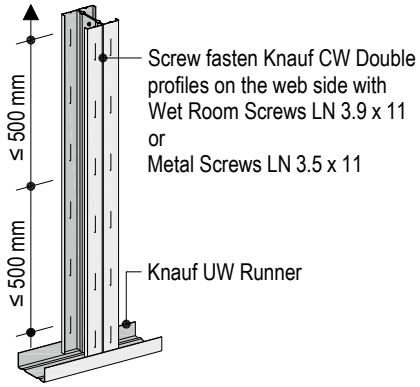
Stud partition

Back perimeter runners with mineral wool strips (S) in profile width, e.g. Knauf Edge Insulation Strip. Anchor perimeter runners to the floor and ceiling. Anchor wall perimeter runners with suitable dowels to flanking walls.

Use suitable fasteners:
Use suitable, non-combustible, corrosion-protected, approved fasteners for the substrate, e.g. from Hilti

Partition height	Maximum distance between fastener centres	
	Wall perimeter runner	Ceiling and floor connection profiles
m	mm	mm
≤ 3.00	500	500

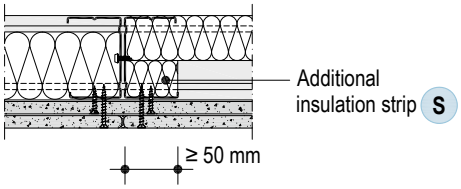
Screw connect longitudinally aligned CW profiles on the web end at intervals of ≤ 500 mm using LN 3.9 x 11 wet room screws for C3/C5M profiles or Metal Screws LN 3.5 x 11 for CW double profiles Z100.
Place the double profile into the UW Runners and align at an axial spacing ≤ 625 mm.



Caution	Profile extensions are not permitted

Insulation layer

Depending on the requirements for fire protection, sound insulation and thermal insulation, secure the insulation against sliding (compress up to approx. 10 mm) and tightly joint in the grid (or if necessary install insulation strips as to prevent sliding in the stud profiles).
Additional insulation strips for deviation of the insulation material thickness > 20 mm from the stud web width.

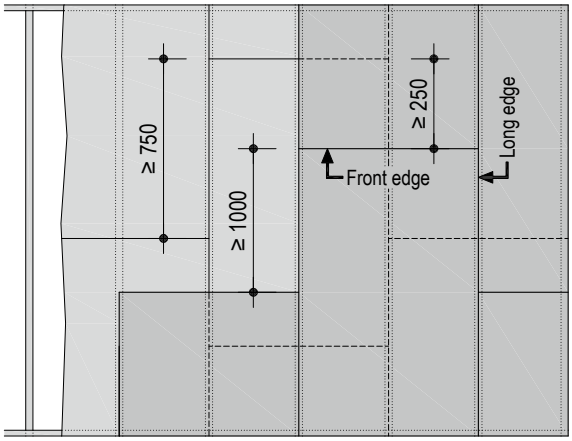


Installation schemes

Scheme drawings I Dimensions in mm

Board layers vertical

- AQUAPANEL® Cement Board Indoor L.E.F. **1250 x 2000** mm
- Stud spacing: 625 mm



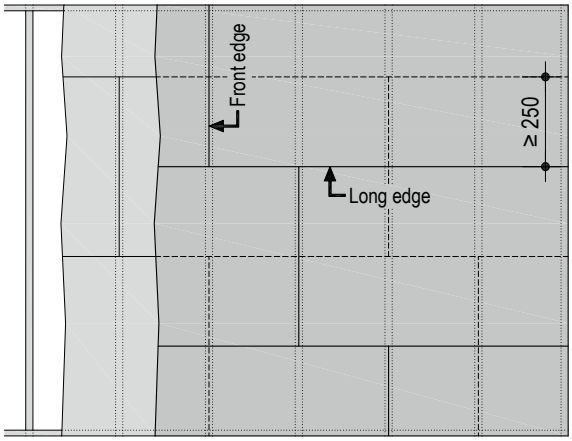
Lower layer:
- Front edge joints must be staggered by at least one stud spacing.
- Offset front edge joints ≥ 750 mm in a cladding layer.

Upper layer:
- Front edge joints must be staggered by at least one stud spacing.
- Offset front edge joint by ≥ 1000 mm.

