Drywall Systems

K37.de

System Data Sheet 2024-02

Knauf Cubo

Room-in-Room Systems

K375.de – Knauf Cubo Basis

K376.de – Knauf Cubo Empore / Cubo Empore Ballustrade

K377.de – Knauf Cubo Escape Tunnel

Note on English translation / Hinweise zur englischen Fassung

This is a translation of the System Data Sheet valid in Germany.
All stated details and properties are in compliance with the regulations of the German standards and building regulations. They are only applicable for the specified products, system components, application rules, and construction details in connection with the specifications of the respective certificates and approvals.
Knauf Gips KG denies any liability for applications outside of Germany as this requires changes acc. to the respective national standards and building regulations.

Dies ist eine Übersetzung des in Deutschland gültigen Detailblattes. Alle angegebenen Werte und Eigenschaften entsprechen den in Deutschland gültigen Normen und bauaufsichtlichen Regelungen. Sie gelten nur bei Verwendung der angegebenen Produkte, Systemkomponenten, Anwendungsregeln und Konstruktionsdetails in Verbindung mit den Vorgaben der bauaufsichtlichen Nachweise.
Die Knauf Gips KG lehnt jegliche Haftung für Einsatz und Anwendung außerhalb Deutschlands ab, da in diesem Fall eine Anpassung an nationale Normen und bauaufsichtliche Regelungen notwendig ist.

Contents

Notes on the document

Knauf system data sheets are the planning and application basis for the planners and professional installers in the application of Knauf systems. The contained information and specifications, constructions, details and stated products are based, unless otherwise stated, on the certificates of usability (e.g. German National Technical Approval (aBG), generally applicable standards and Standards valid at the date they are published. Furthermore, design and structural requirements and those regarding building physics (fire protection and sound insulation) are considered.
The contained construction details are examples and can be used in a similar way for various cladding variants of the respective system. At the same time, the demands made on fire resistance and/or sound insulation as well as any necessary additional measures and/or limitations must be observed.

References to other documents

System Data Sheet

- Knauf Metal Stud Partitions W11.de

Technical information

- Fastening of Loads to Knauf Wall and Ceiling Systems VT03.de
- Knauf Cubo Plus Room-in-Room Systems SL09.de

Technical brochures

- Knauf Pre-fab Floor Screed F12.de
- Knauf Jointing Competence Tro89.de

Folders

- Fire resistance with Knauf BS1.de (German only)
- Sound insulation and room acoustics with Knauf (only sections in English)

Installation Instructions

- Knauf Cubo Installation K37-A02.de

Product data sheets

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

Pictograms in the system data sheet

The following pictograms are used in this document:


K375.de Knauf Cubo Basis


K376.de Knauf Cubo Empore


K377.de Knauf Cubo Escape Tunnel

Symbols in the system data sheet

The following symbols are used in this document:

Insulation layers

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

Stud frame spacings

b Axial spacing CW studs / UA double profile

Legend symbols

1 Legend number that will be explained when used

Intended use of Knauf Systems

Please observe the following:

Caution	Knauf systems may only be used for the application cases as stated in the Knauf documentation. In case third-party products or components are used, they must be recommended or approved by Knauf. Flawless application of products / systems assumes proper transport, storage, assembly, installation and maintenance.

General notes on Knauf systems

Term definition

- Self-weight:
  The self-weight described in this document are the weights of the individual system components, e.g. Knauf boards, Knauf profiles.
- Rated weight
  The rated weight is used in this document for determining the necessary frame and results from the self-weights of the individual system components. It does not include any safety values.

Coatings and linings

Notes	After wallpapering or after application of plasters, quick drying must be ensured through adequate airing. Other coatings or layers and vapour barriers up to about 0.5 mm thickness as well as claddings (with the exception of sheet steel), do not have any influence on the technical fire resistance classification of Knauf Cubo Room-in-Room systems.

Fire resistance effect

The specified fire resistance is provided both for interior and exterior exposure to fire. Knauf Cubo systems are room-enclosing load-bearing or non-load bearing construction components with a self-bracing function. The following system solutions and cladding thicknesses listed ensure that these properties are assured for the specified fire resistance. The basic ceilings above and below and the walls adjoining the structure must have at least the same fire resistance as the Knauf Cubo system.
Non-combustible insulation layers in the wall cavity or plenum are permissible, but not required for fire resistance.

For Cubo with a fire protection requirement

A label stating the proof of applicability for fire resistance, the name of the manufacturer (specialist company carrying out the work) and the year of manufacture must be permanently attached to the interior of the Cubo on the wall underneath the ceiling by the specialist company who performed the work.

Note	The label and aBG can be obtained from Knauf Direkt Technical Advisory Service (see page 60).

Notes on sound insulation

As a Cubo is a self-contained room and not a component, the noise reduction is dependent on the dimensions and is specified as the standardized level difference D_{nT}.
D_{nT} is the difference between the interior and exterior sound levels with generally prevailing room acoustic conditions (reverberation time T = 0.5 s).

- During airborne noise tests the ceiling and all walls are exposed to surrounding sound. The calculations are all based on the same suppositions. The specifications apply for a Cubo with internal dimensions of 3.9 x 2.1 x 2.6 m (L x W x H). With unfavourable ratios of volume to surface area, e.g. with smaller dimensions, the $D_{nT,w}$ is reduced by up to 2 dB, and inversely the $D_{nT,w}$ can improve by up to 3 dB, e.g. with larger dimensions.
- A rule of thumb applies for a Cubo of these dimension with a surface area of 2 m^2: “If the weighted sound reduction index R_w of the door is 1 dB greater than the weighted standardized level difference $D_{nT,w}$ of the Cubo without a door, the $D_{nT,w}$ is reduced by the door by a maximum of 1 dB”. For more accurate evaluation, the frequency-dependent sound insulation of the Cubo and door must be taken into consideration.
  The airborne sound specifications only consider the sound transmitted through the Cubo walls and ceilings. Achieving the desired sound insulation may require improving the flanking transmission of the existing floor (e.g. by subsequent provision of separation joints in the screed).
- The stiffer UA Profiles are less favourable in terms of sound insulation than CW studs, but exceed them when combined with decoupling measures such as Resilient Channels or Dampening Universal Brackets.
- Mineral wool insulation layer acc. to EN 13162 with length-related flow resistance of 5 kPa·s/m^2 ≤ r ≤ 50 kPa·s/m^2 acc. to DIN 4109-33.
  Fill ratio in wall cavities and plenums at least 80 %.

Certificates of Usability

Knauf system	Fire resistance	Mechanical loading	Structural engineering	Sound insulation Knauf sound protection proof
K375.de Cubo Basis	A self-supporting, free-standing room-in room system is not building authority regulated. For the structural and fire protection design of the Room-in-Room system K375.de Cubo Basis and K376.de Cubo Empore, Knauf has applied the higher requirements for an escape and access route (aBG Z-19.13-2032).	–	Expert opinion G-601-I-12/Pf G-601-II-12/Pf	T 013-04.12
K376.de Cubo Empore				
K376.de Cubo Empore Balustrade	–	–	Knauf test report No. 1102/700/20	–
K377.de Cubo Escape Tunnel	ABG Z-19.13-2032: Construction type for fire resistant capable wall and ceiling constructions “System Knauf Cubo” as a zoning measure for emergency access routes of fire ratings F30 or F90 to DIN 4102-2.	Expert opinion G-601-II-12/Pf	Expert opinion G-601-II-12/Pf	–

The stated constructional and structural properties, and characteristic building physics of Knauf systems can solely be ensured with the exclusive use of Knauf system components, or other products expressly recommended by Knauf. The validity and up-to-datedness of the stated proofs have to be considered.

Notes on fire resistance

The aBG Z-19.13-2032 covers the application “fire resistant capable wall and ceiling constructions for corridors as a zoning measure for emergency access routes of fire ratings F30 or F90”. With reference to section 1.2.2, the use of the construction type can also ensure that the fire resistance demands for self-supporting, room-enclosing components (Cubo Basis and Cubo Empore) are fulfilled for 30 and 90 minutes outside the scope of the building regulation field of application.
This includes extended design options, evaluated on the basis of supplementary documents (e.g. expert opinions or technical assessments).
The system Knauf Cubo Escape Tunnel was tested following the building authority requirements for fire walls with an additional mechanical impact stress resistance of 3000 Nm from the exterior from both the wall and ceiling areas.
We recommend advance consultation between the persons responsible for fire resistance and/or the relevant authorities before starting the construction.

Determination of the self-weight of the Cubo ceiling

Cladding / construction variants Ceiling top	Ceiling bottom	Total cladding weight kg/m²
None	12.5 mm Diamant	13.0
12.5 mm Diamant	12.5 mm Diamant	26.0
2x 12.5 mm Diamant	2x 12.5 mm Diamant	52.0
12.5 mm Diamant + 12.5 mm Silentboard	12.5 mm Diamant + 12.5 mm Silentboard	62.8
2x 20 mm Fireboard	2x 20 mm Fireboard	65.6
22 mm Wooden composite board HWP[1)]	12.5 mm Diamant	29.5
	2x 12.5 mm Diamant	42.5
22 mm wooden composite board [1)] + 12.5 mm Diamant	2x 12.5 mm Diamant	55.5
22 mm wooden composite board[1)] + Brio 18	2x 12.5 mm Diamant	65.5
22 mm wooden composite board[1)] + Brio 18 WF	2x 12.5 mm Diamant	68.0
	18 mm Diamant + 12.5 mm Silentboard	79.1
22 mm wooden composite board[1)] + Brio 23 WF	2x 20 mm Fireboard	80.4
22 mm wooden composite board [1)] + 25 mm Fireboard	2x 20 mm Fireboard	69.8

1) Wooden composite board HWP: OSB/3 or equivalent, density ≤ 750 kg/m³

Self-weight specifications see page 7.

+

If applicable additional self-weight loads or rated weights from ceiling structures
"Multi-level ceiling system": ≤ 0.15 kN/m² (corresponds to ≤ 15 kg/m²)
e.g. Insulation material
e.g. Floor construction
e.g. Curtain rails, lighting fixtures

- The self-weights of the ceiling beams are considered directly in the span width tables on page 15 and 17.
- Consider additional loads when determining the nominal weight of the ceiling.

Example

Configuration		Weight kg/m²
Ceiling top	22 mm wooden composite board + Brio 18 WF	**68.0**
Ceiling bottom	2x 12.5 mm Diamant	
	+	
additional load	Insulation	**1.5**
	=	
Nominal weight		**69.5 kg/m² ≈ 0.7 kN/m²**

Cladding self-weight (without frame)

Cladding or configuration	Weight approx. kg/m²
Gypsum boards	
12.5 mm Diamant	13.0
18 mm Diamant	18.7
12.5 mm Silentboard	18.4
20 mm Fireboard	16.4
25 mm Fireboard	20.5
Gypsum fibre boards	
Brio 18	23.0
Brio 18 WF	25.5
Brio 23 WF	31.1
Wooden composite board	
22 mm HWP[1)]	16.5
Galvanized sheet metal	
0.5 mm	3.9

1) Wooden composite board HWP: OSB/3 or equivalent, density ≤ 750 kg/m³

Cubo System Column self weight

Cubo System Column Constructional room height mm	Basic support length mm	Weight approx. kg/pcs
2000 to 2700	1945	13.2
2500 to 3200	2450	15.1
3000 to 3700	2950	16.1
> 3700 mm on request		Depending on the actual length, on request

Profiles self weight

Knauf profiles	Weight approx. kg/m
CW 75	0.8
CW 100 / 2x CW 100	0.9 / 1.8
CW 125 / 2x CW 125	0.9 / 1.8
CW 150 / 2x CW 150	1.0 / 2.0
UA 75	2.0
UA 100 / 2x UA 100	2.3 / 4.6
UA 125 / 2x UA 125	2.8 / 5.6
UA 150 / 2x UA 150	3.3 / 6.6
CD 60/27	0.5
Resilient Channel 60/27	0.7
UW 75	0.8
UW 100	0.9
MW 75	1.0
MW 100	1.1

These weight specifications are the basis to determine the weight of the respective Cubo, if required.

Anchoring of loads on Cubo ceiling

Additional loads, e.g. lamps, curtain rails and similar can be fixed to the ceiling of Knauf Cubo using universal dowels, cavity dowels, spring toggle dowels or Knauf Hartmut cavity dowels.
The additional loads must be considered during the determination of the rated weight of the ceiling system acc. to page 6.

Note	Heavy loads must be anchored on auxiliary constructions.

Each load introduction surface of the Cubo ceiling may not exceed the following weight threshold values with the fastened components:

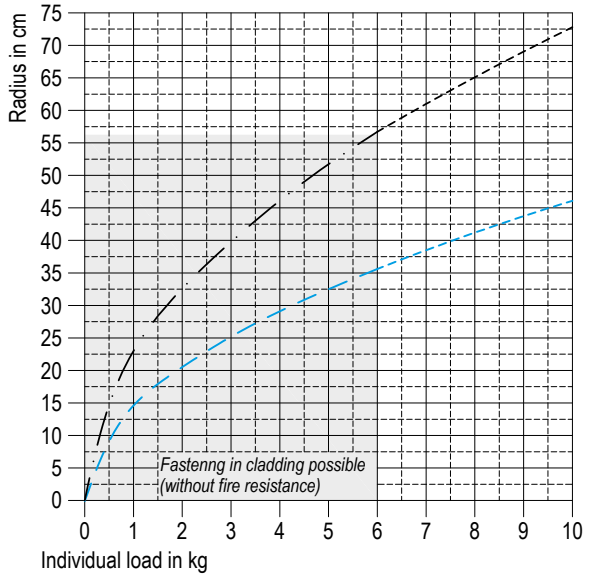
Permissible weight per ceiling surface in kg/m²	
Without fire resistance	With fire resistance[1)]
15	6

1) In case of application as a fire resistance ceiling with exposed ceiling (multi-level ceiling system), 15 kg/m² as a total weight is permissible for the exposed ceiling (including insulation layer and attached loads) attached to the fire resistance ceiling.

Furthermore, the following conditions apply:
For each anchoring point, the components fastened to the Cubo ceiling may not exceed the following weights:

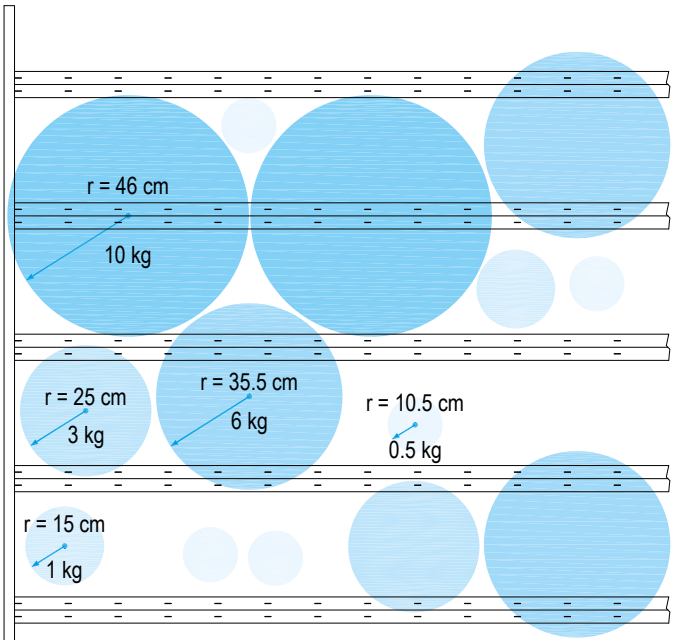
Fastening method	Permissible weight per anchoring point in kg	
	Without fire resistance	With fire resistance
Fastening in the cladding	6	0.5
Fastening to the grid	10	10

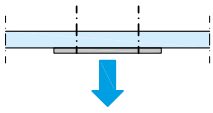
The minimum separation spacings between individual attached loads must be observed to avoid local overloading of the ceiling. The minimum spacing between two anchoring points is dependent on both effective radii of the individual loads.
The effective radius of the individual load can be taken from the following diagram in dependence on the permissible weight per unit area for additional loads:

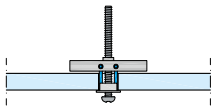
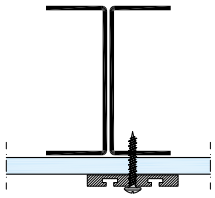


— · — 6 kg/m² additional loads (with fire resistance)
– – – 15 kg/m² additional loads (without fire resistance)

Example fastening scheme at 15 kg/m²



Note		The fastened loads can be transferred using several anchoring elements.

Fastening in the cladding	
	Knauf Hartmut Hohlraumdübel cavity dowel Screw M5
Fastening to the grid	
	Knauf Multi-Purpose Screw FN e.g. curtain rail

Fastening of loads to Cubo walls

Fastening of loads to Cubo walls acc. to Knauf technical information Fastening of Loads to Knauf Wall and Ceiling Systems VT03.de.

Note	For further information on planning and application see Technical Information Fastening of Loads to Knauf Wall and Ceiling Systems VT03.de.

Knauf Cubo Room-in-Room Systems

Knauf Cubo Room-in-Room systems are self-supporting, erectable room systems for installation in existing rooms. They can be used as stand-alone solutions or can be attached to in-situ walls. The room systems are reinforced by cladding of the room enclosing walls and the self-supporting ceiling construction. The length of Cubo Room-in-Room systems is unlimited. However, additional measures are required for lateral reinforcement with larger room lengths as detailed in “Bracing of the supporting structure” on page 52. Arrange movement joints with lengths > 15 m. The width of Cubo systems is limited by the maximum span of the ceiling.

The variable floor plan room-in room system Knauf Cubo simultaneously complies with the high requirements for stability, fire protection and sound insulation.

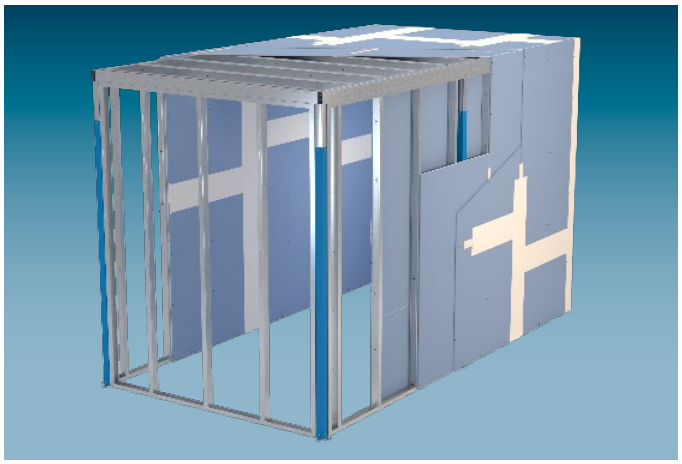
Knauf Room-in-Room System		Field of application
K375.de Cubo Basis		
	Self-supporting, room system freely erected in existing rooms. It can be used as a stand-alone solution or can be attached to in-situ walls.	■ Sanitary modules ■ Sound insulated booths ■ Meeting rooms ■ Foreman's offices ■ Encapsulation of industrial machinery
K376.de Cubo Empore		
	The performance capability of Cubo Basis is extended by walkability, permanent loads and effective areas. ■ For conditional walkability ■ For static superimposed loads up to 0.5 kN/m^2 ■ For static superimposed loads up to 1.0 kN/m^2 ■ For carrying capacity up to 2.0 kN/m^2 Type Cubo Empore Balustrade (without fire resistance): Balustrades are governed in Germany acc. to paragraph 38 “Guards” of the German Model Building Code. The task of a balustrade is to offer protection against a fall. Depending on the respective state building code, balustrades are required for areas that can be accessed as planned with fall heights from neighbouring areas from as little as 50 cm.	■ Extension of living spaces / loft conversion ■ Additional storage and floor space
K377.de Cubo Escape Tunnel		
	The Cubo Escape Tunnel as a self-supporting Room-in-Room system offers a fire resistance of 90 minutes as well as resistance against impact of 3000 Nm.	■ Escape and access routes

Systems in comparison

Special types and features	K375.de Cubo Basis	K376.de Cubo Empore	K377.de Cubo Escape Tunnel
Fire resistance	● (30 minutes / 90 minutes)	● (30 minutes / 90 minutes)	● (90 minutes)
Cubo ceiling laod-bearing (superimposed loads on Cubo ceiling)	–	●	–
Balustrade	–	● (Without fire resistance)	–
“Multi-level ceiling” system	● (Shadow gap recommended)	● (Shadow gap recommended)	● (Shadow gap recommended)
Cubo wall as furring	●	–	–
Length exceeding 15 m	●	● (On request)	●
Resistance against defined impact stress	–	–	Provided

● *Possible*
– *Not possible*

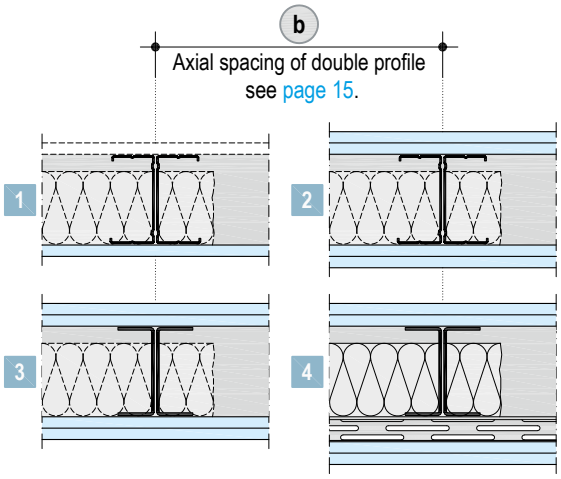
K375.de Cubo Basis



The Cubo Basis is the solution for simple space-creating measures with and without sound insulation and fire resistance requirements.

Scheme drawings

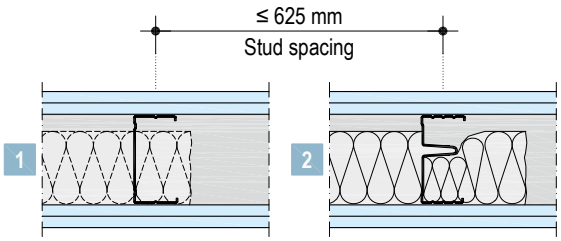
Ceiling K375.de Cubo Basis



	Frame	Cladding
1	CW double profile 100/125/150	Single-sided [1)]
2	CW double profile 100/125/150	Double-sided
3	UA double profile 100/125/150	Double-sided
4	UA double profile 100/125/150 + Resilient Channel	Double-sided

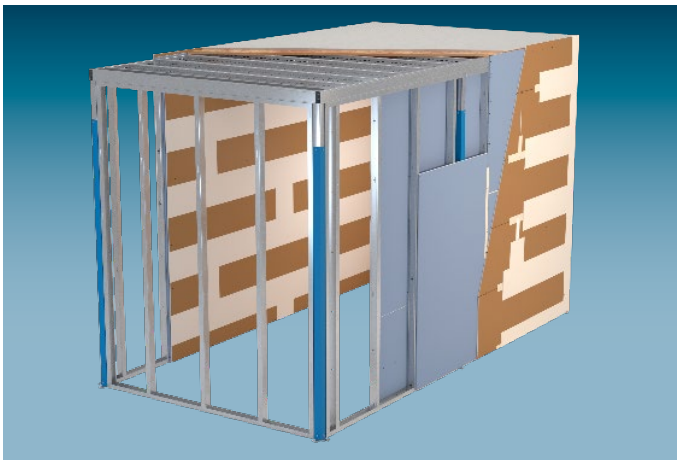
1) Possibly e.g. 12.5 mm Diamant as dust guard on the top of the ceiling.

Walls K375.de Cubo Basis



	Frame	Cladding
1	Profile CW 75/100	Double-sided
2	Profile MW 75/100	Double-sided

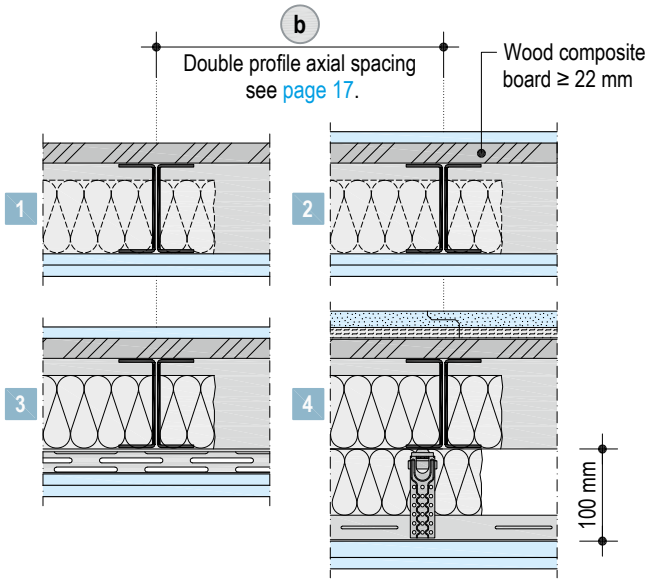
K376.de Cubo Empore



The Cubo Empore is the solution for space-creating measures where the ceiling surface may also be used. The Cubo Empore can be configured for static superimposed loads up to conditionally walkable for maintenance purposes extending up to domestic living space.
A wooden composite board with a thickness ≥ 22 mm is used for the lateral distribution of the planned loads, with additional cladding layers for fire resistance or sound insulation requirements.

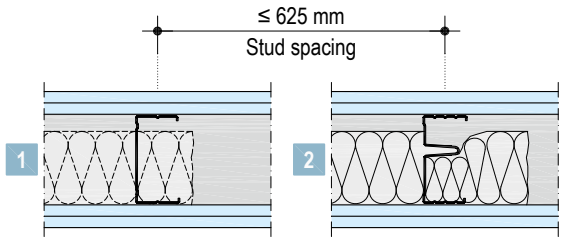
Scheme drawings

Ceiling K376.de Cubo Empore



	Frame	Cladding
1	UA double profile 100/125/150	Single sided + substrate of composite board HWP on top
2	UA double profile 100/125/150	Double-sided + substrate of composite board HWP on top
3	UA double profile 100/125/150 + Resilient Channel	Double-sided + substrate of composite board HWP on top
4	UA double profile 100/125/150 + Profile CD 60/27 with Damping Universal Bracket	Double-sided + substrate of composite board HWP on top

Walls K376.de Cubo Empore



	Frame	Cladding
1	Profile CW 75/100	Double-sided
2	Profile MW 75/100	Double-sided

Ceiling superimposed loads (not permanent superimposed loads)

Nominal weight + conditionally walkable:
The “conditional walkability” implies a temporary additional loading of the ceiling by two persons, who temporarily walk on the system for maintenance or inspection purposes (comparable to walking on glass roofs for cleaning purposes).
Planned carrying capacity is not permissible.

Nominal weight + static superimposed loads ≤ 0.5 / ≤ 1.0 kN/m² (incl. conditional walkability):
Static superimposed loads can be understood to mean the imposed load of the ceiling. These include temporary loads such as commercial and industrial stored materials (e.g. light materials on pallets). Even technical installation loads (e.g. ventilation ducts) can also be considered for the purpose of simplification as uniformly distributed imposed loads. To ensure that this is possible, individual loads (point loads on the ceiling) may not exceed 0.5 / 1.0 kN. Distributed over the surface loads of 0.5/1.0 kN/m² must be observed. The introduction of building loads (permanently superimposed loads) from supports, props, etc. into the ceiling is not permissible.

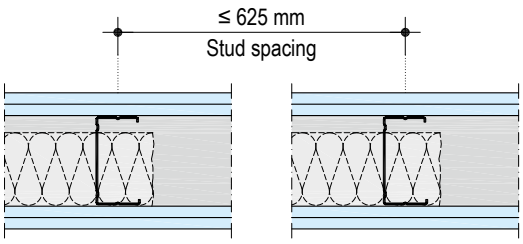
Nominal weight + carrying load capacity ≤ 2.0 kN/m²
By assuming load capacities, all planned, variable loads on ceilings with defined usage can be considered. These loads result from the presence of persons and furniture. Usage analogue to living space, common rooms, office spaces, work spaces and hallways in acc. with category A3 or B1 acc. to DIN EN 1991-1-1/NA is included. Usage in areas accessible to the public is not permitted.

K376.de Cubo Empore Balustrade

Scheme drawing

Cubo Empore Balustrade (without fire protection) is the solution for space-creating measures where the ceiling surface may also be used. The Cubo Empore can be rated for everything from imposed loads and conditional walkability for maintenance purposes to its function as a usable area in the home. A wooden composite board with a thickness ≥ 22 mm is used for the lateral distribution of the planned loads.
Balustrades are governed in Germany acc. to paragraph 38 “Guards” of the German Model Building Code. The task of a balustrade is to offer protection against a fall.
Depending on the respective state building code, balustrades for areas that can be accessed as planned with fall heights from neighbouring areas from as little as 50 cm.

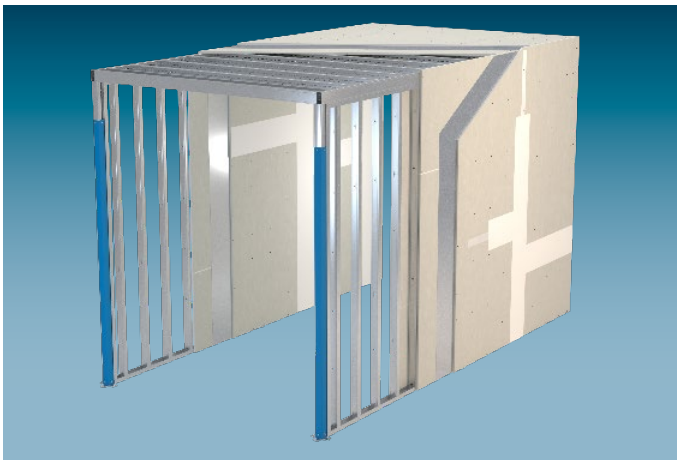
K376.de Cubo Empore **Balustrade**



Frame	Cladding
Stud CW 100	Double-sided + balustrade on top

Caution	In case of a Knauf Room-in-Room system Cubo Empore Balustrade a Knauf technical advisory specialist should be consulted.

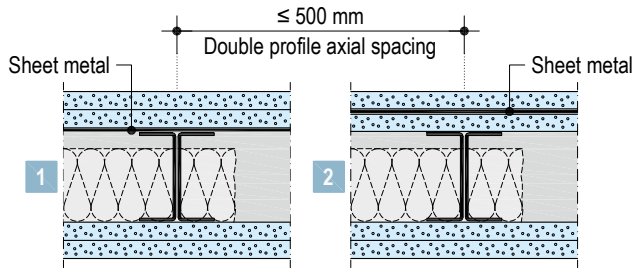
K377.de Cubo Escape Tunnel



The Cubo Escape Tunnel as a self-supporting Room-in-Room system offers a fire resistance of 90 minutes as well as resistance on all sides against impact of 3000 Nm.
This resistance is provided by a sheet steel layer (t = 0.5 mm) between the wall cladding layers as well as below or between cladding layers the top of the ceiling.

