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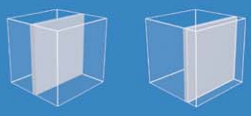
Aquapanel

The tile backing system for wet and humid areas



are you in the know?

KNAUF DRYWALL

Knauf Drywall - delivering solutions to meet customer needs

Knauf is Europe's leading manufacturer and supplier of cement building board.

Knauf is a family owned company with approximately 18,000 employees worldwide.

Founded originally in Germany in 1932, Knauf entered the UK market in 1988 and was rebranded Knauf Drywall in 2003. And with two major manufacturing sites in the UK, Knauf Drywall is one of the country's leading suppliers of gypsum based materials.

Contents

Aquapanel cement board

Aquapanel cement board technology is already revolutionising the way buildings are designed and constructed across Europe.

Developed by Knauf USG Systems, Aquapanel cement board gives architects and contractors a proven alternative to brick and block construction in interior applications – where it offers significant performance advantages in wet and high humidity areas together with lower installation costs.

Aquapanel cement board is an extremely durable building material providing a solid substrate for wet indoor areas such as bathrooms, shower surrounds, kitchens, swimming pools and laundries.

Aquapanel delivers significant benefits in sound insulation and fire safety, as well as long-lasting protection in highly humid and wet conditions.

Knauf Aquapanel systems

Tile failure is extremely costly in all instances. If a tile fails in a wet area you would normally expect the substrate behind to be damaged as well with traditional materials. Not only are there replacement costs of materials, but for many commercial and leisure applications tile failure may necessitate closing part of the premises.

Knauf Aquapanel systems provide the peace of mind that results from specifying a partition or lining that is specifically designed for the job. Galvanised metal components, special screws and high quality Aquapanel cement board linings ensure that Aquapanel systems are easy to install and continue to perform, even when wet.

A single layer of Aquapanel (with studs at 600mm centres) can support up to 50kg/m^2 of tiles. Performance figures of up to two hours for fire and 53dB Rw for airborne sound can be achieved.

In part-tiled situations Knauf Aquapanel Q4 Finish is used to provide a smooth, water repellant surface.

Knauf Aquapanel cement board has been developed solely as a tile backing board and, as such, provides excellent adhesion for tiles. And if a tile should get damaged, Knauf Aquapanel cement board will retain its strength – even if it is fully immersed in water.

Benefits of Knauf Aquapanel systems

Knauf Aquapanel is exceptionally tough and durable, providing a solid tile backing substrate for wet indoor areas such as swimming pools, leisure centres, changing rooms, toilet areas, laundries, bathrooms and kitchens.

Productivity gains
Knauf Aquapanel systems deliver productivity gains by eliminating the time-consuming methods usually associated with specialised building methods and materials.

With its unique score and snap facility Aquapanel is easy to cut – making installation quick and simple. The reliable EasyEdge (see page 26) design feature of Aquapanel in conjunction with polyurethane Aquapanel Joint Adhesive improves adhesion between boards, resulting in a stronger structure.

The Aquapanel surface is ready-keyed for tiling, so no sealant is required. More on-site time savings result from the dry installation system.

Overall productivity gains are reflected in shorter job schedules and lower in-place costs. The Aquapanel system means fewer call-backs and less maintenance.

The ideal tile backing system for wet and humid areas

- **Will not deteriorate in water**
- **Supports up to 50kg/m² of tiles**
- **600mm stud centres, compared with 400mm for most other solutions**
- **Resistant to mould and mildew**
- **Excellent impact resistance**
- **Simple score and snap cutting**
- **Ready keyed for tiling**
- **Non-combustible**
- **Skim coat with Aquapanel Q4 Finish**

Full system approach

- **Proven, complete systems from a single source**
- **Fire and sound rated**
- **Performance tested to new European EN standards**
- **Interfaces seamlessly with other Knauf Drywall systems**

Whole life performance

- **Portland cement construction of Aquapanel boards combined with Knauf metal studs will not deteriorate over time**
- **Exceptional toughness and ready-keyed surface minimises risk of tile failure**
- **Tile failure will not result in further damage to the Aquapanel system: reducing call-backs, maintenance and whole-life costs**

Aquapanel Partitions

Knauf Aquapanel Partitions are purpose-designed for full or part tiled situations in commercial non-loadbearing applications. They use fast drywall construction techniques and can be specified with confidence even in wet areas.

These systems utilise Knauf Aquapanel cement board to receive tiles or Aquapanel Q4 Finish, and moisture resistant Knauf Sound Moistureshield for the non-tiled side of the partition, if applicable.

The boards are fixed onto a lightweight galvanised metal framework of Knauf Acoustic 'C' Studs and Knauf 'U' Channels.

Knauf Aquapanel should be tiled using a quality polymer modified based flexible tile adhesive, following the manufacturer's instructions.

Knauf Sound Moistureshield can be taped and jointed using Knauf Jointing Compounds and Accessories, or a 2 to 5mm skim coat of Knauf FP90 or Knauf Universal Board Finish can be applied to achieve a more traditional finish.

- **Fire and sound-rated partitions**
- **600mm stud centres**
- **Up to 50kg/m² tiles**
- **Full or part tile**
- **Tile one or both sides**
- **Skim coat with water repellant Aquapanel Q4 Finish**

Design Considerations

This section identifies the areas that require careful consideration prior to installation. For further details, contact Knauf Drywall Technical Services on 01795 416259.

Sealing Wet Areas
Sealing tape and permanently flexible sealant should be used at corners, at wall to floor connections, and at interfaces with baths and shower trays. Permanently flexible sealant should also be used around cut-outs for pipes and other penetrations.

Perimeter Framing
Ensure the background is suitable to support the channels and fixings.

Deflection Heads
Where a deflection head detail is required to allow for movement, a Knauf Deep Flange 'U' Channel should be installed at the ceiling in place of a standard Knauf 'U' Channel.

Insulation
If insulation is required, check the performance table on page 9 to ensure the correct specification is used.

Surface Fixings
Consider the weight and leverage of any fixing prior to construction and add Knauf Flat Fixing Plate or Knauf Fixing Channel behind the boards as required.

Doorways
The weight of the door will determine the required jamb construction.

Corners, Intersections and Abutments
Consider the need for additional studs to accommodate corners, intersections and abutments.

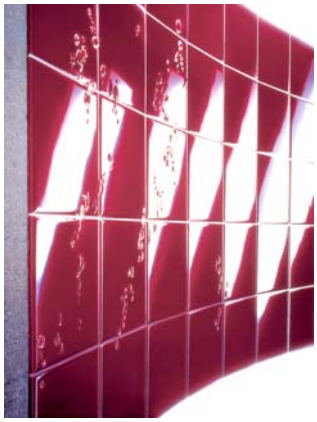
Check the fire and sound ratings of abutting systems. See also "Sealing Wet Areas" above.

Movement Control Joints
Movement control joints are generally recommended at maximum 7.5m intervals in straight Aquapanel Partition runs. They should also be installed to coincide with any movement joints in the structure.

Knauf Movement Control Joints provide up to 7mm of lateral movement.

Services
The cavity within a partition may be used to conceal services. For larger pipes and services, consider the use of a twin-frame plumbing wall (see page 15).

Part Tiling
For part-tiled applications apply the tiles first, then Aquapanel Q4 Finish to the non-tiled area. (see Finishing)



Finishing

Tiling (Aquapanel)

Tiles with a maximum weight of 50 kg/m^2 can be applied to Knauf Aquapanel, with studs at 600mm centres. Always use a quality polymer modified based flexible tile adhesive, following the manufacturer's instructions.

Skimming (Aquapanel)

Knauf Aquapanel Q4 Finish can be used to provide a quality water repellant skim coat to Knauf Aquapanel, up to a 3mm thickness. Knauf Aquapanel Joint Tape is used to reinforce the joints.

Taping and jointing (Sound Moistureshield)

Ensure the outer facing is a tapered edge plasterboard to accommodate taping and jointing. As soon as the joints have dried, one coat of Knauf Wallboard Primer should be applied to the drylined surface. This will reduce moisture absorption and the risk of discolouration when decorating.

Skimming (Sound Moistureshield)

The surface must be pre-treated with Knauf Betokontakt. Consider the extra 2 to 5mm veneer coat of plaster to the overall partition thickness.

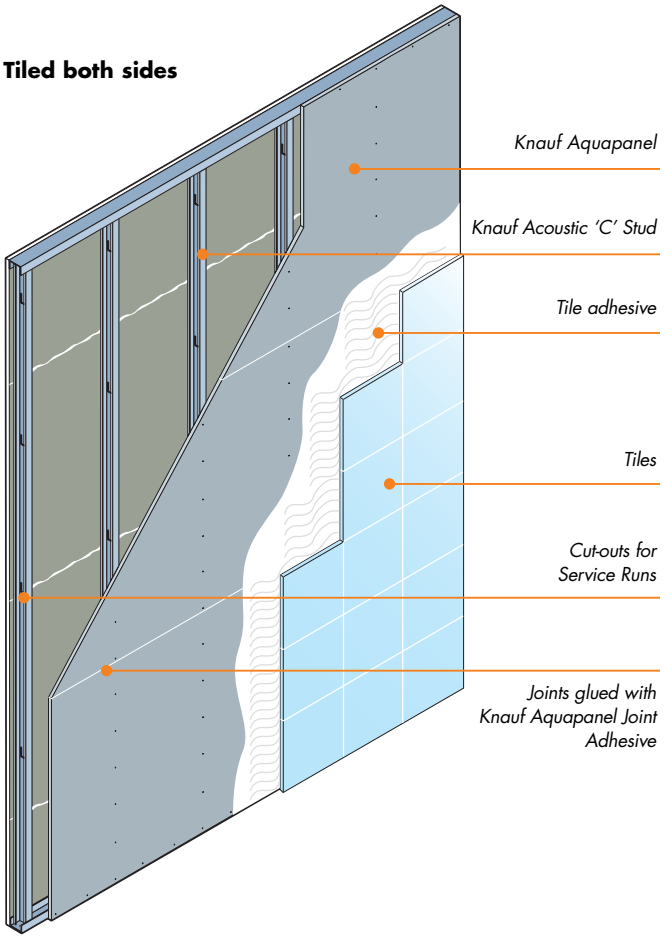
Limitations

Temperatures over 50°C can induce a change of state in Knauf Sound Moistureshield which would reduce its physical performance and serviceability.

