

New from 01.02.2015:

Fire-resistant board Knauf Piano GKF/GKFI 12.5 replaces the Knauf Feuerschutzplatte GKF/GKFI 12.5

New regulations come into effect on 01.04.2014 for constructions with fire protection requirements. The valid solutions for these constructions can be found in the appropriate section of the Knauf Fire Protection Folder at

www.knauf-brandschutz.de

D13.de Knauf Free-Spanning Ceilings

D131.de – Knauf Free-Spanning Ceilings - F30 / F60

D134.de – Knauf Cleano Acoustic Free-Spanning Fire Protection Ceilings - F30

D137.de – Knauf Cleano Acoustic Free-Spanning Ceilings

K219.de – Knauf Free-Spanning Fireboard Ceilings A1 - F90



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.

Knauf free-spanning ceilings are attached exclusively as suspended ceilings anchored to the surrounding walls. Knauf boards are connected with screws to a metal stud framework made of Knauf CW Profiles as a single or double profile frame.

D131.de Knauf Free-Spanning Ceilings

The classical free-spanning ceilings
without fire protection or
with fire protection (F30 / F60)



K219.de – Knauf Free-Spanning Fireboard Ceilings A1

The classical free-spanning ceilings
with the highest level of fire protection (F90, A1)

D137.de Knauf Cleaneo Acoustic Free-Spanning Ceilings

The free-spanning acoustic ceilings
with sound absorption
without fire protection

D134.de Knauf Cleaneo Acoustic Free-Spanning Fire Protection Ceilings

The free-spanning acoustic/fire protection ceilings
with sound absorption
in combination with fire protection (F30)

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Details The details are only represented in each case for the selected examples and can be used, if necessary, as a constructional solution for other free-spanning ceilings.	T joint and L connection 28
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D13.de Knauf Free-Spanning Ceilings

Knauf boards







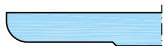
Knauf boards

Extract from Knauf product range

Board type	Short designation		Thickness t mm	Dimensions		Board edge Long edge
	DIN	DIN EN		Width mm	Length mm	

Gypsum boards acc. to DIN 18180 and DIN EN 520

Building material class A2 (DIN 4102-4) / Reaction to fire A2-s1,d0 (B)

Knauf Wallboard	GKB	A	12.5	1250	2000 to 3000	HRAK 
	GKBI	H2		1250	2000 to 3000	
Knauf Fire-Resistant Board	GKF	DF	12.5	1250	2000 to 3000	HRAK 
	GKFI	DFH2		1250	2000	
	GKF	DF	18	1250	2000 / 2500	
Solid Board	GKF	DF	25	625	2000 to 2600	HRAK 
	GKFI	DFH2		625	2000 / 2600	
Silentboard	GKF	DF	12.5	625	2000 / 2500	HRAK 
Diamant Hard gypsum board	GKFI	DFH2IR	12.5	1250	2000 / 2500	HRAK 
			15	1250	2000 / 2500	
			18	625	2500	

Gypsum boards with mat reinforcement to EN 15283-1

Building material class A1 (DIN EN 15283-1)

Fireboard (for A1 constructions)	-	GM-F	12.5	1250	2000	VK 
			20	1250	2000	

Gypsum boards acc. to DIN EN 14190 procedure A, C, G

Building material class A2 (DIN 4102-2) / reaction to fire A2 s1,d0 (C.4) (DIN EN 13501-1)

Knauf Cleaneo Acoustic Acoustic board	-	-	12.5	Board dimensions and perforations see ■ Technical data sheet "K761.de Knauf Cleaneo Acoustic" ■ System Data Sheet "D12.de Knauf Cleaneo Acoustic Ceilings"		
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■ GKFI: Gypsum core with additional special impregnation against the absorption of moisture. Board suitable for high humidity areas.

■ Diamant

The outstanding gypsum board GKFI 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 GFK for the highest level of sound protection in drywalling applications. Silentboard sound shield boards are used in all interior fitting areas as cladding and for retrofitting drywalling systems to meet fire protection standards and the highest sound protection specifications.

