The Knauf range of drywall partitions is the result of decades of experience in developing, testing and supporting that meet the needs of the modern building.

Quickly and simply constructed from high quality Knauf components, our partitions are designed to perform. You can specify Knauf partitions safe in the knowledge that these components will ensure performance, and that our support extends from concept to site.
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**General Information**

**PRODUCTS**
Knauf Drywall Metal Sections are manufactured from mild steel sections coated with either a zinc electrolytic process or hot dip galvanised process. This is then cold formed to the required section profile.

**Limitations**
Knauf Drywall Metal Sections are not suitable for use in load bearing situations.

If metal sections are to be used in areas of high humidity cut edges must be treated with suitable zinc based primer.

Knauf Drywall Metal Sections are not designed for external use.

**Site Storage**
Knauf Drywall Metal sections are supplied in small packs and then strapped together to form larger packs for forklift truck off-loading. These packs can be stacked in single packs, in a safe and stable manner on a flat surface.

These bands or straps should not be used for lifting. Metal sections may spring apart when banding is released.

Note: If handling manually, consider risks as required by Manual Handling Regulations 1992.

**HEALTH & SAFETY**
Knauf Drywall Metal Sections must be handled with care as formed edges and cut ends may be sharp. Gloves should be worn when handling the material to avoid lacerations.

Avoid prolonged contact with skin and wear protective clothing when handling metal components.

Safety glasses should be worn when using power tools.

Head protection should be worn when working with overhead hazards.

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

For the latest Material Safety Date Sheets on the specific products, please contact Knauf Hong Kong.
Knauf Partitioning System provides strength and robustness. These duty ratings have been calculated in accordance with BS 5234: Part 1 & 2: 1992. The rating is a measure of the ability of the wall to meet the requirements of strength and robustness tests:

- Stiffness
- Surface damage by small hard body impact.
- Resistance to damage by impact from a large soft body.
- Eccentric downward loading of heavyweight anchorage (wash basin)
- Eccentric downward loading of heavyweight anchorage (high level wall cupboard)
- Crowd pressure
- Perforation by small hard body impact.
- Resistance to structural damage by impact from a large soft body.
- Door slamming
- Pull-out of a lightweight anchorage.
- Pull-down of a lightweight anchorage.

As an aid to specification, the figures below are guidelines for duty-strength / robustness rating, and minimum sound reduction values for partitions separating various room types.

The wall duty-strength and robustness ratings are grouped as follows:

<table>
<thead>
<tr>
<th>Category</th>
<th>Building Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Light Duty (LD)</td>
<td>Residential</td>
</tr>
<tr>
<td>Medium Duty (MD)</td>
<td>Office or commercial building</td>
</tr>
<tr>
<td>Heavy Duty (HD)</td>
<td>Public or industrial building</td>
</tr>
<tr>
<td>Severe Duty (SD)</td>
<td>Heavy industrial building</td>
</tr>
</tbody>
</table>

Suggested minimum sound insulation values of partitions:
Suggested minimum sound insulation performance levels for privacy in some occupational conditions are given in table below. The values given are based on laboratory measurements.

<table>
<thead>
<tr>
<th>Location</th>
<th>Weighted sound reduction index Rw dB</th>
</tr>
</thead>
<tbody>
<tr>
<td>Habitable rooms in dwellings</td>
<td>30</td>
</tr>
<tr>
<td>Quiet rooms in dwellings</td>
<td>44</td>
</tr>
<tr>
<td>Enclosing bathrooms in dwellings</td>
<td>38</td>
</tr>
<tr>
<td>General offices</td>
<td>38</td>
</tr>
<tr>
<td>Private offices</td>
<td>44</td>
</tr>
<tr>
<td>Executive offices</td>
<td>50</td>
</tr>
<tr>
<td>Hotel rooms</td>
<td>55</td>
</tr>
<tr>
<td>Music practice rooms</td>
<td>60</td>
</tr>
<tr>
<td>Cinemas</td>
<td>60</td>
</tr>
</tbody>
</table>

NOTE. Where there is a great deal of background noise, a lower Rw may be acceptable.
## Table 4.1: System performance

<table>
<thead>
<tr>
<th></th>
<th>Acoustic</th>
<th>Fire</th>
<th>Duty rating(^1)</th>
<th>Figure(^1)</th>
</tr>
</thead>
<tbody>
<tr>
<td>General partition</td>
<td>37dB</td>
<td>Medium</td>
<td></td>
<td>Fig1</td>
</tr>
<tr>
<td>General fire performance</td>
<td>42dB</td>
<td>1hrs</td>
<td>Medium</td>
<td>Fig2</td>
</tr>
<tr>
<td>High fire performance</td>
<td>41dB</td>
<td>2hrs</td>
<td>Medium</td>
<td>Fig3</td>
</tr>
<tr>
<td>High acoustic performance</td>
<td>53dB</td>
<td>2hrs</td>
<td>Medium</td>
<td>Fig4</td>
</tr>
<tr>
<td>High acoustic performance</td>
<td>60dB</td>
<td>2hrs</td>
<td>Medium</td>
<td>Fig5</td>
</tr>
<tr>
<td>Ultra High acoustic performance</td>
<td>69dB</td>
<td>1hrs</td>
<td>Medium</td>
<td>Fig6</td>
</tr>
<tr>
<td>Strength and Robustness</td>
<td>42dB</td>
<td>1hrs</td>
<td>Heavy</td>
<td>Fig7</td>
</tr>
<tr>
<td>Strength and Robustness</td>
<td>46dB</td>
<td>2hrs</td>
<td>Severe</td>
<td>Fig8</td>
</tr>
</tbody>
</table>