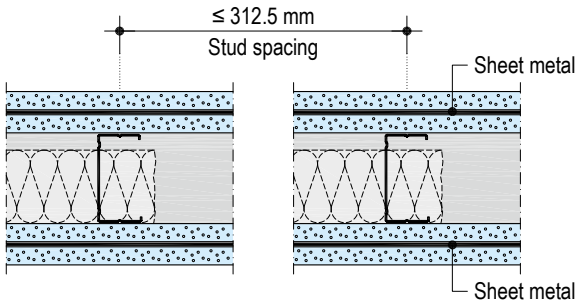
Scheme drawings

Ceiling K377.de Cubo Escape Tunnel



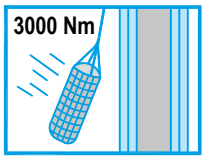
	Frame	Cladding
1	UA double profile 100	Double-sided, sheet metal underneath the cladding layers of the ceiling top
2	UA double profile 100	Double-sided,sheet metal between the cladding layers of the ceiling top

Walls K377.de Cubo Escape Tunnel



Frame	Cladding
Profile CW 75/100	Double-sided, sheet metal between the cladding layers

Knauf Cubo Escape Tunnels are used to provide a spatial separation of a horizontal means of escape, to protect against fire as well as from impact with falling bodies.



Exterior impact stress resistance for ceiling and wall has been proofed.

System variants

Fire resistance in minutes	Cladding/configuration: Ceiling top 1st layer + 2nd layer	Ceiling bottom 1st layer + 2nd layer	Wall (both sides) 1st layer + 2nd layer	$D_{nT,w}$ [1] in dB: Double profile **CW 100** Ceiling bottom Direct cladding	Double profile **UA 100** Ceiling bottom Direct cladding	Resilient Channels
K375.de Cubo Basis						
–	–	**12.5 mm** Diamant	**12.5 mm** Diamant	–	–	–
–	**12.5 mm** Diamant	**12.5 mm** Diamant	**12.5 mm** Diamant	43	–	–
–			**2x 12.5 mm** Diamant	*44*	–	–
–			**12.5 mm** Diamant + **12.5 mm** Silentboard	48	–	–
30	**2x 12.5 mm** Diamant	**2x 12.5 mm** Diamant	**2x 12.5 mm** Diamant	51	43	*52*
30			**12.5 mm** Diamant + **12.5 mm** Silentboard	*≥ 51*	–	*53*
30	**12.5 mm** Diamant + **12.5 mm** Silentboard	**12.5 mm** Diamant + **12.5 mm** Silentboard	**2x 12.5 mm** Diamant	*52*	–	–
30			**12.5 mm** Diamant + **12.5 mm** Silentboard	57	–	–
90	**2x 20 mm** Fireboard	**2x 20 mm** Fireboard	**2x 20 mm** Fireboard	*46*	*39*	*46*

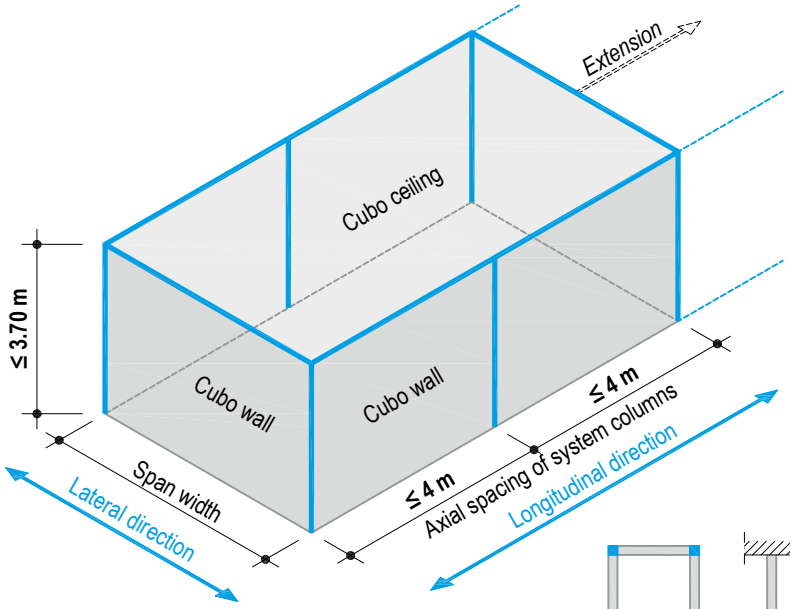
1) *Standardized sound level difference for free-standing Cubo Basis, internal dimensions 3.9 m x 2.1 m x 2.6 m (L x W x H).*
Wall installation with stud profiles MW 100 (with CW 100 reduction by 1 dB).
Fill ratio in wall cavities and plenums for mineral wool ≥ 80 %.

Values in italics are calculated values incl. prognosis uncertainty of 3 dB in airborne noise.

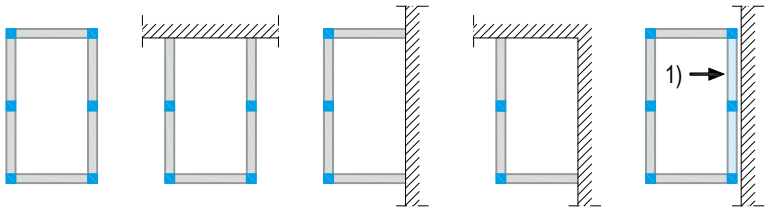
Required for sound insulation insulating layer: Mineral wool, length-related flow resistance 5 kPa·s/m² ≤ r ≤ 50 kPa·s/m² acc. to DIN 4109-33 (e.g. from Knauf Insulation)

Note Observe the notes on pages 3 to 5.

Maximum span widths, room heights and axial spacings I Connection variants



- Minimum dimensions of the floorspace: Width 1.5 m x length 2 m.
- Larger room heights on request.
- In case of room heights > 3.20 m the Cubo System should have double cladding.
- For any required bracing of the Cubo see page 52.
- Design “Cubo on Cubo” see pages 46 to 48.



1) Application as furring is possible: Room side cladding at least 2-layers

Axial clearances K375.de Cubo Basis

Cubo ceiling		Cubo walls	
Maximum axial spacing free-spanning CW stud/UA double profiles (b) mm	**Furring channels maximum axial spacing** (Resilient Channel) mm	**Maximum axial spacing stud profiles CW/MW** mm	**Maximum axial spacing system columns** m
500 (with Silentboard 400 direct cladding)	500 (with Silentboard 400 cladding)	625	4.0

Cubo ceiling span-widths K375.de Cubo Basis **(Without imposed loads)**

Knauf double profiles	**Axial spacing** (b) mm	**Maximum span width in m** [2] **Nominal weight of cladding/ceiling construction/additional loads in kN/m²** (see page 6) ≤ 0.2	≤ 0.3	≤ 0.4	≤ 0.5	≤ 0.6	≤ 0.7	≤ 0.8	≤ 0.9	≤ 1.0	≤ 1.1	≤ 1.2
CW double profile Metal gauge 0.6 mm 												
2x **CW 100**	500[3]	3.85	3.50	3.30	3.15	3.00	2.90	2.80	2.70	2.55	–	–
2x **CW 125**	500[3]	4.35	4.00	3.75	3.55	3.40	3.30	3.20	3.10	2.95	–	–
2x **CW 150**	500[3]	4.80	4.45	4.15	3.95	3.80	3.65	3.55	3.45	3.35	–	–
UA double profiles Metal gauge 2.0 mm 												
2x **UA 100**	500[3]	–	5.40	5.05	4.75	4.50	4.30	4.15	4.00	3.90	3.75	3.65
2x **UA 125**	500[3]	–	6.40	5.95	5.65	5.35	5.15	4.95	4.75	4.65	4.50	4.40
2x **UA 150**	500[3]	–	7.35	6.85	6.50	6.15	5.90	5.70	5.50	5.35	5.20	5.05

2) Profile self-weight is directly calculated dependent on the profile size.

3) Axial spacing ≤ 400 mm with combined cladding with Silentboard fastening directly on the CW studs / UA double profiles.

Free-spanning ceiling profiles may not be joined or extended.

Notes	Larger span-widths with lightweight steel profiles in a lightweight steel construction, see Technical Information Knauf Cubo Plus SL09.de. Observe the notes on pages 3 to 5.

System variants

Fire resistance in minutes	Cladding/configuration			$D_{nT,w}$ [1] in dB			$L_{n,w}$ [2] in dB		
	Ceiling top	Ceiling bottom	Wall (both sides)	Double profile **UA 100** Ceiling bottom			Double profile **UA 100** Ceiling bottom		
	1st layer + 2nd layer	1st layer + 2nd layer	1st layer + 2nd layer	Direct cladding	CD 60/27 with Damping Universal Bracket	Resilient Channels	Direct cladding	CD 60/27 with Damping Universal Bracket	Resilient Channels
K376.de Cubo Empore									
–	**≥ 22 mm** wooden composite board (room-enclosing only)	**12.5 mm** Diamant	**2x 12.5 mm** Diamant	*33*	–	–	*85*	–	–
		2x 12.5 mm Diamant	**2x 12.5 mm** Diamant	41	–	–	76	–	–
30	**≥ 22 mm** wooden composite board + **12.5 mm** Diamant	**2x 12.5 mm** Diamant	**2x 12.5 mm** Diamant	45	–	55	74	–	59
	≥ 22 mm wooden composite board + **Brio 18**	**2x 12.5 mm** Diamant	**2x 12.5 mm** Diamant	–	–	–	–	–	–
	≥ 22 mm wooden composite board + **Brio 18** WF	**2x 12.5 mm** Diamant	**2x 12.5 mm** Diamant	–	–	54	–	–	54
			12.5 mm Diamant + **12.5 mm** Silentboard	–	–	*56*	–	–	*56*
			18 mm Diamant + **12.5 mm** Silentboard	–	–	61	–	–	53
		18 mm Diamant + **12.5 mm** Silentboard	**18 mm** Diamant + **12.5 mm** Silentboard	–	61[3]	–	–	47[3]	–
90	**≥ 22 mm** wooden composite board + **25 mm** Fireboard	**2x 20 mm** Fireboard	**2x 20 mm** Fireboard	*40*	–	*49*	*79*	–	*68*
	≥ 22 mm wooden composite board + **Brio 23** WF	**2x 20 mm** Fireboard	**2x 20 mm** Fireboard	–	–	–	–	–	–

1) *Standardized sound level difference for free-standing Cubo Empore, internal dimensions 3.9 m x 2.1 m x 2.6 m (L x W x H). Wall installation with stud profiles MW 100 (with CW 100 reduction by 1 dB). Fill ratio in wall cavities and plenums for mineral wool ≥ 80 %.*

2) *Normalized impact sound pressure level for free-standing Cubo Empore (measurement solely for ceiling) with 80 mm insulation layer between the free-spanning ceiling profiles.*

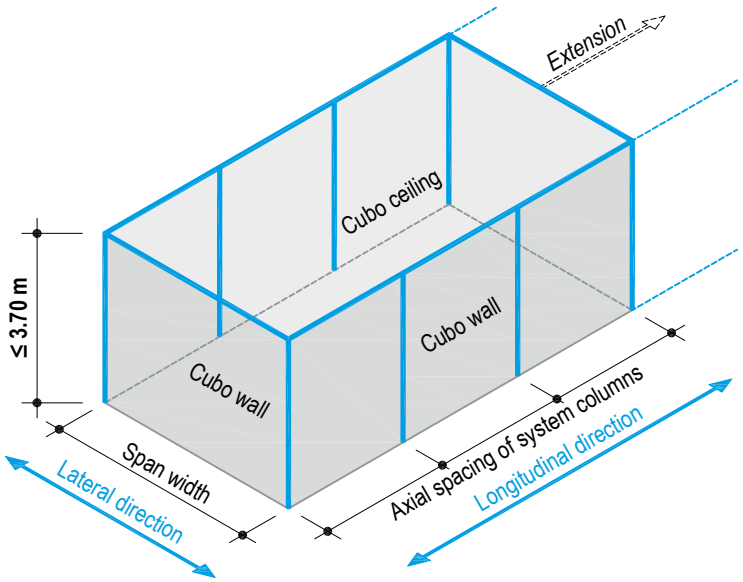
3) *Sound insulation values valid for suspension 100 mm and additional insulation layer 80 mm.*

- ***Values in italics*** are calculated values incl. prognosis uncertainty of 3 dB in airborne and impact sound.
- With combined cladding: Silentboard as a cover layer (2nd layer)
- **22 mm Wooden composite board HWP**
  - OSB/3 or equivalent, density ≤ 750 kg/m³
  - The board is used for lateral distribution of planned superimposed loads
  - As 1st or 2nd layer with “conditionally walkable”; only as the 1st layer possible with “static superimposed loads” or “carrying capacity” or fire resistance

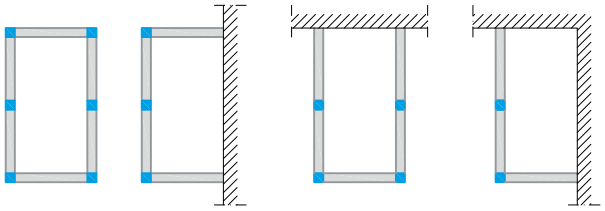
Required for sound insulation insulating layer: Mineral wool, length-related flow resistance 5 kPa·s/m² ≤ r ≤ 50 kPa·s/m² acc. to DIN 4109-33 (e.g. from Knauf Insulation)

Note Observe the notes on pages 3 to 5.

Maximum span widths, room heights and axial spacings I Connection variants



- Minimum dimensions of the floorspace: Width 1.5 m x length 2 m.
- Larger room heights on request.
- For any required bracing of the Cubo see page 52.
- Design “Cubo on Cubo” see page 48.



Axial clearances K376.de Cubo Empore

Loads	Cubo ceiling		Cubo walls	
	Maximum axial spacing free-spanning UA double profile mm	**Maximum axial spacing furring channel** (CD Channel 60/27or Resilient Channel) mm	**Max. axial clearances Stud profiles CW/MW** mm	**Max. axial spacing system column** m
Conditionally walkable	500 (with Silentboard 400 direct cladding)	500 (with Silentboard 400 cladding)	625	4.0
Static loads	500 (with Silentboard 400 direct cladding)	500 (with Silentboard 400 cladding)	625	4.0
Carrying capacity	400	500 (with Silentboard 400 cladding)	625	2.5

Cubo ceiling span-widths K376.de Cubo Empore **(With imposed loads)**

Imposed loads See page 11	**Knauf UA double profiles** 	**Axial spacing** (b)	**Maximum span width in m** [1] **Nominal weight of cladding/ceiling construction/additional loads in kN/m²** (see page 6)									
kN/m²	Metal gauge 2.0 mm	mm	**≤ 0.3**	**≤ 0.4**	**≤ 0.5**	**≤ 0.6**	**≤ 0.7**	**≤ 0.8**	**≤ 0.9**	**≤ 1.0**	**≤ 1.1**	**≤ 1.2**
Conditionally walkable	2x **UA 100**	500[2]	4.15	4.00	3.90	3.75	3.65	3.60	3.50	3.45	3.35	3.30
	2x **UA 125**		4.95	4.75	4.65	4.50	4.40	4.30	4.20	4.10	4.00	3.95
	2x **UA 150**		5.70	5.50	5.35	5.20	5.05	4.95	4.85	4.75	4.65	4.55
Static superimposed loads **≤ 0.5**	2x **UA 100**	500[2]	3.30	3.20	3.10	3.00	2.90	2.85	2.80	2.70	2.65	2.60
	2x **UA 125**		3.90	3.80	3.65	3.55	3.50	3.40	3.30	3.25	3.20	3.10
	2x **UA 150**		4.50	4.35	4.25	4.10	4.00	3.90	3.85	3.75	3.70	3.60
Static superimposed loads **≤ 1.0**	2x **UA 100**	500[2]	2.85	2.80	2.70	2.65	2.60	2.55	2.50	2.50	2.45	2.40
	2x **UA 125**		3.40	3.30	3.25	3.20	3.10	3.05	3.00	2.95	2.90	2.90
	2x **UA 150**		3.90	3.85	3.75	3.70	3.60	3.55	3.50	3.45	3.40	3.35
Carrying capacity **≤ 2.0**[3]	2x **UA 100**	400	2.40	2.35	2.30	2.30	2.25	2.25	2.20	2.20	2.15	2.15
	2x **UA 125**		2.85	2.80	2.75	2.75	2.70	2.65	2.65	2.60	2.60	2.55
	2x **UA 150**		3.30	3.25	3.20	3.15	3.15	3.10	3.05	3.00	3.00	2.95

1) Profile self-weight is directly calculated dependent on the profile size.
2) Axial spacing ≤ 400 mm with combined cladding with Silentboard fastening directly on the UA double profiles.
3) Non-public area.

Free-spanning ceiling profiles may not be joined or extended.

Notes	Larger span-widths with lightweight steel profiles in a lightweight steel construction, see Technical Information Knauf Cubo Plus SL09.de. Observe the notes on pages 3 to 5.

Caution	Building authority stipulations on the safety due to collapse must be observed.

Cubo Empore Balustrade

Cubo Empore is a Room-in-Room system with consideration of an imposed load or the possibility of conditional walkability or even a live load of up to 2.0 kN/m^2 (non-public areas). To realise your building project in accordance with the requirements, building regulations for protection against a fall must be taken into account at the planning stage.
Cubo Empore Balustrade has been specially developed for this purpose and is an extension of Cubo Empore (without fire resistance).
In accordance with the building regulations from the German Model Building Code and state building codes, fall protection measures must be provided from a height difference of 50 cm to neighbouring surfaces. Fall protection must also be provided acc. to DIN 4103 1 with reference to the DIN EN 1991-1-1/NA:2010-12. In addition, the German Workplace Ordinance also specifies whether and how fall protection measures must be installed.
The Room-in-Room system with balustrade has been tested by the MPA Braunschweig and fulfils 6 kN as a point load, as well as a dynamic load of up to 700 Nm from the impact with a sack containing glass spheres. A test report (1102/700/20) is available.

The Cubo Empore with balustrade offers many benefits:

- The system has been tested by an independent institute.
- All structural components for the balustrade are supplied complete with the system.
- Numerous details are available for the construction of the Room-in-Room system.
- The dimensioning of the frame and the determination of the required quantities is undertaken by Knauf Technical Advisory Service (TAS) based on the project plans.

Application

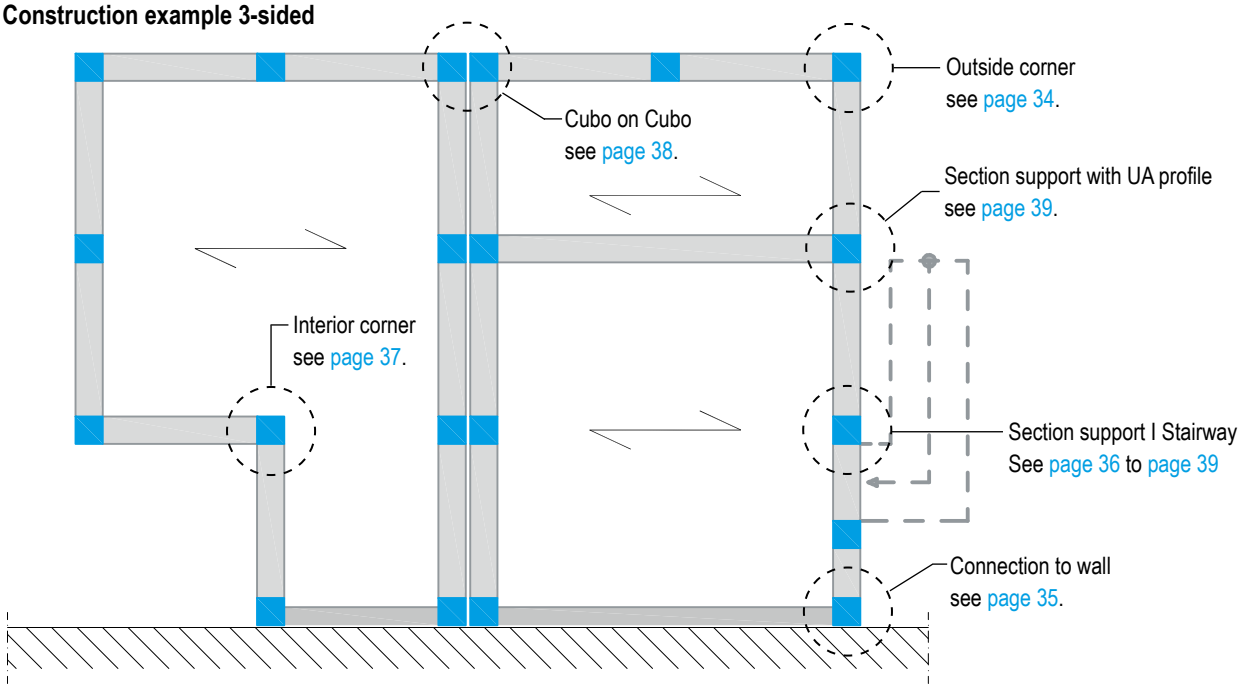
- Cladding: 2x 12.5 mm Diamant (other variants on request)
- Stud profile: CW 100
- Balustrade height: Max. 1270 mm
- Axial spacings and span widths of the Cubo ceiling
  see K376.de Cubo Empore on page 17.

Cubo Ballustrade installation kits

- **Set 1 – Cubo Balustrade support corner**
  - 1x telescopic insert
  - 1x corner support
  - 2 x adapter element inside corner
  - 1x corner foot plate
  - 12x round-head screws M8 with washers and nuts
  - 18x drilling screws
  - 2x heavy-duty dowels
  - Cubo Balustrade support corner
- **Set 2 – Cubo Balustrade support wall**
  - 1x telescopic center insert
  - 1x corner support
  - 2x individual supports
  - 1x medium foot plate
  - 12x round-head screws M8 with washers and nuts
  - 32x drilling screws
  - 2x heavy-duty dowels
  - Cubo Balustrade support wall

Note	For further information on planning and application see Assembly Instructions Knauf Cubo Installation K37-A02.de.

Construction example 3-sided



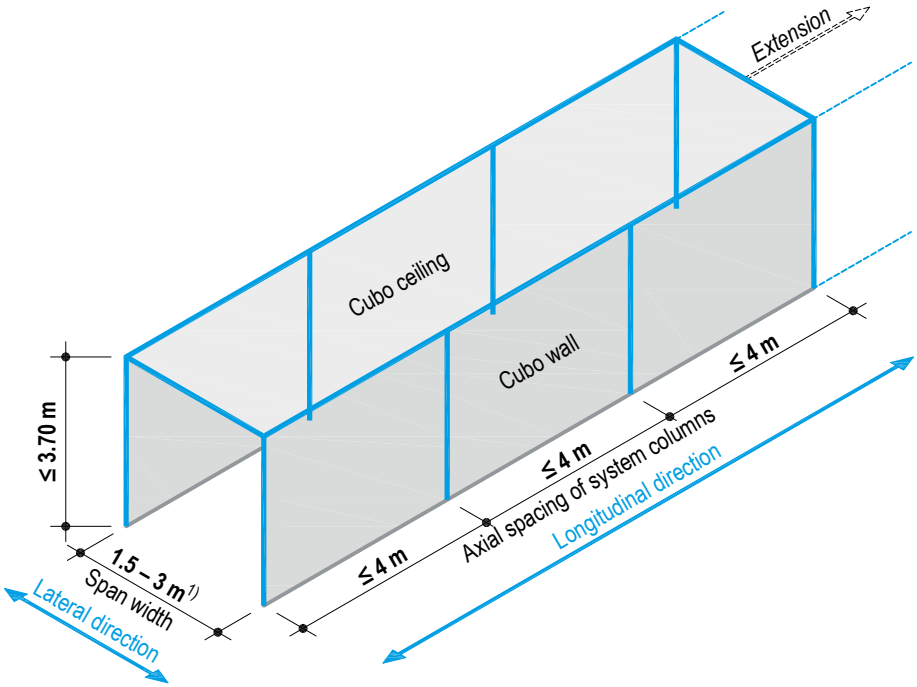
Caution	In case of a Knauf Room-in-Room system Cubo Empore Balustrade, a Knauf technical advisory specialist should be consulted. Building authority stipulations on the safety due to collapse must be observed.

System variants

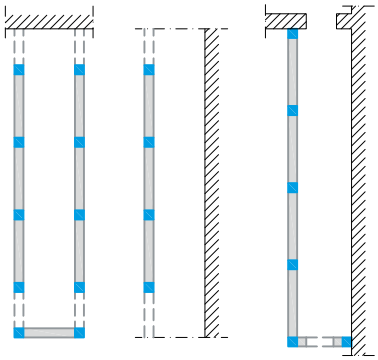
Fire resistance in minutes	Cladding/configuration Ceiling top 1st layer + 2nd layer	Ceiling bottom	Wall (both sides)
K377.de Cubo Escape Tunnel			
90	**0.5 mm** Sheet metal **+** **2x 20 mm** Fireboard	**2x 20 mm** Fireboard	**20 mm** Fireboard **+** **0.5 mm** Sheet metal **+** **20 mm** Fireboard
	20 mm Fireboard **+** **0.5 mm** Sheet metal **+** **20 mm** Fireboard	**2x 20 mm** Fireboard	**20 mm** Fireboard **+** **0.5 mm** Sheet metal **+** **20 mm** Fireboard

Note Observe the notes on pages 3 to 5.

Maximum span width, room heights and axial spacings I Connection variants



- Minimum constructional span width of the ceiling: 1.5 m
- Maximum span width: 3 m (observe the building codes)
- For any required bracing of the Cubo see page 52.
- Larger room heights on request.



1) Span width ≤ 2.5 m with "T-joint" or "Corner configuration" (for design see page 49).

Axial clearances K377.de Cubo Escape Tunnel

Cubo ceiling	Cubo walls	
Maximum axial spacing free-spanning UA double profile mm	**Maximum axial spacing Stud profiles CW** mm	**Maximum axial spacing System columns** m
500	312.5	4.0

Cubo ceiling span width K377.de Cubo Escape Tunnel

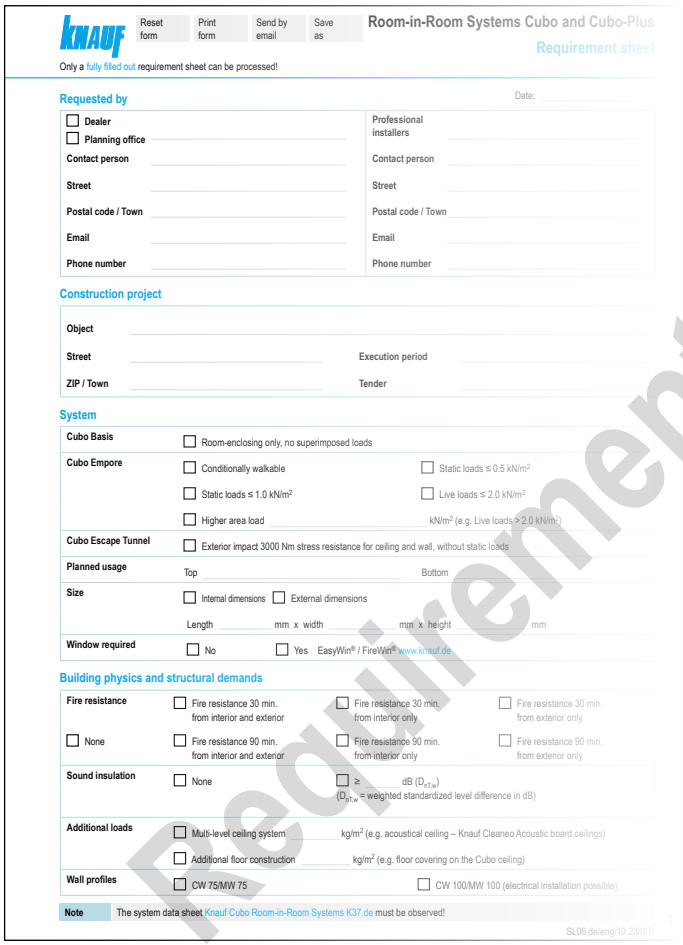
Knauf UA double profiles  Metal gauge 2.0 mm	**Axial spacing** (b) mm	**Maximum span width** m
2x **UA 100**	500	3.0

Free-spanning ceiling profiles may not be joined or extended.

Note	Observe the notes on pages 3 to 5.

Requirement sheet

Use the Room-in-Room System Cubo and Cubo-Plus SL06.de Requirement sheet for planning!



Reset form | Print form | Send by email | Save as

Room-in-Room Systems Cubo and Cubo-Plus
Requirement sheet

Only a fully filled out requirement sheet can be processed!

Requested by

Date:

☐ Dealer ☐ Planning office	Professional installers
Contact person	Contact person
Street	Street
Postal code / Town	Postal code / Town
Email	Email
Phone number	Phone number

Construction project

Object
Street — Execution period
ZIP / Town — Tender

System

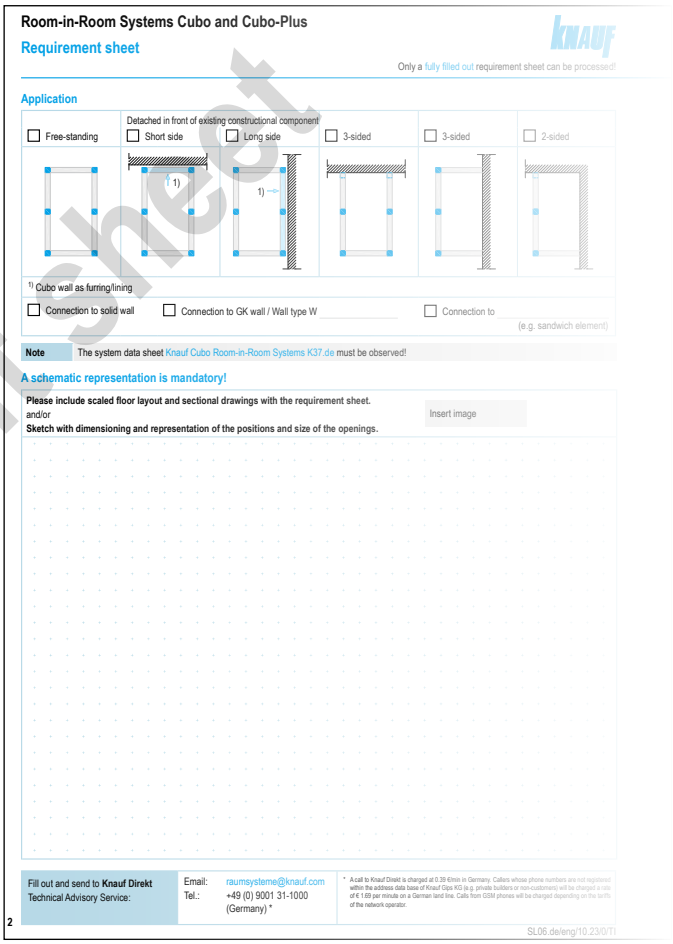
Cubo Basis	☐ Room-enclosing only, no superimposed loads
Cubo Empore	☐ Conditionally walkable ☐ Static loads ≤ 0.5 kN/m² ☐ Static loads ≤ 1.0 kN/m² ☐ Live loads ≤ 2.0 kN/m² ☐ Higher area load kN/m² (e.g. Live loads > 2.0 kN/m²)
Cubo Escape Tunnel	☐ Exterior impact 3000 Nm stress resistance for ceiling and wall, without static loads
Planned usage	Top Bottom
Size	☐ Internal dimensions ☐ External dimensions Length mm x width mm x height mm
Window required	☐ No ☐ Yes EasyWin® / FireWin® www.knauf.de

Building physics and structural demands

Fire resistance	☐ Fire resistance 30 min. from interior and exterior	☐ Fire resistance 30 min. from interior only	☐ Fire resistance 30 min. from exterior only
☐ None	☐ Fire resistance 90 min. from interior and exterior	☐ Fire resistance 90 min. from interior only	☐ Fire resistance 90 min. from exterior only
Sound insulation	☐ None	☐ ≥ dB ($D_{nT,w}$) ($D_{nT,w}$ = weighted standardized level difference in dB)	
Additional loads	☐ Multi-level ceiling system kg/m² (e.g. acoustical ceiling – Knauf Cleaneo Acoustic board ceilings)		
	☐ Additional floor construction kg/m² (e.g. floor covering on the Cubo ceiling)		
Wall profiles	☐ CW 75/MW 75	☐ CW 100/MW 100 (electrical installation possible)	

Note The system data sheet Knauf Cubo Room-in-Room Systems K37.de must be observed!