■ Fireboard

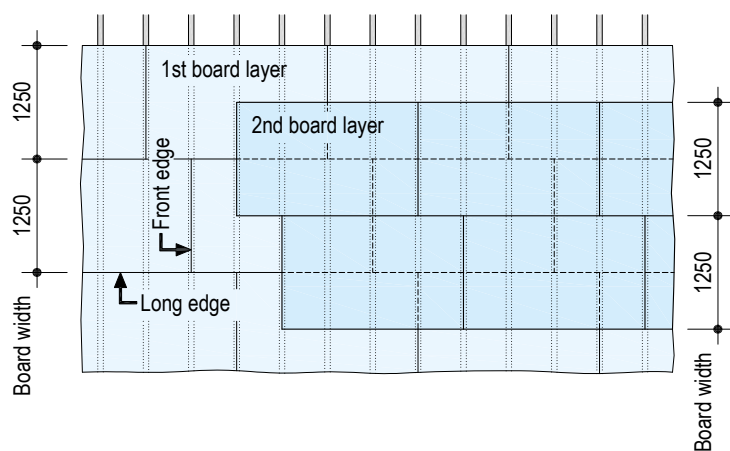
Special gypsum board A1 for high-quality fire protection. Fireboard is used in drywall systems that provide specially optimized fire protection solutions.

Lateral cladding

Ceiling bottom

All dimensions in mm

Board width: 1st layer **1250 mm** Knauf Fire-Resistant Board / Diamant 12.5 mm
 Board width: 2nd layer **1250 mm** Knauf Fire-Resistant Board / Diamant 12.5 mm

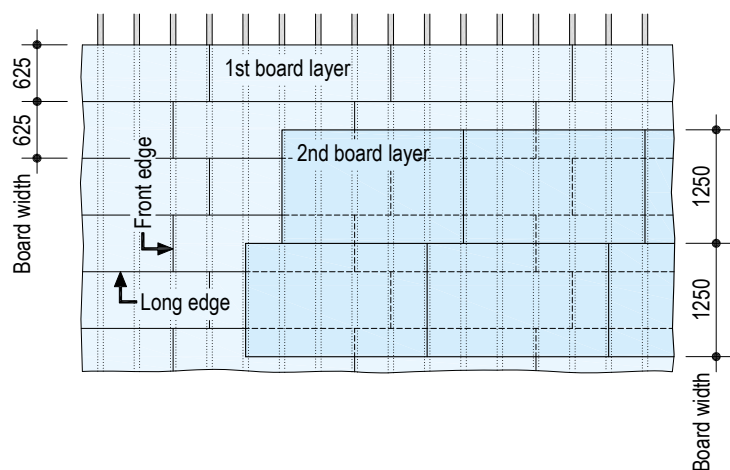


- Apply Knauf Boards lateral to the furring channel (e.g. double profiles).
- Arrange the board joints on the furring channels (stagger by at least 400 mm).
- Stagger the front edge joints between board layers in case of multi-level cladding.
- Stagger the long joints between the board layers by at least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

Lateral cladding

Ceiling bottom

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

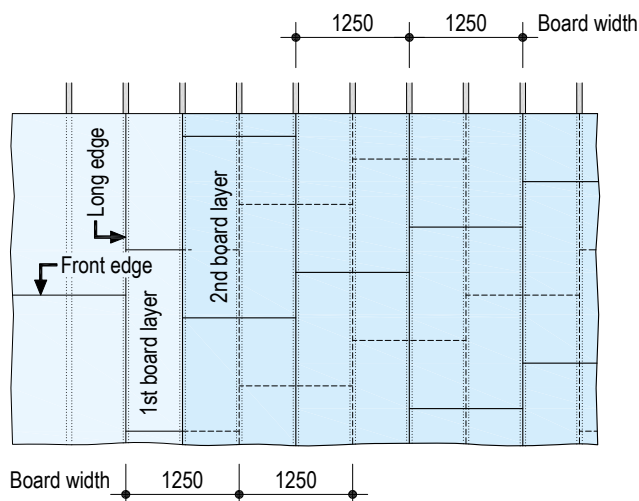


Longitudinal cladding

Ceiling bottom

All dimensions in mm

Board width: 1st layer **1250 mm** Fireboard 20 mm
 Board width: 2nd layer **1250 mm** Fireboard 20 mm



