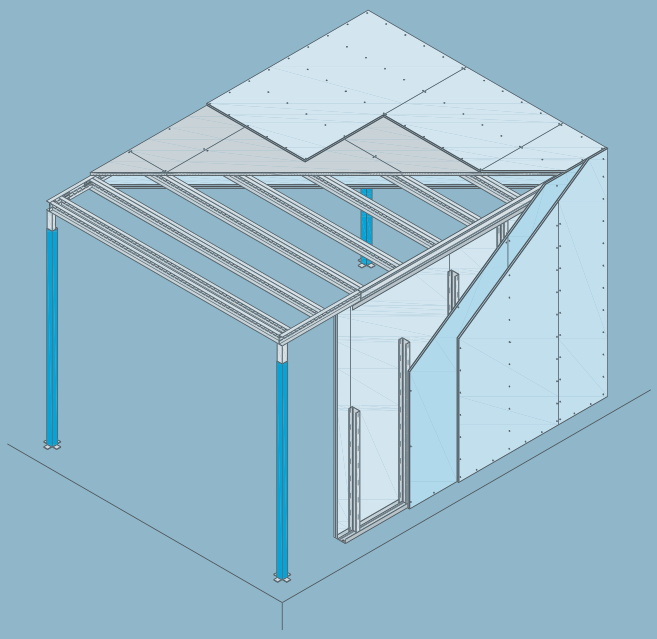


K37.de

Drywall Systems | 2012-07

K37.de **Knauf Cubo Room-in-Room Systems**

K375.de – Knauf Cubo Basis

K376.de – Knauf Cubo Empore

K377.de – Knauf Cubo Escape Tunnel

Note on English translation / Hinweise zur englischen Fassung

This is a translation of the system catalogue 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.

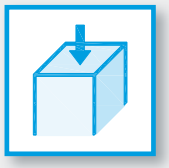
The variable floor plan room-in room system Knauf Cubo simultaneously complies with the high requirements for stability, fire protection and sound insulation.

K375.de Knauf 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 existing walls.

For use as

- Sanitary modules
- Sound insulated booths
- Meeting rooms
- Foreman's offices
- Encapsulation of industrial machinery



K376.de Knauf Cubo Empore

The performance capability of Cubo Basis is extended by walkability, permanent loads and usable areas.

Cubo Empore can be applied

- for conditional walkability
- for dead loads up to 0.5 kN/m²
- for dead loads up to 1.0 kN/m²
- for live loads up to 2.0 kN/m²

For use as

- Extension of living spaces
- Additional storage and floor space

K377.de Knauf Cubo Escape Tunnel

The Knauf Cubo Escape Tunnel as a self-supporting room-in-room system provides a fire resistance of F90 as well as an impact stress resistance of 3000 Nm (complying with the firewall requirements).

For use as

- Escape and access routes

Systems in comparison

Knauf Cubo	**K375.de** Basis	**K376.de** Empore	**K377.de** Escape Tunnel
Access panel installation	■ Cubo ceiling / Cubo wall on request	■ Cubo ceiling / Cubo wall on request	-
Movement joint	■	-	■
"Multi-level ceiling" [1]	■ Shadow gap recommended [2]	■ Shadow gap required [2]	■ Shadow gap required [2]
Cubo wall as furring	■	-	-
Fire resistance	■ F30 / F90	■ F30 / F90	■ F90
Loads on Cubo ceilings	-	■	-
Impact stress resistance	-	-	■

1) See System Data Sheet D131 2) See System Data Sheet D12

K37.de Knauf Cubo

Contents

K37.de Knauf Cubo

Knauf boards / Knauf premium drywalling / Proofs

Knauf boards

Excerpt from the Knauf product range

Board type	Short description DIN	Short description DIN EN	Thickness t mm	Dimensions Width mm	Dimensions Lengths mm	Board edge Long edge
Gypsum boards according to DIN 18180 and DIN EN 520						Building material class A2 (DIN 4102-4) / Reaction to fire A2-s1,d0 (B)
Silentboard	**GKF**	DF	**12.5**	625	2000 / 2500	HRK
Diamant Hard gypsum board	**GKFI**	DFH2IR	**12.5**	1250	2000 / 2500	HRAK
			18	625	2500 / 2600	
Gypsum boards w. mat reinforcement to DIN EN 15283-1						Building mat. class A1 (ABZ Z-56.413-290) / Reaction to fire A1 (Classification report K-3055/995/08)
Fireboard A1 (for A1 constructions)	-	GM-F	**20**	1250	2000	VK
			25	1250	2000	

- GKFI: Gypsum core with additional special impregnation against the absorption of moisture. Boards suitable for areas of high humidity
- Floor to ceiling boards on request
- Knauf Brio Pre-fab Screed 18 WF, refer to System Data Sheet F12.de

Diamant
The outstanding GKFI gypsum board for high-quality drywalling.
Diamant boards are used in all fields of interior works as cladding of premium drywall systems with enhanced requirements for sound insulation and fire protection, and in case of special requirements on mechanical resistance, in rooms with moderately high humidity.

Silentboard
Silentboard GKF for the highest level of sound protection in drywalling applications.
Silentboard sound shield boards are used in all fields of interior works as cladding and for upgrading drywall systems to fire resistance standards and the highest sound protection specifications.

Fireboard
Special gypsum board A1 for premium fire protection.
Fireboard is used in drywall systems that provide specially optimized fire resistance solutions.

Knauf premium drywalling / Knauf boards - providing added value:

Robustness
Diamant enhances the quality and durability of the Knauf system when used in areas subject to wear and tear

Good bracing
Based on the particular shear load capacity

Fire protection means safety
Knauf Cubo provides this level of safety for several areas of application

Non-combustible, A1
These demands on the building material - without flammable constituents - are met by Fireboard A1

Best sound insulation
This system features a high sound insulation level due to the combination of tried-and-trusted Knauf products

Proofs

Knauf System	Fire protection	Statics	Sound insulation
K377.de Knauf Cubo Escape Tunnel	National Technical Approval (ABZ): Z-19.13-2032 Fire-resistant walls and ceilings for hallways "System Knauf Cubo" as a zoning measure for emergency access routes of fire resistance classes F30 or F90 to DIN 4102-2	Survey G-601-I-12/Pf / G-601-II-12/Pf	Proof on request
K375.de Knauf Cubo Basis	A self-supporting, free-standing room-in room system is not regulated by the building authority. Knauf has applied the higher demands and requirements in the constructional and fire protection design of an escape and access route (ABZ Z-19.13-2032) for the room-in-room systems Cubo Basis and Cubo Empore		
K376.de Knauf Cubo Empore			

For Cubo with a fire protection requirement:
The label has to be permanently attached to the interior of the Cubo on the wall underneath the ceiling by the specialist company who performed the work.

The label and ABZ can be obtained from **Knauf Direct** Technical Advisory Service (see page 40).

Self-weight of the Cubo ceiling: K375 / K376

Cladding weight Type	Thickness mm	kg/m²
Silentboard	12.5	18.4
Diamant	12.5	13
	18	18.7
Fireboard	20	16.4
	25	20.5
Brio 18 WF	28	24
Wooden composite board HWP 1)	22	16.5

1) OSB/3 or equivalent, density ≤ 750 kg/m³

+

Substructure weight Knauf profile	kg/m²
2x CW 100	4
2x CW 125	4.5
2x CW 150	5
2x UA 100	11
2x UA 125	12.5
2x UA 150	14
Resilient Channel / CD Channel	1.4

+

Any additional self-weight loads from ceiling accessories
"Multi-level Ceiling System": ≤ *0.15 kN/m² (corresponds to ≤ 15 kg/m²)*
e.g. insulation material
e.g. flooring
e.g. curtain rails, lighting fixtures

The installation or mounting of additional loads such as lighting fixtures with a max. 100 N (10 kg) per double profile (50 N per m² of ceiling surface) with suitable fixing directly to the substructure is permitted. Consider additional loads when determining the self-weight of the ceiling.

Cladding alternatives Ceiling top Ceiling bottom	Total cladding weight kg/m²
- Diamant 12.5 mm	13
Diamant 12.5 mm Diamant 12.5 mm	26
Wooden composite board 22 mm HWP Diamant 12.5 mm	29.5
Wooden composite board 22 mm HWP 2x Diamant 12.5 mm	42.5
2x Diamant 12.5 mm 2x Diamant 12.5 mm	52
Wooden composite board 22 mm HWP + Diamant 12.5 mm 2x Diamant 12.5 mm	55.5
Diamant 12.5 mm + Silentboard 12.5 mm Diamant 12.5 mm + Silentboard 12.5 mm	62.8
2x Fireboard 20 mm 2x Fireboard 20 mm	65.6
Wooden composite board 22 mm HWP + Brio 18 WF 2x Diamant 12.5 mm	66.5
Wooden composite board 22 mm HWP + Fireboard 25 mm 2x Fireboard 20 mm	69.8
Wooden composite board 22 mm HWP + Brio 18 WF Diamant 18 mm + Silentboard 12.5 mm	77.6

Calculation examples

The determination of the self-weight of the ceiling is the basis for the determination of the max. span width of the Knauf double profiles

■ Room-enclosing only

Diamant 12.5 mm	13	kg/m²
CW double profile 100	4	kg/m²
Additional load Lighting fixtures	5	kg/m²
	22 kg/m² → 0.22 kN/m²	
→ **Self-weight:**	**≤ 0.3 kN/m²**	

■ F30

Diamant 4x 12.5 mm	52	kg/m²
CW double profile 100	4	kg/m²
Additional load "Multi-level ceiling"	14	kg/m²
	70 kg/m² → 0.70 kN/m²	
→ **Self-weight:**	**≤ 0.7 kN/m²**	

■ F90 - Conditionally walkable

Fireboard 2x 20 mm	32.8	kg/m²
Fireboard 25 mm	20.5	kg/m²
HWP 22 mm	16.5	kg/m²
UA double profile 100	11	kg/m²
Additional load	-	kg/m²
	80.8 kg/m² → 0.81 kN/m²	
→ **Self-weight:**	**≤ 0.9 kN/m²**	

Remarks for designing the Cubo ceiling substructure:

1. Determination of the self-weight of the ceiling

■ **Cladding**

The weight per unit area of the cladding results from the selected board types and thicknesses

\+ ■ **Substructure**

\+ ■ **Consideration of additional loads**

Additional loads (e.g. system "multi-level ceiling", insulation materials) increase the total weight per unit area of Cubo ceilings and must be considered when determining the self-weight of the ceiling

2. Superimposed loads on ceiling

■ Conditional walkability

■ Dead loads: ≤ *0.5 kN/m² (corresponds to 50 kg/m²)* / ≤ *1.0 kN/m² (corresponds to 100 kg/m²)*

■ Live loads: ≤ *2.0 kN/m²*

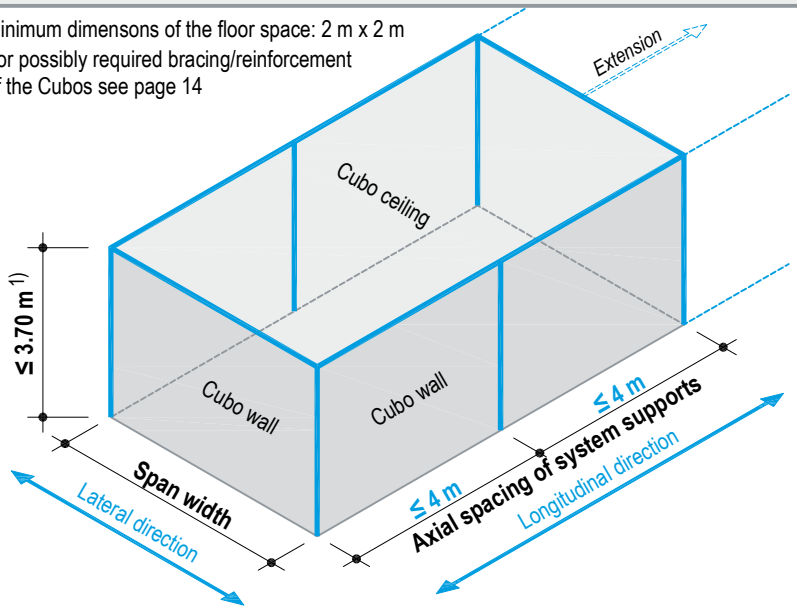
3. Design of the substructure

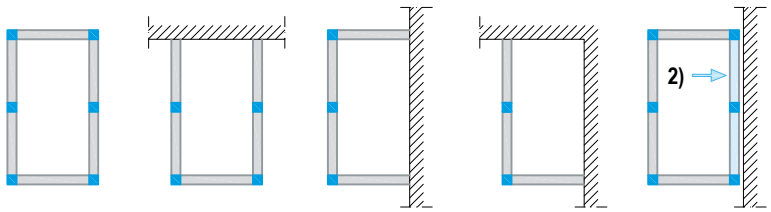
The max. span width of the Cubo ceiling results from the self-weight + superimposed loads on the ceiling

K375.de Knauf Cubo Basis

Scheme drawings

- Minimum dimensons of the floor space: 2 m x 2 m
- For possibly required bracing/reinforcement of the Cubos see page 14





1) For room height > 3.20 m:
- Cubo system with double cladding
- Fire resistance in conjunction with the building authorities

2) Use as furring possible: Min. 2 layers of cladding on the room side; Fire resistance only from inside in conjunction with the building authorities

- For variant “Cubo on Cubo” see pages 30 + 31

Span widths of Cubo ceiling K375.de

Cubo ceiling profiles may not be joined or extended

Knauf CW double studs, Metal gauge 0.6 mm	Axial spacing mm (b)	Max. span width in m, self-weight of the ceiling in kN/m²								
		up to 0.2	up to 0.3	up to 0.4	up to 0.5	up to 0.6	up to 0.7	up to 0.8	up to 0.9	up to 1.0
2x **CW 100**	**500** 3)	4	3.6	3.3	3.2	3	2.9	2.8	2.7	2.6
2x **CW 125**		4.5	4.1	3.8	3.6	3.4	3.3	3.2	3.1	3
2x **CW 150**		5	4.6	4.2	4	3.8	3.7	3.6	3.5	3.4

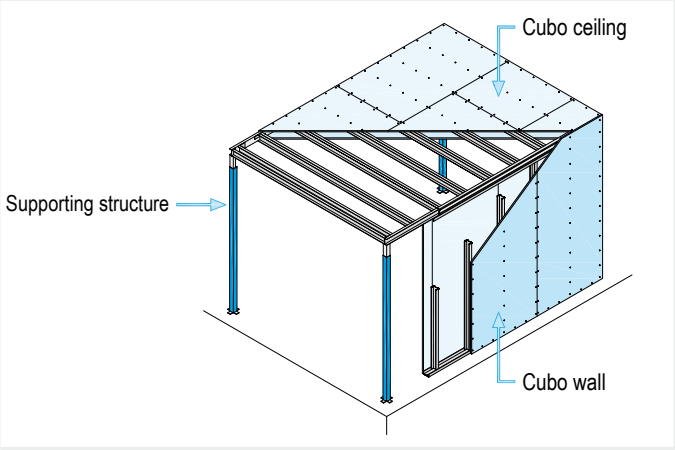
Cubo ceiling profiles may not be joined or extended

Knauf UA double profiles, Metal gauge 2 mm	Axial spacing mm (b)	Max. span width in m, self-weight of the ceiling in kN/m²								
		up to 0.4	up to 0.5	up to 0.6	up to 0.7	up to 0.8	up to 0.9	up to 1.0	up to 1.1	up to 1.2
2x **UA 100**	**500** 3)	5.5	5.1	4.8	4.5	4.3	4.2	4.0	3.9	3.8
2x **UA 125**		6.5	6.1	5.7	5.4	5.2	5	4.8	4.6	4.5
2x **UA 150**		7.5	7	6.6	6.3	6	5.8	5.6	5.4	5.2

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

- Specifications for design of the Cubo ceiling substructure, see page 5
- Design for Knauf CW double profiles: Deflection ≤ L / 500, ≤ 4 mm; design for Knauf UA double profiles: Deflection ≤ L / 500

Inside and outside fire protection



- The fire resistance class is provided both for inside and outside exposure to fire
- Flanking components must feature the same fire resistance class
- A layer of insulation is not required for fire resistance, however it is permitted when the building material class is min. B2 (insulation materials, e.g. from Knauf Insulation)
- Differing fire exposure durations (inside / outside) on request

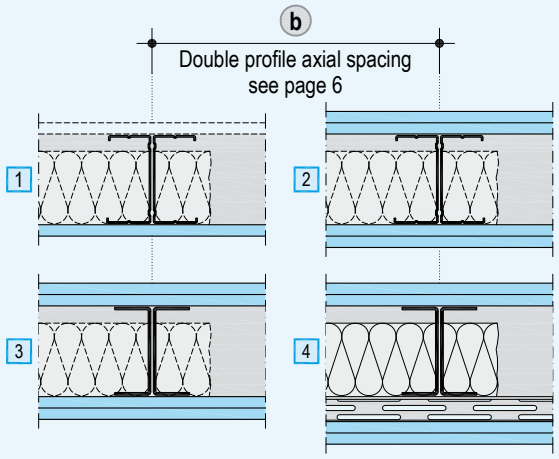
Required cladding

Fire resistance class	Ceiling top + 1st layer 2nd layer	Ceiling bottom + 1st layer 2nd layer	Wall outside + 1st layer 2nd layer	Wall inside + 1st layer 2nd layer	Knauf Premium Drywalling
Without fire resistance	Room-enclosing only **12.5 mm** [1] Diamant	**12.5 mm** Diamant	**12.5 mm** Diamant	**12.5 mm** Diamant	
F30 possible in conjunction with building authority	+ **12.5 mm** Diamant **12.5 mm** Silentboard	+ **12.5 mm** Diamant **12.5 mm** Silentboard	**2x 12.5 mm** Diamant	**2x 12.5 mm** Diamant	
	2x 12.5 mm Diamant	**2x 12.5 mm** Diamant	+ **12.5 mm** Diamant **12.5 mm** Silentboard	+ **12.5 mm** Diamant **12.5 mm** Silentboard	
	+ **12.5 mm** Diamant **12.5 mm** Silentboard	+ **12.5 mm** Diamant **12.5 mm** Silentboard	+ **12.5 mm** Diamant **12.5 mm** Silentboard	+ **12.5 mm** Diamant **12.5 mm** Silentboard	
F30	**2x 12.5 mm** Diamant	**2x 12.5 mm** Diamant	**2x 12.5 mm** Diamant	**2x 12.5 mm** Diamant	
F90	**2x 20 mm** Fireboard	**2x 20 mm** Fireboard	**2x 20 mm** Fireboard	**2x 20 mm** Fireboard	A1

1) Possibly as dust protection

Scheme drawings

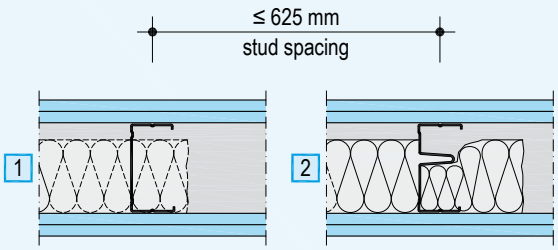
Cubo ceiling K375.de



■ Knauf Profiles/Studs

1	CW double profile 100 / 125 / 150	→ room enclosing only
2	CW double profile 100 / 125 / 150	
3	UA double profile 100 / 125 / 150	→ large span widths / high ceiling weights
4	UA double profile 100 / 125 / 150 with Resilient Channel (axial spacing ≤ 500 mm or for cladding with Silentboard ≤ 400 mm)	→ sound insulation

Cubo walls K375.de



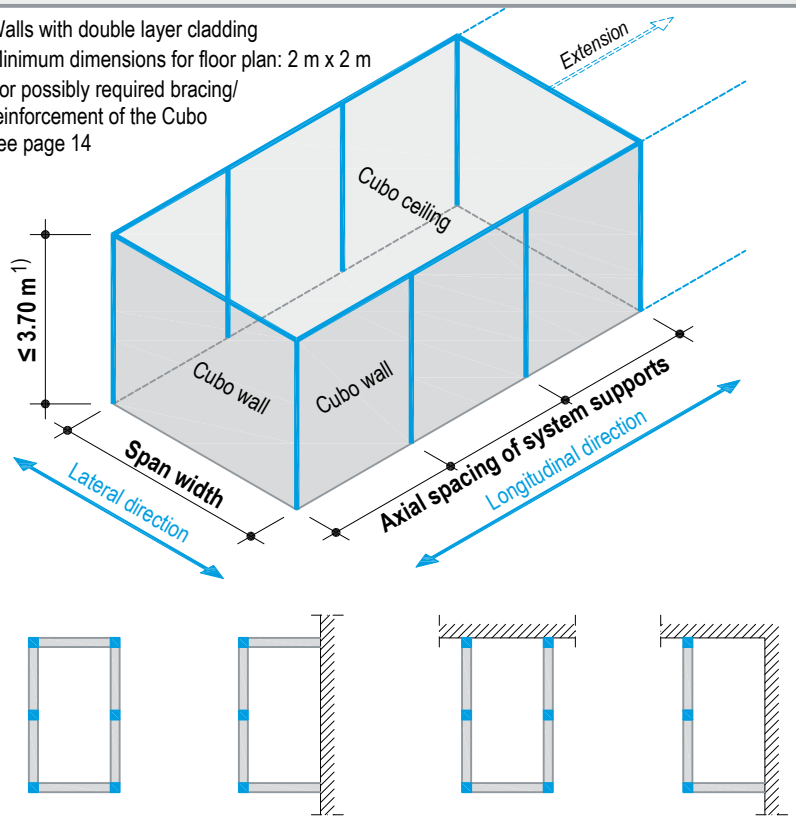
■ Knauf Studs

1	CW Stud 75 / 100	
2	MW Stud 75 / 100	→ sound insulation

K376.de Knauf Cubo Empore

Scheme drawings

- Walls with double layer cladding
- Minimum dimensions for floor plan: 2 m x 2 m
- For possibly required bracing/ reinforcement of the Cubo see page 14



1) For room height > 3.20 m: Fire resistance possible in conjunction with building authorities

- For "Cubo on Cubo" variant see page 32

"Conditionally walkable" / Dead loads"

- Supporting structure: **System support** axial spacing: **≤ 4 m**
- Cubo ceiling: **UA double profiles** Axial spacing: (b) **≤ 500 mm**

"Live loads"

- Supporting structure: **System support** axial spacing: **≤ 2.5 m**
- Cubo ceiling: **UA double profiles** Axial spacing: (b) **≤ 400 mm**

- Building authority requirements for protection against falls must be observed

Ceiling ballast loads (not permanent ballast loads)

- Self-weight + conditionally walkable: The "conditional walkability" implies a temporary additional loading of the ceiling by about 2 persons, who temporarily walk on the system for maintenance or inspection purposes (comparable to walking on glass roofs for cleaning purposes). Intentional live loads are not permissible.
- Self-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, into the ceiling is not permissible.
- Self-weight + live loads ≤ 2.0 kN/m²: By assuming live loads, 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 of DIN 1055-3 or DIN EN 1991-1-1/NA. Usage in areas accessible to the public is not permitted.