SL06.de/eng/10.23/0/T1



Room-in-Room Systems Cubo and Cubo-Plus
Requirement sheet

Only a fully filled out requirement sheet can be processed!

Application

Detached in front of existing constructional component

☐ Free-standing ☐ Short side ☐ Long side ☐ 3-sided ☐ 3-sided ☐ 2-sided

1) Cubo wall as furring/lining

☐ Connection to solid wall ☐ Connection to GK wall / Wall type W ☐ Connection to (e.g. sandwich element)

Note The system data sheet Knauf Cubo Room-in-Room Systems K37.de must be observed!

A schematic representation is mandatory!

Please include scaled floor layout and sectional drawings with the requirement sheet.
and/or
Sketch with dimensioning and representation of the positions and size of the openings.

Insert image

Fill out and send to **Knauf Direkt** Technical Advisory Service:
Email: raumsysteme@knauf.com
Tel.: +49 (0) 9001 31-1000 (Germany) *

* A call to Knauf Direkt is charged at 0.39 €/min in Germany. Callers whose phone numbers are not registered within the address data base of Knauf Clips KG (e.g. private builders or non-customers) will be charged a rate of € 1.69 per minute on a German land line. Calls from GSM phones will be charged depending on the tariffs of the network operator.

2

SL06.de/eng/10.23/0/T1

Procedure

Information for dealers / planning offices / professional installers

1. Please send the fully filled out requirement sheet to:
   Knauf Direkt – Knauf Technical Advisory Service
   Email: **raumsysteme@knauf.com**
2. Our specialists will make the calculations for the Cubo and create a bill of materials incl. the individual prices.
3. You will receive the offer back from the specified dealer.

A list of materials for the Cubo and the preliminary design can also be sent directly to the professional installer or architect.

Caution	Only a **fully filled out** requirement sheet can be processed!

Geometric condition framework of the supporting structure

Cubo System Column axial spacing

- Refer to the corresponding system configuration
- Consider the arrangement of the system supports in the window and door opening floor plan (also refer to page 54).

Longitudinal direction

- Refer to the corresponding system configuration
- Can be extended as required

Lateral direction

(= Cubo ceiling span width)

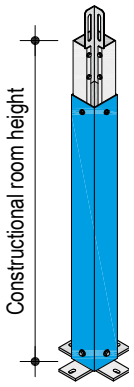
- Refer to the corresponding system configuration
- Spanning direction of the Cubo ceiling
- UA perimeter profile to UA perimeter profile

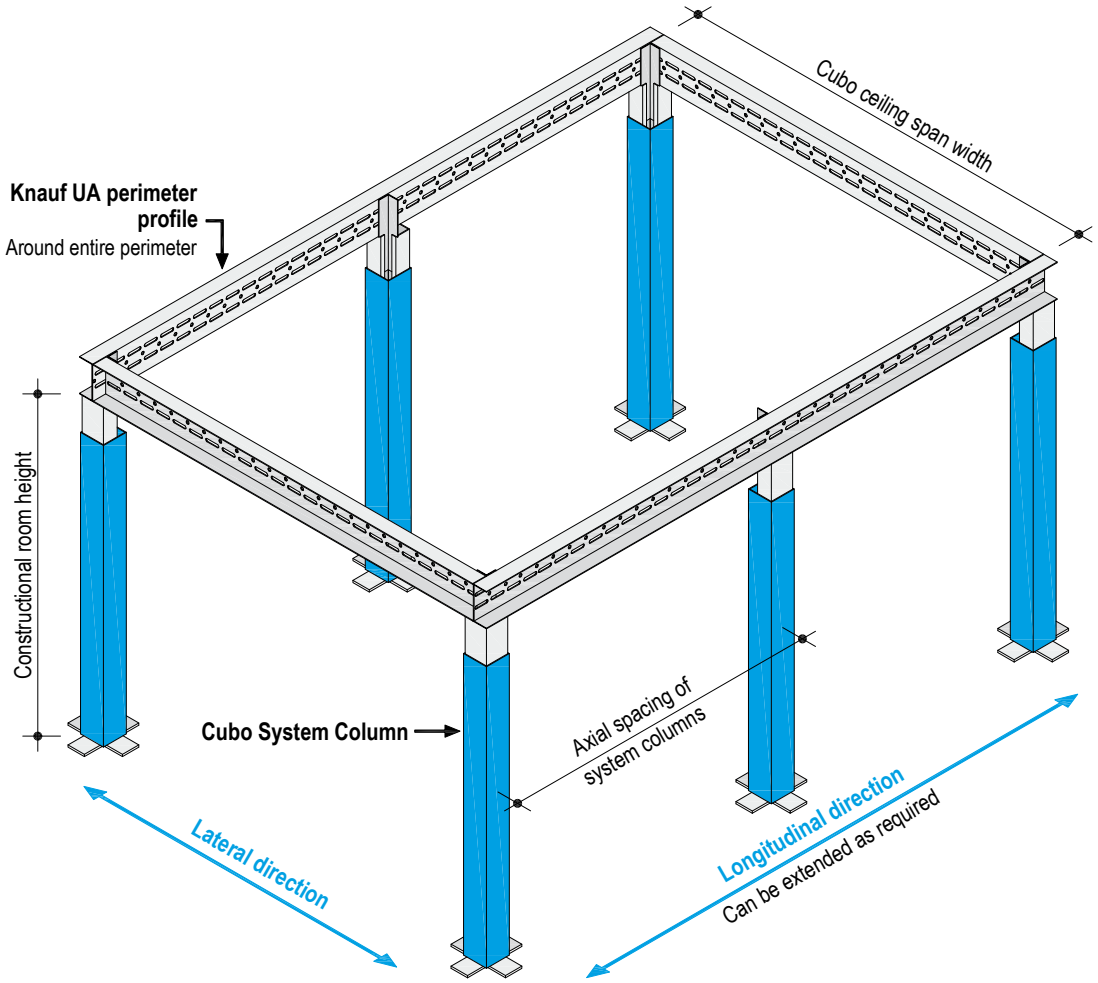
Constructional room height: ≤ 3.70 m

(= upper edge of basic floor to lower edge Knauf UA perimeter profile), larger room heights on request

- Adjustable via telescopic element
- With room height > 3.2 m:
  Cubo system double-layer cladding

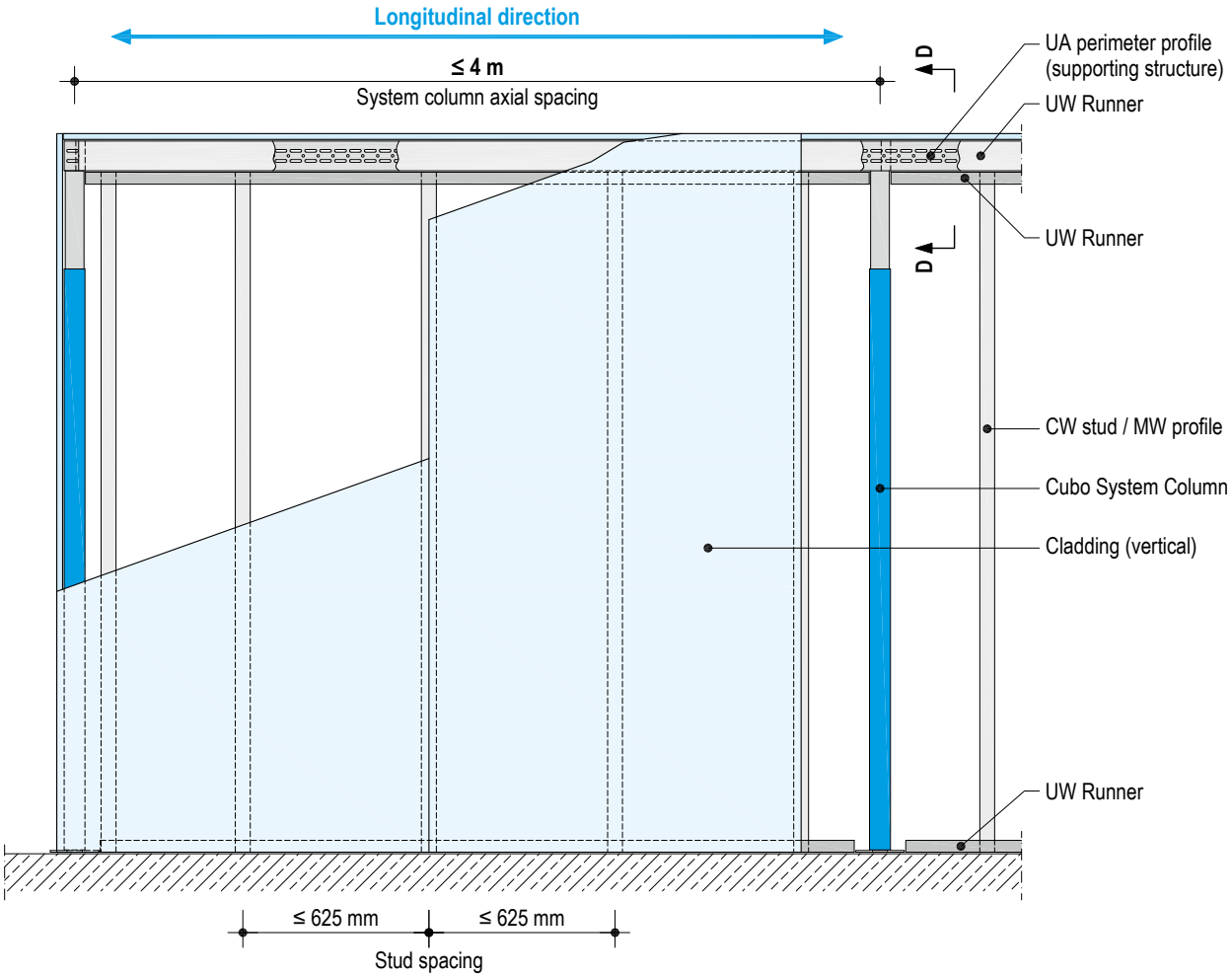
Scheme drawings



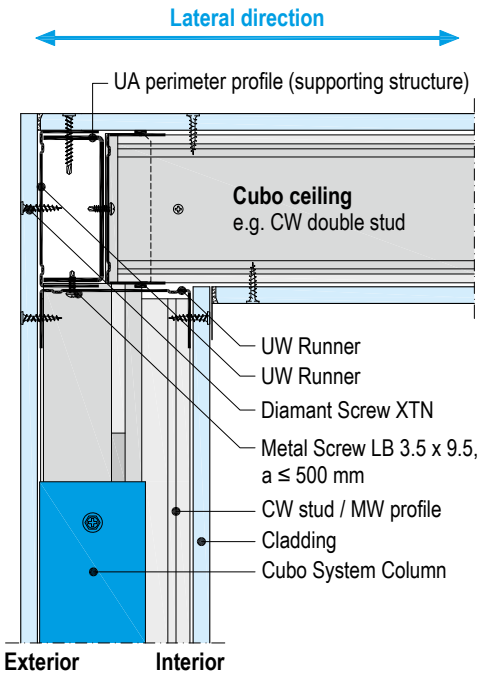


View

Scheme drawings



Section D-D

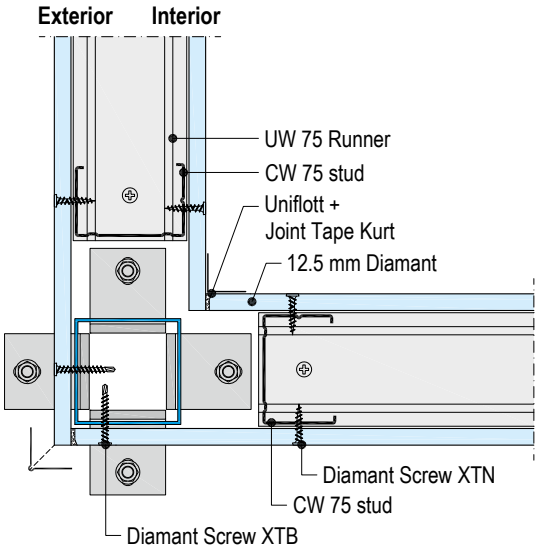


Details

Scale 1:5

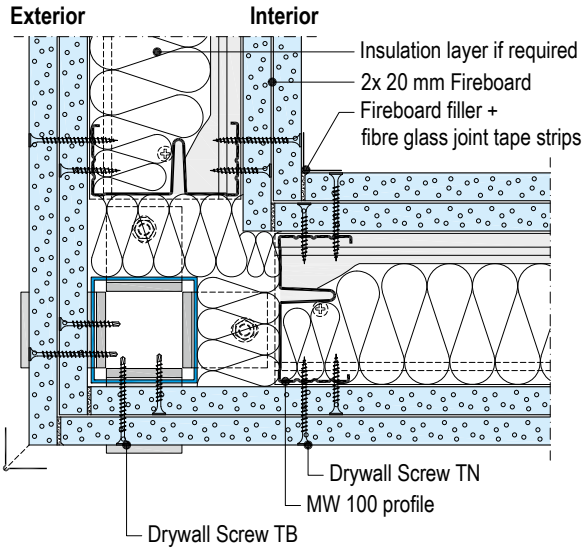
K375.de-H1 Corner – CW stud

Horizontal section I Without fire resistance



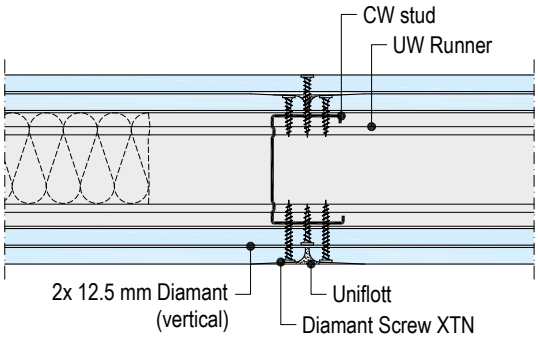
K375.de-H3 Corner – MW profile

Horizontal section



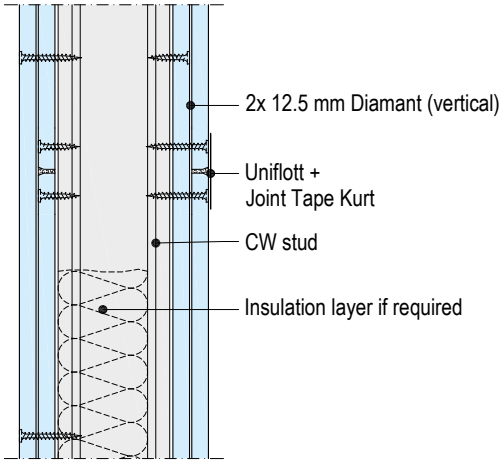
K375.de-H6 board joint – CW stud

Horizontal section



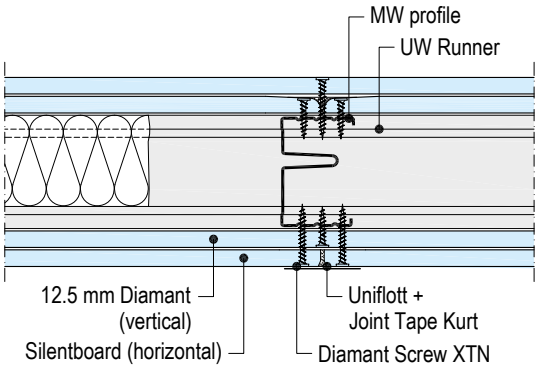
K375.de-V19 board joint – CW stud

Vertical section



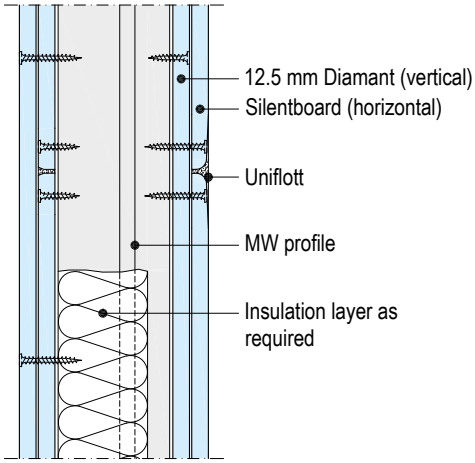
K375.de-H7 Board joint – MW profile

Horizontal section



K375.de-V20 Board joint – MW profile

Vertical section

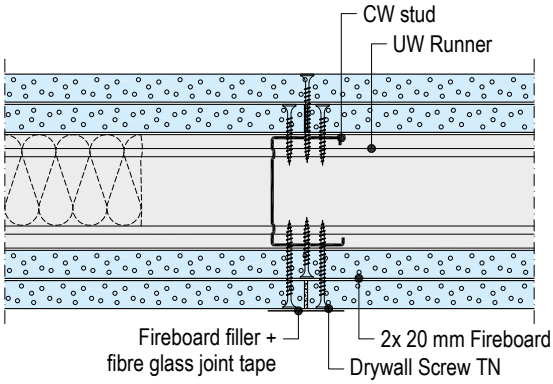


Details

Scale 1:5 I Dimensions in mm

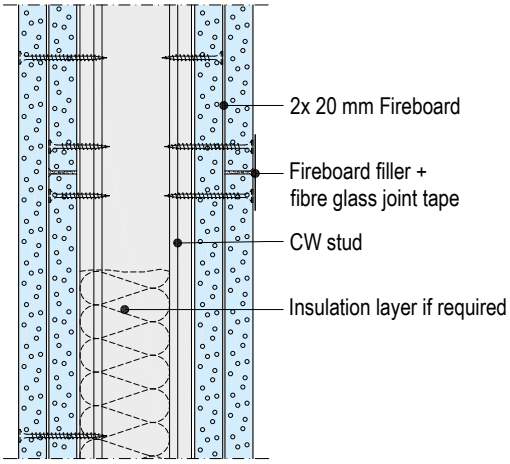
K375.de-H8 Board joint – CW stud

Horizontal section



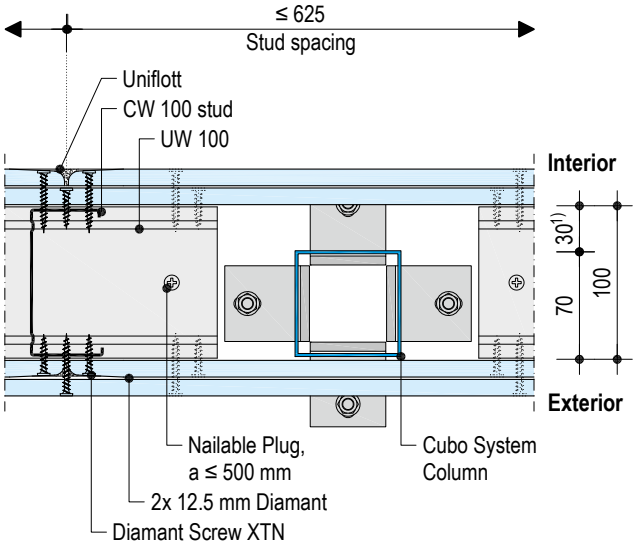
K375.de-V21 Board joint

Vertical section



K375.de-H4 Board joint – CW stud

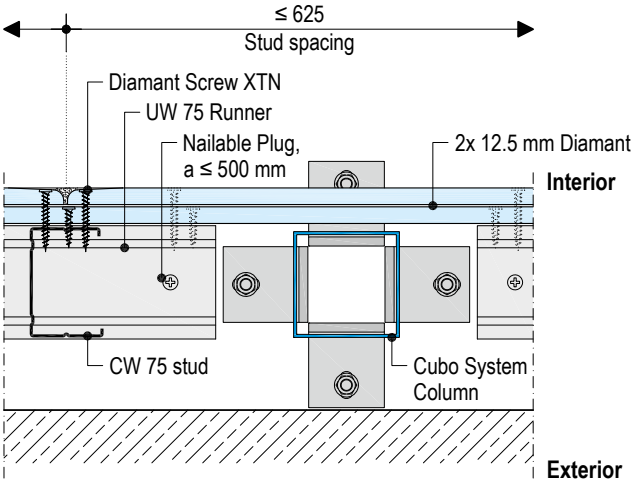
Horizontal section



1) *Possible installation level*

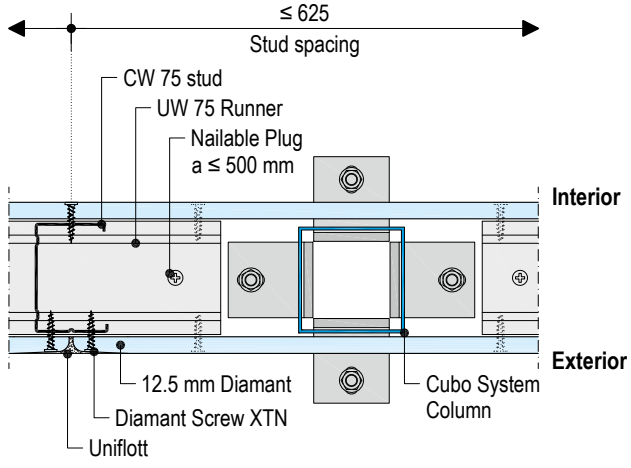
K375.de-H11 Furring

Horizontal section I Without fire resistance



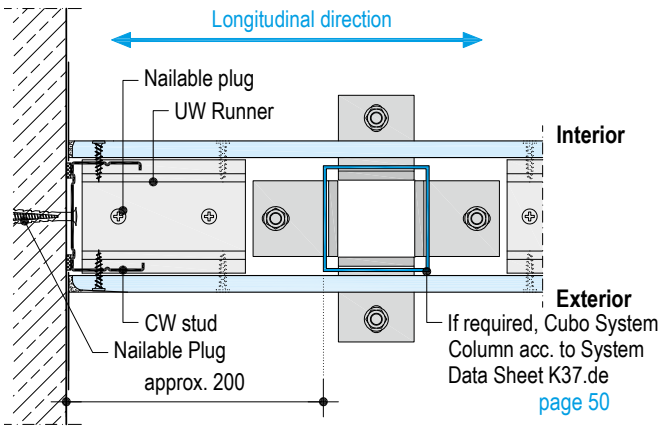
K375.de-H2 Board joint – CW stud

Horizontal section I Without fire resistance



K375.de-H12 Connection to flanking constructional component

Horizontal section I Without fire resistance



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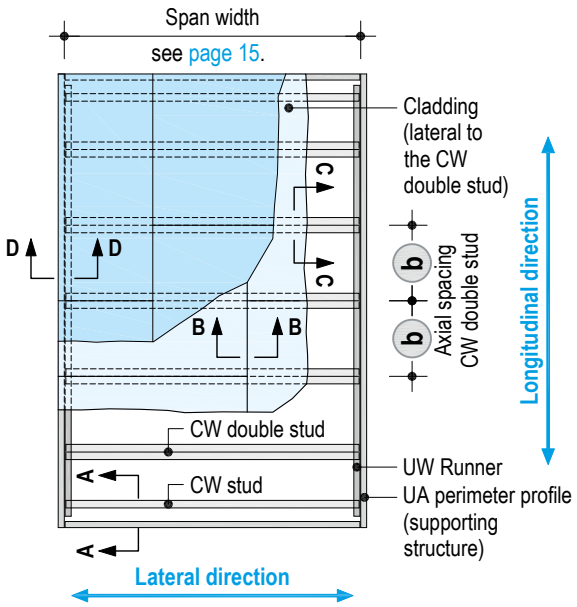
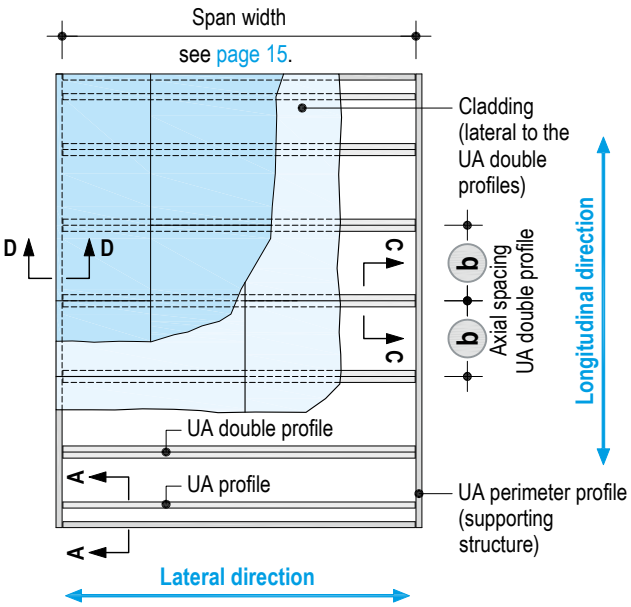
Top view - CW double studs

Scheme drawing



Top view - UA double profiles

Scheme drawing

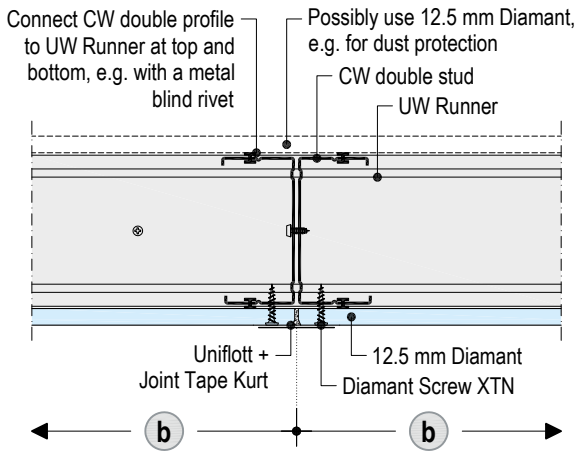


Details

Scale 1:5

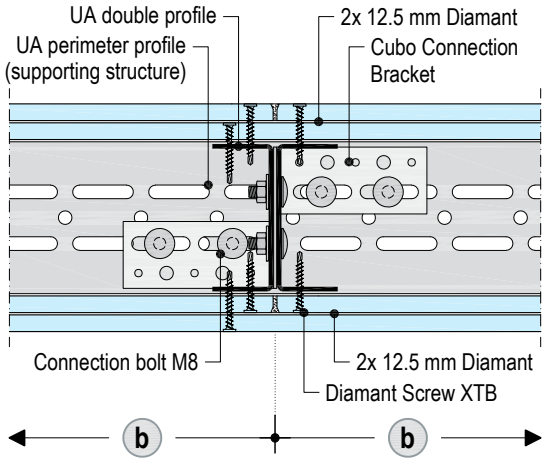
K375.de-V1 Front edge – CW double studs

Vertical section I Section C-C I Without fire resistance



K375.de-V10 Front edge – UA double profiles

Vertical section I Section C-C

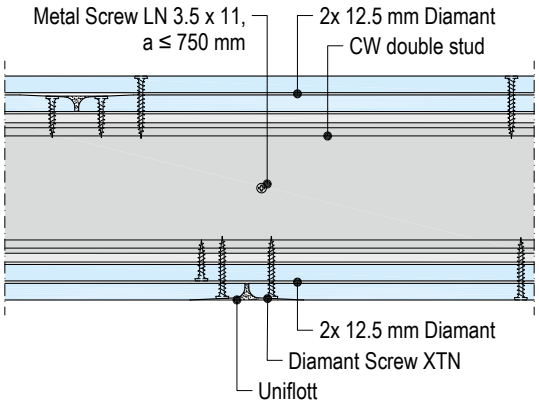


Details

Scale 1:5 I Dimensions in mm

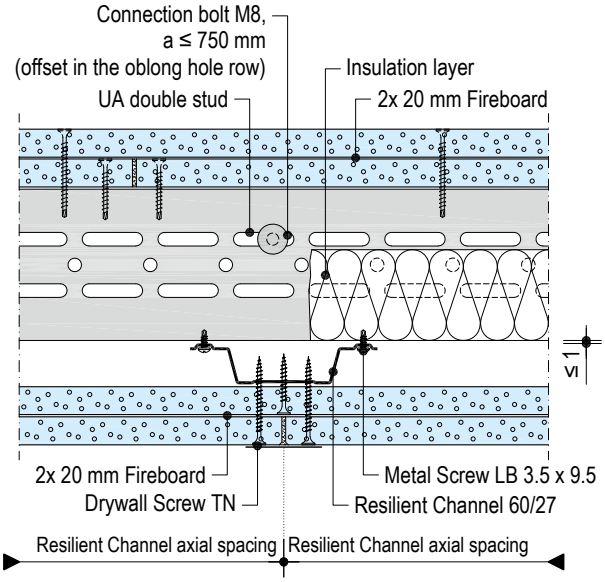
K375.de-V3 Longitudinal edge – CW double studs

Vertical section I Section B-B



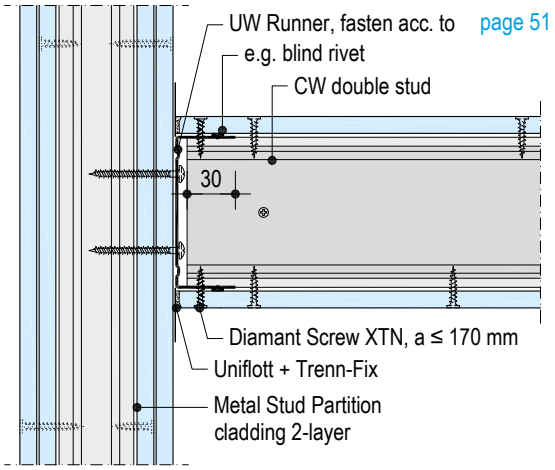
K375.de-V4 Front edge – Resilient Channel

Vertical section



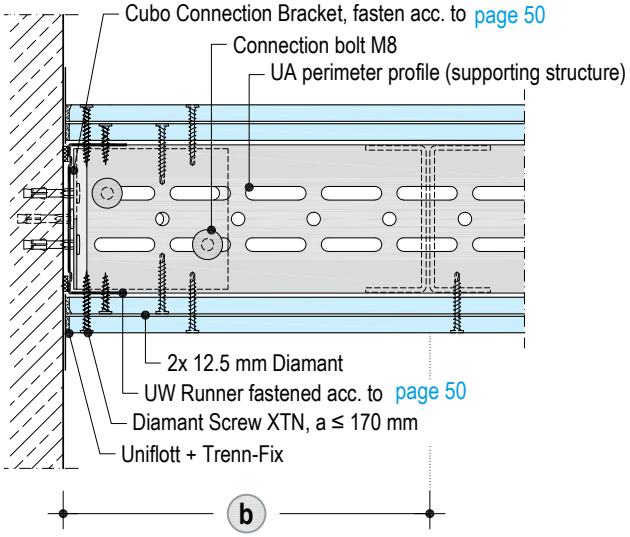
K375.de-V12 Connection CW double stud to metal stud partition