- Apply Knauf Fireboards longitudinally to the furring channel profiles (e.g. double profiles).
- Arrange the long edge joints on the furring channel.
- Stagger the front edge board joints by at least 400 mm.
- Long edge joints between the board layers must be staggered by a half board width between the furring channel profiles.
- Stagger the front edge joints between the board layers (min. 400 mm).
- Commence with the fixing of the boards in the board centre or on the board corner to avoid buckling.
- Every board layer should be pushed firmly onto the grid and attached as an independent layer.

Fastening of the cladding to the grid with Knauf screws

Cladding	Metal grid (penetration ≥ 10 mm)		Metal gauge 0.7 mm < s ≤ 2.25 mm	
	Metal gauge s ≤ 0.7 mm Drywall Screws	Diamant Screws	Drywall Screws	Diamant Screws
Thickness in mm	TN	XTN	TB	HGP-TB
12.5	TN 3.5x25 mm	XTN 3.9x23 mm	TB 3.5x25 mm	HGP-TB 3.9x35 mm
15	-	XTN 3.9x33 mm	-	HGP-TB 3.9x35 mm
18	TN 3.5x35 mm	XTN 3.9x33 mm	TB 3.5x35 mm	HGP-TB 3.9x35 mm
25	TN 3.5x35 mm	-	TB 3.5x45 mm	-
2x 12.5	TN 3.5x25 + 3.5x35 mm	XTN 3.9x23 + 3.9x38 mm	TB 3.5x25 + 3.5x45 mm	HGP-TB 3.9x35 + 3.9x55 mm
20 (K219)	TN 3.5x45 mm	-	TB 3.5x45 mm	-
2x 20 (K219)	TN 3.5x35 + 3.5x55 mm	-	TB 3.5x35 + 3.5x55 mm	-

- Always use Diamant Screws when cladding Diamant and Silentboard
- Screw fastening of Knauf Cleaneo Acoustic boards with counter-sunk screws SN 3.5x30 mm

Max. fastener spacings x Knauf board cladding

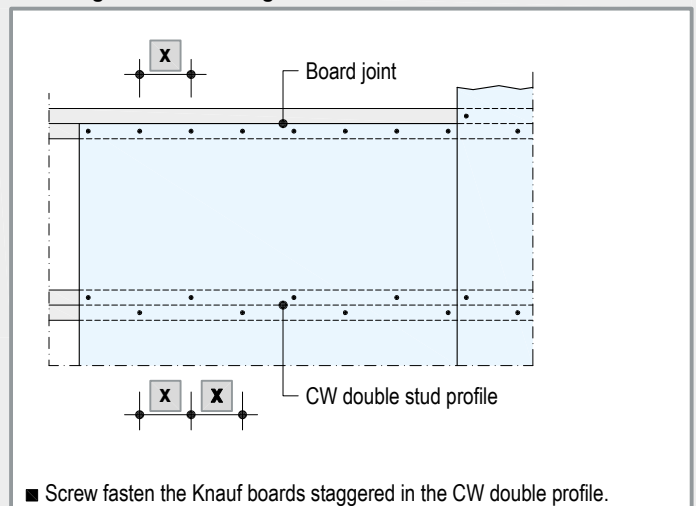
Dimensions in mm

Cladding	1st layer		2nd layer	
	Board width 1250	625	Board width 1250	625
1 layer	170	150		
2 layer	500	300	170	150

Fasten the second board layer within a working day, otherwise the spacing for fastening of single layer cladding must be used.