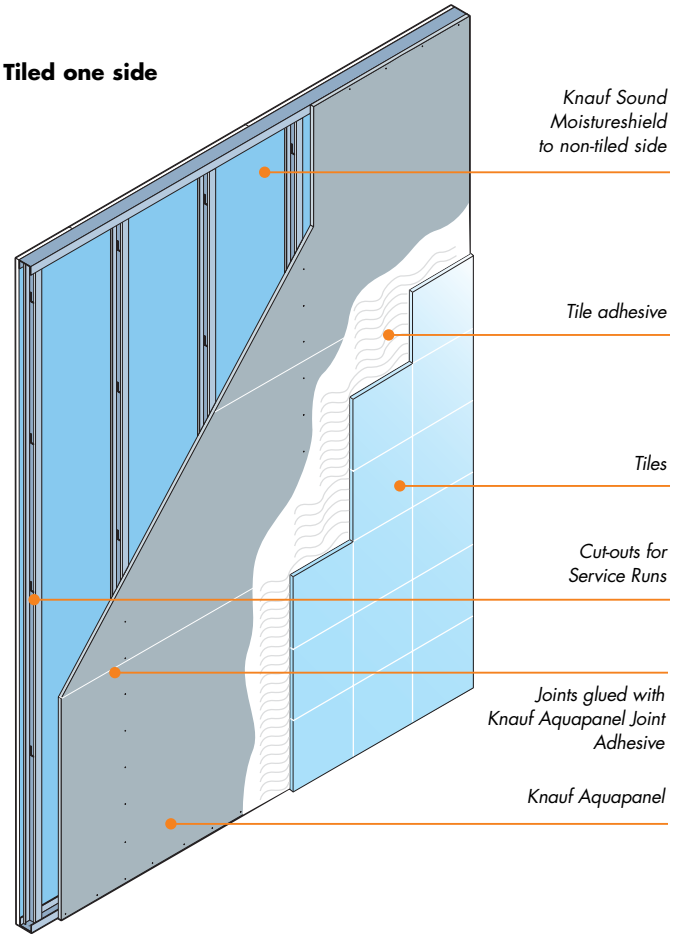
Constant humidity over 95% or continual subjection to water will also reduce the serviceability of Knauf Sound Moistureshield.

High levels of water absorption will not affect the long term performance of Knauf Aquapanel but to ensure the correct adhesion of tile adhesives and Aquapanel Joint Adhesive the boards must be installed dry. Wet Aquapanel boards can be allowed to dry out and then installed once a moisture content of less than 15% has been reached (typically within 48 hours in a dry environment) with no loss of performance.

Tiled both sides



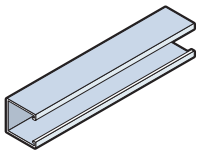
Tiled one side



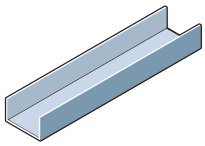
Aquapanel Partitions

Components

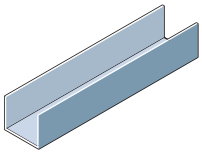
Knauf Acoustic 'C' Stud
Lightweight steel sections used to form the vertical frame of the Knauf Aquapanel Partition system.



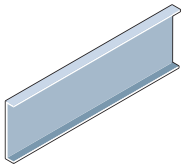
Knauf 'U' Channel
25mm deep channel used to form head and sole plates, and to frame openings.



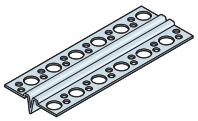
Knauf Deep Flange 'U' Channel
Alternative deep channel used to form head plate for deflection head detail.



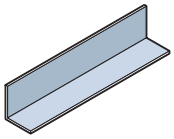
Knauf Fixing Channel or Flat Plate
Both the products can be used to provide fixing for horizontal joints in facings and as support for fixtures.



Knauf Movement Control Joint
Galvanised steel 'V' section used to bridge gaps left for expansion and contraction.



Knauf Angle Sections
Knauf Angle Sections are used to retain mineral wool packing in deflection head details.



Key Accessories

Knauf Aquapanel Maxi Screws
Specially developed screws for fixing Knauf Aquapanel cement boards. Climate-X corrosion protection coating provides a guaranteed 1,500 hours corrosion resistance in salt-spray tests.

Knauf Aquapanel Joint Adhesive
PU gun applied adhesive used for jointing individual Knauf Aquapanel cement boards. Each tube contains enough for approximately 6m^2 of wall.

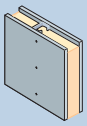
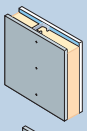
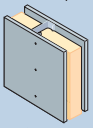
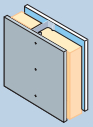
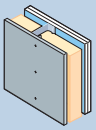
Knauf Sealant
Used to seal gaps to prevent airborne transmission of sound and vibration. Note: Knauf Sealant is not a permanently flexible sealant.

Knauf Drywall Screws
Black phosphated drywall screw for fixing Knauf Sound Moistureshield to Knauf Acoustic 'C' Studs.

Knauf Aquapanel Q4 Finish
Ready-mixed, water repellant skim coat to achieve a seamless finish to Knauf Aquapanel in non-tiled areas.

Knauf Aquapanel Joint Tape
Alkali resistant tape for reinforcing joints prior to skimming with Aquapanel Q4 Finish.

Performance Information

Boarding Side 1		Boarding Side 2	Insulation (50mm)	Stud Size & Gauge	O/A Width (mm)	Fire (hours)	Sound (Rw dB)	Weight* (kg/m²)	Max Height (mm)
Aquapanel		Aquapanel	Crown Acoustic Partition Roll	50 (0.6) Acoustic 'C'	75	-	44	32	2700
Aquapanel		12.5mm Sound Moistureshield	Crown Acoustic Partition Roll	50 (0.6) Acoustic 'C'	75	-	45	29	2700
Aquapanel		Aquapanel	Rocksilk RS33	70 (0.6) Acoustic 'C'	95	0.5	44	32	3600
Aquapanel		12.5mm Sound Moistureshield	Rocksilk RS33	70 (0.6) Acoustic 'C'	95	0.5	45	29	3600
Aquapanel		12.5mm Sound Moistureshield (2 layers)	Rocksilk RS33	70 (0.6) Acoustic 'C'	107.5	1	48	41	3600

* Weight does not include the weight of finishing materials, eg tiles.
Note: Higher performance figures can be achieved using Knauf Aquapanel partitions. For details contact Knauf Drywall Technical Services on 01795 416259.

Specification Guide 126E Aquapanel/Plasterboard Metal Stud Partition(s)

Drawing reference(s):.....

Product reference:
Aquapanel Partition System, to be fully constructed with components supplied by Knauf Drywall.
Strength category to BS 5234: Part 2.....

Performance criteria:
Fire resistance of complete partition assembly to
BS EN 1363-1:1999-10 Integrity/insulation (Minutes): .....
Sound Insulation to BS 2750: Part 3:..... Rw dB (100-3150 Hz).

Framing:
Stud configuration: Single Knauf .....mm (0.6mm gauge) Acoustic 'C' Studs at 600mm centres, ...mm Knauf 'U' Channel to form head and floor tracks.

(Utilising Knauf Deep Flange 'U' Channel as head track if deflection allowance is specified) and Knauf Acoustic 'C' Studs at corners and abutments.

Head condition:.....
Deflection allowance:.....

Linings:
12.5mm Knauf Aquapanel to first side, ... x 12.5mm Knauf ..... to the other side.

Cavity insulation:
Type:.....
Thickness:.....
Density:.....kg/m^3

For Aquapanel:
Fixings: 25mm Knauf Aquapanel Maxi Screws as clause 590

Board joints: Glued using Knauf Aquapanel Joint Adhesive as per Knauf Aquapanel literature recommendations.

Sealant: Knauf Sealant as clause 515

Finishing: .....

For Sound Moistureshield (if specified):
Fixings: Knauf Drywall screws as clause 590

Sealant: Knauf Sealant as clause 515

Primer/Sealer: Knauf Wallboard Primer

Finishing: ..... Primer/sealer:.....

Other Requirements:
To be installed in accordance with Knauf Drywall's recommendations and technical literature.

Installation Procedure: Framework

General
Knauf Aquapanel Partitions must be installed in accordance with Knauf Drywall's recommendations and the relevant recommendations of BS 8212: 1995 and BS 8000: Part 8: 1994.

Health & Safety
Knauf Aquapanel, Knauf Sound Moistureshield and metal must be cut to length and this should be done in well ventilated areas paying attention to the cut edges of metal sections which may be sharp. For further, updated information refer to the Knauf Drywall Health and Safety sheets and to HSE publications.

Perimeter Framing
Knauf 'U' Channels should be used for the head and base of the partition. Knauf Acoustic 'C' Studs should be used to form any abutments and to frame openings. Bed each section on two continuous beads of Knauf Sealant and secure with Knauf Nailable Plugs at maximum 600mm centres and 50mm from ends of channels or studs. Separate studs and channels forming the perimeter need not be joined, but should be tightly butted together. Replace Knauf 'U' Channel with Knauf Deep Flange 'U' Channel when forming a deflection head.