Note: \(^1\) BS5234 identifies partitions grades by light duty (LD), medium duty (MD), heavy duty (HD) and severe duty (SD) which are determined by partition dimensions, stud type and board type. Any of these solutions may be upgraded by the use of Knauf Denseshield board. Please consult Knauf Hong Kong for details.
Drywall Design for Fire Safety

**Fig 1 General partition**

- 50mm stud
- 12mm Regular Plasterboard either side

**Fig 2 General Fire Performance**

- 50mm x 50mm stud 0.6mm thickness
- 12.5mm Fireshield either side

**Fig 3 High fire performance**

- 50mm x 50mm stud 0.6mm thickness
- 2x12.5mm Fireshield either side
**Fig 4 High acoustic performance**

- 75mm MW stud thickness
- Insulation: 50mm wool insulation
- Soundshield either side

**Fig 5 High acoustic performance**

- 75mm MW stud
- Insulation: 50mm wool insulation
- 2x12.5mm + 1x15mm Soundshield either side

**Fig 6 Ultra high acoustic performance**

- High performance MW twin frame
- 2x12.5mm Soundshield either side
- Soundshield
- 100mm wool insulation
Knauf Partitions

**Fig 7 Strength & Robustness**

**Knauf Denseshield** Impact Resistant Partition System

Meeting “Heavy Duty” criteria of BS5234: Part 2:1992

**Technical Data:**

1-Hour fire rating, integrity & insulation according to BS476: Part22, with fire risk from both sides

Overall partition thickness = 75mm

Sound reduction Rw = 42 dB

1. KNAUF Denseshield impact resistant fire rated plasterboard 12.5mm thick
2. KNAUF 50mm x 50mm x 0.6mm G.I. stud at 610mm centres
   * When 75mm wide frame is used, this Denseshield partition meets the ‘Heavy Duty’ criteria of BS5234: Part2:1992
3. KNAUF 50mm x 40mm x 0.6mm G.I. ‘U’ channel
4. Nailable plug at 600mm centres
5. Knauf intumescent and acoustic sealant
6. Drywall screw at 300mm centres
7. 50mm thick, 60kg/cu.m, KNAUF rockwool
Knauf Partitions

Fig 8 Strength & Robustness

Knauf Denseshield Impact Resistant Partition System
meeting “Severe Duty” criteria of BS5234:Part 2:1992

Technical Data:
2-Hour fire rating, integrity & insulation according to BS476: Part 22, with fire risk from both sides
Overall partition thickness = 125mm
Sound reduction Rw = 46 dB

1. KNAUF Denseshield impact resistant fire rated plasterboard 2 x 12.5mm thick
2. KNAUF 75mm x 50mm x 0.6mm G.I. stud at 610mm centres
3. KNAUF 75mm x 40mm x 0.6mm G.I. ‘U’ channel
4. Nailable plug at 600mm centres
5. Knauf intumescent and acoustic sealant
6. Drywall screw at 300mm centres

Remark: * with the inclusion of 50mm thick, 60kg/cu.m rockwool, the sound reduction Rw is 54 dB
Knauf Metal Sections is our most versatile partition solution, able to meet nearly every performance requirement. The Knauf partition system is lightweight, strong and easy to install and can be specified with confidence for an enormous range of applications.

**Head Track**
- Knauf ‘U’ Channel forms head plate.
- Knauf Deep Range ‘U’ Channel for deflection head.

**Stud**
- Knauf metal studs simply twist and snap into head and floor tracks.
- Knauf ‘C’ Stud lightweight steel section.

**Knauf Plasterboard**
- The full range of acoustic, fire resistant, moisture resistant, impact resistant to provide performance and design solutions.

**Floor Track**
- Knauf ‘U’ Channel secured to floor.
Knauf Partitions

Knauf partition copes easily with the most demanding fire, sound, moisture and impact resistance requirements. Knauf components are designed to work together and provide you a fully integrated system.

Key Features:
- Versatile, light, fast and easy to install
- System can utilise the entire range of boards
- Optimised solutions to meet sector specific requirements
- Minimum amount of components required to construct
- Comprehensively developed and site-proven

Door Head

Knauf Deep Flange ‘U’ Channel snipped, bent, returned and fixed to vertical stud.

Fixings

Knauf Drywall Screws are self drilling and self tapping and designed to work perfectly with Knauf Plasterboards.