Offset between lower and upper layer:
- Stagger the board joints of the upper layer by ≥ 250 mm to the board joints of the lower layer.

Horizontal board layer plus

- AQUAPANEL® Cement Board Indoor L.E.F. **1250 x 2000** mm
- Stud spacing: 625 mm



Lower/upper layer:
- Stagger the front edge joints by at least one stud spacing and arrange on the studs.

Offset between lower and upper layer:
- Stagger the long edge joints of the upper layer by ≥ 250 mm to the board joints of the lower layer.

Note	plus Extension of the fire resistance Proof of Usability see page 6.

Cutting

Mark the required cut or cut-out on the board. Score the board on one side with a knife so that the mesh is cut into. Break the board on the cut edge and cut through the mesh on the rear.
Create smooth cut surfaces, e.g. on the outer edges using a hand-held circular saw with vacuum extraction or a pendulum jigsaw.
Knauf recommendation: Carbide or diamond-tipped blades.

Fastening of the cladding

Fasteners to be used Dimensions in mm

Cladding thickness mm	**Metal stud frame** (Penetration ≥ 10 mm) Metal gauge **s ≤ 0.7 mm** AQUAPANEL® Maxi screws **SN**
2x 12.5	SN 25 + SN 39

Maximum axial spacings of fasteners Dimensions in mm

Cladding	**AQUAPANEL® Cement Board Indoor L.E.F.**	
	1st layer	**2nd layer**
2-layer	250	250

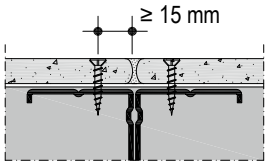
1st and 2nd cladding layer must be screwed to each CW profile flange of the double profile at the spacings specified above.

Installation of AQUAPANEL® Cement Board Indoor L.E.F.

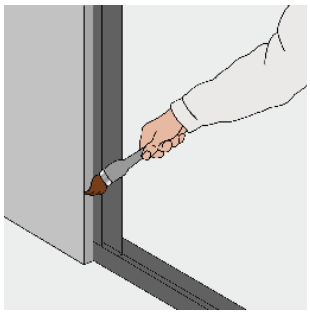
AQUAPANEL® Cement Board Indoor L.E.F. installed.
Apply all board joints of the 1st and 2nd board layer using AQUAPANEL® Fugenkleber (PUR) joint adhesive.

1. Align the first AQUAPANEL® Cement Board Indoor L.E.F. on the profiles using a spirit level and fasten to the grid using AQUAPANEL® Maxi Screws. Start in the middle of the board and work towards the corners. Ensure that the boards are stable and making contact to the grid during installation.

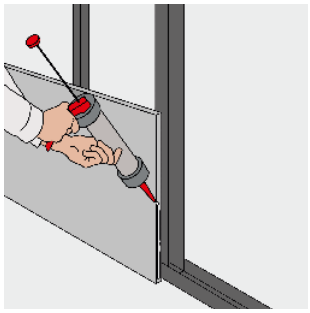
Spacing of the screws to the board edge ≥ 15 mm



2. Before attachment of the next board remove dust from the board edges, e.g. using a wet brush to ensure good adhesion of the AQUAPANEL® Fugenkleber (PUR) joint adhesive.



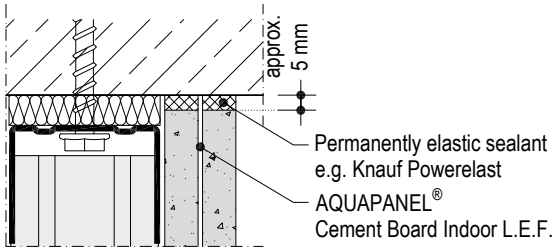
Apply AQUAPANEL® Fugenkleber (PUR) joint adhesive as a continuous bead to the edge on which the next board is to be applied. Pay close attention to the joint offset in accordance with the installation scheme.



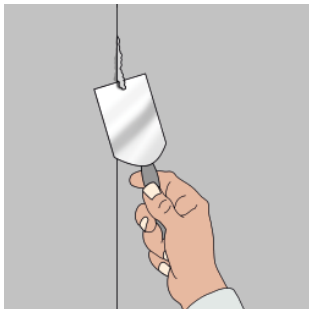
3. Butt joint the next AQUAPANEL® Cement Board Indoor L.E.F. into the joint adhesive bed, correctly align horizontally and vertically and fasten as described above.