Span widths of the Cubo ceiling K376.de

Cubo ceiling profiles (UA) may not be joined or extended

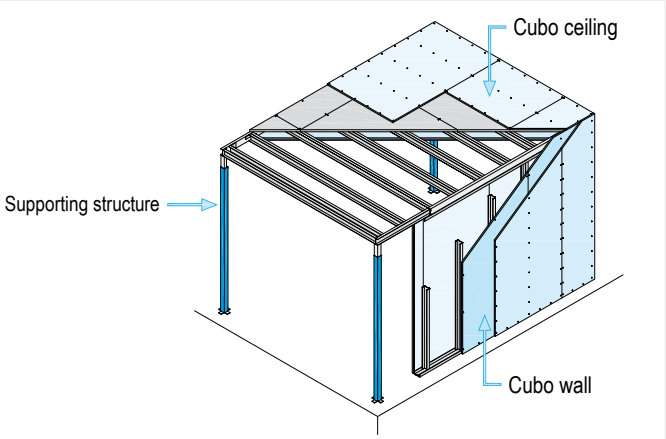
Knauf UA double profiles Metal gauge 2 mm			Axial spacing mm (b)	Max. span width in m self-weight of the ceiling in kN/m² up to 0.4	up to 0.5	up to 0.6	up to 0.7	up to 0.8	up to 0.9	up to 1.0
2x UA 100	Self-weight	+ Conditionally walkable	500 3)	4.2	4	3.9	3.8	3.7	3.6	3.5
		+ Dead loads ≤ 0.5 kN/m²	500 3)	3.3	3.2	3.1	3.0	2.9	2.8	2.8
		+ Dead loads ≤ 1.0 kN/m²	500 3)	2.9	2.8	2.7	2.7	2.6	2.6	2.5
		+ Live loads ≤ 2.0 kN/m² 2)	400	2.6	2.5	2.5	2.4	2.4	2.4	2.4
2x UA 125	Self-weight	+ Conditionally walkable	500 3)	5	4.8	4.6	4.5	4.4	4.3	4.2
		+ Dead loads ≤ 0.5 kN/m²	500 3)	3.9	3.8	3.7	3.6	3.5	3.4	3.3
		+ Dead loads ≤ 1.0 kN/m²	500 3)	3.4	3.3	3.2	3.2	3.1	3.1	3.0
		+ Live loads ≤ 2.0 kN/m² 2)	400	3.1	3.0	3.0	2.9	2.9	2.9	2.8
2x UA 150	Self-weight	+ Conditionally walkable	500 3)	5.8	5.6	5.4	5.2	5.1	5	4.9
		+ Dead loads ≤ 0.5 kN/m²	500 3)	4.6	4.4	4.2	4.1	4.0	3.9	3.9
		+ Dead loads ≤ 1.0 kN/m²	500 3)	3.9	3.8	3.7	3.7	3.6	3.6	3.5
		+ Live loads ≤ 2.0 kN/m² 2)	400	3.6	3.5	3.5	3.4	3.4	3.3	3.3

2) Non-public areas

3) Axial spacing ≤ 400 mm with combined cladding with Silentboard fastened directly on the UA double profiles

- Specifications for design of the Cubo ceiling substructure see page 5
- Design for Knauf UA double profiles: Deflection ≤ L / 500 ("conditionally walkable"); L / 1000 ("dead loads" or "live loads")

Inside and outside fire protection



- **22 mm wooden composite board HWP:**
  - Wooden composite board HWP as 1st or 2nd layer for “conditionally walkable”; only as the 1st layer possible with “dead loads” or “live loads” or fire resistance
- The fire resistance class is provided both for inside and outside exposure to fire
- Flanking components must feature the same fire resistance class
- A layer of insulation is not required for fire resistance, however it is permitted when the building material class is min. B2 (insulation materials, e.g. from Knauf Insulation)
- Differing fire exposure durations (inside / outside) on request

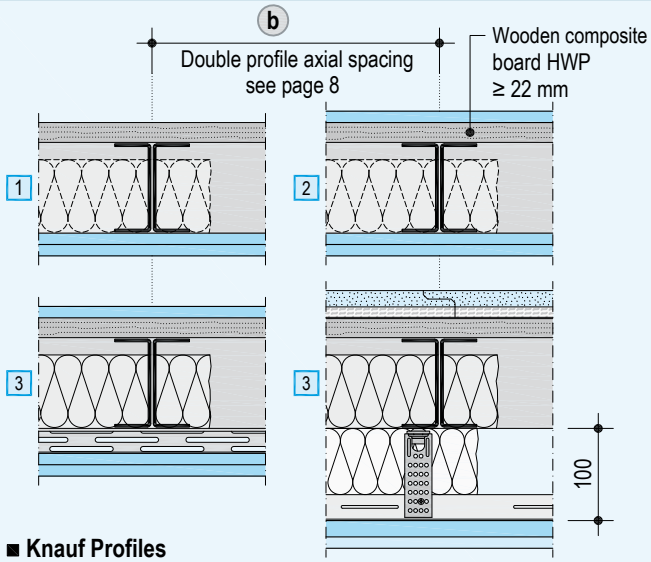
Required cladding

Fire resistance class	Ceiling top + 1st layer 2nd layer	Ceiling bottom + 1st layer 2nd layer	Wall outside + 1st layer 2nd layer	Wall inside + 1st layer 2nd layer	Knauf Premium Drywalling
Without fire resistance	room-enclosing only **≥ 22 mm** HWP	**12.5 mm** Diamant	**2x 12.5 mm** Diamant	**2x 12.5 mm** Diamant	
	room-enclosing only **≥ 22 mm** HWP	**2x 12.5 mm** Diamant	**2x 12.5 mm** Diamant	**2x 12.5 mm** Diamant	
F30 possible in conjunction with building authority	+ **22 mm** HWP Brio 18 WF	**2x 12.5 mm** Diamant	**2x 12.5 mm** Diamant	**2x 12.5 mm** Diamant	
	+ **22 mm** HWP Brio 18 WF	**2x 12.5 mm** Diamant	+ **12.5 mm** Diamant **12.5 mm** Silentboard	+ **12.5 mm** Diamant **12.5 mm** Silentboard	
	+ **22 mm** HWP Brio 18 WF	**2x 12.5 mm** Diamant	+ **18 mm** Diamant **12.5 mm** Silentboard	+ **18 mm** Diamant **12.5 mm** Silentboard	
	+ **22 mm** HWP Brio 18 WF	+ **18 mm** Diamant **12.5 mm** Silentboard	+ **18 mm** Diamant **12.5 mm** Silentboard	+ **18 mm** Diamant **12.5 mm** Silentboard	
F30	+ **≥ 22 mm** HWP **12.5 mm** Diamant	**2x 12.5 mm** Diamant	**2x 12.5 mm** Diamant	**2x 12.5 mm** Diamant	
F90	+ **≥ 22 mm** HWP **25 mm** Fireboard [1]	**2x 20 mm** Fireboard	**2x 20 mm** Fireboard	**2x 20 mm** Fireboard	A1

1) Floor installation with Brio 18 WF in conjunction with building authority (see Knauf System Data Sheet F12.de)

Scheme drawings

Cubo ceiling K376.de



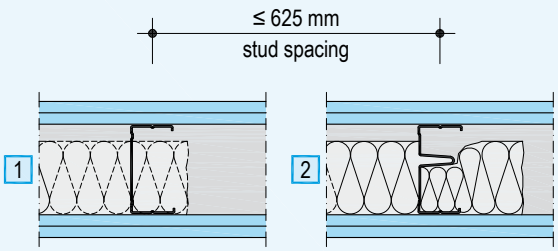
■ **Knauf Profiles**

1 UA double profile 100 / 125 / 150 → Room enclosing only

2 UA double profile 100 / 125 / 150

3 UA double profile 100 / 125 / 150 with Resilient Channel or CD Runner with Damping Universal Bracket (axial spacing ≤ 500 mm or cladding with Silentboard ≤ 400 mm) → Sound insulation

Cubo walls K376.de

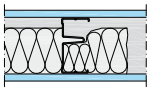
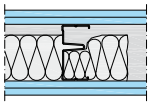
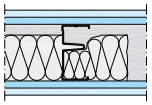
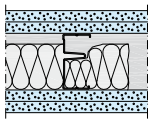
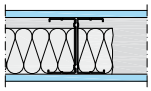
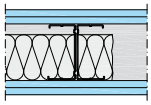
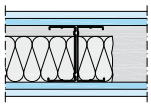
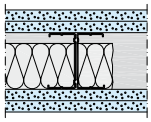
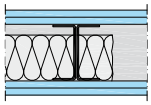
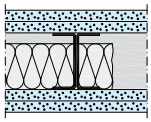
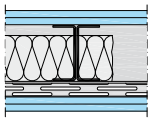
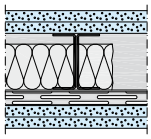


■ **Knauf Studs**

1 CW Stud 75 / 100

2 MW Stud 75 / 100 → Sound insulation

Cubo - Internal dimensions for sound insulation: 3.9 x 2.1 x 2.6 m (L x W x H)

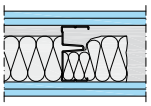
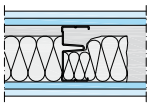
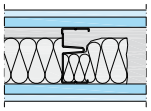
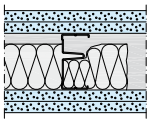
Cubo Walls K375 / Cubo Ceiling K375		MW 100 (with CW 100 reduction by 1 dB)			
		Room-enclosing only Diamant 12.5 	2x Diamant 12.5 	Diamant 12.5 + Silentboard 12.5 	2x Fireboard 20 
		Cubo overview			
		$D_{nT,w}$	$D_{nT,w}$	$D_{nT,w}$	$D_{nT,w}$
CW 100 Double Stud	Room-enclosing only  Diamant 12.5 / Diamant 12.5	41 dB	42 dB [1]	46 dB	
	2x Diamant 12.5 / 2x Diamant 12.5 		49 dB F30		
	Silentboard 12.5 + Diamant 12.5 / Diamant 12.5 + Silentboard 12.5 		50 dB [1]	55 dB	
	2x Fireboard 20 / 2x Fireboard 20 				44 dB [1] F90
UA 100 double profile	2x Diamant 12.5 / 2x Diamant 12.5 		41 dB F30		
	2x Fireboard 20 / 2x Fireboard 20 				37 dB [1] F90
UA 100 double profile + Resilient Channel	2x Diamant 12.5 / 2x Diamant 12.5 		50 dB [1] F30	51 dB [1]	
	2x Fireboard 20 / 2x Fireboard 20 				44 dB [1] F90

- 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 sound level difference D_{nT}.
  D_{nT} is the difference between the inside and outside sound levels with common 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 3 dB, e.g. with larger dimensions.
- For a Cubo of these dimensions and a door with a surface area of 2 m², the rule-of-thumb that applies states “If the weighted sound reduction index R_w of the door is 1 dB greater than the weighted standardized sound 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 the door must be taken into consideration.

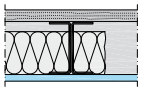
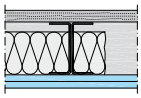
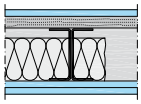
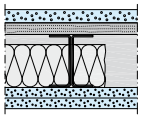
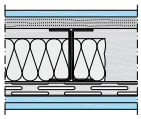
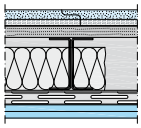
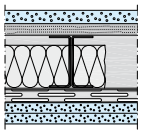
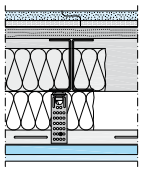
Cubo - Internal dimensions for sound insulation: 3.9 x 2.1 x 2.6 m (L x W x H)

Cubo Walls K376 / **Cubo Ceiling K376**

MW 100 (with CW 100 reduction by 1 dB)

	2x Diamant 12.5	Diamant 12.5 + Silentboard 12.5	Diamant 18 + Silentboard 12.5	2x Fireboard 20
				

Cubo overview

		$L'_{n,w}$	$D_{nT,w}$	$L'_{n,w}$	$D_{nT,w}$	$L'_{n,w}$	$D_{nT,w}$	$L'_{n,w}$	$D_{nT,w}$
UA 100 double profile	Room-enclosing only  HWP 22 Diamant 12.5	87 dB [1]	31 dB [1]						
UA 100 double profile	Room-enclosing only  HWP 22 2x Diamant 12.5	78 dB	39 dB						
UA 100 double profile	 Diamant 12.5 + HWP 22 2x Diamant 12.5	76 dB F30	43 dB						
UA 100 double profile	 Fireboard 25 + HWP 22 2x Fireboard 20							81 dB [1] F90	38 dB [1]
UA 100 double profile + Resilient channel	 Diamant 12.5 + HWP 22 2x Diamant 12.5	61 dB F30	53 dB						
UA 100 double profile + Resilient channel	 Brio 18 WF + HWP 22 2x Diamant 12.5	56 dB	52 dB	56 dB [1]	54 dB [1]	55 dB	59 dB		
UA 100 double profile + Resilient channel	 Fireboard 25 + HWP 22 2x Fireboard 20							70 dB [1] F90	47 dB [1]
UA 100 double profile + CD Channel with Damping Universal Bracket	 Brio 18 WF + HWP 22 Diamant 18 + Silentboard 12.5 100 Suspension height 100 mm + 80 mm insulation layer					49 dB	59 dB		

- 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. subsequent provision of separation joints in the screed).
- The stiffer UA Profiles are less favourable in terms of sound insulation than CW profiles, but exceed them when combined with decoupling measures such as Resilient Channels or Dampening Universal Brackets.
- Mineral wool insulation layer acc. to DIN EN 13162 with a fill ratio ≥ 80 %; length-related flow resistance acc. to DIN EN 29053: r ≥ 5 kPa· s/m²

1) Calculated values: Additional deduction of 3 dB (airborne and footfall sound)

Terms:

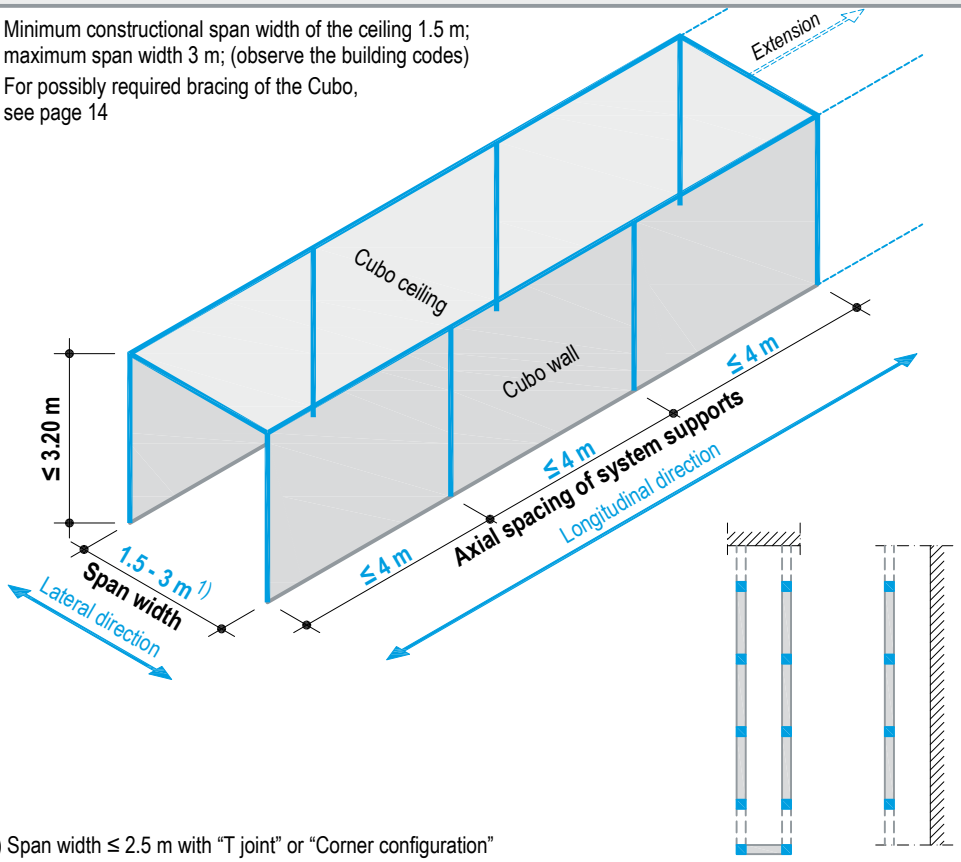
$L'_{n,w}$ Weighted normalized impact sound level in Cubo due to excitation of the Cubo ceiling.

$D_{nT,w}$ Weighted standardized sound level difference

K377.de Knauf Cubo Escape Tunnel

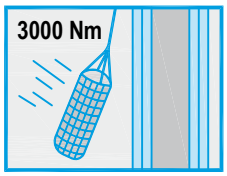
Scheme drawings

- Minimum constructional span width of the ceiling 1.5 m; maximum span width 3 m; (observe the building codes)
- For possibly required bracing of the Cubo, see page 14



1) Span width ≤ 2.5 m with “T joint” or “Corner configuration” (see page 36 for alternatives)

Inside impact stress resistance for ceiling and wall has been proofed



Sheet steel layers in the ceiling and walls

Span width of the Cubo ceiling K377.de

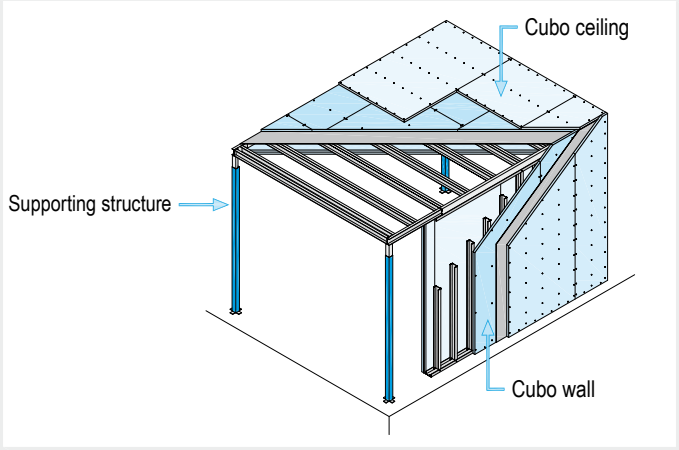
Cubo ceiling profiles (UA) may not be joined or extended.

Knauf UA double profile Metal gauge 2 mm	Axial spacing (b) mm	Max. span width m
2x **UA 100**	**500**	**3**

K377.de Knauf Cubo Escape Tunnel

Fire protection

Inside and outside fire protection



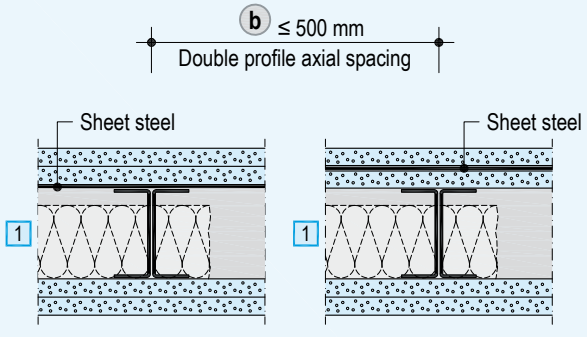
- **Sheet steel layers in the ceiling and walls**
  - Sheet steel t = 0.5 mm
- The fire resistance class is provided both for inside and outside exposure to fire
- Flanking components must feature the same fire resistance class
- A layer of insulation is not required for fire resistance, however it is permitted when the building material class is min. B2 (insulation materials, e.g. from Knauf Insulation)
- "Multi-level ceiling" system possible. Apply the revealed ceiling with a perimeter shadow gap and only use non-combustible materials.

Required cladding

Fire resistance class	Ceiling top	Ceiling bottom	Wall outside	Wall inside	Knauf Premium Drywalling
F90	+ **0.5 mm** sheet steel **2x 20 mm** Fireboard	**2x 20 mm** Fireboard	**20 mm** Fireboard + **0.5 mm** sheet steel **20 mm** Fireboard	**20 mm** Fireboard + **0.5 mm** sheet steel **20 mm** Fireboard	A1

Scheme drawings

Cubo ceiling K377.de

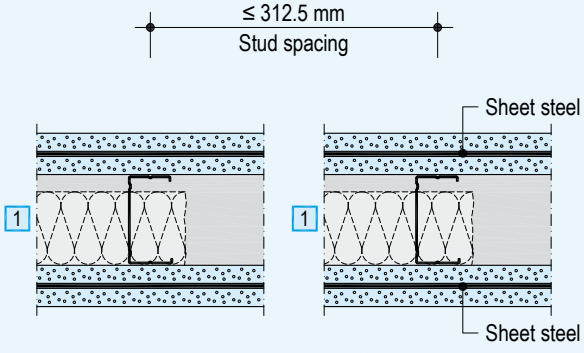


- **Knauf Profiles**

1 UA double profile 100

- Sheet steel can be applied below or between the boards on the top of the ceiling

Cubo walls K377.de



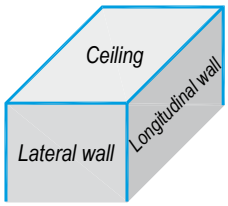
- **Knauf Studs**

1 CW Stud 75 / 100

- Sheet steel can be applied between the boards of the internal and external wall cladding

Bracing alternatives: (others on request)

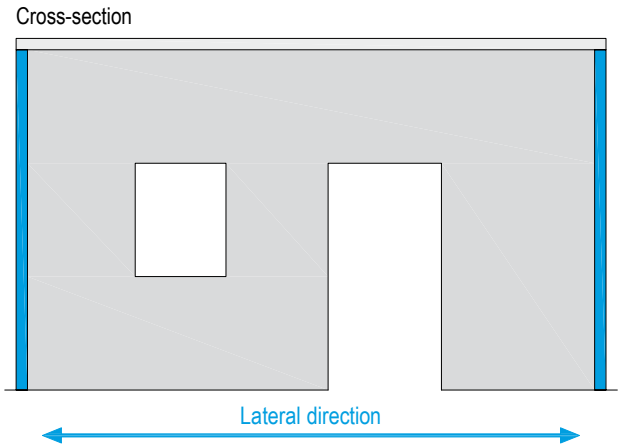
Scheme drawings



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

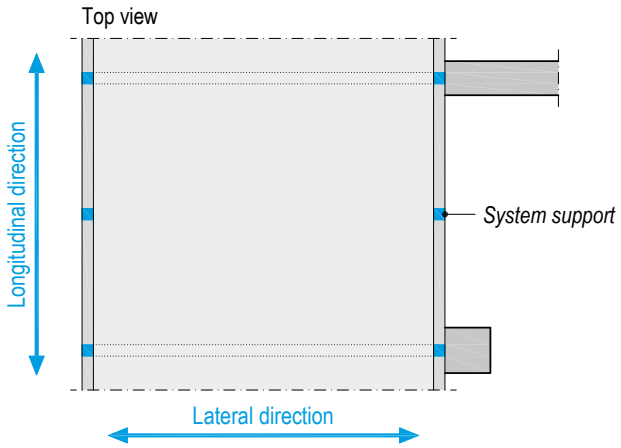
- With system lengths **≤ 8 m**, the lateral bracing is only required at the system ends
  - on closed systems this function is provided by the front side lateral walls
  - open systems require external bracing in accordance with alternatives 2 - 4
- With system lengths **> 8 m**, apply additional intermediate bracing every ≤ 8 m in accordance with alternatives 1 - 4 and in the system support area an additional UA profile must be used in the ceiling

1 With inside Cubo walls



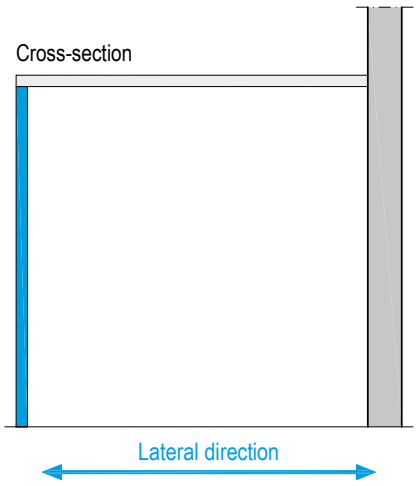
Notes:
- Application of Cubo inside walls like Cubo outside walls
- Connection to longitudinal wall (T joint) see page 33.
- Connection of UW Runner of the wall to the UA profile of the Cubo ceiling with Knauf Multi-purpose Screws FN (pre-drill with Ø 3 mm)
- For possible wall openings, see page 15

2 One side - with outside walls / supports



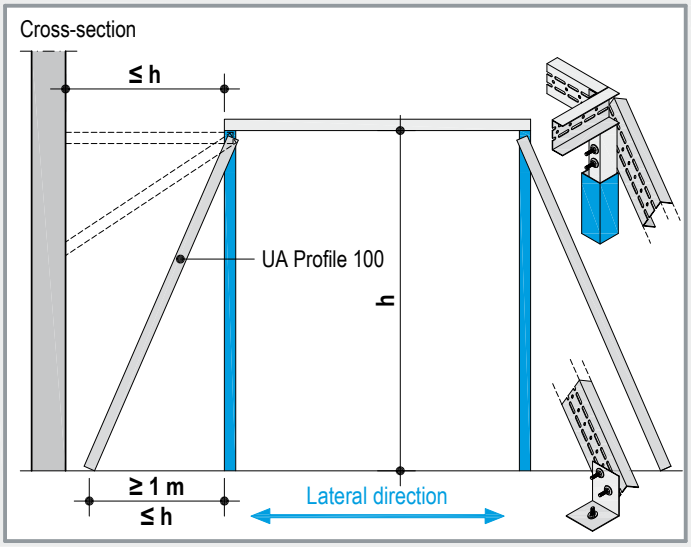
Notes:
- Possible components flanking the outside: Masonry walls, reinforced concrete walls, stud partitions (metal / wood), reinforced concrete column. For fire resistance: Same fire resistance as Cubo.
- Knauf system supports must be connected using suitable fasteners with a frictional connection to solid walls/supports. Design for 4.2 kN horizontal force
- Outside walls / supports must support additional loads.

3 One side connection to a continuous wall



Notes:
- 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 profiles.
- For connection application see pages 17 + 19.