Vertical section I Section D-D I Without fire resistance



K375.de-V9 Connection UA perimeter profile to solid component

Vertical section I Section A-A

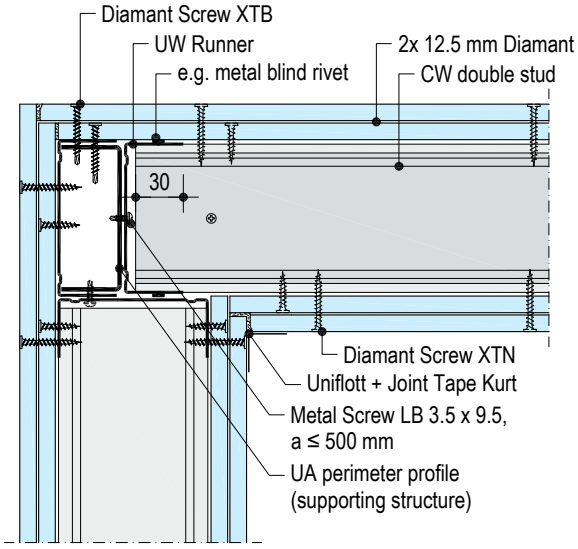


Details

Scale 1:5 I Dimensions in mm

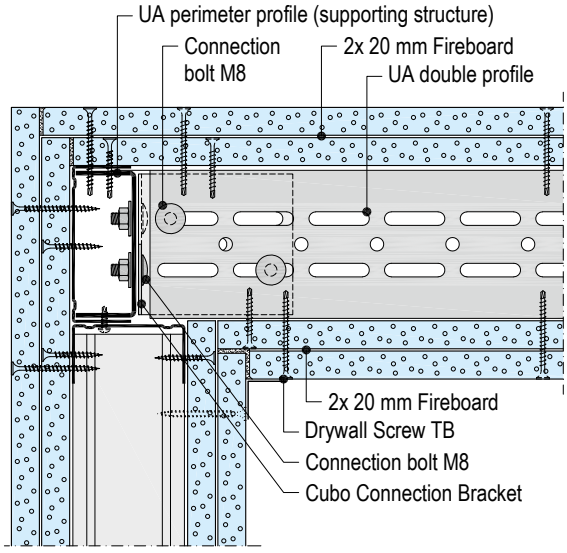
K375.de-V5 Perimeter connection – CW double studs

Vertical section I Section D-D



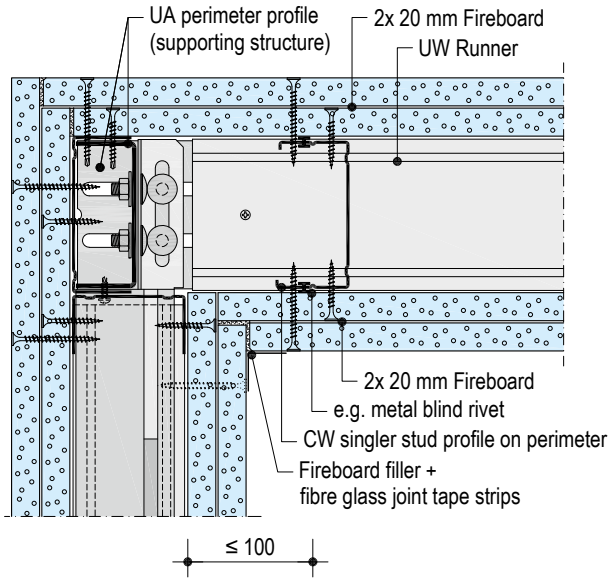
K375.de-V11 Perimeter connection – UA double profiles

Vertical section I Section D-D



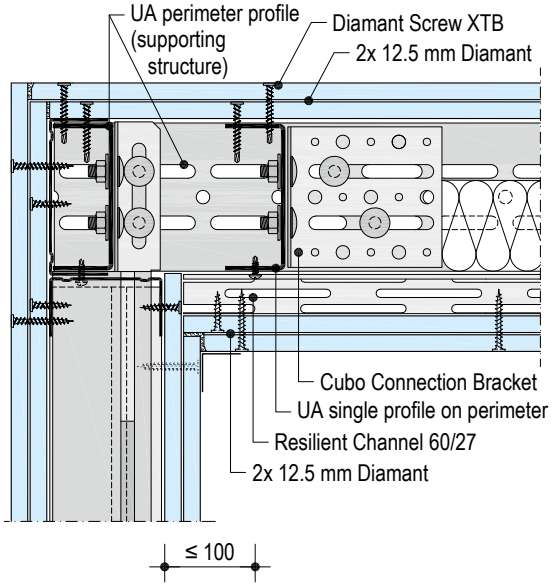
K375.de-V7 Perimeter connection – CW double studs

Vertical section I Section A-A



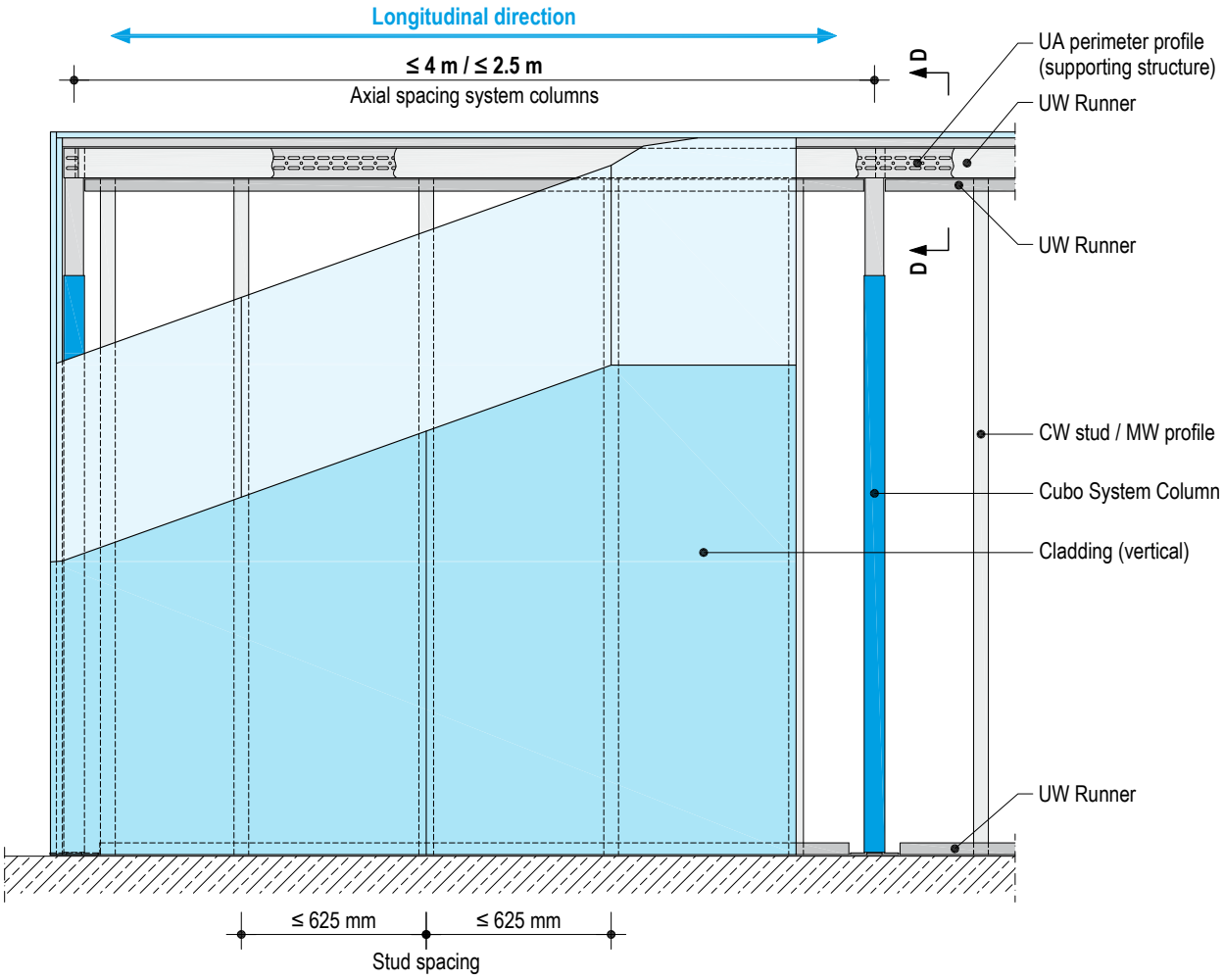
K375.de-V8 Perimeter connection – UA double profiles

Vertical section I Section A-A

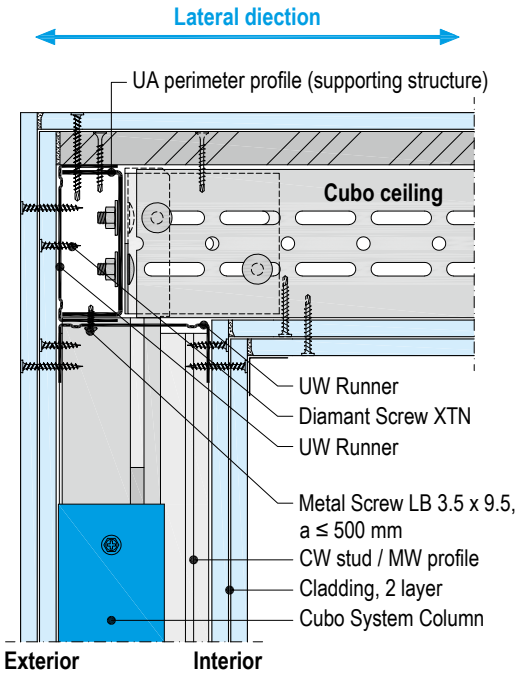


View

Scheme drawings



Section D-D

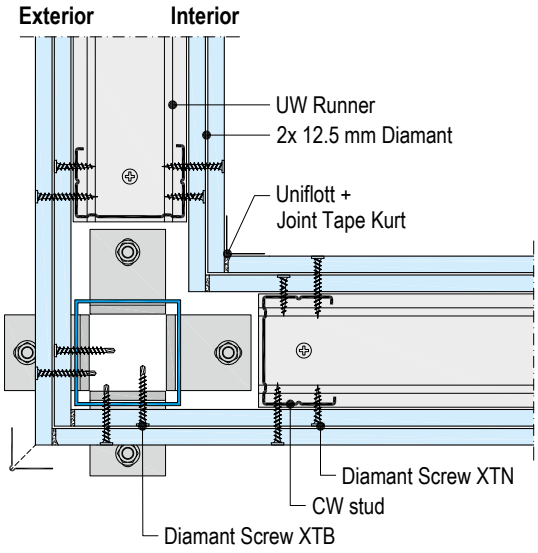


Details

Scale 1:5 I Dimensions in mm

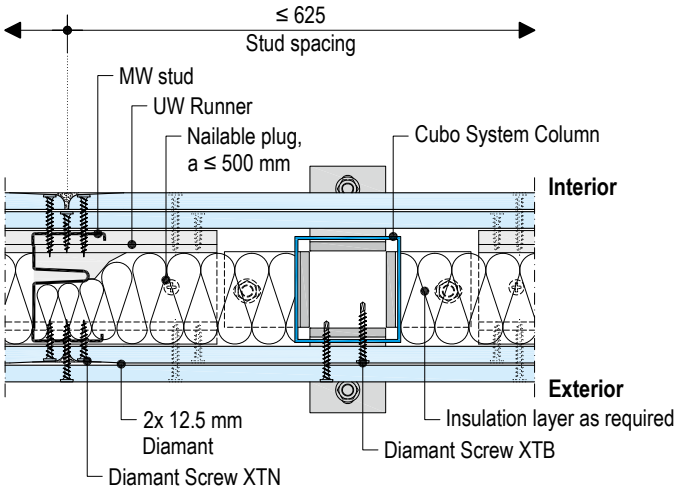
K376.de-H1 Corner – CW stud

Horizontal section



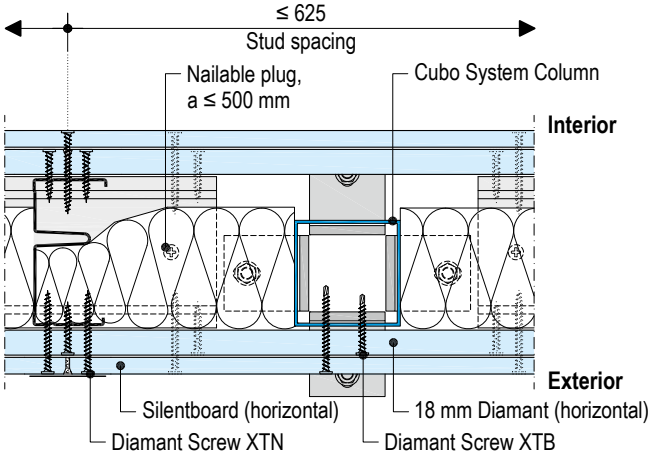
K376.de-H2 Board joint – MW profile

Horizontal section



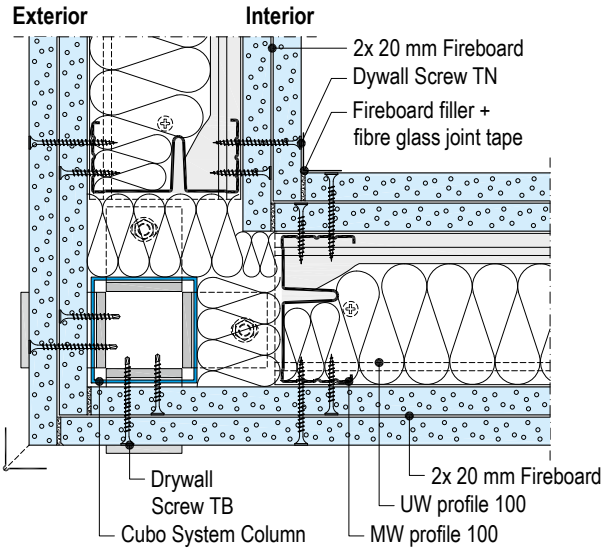
K376.de-H5 Board joint – MW profile

Horizontal section



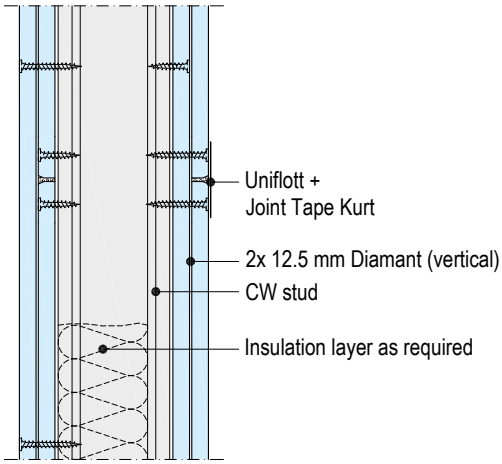
K376.de-H7 Corner – MW profile

Horizontal section



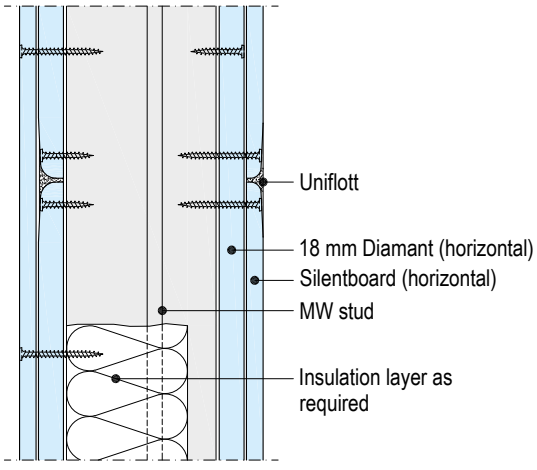
K376.de-V8 board joint – CW stud

Vertical section



K376.de-V7 Board joint – MW profile

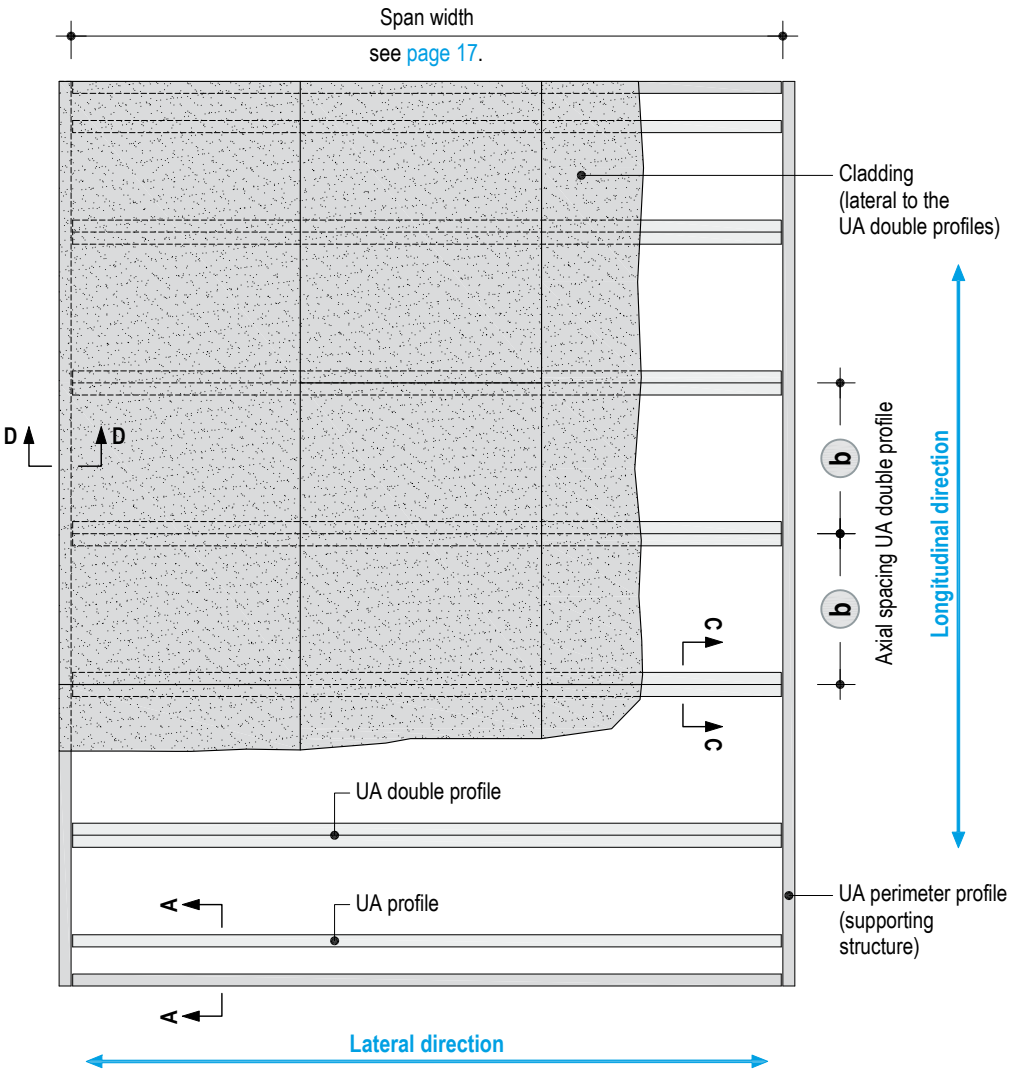
Vertical section



Caution In case of K376.de Cubo Empore outer screw fastening of the cladding also to the system column!

Top view - UA double profiles

Scheme drawing

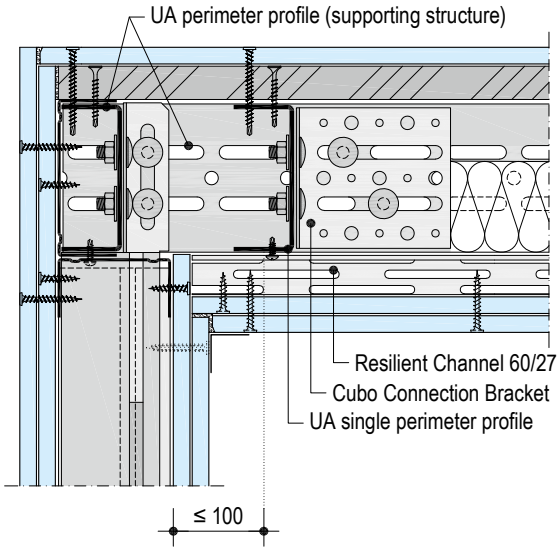


Details

Scale 1:5 I Dimensions in mm

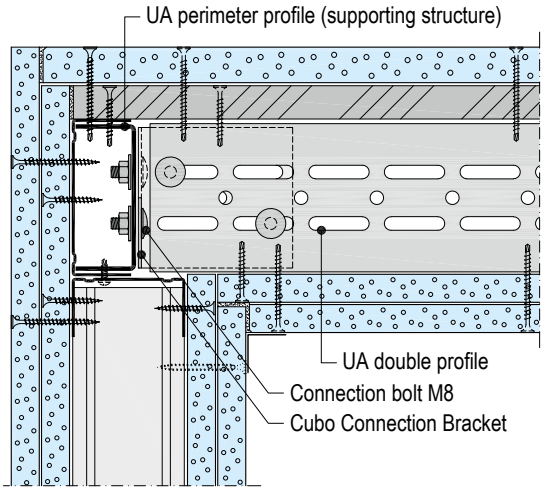
K376.de-V3 Perimeter connection

Vertical section I Section A-A



K376.de-V4 Perimeter connection

Vertical section I Section D-D

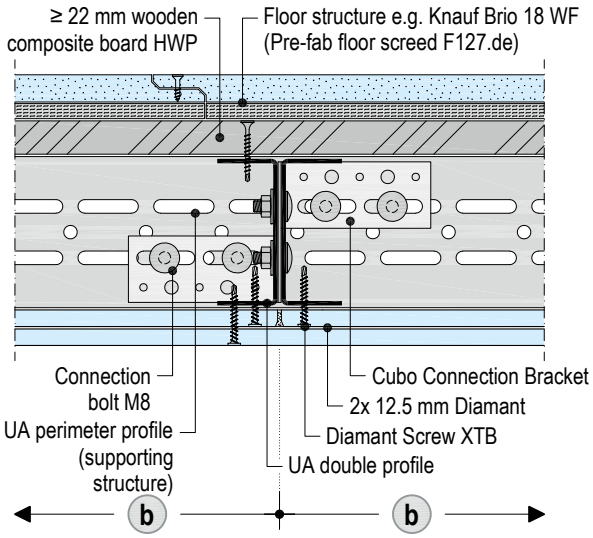


Details

Scale 1:5 I Dimensions in mm

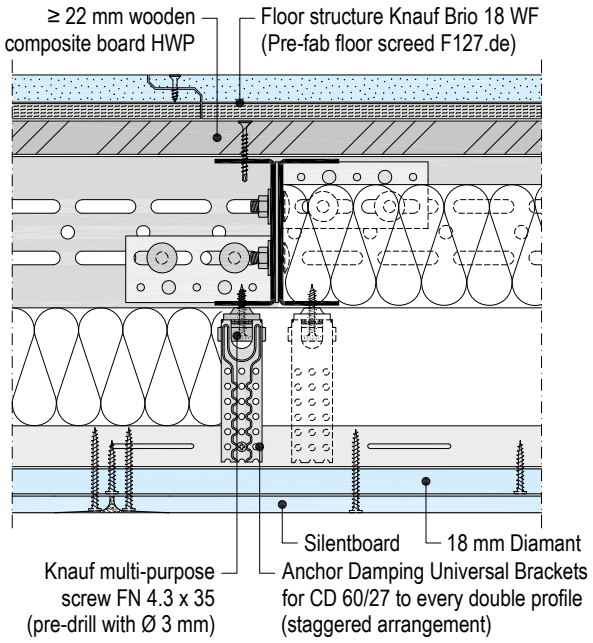
K376.de-V1 Front edge

Vertical section I Section C-C



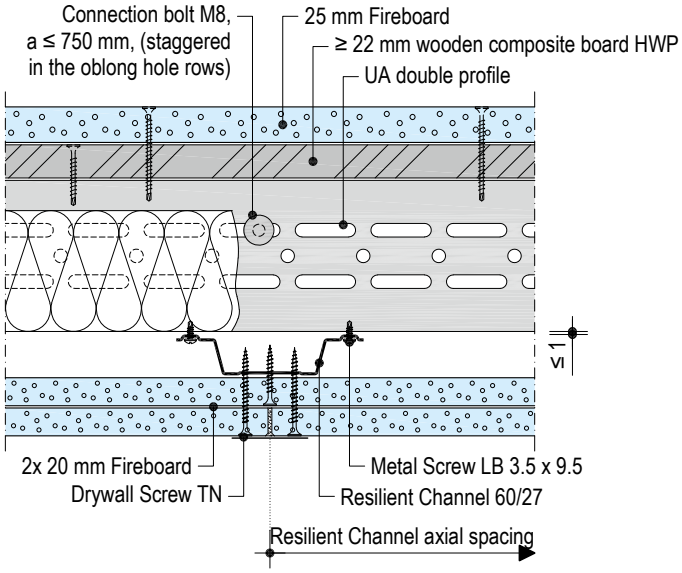
K376.de-V6 Long edge – CD Channel with Damping Universal Bracket

Vertical section I Section C-C



K376.de-V2 Front edge – Resilient Channel

Vertical section

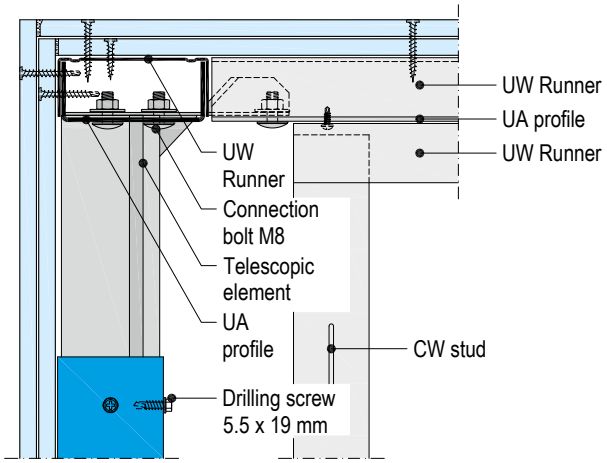


Details – Outside corner

Scale 1:5

K376.de-V100 Outside corner – end point

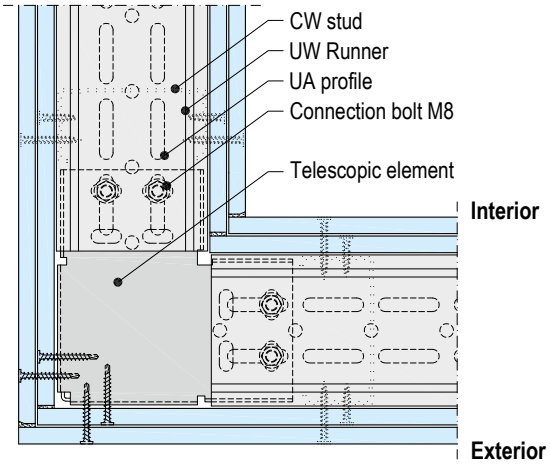
Vertical section I Without fire resistance



K376.de-H100 Outside corner – end point

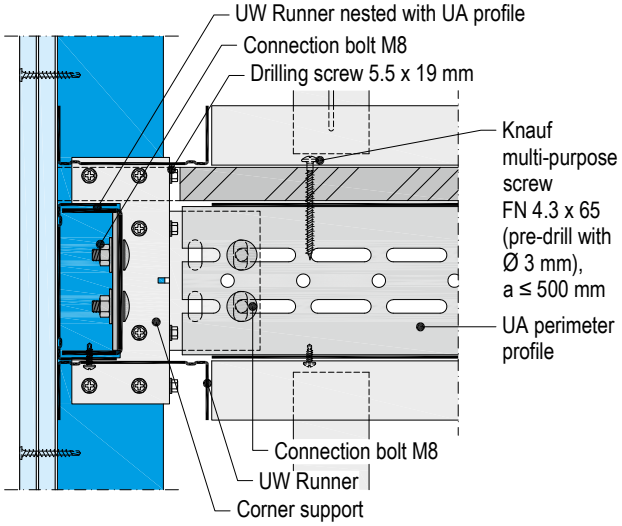
(Shown without the upper side cladding)

Horizontal section I Without fire resistance



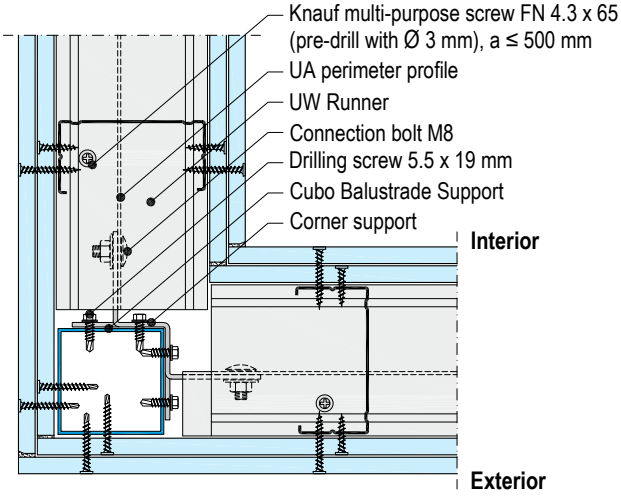
K376.de-V101 Outside corner– Cubo ceiling

Vertical section I Without fire resistance



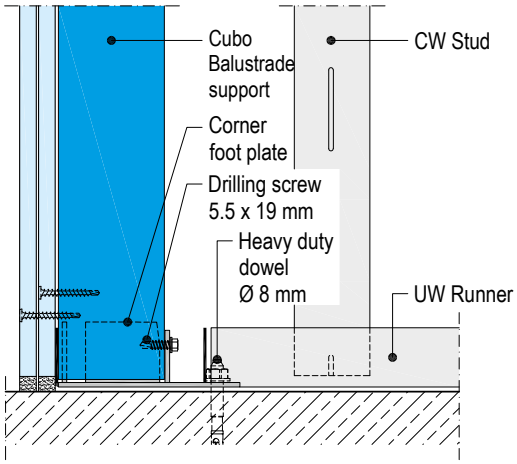
K376.de-H101 Outside corner – Cubo ceiling

Horizontal section I Without fire resistance



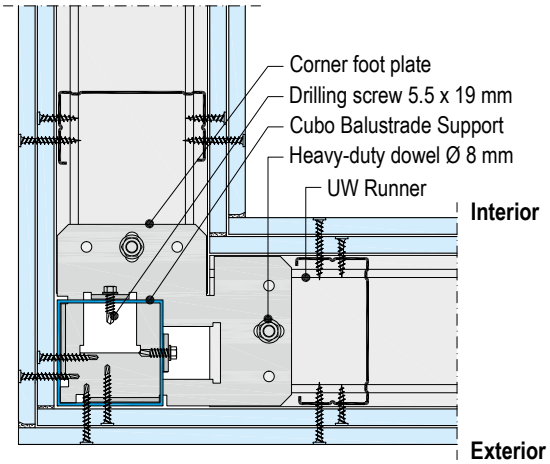
K376.de-V102 Outside corner – connection to floor