Cladding screw fastening

Scheme drawing



D13.de Knauf Free-Spanning Ceilings

Attachment of the substructure - ball impact safety



Anchoring of the supporting UW perimeter runners

Anchoring substrate	Fasteners and anchors	Max. fastening spacing dependent on the fire protection		
		■ without fire protection	■ F30 - F90 solely from below ■ F30 - F60 solely from below and from above	■ F90 solely from below and from above
Metal stud partitions (anchoring in metal studs or flexibles Eckenprofil (Flex Profiles))	2x Knauf Multi-purpose Screws FN 4.3x35 Cladding thickness ≤ 20 mm 2x Knauf Multi-purpose Screws FN 4.3x65	625 mm	625 mm	312.5 mm
Reinforced concrete walls	Knauf Deckennagel ceiling steel dowel acc. to approval ETA-07/0049	300 mm	300 mm	250 mm
	Knauf Nailable Plug L 8/80		-	-
Stable masonry without cavities or light concrete (density ≥ 1000 kg/m ³)	Knauf Nailable Plug L 8/80	300 mm	-	-
	Fasteners and anchors suitable for the substrate	300 mm ¹⁾	-	-
	Approved fasteners and anchors suitable for substrate and the required fire protection	-	300 mm ¹⁾	300 mm ²⁾
Other substrate	Fasteners and anchors suitable for the substrate	300 mm ¹⁾	-	-
	Approved fasteners and anchors suitable for substrate and the required fire protection	-	300 mm ¹⁾	300 mm ²⁾

■ Min. load-bearing capacity:

1) Shear 0.35 kN

2) Shear 0.35 kN and withdrawal 0.5 kN

■ With fire protection up to F30 and a room width ≤ 2.25 m, the number of screws can be halved or the dowel / Deckennagel ceiling steel dowel spacing can be doubled (does not apply for the multi-level ceiling system)

Knauf premium drywalling / Knauf boards - providing added value:

	Installation cavity Free available installation cavity without interfering suspenders		Optimum sound insulation through total decoupling from basic ceiling or existing ceiling
	Easy handling The easy to handle Knauf board format simplifies transport and installation		Non-combustible, A1 These demands on the building material - without flammable constituents - are met by Fireboard A1

■ The symbols provide indications of the special properties / benefits of specific Knauf systems.

These symbols indicate the added value of a system in the tables on the following pages.

Ball impact safety for systems D131.de

	Ball impact safety acc. to DIN 18032-3 (without ceiling built-ins) Proof: PZ 902 2507 000-1 Expert survey MPA Stuttgart 7 February 2012
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Minimum demands on the construction

■ Substructure

- Knauf CW single stud profile / Knauf CW double stud profile
- Furring channel axial spacing: ≤ 500 mm

■ Cladding

- Minimum of two cladding layers required.



D131.de / D134.de Knauf Free-Spanning Ceilings



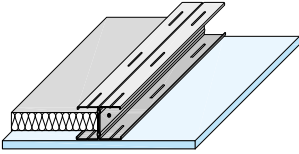






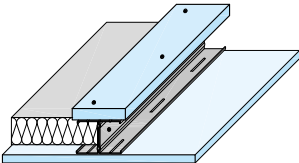


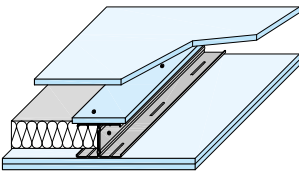

Free-spanning ceilings belonging solely to a common fire resistance class

Please observe the updated specifications for fire resistance, refer to the section: Unterdecken „alleine“ - freitragend / Unterdecken „alleine“ + Akustik in the Fire resistance folder (German only).