4 Double side with outside UA profiles

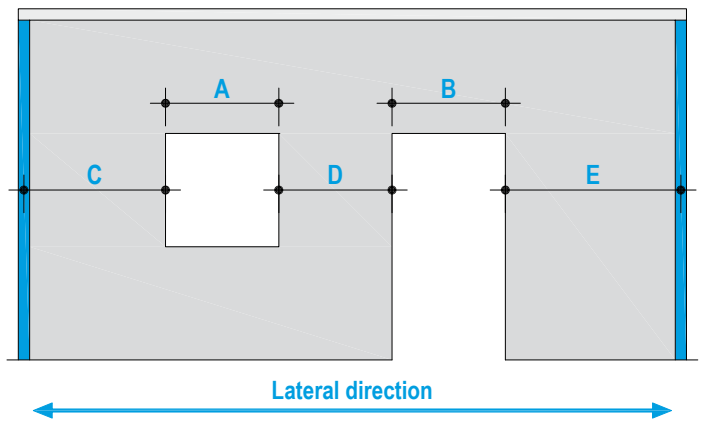


Notes:
- Screw fastening in oblong holes of UA Profiles not permissible. Use the circular holes or predrill holes.
- Attachment of the UA Profile with 2 threaded rods + nuts M8 to the telescopic element of the system supports (pre-drill with Ø 8.5 - 9 mm).
- Threaded rod: In the centre of the telescopic 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 to the metal bracket (pre-drill with Ø 8.5 - 9 mm).
- Brackets and the anchoring of the brackets to the basic floor designed for tension and shear of 4.2 kN (application on request)
- For fire resistance: Protect the diagonal bracing all-round (F30: 2x 12.5 mm Diamant / F90: 2x 20 mm Fireboard).

Permissible openings in bracing Cubo walls

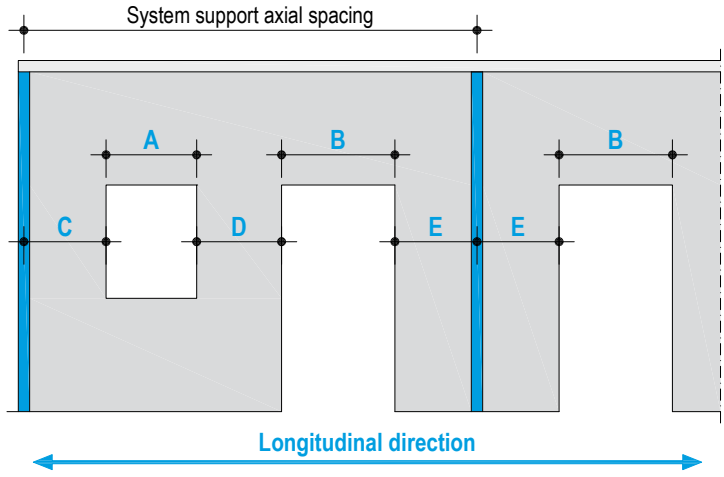
Openings in lateral direction

Views - Scheme drawings



- Dimensions **A + B**
  ≤ 40 % of the width
- Individual openings **A or B**
  ≤ 2000 mm wide
- Dimension **C**
  ≥ A/2 but min. **625 mm**
- Dimension **D**
  largest dimension of **A/2** or **B/2** but min. **625 mm**
- Dimension **E**
  ≥ B/2 but min. **625 mm**

Openings in longitudinal direction

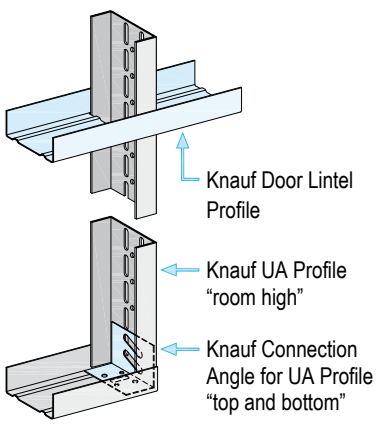


- Dimensions **A + B**
  ≤ 40 % of the system support axial spacing
- Dimension **C**
  ≥ A/2 but min. **625 mm**
- Dimension **D**
  largest dimension of **A/2** or **B/2** but min. **625 mm**
- Dimension **E**
  ≥ B/2 but min. **625 mm**

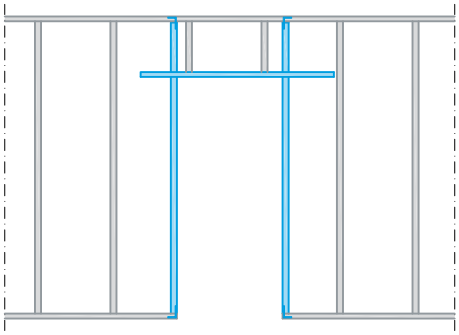
- Larger openings on request

Door and window openings

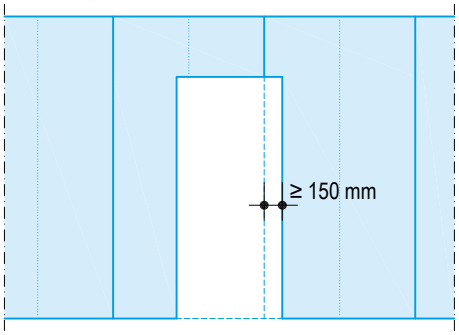
Scheme drawings



- Substructure



- Cladding

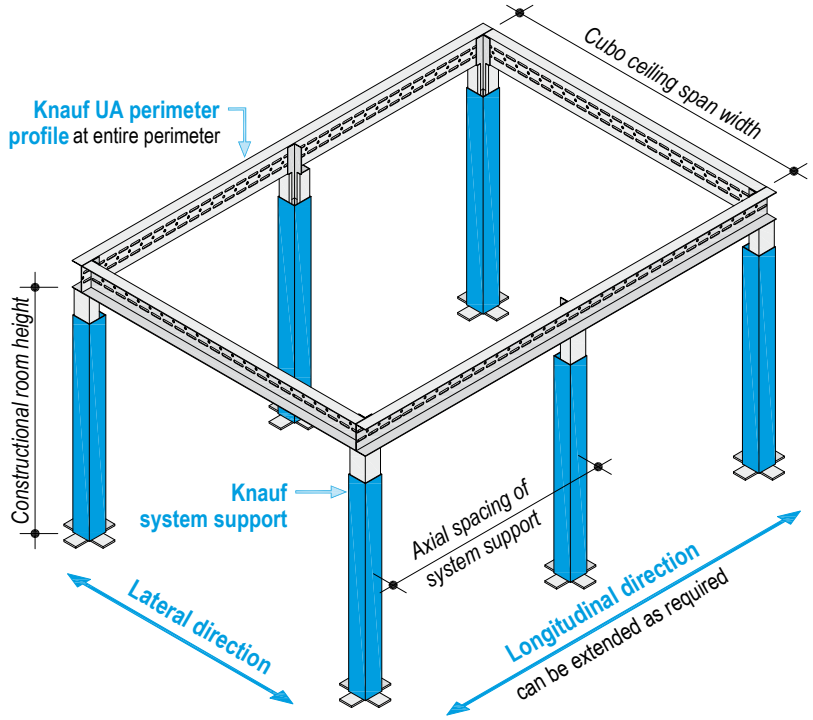


- Do not apply board joints to door opening profiles

- For further details on application see page 25. Apply window openings in the same way with UA Profiles + connection brackets.

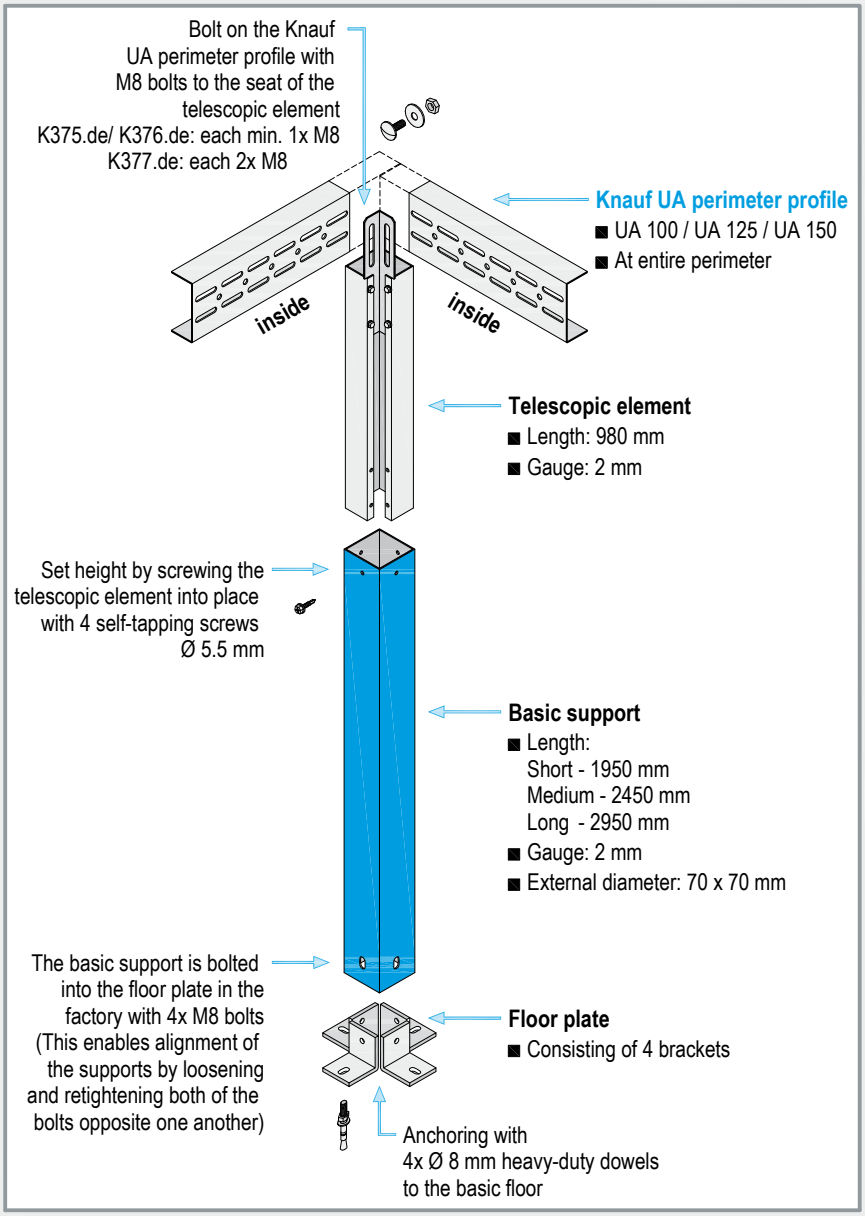
Supporting structure: Knauf system supports + perimeter Knauf UA Profile frame

Scheme drawings - Free-standing system



- **Knauf system support 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 15)
- **Longitudinal direction**
  - Refer to the corresponding system configuration, can be extended as required
- **Lateral direction**
  - Spanning direction of the Cubo ceiling
- **Cubo ceiling span width**
  (= Knauf UA perimeter profile to Knauf UA perimeter profile)
  - Refer to the corresponding system configuration
- **Constructional room height**
  (= upper edge of basic floor to lower edge of Knauf UA perimeter profile)
  - Depending on the Knauf system support application
    Short: 2.0 m to 2.7 m constructional room height
    Medium: 2.5 m to 3.2 m constructional room height
    Long: 3.0 m to 3.7 m[1)] constructional room height
    Greater than 3.7 m on request
  - Adjustable via telescopic element

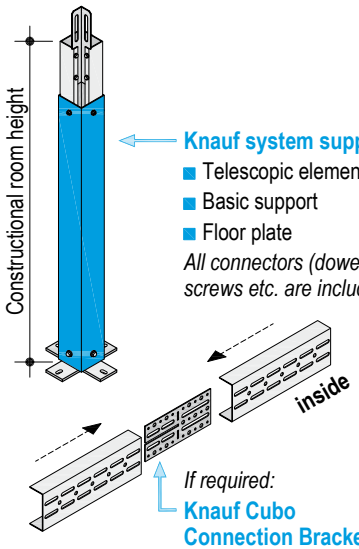
1) With room height > 3.20 m
- Cubo system with double cladding
- Fire resistance in conjunction with building authorities



Assembly - supporting structure

1. Anchor each of the 4 brackets of the floor plate to the floor with a heavy-duty dowel Ø 8 mm each
2. Align the system supports.
3. Adjust the height of the telescopic element in the basic support and screw into place with 4 self-tapping screws Ø 5.5 mm.
4. Bolt on the surrounding UA perimeter profile to the telescopic element of the system supports with the M8 bolts.
   (K375.de/ K376.de: each min. 1x M8; K377.de: each 2x M8)

Any profile joints of the Knauf UA perimeter profiles only permissible in the longitudinal direction. Arrange the joints when possible near the support, max. 1.5 m beside the support.
(Application with Knauf Cubo Connection Bracket)

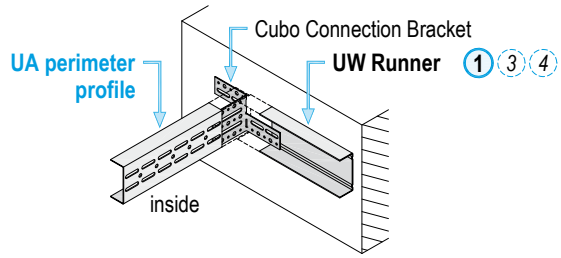


Supporting structure: K375.de Basis

Scheme drawings - Dimensions in mm

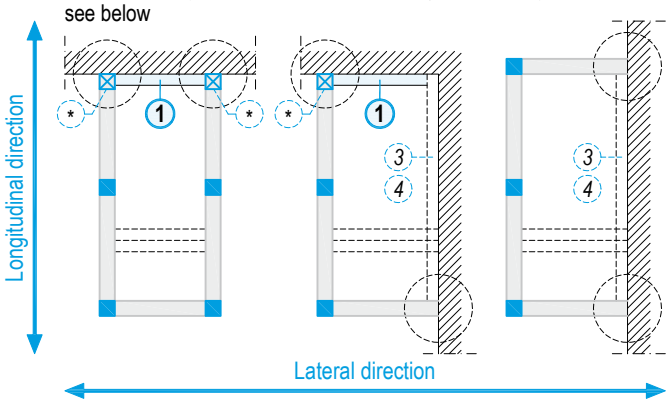
■ **Connection of UA perimeter profile to flanking components using a bent Cubo Connection Bracket**

Bolting of the UA perimeter profile to the bracket with 2x M8 bolts



3 4 Profile + anchoring see page 19

* Recommendation: If the self-weight of ceiling x span width of ceiling is > 4 kN/m, apply as with Cubo Empore using additional system supports, see below

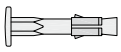


1 **UW Runner:** Fixing of the UW Runner with suitable anchors **≤ 625 mm** (e.g. Ceiling Steel Dowels / Nailable Plugs / Multi-purpose Screw in metal stud partitions). This profile is only intended to attach the cladding and does not provide support.

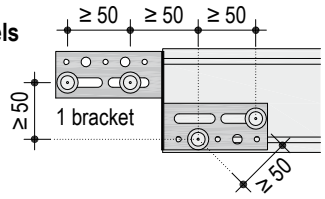
Connection of the Cubo Connection Bracket to flanking components

■ e.g. with reinforced concrete wall

4x Knauf Ceiling Steel Dowels



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



■ Other substrate

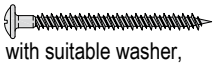
Suitable fasteners

Rated to max. loading of the entire connection at 2.0 kN

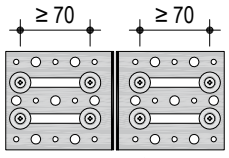
■ Connection to metal stud partitions:

8x Knauf Multi-purpose Screws

FN 4.3x65



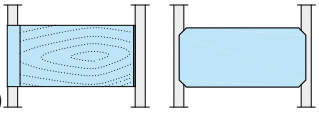
with suitable washer, t = 2 - 3 mm, Ø 30 mm



Stud partition with double layer cladding 1)

Knauf Traverse W234.de

necessary in the stud partition in the bracket connection area (see Knauf System Data Sheet W21.de)

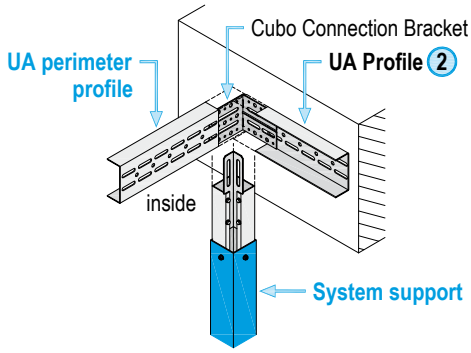


1) If necessary, upgrading of existing metal stud partitions must be co-ordinated in individual cases

Supporting structure: K376.de Empore / K377.de Escape Tunnel

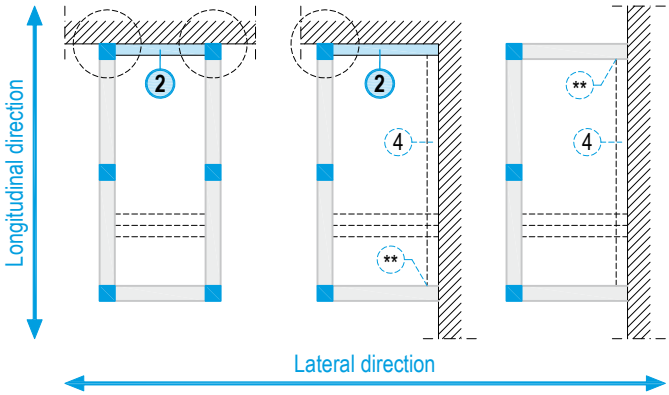
■ **Connection of UA perimeter profile to flanking components using a bent Cubo Connection Bracket**

Fixing of the UA perimeter profile to the bracket with 2x M8 bolts



4 Profile + anchoring see page 19

** Connect in acc. to K375.de (see above)

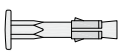


2 **UA Profile:** Anchoring of the UA Profile with the Knauf Ceiling Steel Dowel **≤ 500 mm**
This profile is intended to attach the cladding but features an additional supporting function.

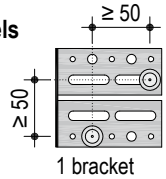
Connection of the Cubo Connection Bracket to flanking components

■ e.g. with reinforced concrete wall

2x Knauf Ceiling Steel Dowels



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



■ Other substrates

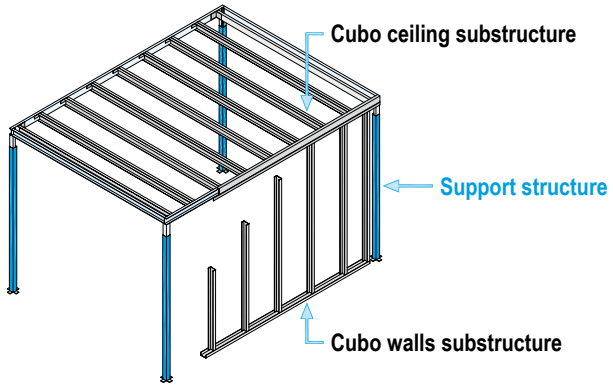
Suitable fasteners

■ Connection to metal stud partitions on request

Substructure

Scheme drawings

The Cubo ceiling and the Cubo walls are installed after the support structure



Cubo ceiling

K375.de:
- CW double stud profile
- UA double profile → Large span widths / high ceiling weight
- UA double profile + Resilient Channel / CD Channel with Damping Universal Bracket → Sound insulation

K376.de:
- UA double profile
- UA double profile + Resilient Channel → Sound insulation

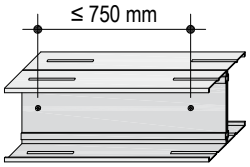
K377.de:
- UA double profile

Cubo walls K375.de / K376.de / K377.de:
- With CW Stud
- MW Stud → Sound insulation

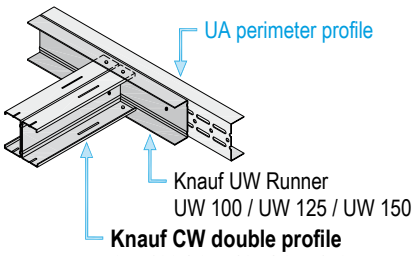
Cubo ceiling substructure

Knauf CW double profiles

Screw together the CW profiles with Metal Screws LN 3.5x9 at spacings of **≤ 750 mm** in the web

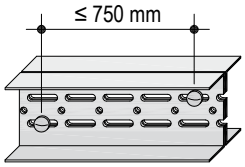


Assembly see pages 19 + 20

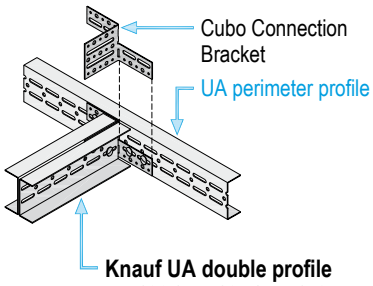


Knauf UA double profile

Bolt together the UA Profiles with M8 bolts at spacings of **≤ 750 mm** staggered on the oblong hole rows



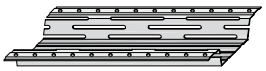
Assembly see pages 19 + 20



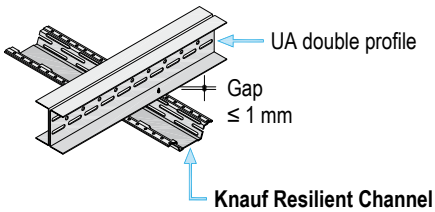
Knauf Resilient Channel 60x27

Installation laterally to the UA double profile at spacings ≤ 500 mm or with combined cladding with Silentboard ≤ 400 mm

■ Sound insulation alternative example



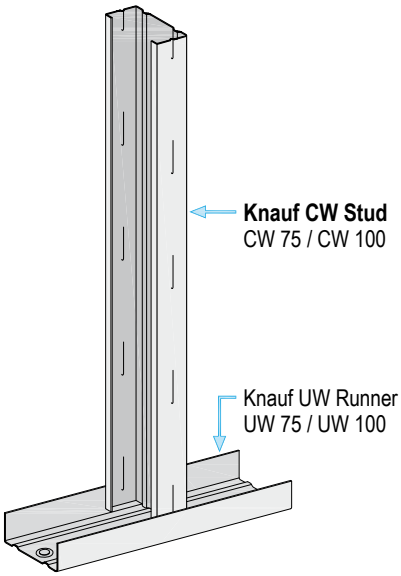
Attach the Resilient Channel to the UA double profiles with 2 Metal Screws LB 3.5x16 each. The Resilient Channel is suspended in the screw heads.



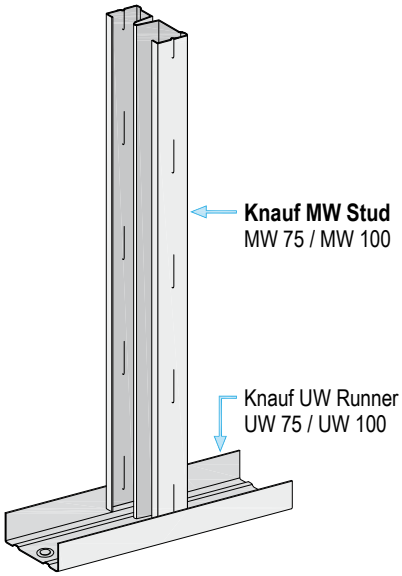
Cubo ceiling profiles (CW / UA) may not be joined or extended.