Partitions should always run up to the structural soffit. Where an existing suspended ceiling cannot be cut back to allow for partitioning, bracing must be provided for lateral support at the partition head.

Vertical Studs
Studs should be positioned within the channels to coincide with the abutments of the boards, which will be fixed later, at maximum 600mm centres. In general there is no requirement to secure the metal at this point as this will be achieved once the boards are screw-fixed.

Knauf Acoustic 'C' Studs should be trimmed to within 5mm of the internal channel. For deflection heads only: studs should be cut short to allow for required clearance within Knauf Deep Flange 'U' Channel, up to a maximum of 25mm.

Knauf Acoustic 'C' Studs can be extended by forming an overlap, boxing them at that point and securing them with Knauf Wafer Head Jackpoint Screws. The overlap must be at least 600mm.

Insulation
Once the studs have been located in the Knauf 'U' Channels and one side has been boarded, the insulation quilt (see performance table on page 9 for specification) should be inserted between the studs vertically. Care should be taken to ensure that the insulation is fitted neatly without gaps at abutments or vertically between different rolls.

Doorways
The head is formed with Knauf 'U' Channel, snipped and bent back and screw fixed with Knauf Wafer Head Jackpoint Screws to the studs. For a lightweight door weighing up to 25kg, Knauf Acoustic 'C' Studs are used for the frame openings inserted with full height treated timber grounds cut to the size of the stud. For doors weighing up to 50kg, fully 'boxed' Knauf Acoustic 'C' Studs are used for the frame openings inserted with full height treated timber grounds, cut to the size of the stud.


Fixing Knauf 'U' Channel


Inserting Knauf Acoustic 'C' Studs

Installation Procedure: Aquapanel

Boarding (Knauf Aquapanel)

The sequence used when boarding with Knauf Aquapanel is very important, and different to plasterboard, so please read this section carefully.

It is particularly important to note that for a combination of strength and moisture resistance, the Aquapanel board joints are glued during the boarding process using Knauf Aquapanel Joint Adhesive. The first board is fixed, then adhesive is applied to the adjacent edge before offering up and fixing the next board. This process is repeated.

1. Align the board

Knauf Aquapanel cement boards are laid horizontally. Start at one end and align the first board along the studs. Take care to ensure the board is aligned correctly horizontally and vertically using a spirit level. Secure the board with Knauf Aquapanel Maxi Screws at maximum 250mm centres, ensuring that the screws are at least 15mm from the board edge. Do not overdrive the screws.

2. Clean the adjacent board edges

In order to ensure the maximum adhesion is achieved when jointing, the adjacent edges of the fixed board and the next board in the sequence must be cleaned. Simply clean the edges with a wet brush to remove traces of dust – the edges do not need to be soaked.

3. Apply Knauf Aquapanel Joint Adhesive

Using a suitable gun, apply a bead of Knauf Aquapanel Joint Adhesive in a continuous rope to the adjacent edge(s) of the fixed board(s). The bead should be of sufficient size to fill the joint fully when the next board is offered up.

Important note: Knauf Aquapanel Joint Adhesive must be applied before the next board is fixed, not after.

4. Place the next board

Align the next board and push it firmly into the bed of adhesive. The gap between boards should be less than 1mm. Secure the board with Knauf Aquapanel Maxi Screws at maximum 250mm centres, ensuring that the screws are at least 15mm from the board edge.

5. Continue the process

Continue to clean the adjacent edges, apply Knauf Aquapanel Joint Adhesive and place and secure the next board as 2, 3, and 4 above until the wall is completed.

6. Leave the Knauf Aquapanel Joint Adhesive to dry

In order to achieve a strong bond, and to form a complete joint, the Knauf Aquapanel Joint Adhesive needs to be left to cure and expand before the excess can be scraped off. Knauf Aquapanel Joint Adhesive can be left for between 7 and 30 hours before scraping off the excess.

7. Scrape off the excess adhesive

Scrape off the excess Knauf Aquapanel Joint Adhesive using a flexible steel scraper.

Fixing Knauf Aquapanel using Knauf Aquapanel Maxi Screws

Cleaning the edges with a wet brush

Applying Knauf Aquapanel Joint Adhesive

Scraping off the excess adhesive once dry

Installation Procedure (continued)

Cutting Knauf Aquapanel
Knauf Aquapanel can be cut to shape using a sharp knife and straight edge. Score one side with a knife, cutting through the mesh. Snap the board along the score, then cut through the mesh on the other side.

Alternatively, use a hand held circular saw fitted with a carbide or diamond-tipped blade and a dust extractor.

Curving Knauf Aquapanel
Knauf Aquapanel can be curved to a radius of 3 metres.

Finishing

Tiling (Aquapanel)
Tiles with a maximum weight of 50 kg/m^2 can be applied to Knauf Aquapanel, with studs at 600mm centres. Always use a quality polymer modified based flexible tile adhesive, following the manufacturer's instructions. Tile on the smooth side of the board.

Skimming (Aquapanel)
A 2-3mm veneer coat of Knauf Aquapanel Q4 Finish is applied to the face of the Aquapanel. The joints should be reinforced with Knauf Aquapanel Joint Tape. For further information refer to the Aquapanel Q4 Finish leaflet.

Taping and jointing (Sound Moistureshield)
To achieve a seamless finish on tapered edge boards, Knauf Drywall provides a complete range of jointing compounds and reinforcing tapes that allows selection by speed, ease of application and working characteristics. As soon as the joints have dried, one coat of Knauf Wallboard Primer should be applied to the drylined surface. This will reduce moisture absorption and the risk of discolouration when decorating.

Skimming (Sound Moistureshield)
A 2 to 5mm veneer coat of either Knauf FP90 or Knauf Universal Board Finish plaster is applied to the face of the plasterboards, after pre-treating with Knauf Betokontakt. The board joints should be reinforced with either paper or fibre tape.

Boarding (Sound Moistureshield)
All boards should be offered up to the frame with the face of the board outwards and secured with Knauf Drywall Screws at 300mm centres. Fixing centres should be reduced to 200mm at corners.

Boarding should commence at one end and work across the partition. At head, foot and abutments, board edges should be bedded on to continuous beads of Knauf Sealant. Board joints in multiple layers should be staggered both vertically and horizontally by at least 600mm.

Sealing interfaces
Permanently flexible sealant should be used at corners, at wall to floor connections, and at interfaces with baths and shower trays, in combination with sealing tape in wet areas. Permanently flexible sealant should also be used around cut-outs for pipes and other penetrations.

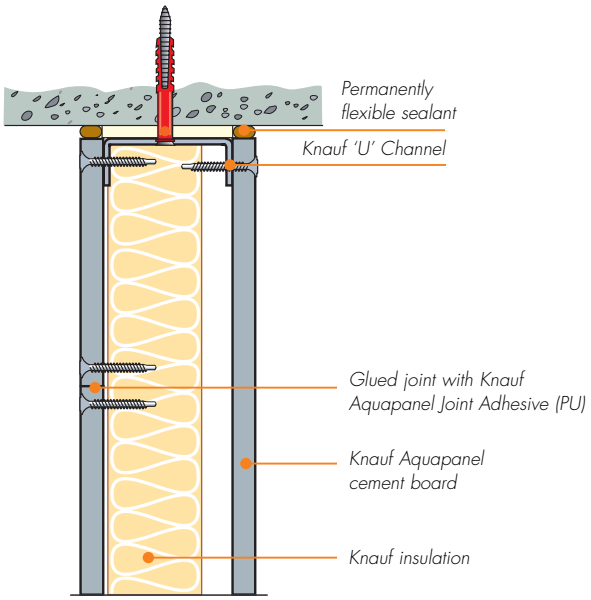
Scoring and snapping Aquapanel to size

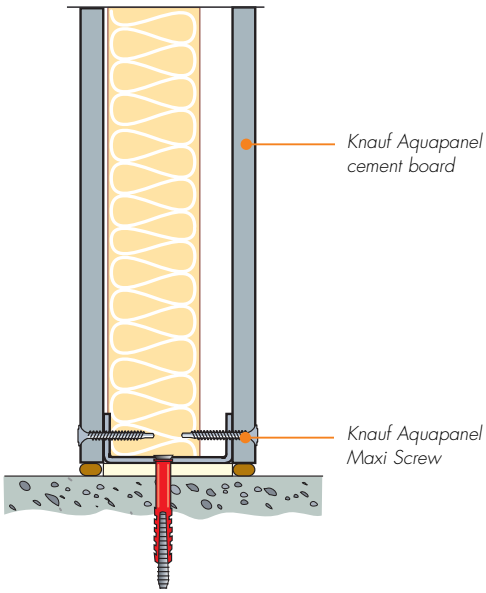
Applying tiles to the completed partition