Vertical section I Without fire resistance



K376.de-H102 Outside corner – connection to floor

Horizontal section I Without fire resistance

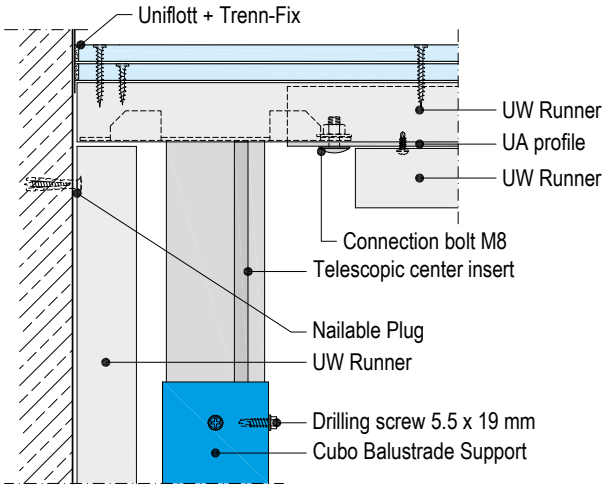


Details – Connection to wall

Scale 1:5

K376.de-V113 Connection to wall – end point

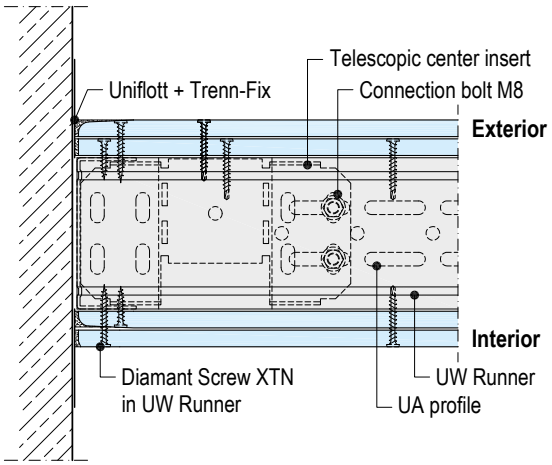
Vertical section I Without fire resistance



K376.de-H113 Connection to wall – end point

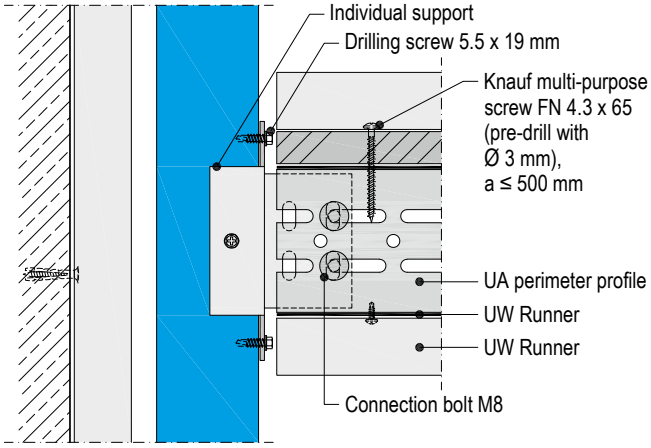
(Shown without the upper side cladding)

Horizontal section I Without fire resistance



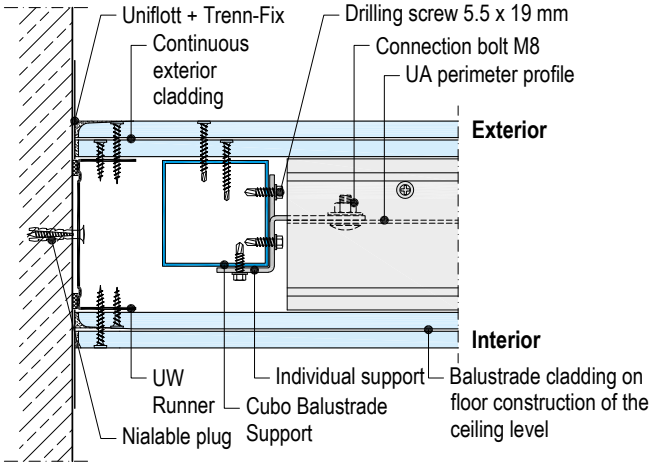
K376.de-V114 Connection to wall – Cubo ceiling

Vertical section I Without fire resistance



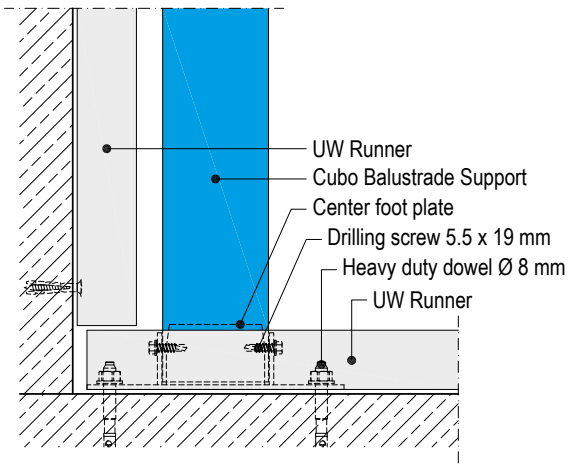
K376.de-H114 Connection to wall – Cubo ceiling

Horizontal section I Without fire resistance



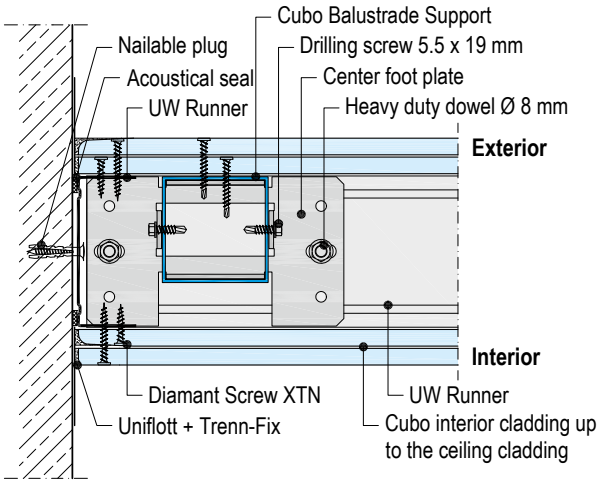
K376.de-V115 Connection to wall – connection to floor

Vertical section I Without fire resistance



K376.de-H115 Connection to wall – connection to floor

Horizontal section I Without fire resistance

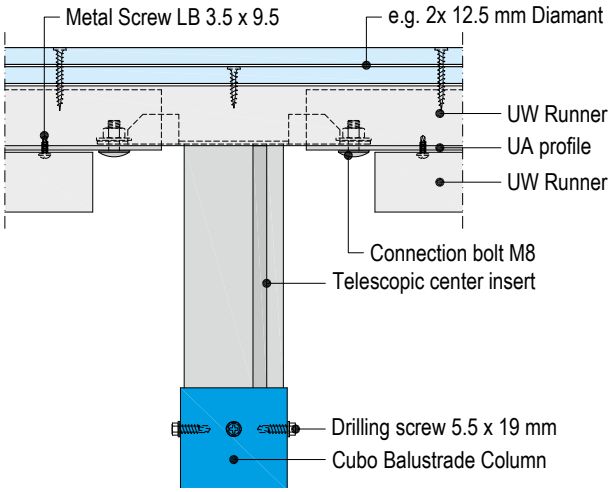


Details – Section support

Scale 1:5

K376.de-V103 Section support – end point

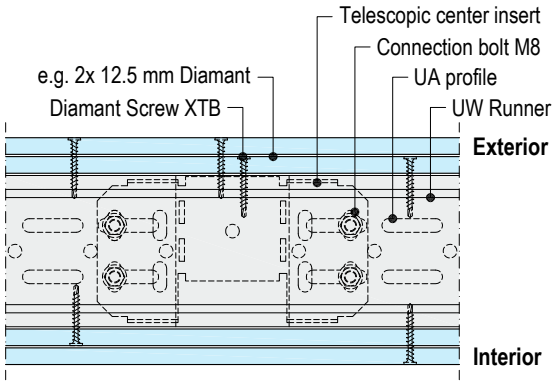
Vertical section I Without fire resistance



K376.de-H103 Section support – end point

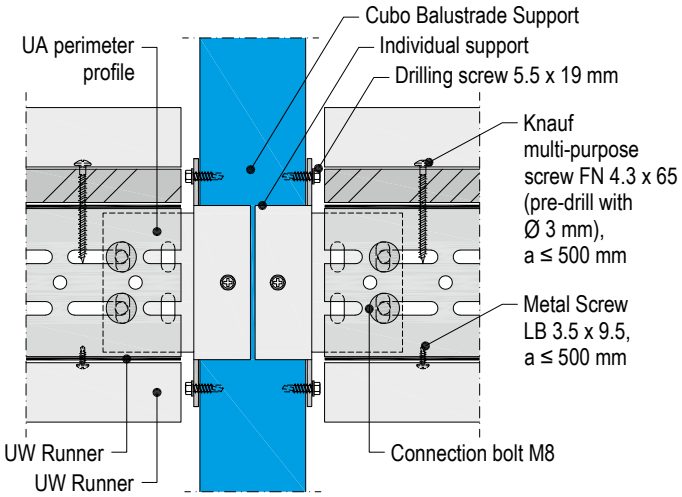
(Shown without the upper side cladding)

Horizontal section I Without fire resistance



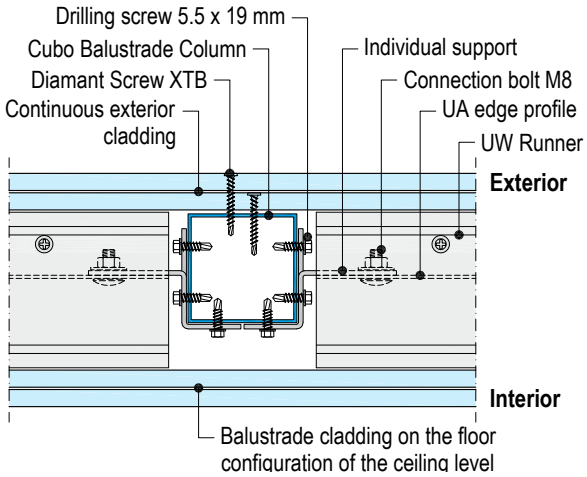
K376.de-V104 Section support – Cubo ceiling

Vertical section I Without fire resistance



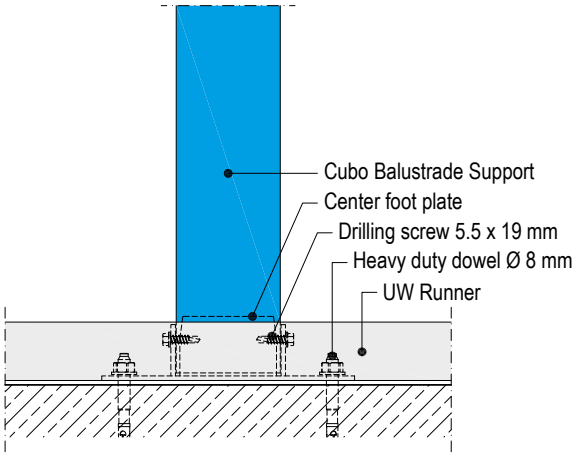
K376.de-H104 Section support – Cubo ceiling

Horizontal section I Without fire resistance



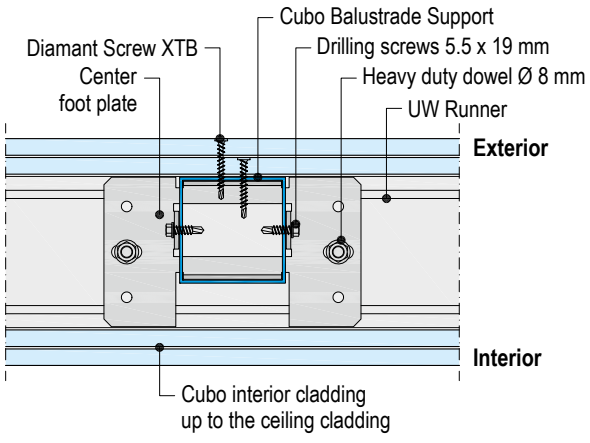
K376.de-V105 Section support – connection to floor

Vertical section I Without fire resistance



K376.de-H105 Section support – connection to floor

Horizontal section I Without fire resistance

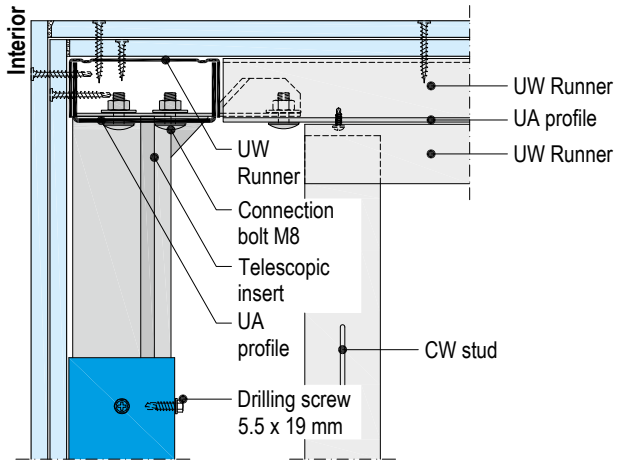


Details – Inside corner

Scale 1:5

K376.de-V107 Inside corner – end point

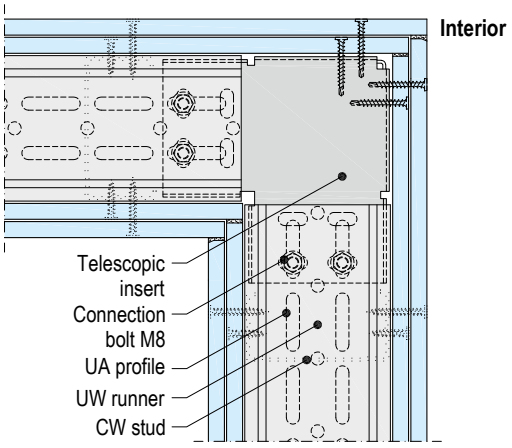
Vertical section I Without fire resistance



K376.de-H107 Inside corner – end point

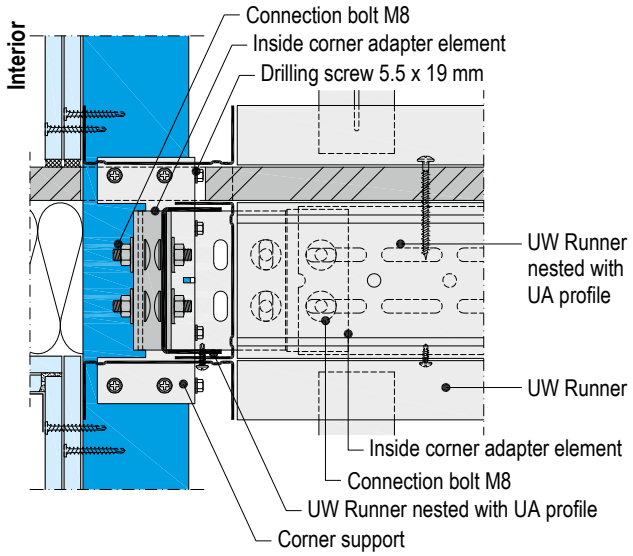
(Shown without the upper side cladding)

Horizontal section I Without fire resistance



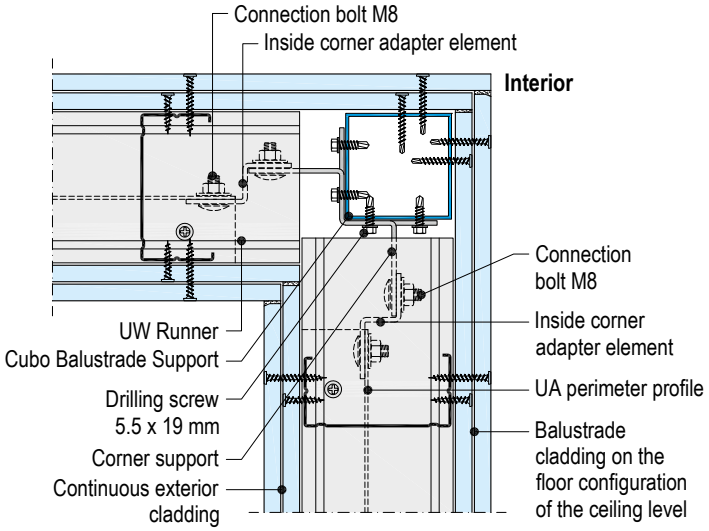
K376.de-V108 Inside corner – Cubo ceiling

Vertical section I Without fire resistance



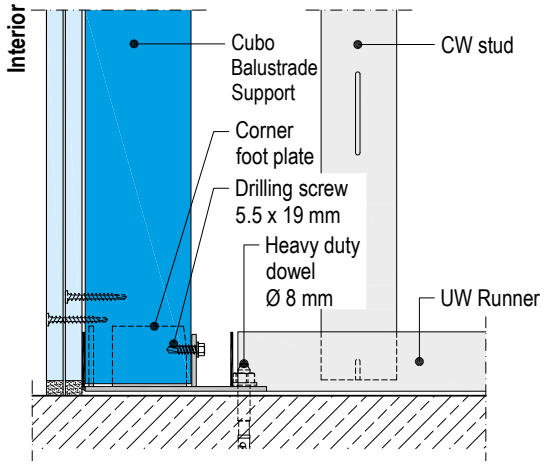
K376.de-H108 Inside corner – Cubo ceiling

Horizontal section I Without fire resistance



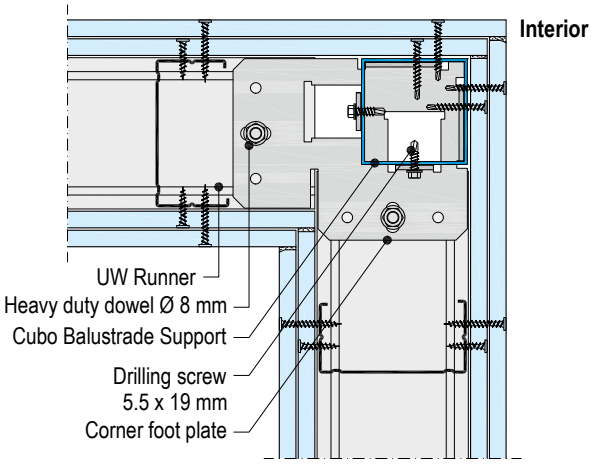
K376.de-V109 Inside corner – connection to floor

Vertical section I Without fire resistance



K376.de-H109 Inside corner – connection to floor

Horizontal section I Without fire resistance

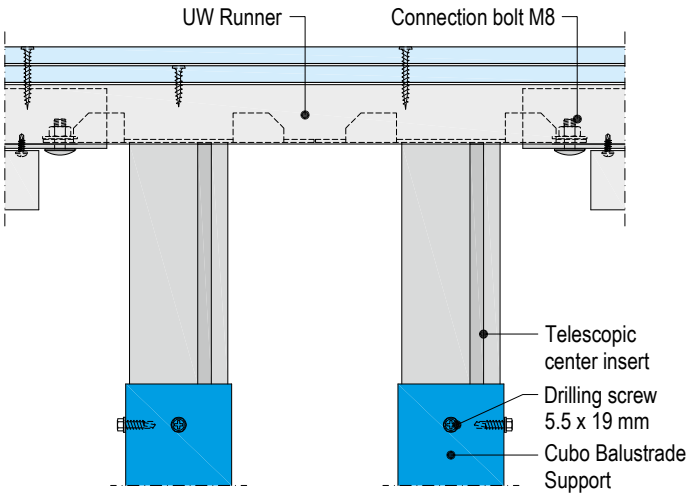


Details - Cubo on Cubo

Scale 1:5

K376.de-V110 Cubo on Cubo – End point

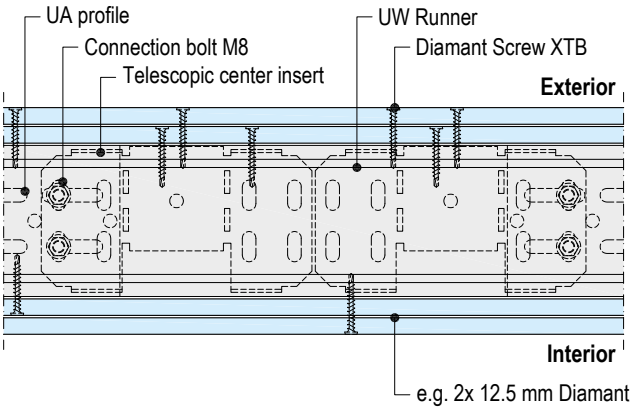
Vertical section I Without fire resistance



K376.de-H110 Cubo on Cubo – End point

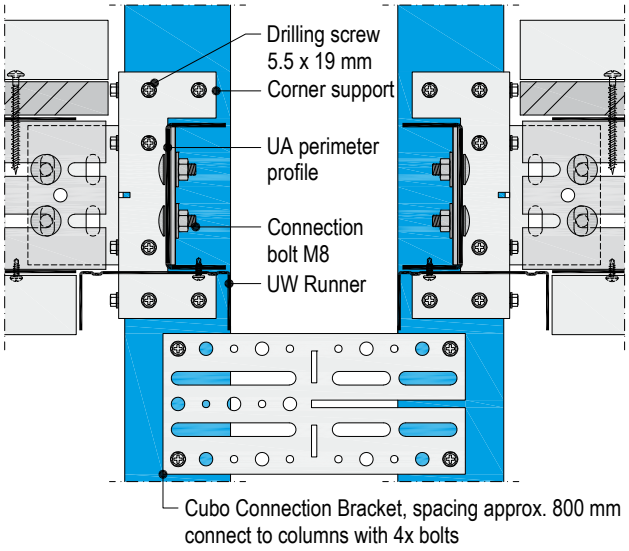
(Shown without the upper side cladding)

Horizontal section I Without fire resistance



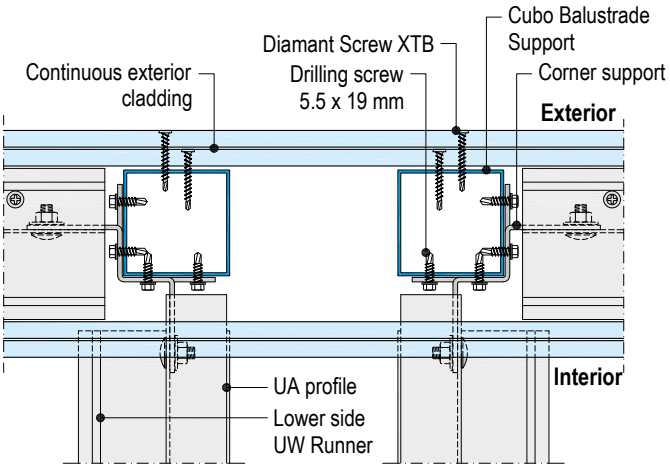
K376.de-V111 Cubo on Cubo – Cubo ceiling

Vertical section I Without fire resistance



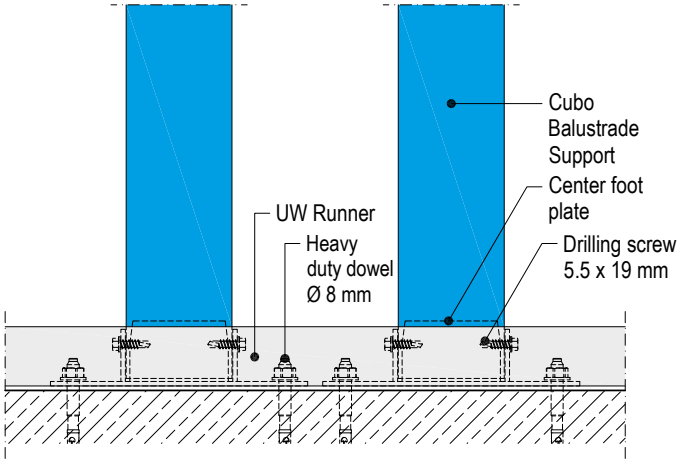
K376.de-H111 Cubo on Cubo – Cubo ceiling

Horizontal section I Without fire resistance



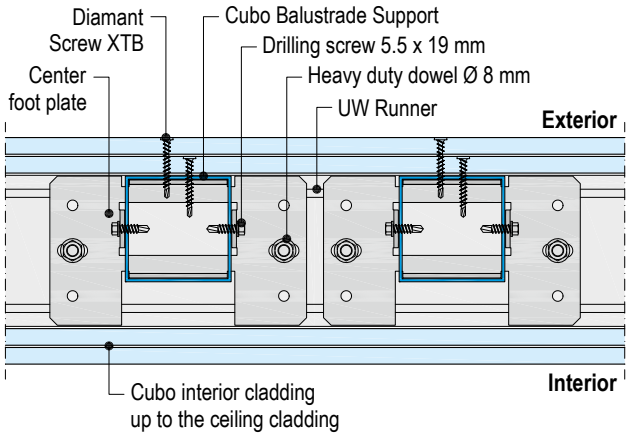
K376.de-V112 Cubo on Cubo – connection to floor

Vertical section I Without fire resistance



K376.de-H112 Cubo on Cubo – connection to floor

Horizontal section I Without fire resistance

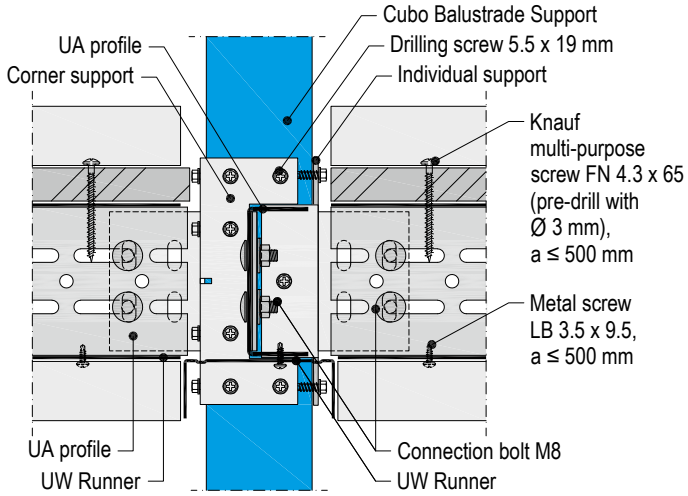


Details – Section support with UA profile connection I Stairway I UA double profile connection

Scale 1:5

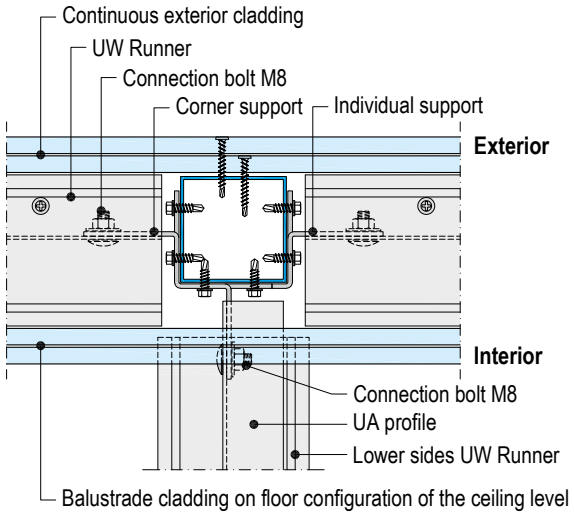
K376.de-V106 UA profile connection support section – Cubo ceiling

Vertical section I Without fire resistance



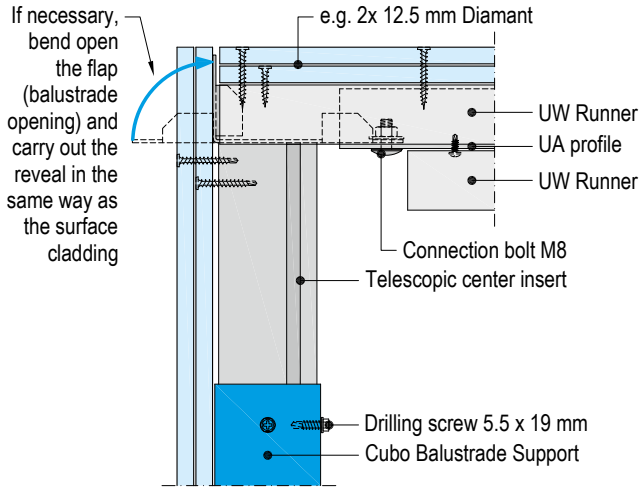
K376.de-H106 UA profile connection support section – Cubo ceiling

Horizontal section I Without fire resistance



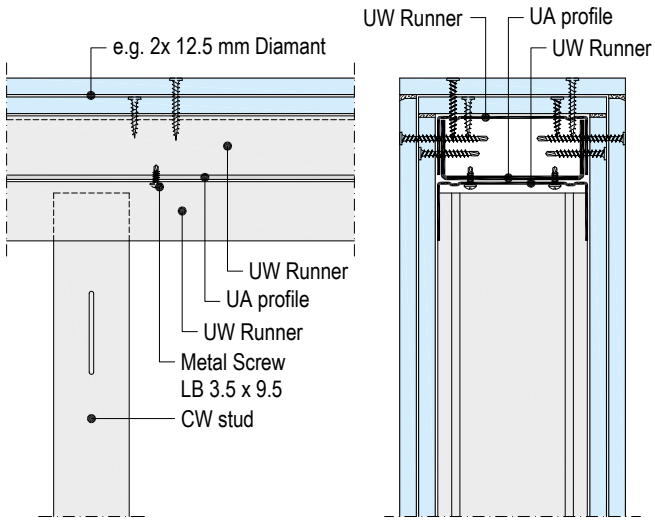
K376.de-V116 Stairway – end point

Vertical section I Without fire resistance



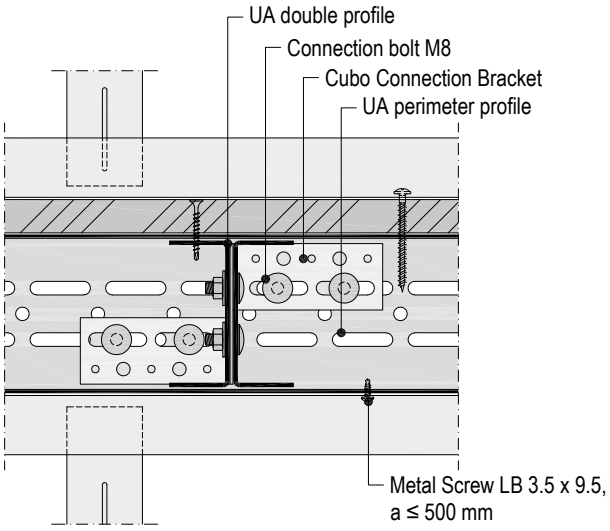
K376.de-V117 CW stud – end point

Vertical section I Without fire resistance



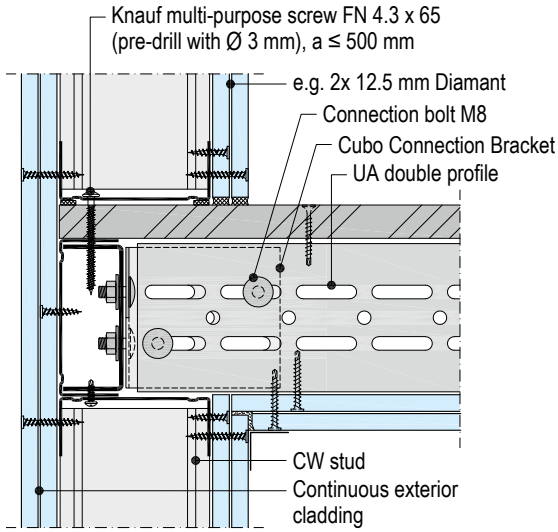
K376.de-V118 Perimeter connection – UA double profile – Cubo ceiling