Substructure - Cubo walls

Knauf CW Stud

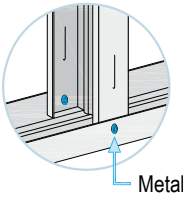


Knauf MW Stud ■ For sound insulation



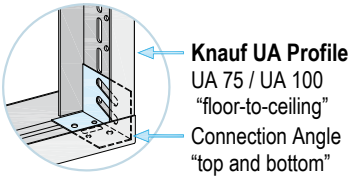
K377.de Escape Tunnel:

Connect CW Studs and UW Runners at top and bottom with metal blind rivets



Door and window openings:

UA Profile + Knauf Connection Angle for UA Profile (see also pages 15 + 25)

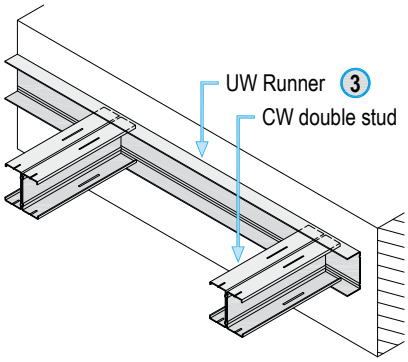


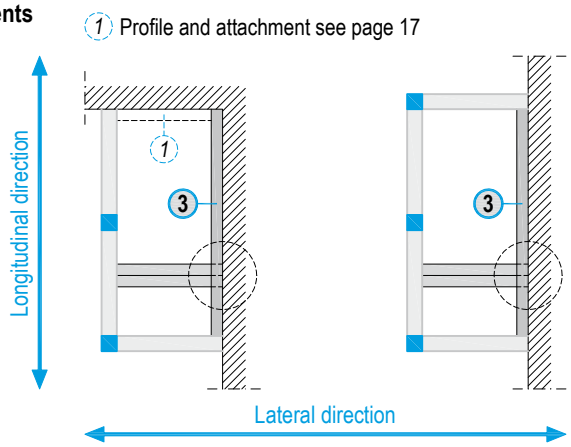
► For further construction details refer to Knauf System Data Sheet (e.g. W11.de)

Cubo ceiling - CW double studs: K375.de Basis

Scheme drawings - Dimensions in mm

■ **Connection of CW double studs using UW Runners on flanking components**
Connect CW + UW, e.g. by screw fixing or riveting





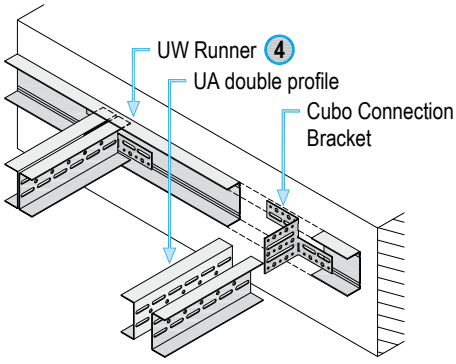
3 UW Runner: This profile is a load bearing profile for the ceiling load and for the fastening of the cladding

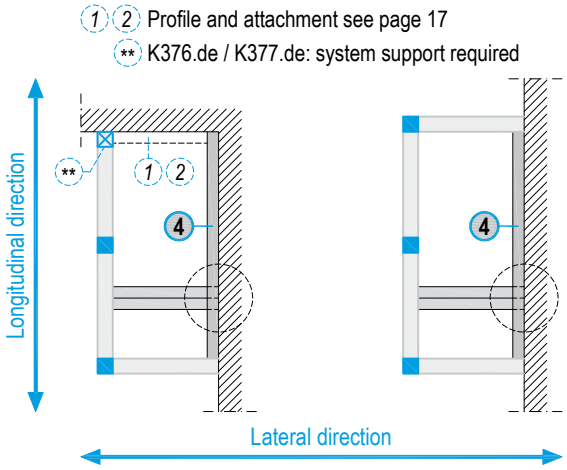
Substrate	Fasteners	Max. fastener spacings Self-weight of the Cubo ceiling Up to 0.4 kN/m²	Up to 1.0 kN/m²
Metal stud partitions, double layer cladding[1] (Connection to metal studs)	2x Knauf Multi-purpose Screws FN 4.3x65	625 mm	312.5 mm
Reinforced concrete walls	Knauf Ceiling Steel Dowel	300 mm	250 mm
	Knauf Nailable Plugs L 8/80		200 mm
Stable masonry without cavities or light concrete (density ≥ 1000 kg/m³)	Knauf Nailable Plugs L 8/80	300 mm	200 mm
Other substrate	Suitable fasteners Min. shear load capacity 0.35 kN	300 mm	200 mm

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

Cubo ceiling - UA double profiles: K375.de Basis / K376.de Empore / K377.de Escape Tunnel

■ **Connection of UA double profile to flanking components using a bent Cubo Connection Bracket**
Attachment of the UA double profile to the bracket with 2x M8 bolts

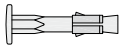




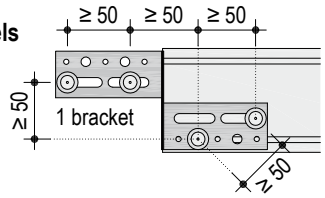
4 UW Runner: Anchoring of the UW Runner with suitable fasteners **≤ 625 mm** (e.g. Ceiling Steel Dowels / Nailable Plug)
This profile is only intended to attach the cladding and has no additional supporting function

Connection of the Cubo Connection Bracket to flanking components

■ e.g. with reinforced concrete wall
4x Knauf Ceiling Steel Dowels



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



■ Other substrates
Suitable fasteners
Design for max. loading of the entire connection of 2.0 kN

■ Connection to metal stud partitions on request

The supporting structure is fully assembled and aligned

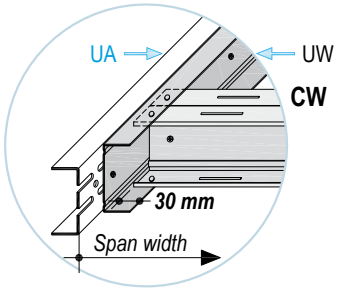
Installation - Cubo ceiling and Cubo walls

Scheme drawings

1. Cubo ceiling substructure

CW double stud profile:

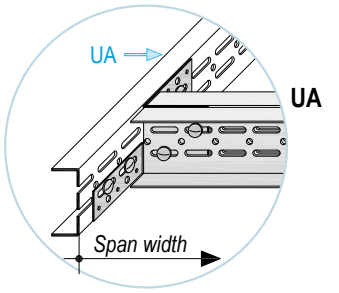
Fasten UW Runners with Metal Screws LB 3.5x16 every ≤ 500 mm to the UA perimeter profiles of the supporting structure, slide in CW double profiles and fasten at the top and bottom to the UW Runner (e.g. screw fixing).



UA double profiles:

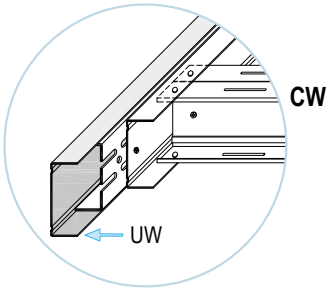
The UA double profiles are fastened with the bent Cubo Connection Bracket to the UA perimeter profile of the supporting structure.

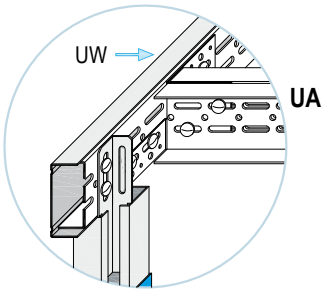
Bolt the bracket to the UA perimeter profile with 4x M8 and to the UA double profile with 2x M8 bolts.



2. UW Runner - outside

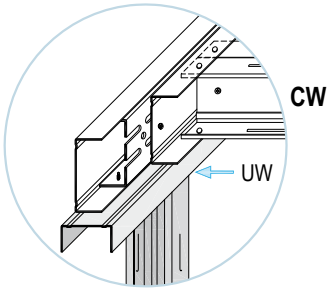
Slide UW Runner sections (approx. 200 mm long) or a continuous UW Runner (for fastening of the outside wall cladding) over the UA perimeter profile of the supporting structure.

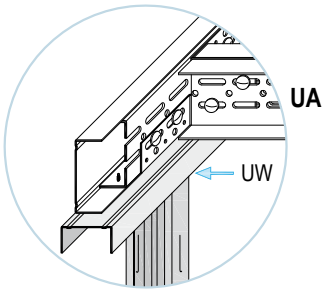




3. Substructure - Cubo walls

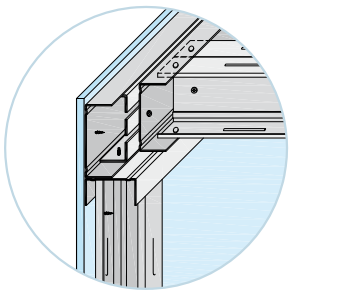
Fasten the UW Runners with Metal Screws LB 3.5x16 every ≤ 1000 mm (K375.de) / ≤ 500 mm (K376.de / K377.de) to the UA perimeter profiles of the supporting structure, then install the rest of the substructure for the walls.





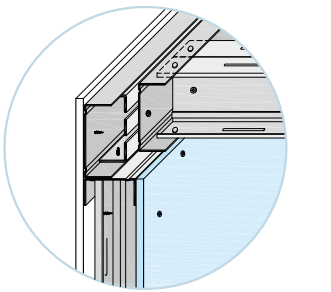
4. Cladding Cubo walls - outside

Clad the outside walls.



5. Cladding Cubo walls - inside

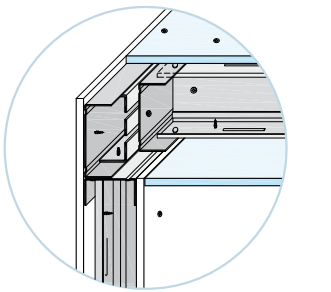
Clad the inside walls.



6. Cubo ceiling cladding

Clad the ceiling.

Use planks or form panels to distribute the load when assembling the top of the ceiling.



- Connection to other components see pages 17 + 19
- Bracing intermediate walls see pages 14 + 15
- Supporting structure: After application of the reinforcing ceiling and wall cladding, the protruding bracket of the floor plates can be cut off flush.
- After installation of the Cubo ceiling and the Cubo walls, non-bracing intermediate walls (applied according to Knauf System Sheets) can be arranged as required in the room-in-room system.

With fire resistance

Tiered edge (shiplap) cladding arrangement

Fastening of the cladding with Knauf screws

Cladding Thickness in mm	Metal stud frame (Penetration ≥ 10 mm) Metal gauge **s ≤ 0.7 mm** Drywall Screws **TN**	Diamant Screws **XTN** **HGP**	Metal gauge **0.7 mm < s ≤ 2.25 mm** Drywall Screws **TB**	Diamant Screws **HGP-TB**
12.5 Diamant	-	XTN 3.9x23 mm	-	HGP-TB 3.9x35 mm
22 HWP (Wooden composite board)	-	-	TB 3.5x35 mm	-
2x 12.5 Diamant	-	XTN 3.9x23 + 3.9x38 mm	-	HGP-TB 3.9x35 + 3.9x55 mm
12.5 Diamant + 12.5 Silentboard	-	XTN 3.9x23 mm XTN 3.9x38 mm	-	HGP-TB 3.9x35 mm HGP-TB 3.9x55 mm
18 Diamant + 12.5 Silentboard	-	XTN 3.9x33 mm HGP 3.9x55 mm	-	HGP-TB 3.9x35 mm HGP-TB 3.9x55 mm
2x 20 Fireboard	TN 3.5x35 + 3.5x55 mm	-	TB 3.5x35 + 3.5x55 mm	-
22 HWP + 12.5 Diamant	-	-	TB 3.5x35 mm	HGP-TB 3.9x55 mm
22 HWP + 25 Fireboard	-	-	TB 3.5x35 mm TB 3.5x55 mm	-

■ Diamant screws must always be used for Diamant and Silentboard cladding

Max. fastener spacings

Dimensions in mm

Cladding		Single layer HWP / Diamant 12.5 mm mm	Double layer 1st layer HWP / Diamant 12.5 mm / Fireboard mm	1st layer Diamant 18 mm mm	2nd layer Diamant 12.5 mm / Fireboard mm	2nd layer Silentboard mm
Bottom of ceiling		**170**	**500** [3]	**300** [4]	**170**	**150**
Top of ceiling	K375.de	**250**	**750**	**600**	**250**	**200**
	K376.de					
	K377.de	**-**	**500**	**-**	**170**	**-**
Wall		**250**	**750**	**600**	**250**	**200**

■ Always fasten all board layers within one day with multi-layer cladding, otherwise the spacing of the fasteners is reduced: 3) to ≤ 170 mm
4) to ≤ 150 mm

Loads fixed to walls and ceilings

Cubo walls

■ **Up to 0.7 kN/m - dowel**

According to DIN 18183, partitions can be loaded at any position by cantilever loads up to 0.7 kN/m wall length (or up to 0.4 kN/m with 1x 12.5 mm cladding) if the cantilever arm (cabinet height ≥ 30 cm) and excentricity (cabinet depth ≤ 60 cm) are considered.
Spacing of the dowels ≥ 75 mm
(Knauf recommendation ≥ 200 mm).
Attach the cantilever loads with at least 2 cavity dowels made of plastic or metal, e.g. Knauf Hartmut Cavity Dowels

■ **Up to 1.5 kN/m sanistands / traverses**

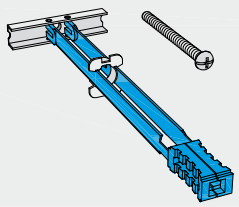
Cantilever loads > 0.4 or 0.7 kN/m up to 1.5 kN/m wall length must be transferred to the substructure using sanistands or traverses.

Dowel loading capacity (tension and shear loading) Specifications in kg

Cladding		Cavity dowels Plastic dowels ø8 mm or ø10 mm	Metal dowels Screw M5 or M6	Knauf Hartmut Screw M5
12.5	Diamant	**30**	**35**	**40**
+ 12.5 12.5	Diamant Silentboard	**40**	**50**	**55**
2x 12.5	Diamant	**45**	**55**	**60**
+ 18 12.5	Diamant Silentboard	**45**	**55**	**60**
2x 20	Fireboard	**45**	**55**	**60**

■ For further details regarding cantilever loads see Knauf System Data Sheets (e.g. W11.de)

Knauf Hartmut cavity dowel



Cubo ceiling

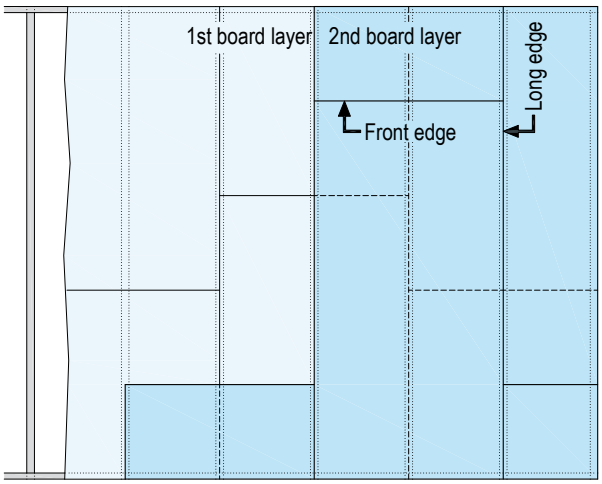
■ The installation or mounting of additional loads such as lighting fixtures with a max. 100 N (10 kg) per double profile (50 N per m² of ceiling surface) with suitable fixing directly to the substructure is permitted.
Consider additional loads when determining the self-weight of the ceiling.

K37.de Knauf Cubo

Knauf board application - Cubo walls (Schematic drawing examples)

Board layers **vertical**

Board width: **1250 mm**

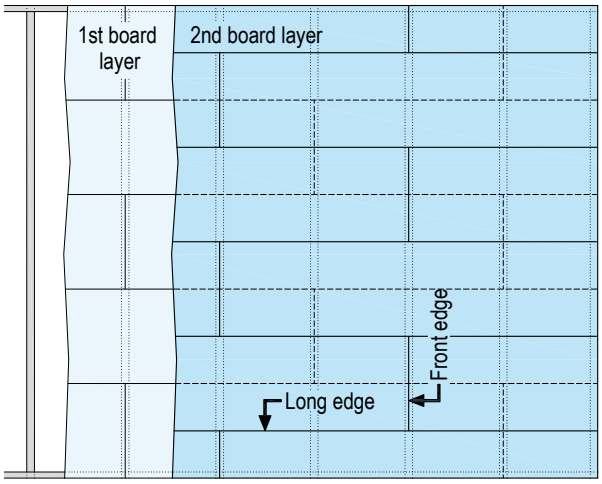


- Long edge joints must be staggered by at least one stud spacing.
- If floor-to-ceiling boards are not used, stagger the front edge joints by at least 400 mm.
- With multi-layer cladding, stagger the front edge joints between the board layers also.
- Front and long edge joints of cladding on opposing sides must also be staggered to one another.

- Application of the boards
  vertical: Diamant 12.5 mm / Fireboard

Board layers **horizontal**

Board width: **625 mm**



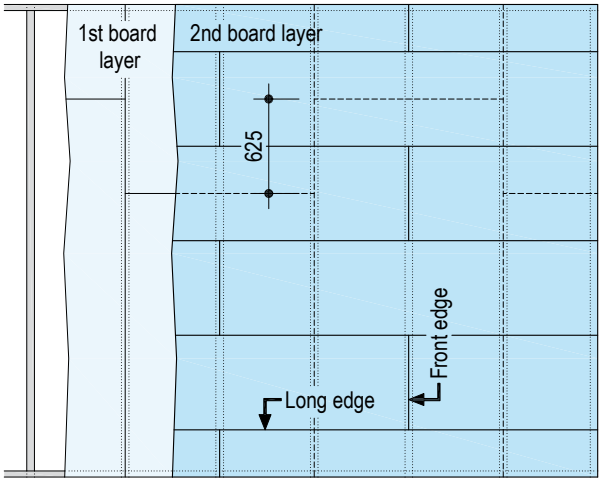
- Front edge joints must be staggered by at least one stud spacing.
- With multi-layer cladding, stagger the long edge joints between the cladding layers by at least half a board width.
- Front and long edge joints of cladding on opposing sides must also be staggered to one another.

- Application of the boards
  horizontal: Diamant 18 mm / Silentboard

F_H 1st layer Diamant as bracing cladding

Board layers **vertical + horizontal**

Board width: **1250 mm** (1st layer vertical)
Board width: **625 mm** (2nd layer horizontal)



1st layer (vertical):
- Long edge joints must be staggered by at least one stud spacing.
- If floor-to-ceiling boards are not used, stagger the front edge joints by at least 625 mm.

2nd layer (horizontal):
- Front edge joints must be staggered by at least one stud spacing.

Offset between 1st and 2nd board layer
- With existing front edge joints in the 1st layer, stagger the 2nd layer front edge joints by half a board width to the front edge joints of the 1st layer.
- Front and long edge joints of cladding on opposing sides must also be staggered to one another.

- Application of the boards
  vertical: Diamant 12.5 mm
  horizontal: Silentboard

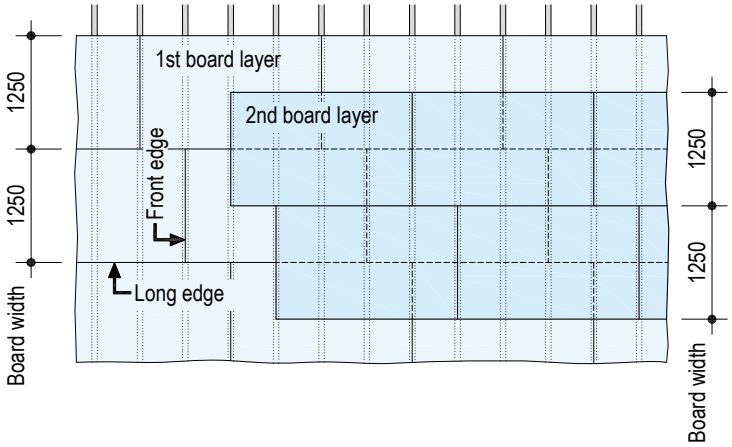
F_H 1st layer Diamant as bracing cladding

Lateral application

Bottom of ceiling

All dimensions in mm

Board width 1st layer: **1250 mm** Diamant 12.5 mm / Fireboard
Board width 2nd layer: **1250 mm** Diamant 12.5 mm / Fireboard

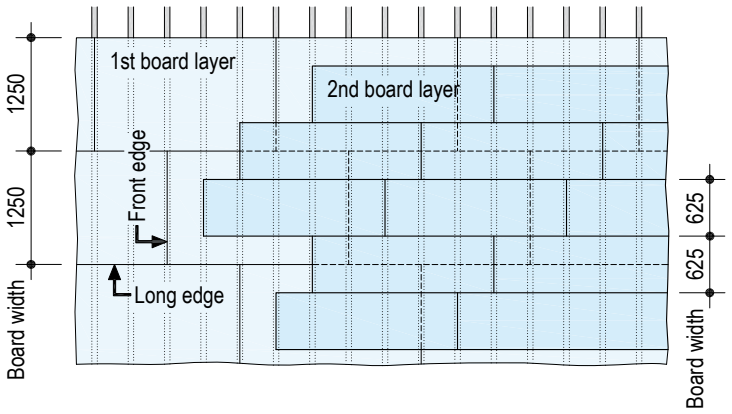


- Apply Knauf boards laterally to the furring channels/double profiles.
- Arrange the front edge joints on the furring channels / double profiles (stagger by at least 400 mm).
- Stagger the front edge joints between board layers with multi-level cladding.
- Stagger the long edge joints of the board layers by half a board width.
- Commence fastening of the boards in the board centre or on the board corner in order to avoid buckling.
- Every board layer should be pushed firmly onto the substructure and attached as an independent layer.

Lateral application

Bottom of ceiling

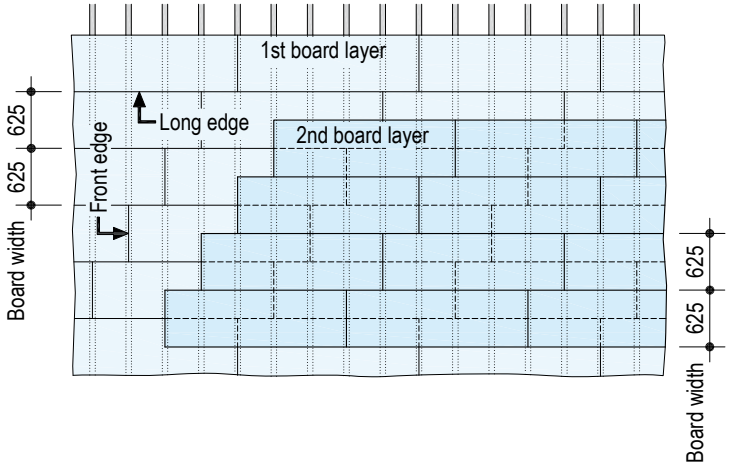
Board width 1st layer: **1250 mm** Diamant 12.5 mm
Board width 2nd layer: **625 mm** Silentboard



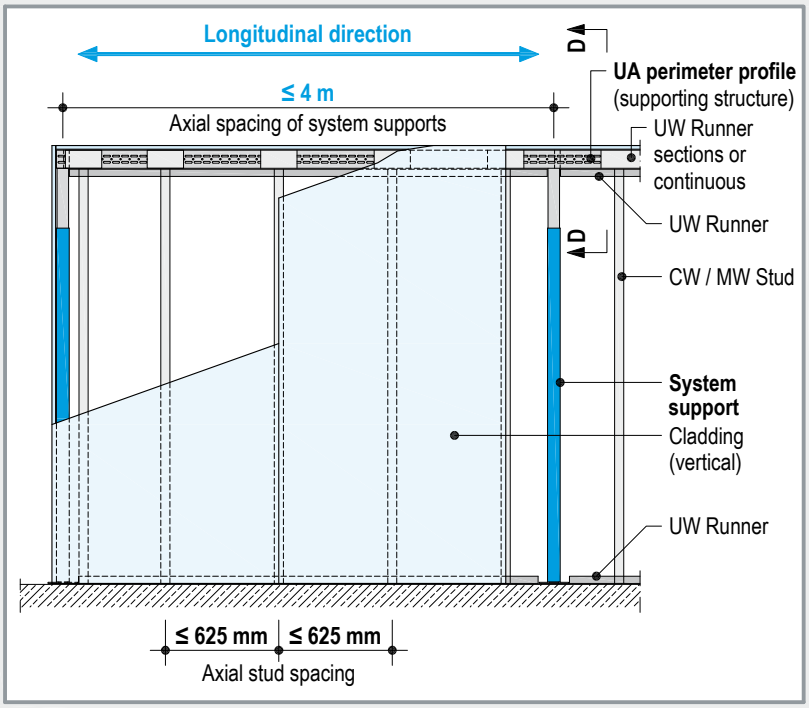
Lateral application

Bottom of ceiling

Board width 1st layer: **625 mm** Diamant 18 mm
Board width 2nd layer: **625 mm** Silentboard