Knauf Ready Mix

Readymix solution.
Knauf Partitions

Installation Procedures
Knauf partitions are designed to be simple and fast to install. Knauf Drywall Technical Services are on hand should you have any questions or unusual situations to deal with.

General
Knauf Performer partitions must be installed in accordance with Knauf Drywall’s recommendations and the recommendations of BS 8212: 1995 and BS 8000; Part 8: 1994.

Perimeter Framing
Knauf ‘U’ Channels should be used for the head and base of the partition. Knauf ‘C’ Studs should be used to form any abutments and to frame openings. Bed each section on two continuous beads of Sealant or Intumescent and Acoustic Mastic as specified. Secure with suitable fixings 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 a Knauf Deep Flange ‘U’ Channel when forming a deflection head.

Partitions constructed to provide fire and / or acoustic separation are required to span from structural floor to structural soffit.

Vertical Studs
Studs should be positioned within the channels to coincide with the abutments of the boards, at centres dependant on the performance requirement of the system. 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 ‘C’ Studs should be trimmed to within 5mm of the slab to soffit height. For deflection heads: studs should be cut short to allow for required clearance within Knauf Deep Flange ‘U’ Channel.

Knauf ‘C’ Studs can be extended by forming a splicing detail. See details on page.

Insulation
Subject to the performance requirements once the studs have been located in the Knauf ‘U’ Channels and one side has been boarded, Knauf insulation as specified 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.

Support for Horizontal Joints in Facings
To back horizontal joints in outer board layers, Knauf Fixing Channel or Knauf Flat Fixing Plate should be fitted across the face of all studs, secured with 2 Knauf Drywall Screws per stud to both faces or between board layers.

Doorways
The head is formed with Knauf Deep Flange ‘U’ Channel, snipped and bent back and screw fixed with Knauf Screws to the studs.

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

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

Deflection Heads
The maximum deflection should be no more than half the flange length of the Knauf Deep Flange ‘U’ Channel and for a downward direction.
After fixing the head track, the floor track should be positioned by using a vertical stud and a laser/spirit level.

Twisting Knauf ‘C’ Stud into position.

Fixing Knauf ‘C’ Stud to form the partition frame abutment.

Snip and bend back Knauf ‘U’ Channel for extra rigidity around door openings.

Snip and bend back Knauf Deep Flange ‘U’ Channel to form the door frame.

Fixing Knauf Deep Flange ‘U’ Channel to studs at door opening.

Insert timber battens in the Knauf ‘C’ Studs for extra rigidity around door frame if required.

Fixing Knauf Plasterboard to the completed framework.
Knauf Partitions

Application Details

These details represent some of the most common design situations relevant to the Knauf partition system. Knauf Drywall Technical Services can advise on any specific detail you are trying to achieve.

‘C’ Stud Single Boarded

Any type of Knauf plasterboard can be fixed to Knauf ‘C’, to achieve different performance requirements.

‘C’ Stud Single Double Boarded

Double boarding is one method to achieve increased performance levels.
**Standard head and Floor**

The Knauf ‘U’ Channel should be fixed to the structural soffit at maximum 600mm centres. Channels should be bedded securely onto continuous beads of sealant to ensure optimum sound reduction by preventing air paths. If deflection of the soffit is expected, please refer to deflection head detailing.

The Floor detail is a mirror image of the Standard Head Detail. Single facings are shown as an example. Partitions should always be fixed to the finished floor.
Knauf Nailable Plug or suitable fixing at 600mm centres

Intumescent and Acoustic Mastic

Deflection allowance

Knauf Deep Flange ‘U’ Channel

Deflection allowance

Knauf Drywall Screws at 300mm centres

Knauf Flat Fixing Plate

Structural Soffit

Knauf Plasterboard fillets ensuring 10mm minimum board overlap

Sealant

Knauf ‘C’ Studs to suit partition specification

Knauf Plasterboard to suit specification

Knauf Partitions
Knauf Nailable Plug or suitable fixing at 600mm centres
Structural Soffit
25 x 50mm Knauf Angle Section
Knauf Rockwool 60 kg/m³
Knauf Sealant
Knauf Plasterboard fillets ensuring 10mm minimum board overlap
Knauf Plasterboard to suit specification

Intumescent and Acoustic Mastic
Deflection allowance
Deflection allowance
Knauf Deep Flange ‘U’ Channel
Deflection allowance
Knauf Drywall Screws at 300mm centres
Knauf Flat Fixing Plate

Knauf Nailable Plug or suitable fixing at 600mm centres
Structural Soffit
50mm Knauf Rockwool 60Kg/m³ in head track
Tabs cut into track and bent up to retain insulation

Knauf Intumescent and Acoustic Mastic
Deflection allowance
Knauf Deep Flange ‘U’ Channel
Deflection allowance
Knauf Drywall Screws at 300mm centres
Knauf Flat Fixing Plate
**Ceiling Suspended Fire / Smoke Barrier**

Technical data:
1 hour fire rating, integrity & insulation according to BS476: Part 22, with fire risk from both sides

1. KNAUF Fireshield board each side 15mm*
2. Vertical G.I. C-stud 50mm deep at 600mm centres
3. 0.55mm thick for barrier depth <1500mm
   0.9mm thick for barrier depth 1500-2400mm
3. Top and bottom G.I U-channel 52mm wide
   0.55mm thick for barrier depth <1500mm
   0.9mm thick for barrier depth 1500-2400mm
4. Drywall screw at 300mm centres
5. M6 steel anchor bolt at approx. 400mm centres

*Another alternative is to use 12.5mm thick KNAUF Fireshield board on each side and infill with 25mm thick, 18kg/cu.m density glassfibre insulation.