Vertical section I Without fire resistance



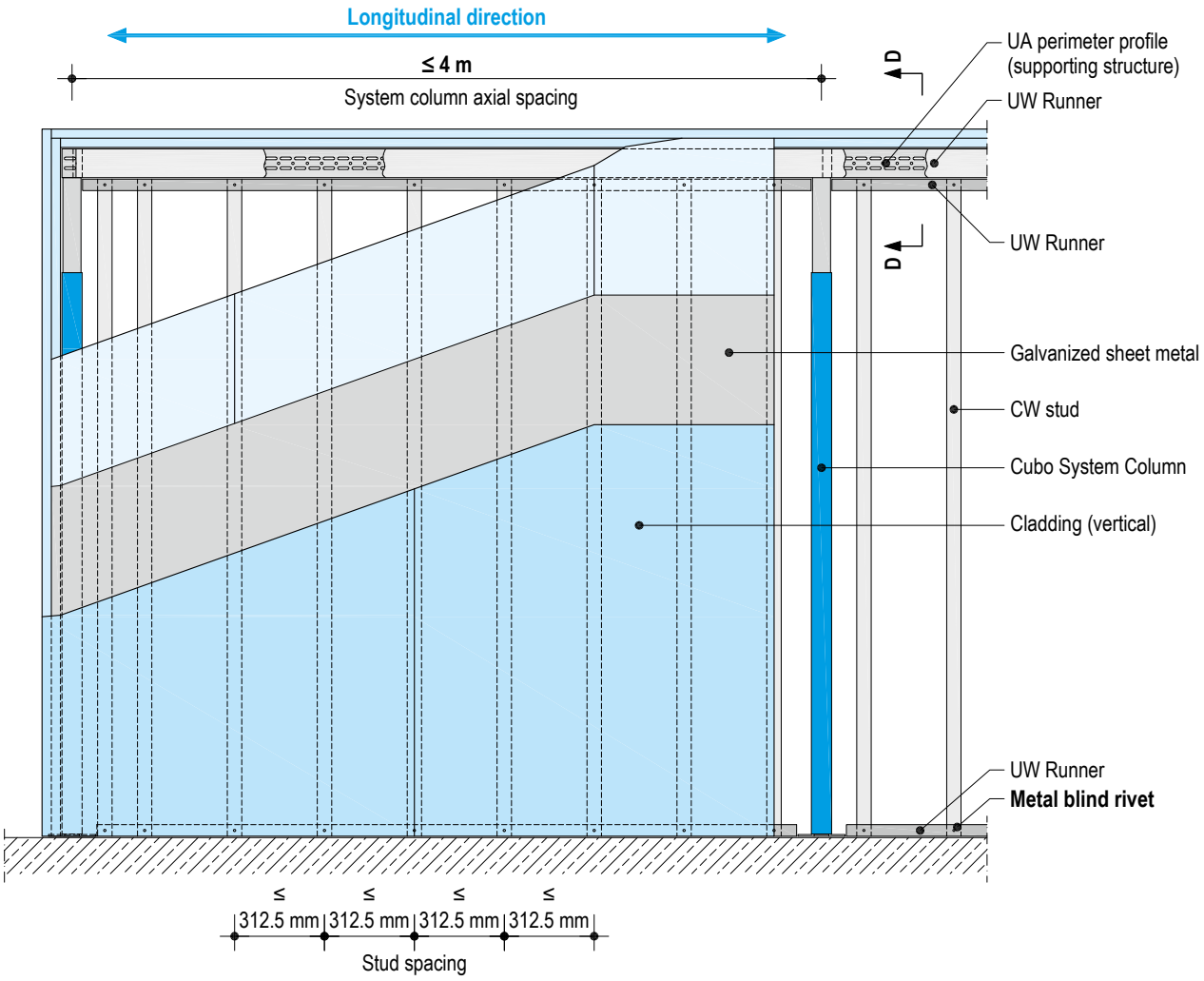
K376.de-V119 Perimeter connection – UA double profile – Cubo ceiling

Vertical section I Without fire resistance

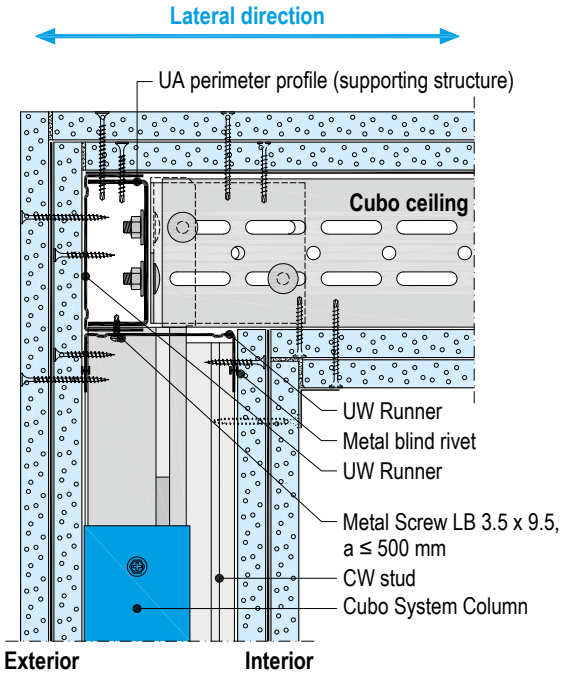


View

Scheme drawings



Section D-D

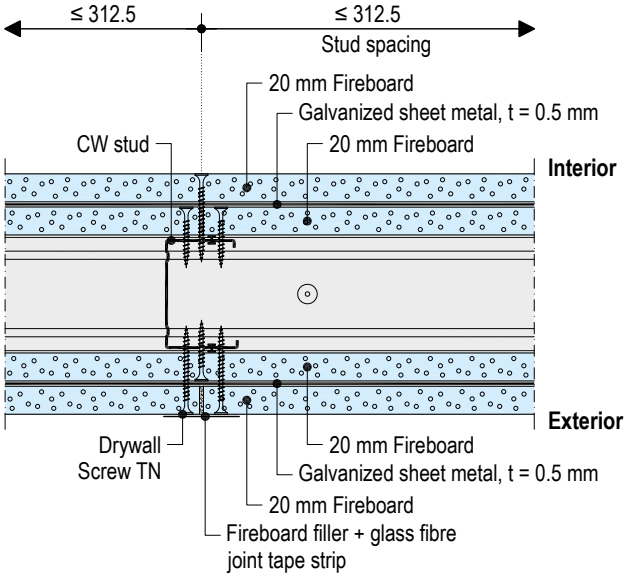


Details

Scale 1:5 I Dimensions in mm

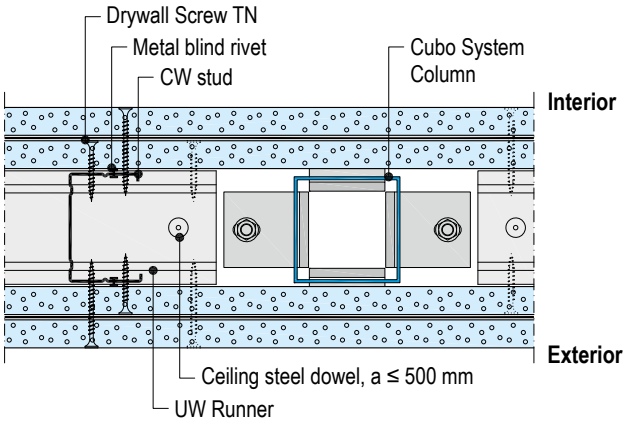
K377.de-H1 Board joint

Horizontal section



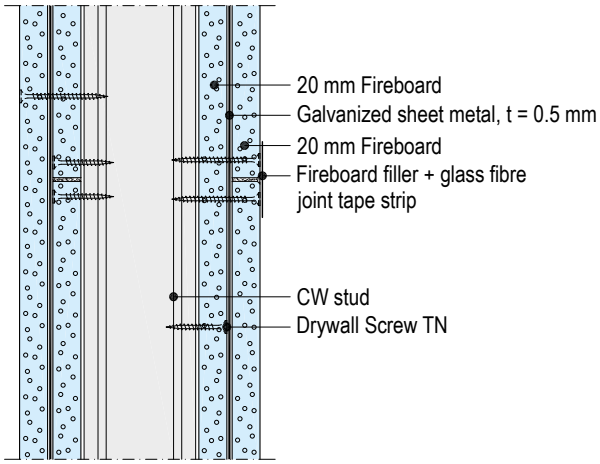
K377.de-H2 System column section

Horizontal section



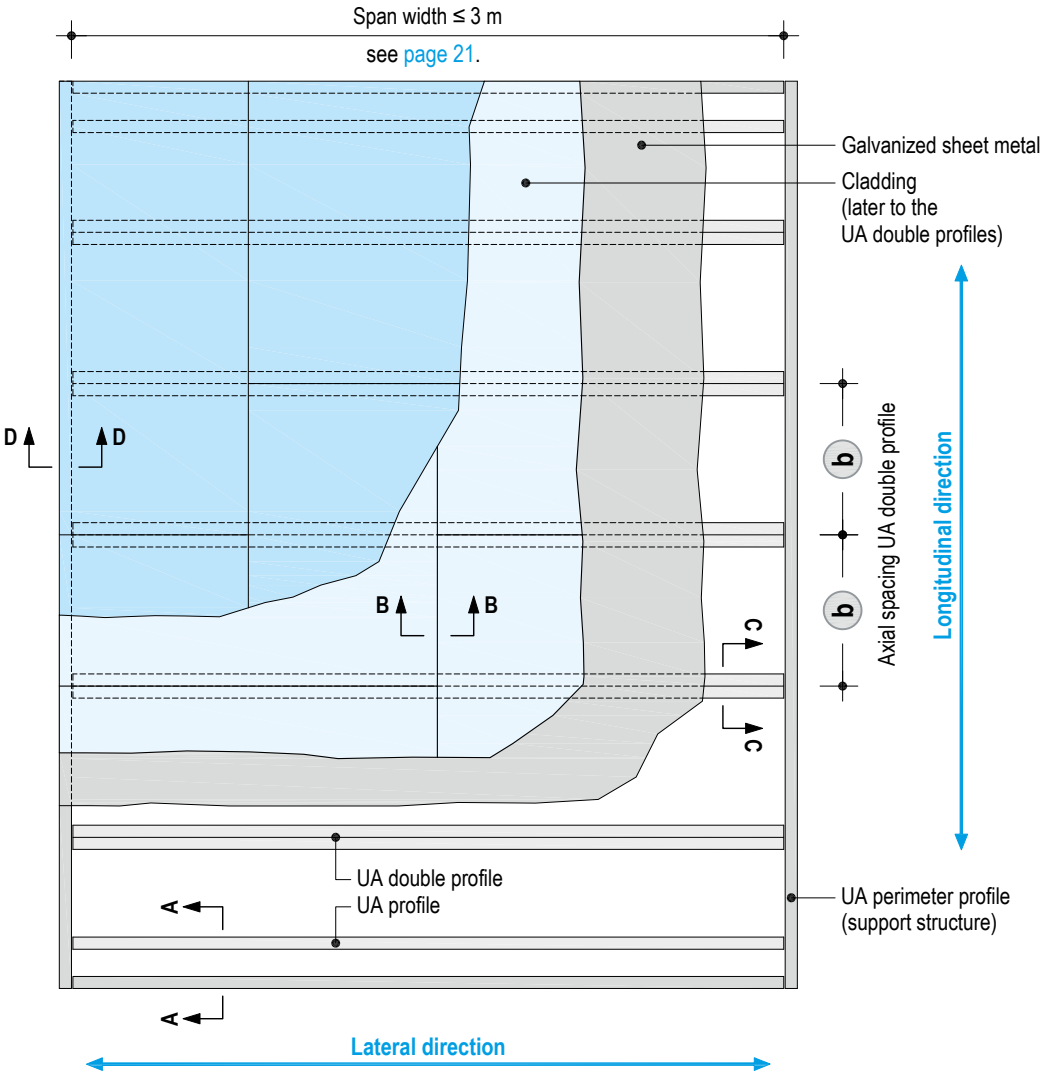
K377.de-V6 board joint – CW stud

Vertical section



Top view - UA double profiles

Scheme drawing

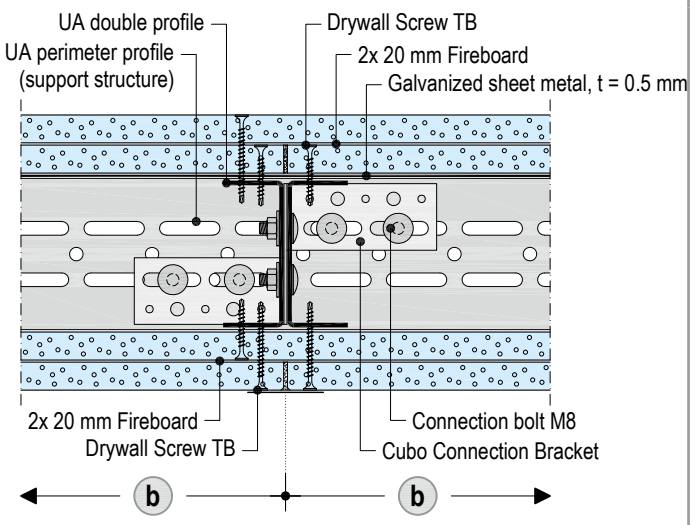


Details

Scale 1:5

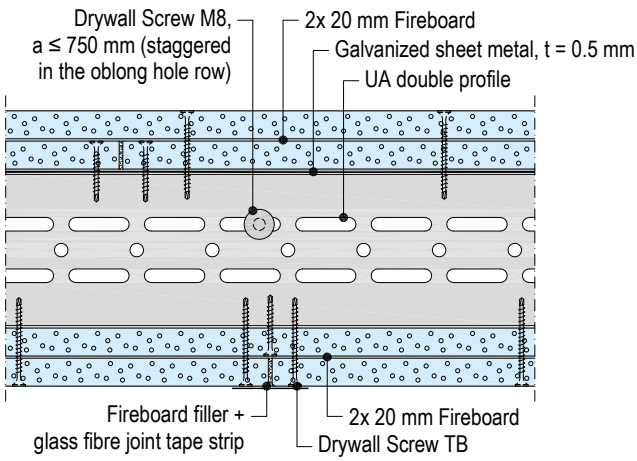
K377.de-V2 Front edge

Vertical section I Section C-C



K377.de-V1 Long edge

Vertical section I Section B-B

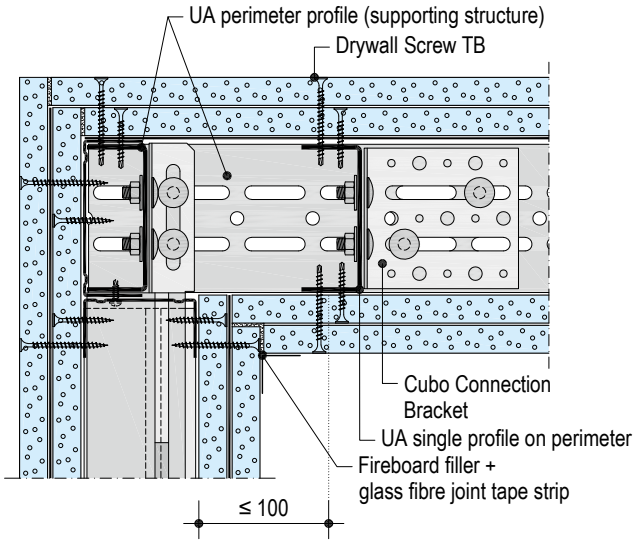


Details

Scale 1:5 I Dimensions in mm

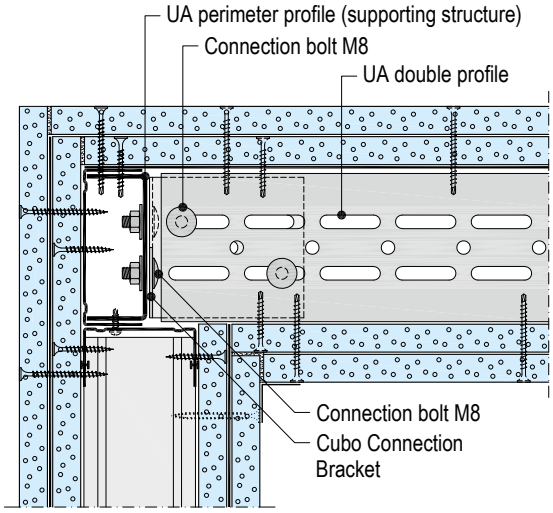
K377.de-V7 Perimeter connection

Vertical section I Section A-A



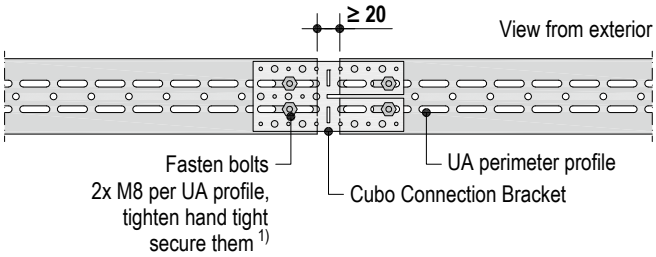
K377.de-V3 Perimeter connection

Vertical section I Section D-D



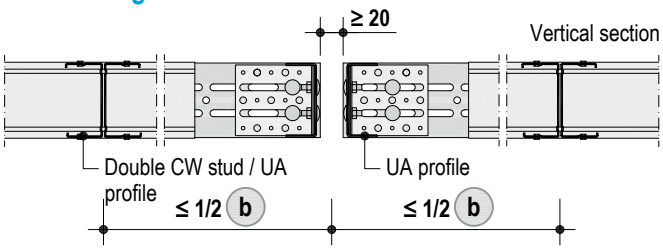
Supporting structure

Scheme drawings I Dimensions in mm

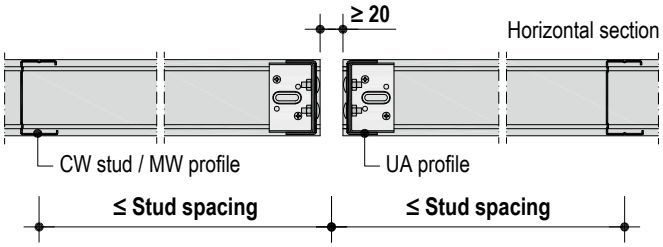


1) Position the M8 screw so that it can be moved in the direction of the elongated holes of the Cubo Connection Bracket.

Cubo ceiling



Cubo wall



Connect the UA profiles on basic floors and perimeter supports with a frictional bond to the connection brackets.

Application

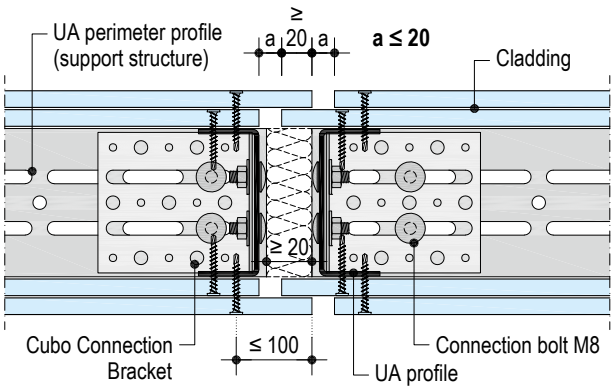
- Movement joints can be arranged as required between the system supports.
- They must be configured to be fully encompassing (horizontal and vertical) in the same size and without any projections.
- Fill the joints in the ceiling and wall when required, in case of fire resistance requirements, with mineral wool (S).

Details

Scale 1:5 I Dimensions in mm

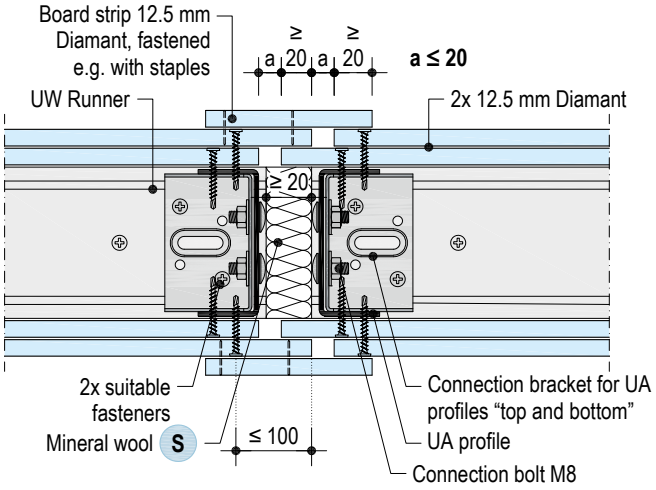
K375.de-V15 Movement joint – Cubo Basis ceiling

Vertical section I Without fire resistance



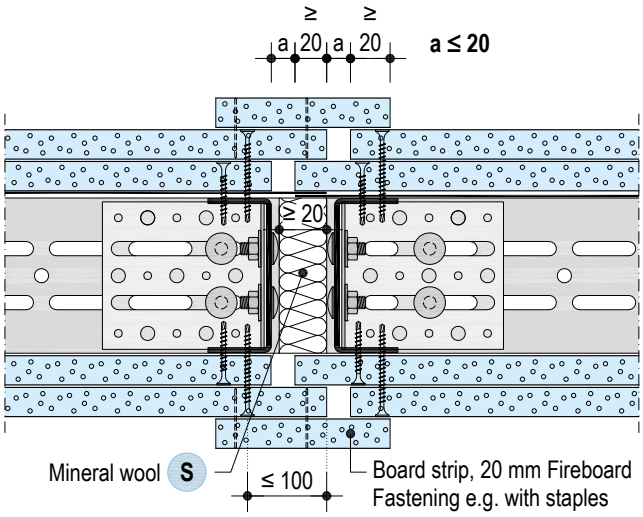
K375.de-H5 Movement joint – Cubo Basis wall

Horizontal section



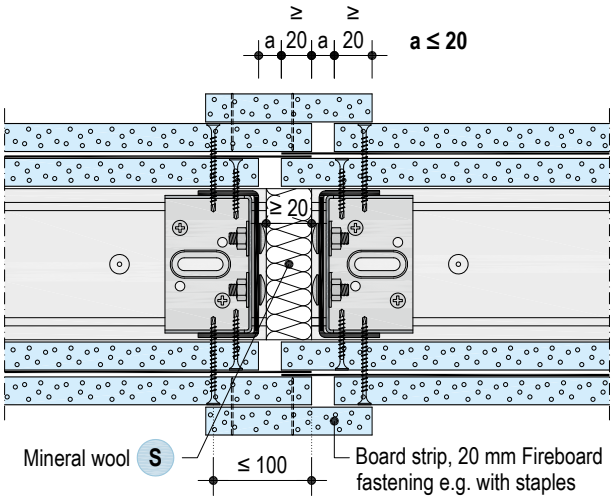
K377.de-V4 Movement joint – Cubo Escape Tunnel ceiling

Vertical section



K377.de-H3 Movement joint – Cubo Escape Tunnel wall

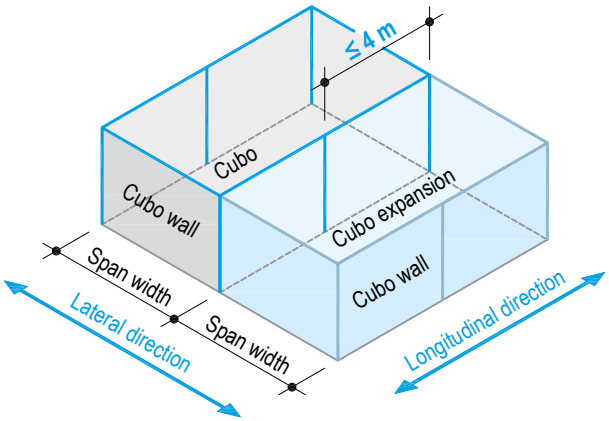
Horizontal section



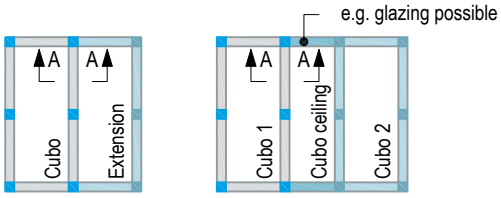
K375.de Cubo Basis

Cubo ceiling made of CW double studs

Scheme drawings



Application examples



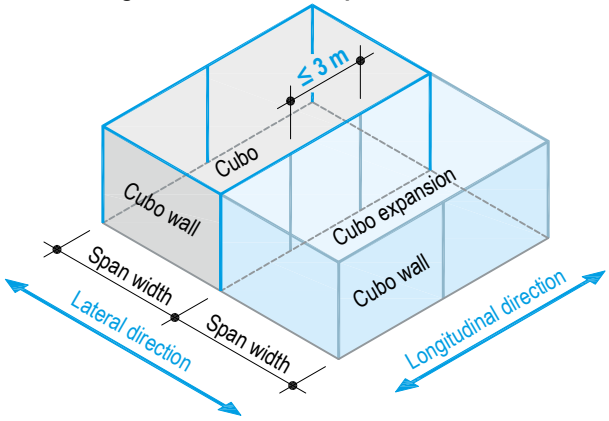
Span width of Cubo ceiling with CW double studs

See K375.de Cubo Basis "Cubo ceiling span widths" **CW double studs** on page 15.

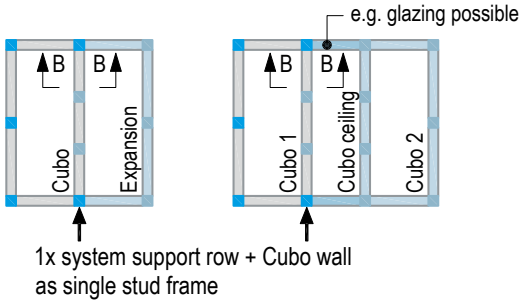
Note	Free-spanning ceiling profiles (CW alt UA) may not be jointed or extended.

Cubo ceiling made of UA double profiles

Scheme drawings



Application examples



Span widths of Cubo ceiling with UA double profiles

UA double profiles Metal gauge 2.0 mm	Axial spacing (b) mm	Maximum span width in m Nominal weight of cladding/ ceiling construction/additional loads in kN/m²							
		≤ 0.3	≤ 0.4	≤ 0.5	≤ 0.6	≤ 0.7	≤ 0.8	≤ 0.9	≤ 1.0
2x **UA 100**	500[1)]	5.40	5.05	4.30	3.70	3.25	2.90	2.60	2.35
2x **UA 125**	500[1)]	6.40	5.95	5.25	4.50	3.95	3.50	3.15	2.85
2x **UA 150**	500[1)]	7.35	6.85	6.25	5.35	4.70	4.20	3.75	3.45

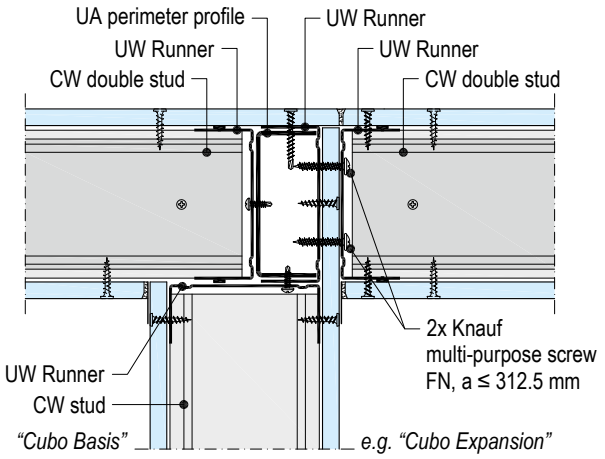
1) Axial spacing ≤ 400 mm in case of combined cladding with Silentboard.

Detail

Scale 1:5

K375.de-V16 Cubo on Cubo Basis

Vertical section I Section A-A I Without fire resistance

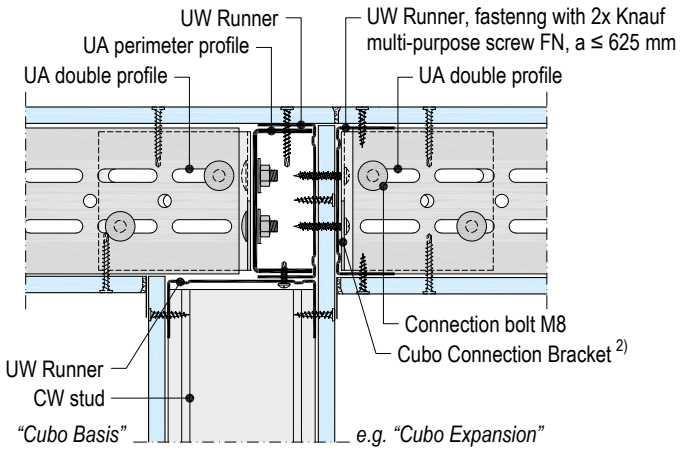


Detail

Scale 1:5

K375.de-V17 Cubo on Cubo Basis

Vertical section I Section B-B I Without fire resistance

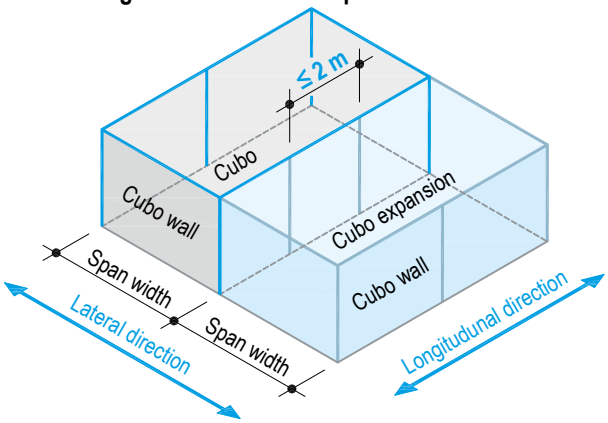


2) Fastening of the Cubo Connection Bracket to the UW Runner see Installation of connection elements page 47.

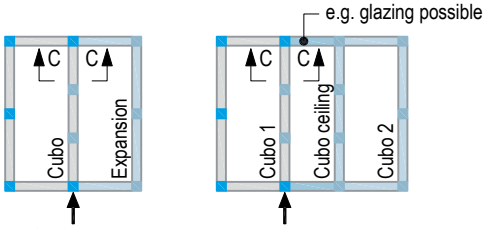
K375.de Cubo Basis – larger span widths, higher ceiling weight

Cubo ceiling made of UA double profiles

Scheme drawings



Application examples



1x system support row + Cubo wall
as a single stud frame

Span widths of Cubo ceiling with UA double profiles

See K375.de Cubo Basis “Cubo ceiling span widths” **UA double profiles** on page 15.

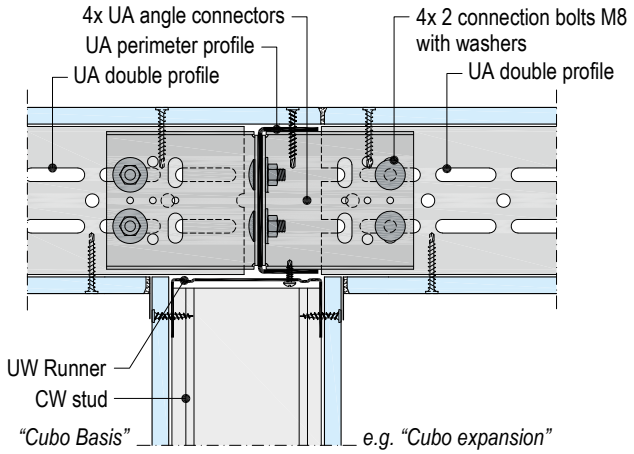
Note	Free-spanning ceiling profiles (UA) may not be jointed or extended.