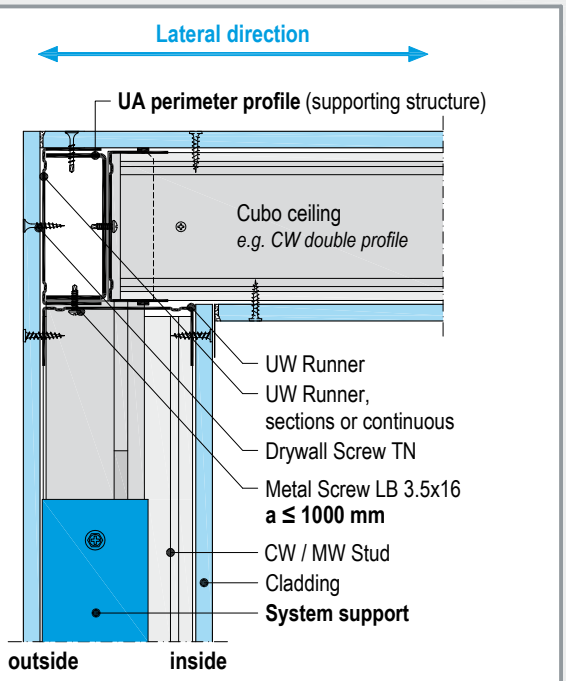


View



Section D-D

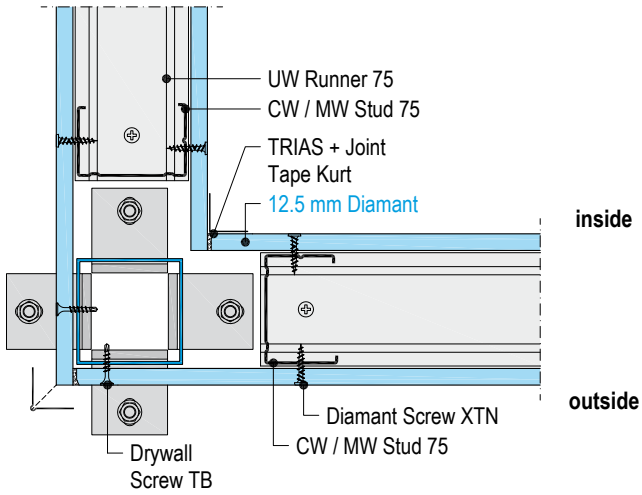
Scheme drawings



Details, scale 1:5

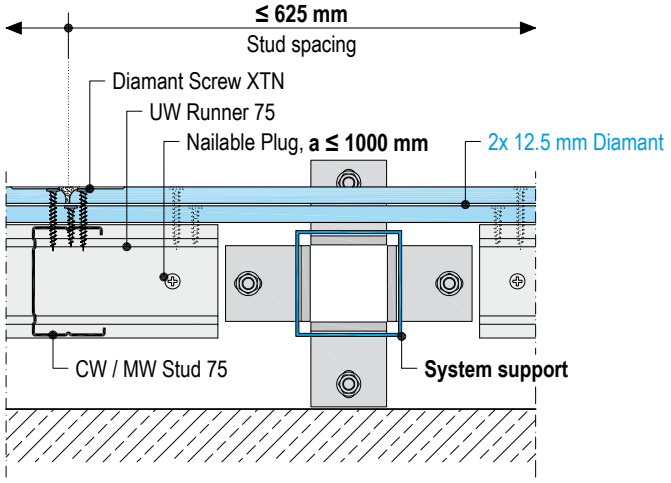
Horizontal sections - Examples

K375.de-H1 Corner - CW Stud

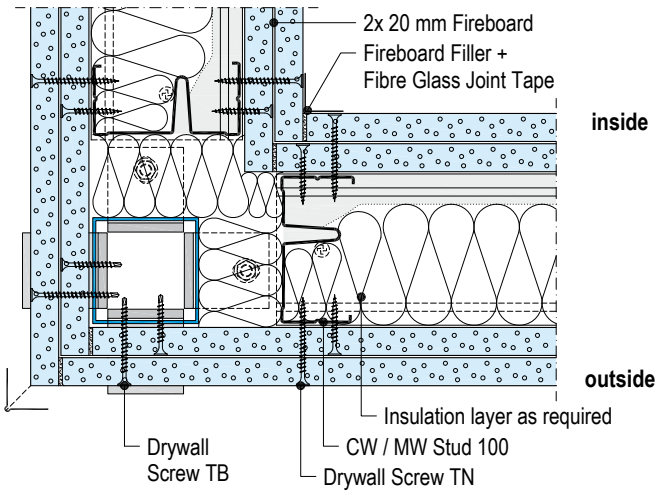


K375.de-H11 Furring channel - double layer cladding

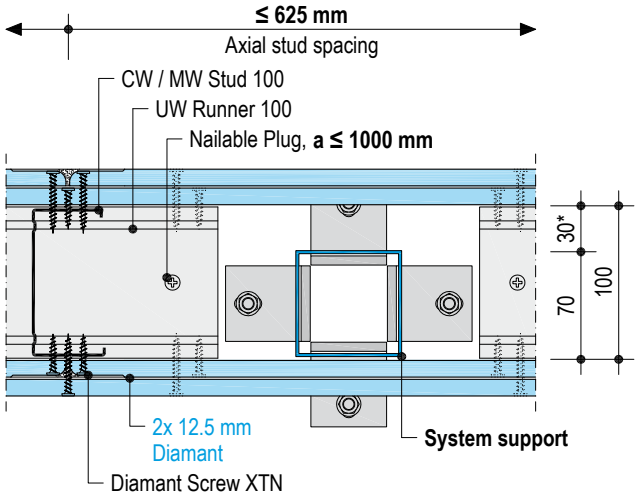
■ Inside fire protection in conjunction with the building authorities



K375.de-H3 Corner - MW Stud



K375.de-H4 Board joint - double layer cladding



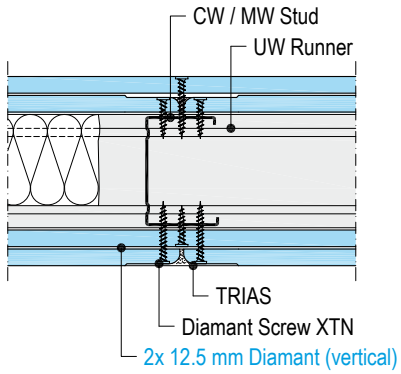
* = possible installation levels

Details, scale 1:5

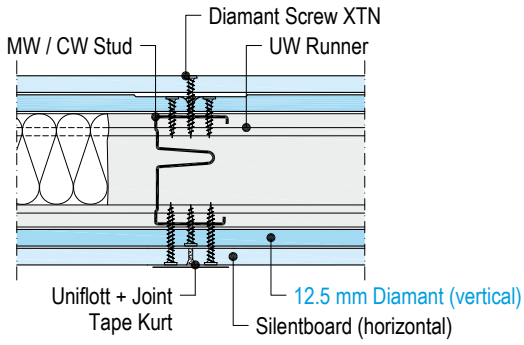
Horizontal sections - Examples

Vertical sections - Examples

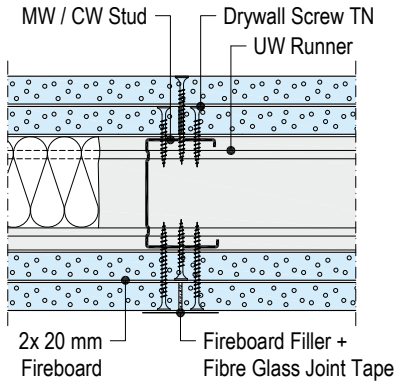
K375.de-H6 Board joint



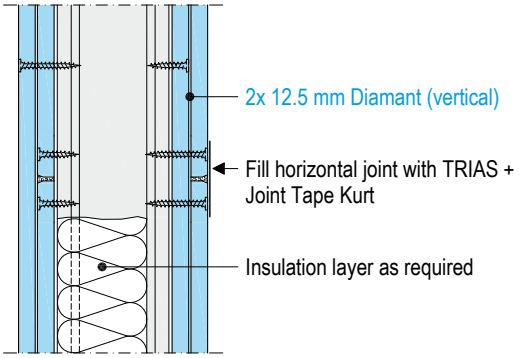
K375.de-H7 Board joint



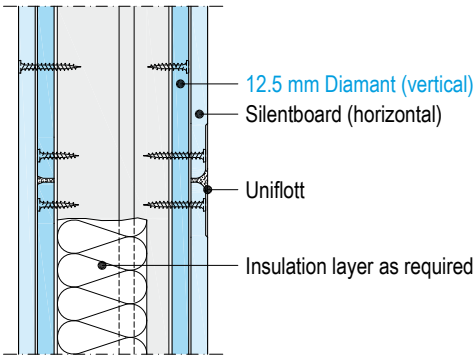
K375.de-H8 Board joint



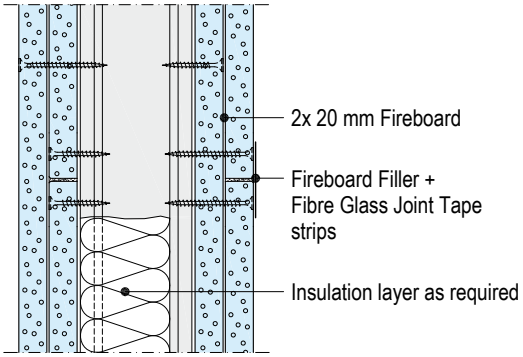
K375.de-V19 Board joint



K375.de-V20 Board joint

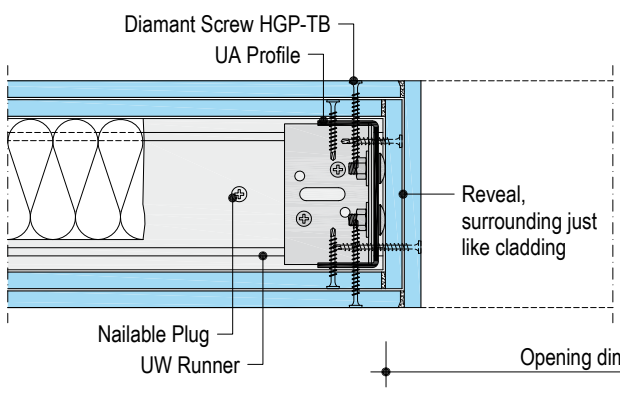


K375.de-V21 Board joint

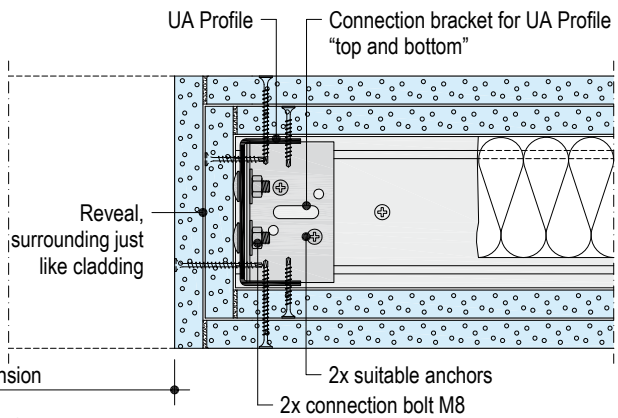


Horizontal sections - Examples

K375.de-H9 Door opening - fire resistance

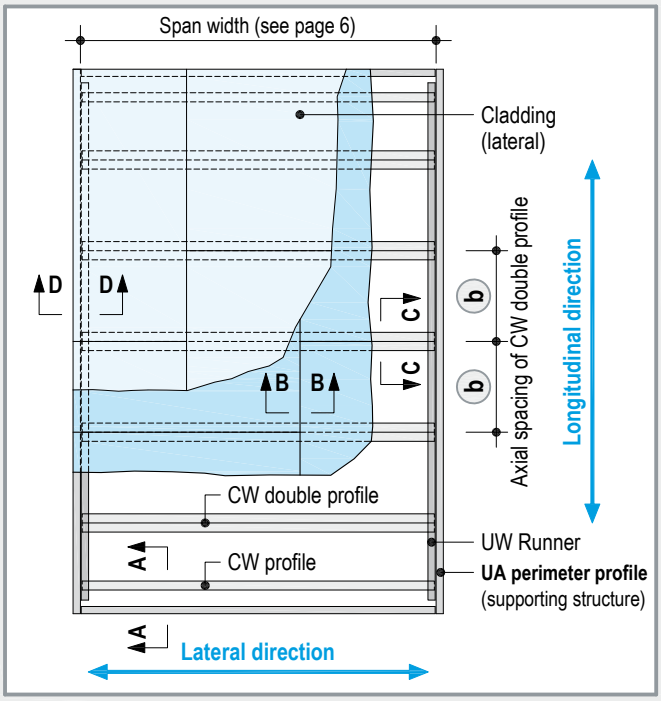


K375.de-H10 Door opening - fire resistance



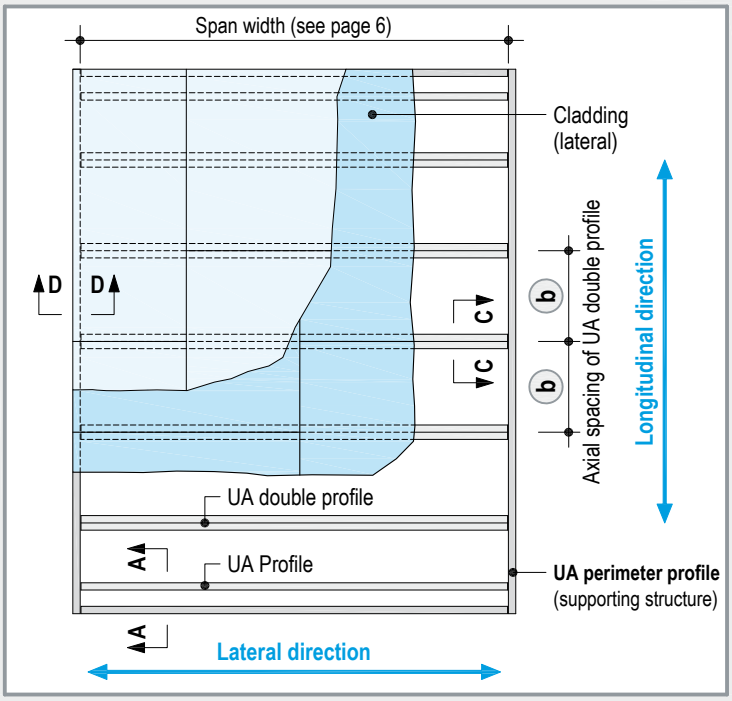
- For further door opening details refer to Knauf System Data Sheet (e.g. W11.de)
- Furthermore, the details of the door manufacturers are to be observed (e.g. fire resistance approval, additional constructional measures, etc.)

Top view - CW double profile



Top view - UA double profile

Scheme drawings

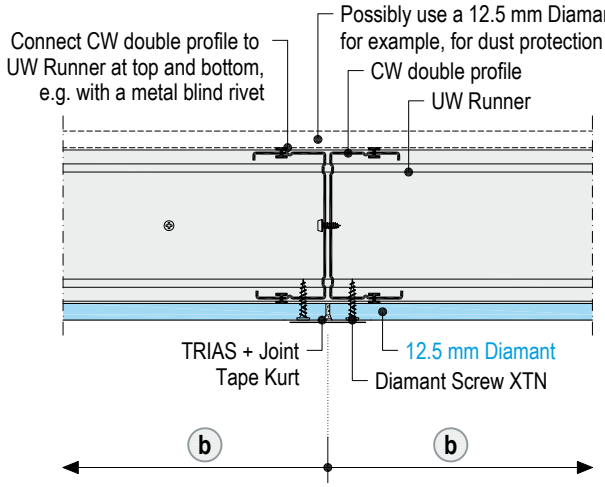


Details, scale 1:5

Vertical sections - Examples

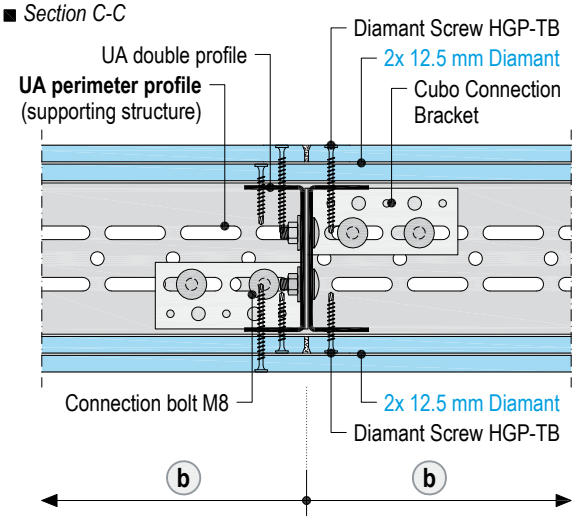
K375.de-V1 Front edge joint - CW double profiles

■ *Section C-C*



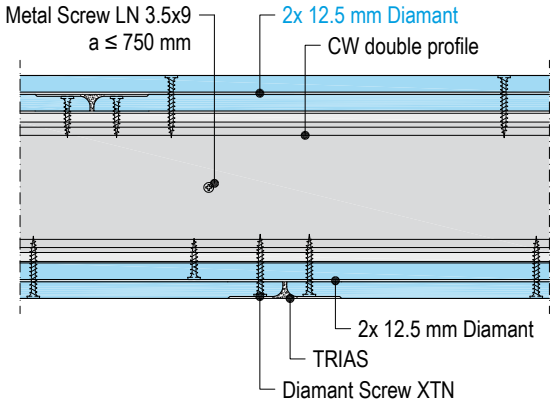
K375.de-V10 Front edge joint - UA double profiles

■ *Section C-C*

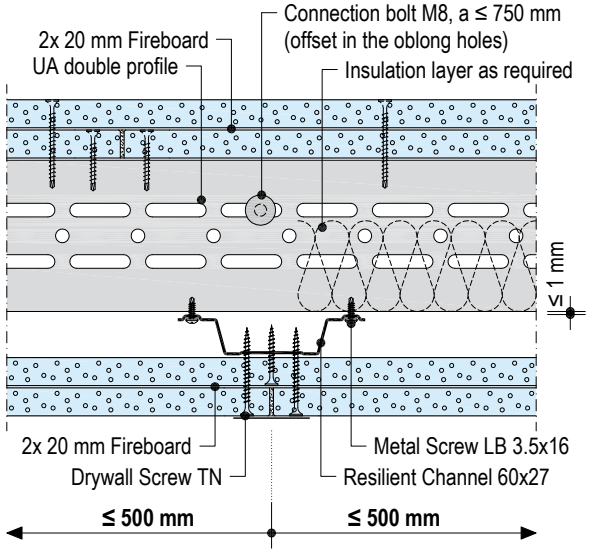


K375.de-V3 Long edge joint - CW double profile

■ *Section B-B*



K375.de-V4 Front edge joint - Resilient Channel

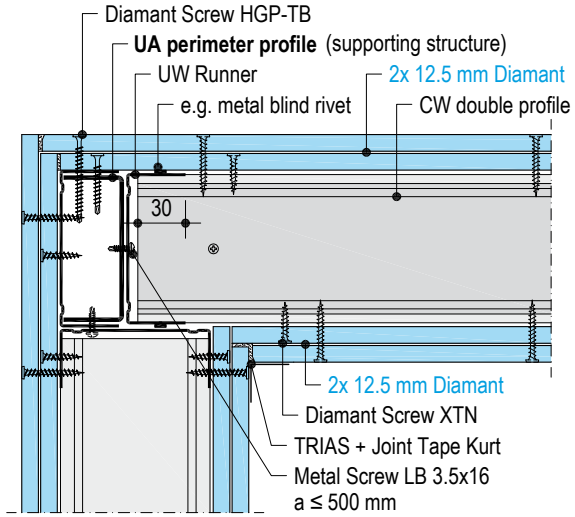


Details, scale 1:5

Vertical sections - Examples

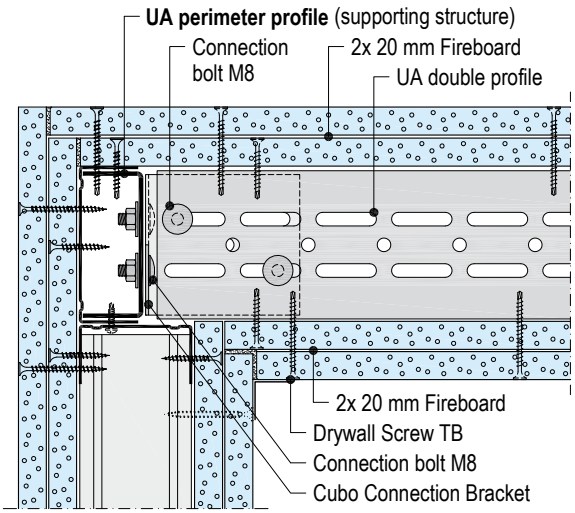
K375.de-V5 Perimeter connection - CW double profile

■ *Section D-D*



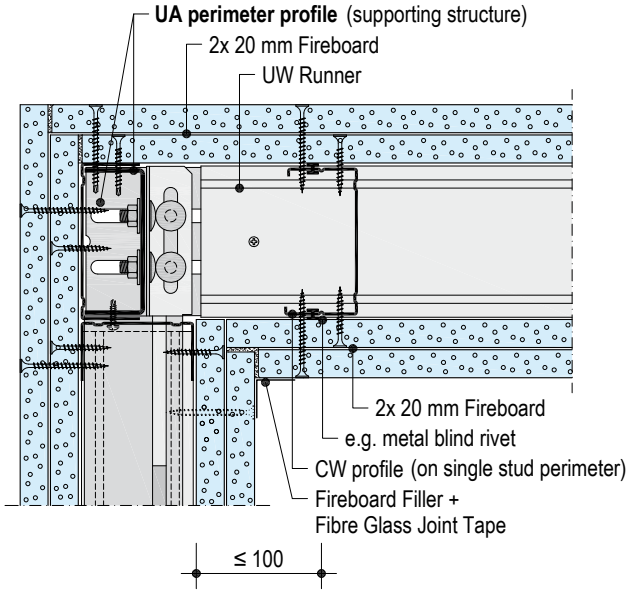
K375.de-V11 Perimeter connection - UA double profile

■ *Section D-D*



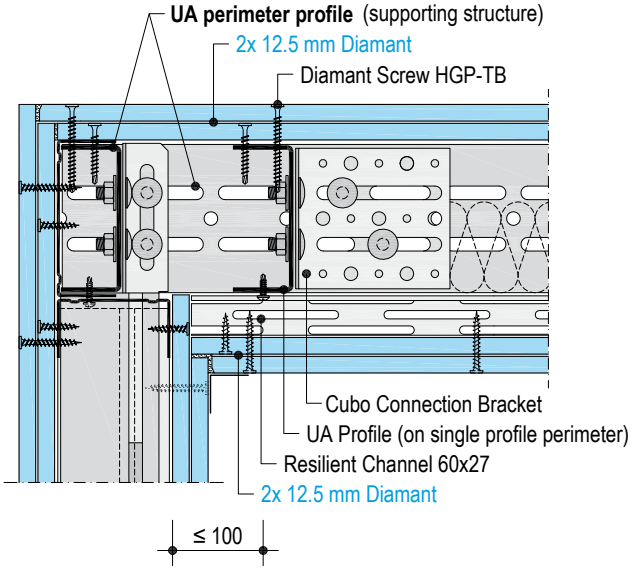
K375.de-V7 Perimeter connection - CW double profile

■ *Section A-A*



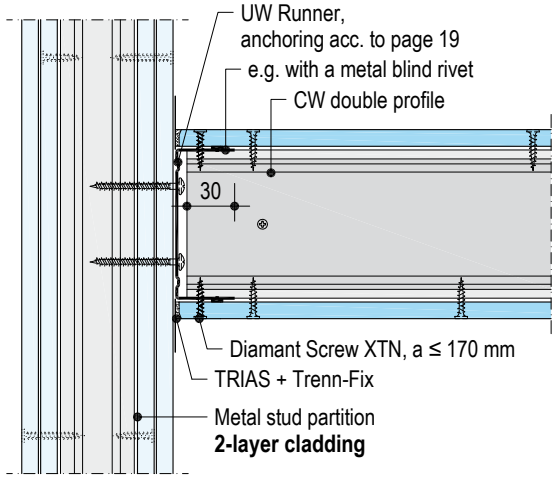
K375.de-V8 Perimeter connection - UA double profile

■ *Section A-A*



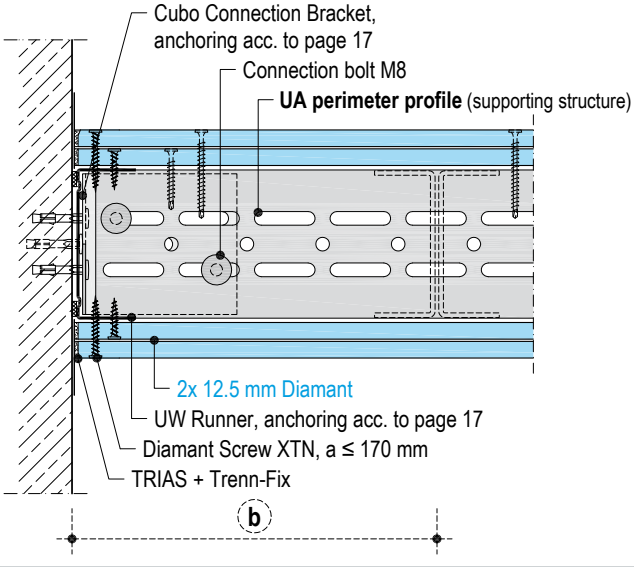
K375.de-V12 CW double profile connection to metal stud partition