Partition Application Details

Vertical cross-section

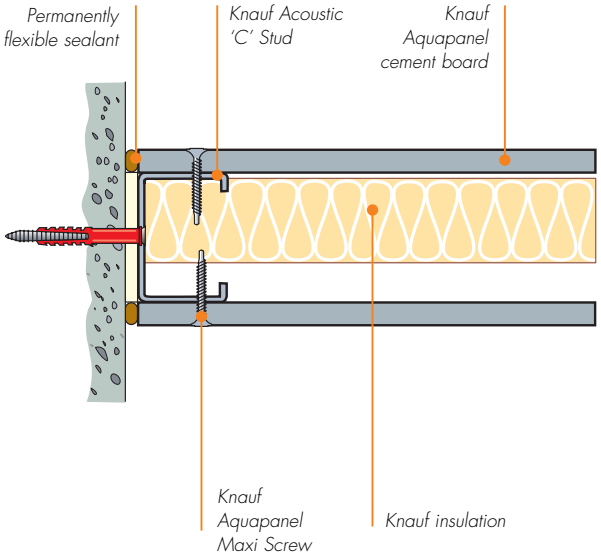
Head



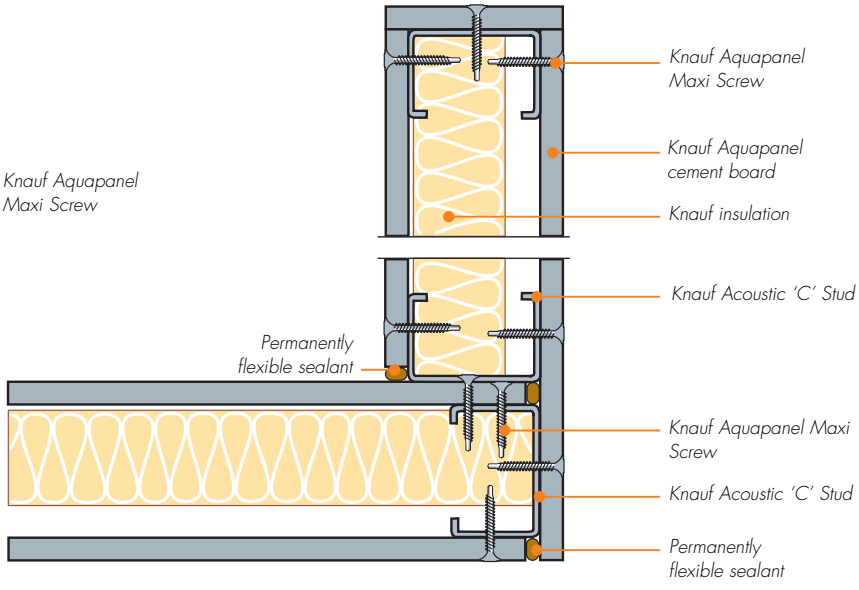


Floor

Connection to a masonry wall



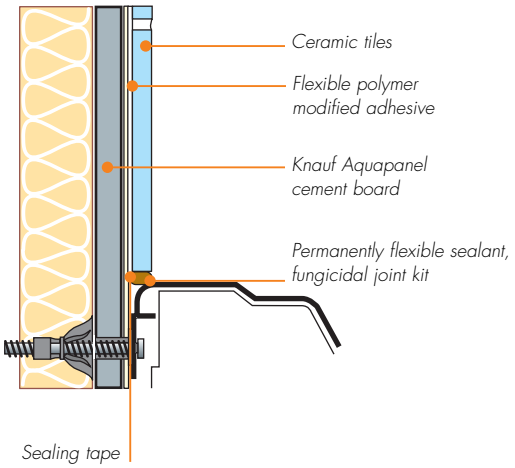
Corner formation and nib



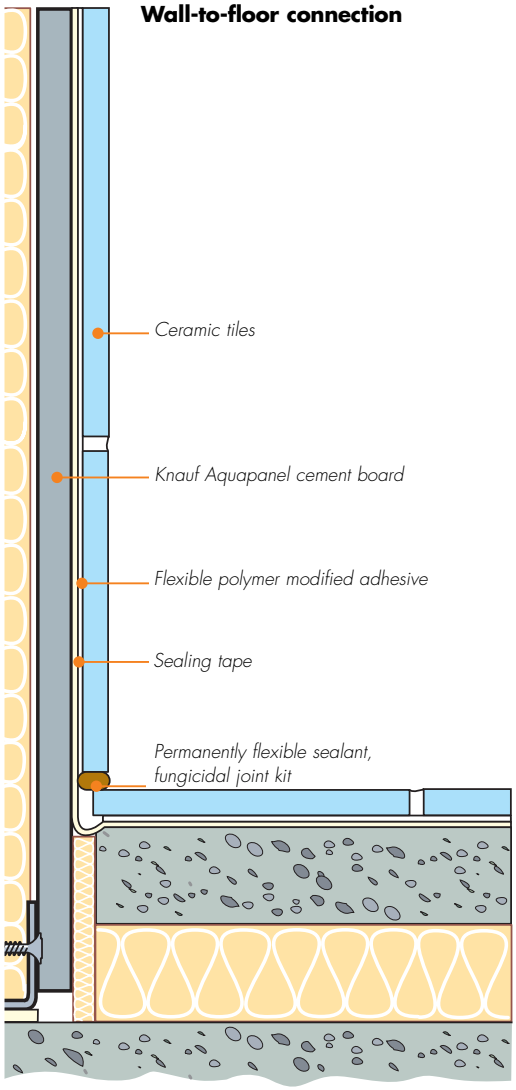
Partition Application Details (continued)

Details for wet areas

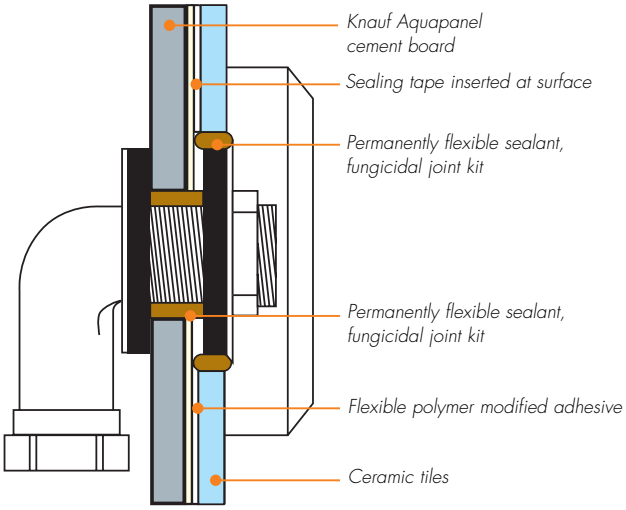
Bath connection



Wall-to-floor connection



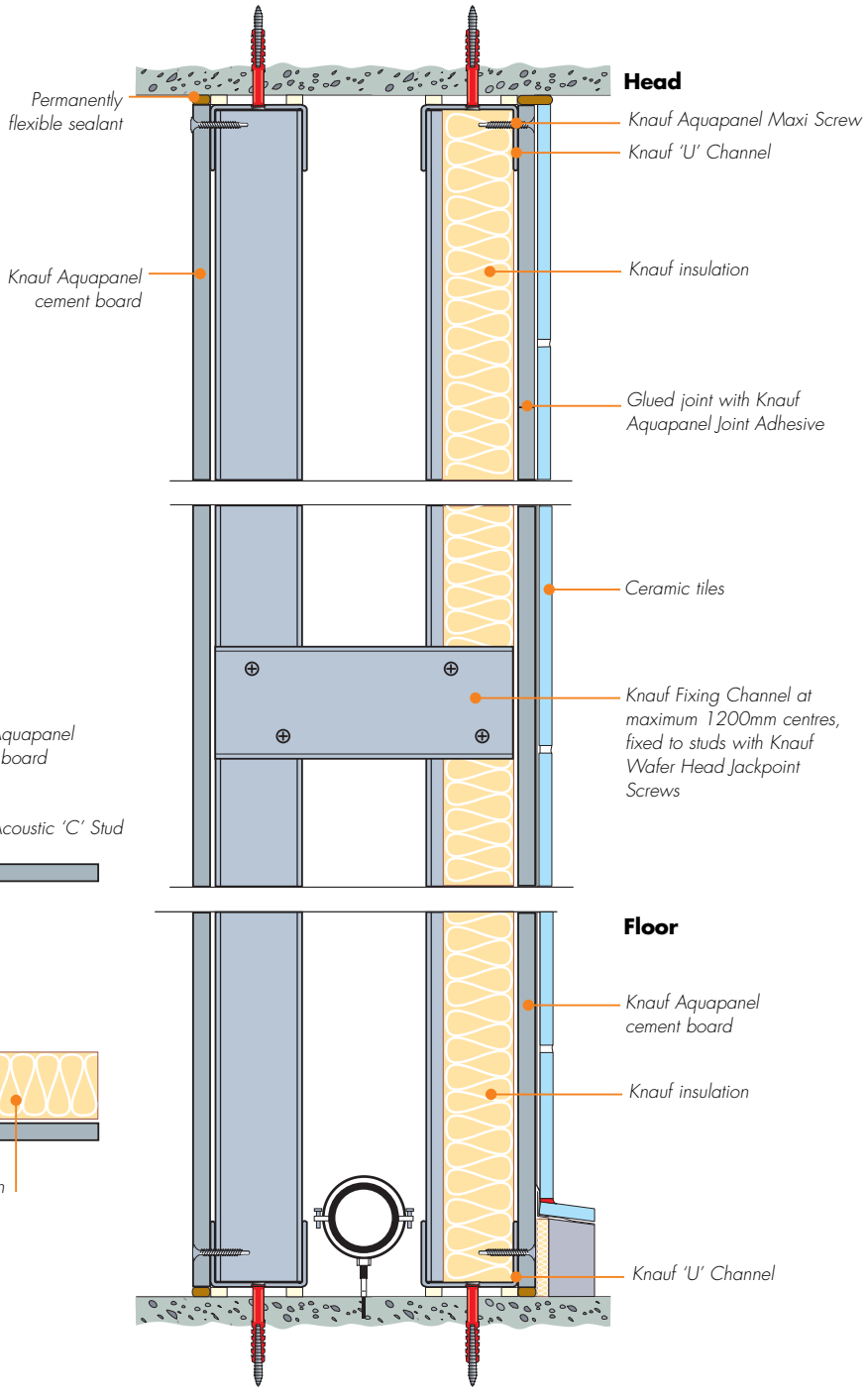
Cut out for pipe



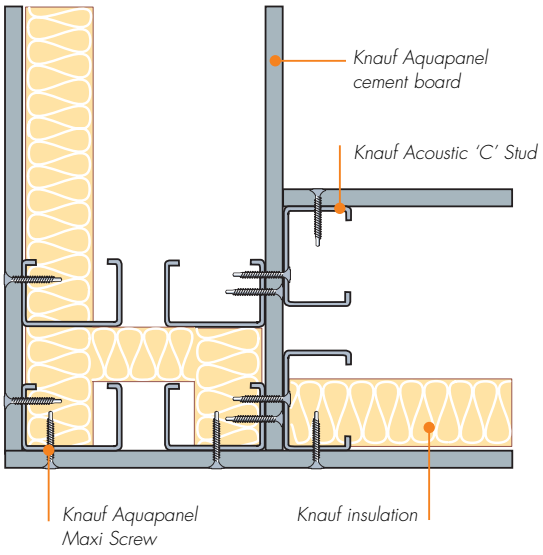
Partition Application Details (continued)

Plumbing Wall

Vertical cross-section



Corner formation



Aquapanel Linings

Knauf Aquapanel Linings are purpose-designed for full or part-tiled situations in commercial non-loadbearing applications. They use fast drywall construction techniques and can be specified with confidence even in wet areas. The lining can be fixed to most masonry backgrounds depending on the condition.