Detail

Scale 1:5

K375.de-V22 Cubo on Cubo Basis

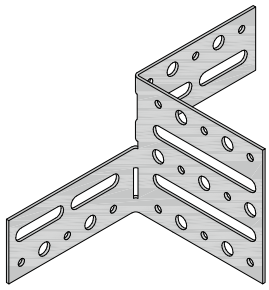
Vertical section I Section C-C I Without fire resistance



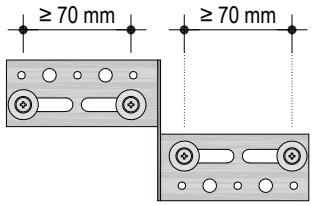
Installation of connection elements

Cubo Connection Bracket

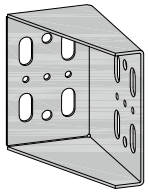
Scheme drawings



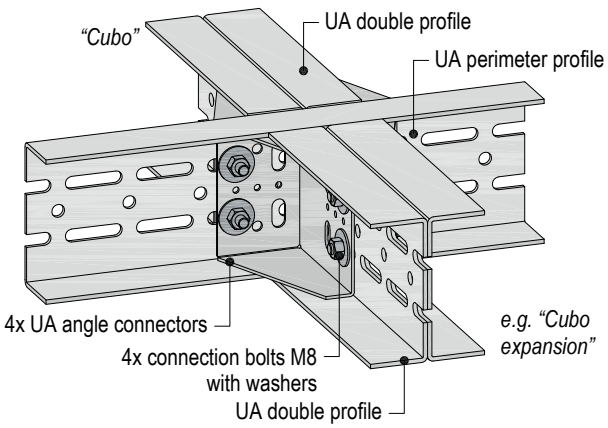
Fastening to UW runner with 4x Knauf Multi-Purpose Screws.
Cladding ≤ 20 mm: FN 4.3 x 35
Cladding > 20 mm: FN 4.3 x 65
with suitable washer, t = 2 to 3 mm, Ø 30 mm



UA Angle Connector



Fastening to profiles.

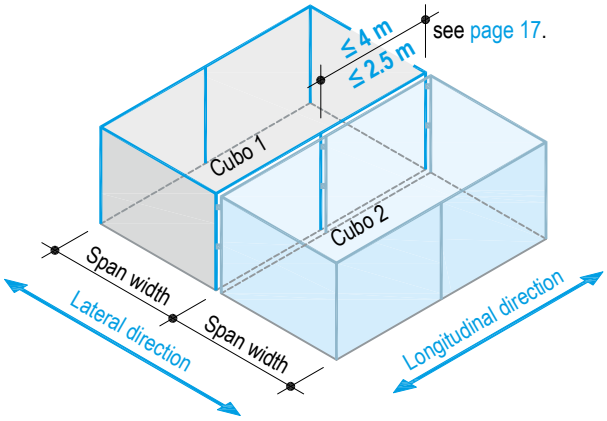


Note	Observe the information for Cubo with Cubo extension on page 48.

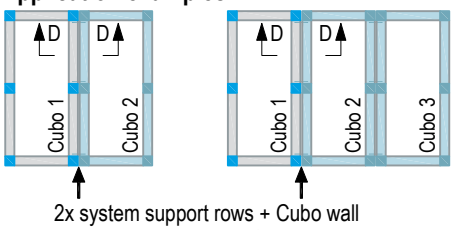
K376.de Cubo Empore

Scheme drawings

Cubo ceiling made of UA double profiles



Application examples



2x system support rows + Cubo wall as a linked double stud frame

Span widths of Cubo ceiling with UA double profiles

See K376.de Cubo Empore "Cubo ceiling span widths" **UA double profiles** on page 17.

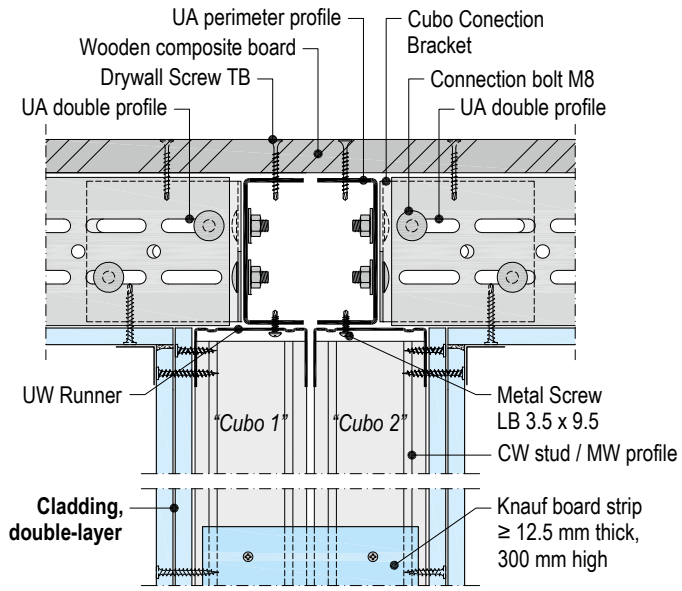
Note	Free-spanning ceiling profiles (UA) may not be jointed or extended.

Detail

Scale 1:5

K376.de-V5 Cubo on Cubo Empore

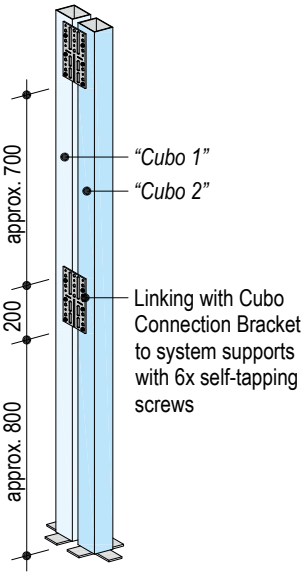
Vertical section I Section D-D I Without fire resistance



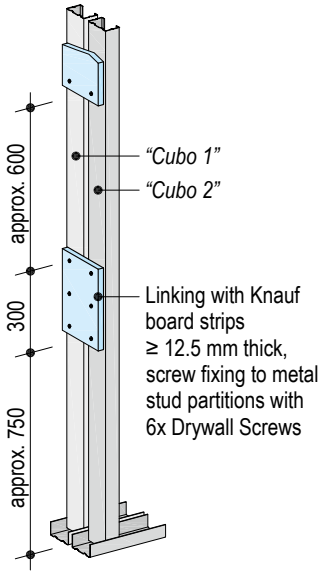
Scheme drawings I Dimensions in mm

Linking Cubo double metal stud frame

Cubo System Column



CW studs / MW profiles

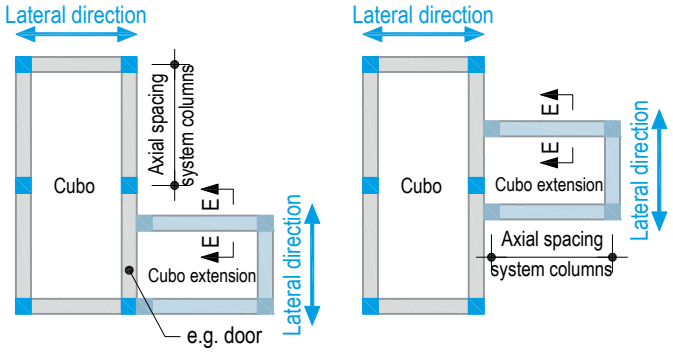


Note	The linked Cubo wall must have double-layer cladding.

Cubo with Cubo extension

Application examples

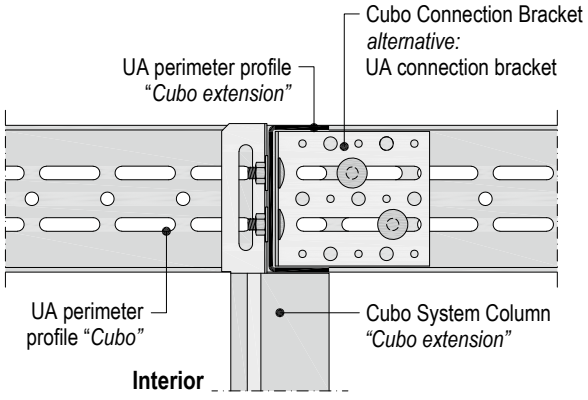
Possible for K375.de Cubo Basis and K376.de Cubo Empore.



Cubo System Column axial spacing:

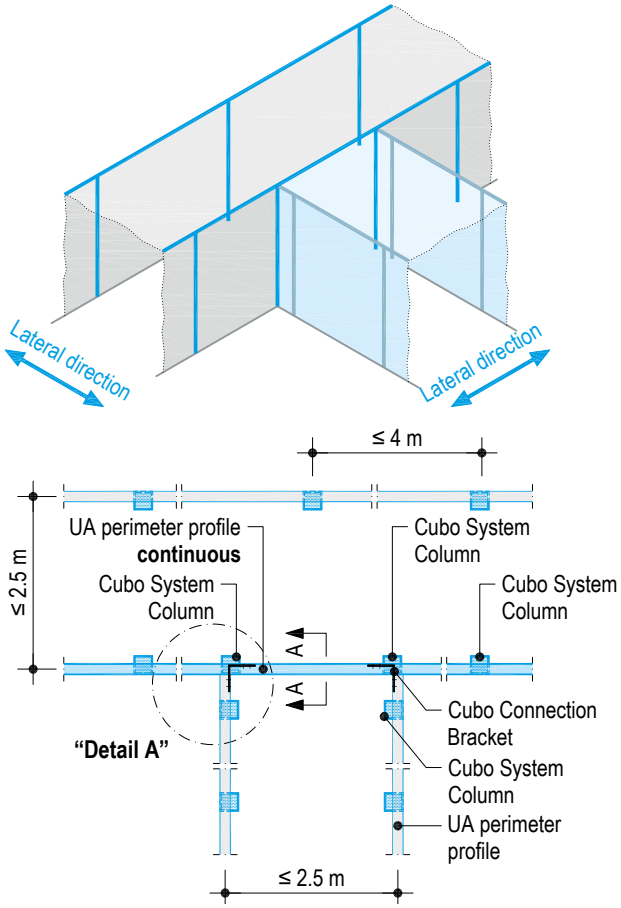
- **K375.de Cubo Basis** ≤ 4.0 m
- **K376.de Cubo Empore** "Conditionally walkable" ≤ 4.0 m
  "Static imposed loads" ≤ 4.0 m
  "Carrying capacity" ≤ 2.5 m

Section E-E – Supporting structure



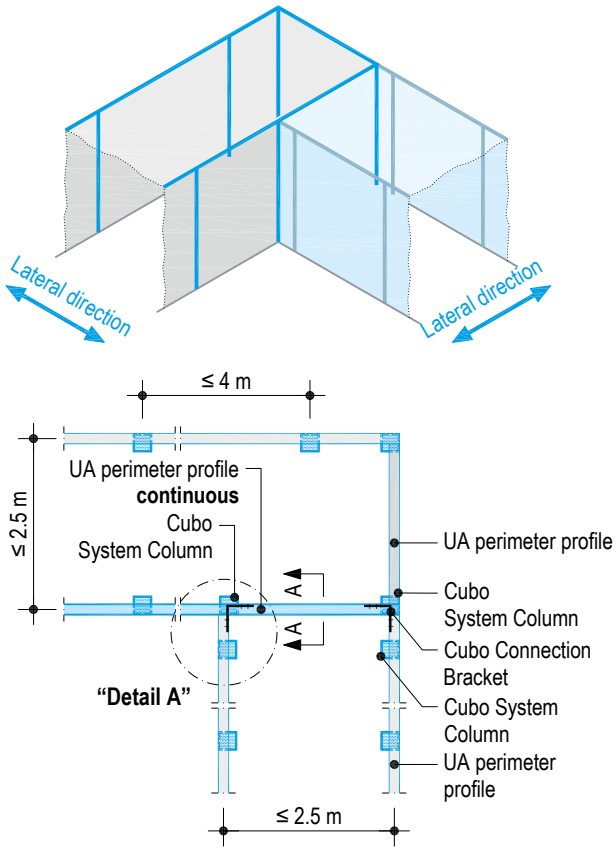
T connection

Scheme drawings



Corner

Scheme drawings



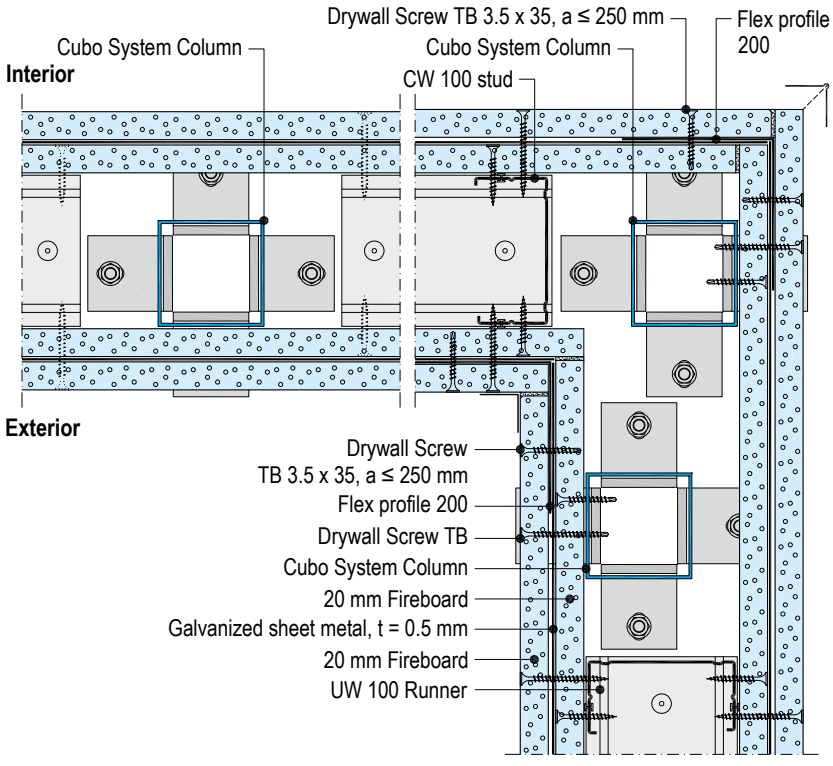
Notes With Cubo ceilings, arrange the cladding and notch in the corner areas if necessary, ensuring that there are no unsupported joints. Stagger the joints of the second board layer.

Detail

K377.de-H4 – Detail A – T connection / corner

Scale 1:5

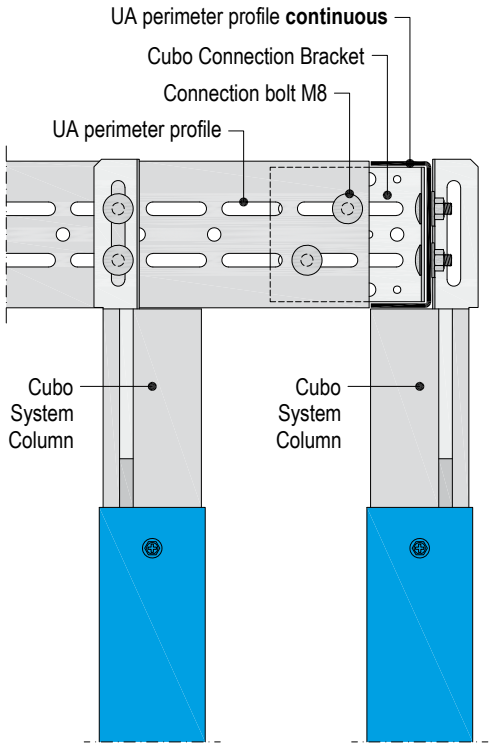
Horizontal section



Section A-A – Supporting structure

Scheme drawing

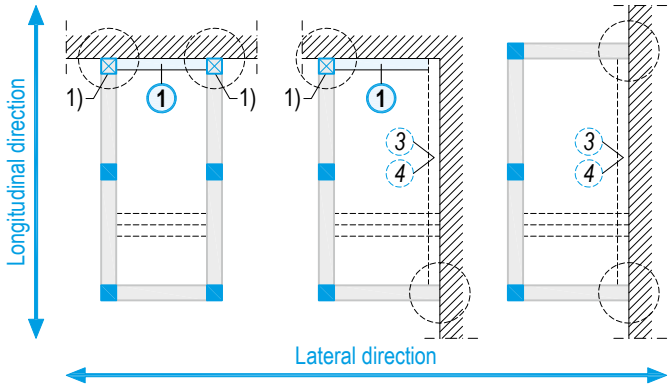
Vertical section

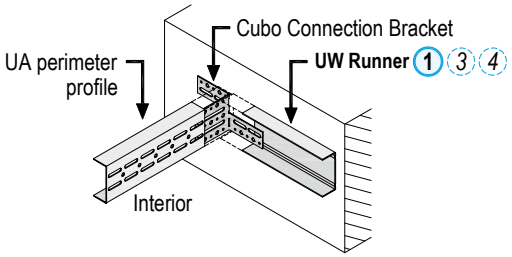


Supporting structure

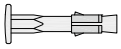
Scheme drawings I Dimensions in mm

K375.de Cubo Basis

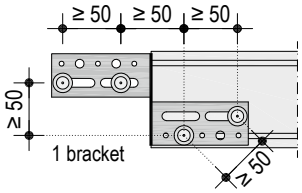




- **UW runner lateral** (1)
  This profile is only intended to attach the cladding and has **no additional supporting function**.
  Fastening with suitable fasteners and anchors (e.g. Ceiling Steel Dowel or Nailable Plugs, Knauf Multi-Purpose Screws in metal stud partitions), spacing ≤ 625 mm.
- **UA perimeter profile**
  Connection to flanking construction component using Cubo Connection Bracket. Screw fastening of the UA perimeter profile profile to the bracket with 2x round-head screws M8.
- **Connection of the Cubo Connection Bracket to flanking components**
  - **Reinforced concrete wall**
    4x Knauf Ceiling Steel Dowels

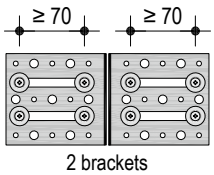
    with suitable washer,
    t = 2 to 3 mm, Ø 30 mm

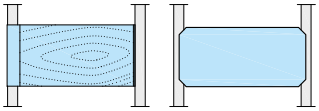
  - **Other substrate / surface**
    Suitable fasteners and anchors, rated for the maximum load of the entire connection to 2.0 kN.
  - Connection to **Metal Stud Partition** [2)]
    8x Multi-Purpose Screw
    FN 4.3 x 65

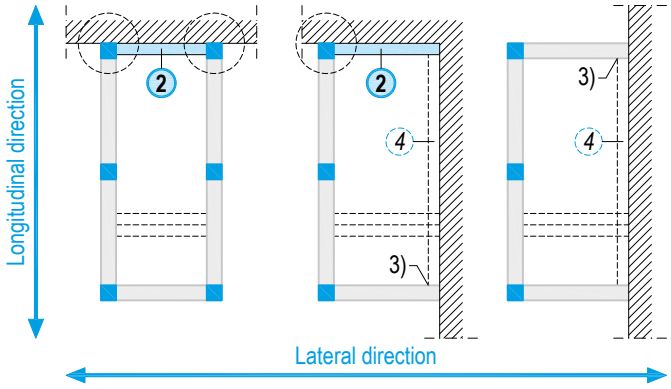
    with suitable washer,
    t = 2 to 3 mm, Ø 30 mm

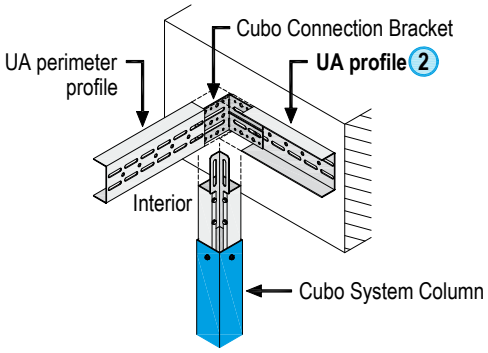
    

    Stud partition single-layer cladding:
    Knauf Traverse W234.de necessary in the stud partition in the bracket connection area. (see Technical Information VT03.de)

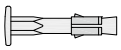
    
- **UW Runners** (3) and (4)
  See section “Cubo Ceiling” page 51 for fastening.

K376.de Cubo Empore / K377.de Cubo Escape Tunnel

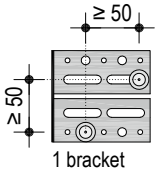




- **UA profile lateral** (2)
  This profile is intended to attach the cladding and has **an additional supporting function**.
  Anchoring with Knauf Ceiling Steel Dowel, spacing ≤ 500 mm.
- **UA perimeter profile**
  Connection to flanking construction component using Cubo Connection Bracket. Screw fastening of the UA perimeter profile profile to the bracket with 2x round-head screws M8.
- **Connection of the Cubo Connection Bracket to flanking components**
  - **Reinforced concrete wall**
    2x Knauf Ceiling Steel Dowels

    with suitable washer,
    t = 2 to 3 mm, Ø 30 mm

  - **Other substrate**
    Suitable fasteners / anchors
  - Connection to **Metal Stud Partition** on request
- **UW Runner** (4)
  For fastening see section “Cubo ceiling” page 51.

1) *Recommendation:*
In case of rated weight of the ceiling x span width of the ceiling > 4 kN/m, application as with K376.de Cubo Empore with additional Cubo System Column.

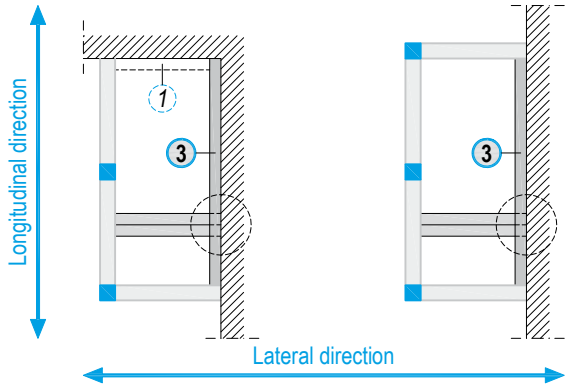
2) *If necessary, upgrading of existing metal stud partitions must be co-ordinated in individual cases.*

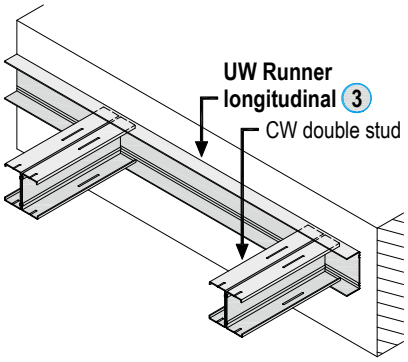
3) *Connection acc. to K375.de Cubo Basis, see left.*

Cubo ceiling

Scheme drawings I Dimensions in mm

Application with CW double studs (K375.de Cubo Basis)





■ **UW Runner longitudinal** (3)
This profile is a **load bearing profile** for the ceiling load and for the fastening of the cladding.

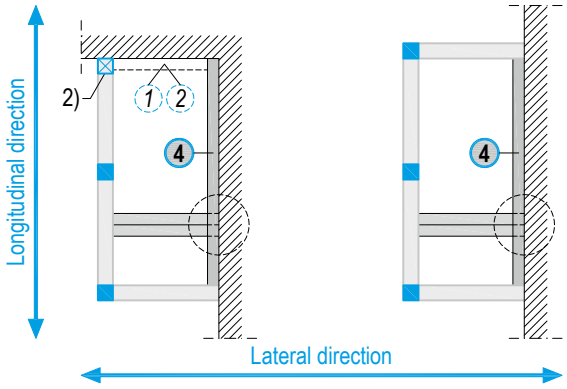
Fasteners and anchors	Maximum distance between centres Nominal weight of the Cubo ceiling Up to 0.4 kN/m²	Up to 1.0 kN/m²
Metal stud partitions 2-layer cladding[1] (Connection to metal studs)		
2x Knauf Multi-Purpose Screws FN 4.3 x 65	625 mm	312.5 mm
Reinforced concrete wall		
Knauf Ceiling Steel Dowel	300 mm	250 mm
Knauf Nailable Plug L 8/80	300 mm	200 mm
Stable masonry without cavities or light concrete (density ≥ 1000 kg/m³)		
Knauf Nailable Plug L 8/80	300 mm	200 mm
Other substrates		
Suitable fasteners, minimum shear load capacity 0.35 kN	300 mm	200 mm

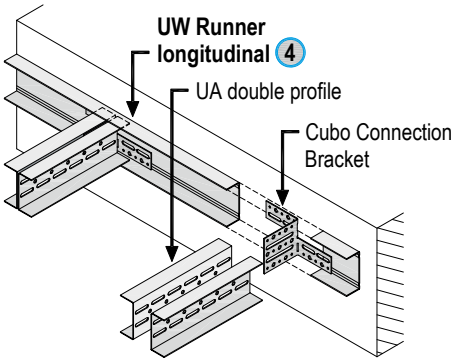
1) Upgrading, if necessary, of existing metal stud partitions must be co-ordinated individualy.

■ **CW double studs**
Connection using UW Runners on flanking components. CW stud and UW Runner, e.g. screw fixing or riveting.

■ **UW Runner** (1)
For fastening see section “Supporting structure” page 50.

Application with UA double profiles



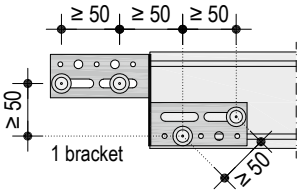


■ **UW Runner longitudinal** (4)
Fastening with suitable fasteners and anchors ≤ 625 mm (e.g. Ceiling Steel Dowel/Nailable Plug).
This profile serves only for fastening the cladding and **does not have a load-bearing function**.

■ **UA Double Profile**
Connection to flanking components using a bent Cubo Connection Bracket. Screw fastening of the UA profile to the bracket with 2x connection bolts M8.

■ **Connection of the Cubo Connection Bracket to flanking components**

- **Reinforced concrete wall**
  4x Knauf Ceiling Steel Dowels
  with suitable washer,
  t = 2 to 3 mm, Ø 30 mm



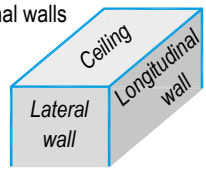
- **Other substrate / surface**
  Suitable fasteners and anchors, rated for the maximum load of the entire connection to 2.0 kN.
- Connection to **Metal Stud Partition** on request.

■ **UW Runner** (1) and **UA Profile** (2)
For fastening see section “Supporting structure” page 50.

2) K376.de Cubo Empore / K377.de Cubo Escape Tunnel: System column required.

Ceiling, lateral and longitudinal walls are bracing elements of Cubo systems.

Scheme drawings



For system lengths ≤ 8 m:

The lateral bracing is only required on the system ends.

- On closed systems this function is assumed by the front side lateral walls.
- Open systems require external bracing in accordance with alternatives 2 to 4.

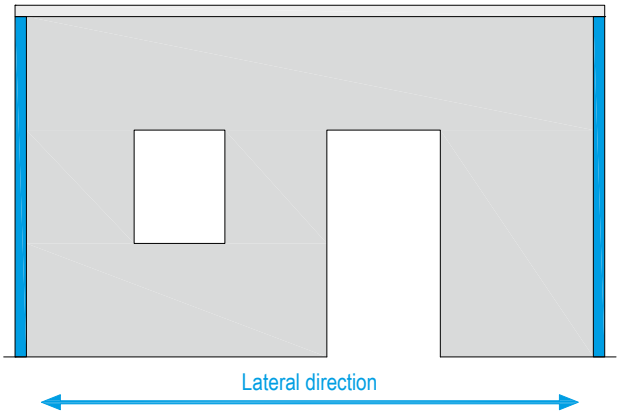
For system lengths > 8 m:

Furthermore, every ≤ 8 m intermediate bracing is to be arranged acc. to alternative 1 to 4, in the area of the Cubo System Column an additional UA Profile should be installed in the ceiling.

Bracing options

Variant 1 – Inside Cubo walls

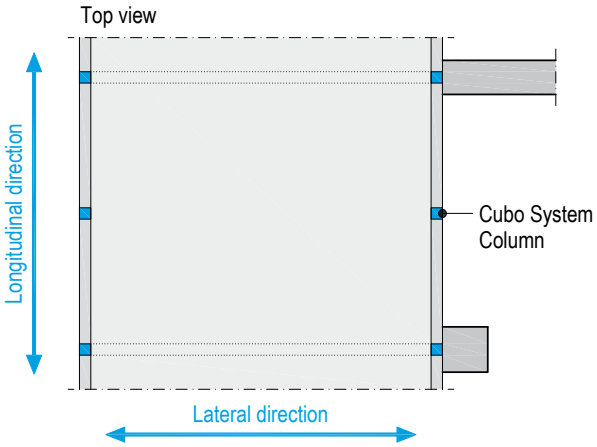
Lateral section



- Application of Cubo interior walls like Cubo exterior walls.
- Connection to longitudinal wall (T-joint) see page 53.
- Connection of UW Runner of the wall to the UA profile of the Cubo ceiling with Knauf Multi-Purpose Screws FN (pre-bore with Ø 3 mm).
- For possible wall openings, see page 54.

Variant 2 – Single side with outside walls/columns

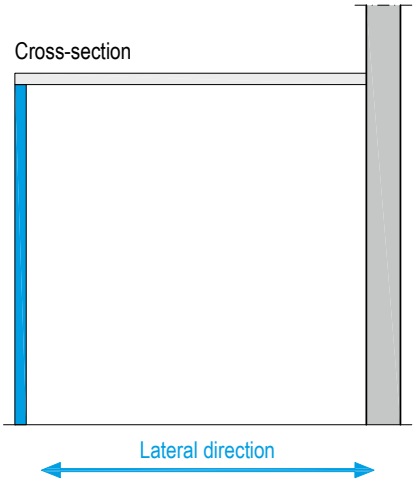
Top view



- Possible components flanking the exterior: masonry walls, reinforced concrete walls, stud partitions (metal / wood), reinforced steel bracing. With fire protection requirements: Same fire resistance.
- Cubo system supports must be connected using suitable fasteners with a frictional connection to solid walls/supports. Rating for 4.2 kN horizontal force.
- Exterior walls / supports must support additional loads.

Variant 3 – Single side connection to a continuous wall

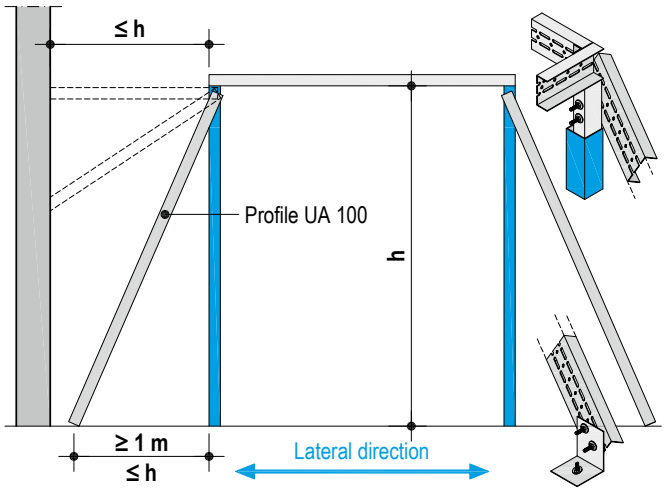
Cross-section



- Continuous walls have a bracing effect.
- Possible flanking walls: Masonry walls, reinforced concrete walls metal stud partitions are also possible for Cubo ceilings with CW double stud frame.
- For connection application see pages 52 to 53.