■ *Section D-D*

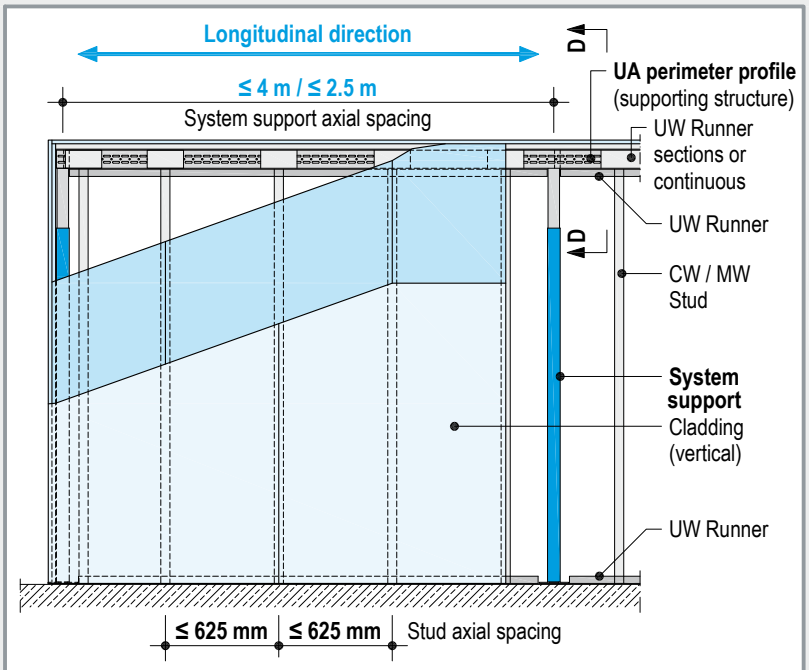


K375.de-V9 UA perimeter profile connection to solid element

■ *Section A-A*



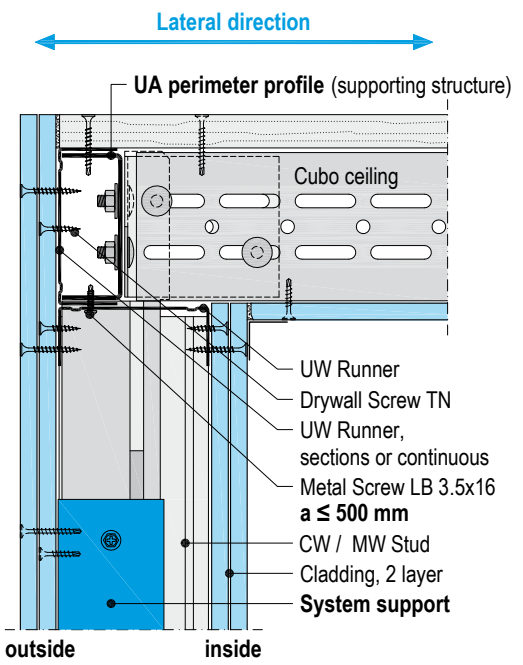
View



■ Screw fasten the outside cladding to the system supports as well

Section D-D

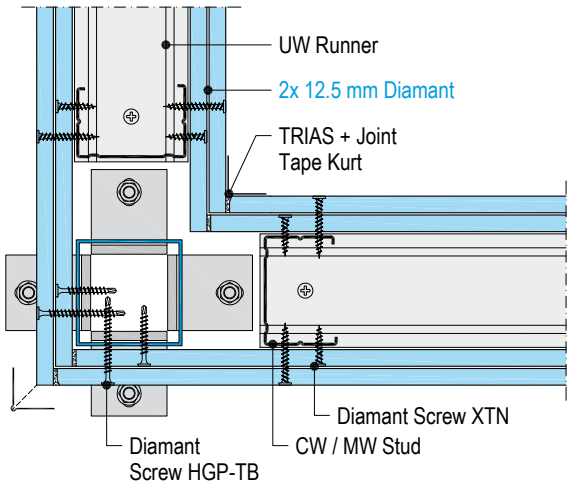
Scheme drawings



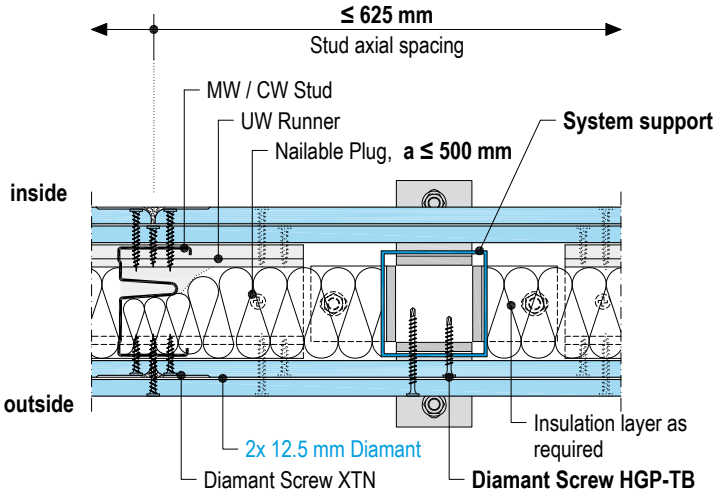
Details, scale 1:5

Horizontal sections - Examples

K376.de-H1 Corner - CW Stud

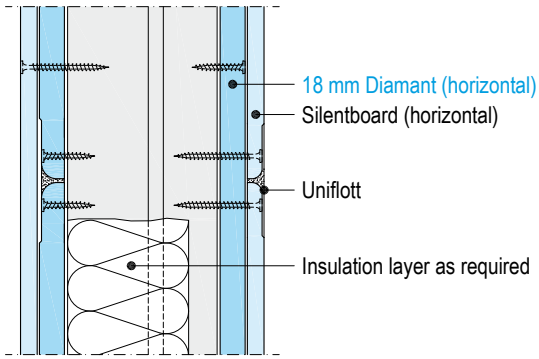


K376.de-H2 Board joint - MW Stud



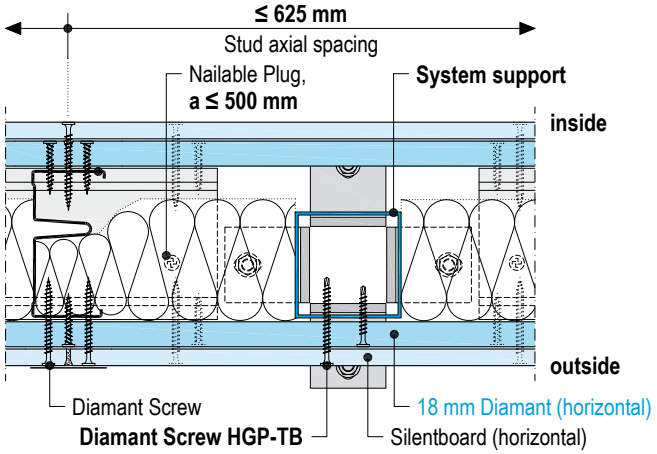
Vertical section

K376.de-V7 Board joint - MW Stud



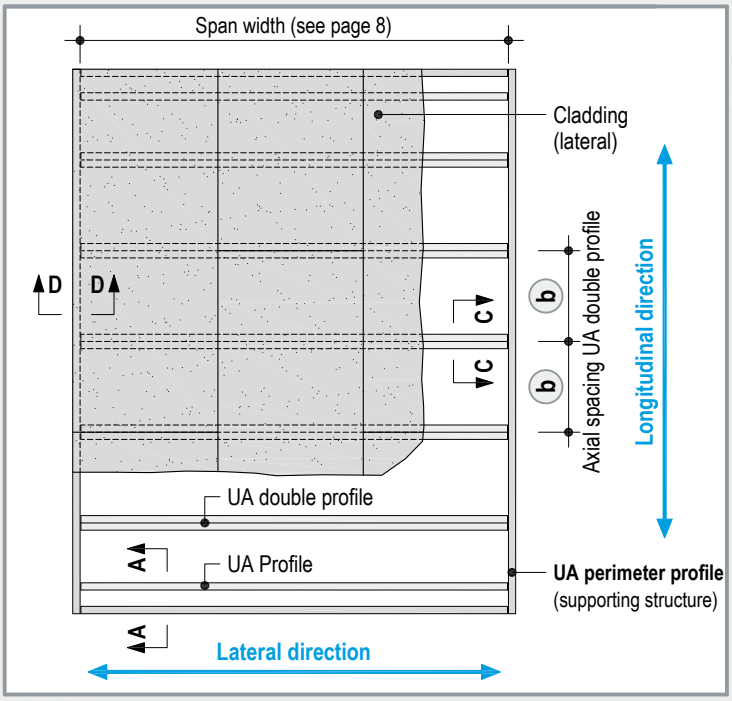
Horizontal section

K376.de-H5 Board joint - MW Stud



Top view - UA double profile

Scheme drawing



22 mm wooden composite board HWP:

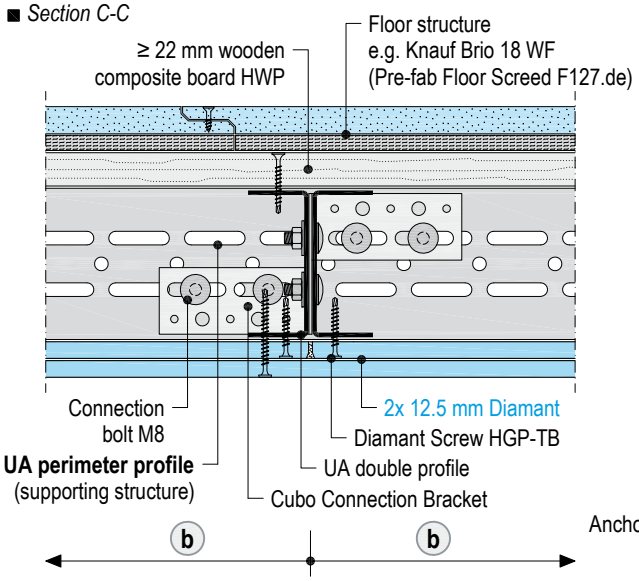
- OSB/3 or equivalent, density ≤ 750 kg/m³
- The board is used for lateral distribution of planned superimposed loads
- As 1st or 2nd layer with “conditionally walkable”; only as the 1st layer possible with “dead loads” or “live loads” or fire resistance
- Screw fastening to the UA Profile with Drywall Screws TB (pre-drill) or suitable fasteners

Details, scale 1:5

Vertical section - Examples

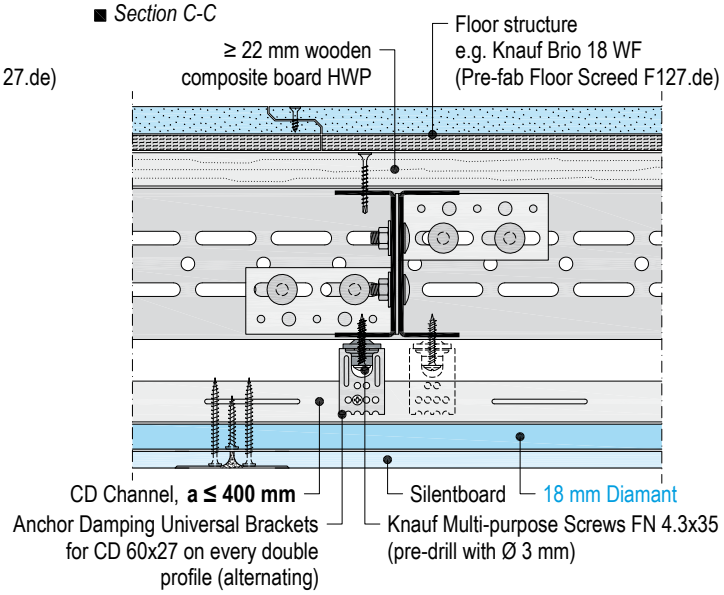
K376.de-V1 Front edge joint

■ *Section C-C*



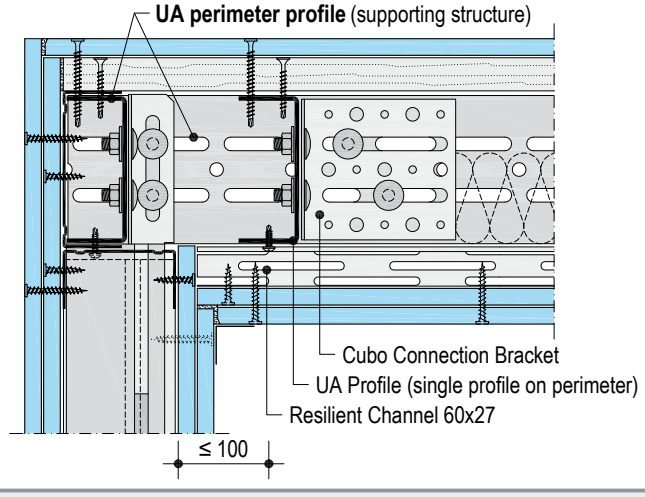
K376.de-V6 Long edge joint - Damping Universal Brackets with CD

■ *Section C-C*



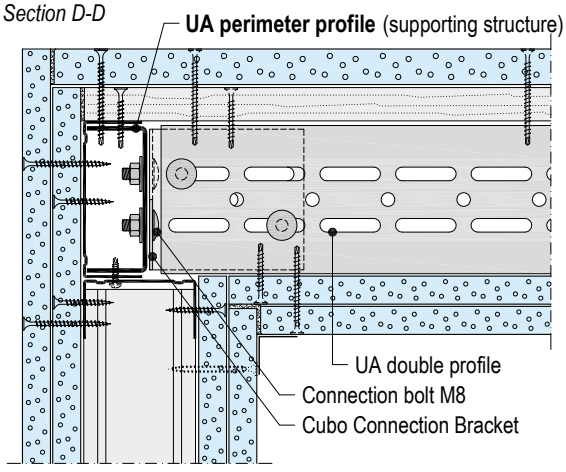
K376.de-V3 Perimeter connection

■ *Section A-A*

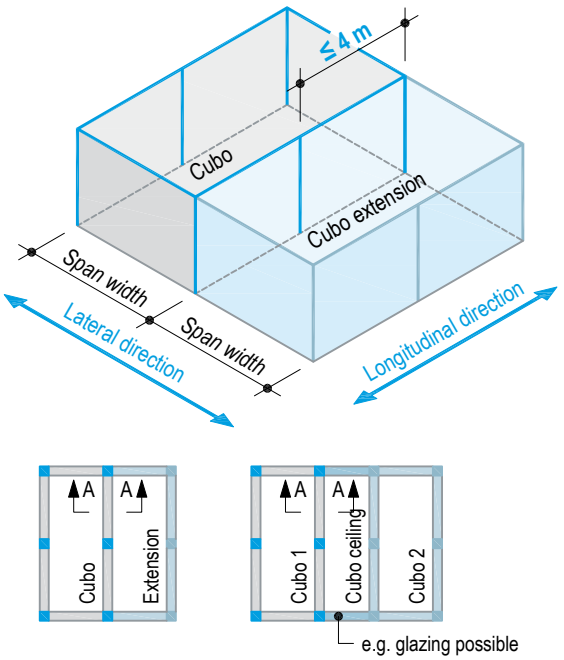


K376.de-V4 Perimeter connection

■ *Section D-D*



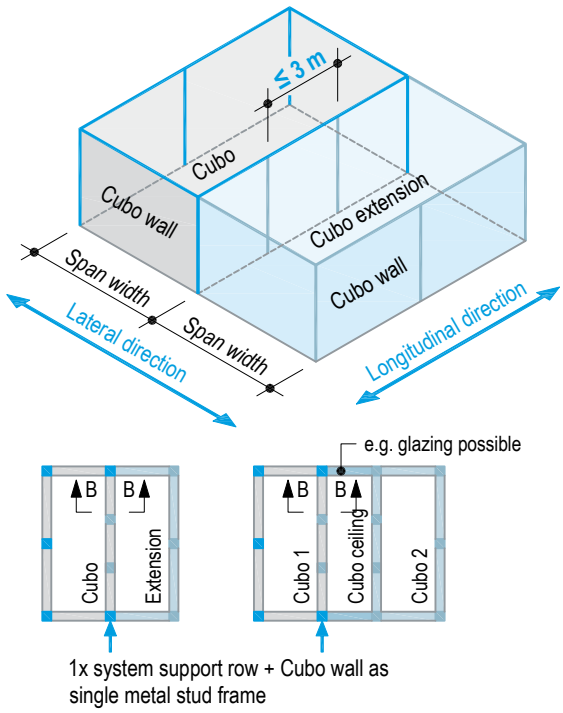
Cubo ceiling made of CW double profiles



■ Fire resistance only in conjunction with the building authorities

Cubo ceiling made of UA double profiles

Scheme drawings / Details, scale 1:5



■ Fire resistance only in conjunction with the building authorities

Span widths of Cubo ceiling with CW double profiles

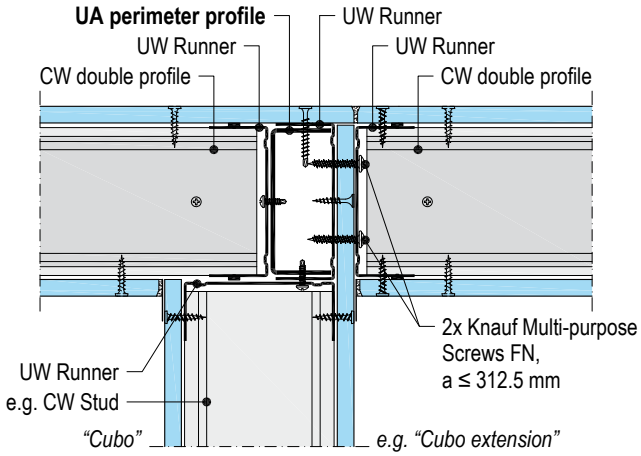
Span width Cubo ceiling see table
Knauf CW double profiles on page 6

Span widths of Cubo ceiling with UA double profiles

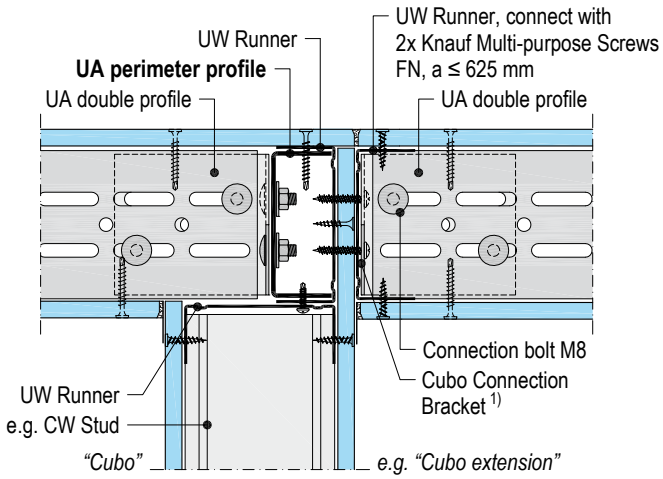
Knauf UA double profiles Metal gauge 2 mm	Axial spacing mm	Max. span width in m self-weight of the ceiling in kN/m² up to 0.4	up to 0.5	up to 0.6	up to 0.7	up to 0.8
2x **UA 100**	500	5.5	5.1	4.8	4.5	4.3
2x **UA 125**		6.5	6.1	5.7	-	-
2x **UA 150**		7.5	-	-	-	-

■ Cubo ceiling profiles may not be joined or extended

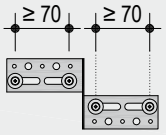
K375.de-V16 Cubo on Cubo — Section A-A



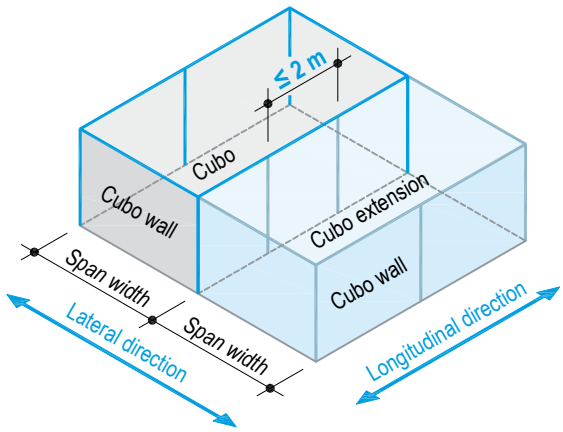
K375.de-V17 Cubo on Cubo — Section B-B

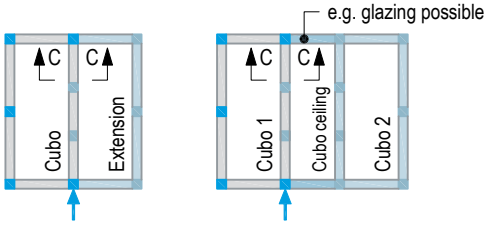


1) Attachment of the Cubo Connection Bracket to the UW Runner:
4x Knauf Multi-purpose Screws
FN 4.3x35 (cladding ≤ 20 mm) / FN 4.3x65 with suitable washers, t = 2 - 3 mm, Ø 30 mm



Cubo ceiling made of UA double profiles Scheme drawings / Details, scale 1:5





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

■ Fire resistance only in conjunction with the building authorities

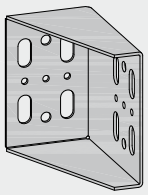
Cubo with Cubo extension

■ The details concerning Cubo with Cubo extension on page 32 must be observed

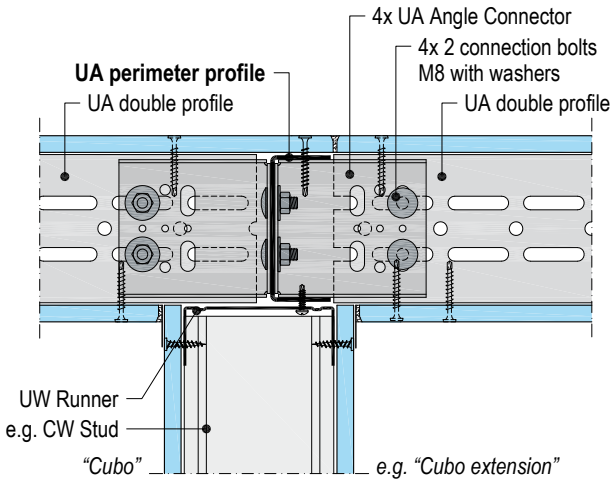
Span width of the Cubo ceiling with UA double profiles

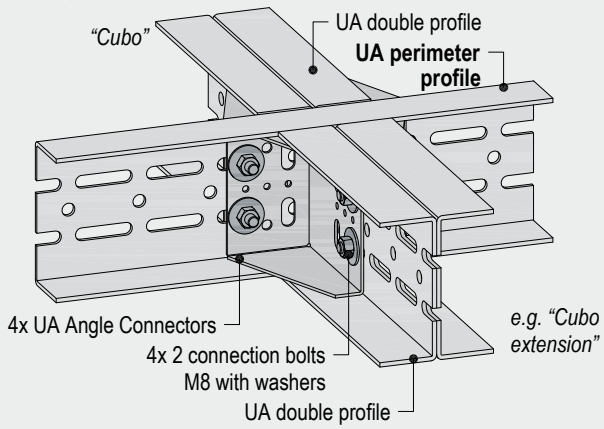
Cubo ceiling span width see table
Knauf UA double profile on page 6

UA Angle Connector



K375.de-V22 Cubo on Cubo Section C-C



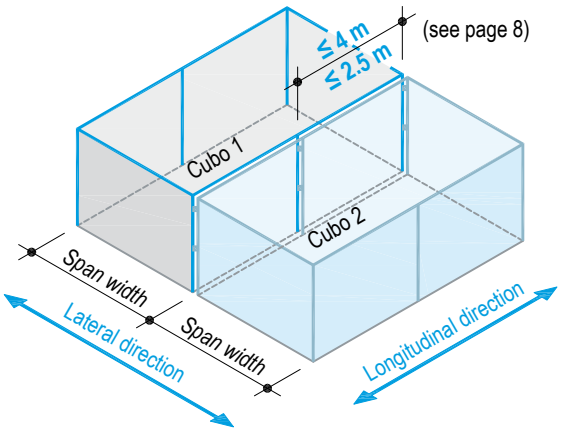


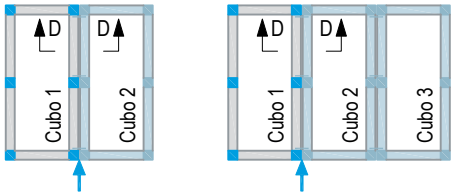
K376.de Knauf Cubo Empore

Cubo on Cubo / Cubo with Cubo extension

Cubo ceiling made of UA double profiles

Scheme drawings / Details, scale 1:5





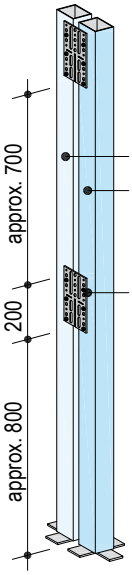
2x system support rows + Cubo wall as a linked double metal stud frame

■ Fire resistance only in conjunction with the building authorities

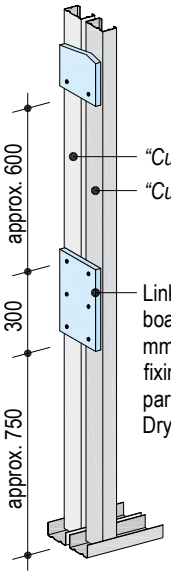
Linking Cubo double metal stud frame

Dimensions in mm

System support



CW / MW Studs



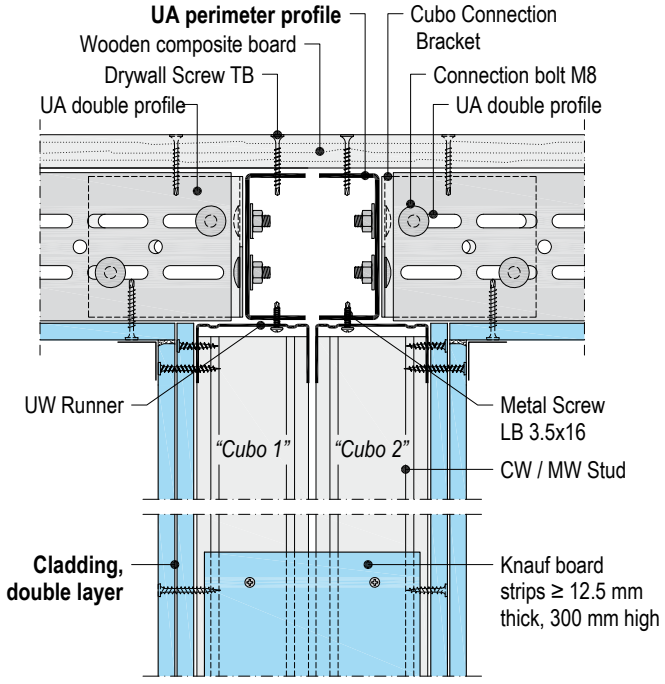
■ The linked Cubo walls must be double clad