This system utilises Knauf Aquapanel cement board fixed onto a lightweight metal framework of Knauf Apertura 'C' Channels fixed to Knauf Apertura 'U' Mounting Brackets and Knauf Apertura 'U' Channels.

The system provides a variable stand-off from the background of between 27 and 125mm. This makes it capable of overriding substantial irregularities in the background.

The lining void facilitates the introduction of thermal or acoustic insulation and provides containment for service runs.

The system can be applied to the majority of all common building substrates. Pretreatment of the background is not required. Under good building practice, however, any deleterious deposits, such as mould, oil or grease, should be removed as a precaution.

Knauf Aquapanel should be tiled using a quality polymer modified based flexible tile adhesive, following the manufacturer's instructions.

In part-tiled situations Knauf Aquapanel Q4 Finish is used to provide a smooth, water repellant surface.

- **Up to 50kg/m² tiles**
- **Full or part tile**
- **Allows a variable stand-off clearance between lining and background of 27 to 125mm**
- **Deep service runs can be accommodated within the lining void**
- **Insulation is easily installed within the lining void**

Design Considerations

This section identifies the areas that require careful consideration prior to installation. For further details, contact Knauf Drywall Technical Services on 01795 416259.

Sealing Wet Areas
Sealing tape and permanently flexible sealant should be used at corners, at wall to floor connections, and at interfaces with baths and shower trays. Permanently flexible sealant should also be used around cut-outs for pipes and other penetrations.

Perimeter Framing
Ensure the background is suitable to support the channels and fixings.

Surface Fixings
Consider the weight and leverage of any fixing prior to construction and add Knauf Flat Fixing Plate or Knauf Fixing Channel behind the boards as required.

Corners, Intersections and Abutments
Consider the need for additional channels to accommodate corners, intersections and abutments. Check the fire and sound ratings of abutting systems. See also "Sealing Wet Areas" above.

Movement Control Joints
Movement control joints are generally recommended at maximum 7.5m intervals in straight Aquapanel Lining runs. They should also be installed to coincide with any movement joints in the structure.

Knauf Movement Control Joints provide up to 7mm of lateral movement.

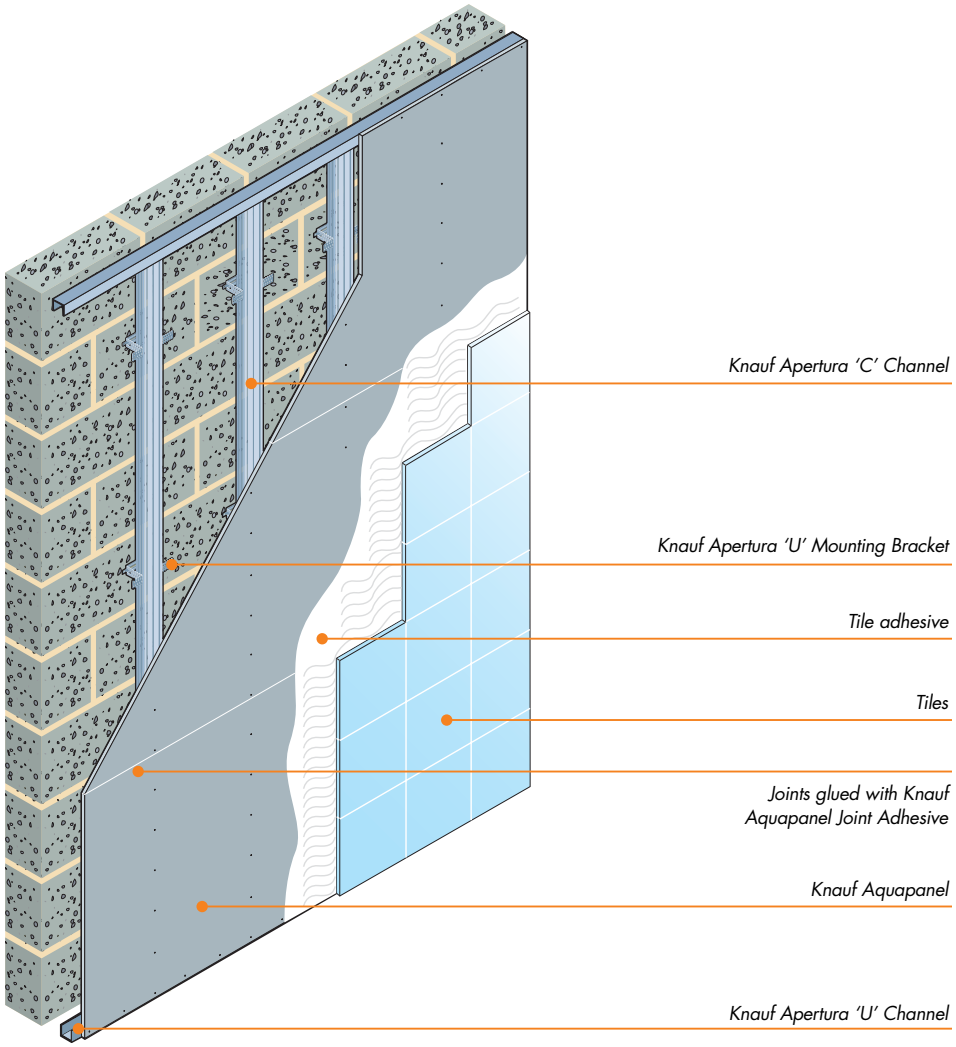
Part Tiling
For part-tiled applications apply the tiles first, then Aquapanel Q4 Finish to the non-tiled area. (see Finishing)

Finishing

Tiling (Aquapanel)
Tiles with a maximum weight of 50 kg/m² can be applied to Knauf Aquapanel, with vertical channels at 600mm centres. Always use a quality polymer modified based flexible tile adhesive.

Skimming (Aquapanel)
Knauf Aquapanel Q4 Finish can be used to provide a quality water repellant skim coat to Knauf Aquapanel, up to a 3mm thickness. Knauf Aquapanel Joint Tape is used to reinforce the joints.

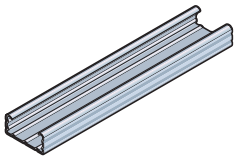
Limitations
High levels of water absorption will not affect the long term performance of Knauf Aquapanel, but to ensure the correct adhesion of tile adhesives and Aquapanel Joint Adhesive the boards must be installed dry. Wet Aquapanel boards can be allowed to dry out and then installed once a moisture content of less than 15% has been reached (typically within 48 hours in a dry environment) with no loss of performance.



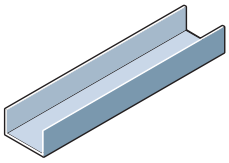
Aquapanel Linings

Components

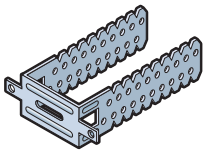
Knauf Apertura 'C' Channel
Wall lining channel used as the main component in the Knauf Aquapanel Lining system.



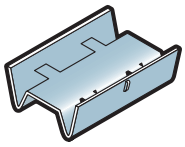
Knauf Apertura 'U' Channel
Forms the floor and head track in the Knauf Aquapanel Lining system.



Knauf Apertura 'U' Mounting Bracket
Locates Knauf Apertura 'C' Channel to background support.



Knauf Apertura 'C' Channel Connector
For connecting straight lengths of Knauf Apertura 'C' Channel.



Key Accessories

Knauf Aquapanel Maxi Screws
Specially developed screws for fixing Knauf Aquapanel cement boards. Climate-X corrosion protection coating provides a guaranteed 1,500 hours corrosion resistance in salt-spray tests.

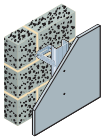
Knauf Aquapanel Joint Adhesive
PU gun applied adhesive used for jointing individual Knauf Aquapanel cement boards. Each tube contains enough for approximately 6m² of wall.

Knauf Sealant
Used to seal gaps to prevent airborne transmission of sound and vibration. Note: Knauf Sealant is not a permanently flexible sealant.

Knauf Aquapanel Q4 Finish
Ready-mixed, water repellant skim coat to achieve a seamless finish to Knauf Aquapanel in non-tiled areas.

Knauf Aquapanel Joint Tape
Alkali resistant tape for reinforcing joints prior to skimming with Aquapanel Q4 Finish.

Performance Information

Board Thickness (mm)		No. of Layers	Channel Size & Gauge (mm)	Overall Lining Width (mm)	Weight* (kg/m²)	Max Height (mm)
12.5		1	60 (0.5)	40 - 138	16	3600

*Weight does not include the weight of finishing materials, eg tiles.

Note: Higher linings can be achieved. For details contact Knauf Drywall Technical Services on 01795 416259.

Specification Guide

Drawing reference(s):.....

Product reference: Knauf Aquapanel Wall Liner, to be fully constructed with components supplied by Knauf Drywall.