Caution	Subsequent adhesive bonding of the board joints is not permissible!

4. Spray permanently elastic sealant, plus e.g. Knauf Power-elast into connection joints on solid constructional components, metal stud partitions as well as inside and outside corners (refer also to the application details).



5. Strike off the excess AQUAPANEL® Fugenkleber (PUR) joint adhesive after the adhesive has fully set (generally on the following day)



6. After striking off the excess AQUAPANEL® Fugenklebers (PUR) joint adhesive, prime with AQUAPANEL® Grundierung primer. Mixing ratio 1:2 with water

Notes	AQUAPANEL® Cement Board Indoor L.E.F. needs to be thoroughly primed after installation. Hairline cracks on the top of the board do not indicate loss of stability and function provided that the embedded mesh is undamaged.

Note	plus Extension of the fire resistance Proof of Usability see page 6.

Surface design

The surface of the AQUAPANEL® Cement Board Indoor L.E.F. can be applied in 4 quality levels so suit the demand and subsequent coating.

Quality of the surface	Aesthetic requirements
AQ1 Closed joint	**None**
AQ2 Smooth surface for normal optical requirements	**Normal** **Minimum demand on the coated surface**
AQ3 Smooth surface for enhanced optical requirements	**Refined** Few burrs and ridges under direct light. Noticeable shadows only possible with shallow lighting angles
AQ4 Smooth surface for high optical requirements	**Very high** Minimum occurrence of burrs and ridges Shadows which were visible with shallow lighting have been mostly eliminated.

Jointing

- **AQ1**
  Joints glued with AQUAPANEL® Fugenkleber (PUR) joint adhesive. Knock off the adhesive remnants on the followong day. Filling of the screw heads with AQUAPANEL® joint filler & skim coating – white.
- **AQ2**
  Following on from AQ1. Prime the entire wall surface with AQUAPANEL® primer. Mixing ratio: Primer / water 1:2.
  Apply full surface skimming with AQUAPANEL® Joint Filler & Skim Coating – white (minimum layer thickness 4 mm) with embedded AQUAPANEL® mesh near the surface. Apply a thin layer of AQUAPANEL® Fugen- und Flächenspachtel – weiß *Joint Filler & Skim Coating – white*, to cover the mesh.
  Smoothing over surface imperfections and ridges.
- **AQ3**
  Following on from AQ2. After drying apply and additional layer of AQUAPANEL® Fugen- und Flächenspachtel – weiß *Joint Filler & Skim Coating – white*. Sand the flat surface with sandpaper (grain 120 or finer) to smoothen.
- **AQ4**
  Following on from AQ3. After drying apply an additional thin layer of AQUAPANEL® Q4 Finish. Sand again by machine (grade 120 or finer), so that the surface is as insensitive as possible to side lighting and shallow lighting, see also page 18.

Connection joint to flanking constructional components

Permanently-elastic seal e.g. Knauf Powerelast

Notes	AQUAPANEL® Cement Board Indoor L.E.F. must always be primed with AQUAPANEL® primer after the joints are treated. Mixing ratio 1:2 with water. For jointing above the backsplash area the application as described on page 19 is possible.

Coatings and linings

Quality of the surface	Suitability of the finished surface
AQ1	Only suitable for ceramic coverings or functional applications such as stability, fire resistance and sound insulation. Medium and coarse textured paint coatings.
AQ2	Medium to coarse textured wall coverings, such as woodchip wallpaer, for coatings (matt, filer coatings, e.g. dispersion coatings) and for decorative top coats ≥ 1 mm layer thickness. Imperfections (particularly under the effect of shallow lighting) cannot be excluded.
AQ3	Finely textured wall linings, for matt and finely textured paints or linings and for decorative finishing renders. Imperfections (e.g. in shallow lighting) cannot be excluded.
AQ4	To fulfil the highest demands on the filled surface, ■ full surface skimming or ■ "de-stemming" (slightly dampening and re-smoothing) the entire surface can be undertaken. In contrast to AQ3 finish, the entire surface is covered by a continuous coat.