Span width of the Cubo ceiling with UA double profiles

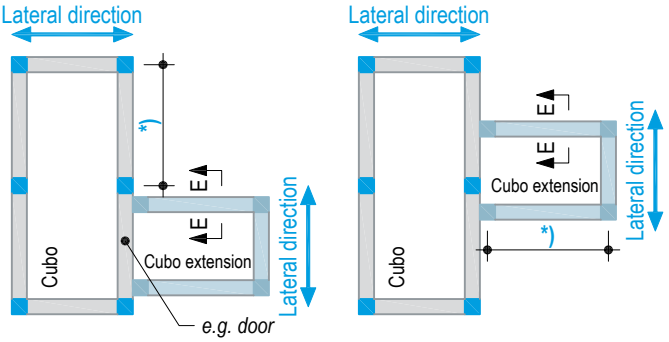
Span width of Cubo ceiling see table **Knauf UA double profiles** on page 8

K376.de-V5 Cubo on Cubo

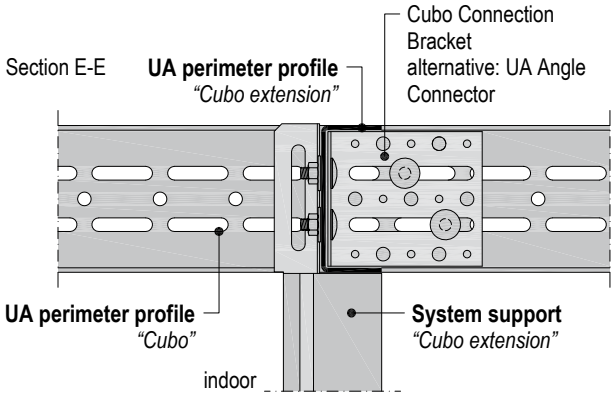
Section D-D



Cubo with Cubo extension (for Cubo Basis and Empore)



*) Cubo Basis: System support axial spacing ≤ 4 m
Cubo Empore: System support axial spacing
"conditionally walkable" / "dead loads": ≤ 4 m
"live loads": ≤ 2.5 m

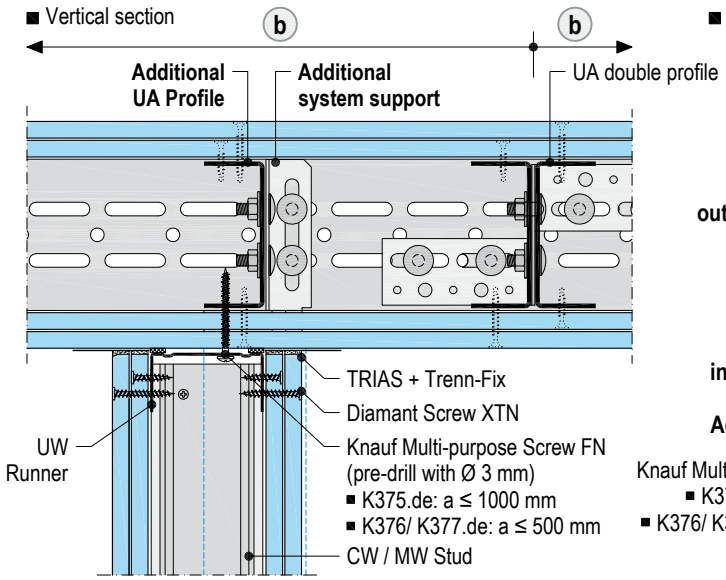


K375.de Cubo Basis / K376.de Cubo Empore

Examples / Details, scale 1:5

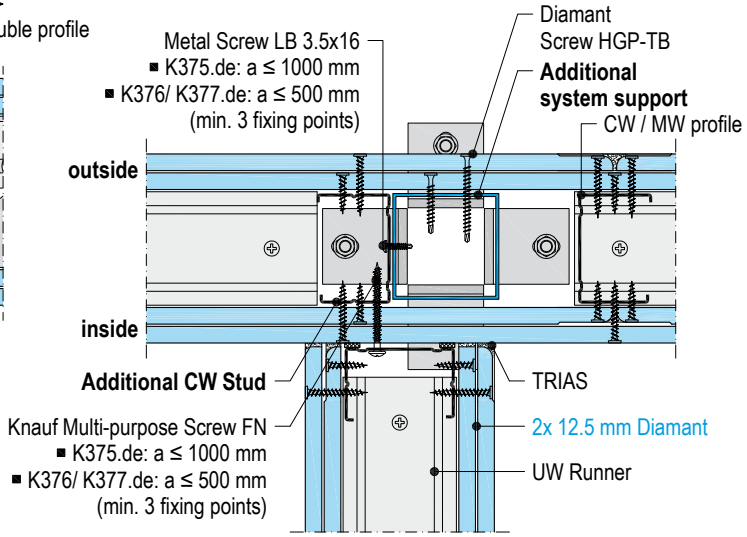
K375.de-V23 Bracing intermediate wall on Cubo ceiling

■ Vertical section



K376.de-H6 Bracing intermediate wall on Cubo wall

■ Horizontal section



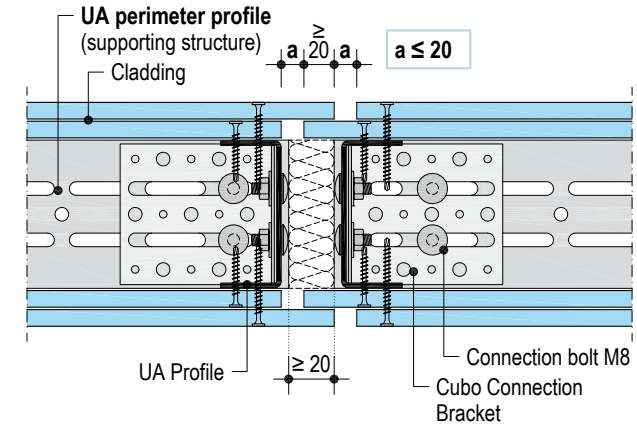
■ Knauf Multi-purpose Screw: FN 4.3x35 (cladding ≤ 20 mm) / FN 4.3x65

K375.de Cubo Basis

Vertical sections - Examples

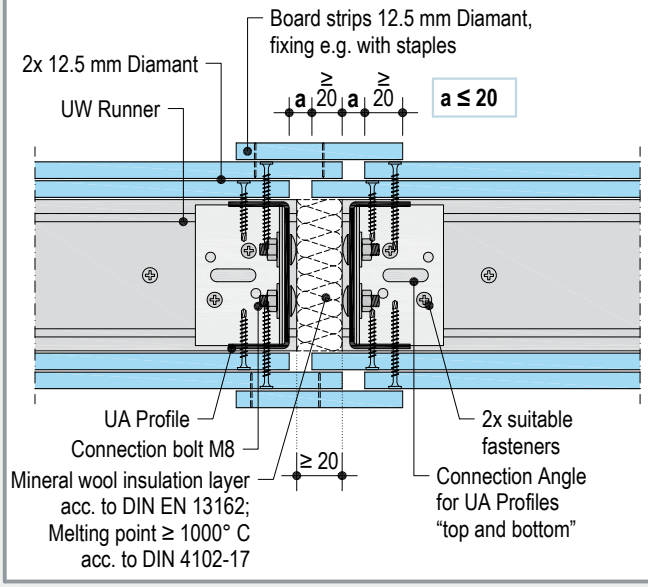
Sections - Dimensions in mm

K375.de-V15 Movement joint - Cubo ceiling

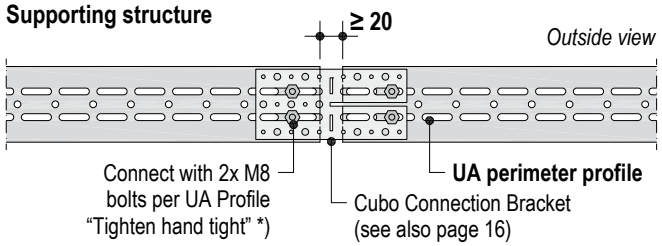


Horizontal sections - Examples

K375.de-H5 Movement joint - fire resistance - Cubo wall

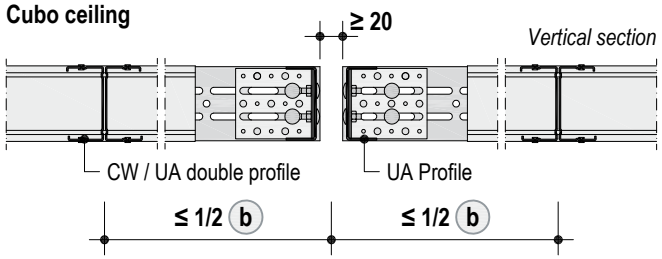


Supporting structure

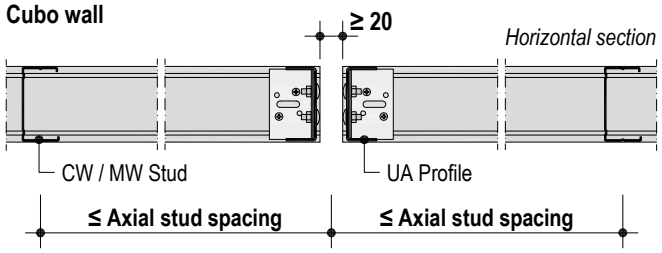


*) The M8 bolts should be arranged so that an offset in the direction of the oblong holes of the Cubo Connection Bracket is possible

Cubo ceiling



Cubo wall



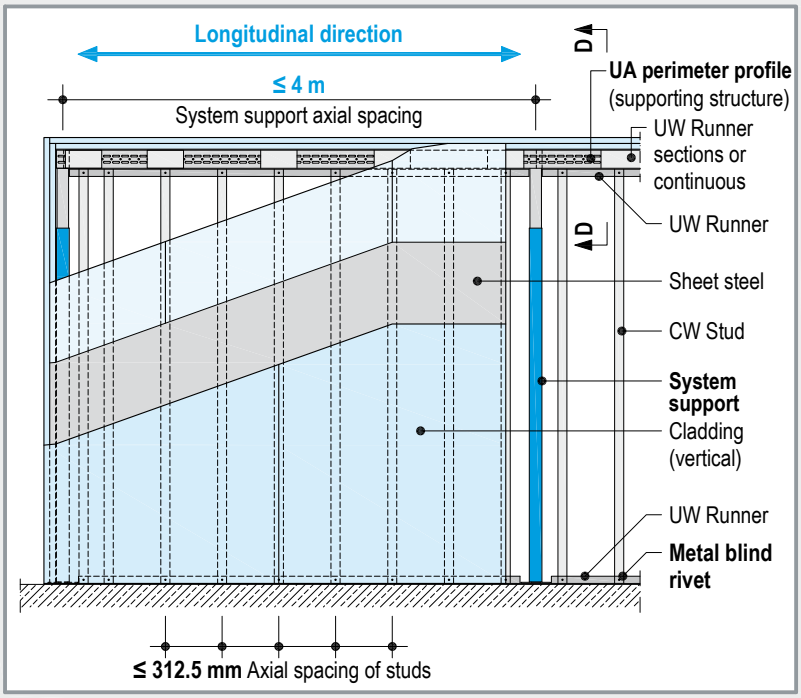
■ The movement joints can be arranged as required between the system supports and must be configured to be fully encompassing without any projections.

■ Fill the joints in the ceiling and wall when required with mineral wool (building material class min. B2)

K377.de Knauf Cubo Escape Tunnel

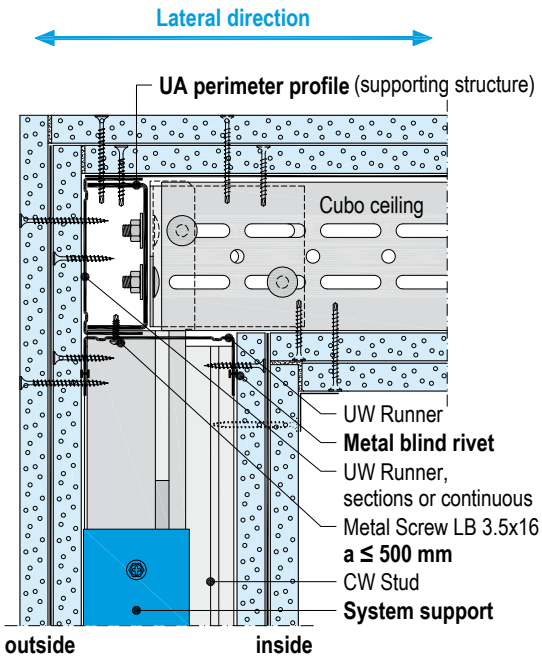
Cubo walls / movement joint

View



Section D-D

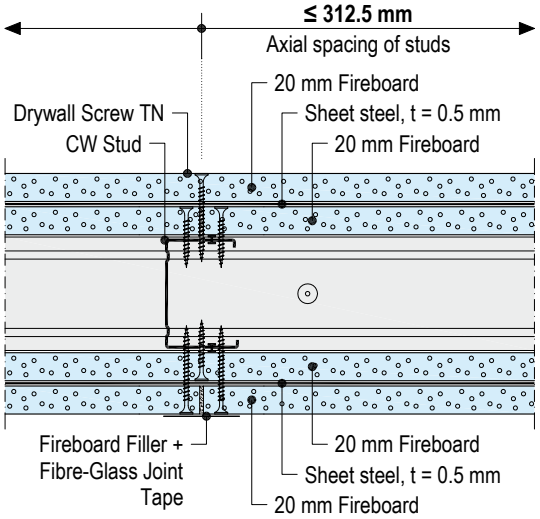
Scheme drawings



Cubo walls - Details, scale 1:5

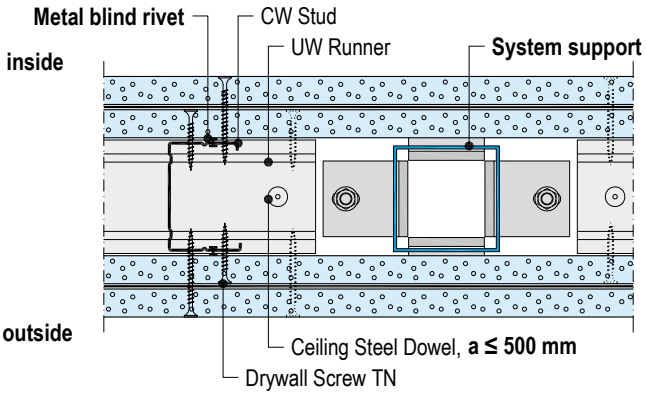
Horizontal sections - Examples

K377.de-H1 Board joint



K377.de-H2 System support area

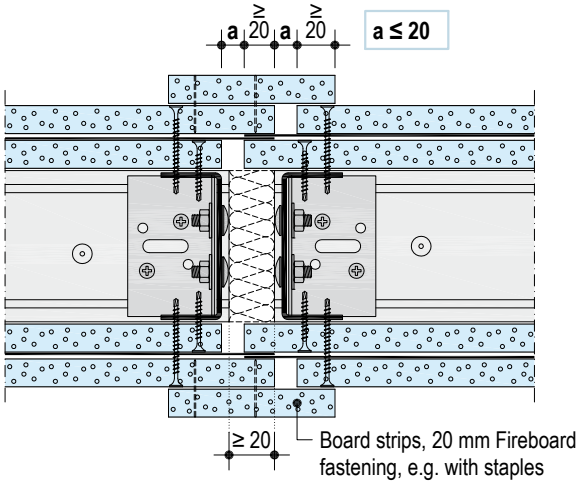
■ **Notes on sheet steel t = 0.5 mm:**
Lateral application, joints on metal studs, joint overlap ≥ 100 mm, attach during assembly, fixing with Fireboard screw fastening



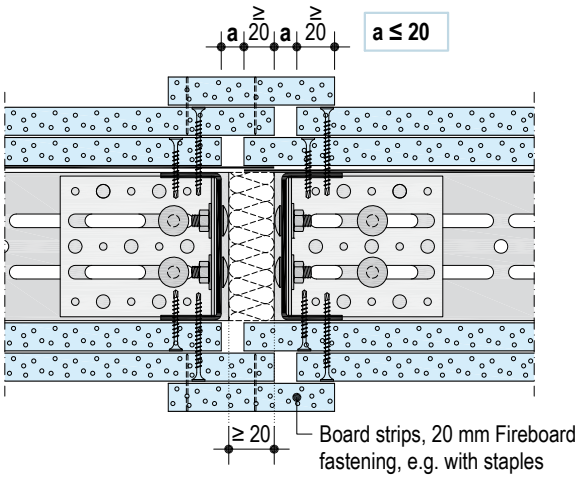
Movement joints - Details, scale 1:5

Sections - Dimensions in mm

K377.de-H3 Movement joint - Cubo wall



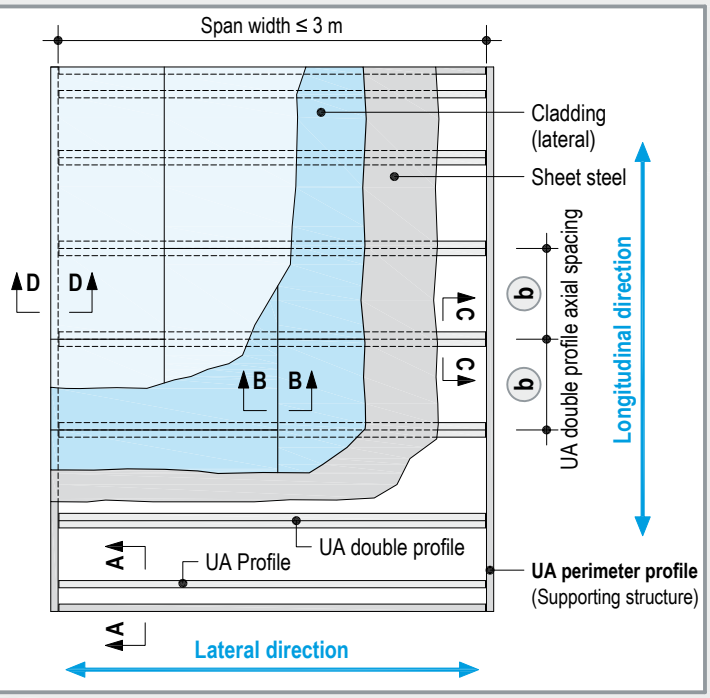
K377.de-V4 Movement joint - Cubo ceiling



■ Supporting structure + further details on constructional details design in acc. to K375.de Cubo Basis (see page 33)

Top view - UA double profiles

Scheme drawing



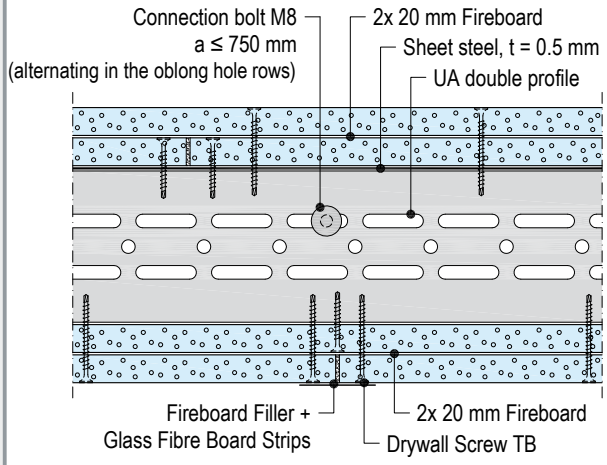
Sheet steel t = 0.5 mm:
- Lateral application
- Joints on UA double profiles, joint overlap ≥ 100 mm
- Attach during assembly, fixing with Fireboard screw fastening
- Application between the boards of the top of the ceiling also possible