Variant 4 – Double side with exterior UA profiles

Cross-section



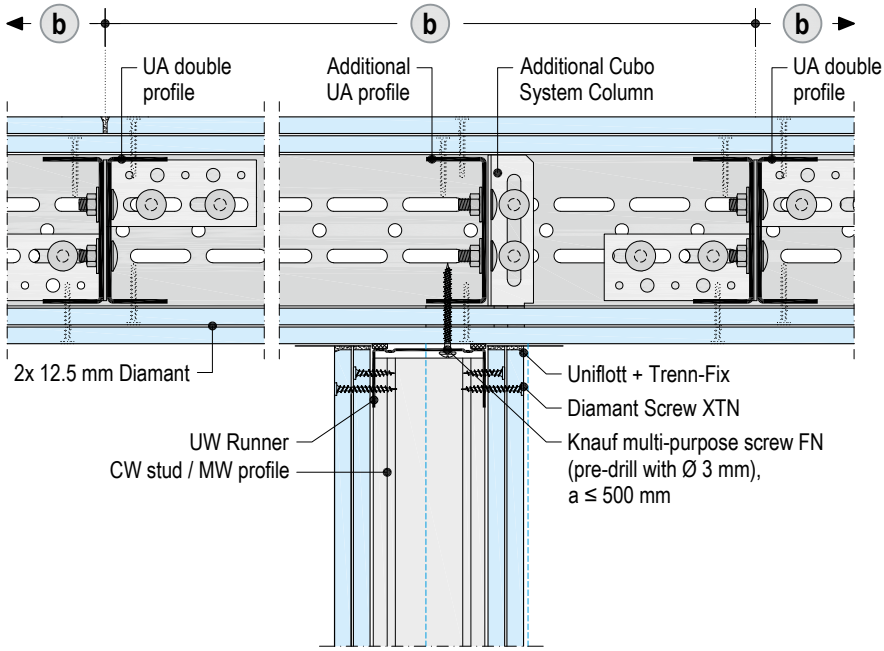
- Screw fastening in oblong holes of UA Profiles not permissible. Use the circular holes or predrill holes.
- Attachment of the UA Profile with 2 threaded rods + nuts M8 to the telescopic element of the Cubo System Column (pre-bore with Ø 8.5 to 9 mm).
- Threaded rod:
  - In the middle of the telescopic element
  - Edge clearance from above ≥ 50 mm / ≤ 100 mm
  - Mutual clearance ≥ 100 mm.
- Anchor the metal bracket or similar to the basic floor with suitable dowels. Attachment of the UA Profile with 2 threaded rods / suitable bolt M8 + nuts M8 on metal brackets (pre-bore with Ø 8.5 to 9 mm).
- Brackets and the connection of the brackets to the basic floor rated for tension and shear of 4.2 kN (application on request).
- With fire resistance:
  Protect the diagonal bracing all-round from fire.
  - F30: 2x 12.5 mm Diamant
  - F90: 2x 20 mm Fireboard

Details

Scale 1:5

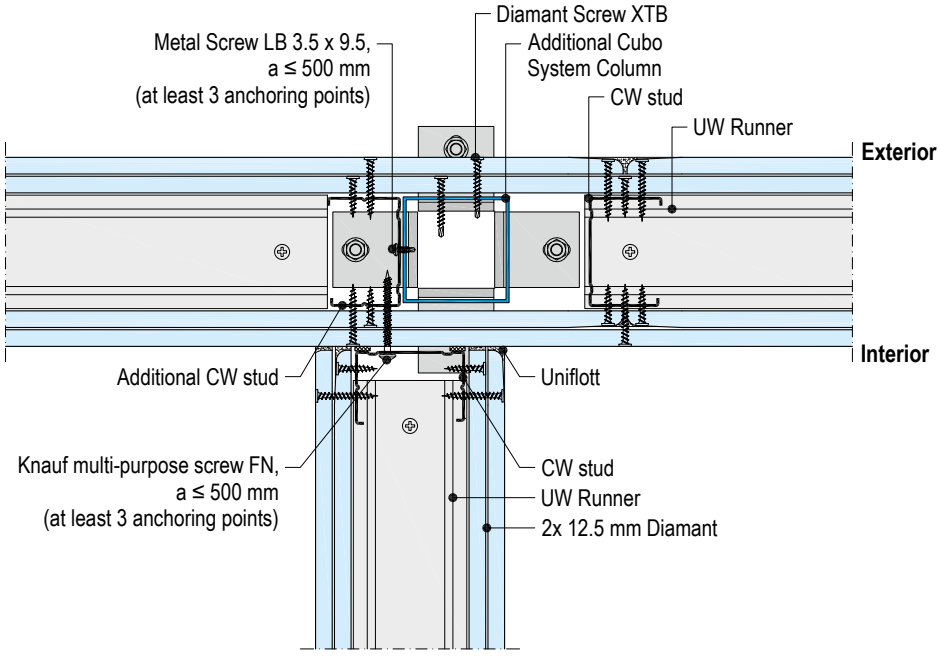
K375.de-V23 Reinforcing intermediate walls on Cubo ceiling

Vertical section



K376.de-H6 Reinforcing intermediate walls on Cubo wall

Horizontal section

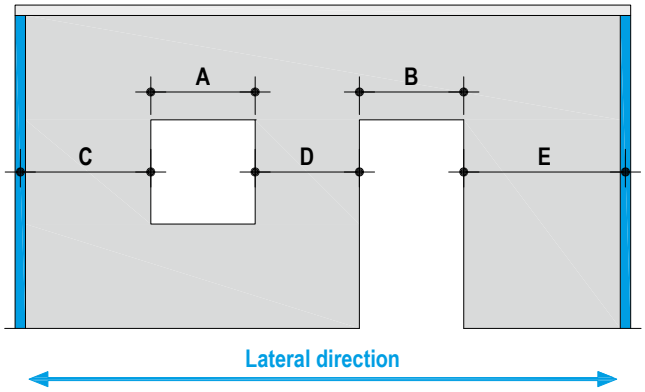


Knauf Multi-Purpose Screws:

- Cladding ≤ 20 mm: FN 4.3 x 35
- Cladding > 20 mm: FN 4.3 x 65

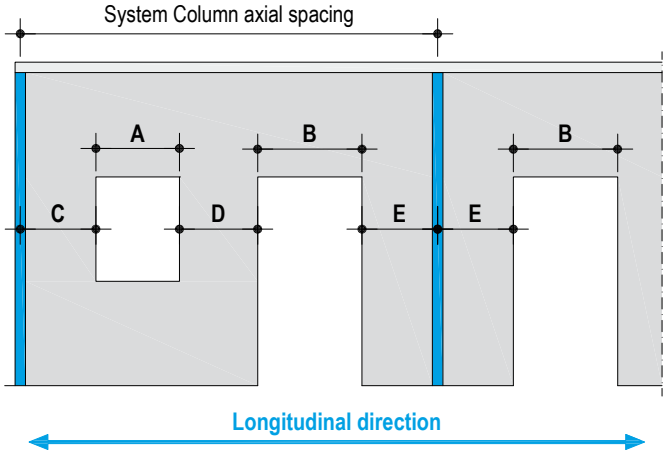
Permissible openings in reinforcing Cubo walls

Openings in lateral direction



- Dimensions A + B ≤ 40 % of the width of the Cubo in the lateral direction
- Individual openings A or B ≤ 2000 mm wide
- Dimension C ≥ A/2, but at least 625 mm
- Dimension D largest dimension of A/2 or B/2, but at least 625 mm
- Dimension E ≥ B/2, but at least 625 mm

Openings in longitudinal direction

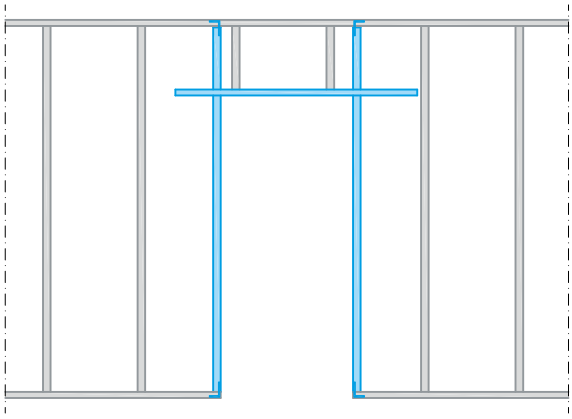


- Dimensions A + B ≤ 40 % system column axial spacing
- Dimension C ≥ A/2, but at least 625 mm
- Dimension D largest dimension of A/2 or B/2, but at least 625 mm
- Dimension E ≥ B/2, but at least 625 mm

Larger openings on request.

Door openings

Frame

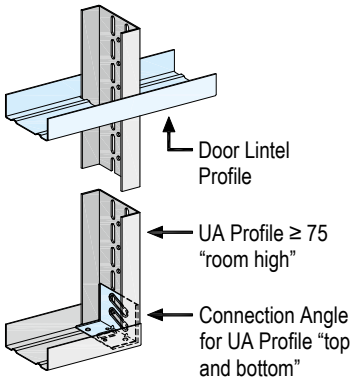


Maximum door leaf weights Scheme drawings I Dimensions in mm

Door leaf width	UA 75	UA 100
≤ 885 mm	≤ 75 kg	≤ 100 kg
≤ 1010 mm	≤ 75 kg	≤ 100 kg
≤ 1260 mm	≤ 60 kg	≤ 80 kg
≤ 1510 mm	≤ 50 kg	≤ 65 kg

Door opening profiles

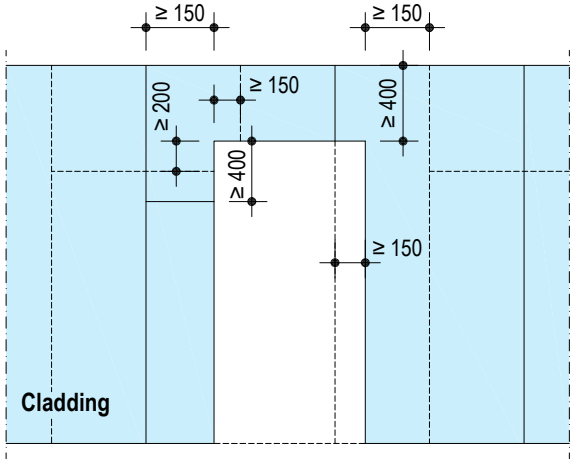
UA Profile + Knauf Connection Angle for UA profiles:



- For further details on application see details K375.de-H9 and K375.de-H10 on page 55.
- Furthermore, the details of the door manufacturers are to be observed (e.g. fire protection approval, additional constructional measures, etc.)

Cladding

- Arrange the long joints on the door lintel and not along the door opening, rather offset it to the door lintel centre.
- Arrange the horizontal joints on the door lintel and not along the door opening, rather offset it to the door opening centre.
- Cladding above the door lintel < 400 mm is only permissible in case of floor-to-ceiling boards.
- E.g. vertical board layers



Legend

- - - - - - Lower layer
——— Upper layer

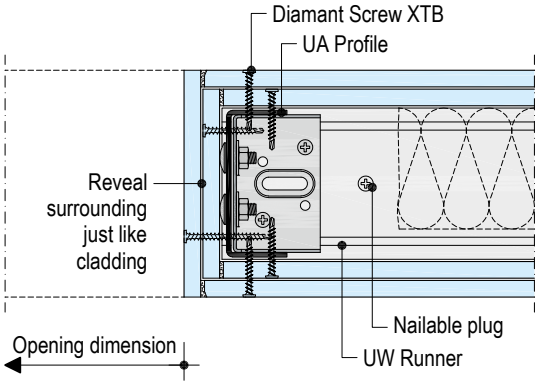
Caution	Do not apply board joints to door opening profiles.
Note	For further information on planning and application see system data sheet Knauf Metal Stud Partitions W11.de.

Details

Scale 1:5

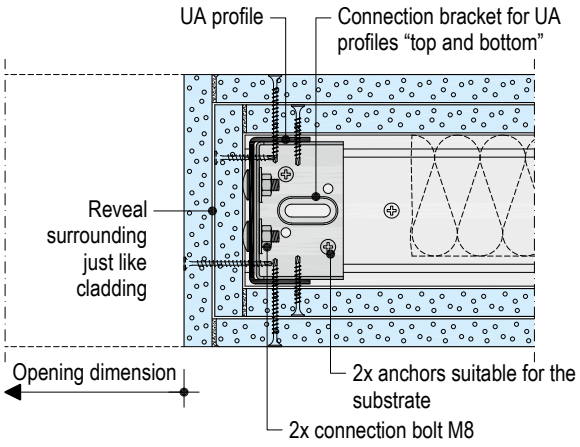
K375.de-H9 Door opening

Horizontal section



K375.de-H10 Door opening

Horizontal section



- Observe the details on page 54.

Notes	Furthermore, the details of the door manufacturers are to be observed (e.g. fire protection approval, additional constructional measures, etc.) Fire protection only in conjunction with a corresponding fire protection connection. For further information on door opening see system data sheet Knauf Metal Stud Partitions W11.de.

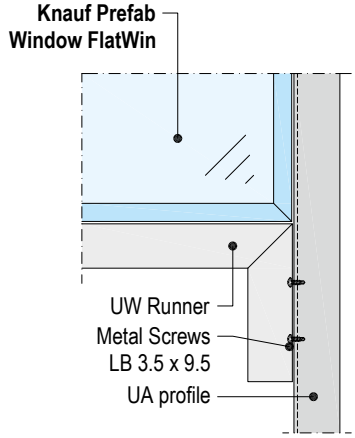
Window openings

Scheme drawing

Without fire resistance

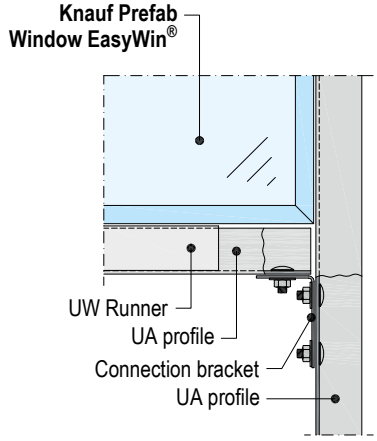
Knauf FlatWin prefab window installation

- Apply window openings in the same way page 54 with UA Profiles + connection brackets for UA profiles.
- Cut the flanges of the horizontal UW Runners at an angle to suit the clearance of the limit profiles and bend them 90° in the direction of the flange. Fasten to the studs using Metal Screws LB 3.5 x 9.



Knauf EasyWin® window installation

- Apply window openings in the same way page 54 with UA Profiles + connection brackets for UA profiles.
- Install the horizontal UA profiles with the open side towards the window opening and seal off using a pushed on UW Runner. Connect the connection brackets and the truss head screws with the perpendicular UA profiles.



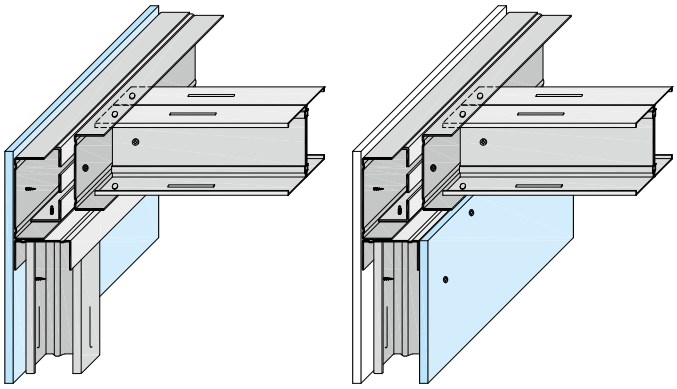
- No screw heads or brackets can protrude into the opening.

Note	For further information on planning and application see technical brochure Knauf Ready-Made Windows W454.de.

Cubo walls

Scheme drawings

1. Wall exterior cladding
2. Wall interior cladding

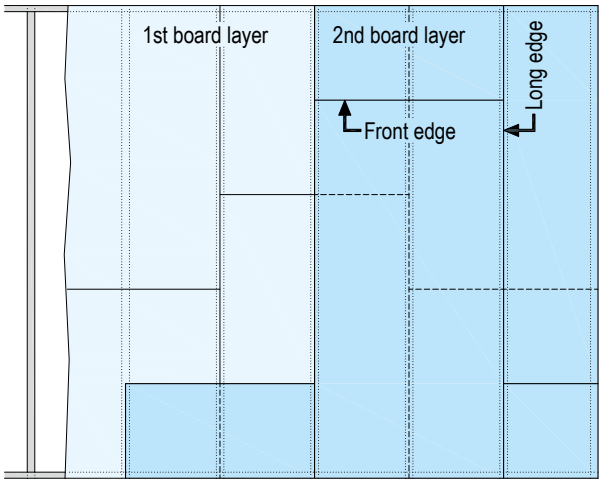


Screw fastening of the cladding in acc. with the tables page 59.
Board layers of the wall exterior side should be screw fastened additionally at the top onto the attached UW Runner.
Apply the cladding on the wall interior right up to the ceiling profile.
Screw the exterior cladding into the support in the wall corner areas. When required, screw fasten the inner cladding in the corner area with a Flex Profile.
With the **K376.de Cubo Empore**, screw fasten to anchor the cladding additionally to the intermediate supports using Drywall Screws TB/XTB.
For **K377.de Cubo Escape Tunnel**, an additional sheet of steel is required, see “Cladding K377.de Cubo Escape Tunnel” page 58.

Installation schemes

Board layers vertical

- Board width: **1250 mm** (Diamant 12.5 mm / Fireboard)
- Stud spacing: 625 mm

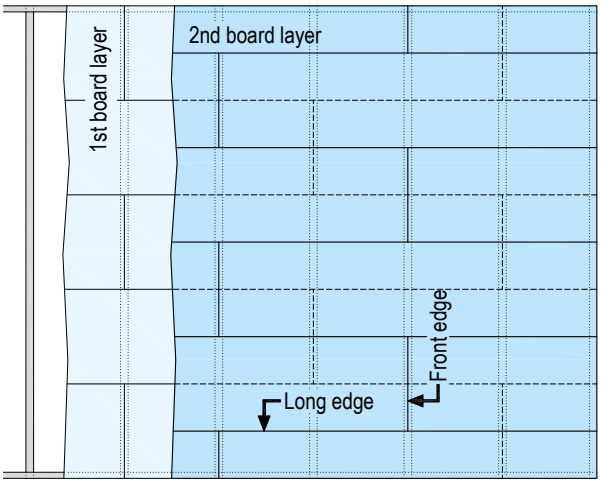


Lower/upper layer:

- Stagger the long edge joints by at least one stud axial spacing and arrange on the studs.
- If floor-to-ceiling boards are not used, stagger the front edge joints ≥ 400 mm in a cladding layer.
- Stagger the front edge joints between board cladding layers in case of multi-level cladding (approx. 250 mm).
- Front and long edge joints of cladding on opposing sides must also be staggered to one another.

Horizontal board layer

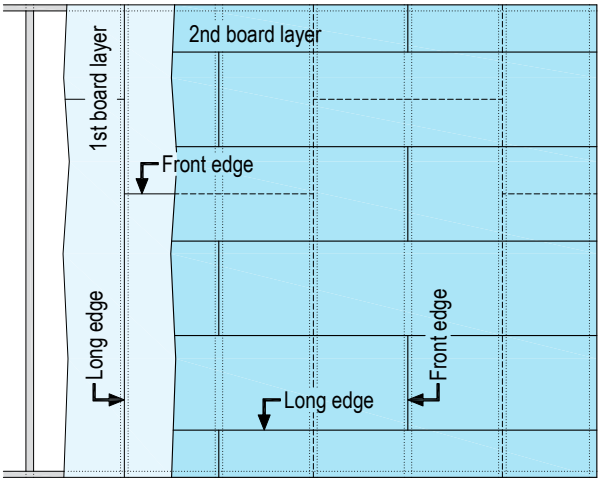
- Board width: **625 mm** (Diamant 18 mm + Silentboard)
- Stud spacing: 625 mm



- Recommendation: Board length 2500 mm
- Front edge joints must be staggered by at least one stud spacing.
- Stagger the long joints between the cladding layers by at least half a board width.
- Board joints of cladding on opposing sides must also be staggered to one another.

Board layer 1 vertical, board layer 2 horizontal

- Board width: **1250 mm** (lower vertical layer, Diamant 12.5 mm)
- Board width: **625 mm** (upper horizontal layer, Silentboard)
- Stud spacing: 625 mm



Lower layer:

- Arrange the long edge joints on the studs.
- If floor-to-ceiling boards are not used, stagger the front edge joints approx. 625 mm in a cladding layer.

Offset between lower and upper layer:

- Arrange vertical cladding butt joints between the cladding layers offset by 625 mm (stud spacing) and arrange on the studs.
- If floor-to-ceiling boards are not used in the lower layer, stagger the long edge joints of the upper layer by approx 312.5 mm to the front edge joints of the lower layer.
- Front and long edge joints of cladding on opposing sides must also be staggered to one another.

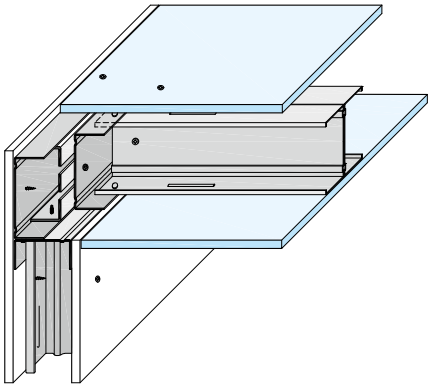
Upper layer:

- Stagger the front edge joints by at least one stud axial spacing and arrange on the studs.

Cubo ceiling

Scheme drawings

Screw fastening of the cladding in acc. with the tables page 59.
Use planks or form panels to distribute the load when assembling the top of the ceiling. The ceiling profiles should be supported during cladding.



- Apply Knauf boards / wooden composite boards laterally to the CW studs / UA double profiles / Resilient Channels / CD Channels.
- When screw fixing boards, push firmly onto the substructure and fasten them alternately to the CW studs / UA double profiles or Resilient Channels / CD Channels using Drywall Screws / Diamant screws. (Pre-drill for wooden composite board).
- Lay Brio units as a floating system on wooden composite boards (only on the top side of the ceiling).
- Arrange the front edge joints on double profiles or Resilient Channels / CD Channels (offset by at least 400 mm).
- Stagger the front edge joints between board layers in case of multi-level cladding.
- Stagger the long joints between the board layers by at least half a board width.
- Commence with the fixing of the boards in the board centre or on the board corner to avoid buckling.
- Every board layer should be pushed firmly onto the grid and attached as an independent layer.

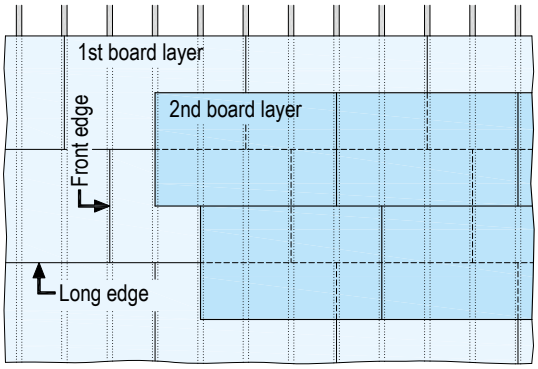
For **K377.de Cubo Escape Tunnel** additional sheet steel is required, see page 58.

Installation schemes

Ceiling bottom – lateral application

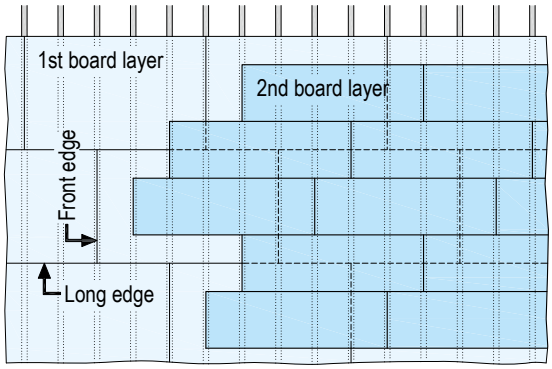
Board width

1st layer: **1250 mm** (Diamant 12.5 mm / Fireboard)
2nd layer: **1250 mm** (Diamant 12.5 mm / Fireboard)



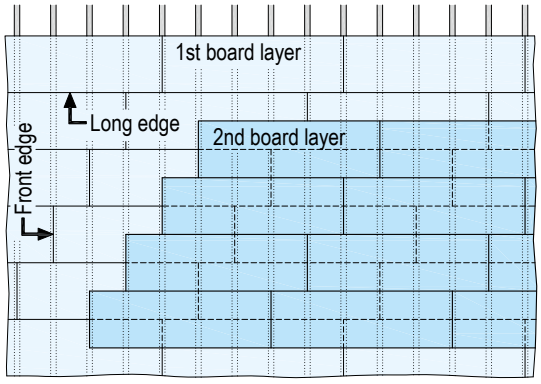
Board width

1st layer: **1250 mm** (Diamant 12.5 mm)
2nd layer: **625 mm** (Silentboard)

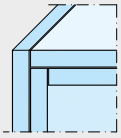


Board width

1st layer: **625 mm** (Diamant 18 mm)
2nd layer: **625 mm** (Silentboard)

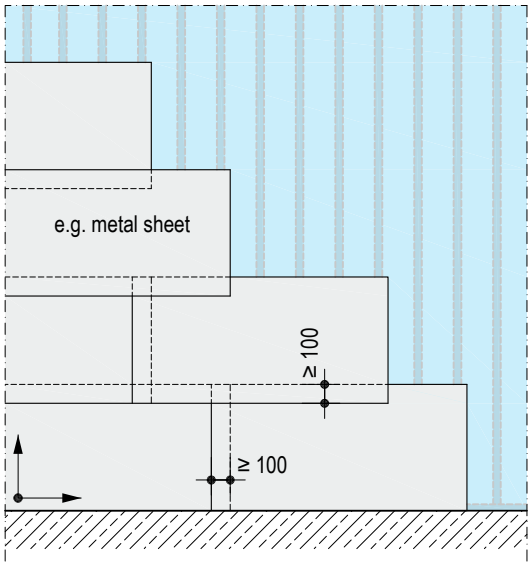


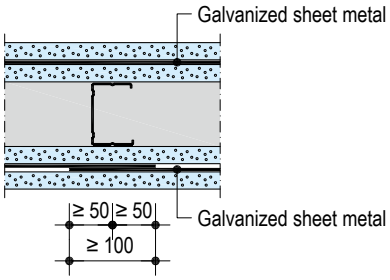
Note	With combined Diamant / Silentboard cladding: Diamant is always the 1st layer as bracing cladding.

Note	**With fire resistance:** Rebated edge design with the cladding.	

K377.de Cubo Escape Tunnel

Scheme drawings I Dimensions in mm





- Installation of the cladding analogue to K375.de Cubo Basis / K376.de Cubo Empore.
- Furthermore, an additional metal sheet t = 0.5 mm must be inserted:
  - In case of walls between the 1st and 2nd cladding layers.
  - In case of ceilings under or between the boards of the top of the ceiling.
- Galvanized sheet metal:
  - Lateral application
  - Arrange the joints on stud profiles (with partitions) or on UA double profiles (with ceilings).
  - Joint overlap ≥ 100 mm
  - Attach during assembly. Fixing with Fireboard screw fastening.

Fastening of the cladding

Fasteners to be used

Cladding Thickness in mm	**Metal stud frame** (penetration ≥ 10 mm) Metal gauge **s ≤ 0.7 mm** Drywall Screws **TN**	Diamant Screws **XTN**	Metal gauge **0.7 < s ≤ 2.0 mm** Drywall Screws **TB**	Diamant Screws **XTB**
12.5 Knauf gypsum boards[1)]	–	XTN 3.9 x 23	–	XTB 3.9 x 38
22 Wooden composite board HWP	–	–	TB 3.5 x 35	–
2x 12.5 Knauf gypsum boards[1)]	–	XTN 3.9 x 23 + XTN 3.9 x 38	–	XTB 3.9 x 38 + XTB 3.9 x 38
18 Diamant + 12.5 Silentboard	–	XTN 3.9 x 33 + XTN 3.9 x 55	–	XTB 3.9 x 38 + XTB 3.9 x 55
2x 20 Fireboard	TN 3.5 x 35 + TN 3.5 x 55	–	TB 3.5 x 35 + TB 3.5 x 55	–
22 Wooden composite board HWP + 12.5 Diamant	–	–	TB 3.5 x 35 +	XTB 3.9 x 55
22 Wooden composite board HWP + 25 Fireboard	–	–	TB 3.5 x 35 + TB 3.5 x 55	

1) Knauf gypsum boards: Diamant or Silentboard, in combination as well

- For the combination Diamant with Silentboard: Always use Silentboard as the 2nd layer.
- Lay Brio units as a floating system on wooden composite boards (only on the top side of the ceiling).
- Pre-drill with wooden composite board

Maximum fastener spacings

Cladding		**Single-layer**	**Double-layer**			
			1st layer		**2nd layer**	
		Board width 1250 mm Diamant 12.5 mm / HWP mm	Board width 1250 mm Diamant 12.5 mm / Fireboard / HWP mm	Board width 625 mm Diamant 18 mm mm	Board width 1250 mm Diamant 12.5 mm / Fireboard mm	Board width 625 mm Silentboard mm
Ceiling bottom		170	500[2)]	300[2)]	170	150
Ceiling top	K375.de Cubo Basis	250	750	600	250	200
	K376.de Cubo Empore	250	750	600	250	200
	K377.de Cubo Escape Tunnel	–	500	–	170	–
Wall		250	750	600	250	200

2) On the ceiling bottom, fasten the second board layer within a working day, otherwise the spacing of the first layer for fastening of single layer cladding must be used.

Note For details on jointing as well as coating and claddings, see brochure Knauf Jointing Competence Tro89.de

Information on Sustainability

Knauf Cubo

Information on Sustainability of Knauf Cubo Room-in-Room Systems

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

In Germany the following certification systems are of particular relevance:

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

Knauf products and Knauf Cubo Room-in-Room Systems can positively influence many of these criteria.

DGNB/BNB/QNG

Ecological quality

- Ecological performance evaluation of the building:
  Relevant environmental data are contained in the EPD for gypsum boards and fillers.
- Risks for the local environment:
  - Gypsum as an ecological material
  - Profiles are hot-dip galvanized and free of Chromium VI

Economic quality

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

Technical quality

- Sound insulation:
  Exceeding the demands of the standard with Knauf sound installation
- Ease of decommissioning, dismantling and recycling
  Possible with Knauf Drywalling

LEED

Materials and resources

- Building Life-Cycle Impact Reduction:
  Relevant ecological performance evaluation data are contained in the EPDs for gypsum boards and filler.
- Environmental Product Declarations:
  Relevant data are contained in the EPD for gypsum boards and fillers.
- Sourcing of Raw Materials:
  Recycled content in Knauf gypsum boards, e.g. board liner

Indoor Environmental Quality

- Low-Emitting Materials:
  Knauf products are regularly subject to VOC measurement.

Videos for Knauf systems and products can be found under the following link:
youtube.com/knauf

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

The Knauf Infothek App now provides all the current information and documents from Knauf Gips KG at any time and in every location in a clear and comfortable way.
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The stated constructional and structural design specifications and characteristics of building physics of Knauf systems can only be ensured with the exclusive use of Knauf system components, or other products expressly recommended by Knauf.