Suitable coatings and linings

The following coatings and linings can be applied to AQUAPANEL® Cement Board Indoor L.E.F.:

- Ceramic tiles
  - Stud spacing ≤ 625 mm.
  - Priming with AQUAPANEL® primer is necessary.
- Plaster and filler materials
  - Top coats (only possible with prior coating of the mesh!)
  - Full surface plaster (e.g. AQUAPANEL® joint filler & skim coating white).
  - Jointing above a backsplash area (AQUAPANEL ® Q4 Finish).
- Coatings
  - Water-based dispersion paints
  - Silicate-based emulsion paints with suitable primer
  - Latex-based paints
  - Polymer resin lacquer and epoxy resin lacquer
  - Others on request
- Wallpapers

Notes	After wallpapering or after application of plasters, quick drying must be ensured through adequate airing. Customary 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 AQUAPANEL® installation shaft walls.

Ceramic tiles

For wet areas subject to moderate loads (W1-I), sealing the wall corners and floor transitions is sufficient, provided there are no moisture-sensitive component layers underneath. Otherwise, a full surface damp-proof membrane is required.

For wet room areas subject to high loads (W2-I, W3-I), full-surface sealing (membrane) is required. See Code of Practice No. 5 "Bathrooms and wet rooms in timber and drywall construction" (German only), Waterproofing for indoor applications acc. to DIN 18534 from the Industriegruppe Gipsplatten im Bundesverband der Gipsindustrie e. V. as well as the technical brochure Drywall Solutions in Damp and Wet Rooms FN01.de.

Adhesively bond ceramic coverings in a ≤ 600 x 600 mm format using a flexible tile adhesive. The tile adhesive must at least comply with the requirements of classes C2/S1 acc. to EN 12004 / EN 12002. Tile weight up to 25 kg of tiles per m^2 of Installation Shaft Wall.
Additional measures are necessary for larger and heavier tiles.

Applications for clean rooms and laboratories

Due to the effects of overpressure and underpressure, clean room systems and laboratories not only place demands on the seal tightness or hygiene of the coating system, for example, but also on the stability and serviceability of the wall constructions. The maximum partition heights as a function of axial spacings and profile depths can be found in the following table, taking into account the supplementary information.

Maximum permissible partition heights with a compression/suction load of 500 Pa

Knauf profiles	Stud spacing a mm	W699.de m
2x CW 100 / 2x UA 100	625	3.00
2x CW 125 / 2x UA 125	625	3.00
2x CW 150 / 2x UA 150	625	3.00

The table values were determined by calculation.

- Assumed load 500 Pa compression or suction load (once-off, no load change) acc. to VDI 2083 sheet 19
- Other possible loads e.g. from compression or suction load require additional consideration.
- Usability limit l/500
- The usability limit (l/500) must be confirmed by the coating system manufacturer.

Coatings and linings (continuation)

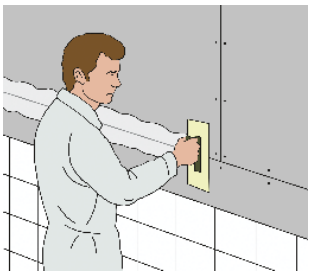
In addition, the suitability of the coating and waterproofing on solid building structures must be approved or specified by the subsequent trades on the AQUAPANEL® Cement Board Indoor L.E.F., as well as the implementation details by the coating manufacturer. Demands on the frame and corrosion protection must be considered.
Further specifications with other deformation parameters or profile depths on request.

Examples for room types and their tightness classifications (for reference purposes only)

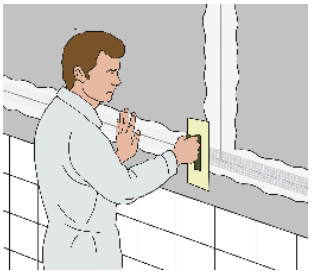
Category	Room type
0	Dust-free rooms, factory halls, manufacturing buildings, energy-efficiency demands
1	Cleanroom classes ISO 7 to 9 or grades C and D acc. to GMP
2	Rooms kept at a controlled underpressure when gas is introduced
3	Clean rooms ≤ ISO 6
4	Safety laboratory BSL3 (biosafety level 3), sterilizers and rooms where gas is introduced
5	Safety laboratory BSL4 (biosafety level 4), isolation of life-threatening hazardous agents (High-Risk)
6, 7	Project-specific special requirements for rooms with extremely stringent demands on the airtightness