Background:.....
Stand off: (background to face of studs):.....

Framing:
Knauf Apertura 'C' Channel Centres:.....mm

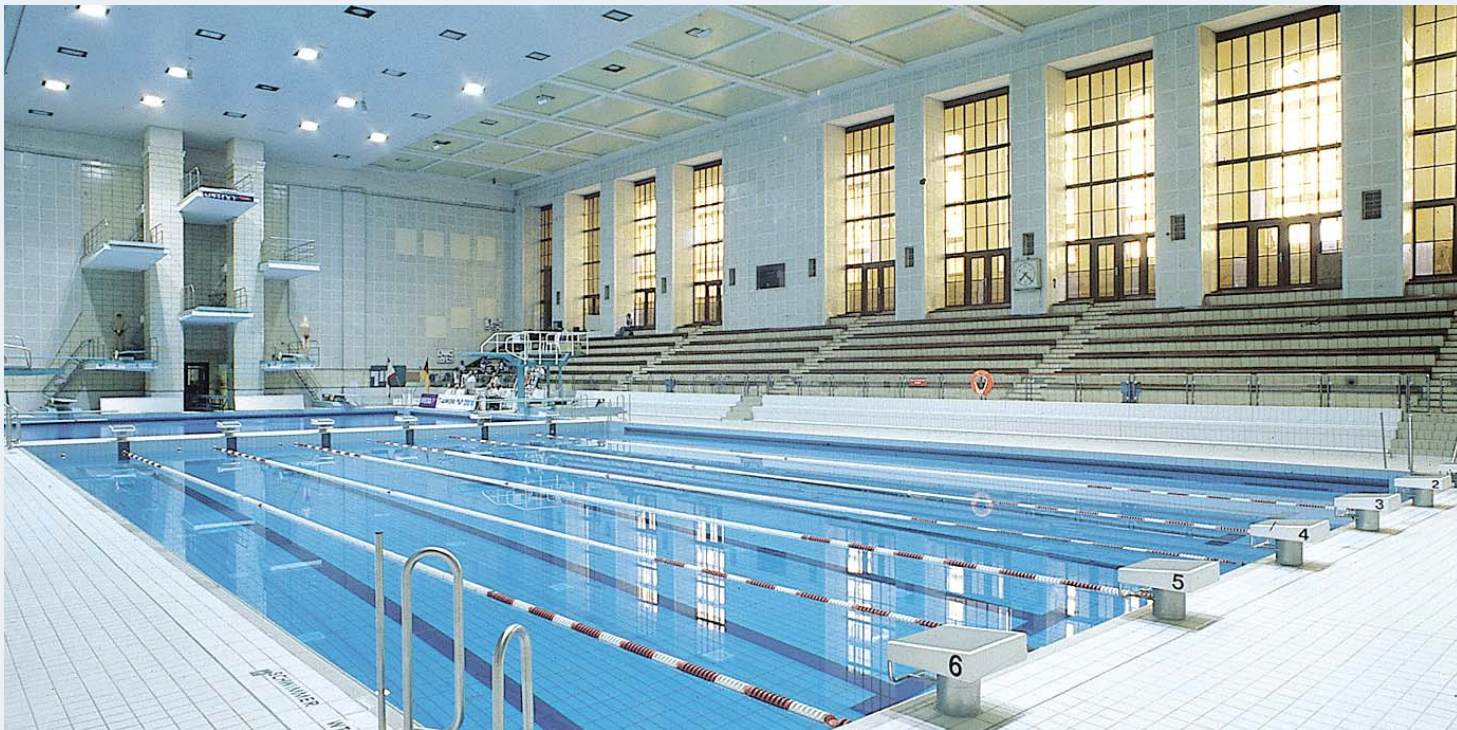
Knauf Apertura 'U' Mounting Bracket Centres: 900mm vertical centres (max). Include Knauf Apertura 'C' Channels (60 x 27mm), Knauf Apertura Universal Brackets (62 x 30mm), Knauf Apertura 'U' Channel at floor/head (30 x 30mm), Knauf Apertura 'C' Channel Connectors and Knauf Angle Sections as appropriate.

Linings: 12.5mm Knauf Aquapanel.

Cavity insulation:
Type:.....
Thickness:.....
Density: Not less than.....kg/m³

Fixings: Knauf Aquapanel Maxi Screws as clause 590.

Board joints: Glued using Knauf Aquapanel Joint Adhesive as per Knauf Aquapanel literature recommendations.



Installation Procedure: Framework

General
Knauf Aquapanel Linings must be installed in accordance with Knauf Drywall's recommendations and the relevant recommendations of BS 8212: 1995 and BS 8000: Part 8: 1994.

Health & Safety
Knauf Aquapanel, Knauf Sound Moistureshield and metal must be cut to length and this should be done in well ventilated areas paying attention to the cut edges of metal sections which may be sharp. For further, updated information refer to the Knauf Drywall Health and Safety sheets and to HSE publications.

Preparation
Mark guidelines on the floor and soffit to establish the positions of floor and head tracks relative to the stand-off distance required.

Mark vertical guidelines on the background to establish the Knauf Apertura 'C' Channel positions at maximum 600mm centres.

Depending on the required storey height, mark the wall with the location of intermediate Knauf Apertura 'U' Mounting Brackets in line with the channel guidelines and at maximum 1000mm vertical centres.

Position service runs and outlets.

Perimeter
Knauf Apertura 'U' Channels should be used for the head and base along the guidelines using fixings appropriate for the background. Fix at nominal 600mm centres.

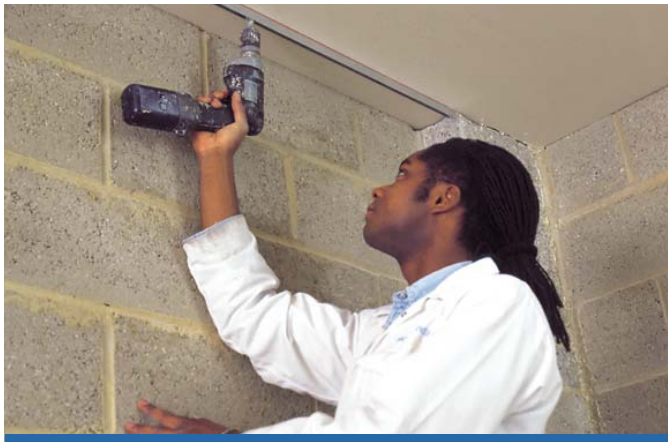
Vertical Apertura 'C' Channels
Fix the intermediate Knauf Apertura 'U' Mounting Brackets to the background, at the marked positions, using fixings appropriate for the background.

Offer up the Apertura 'C' Channels to engage with the Knauf Apertura 'U' Mounting Brackets and with the floor and head tracks. Extend the length of Knauf Apertura 'C' Channels where necessary by using Knauf Apertura 'C' Channel Connectors. Adjust the channels for position and alignment.

Secure the Knauf Apertura 'C' Channels to the Knauf Apertura 'U' Mounting Brackets using Knauf Wafer Head Jackpoint Screws. Depending on the stand-off distance, bend back the legs of the brackets so as not to obstruct the fixing of the board.

Fix Knauf Angle Sections at external corners and reveals, where appropriate.

Insulation
Install insulation quilt where required, between and behind the vertical Knauf Apertura 'C' Channels for continuity and to prevent slumping.


Fixing Knauf Apertura 'U' Channel head track


Knauf Apertura 'U' Mounting Brackets fixed at marked positions


Fixing Knauf Apertura 'C' Channel to the bracket

Installation Procedure: Aquapanel

Boarding (Knauf Aquapanel)
The sequence used when boarding with Knauf Aquapanel is very important, and different to plasterboard, so please read this section carefully.

It is particularly important to note that for a combination of strength and moisture resistance, the Aquapanel board joints are glued during the boarding process using Knauf Aquapanel Joint Adhesive. The first board is fixed, then adhesive is applied to the adjacent edge before offering up and fixing the next board. This process is repeated.

1. Align the board
Knauf Aquapanel cement boards are laid horizontally. Start at one end and align the first board along the studs. Take care to ensure the board is aligned correctly horizontally and vertically using a spirit level. Secure the board with Knauf Aquapanel Maxi Screws at maximum 250mm centres, ensuring that the screws are at least 15mm from the board edge. Do not overdrive the screws.

2. Clean the adjacent board edges
In order to ensure the maximum adhesion is achieved when jointing, the adjacent edges of the fixed board and the next board in the sequence must be cleaned. Simply clean the edges with a wet brush to remove traces of dust – the edges do not need to be soaked.

3. Apply Knauf Aquapanel Joint Adhesive
Using a suitable gun, apply a bead of Knauf Aquapanel Joint Adhesive in a continuous rope to the adjacent edge(s) of the fixed board(s). The bead should be of sufficient size to fill the joint fully when the next board is offered up.

Important note: Knauf Aquapanel Joint Adhesive must be applied before the next board is fixed, not after.

4. Place the next board
Align the next board and push it firmly into the bed of adhesive. The gap between boards should be less than 1mm. Secure the board with Knauf Aquapanel Maxi Screws at maximum 250mm centres, ensuring that the screws are at least 15mm from the board edge.

5. Continue the process
Continue to clean the adjacent edges, apply Knauf Aquapanel Joint Adhesive and place and secure the next board as 2, 3, and 4 above until the wall is completed.

6. Leave the Knauf Aquapanel Joint Adhesive to dry
In order to achieve a strong bond, and to form a complete joint, the Knauf Aquapanel Joint Adhesive needs to be left to cure and expand before the excess can be scraped off. Knauf Aquapanel Joint Adhesive can be left for between 7 and 30 hours before scraping off the excess.