**Spandrel Wall (Fixed below the floor slab)**

Technical data:
1 hour fire rating, integrity & insulation according to BS476: Part 22, with fire risk from both sides

1. KNAUF Fireshield fire rated plasterboard 15mm*
2. Vertical G.I. C-stud 50mm deep at 600mm centres
3. Top and bottom G.I U-channel 52mm wide
4. Drywall screw at 300mm centres
5. M6 steel anchor bolt at approx. 400mm centres

*Another alternative is to use 12.5mm thick KNAUF Fireshield board on each side and infill with 25mm thick, 18kg/cu.m density glassfibre insulation.

Remark:
The same fixing details would apply to the fire rated spandrel wall fixed above the floor slab.
**Corner 90°**

Fixings at the junction should be made from stud to stud. Knauf ‘C’ Studs form intersections.

- Knauf Drywall Screws at 300mm centres
- Taped and Jointed
- Knauf ‘C’ Studs at intersections
- Knauf Drywall Screws at 600mm centres for stud to stud fixings

**Splayed Corner**

Treated and prepared timber grounds can be incorporated to create splayed corners. Knauf ‘C’ Studs form intersections.

- Knauf Drywall Screws at 30mm maximum centres
- Taped and Jointed
- Knauf ‘C’ Studs screw fixed to timber grounds at 600mm maximum centres
- Shaped timber ground
**Abutment T-Junction**

Fixing at the junctions should be made from stud to stud. Extra studs should be included if required.

- **Knauf Drywall Screws** at 600mm maximum centres for stud to stud fixings
- **Knauf Drywall Screws** at 300mm centres
- **Taped and jointed**
- **Knauf Drywall Screws** at 300mm centres

**Knauf Plasterboard to suit specification**

**Knauf insulation if required**

**Additional Knauf ‘C’ stud at intersection**

**Knauf Sealant**

**Knauf ‘C’ stud to suit specification**

---

**Abutment T-Junction, High Performance Flanking Intersection**

Where there are high acoustic requirements a flanking detail should be considered.

- **Knauf Drywall Screws** at centres to specification
- **Taped and jointed**
- **Knauf ‘C’ Studs at abutments**
- **Knauf Drywall Screws** at 300mm centres

**Knauf Plasterboard to suit specification**

**Knauf insulation if required**

**Sealant**

**Knauf ‘C’ Studs at abutments**
Suitable Fixings at 600mm centres

Knauf Drywall Screws at 300mm centres

Taped and Jointed

Knauf Plasterboard to suit specification

Knauf insulation if required

Additional Knauf ‘C’ Stud

Knauf Drywall Screws at 300mm centres

Knauf Sealant

Fixing at the junctions should be made from stud to stud. Extra studs should be included. A break in the plasterboard helps to prevent flanking sound transmission.
Knauf Rockwool 60kg/m3

Pipe Penetration

Suitable for small pipes — typically up to 40mm diameter. The mineral wool must be secured around the pipe with wire or mesh.

Knauf Intumescent and Acoustic Mastic

Knauf Rockwool 60kg/m3

10mm

50mm
**Pipe Penetration**

For pipes with a diameter up to 160mm, a Fire Collar is fixed to both sides in accordance with the manufacturers recommendations.

**Duct Penetration**

For pipes and ducts above 160mm diameter, Knauf ‘C’ Studs and ‘U’ Channel form an opening for the duct.

Fire dampers in ductwork, when present, should be independently supported and installed with regard to the manufacturers instructions.
Knauf Partitions

Typical Framing Out Detail

- Knauf Plasterboard to suit specification
- Additional Knauf ‘C’ Studs as trimmers each side of opening
- Knauf Plasterboard returned and screw fixed to trimming stud/channel as lining to opening
- Ends of Knauf Deep Flange ‘U’ Channel snipped, bent and turned up or down a minimum 300mm and fixed to studs with two Knauf Wafer Head Jackpoint Screws each side.
- Fire stopping insulation (by others)
**Movement Control Joint**

Allows lateral movement of up to 7mm. The control joint must be fixed at 150mm centres on both edges. This detail allows more movement than the previous detail, in conjunction with a shadow gap formed by Knauf Drywall Edge Beads.