Scale details 1:5

Vertical sections – Examples

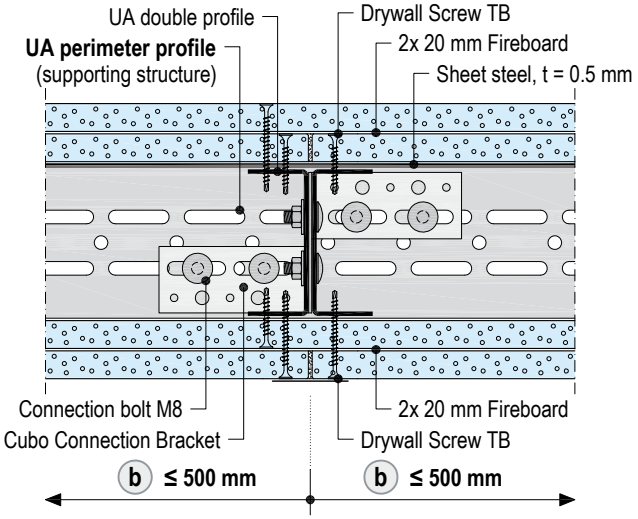
K377.de-V1 Long edge joint

- *Section B-B*



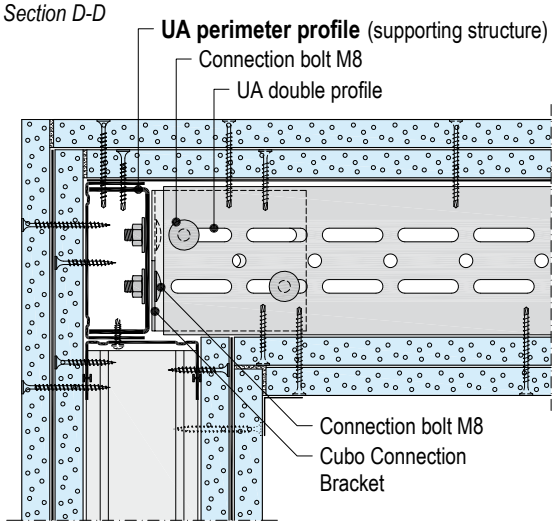
K377.de-V2 Front edge joint

- *Section C-C*



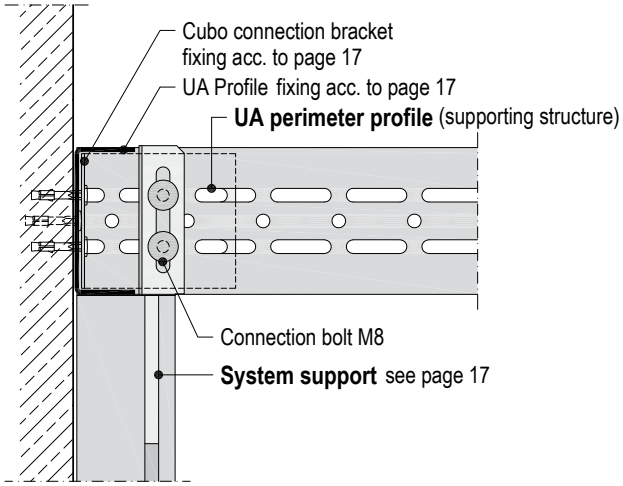
K377.de-V3 Perimeter connection

- *Section D-D*



Supporting structure

- *Section A-A - Perimeter connection to solid component*



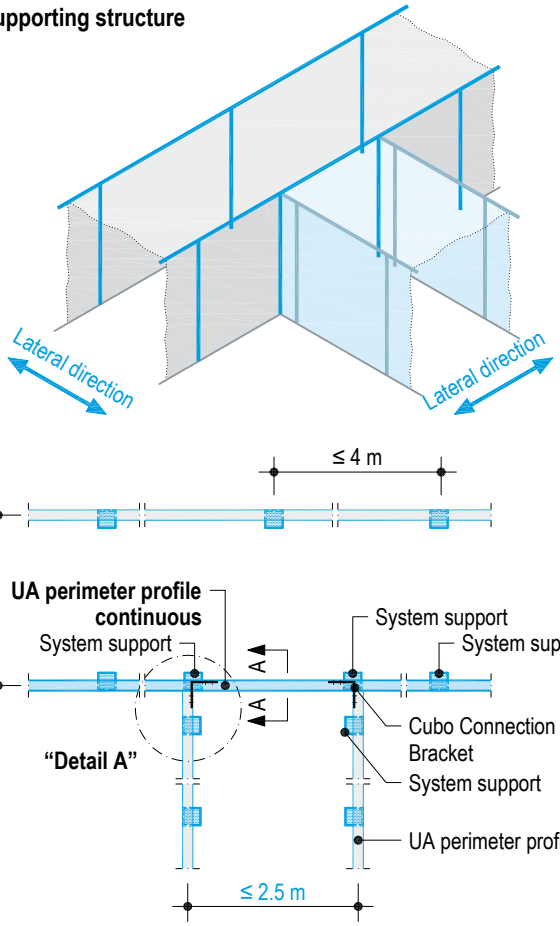
K377.de Knauf Cubo Escape Tunnel

T-Joint / Corner

T joint

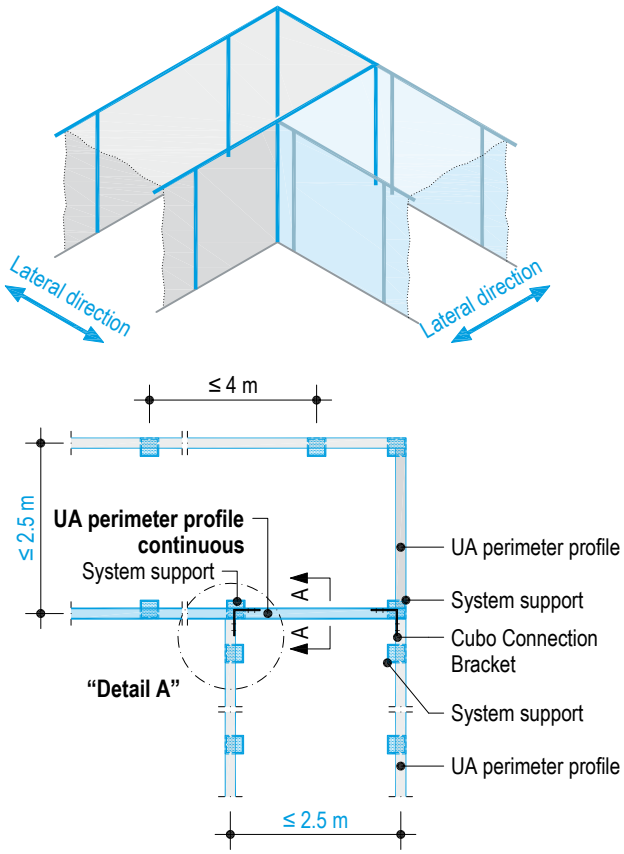
Scheme drawings

■ **Supporting structure**



Corner

■ **Supporting structure**



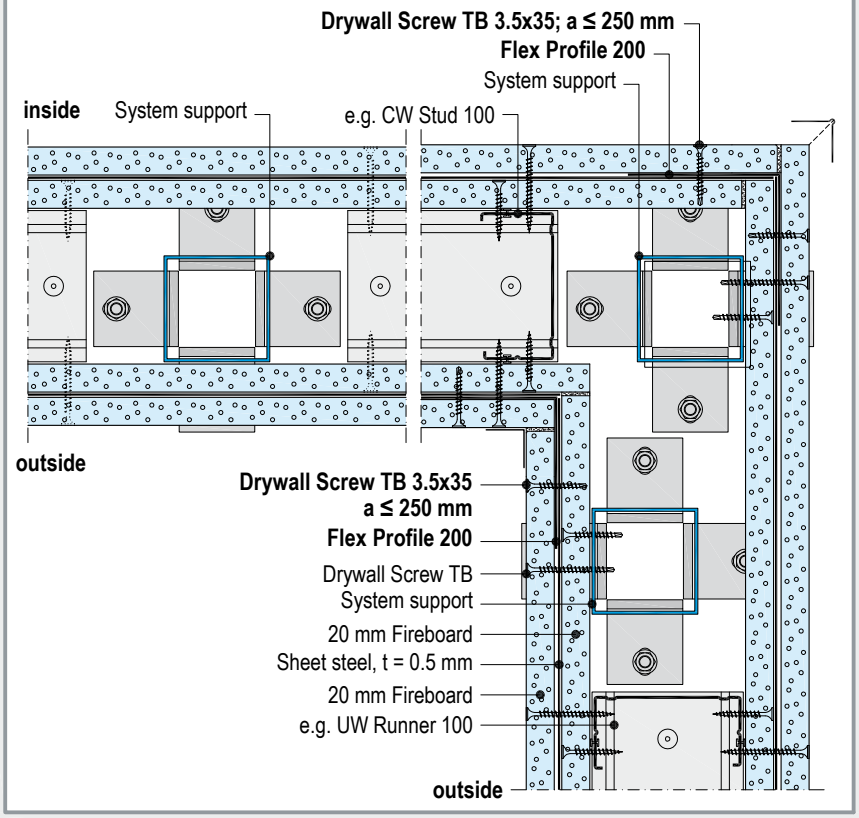
■ With Cubo ceilings, arrange the cladding and notch in the corner areas if necessary, ensuring that there are no unsupported joints. Stagger the joints of the two board layers.

Details, scale 1:5

Horizontal section

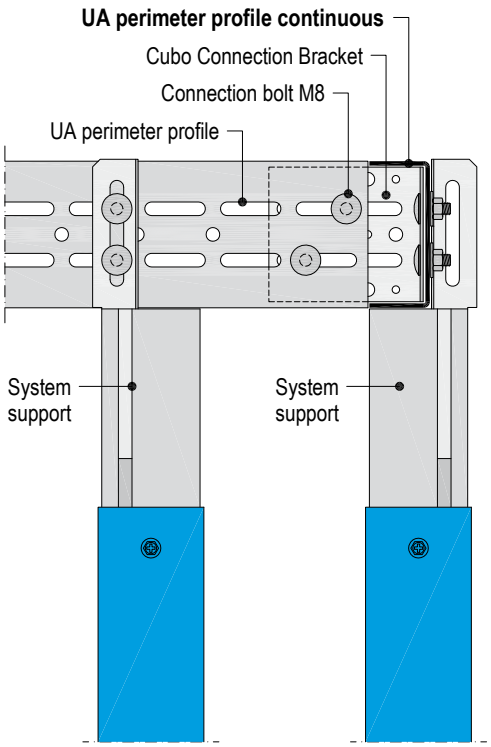
Vertical section

K377.de-H4 T joint / Corner - "Detail A"



Supporting structure

■ *Section A-A*



Material overview

Version: Free-standing system

Designation ● required ○ if required alt. = alternatively *Material not provided by Knauf = printed in italics*	Unit	K375 Room enclosing / F30	K375 Sound	K375 Span width	K375 F90	K376 Room enclosing / F30	K376 Sound	K376 F90	K377 F90
Supporting structure									
Knauf system supports, incl. connectors and fasteners	pcs	●	●	●	●	●	●	●	●
Knauf UA Profile 100/125/150 x40x2 (perimeter profile)	m	●	●	●	●	●	●	●	●
Knauf Cubo Connection Bracket (long connection UA perimeter profile)	pcs	○	○	○	○	○	○	○	○
Substructure / cladding - Cubo ceiling									
Knauf UW Runner 100/125/150 x40x0.6	m	●	●	-	●	-	-	-	-
Knauf Metal Screw LB 3.5x16 (attachment of UW to UA perimeter profile)	pcs	●	●	-	●	-	-	-	-
Knauf CW profile 100/125/150 x50x0.6 (double profile)	m	●	●	-	●	-	-	-	-
Knauf Metal Screw LN 3.5x9 (CW double stud screw fastening)	pcs	●	●	-	●	-	-	-	-
e.g. Metal blind rivet (attachment of CW profile to UW Runner)	pcs	●	●	-	●	-	-	-	-
Knauf UA Profile 100/125/150 x40x2 (double profile)	m	-	-	●	● alt.	●	●	●	●
Connection bolt M8 (UA double profile fastening)	pcs	-	-	●	●	●	●	●	●
Knauf Cubo Connection Bracket, incl. connection bolt M8 (Connection of UA double profile to UA perimeter profile)	pcs	-	-	●	●	●	●	●	●
Knauf Resilient Channel 60x27	m	-	-	-	-	-	●	-	-
Knauf Metal Screw LB 3.5x16 (connection of Resilient Channel to UA double profile.)	pcs	-	-	-	-	-	●	-	-
alt.							alt.		
Knauf CD Channel 60x27x0.6; 4 m	m	-	-	-	-	-	●	-	-
Knauf Damping Universal Brackets for CD 60x27	pcs	-	-	-	-	-	●	-	-
2x Knauf Metal Screws LN 3.5x9 mm (CD Channel on Damping Universal Brackets)	pcs	-	-	-	-	-	●	-	-
Knauf Multi-purpose Screw. FN 4.3x35 (Damping Universal Brackets to UA double profile)	pcs	-	-	-	-	-	●	-	-
Silentboard	m²	-	●	-	-	-	●	-	-
Diamant 12.5 mm		●	●	●	-	●	-	-	-
Diamant 18 mm		-	-	-	-	-	●	-	-
Fireboard 20 mm		-	-	-	●	-	-	●	●
Fireboard 25 mm		-	-	-	-	-	-	●	-
Brio 18 WF		-	-	-	-	-	●	-	-
Wooden composite board HWP 22 mm		-	-	-	-	●	●	●	-
Sheet steel, t = 0.5 mm	m²	-	-	-	-	-	-	-	●
Substructure / cladding - Cubo walls									
Knauf UW Runner 75/100 x40x0.6	m	●	●	●	●	●	●	●	●
Knauf Metal Screw LB 3.5x16 (attachment of UW to UA perimeter profile)	pcs	●	●	●	●	●	●	●	●
Knauf Nailable Plug "K" 6/35 (anchoring of UW to basic floor)	pcs	●	●	●	●	●	●	●	-
Knauf Ceiling Steel Dowel (anchoring of UW to basic floor)	pcs	-	-	-	-	-	-	-	●
Knauf Acoustical Sealant	pcs	●	●	●	●	●	●	●	●
Knauf CW Stud 75/100/ x50x0.6 (metal studs)	m	●	-	●	●	●	-	●	●
Knauf MW Stud 75/100/ x50x0.6 (metal studs)	m	-	●	-	-	-	●	-	-
Metal blind rivet (fastening of metal stud to UW Runner)	pcs	-	-	-	-	-	-	-	●
Knauf UW Runner sections 0.2 m long (cladding fastening in ceiling area)	m	●	●	●	●	●	●	●	●
Silentboard	m²	-	●	-	-	-	●	-	-
Diamant 12.5 mm		●	●	●	-	●	-	-	-
Diamant 18 mm		-	-	-	-	-	●	-	-
Fireboard 20 mm		-	-	-	●	-	-	●	●
Sheet steel, t = 0.5 mm	m²	-	-	-	-	-	-	-	●
Fastening / jointing / insulation layer									
Fastening of the boards (Knauf fasteners, see page 21)	pcs	●	●	●	●	●	●	●	●
TRIAS or Uniflott + Paper Joint Tape Kurt	kg/m	●	●	●	-	●	●	-	-
Fireboard Filler + Knauf Fibre Glass Joint Tape		-	-	-	●	-	-	●	●
Trenn-Fix, 65 mm wide, self-adhesive	m	○	○	○	○	○	○	○	○
Knauf Corner Trim 31/31	m	○	○	○	○	○	○	○	○
Insulation layer (e.g. from Knauf Insulation - www.knaufinsulation.de)	m²	○	●	○	○	○	●	○	○

Construction

General
Knauf Cubo Room-in-Room systems are self-supporting, independently erectable room systems for installation in existing rooms. They can be used as stand-alone solutions or can be attached to existing walls. The room systems are braced by cladding of the room enclosing walls and the self-supporting ceiling construction with Knauf Diamant or Knauf Fireboard. The length of the Cubo-Room-in-Room system is unlimited. However, additional measures are required for lateral bracing with larger room lengths as detailed on page 14. The width of the Cubo system is limited by the maximum span width of the ceiling. Apply expansion joints with lengths > 15 m (Cubo Basis, Cubo Escape Tunnel).

Supporting structure
The supporting structure consists of the Cubo telescopic system supports attached to the floor with dowels, surrounding horizontal UA Profiles in the support head area as well as the respective connection elements. The system support consists of a basic support, telescopic head, a floor plate as well as all necessary connection accessories and can be adjusted to constructional room heights of 2.0 to 2.7 or 2.5 to 3.2 m or 3.0 m to 3.7 m (> 3.2 m without fire resistance). The floor plate consists of 4 brackets with an oblong slot that facilitates optimum alignment of the supports even when the anchoring substrate is not level. The UA perimeter profiles are connected to the telescopic heads.

Cubo ceiling
Free-spanning ceilings are used for the ceiling construction. Furring channels made of CW double profiles are seated on and attached to the UW Runners connected to the side of the UA perimeter profiles of the supporting structure. Furring channels made of UA double profiles are connected to the side of UA perimeter profiles using Knauf Cubo Connection Brackets. Cubo Empore as a self-supporting structure exclusively with UA double profiles and cladding on the top of the ceiling made of wooden composite boards.

Cubo walls
Knauf Metal Stud Partitions are used for wall constructions. Use CW/MW 100 Studs if an installation level is required.
Openings are permissible in acc. with page 15 (consider when arranging the studs if necessary).

Approved anchors
Knauf Ceiling Steel Dowels: ETA-07/0049

Fire resistance
The fire resistance is assured with exposure to fire both from inside and from outside, as the studs arranged in the interior of the walls as well as the furring channels supporting the ceiling that provide the load bearing capability are protected from exposure to fire.

Sound insulation
Achieving the desired sound insulation may require improving the flanking impact sound level of the existing floor (e.g. subsequent provision of separation joints in the screed).

Cubo Escape Tunnel
The Knauf Cubo Escape Tunnel as a self-supporting room-in-room system provides a fire resistance of F90 as well as an impact stress resistance of 3000 Nm (complying with the requirements for a firewall).
This resistance is provided by a sheet steel layer between the wall cladding layers as well as below or between the cladding for the top of the ceiling.

Application

General
Observe the installation sequence in acc. with pages 16 and 20.

Supporting structure
Anchor the supports on the floor plate to the load-bearing substrate with 4x Ø 8 mm heavy-duty dowels and align using the adjustment screws. Anchoring solely to screed/pre-fab screed only after consultation with Knauf.
Set the required height of each telescopic head and fix them with 4 self-tapping screws. Fix the UA perimeter profiles to the seat elements on the telescopic head using M8 bolts + nuts with washers. Use the Knauf Cubo Connection Brackets for the necessary longitudinal joints. Joints on the UA perimeter profiles are not permissible in the lateral direction. All required anchoring and connection equipment is included in the scope of delivery of the Cubo System Supports.

Cubo ceiling
Substructure with CW double profiles
Fix Knauf UW Runners as a perimeter connection for the freely-spanning ceiling to the UA perimeter profiles with LB 3.5 x 16 screws.
Connect the CW profiles to the double profiles with Metal Screws LN 3.5 x 9.
To support the double profile, slide by minimum 30 mm into the UW Runner and rivet or screw fix in the upper and lower flange area.
Substructure with UA double profiles
Connection of the UA Profiles to the double profiles with M8 bolts + nuts with washers. Connect with Knauf Cubo Connection Brackets to the UA perimeter profile of the supporting structure.
If necessary, attach the required Resilient Channels with Metal Screws LB 3.5 x 16 / necessary CD Channels with Damping Universal Brackets and Multi-purpose Screws FN 4.3 x 35 (pre-drill 3 mm) alternating underneath the UA double profile lateral to their span direction along the long side of the room.
Cladding
Screw fastening of the cladding in acc. with table on page 21.
Apply Knauf boards lateral to the double profiles / Resislient Channels / CD Channels. Stagger the front edge joints by at least 400 mm and arrange on the profiles.
Commence with the fixing of the boards in the board centre or on the board corner to avoid buckling. When screw fixing boards, push firmly onto the substructure and attach alternating to the double profiles using Drywall Screws.

Cubo walls
Substructure
Push on Knauf UW Runners all around the UA perimeter profile of the supporting structure for fastening of the external wall cladding in the top area.
Apply Acoustical Sealant (2 beads) to the UW Runner rear for connection in the floor area or use Sealing Tape and attach using suitable anchors at the required spacings. When sound insulation requirements are present, seal carefully with Acoustical Sealant in acc. to DIN 4109, supplement 1, section 5.2. Porous sealing strips such as Sealing Tape are generally not suitable for this purpose.
Anchor the upper UW perimeter connection profile on the UA perimeter profile of the supporting structure with Metal Screws LB 3.5 x 16 mm at the required spacing.
Place the cut-to-length CW or MW Studs into the UW Runners at the required axial spacing and align them; apply rivets with the Cubo Escape Tunnel.
Cladding
Screw fastening of the cladding in acc. with table on page 21.
Stagger long joint edges. When floor-to-ceiling boards are not used, stagger the horizontal joints by at least 400 mm. Outside wall board layers should be screw fastened additionally at the top onto the attached UW Runner. In the wall corner areas, screw the exterior cladding into the support. When required, screw fasten the inner cladding in the corner area with a Flex Profile. With the Cubo Empore cladding, screw fasten as well to the intermediate supports using Drywall Screws TB / HGP-TB.

Partitions
Install partitions as Knauf Metal Stud Partitions in acc. with System Data Sheet W11.de.
Anchor bracing intermediate walls to system supports and to the additional UA ceiling profiles and observe the specifications on pages 14 and 33.

Cable and pipe penetrations
Fire resistannt requirement design in acc. with Knauf Brandschutzordner BS1.de.

Built-ins
When fire resistance requirements, clad built-ins such as power sockets, recessed luminaires, etc. with Diamant or Fireboard in cladding thickness.

Jointing

Surface quality

- Jointing of the boards in the required quality level Q1 to Q4 in accordance with Code of Practice no. 2 “Verspachtelung von Gipsplatten, Oberflächengüten” *
- With Fireboard, a skim coating of the entire surface with Fireboard Filler is additionally required before application of direct coatings or linings.

Filling materials

Choose filling materials suitable for the type of boards and the desired quality:

- TRIAS: Hand filling without joint tape in the long edge joints; easy mixing, very smooth application and easy to sand, with high strength and suitable for areas of high humidity, reduced absorption for surfaces with uniform appearance, the ideal filler particularly for systems with Diamant boards
- Uniflott: Hand filling without joint tape in the long edge joints,
- Uniflott impregnated: Hand filling of impregnated (green) boards without joint tape in the long edge joints, water-repellent, green colour for easy identification
- Fugenfüller Leicht: Hand filling with Knauf Joint Tape Kurt
- Fireboard filler: Hand filling of Fireboard with Fibre Glass Joint Tape

Finishing compound to achieve the desired surface quality level:

- Readygips: for Q3 and Q4
- Finish-Pastös: for Q2 and Q3
- Multi-Finish/Multi-Finish M + Putzgrund for Q4
- Fireboard Filler for full surface skimming of Fireboard

Gypsum board joints

- For multi-layer cladding, fill the lower layers with filler to quality level Q1, finish the joints of the visible layer.
  Filling the joints of concealed cladding layers with multi-layer cladding is necessary to provide technical fire resistance and sound insulation properties as well as the structural properties!
- Recommendation: In case of front edge and cut edge joints as well as mixed joints (e.g HRAK + cut edge) of the visible cladding layers filled using Uniflott or TRIAS, we recommend the application of Knauf Joint Tape Kurt as well.
- Fill visible screw heads.
- Lightly sand visible surfaces after drying of the filler material, if required.

Connection joints

- Apply connections to the flanking drywall construction (ceiling/wall), dependent on the conditions and the demands on crack resistance with Trenn-Fix or Knauf Joint Tape Kurt.
- Observe code of practice no. 3 “Gipsplattenkonstruktionen - Fugen und Anschlüsse” *.
- Apply connections to solid components with Trenn-Fix.
- With fire resistance demands seal the connection to the floor with joint filler, for sound insulation demands only acrylate or Acoustical Sealant may be used.

Application temperature / climate

- Filling and covering of joints should only take place when no more longitudinal changes can be expected, i.e. expansion or contraction due to humidity or temperature changes.
- Do not apply filling at room or substrate temperatures below approx. +10°C.
- In case of mastic asphalt screed, cementitious screed and self-levelling screed, fill in board joints after screed has been applied.
- Observe code of practice no. 1 “Baustellenbedingungen” *.

Coatings and linings

For direct application of a coating or wallpaper, the surface must be dust free, have at least quality level Q2, or in the case of Fireboard, a full surface skim with Knauf Fireboard Filler has to be applied.

Pre-treatment

Before further coatings or linings (wallpaper) are applied, the filled surface must be free of dust and the surface of the gypsum boards should always be pre-treated and primed, acc. to Code of Practice no. 6 of the BVG “Vorbehandlung von Trockenbauflächen aus Gipsplatten zur weitergehenden Oberflächenbeschichtung bzw. –bekleidung”.
The primer must suit the subsequent coating compound/linings. In order to compensate for the differences in absorption of surfaces, primers such as Knauf Tiefengrund / Spezialgrund / Putzgrund are suitable. When applying a wallpaper, the application of a wallpaper primer is recommended, in order to simplify the removal of the wallpaper during renovations.
When cladding with tiles in splash-water areas, application of Knauf Flächendicht (sealing primer) is necessary.

Suitable coatings and linings

The following coatings/linings can be applied on Knauf boards:

- Wallpapers:
  - Paper, fleece, textile and synthetic wallpapers
  Use only adhesives made of methyl cellulose according to Code of Practice no. 16 “Technische Richtlinien für Tapezier- und Klebearbeiten” released by the Bundesausschuss Farbe und Sachwertschutz.
- Ceramic tiles on the walls:
  Minimum cladding thicknesses with Knauf boards: 2x 12.5 mm
- Plasters:
  - Finishing plasters (e.g. Knauf Noblo, Diamant Spray Plaster, Rotkalk Filz) or full surface skim coats (e.g. Knauf Readygips, Multi-Finish).

  Application of plaster layers may only be used in conjunction with Knauf Joint Tape Kurt or Fibre Glass Joint Tape in conjunction with Fireboard.
- Coatings:
  - Dispersion paints (e.g. Knauf Intol E.L.F., Malerweiss E.L.F.), multicoloured (rainbow) emulsion, silicate-based emulsion paints with suitable primer.

Unsuitable are:

- Alkaline coatings such as lime, water glass paints and silicate-based paints

Notes

After wallpapering with paper or fibre glass wallpapers or after application of resin / cellulose plasters, quick drying must be ensured through adequate airing.

Gypsum board surfaces that have constantly been exposed to light without any protection can cause yellowing after coating. Therefore, a trial coat is recommended that will extend across several boards including all joints. Yellowing can, however, be successfully avoided only by using a special primer, e.g. Knauf Aton Sperrgrund for finishing plasters, Knauf Atonol for coatings.

Other coatings or layers and vapour barriers up to about 0.5 mm thickness as well as linings (with the exception of sheet steel), do not have any influence on the technical fire resistance classification of Knauf Room-in-Room systems.

** Issued by the Industriegruppe Gipsplatten im Bundesverband der Gipsindustrie e.V.*

K37.de Knauf Cubo

Information on sustainability / Special notes

Information on sustainability of Knauf Products and the Cubo Room-in-Room System

Building assessment systems ensure the sustainable quality of buildings and constructional structures by a detail assessment of ecological, economic, social, functional and technical aspects. The two certification systems of DGNB (Deutsches Gütesiegel Nachhaltiges Bauen) and LEED (Leadership in Energy and Environmental Design) are of particular relevance in Germany.

Knauf Cubo systems can positively influence many of these criteria.

DGNB

Ecological quality

- Criterion: Ecological performance evaluation
  → The relevant environmental data are contained in the EPD for gypsum products

Economic quality

- Criterion: Building related life-cycle costs
  → Cost-effective Knauf Drywalling

Sociocultural and functional quality

- Criterion: Space efficiency
  → Slim, floor-space enhancing Knauf systems
- Criterion: Acoustic comfort
  → Knauf Cubo with acoustic design ceilings possible to reduce the reverberation time
- Criterion: Suitability for conversion
  → Flexible Knauf Drywalling

Technical quality

- Criterion: Fire resistance
  → Comprehensive fire resistance know-how
- Criterion: Sound insulation
  → Exceeding the demands of the standard with Knauf sound installation
- Criterion: Ease of dismantling and recycling
  → Knauf Drywalling is fully compliant

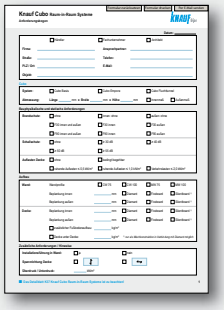
LEED

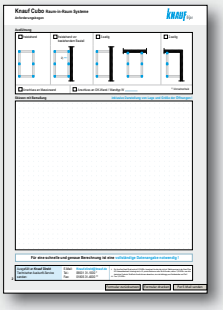
Materials and resources

- Credit: Recycled content
  → Recycled content in Knauf boards and filler materials (e.g. FGD gypsum)
- Credit: Regional materials
  → Short transport routes provided by the extensive network of Knauf manufacturing facilities

Detailed information on request and on the internet under www.knauf.de/Nachhaltigkeit

Determination of material requirement
Requirement form at
Knauf Direct Technical Advisory Service
or at
www.knauf.de





Special notes

It is certified herewith, that the constructions, details and stated products, contained in the System Data Sheet **K37.de Knauf Cubo Room-in-Room System - edition 07/12**, fully comply with the proofs acc. to German building legislation, valid at the time of issue. In addition, design and structural requirements and those regarding building physics (fire protection and sound insulation) are considered.

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 regarded.

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* Call rates to Knauf Direct from within the German landline network: 0.39 € per Min., Callers whose phone numbers are not registered in the Knauf address database, e.g. private builders or non-patrons are charged 1.69 €/Min. Calls from mobile phones may differ and will be charged acc. to net provider and call rate.

** Fax: 0.14 €/Min. within the German landline network

K37.de/engl./07.12/FB/D