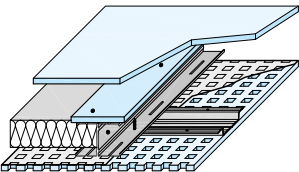

Fire protection from above / from above and from below (plenum)

Requirements on the basic ceiling for fire exposure: From below No fire protection requirements on basic ceiling / roof construction From above (plenum) The basic ceiling should have the same fire protection rating as the suspended ceiling	 Fire resistance class for fire exposure From below From above	Cladding (lateral application)					Carrying channel CW double profile Max. axial spacings (c) mm	Ceiling profile CW double profile/Hat shaped ch. 98x15 Max. axial spacings (b) mm	Insulation layer Required for fire protection Min. thickness Min. density mm kg/m ³		Knauf Premium Drywalling 
		Knauf Fire-Resistant Board Solid Board (GKF) Silentboard Fireboard Diamant Cleaneo Acoustic Min. thickness mm	Max. axial spacings mm	Min. thickness mm	Min. thickness mm	Min. density kg/m ³					

D131.de Knauf free-spanning ceiling

	F30		●					18	-	625	Mineral wool 40	  	
				●					18	-			625
			●						2x 12.5	-	500	Without or with insulation min. B2	  
							●		2x 12.5	-	500		
					●	●			12.5 + 12.5	-	400		
Covering strip: 25 mm Solid Board (GKF) 	F30	F30	●					18	-	625	Mineral wool 40 or 60	 	
									18	-			625
Covering strip: 12.5 mm Knauf Fire-Resistant Board 	F60	F60	●					2x 12.5 + 12.5 additional board layer (covering board)	-	500	Mineral wool 50		

D134.de Knauf Cleaneo Acoustic free-spanning fire protection ceiling

Covering strip: 12.5 mm Knauf Fire-Resistant Board 	F30	F30	●					12.5 + 12.5 additional board layer (covering board)	500	333.5	Mineral wool 50	
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K219.de Knauf Free-Spanning Fireboard Ceilings A1



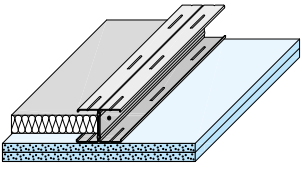
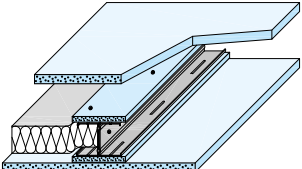
Free-spanning ceilings belonging solely to a common fire resistance class

Please observe the updated specifications for fire resistance, refer to the section: „Unterdecken „alleine“ - freitragend“ in the Fire resistance folder (German only).

Fire protection from below / from below and from above (plenum)

Requirements on the basic ceiling for fire protection: From below No fire protection requirements on basic ceiling / roof construction From above (plenum) The basic ceiling should have the same fire protection rating as the suspended ceiling	 Fire resistance class for fire exposure From below From above	Cladding (longitudinal cladding) Knauf Fire-Resistant Board Solid Board (GKF) Silentboard Fireboard Diamant Cleaneo Acoustic Min. thickness mm	Carrying channel CW double profile double profile Max. axial spacing (c) mm	Ceiling profile CW double profile / Hat-Shaped channel 98x15 Max. axial spacing (b) mm	Insulation layer required for fire protection Min. thickness Min. density mm kg/m ³		Knauf Premium Drywalling 
					(c) (b)	mm kg/m ³	

K219.de Knauf Free-Spanning Fireboard Ceiling A1

	F90					2x 20	-	625	Without or with insulation min. B2	A1
2x covering strip: 12.5 mm Fireboard 	F90	F90				20 + 20 additional board layer (covering board)	-	625	Mineral wool 60 50 S	A1

■ If the free-spanning ceiling is connected (anchored) to a lightweight partition (F90), an additional, 20 mm thick Fireboard cladding layer is required for the partition on the side of the supporting connection.