**Expansion Joint**

This allows more movement than the previous detail, in conjunction with a shadow gap formed by Knauf Drywall Edge Beads.
**Light Weight Fixings Parallel to Surface**

Suitable for medium weight fixings where the applied load is fixed and continuous, and for lightweight fixings where the load may be subject to some movement (e.g. through removable objects).

- Suggested applications: Curtain rails, pictures.

**Heavy Weight Fixings Parallel to Surface**

Suitable for heavyweight fixings where the applied load is fixed and continuous, and for medium weight fixings where the load may be subject to some movement (e.g. through removable objects).

- Suggested applications: baths (lateral location only), cupboards, shelving, handrails, radiators.

**Heavy Weight Fixings with Moment**

For use where the applied load is not directly adjacent to the board surface, thus producing a twisting force that the other fixing details are not capable of withstanding. It is also suitable for fixing items that are likely to receive rougher than usual treatment.

- Suggested applications: TV mounting arms, pay telephones and hoods, disabled grab rails.
These can be fixed back to Knauf 'U' Channels or sections of Knauf Fixing Channels fitted between studs. Mineral wool packing maintains the fire resistance of the partition.
Knauf ‘U’ Channel is snipped, bent back and screwed to the Knauf ‘C’ Stud with Wafer Head Jackpoint Screws.

Knauf Deep Flange ‘U’ Channel (to suit deflection allowance) fixed to structural soffit at maximum 600mm centres

Knauf Flat Fixing Plate (If required within the appropriate deflection head detail)

Knauf Wafer Head Screws at 300mm maximum centres

Knauf Deep Flange ‘U’ Channel section to each side of door opening fitted between returned legs at doorhead and base

Knauf ‘C’ Stud to each side of door jamb

Two pairs of fixings:
One pair at jamb stud base;
One pair at 150mm from door jamb. Remainder of Knauf ‘U’ Channel secured at 600mm centres

Knauf ‘U’ Channel with 300mm leg cut and returned up door jamb stud

0 - 60Kg Door Jamb

Detail 26
Knauf Deep Flange ‘U’ Channel
(70mm flange) fixed to structural soffit at maximum 600mm centres.

Additional Knauf ‘C’ Stud positioned 150mm from door jamb stud each side of door opening.

Knauf Wafer Head Screws at 300mm maximum centres.

Knauf Deep Flange ‘U’ Channel (70mm flange) section to each side of door opening fitted between returned legs at door head and base.

Knauf ‘C’ Stud to each side of door jamb.

Two pairs of fixings:
One pair at jamb stud base;
One pair at 150mm from door jamb. Remainder of Knauf ‘U’ Channel secured at 600mm centres.

Knauf ‘U’ Channel with 300mm leg cut and returned up door jamb stud.

300mm turned up floor channel secured with Knauf Wafer Head Screws at 150mm centres.

Minimum 250mm - to meet channel below.

Knauf Flat Fixing Plate (if required within the appropriate deflection head detail).

Knauf Deep Flange ‘U’ Channel (70mm flange) cut and bent down jamb stud each side, secured with Knauf Wafer Head Screws at intersections and at 200mm centres on each return.

Knauf Partitions

60 - 100Kg Door Jamb
Knauf ‘U’ Channel is snipped, bent back and screwed to the Knauf ‘C’ Stud with Wafer Head Jackpoint Screws.
**“C” Stud Splicing**

At least 8 Knauf Wafer Head Jackpoint Screws on each side for each section.

**Curved Partition**

Knauf “C” to suit specification.

Knauf Plasterboard fixed horizontally to suit specification.

Knauf “U” Channel snipped at regular centres to form curve. (Refer to table below for correct centres)

Knauf “U” Channel fixed with Knauf Nailable Plug or suitable fixing for background.

---

**Radius** | **“U” Channel Cuts** | **“U” Channel Fixed** | **Studs**
--- | --- | --- | ---
5 Metres plus | 300mm | 600mm | 600mm
3 - 5 Metres | 100mm | 400mm | 300mm
1 - 3 Metres | 50mm | 300mm | 150mm

* Stud centres also dependant on partition maximum height

**Knauf recommended minimum board bending radii:**

<table>
<thead>
<tr>
<th>Knauf Board Thickness</th>
<th>Minimum Radius</th>
</tr>
</thead>
<tbody>
<tr>
<td>6.5mm (Knauf flexible board)</td>
<td>300mm</td>
</tr>
<tr>
<td>12mm</td>
<td>1.5 Metre</td>
</tr>
<tr>
<td>15mm</td>
<td>2.5 Metre</td>
</tr>
</tbody>
</table>

* Note: Based on Knauf Wallboard.
C-Form 1 Ceiling System

The Knauf C-Form 1 Ceiling System can accept some degree of loading and uses fast drywall construction techniques.

It should be used for larger ceiling areas (50m² and over) and for spans over 4m. It is also ideal for where deeper ceiling voids are required (over 450m).

The system utilises one or more layers of any of the Knauf range of plasterboards, depending on the performance required. The boards are fixed onto a double lightweight metal framework of Knauf ‘C’ Channels and Knauf ‘U’ Channels.