7. Scrape off the excess adhesive
Scrape off the excess Knauf Aquapanel Joint Adhesive using a flexible steel scraper.

Fixing Knauf Aquapanel using Knauf Aquapanel Maxi Screws


Cleaning the edges with a wet brush


Applying Knauf Aquapanel Joint Adhesive


Scraping off the excess adhesive once dry

Installation Procedure (continued)

Cutting Knauf Aquapanel
Knauf Aquapanel can be cut to shape using a sharp knife and straight edge. Score one side with a knife, cutting through the mesh. Snap the board along the score, then cut through the mesh on the other side.

Alternatively, use a hand held circular saw fitted with a carbide or diamond-tipped blade and a dust extractor.

Curving Knauf Aquapanel
Knauf Aquapanel can be curved to a radius of 3 metres.

Finishing

Tiling

Tiles with a maximum weight of 50 kg/m^2 can be applied to Knauf Aquapanel, with vertical channels at 600mm centres. Always use a quality polymer modified based flexible tile adhesive, following the manufacturer's instructions. Tile on the smooth side of the board.

Skimming

A 2-3mm veneer coat of Knauf Aquapanel Q4 Finish is applied to the face of the Aquapanel. The joints should be reinforced with Knauf Aquapanel Joint Tape. For further information refer to the Aquapanel Q4 Finish leaflet.

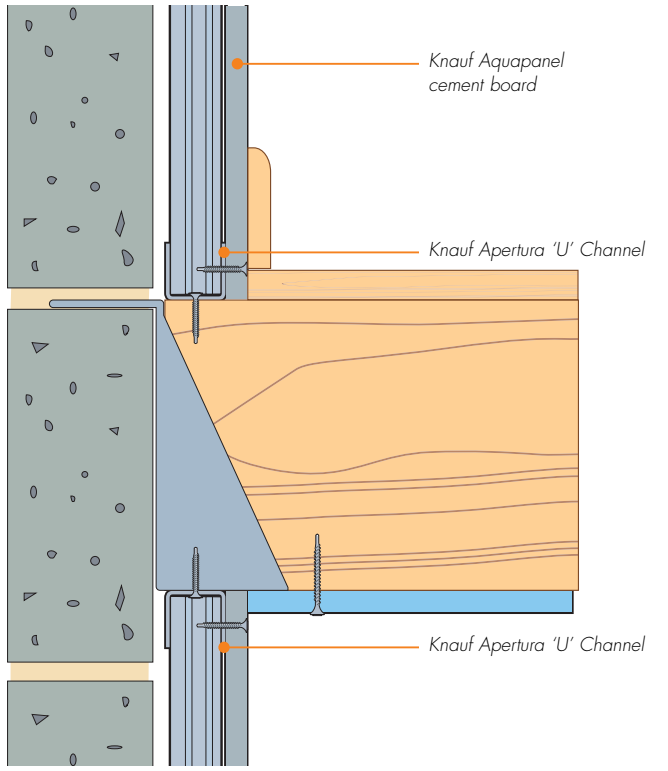
Sealing interfaces
Permanently flexible sealant should be used at corners, at wall to floor connections, and at interfaces with baths and shower trays, in combination with sealing tape in wet areas. Permanently flexible sealant should also be used around cut-outs for pipes and other penetrations.

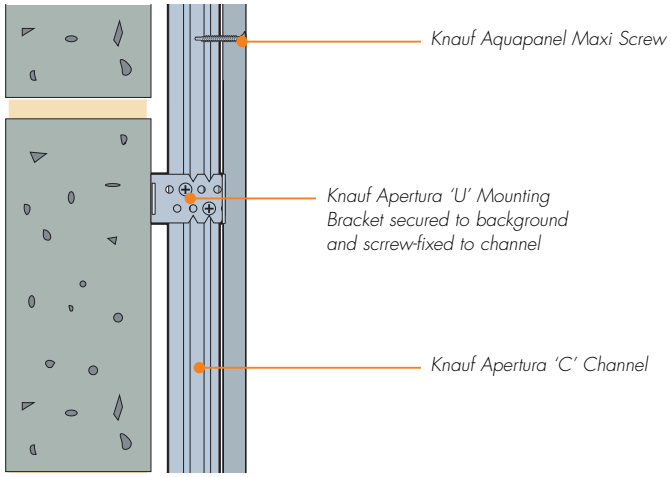
Scoring and snapping Aquapanel to size

Applying tiles to the completed lining

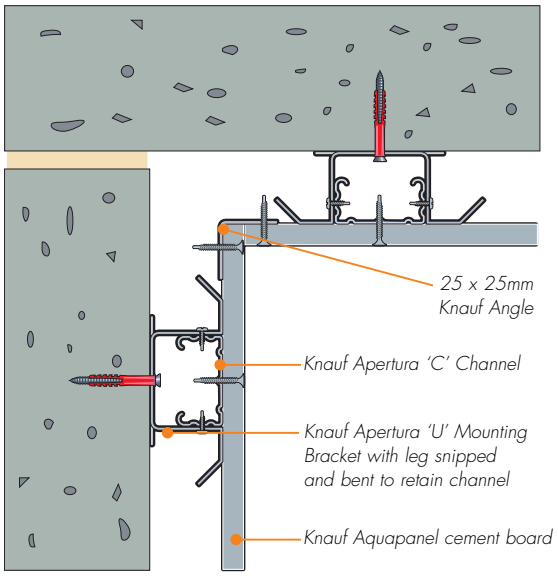
Linings Application Details

Floor and Head





Internal corner



Special Applications

Knauf Aquapanel cement board is tough, durable, non-combustible, freeze-thaw resistant and can be curved, making it suitable for many demanding and unusual applications that would normally call for a bespoke product.

In addition to the systems shown in this brochure, Aquapanel systems can be designed with fire resistances of up to two hours and to provide sound reduction of up to 53dB. Shaftwall and ceiling variants are also available.

Knauf Drywall Technical Services can advise on any special requirements or situations you have where Knauf Aquapanel can provide a solution.

Knauf Drywall Technical Services

Knauf Drywall Technical Services are on hand to advise and help no matter what size of project or at what stage the project is at.

The Knauf Drywall Specification Team have a wealth of experience in value engineering, specifying and supporting major projects, with countless large contracts successfully completed across the UK over the past 10 years.

The specification team are able to offer advice and guidance from the very start of the project, at the design stage, right through to providing on-site support to the contractor during the installation phase.

This is backed up by an experienced telephone based technical support team, comprehensive literature and an award winning website, www.knaufdrywall.co.uk/themanual.

You can contact Knauf Drywall Technical Services on **01795 416259**.

Sage plc headquarters, Newcastle:
Prior to completion of the atrium, Knauf Aquapanel weatherproofed the sides of the office buildings, enabling outfitting to proceed inside. Aquapanel was later used with Knauf Apertura Perforated Plasterboard for the atrium drylining.

Aquapanel Data

Knauf Aquapanel boards are manufactured from high quality aggregated Portland cement with coated glass fibre mesh embedded in the front and back surfaces. The ends of the board are square cut and the edge reinforced and finished smoothly (EasyEdge, see page 26) to ensure a strong joint.

Knauf Aquapanel should be tiled on the smooth side of the board.

Limitations

High levels of water absorption will not affect the long term performance of Knauf Aquapanel, but to ensure the correct adhesion of tile adhesives and Aquapanel Joint Adhesive the boards must be installed dry. Wet Aquapanel boards can be allowed to dry out and then installed once a moisture content of less than 15% has been reached (typically within 48 hours in a dry environment) with no loss of performance.

Owing to the high alkalinity of the products, acids will degrade the board's composition.

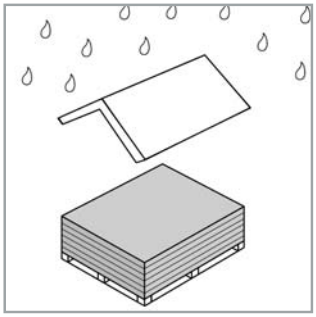
Storage on Site

Packs should be lifted with a fork lift truck, the forks being set so there is an even weight distribution and no deformation of the pack. Ensure handling equipment is of adequate capacity and that the personnel are advised of handling procedures and safety clothing.

Care should be taken at all times to avoid strain to the handlers.

Carry the boards upright, two persons per board, by supporting one long edge and gripping upper edge to avoid breaking due to flexing. Take care not to damage corners and edges when setting them down.

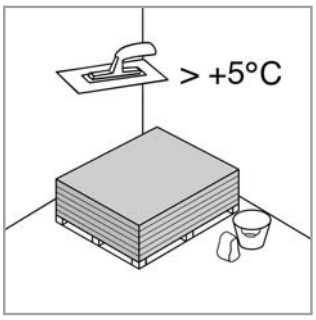
Knauf Aquapanel must be stored flat in a clean dry environment on a flat surface. If timber bearers are used to store boards on site, they should be a minimum 40mm wide and placed at maximum 450mm centres. Boards which have become damp must be dried on both sides on a flat surface prior to fitting.



Note: If handling manually, consider risks as required by manual handling operations regulations 1992.

Before installing, condition the boards to the ambient temperature and humidity. The ambient air and component temperatures may not be below +5°C.

Dimensions				
Thickness (mm)	Width (mm)	Length (mm)	Weight (kg/m²)	Article No.
12.5	900	2400	15	670 60 627



Knauf Aquapanel is not designed to support body weight. Fixers should work from an independent support system.

An on-site risk assessment should be carried out before use.

Health & Safety

Knauf Aquapanel should be handled with care. When cutting, ensure adequate ventilation as dust may be generated which may irritate the respiratory system, eyes or sensitive skin.

Knauf Aquapanel is not classified as hazardous under CHIP2 Regulations 1994 and the Control of Substances Hazardous to Health (COSHH) Regulations 1994.