Jointing above the backsplash

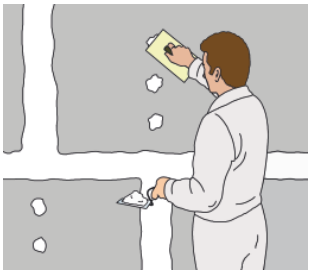
1. Apply AQUAPANEL® Q4 Finish with a 15 cm wide stainless steel smoothing finisher to the visible joints jointed with AQUAPANEL® Fugenkleber (PUR) joint adhesive.



2. Press joint tape strips (fibre glass joint strips or Joint Tape Kurt) overlapping the joints into the filler compound.
Apply an additional thin layer of AQUAPANEL® Q4 Finish on the joint tape. Remove excess material.



3. Fill all screw heads.
If necessary, use a hand sander to remove unevenness on the screw holes after drying.



4. Sand off unevenness on the surface.
Apply AQUAPANEL® Q4 Finish at a width of at least 20 cm (i.e. 5 cm over the edges of the first layer). Embed the fasteners again and remove unevenness.

5. For full-surface jointing, apply AQUAPANEL® Q4 Finish evenly with an approx. 20 cm wide smoothing trowel. Fill uneven areas in the joints and smooth the surface texture. Sand after drying if necessary.
In case the surface finish AQ4 is the objective, a subsequent further layer of AQUAPANEL® Q4 Finish must be applied.
6. After drying (approx. 24 hours), sand with sand paper grade 120 or finer. Sanding by machine is recommended for particularly smooth surfaces, refer also to page 17.

Notes	
	The backsplash area on the wall should be more than 50% of the wall height. AQUAPANEL® Q4 Finish is not suitable for splash-water zones.

Application temperature/climate

- Application of ceramic coverings and jointing should only take place when no more longitudinal changes in AQUAPANEL® Cement Board Indoor L.E.F. can be expected due to moisture or changes in climate.
- Do not apply filling at room or substrate temperatures below approx. +5 °C.
- In case of mastic asphalt screed, cementitious screed and flowing screed, joint AQUAPANEL® Cement Board Indoor L.E.F. only after the screed is applied.
- Observe code of practice no. 1 “Baustellenbedingungen - *Site conditions*” [1].

1) (German only), issued by the Bundesverband der Gipsindustrie e.V.

Information on Sustainability

Knauf AQUAPANEL® Installation Shaft Walls

Information on sustainability of Knauf AQUAPANEL® Installation Shaft Walls

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

The following certification systems have a particular relevance in Germany

- DGNB System
  Deutsches Gütesiegel Nachhaltiges Bauen
- BNB
  Quality rating system for environmentally sustainable building
- QNG
  Quality seal for sustainable buildings
- LEED
  Leadership in Energy and Environmental Design

Knauf products and Knauf AQUAPANEL Installation Shaft Walls can positively influence many of these criteria.

DGNB/BNB/QNG

Ecological quality

- Ecological performance evaluation of the building:
  Relevant environmental data for life cycle assessment is recorded in the EPD for AQUAPANEL® Cement Board Indoor L.E.F.

Economic quality

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

LEED

Materials and Resources

- Building Life-Cycle Impact Reduction:
  Relevant data for life cycle assessment is recorded in the EPD for AQUAPANEL® Cement Board Indoor L.E.F.
- Environmental Product Declarations
  Relevant data is recorded in the EPD for AQUAPANEL® Cement Board Indoor L.E.F.

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

Find the right systems for your requirements!
knauf.de/systemfinder

Knauf Direct
Technical Advisory Service:

knauf-direkt@knauf.com

www.knauf.com

W69.de/eng/03.24/0/Dbl

Knauf Gips KG Am Bahnhof 7, 97346 Iphofen, Germany

The stated constructional and structural design specifications and characteristics of building physics of Knauf systems can only be ensured with the exclusive use of Knauf system components, or other products expressly recommended by Knauf.