The lightweight galvanised is suspended by either strap hangers or angle sections fixed to the structural sofit with sofit cleats.

‘C’ Channels

The lower ‘C’ channels are clipped to the upper ‘C’ channels by means of channel intersection connectors. The spacing of the upper ‘C’ channels varies according to the weight of the ceiling specified.

‘Knauf ‘C’ Channel

Forms the main supports.

Access panels

Access panels can be provided in the ceiling between support channels. Framing is formed with ‘C’ channels connected by means of noggin channel connectors. The opening is then ready to receive a proprietary access hatch.

Bulkheads

The framing for bulkheads is built up from standard ‘C’ and ‘U’ channel components.
**Noggin Channel Connectors**
When KNAUF plasterboard must be supported at all four edges, or where a point load requires support between the lower ‘C’ channels, channel sections are fitted between the lower ‘C’ channels and connected by means of noggin channel connectors.

**‘U’ Mounting Brackets**
An optional fixed hanger which is screw-fixed directly to the structural soffit, for use where clearance above the plasterboard is not sufficient for suspension rods and adjustable channel hangers.

**Perimeter Channels**
Provide support at the edges of the ceiling and consist of ‘U’ channel sections. These are screw-fixed to perimeter walls at the level of the lower ‘C’ channel supports. ‘U’ channels are also used to build up the framing for bulkheads, changes of level and access panel openings.

**Suspension Rods and Adjustable Channel Hangers**
The suspension rods support the upper ‘C’ channels of the system, the height of which can be adjusted by means of the movable channel hangers. Spacing depends on the weight of the ceiling (see loading information, page 46). Additional suspension rods can be used to support point loads such as luminaires.

**Channel Intersection Connectors**
Are used to connect the ‘C’ channels forming the C-Form support grid.

**‘Knauf ‘C’ Channels Connectors**
For connecting straight lengths of ‘C’ channel.
C-FORM I - PERFORMANCE INFORMATION

<table>
<thead>
<tr>
<th>BOARD TYPE</th>
<th>FIRE RESISTANCE (hours)</th>
<th>WEIGHT (MAXIMUM FOR CEILING SYSTEM) (kg/m²)</th>
<th>MAX CENTRES OF HANGERS ON UPPER ‘C’ CHANNELS (mm)</th>
<th>MAX CENTRES OF LOWER ‘C’ CHANNELS (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Standard</td>
<td>N/A</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fireshield</td>
<td>N/A</td>
<td>12</td>
<td>2000</td>
<td>1200</td>
</tr>
<tr>
<td>Moistureshield</td>
<td>N/A</td>
<td></td>
<td>450/600</td>
<td></td>
</tr>
</tbody>
</table>

One layer of 12mm KNAUF plasterboard screw-fixed to lower ‘C’ channels.

One layer of 1.5mm KNAUF plasterboard screw-fixed to lower ‘C’ channels.

Two layers of 12.5mm KNAUF plasterboard screw-fixed with staggered joints to lower ‘C’ channels, incorporating a 50mm Rockwool, 60kg/m²

C-FORM I - LOADING INFORMATION

**FIXING CENTRES FOR:**

**HANGER**

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**UPPER ‘C’ CHANNEL**

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**LOWER ‘C’ CHANNEL**

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The C-Form I lower ‘C’ channels should be located at maximum 450mm centres for 12.5mm KNAUF plasterboard, or maximum 600mm centres for 15mm KNAUF plasterboard.

PERFORMANCE/LOADING

Typical Applications to Timber and Concrete Soffits
DESIGN SOLUTIONS CEILINGS

LD-19 Ceiling System

The LD-19 ceiling frame system is designed for light duty application where a single layer of 12mm/12.5mm thick plasterboard is screw-fixed onto the frame.

System overview - LD 19 Ceiling System

C-38 Channel...............1220mm (48") c/c
W-Bar.........................407mm (16") c/c
Suspension Bolt...........1220mm (48") c/c

Knauf Plasterboard Ceiling

One layer of Knauf Plasterboard is screw-fixed to the lower ‘W’ Channels from below

Channel Joint

Product Channel Joint
Packing 300 pcs

LD19 W - Clip

Product W - Clip
Packing 500 pcs

Where multi-layers of 12mm/12.5mm thick, or single layer of 15mm thick plasterboard, or cement board / calcium silicate is required, KNAUF C-Form I (Heavy Duty) ceiling system shall be used. Data regarding ceiling loading and framing arrangement are available.
Strap Hangers are screwed to the Primary Support Channels.

**LD 19 Hanger**
- Packing: 300 pcs

**W - joint**
- Packing: 200 pcs

**W - Bar**
- Packing: 10 pcs

**C - 38 Channel**
- Packing: 10 pcs
### Knauf ‘C’ Studs
Galvanised lightweight steel section for use in non-load bearing partition systems.