The latest full Material Safety Datasheets on the specific products can be downloaded from our website: www.knaufdrywall.co.uk/themanual

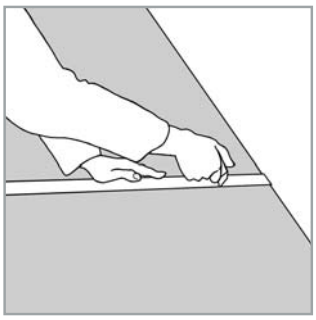
Fire Performance

Knauf Aquapanel provides excellent natural fire resistance and is designated as Class O material under the Building Regulations 1992, approved Document B, and as non-combustible: A1 to DIN 4102.

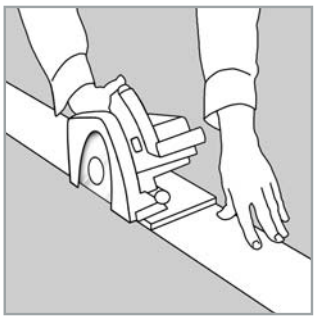
Sitework

Knauf Aquapanel Partitions and Linings must be installed in accordance with Knauf Drywall's recommendations and the relevant recommendations of BS 8212: 1995 and BS 8000: Part 8: 1994.

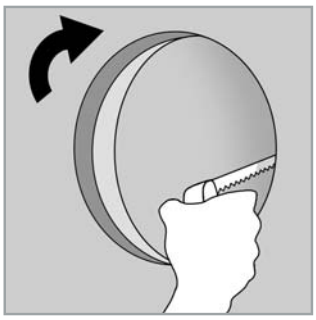
Aquapanel Data (continued)



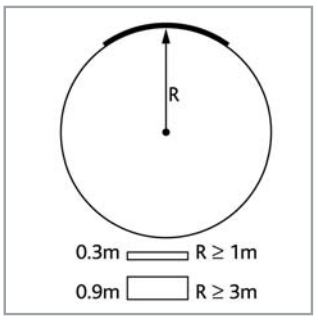
Cutting
To cut Aquapanel cement board, mark the required size on the board with a rule and pencil. Score one side with a knife cutting through the mesh. Snap the board along the score. Then cut the mesh on the opposing side.



For sharp-edged cuts use a hand-held circular saw with a dust extractor or a pendulum jigsaw, each fitted with a carbide or diamond-tipped blade.



Drilling, bending
To make cut-outs for wiring and pipes, use a jigsaw or compass saw. The diameter of the hole for a pipe should be approximately 10mm greater than that of the pipe.



For applications such as arches, the cement board can be curved. Knauf Aquapanel can be curved to a radius of 3m as a full sheet. Tighter radii can be achieved by first cutting the Aquapanel into 300mm wide strips.

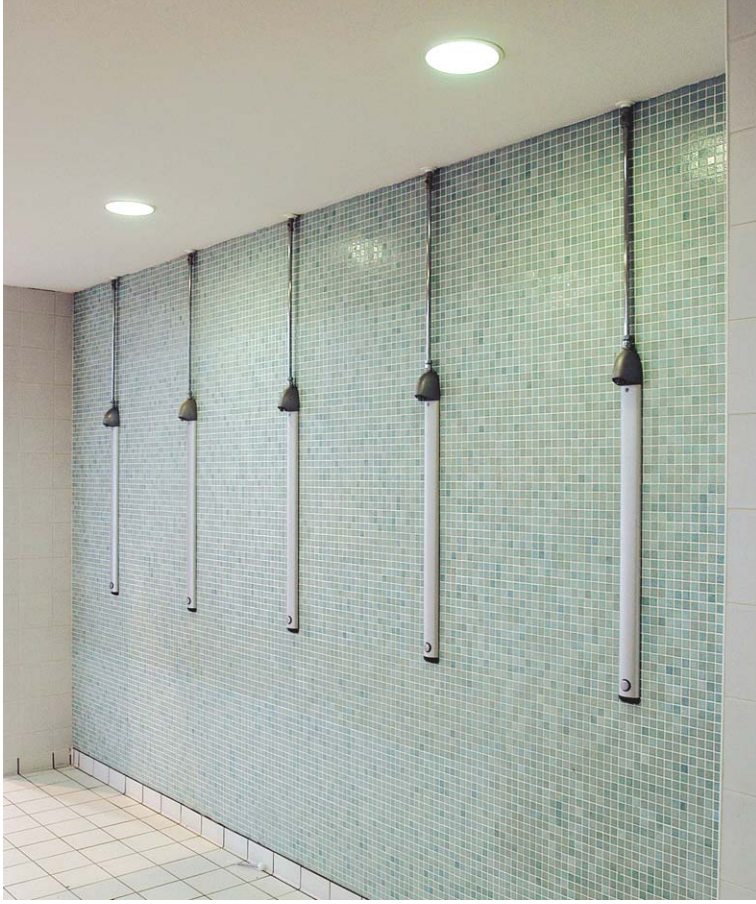
Physical properties	
Width (mm)	900
Length (mm)	2400
Thickness (mm)	12.5
Minimum radius for 900mm wide board (m)	3
Minimum radius for 300mm wide strips (m)	1
Weight (kg/m^2)	15
Dry density (kg/m^3)	1050
Flexural strength - minimum (N/mm^2)	6
Alkalinity (pH)	12
Thermal conductivity (W/mK)	0.27
Thermal expansion (10^{-6}K)	7
Water diffusion resistance coefficient (μ)	30
Change in dimension from dry to saturated air (%)	0.1
Building Material Class	Non-combustible: A1 acc. DIN 4102

Material requirements

Material	Consumption
Aquapanel Joint Adhesive (PU)	50ml/m^2 (25ml/m)
Aquapanel Maxi Screw	15 pcs/m^2, stud spacing 600mm
Aquapanel Q4 Finish	1.7kg/m^2/mm

Knauf Aquapanel features the special EasyEdge design. The straight edge is wrapped with mesh embedded into the cement for extra strength.

EasyEdge ensures the best possible bond using Knauf Aquapanel Joint Adhesive, resulting in a stronger structure.



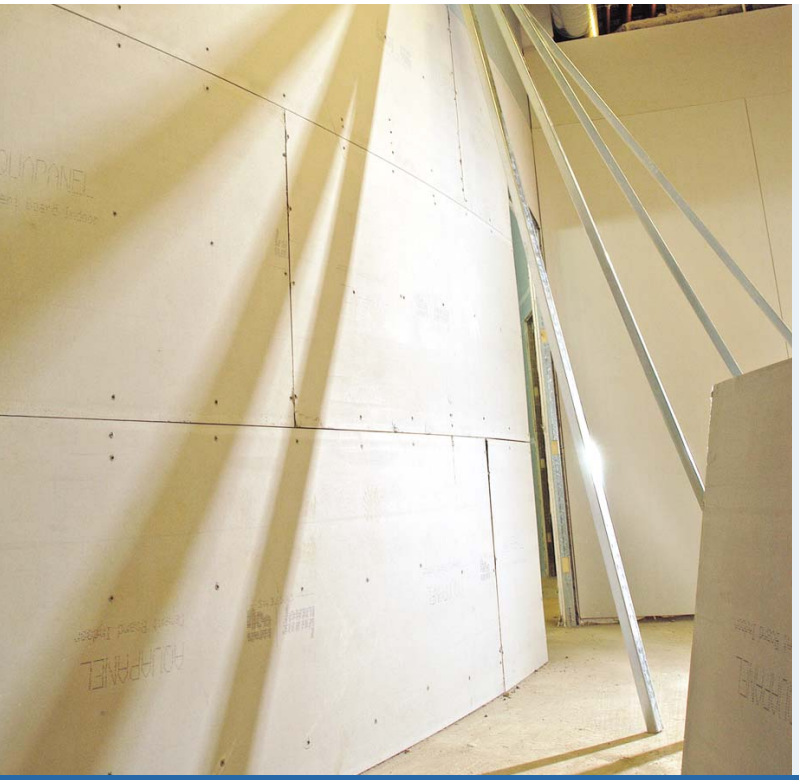
Aquapanel in the swim at Kent leisure centres

Water and moisture-resistance were prime considerations when specifying Knauf Drywall's Aquapanel as the poolside wall material for re-development of the swimming pools at the Crook Log and Erith leisure centres in Kent.

The projects, completed by main contractor MJ Gleesons and drylining specialist, MDG Drywall, were undertaken as part of a total refurbishment of the leisure complexes. The lottery-funded scheme provides facilities to suit the leisure requirements of a growing community.

Aquapanel was used as a tile backing on the 10m high walls that surround the competition and teaching pools at Crook Log and on the walls round the two pools at Erith. In total, 750m^2 of Aquapanel was installed.

Aquapanel maximises the aesthetic potential of tile design in swimming pool environments. At both Crook Log and Erith, Aquapanel provides a solid background to support the low tolerance 2.5cm^2 mosaic tiles featured along the poolside.



Knauf Aquapanel 'pounds' its way to centre of community

Community life gets a major boost in Portsmouth with the opening of the John Pounds Centre, part of the regeneration in the Portsea conservation area, near the Historic Dockyard.

Knauf Aquapanel and other products and systems from Knauf Drywall are used extensively in the £7.36 million development.

The new complex, designed for Portsmouth City Council by Capita Symonds and built by Fitzpatrick, adjoins an existing community centre and includes a sports hall, library, youth workshops, and rooms for police and local housing officials.

Drylining sub-contractors, AT Jones & Son of Fareham, installed 300m^2 of Knauf Aquapanel for tile backing in the toilets and shower areas, and also to provide attractively curved walls in the foyer and corridors of the irregularly shaped building.

The community centre is a memorial to John Pounds (1766-1839) who pioneered free education for the poor.

April 2006
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Further information is contained within The Complete Drywall Manual, available online at our award winning website: www.knaufdrywall.co.uk/themanual together with a range of interactive tools to aid the specifier and contractor.

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