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<th>Board Thickness (mm)</th>
<th>Number of Layers</th>
<th>Stud size &amp; Gauge (mm)</th>
<th>Overall Partition width (mm)</th>
<th>Office accommodation Stud centres (mm)</th>
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Maximum Heights calculated based on a limiting deflection of L/240 at 200 Pa. For fire rated partitions, please contact Knauf Hong Kong for more information.
<table>
<thead>
<tr>
<th>Board Thickness (mm)</th>
<th>Number of Layers</th>
<th>Stud size &amp; Gauge (mm)</th>
<th>Overall Partition width (mm)</th>
<th>Stud centres (mm)</th>
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Maximum Heights calculated based on a limiting deflection of L/240 at 200 Pa. For fire rated partitions, please contact Knauf Hong Kong for more information.
**Standard ‘C’ stud partitions**

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<th>Board Thickness (mm)</th>
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<th>Stud size &amp; Gauge (mm)</th>
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<th>Fireshield or Denseshield (hrs)</th>
<th>Clear Cavity dB (Rw)</th>
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* KNAUF 60kg/50mm rockwool is recommended.

If construction needs to meet high acoustic requirements, please contact KNAUF Hong Kong for Soundshield solutions.
Knauf ‘U’ Channels
Galvanised steel section for use as the standard head and floor track for partitions, wall linings and ceilings.

<table>
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<th>Dimensions (mm)</th>
<th>Dimensions (mm)</th>
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**Knauf ‘MW’ Stud**
- Patented design, metal stud with special “spring” effect, China patent registration no: ZL200820075376.9
- Average 2 to 3 dB increase in weighted sound resistance Rw value compared to standard “C” stud
- Same stiffness and lateral load bearing capacity as standard “C” stud, so similar maximum allowable height
- Available in 75*50*0.6mm size at the moment, suitable for both single frame and twin frame wall systems

**Knauf Angle Sections**
Galvanised mild steel angles for use with partitions, column and beam encasements and suspended ceilings.

<table>
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<th>Dimensions (mm)</th>
<th>Pack Details</th>
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<td>Lengths per Pack Kg (Approx)</td>
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<td>0.5 50 90</td>
<td>10 16</td>
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**Knauf Plastering Angle Section**
Galvanised mild steel angles for use with partitions, column and beam encasements and suspended ceilings.

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<th>Dimensions (mm)</th>
<th>Pack Details</th>
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<td>Lengths per Pack Kg (Approx)</td>
</tr>
<tr>
<td>0.4 32 3000 32 90</td>
<td>10 10</td>
</tr>
</tbody>
</table>
Knauf Rockwool
- A semi-rigid slab of rock mineral wool (Size: 1.2m X 0.6m,
- Density: 40–200kg/m³, Thickness: 25–150mm).
- Different facings, densities and sizes are available upon request.

Fire Performance
Knauf Rockwool is classified as non-combustible to BS 476: Part 4: 1970

Airborne Sound
Airborne sound sources produce noise by vibrating the air immediately around the sound source.
Typical sources include the human voice, televisions, musical instruments, traffic and sound systems.

Sound Absorbency
The sound absorption characteristics of mineral wool make it ideal for use in partitions to assist in absorbing sound within a cavity.

Tested in a reverberation chamber in accordance with BS EN ISO 354: 2003

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<tr>
<td>100kg / 50mm</td>
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<td>1.10</td>
<td>1.15</td>
<td>1.10</td>
<td>1.05</td>
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</table>
Knauf Ready-Mix Joint Cement

Ready mixed for joint filling and surface finishing by manual application.

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<th>Dimensions (mm)</th>
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<tbody>
<tr>
<td>Width</td>
<td>Legth</td>
</tr>
<tr>
<td>52mm</td>
<td>23 / 75 / 150m</td>
</tr>
</tbody>
</table>
AQUAPANEL® CEMENT BOARD INDOOR

More design freedom

Create any look you want in your new building or renovation project - AQUAPANEL® Cement Board Indoor is compatible with almost any wall covering including:
- Any tile covering: mosaic, ceramic, glass, natural stone like Travertino (up to 330 x 330 mm or 600 x 600 with decoupling system)
- Q1-Q3 finishing with AQUAPANEL® Joint Filler & Skim Coating - white which serves as a substrate for paint, various plaster coatings but also water-repellent wallpapers
- Q4 finishing with AQUAPANEL® Q4 Finish - for special coatings such as Stucco Veneziano and shiny metallic paints in areas with up to 95% air-moisture
- Large monolithic interior wall and suspended ceiling surfaces (with AQUAPANEL® Q4 Finish, there is no need for reinforcing mesh regardless of wall height)

Better economically

- An AQUAPANEL® Cement Board Indoor wall offers many cost advantages over a traditional wall, and many performance advantages over an impregnated gypsum wall in humid or damp areas
- Just one layer of cement board needed in tiling applications (instead of two layers with gypsum)
- No-full surface sealing required in domestic applications
- Can be bent dry on-site for curved walls/ceilings
- High impact resistance
- Solid Portland cement substrate, easy to transport
- Long-lasting solution

Faster Return on Investment

AQUAPANEL® Cement Board Indoor is a super-fast building material, so it also allows for other building activities to be done in parallel. This means your contractors can get the job done faster and you can sell and / or rent your building sooner for faster return on investment. Moreover, larger effective areas and larger floor spaces allow a more valuable building.

Last minute floor-plan changes are not an issue with AQUAPANEL®.

Better safety

- Approved solution since 2002 with world-wide references
- Ecological and safe building material: AQUAPANEL® is certified and recommended according to the criteria of the Institute for Building Biology in Rosenheim, Germany, report no. 3008-008. 100% moisture resistant since inorganic: no risk for mould and mildew
- Very low moisture- and thermal-expansion of avoids risk of damage
- Resistant against limited chemical exposure, like chlorine and disinfectants
- Special solutions with AQUAPANEL® Access Doors even for wet areas
- A1 building material class (EN 13501) - board is non-combustible
- Systems fulfil building physical norms and tests or fire resistance and thermal abd sound insulation
- Proven wall system stability; impact resistance classes conform to German standard DIN 4103 (installation ranges 1 and 2)
AQUAPANEL® CEMENT BOARD OUTDOOR

More design opportunities

AQUAPANEL® Cement Board enables exciting new building designs for all types of exterior applications. In fact, many world-leading architects are already using the system. It has the strength of brick and block but can also be bent dry on site for perfectly smooth curved walls and arches. Also, it enables perfectly smooth monolithic-look for large areas.

What’s more, almost any finishing possible, including:

Directly-applied
- Paint
- Mineral render
- Brick slips
- Ceramic tiles

Surface finish/cladding
- Natural stone
- Aluminium
- Brick tiles
- Ceramic tiles
- Glass facade
- Fibre composite boards
- Vinyl
- Wood

Note: Where directly-applied finishes are used, the maximum permitted load for tiling (clinker, ceramic or other) including adhesive is 40 kg per m².

Faster return on investment

AQUAPANEL® Cement Board Outdoor is a super-fast building material: no drying time is needed and surface are already even. This means your constructors can get the job done faster, doing other building activities in parallel. You can sell and/or rent your building sooner.

And it is not just the construction stage that is super fast. You can use the library of certified and proven technical solutions and technical details to fast-track the planning of your new building. Other AQUAPANEL® tools and services support the design, development, prototype mock-up and implementation phases including calculation of windloads and recommendations on substructure. It all adds up to faster return on investment.

Better economically

- Fast construction:
  - score and snap
  - no pre-drilling
  - no drying time
- Less foundation work - AQUAPANEL® is as strong as brick and block but weighs less.
- More effective area than the width of brick and block
- Lightweight delivery/storage
- Just-in-time complete system solution from Knauf
- Better thermal-and acoustic insulation properties when compared to same wall thickness constructed with brick and block
- Building has low energy and resource consumption due to better thermal insulation
- Building biological safety - no dust mildew spores or bacteria
- Fast and simple solutions for renovation (no extra statics requirements)

Better safety

- Approved, certified system solution since 2002 with worldwide references
- 100% waterproof and completely inorganic, so there is no risk of mould or mildew. AQUAPANEL® meets the highest requirements for a safe and hygienic environment inside the building - as certified by the German Building Biological Institute in report number 3006-214.
- AQUAPANEL® Cement Board Outdoor is non-combustible, fulfilling the highest requirements of building material class A1, according to EN 13501, no fumes and no dropping
- An AQUAPANEL® system can be designed to withstand wind strengths in all geographical areas; solutions for areas with high seismic activities can also be developed
- An AQUAPANEL® system has high mechanical resistance comparable with brick and block

1. Granite stone cladding (open-joint)
2. Subst. picture for cladding system (e.g. Eurofox, Nauth)
3. AQUAPANEL® Joint Filler - grey plus AQUAPANEL® Tape (10cm)
4. AQUAPANEL® Maxi Screw (corrosion-resistant)
5. AQUAPANEL® Cement Board Outdoor
6. AQUAPANEL® Tyvek® StuccoWrap™
7. Knauf CW150 metal profile
8. Knauf UW metal profile
9. Knauf insulation (140 mm)
10. Knauf gypsum board (GKF) (2 layers)
Heavy duty

On its own, AQUAPANEL® is strong and rigid and will support up to 50 kg of tiles per square metre of wall. But with the AQUAPANEL® Traverse, light console loads are borne securely up to 1.5 kN/m².

Curved

AQUAPANEL® boards can be bent on-site to create beautifully smooth, curved walls with a radius of just one metre or larger. Here the stud spacing is 300mm or 312.5mm.

Suspended ceiling

Suspended ceilings ensure that installations are secured. Moreover, depending on the construction, they can help improve sound and fire protection of a building.

For ceilings, take advantage of the economical stud spacing of 450 mm via the suspended profile arrangement. This special ceiling system uses AQUAPANEL® Q4 Finish as the surface layer. Joint treatment is done with AQUAPANEL® Joint Filler - grey and AQUAPANEL® Tape (10 cm).