■ An F90 Fireboard Ceiling A1 rated **solely** from below when connected to fire-resistant walls, even under wood joist ceilings, is assigned with the general building authority designation F90 A

Proofs

Knauf System	Fire protection
D131.de Free-Spanning Ceiling (F30)	ABP P-3964/2172 Expert survey 3090/705/07
D131.de Free-Spanning Ceiling (F60)	ABP P-SAC 02/III-511
D134.de Knauf Cleaneo Acoustic free-spanning fire protection ceiling	ABP P-SAC 02/III-510
K219.de Free-Spanning Fireboard Ceiling A1 (F90)	ABP P-3085/3824 Expert survey 3052/174/07 Expert survey 3090/705/07

■ Knauf sound protection proofs on request

Details / notes

Fire protection:

■ Requirements for the insulation layer (insulation material, e.g. from Knauf Insulation): Mineral wool insulation layer acc. to DIN EN 13162

Insulation layer according to details from the table on page 8 to 9

G building material class A **S** building material class A, melting point ≥ 1000 °C, acc. to DIN 4102-17

■ Flanking components (walls) should have at least the same fire resistance class

D131.de Knauf Free-Spanning Ceilings

Sound insulation - free-spanning ceilings under solid ceilings



Weighted apparent sound reduction index R_w / weighted normalized impact sound level $L_{n,w}$ (without flanking paths)

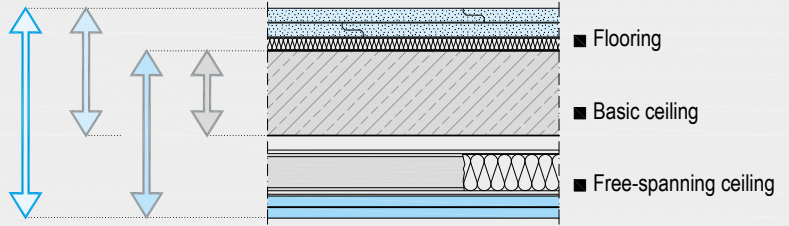
■ $R_{w,R} / L_{n,w,R}$:

The index R is used to differentiate between the calculation value and the test stand values.

- Demands on the insulation layer (e.g. from Knauf Insulation): Mineral wool insulation layer 60 mm or 80 mm acc. to DIN EN 13162; building material class min B2; length-related flow resistance acc. to DIN EN 29053: $r \geq 5 \text{ kPa} \cdot \text{s/m}^2$

R_w alt. $L_{n,w}$

Test configuration



Basic ceiling

Reinforced concrete ceiling 140 mm, approx. 320 kg/m ² (standard reference ceiling)	Without floor		
		$R_{w,R}$ dB	$L_{n,w,R}$ dB
Without suspended ceiling	51	82	

Basic ceiling + flooring

Flooring		Knauf Pre-fab Floor Screen		Knauf flowing screed	
		■ 1x 18 mm Brio WF ■ 2x 23 mm Brio ■ 20 mm Knauf Insulation Trittschall-Dämmplatte TP-GP		■ 40 mm FE50 ■ 9.5 mm Knauf GKB ■ 25 mm mineral wool Trittschall-Dämmplatte stiffness group 10	
$R_{w,R}$ dB	$L_{n,w,R}$ dB	$R_{w,R}$ dB	$L_{n,w,R}$ dB	$R_{w,R}$ dB	$L_{n,w,R}$ dB
56	59	60	51	55	43

Basic ceiling + subceiling

Suspended ceiling D131.de	■ 12.5 mm Diamant ■ 2x CW 75 $R_{w,R}$: 65 ¹⁾ $L_{n,w,R}$: 58 ¹⁾
	■ 12.5 mm Silentboard ■ 2x CW 125 $R_{w,R}$: 73 $L_{n,w,R}$: 44
	■ 15 mm Diamant ■ 2x CW 75 $R_{w,R}$: ≥ 65 ³⁾ $L_{n,w,R}$: ≤ 58 ³⁾
	■ 2x 12.5 mm Diamant ■ 2x CW 75 $R_{w,R}$: 68 $L_{n,w,R}$: 52
	■ 12.5 mm Silentboard ■ 2x CW 125 ■ 12.5 mm Diamant $R_{w,R}$: 74 $L_{n,w,R}$: 44

Basic ceiling + flooring + subceiling

71	43	71 ¹⁾	40 ¹⁾	65 ²⁾	31 ¹⁾
74 ¹⁾	40	78 ¹⁾	34	73 ²⁾	23 ¹⁾
71 ³⁾	43	≥ 71 ³⁾	40 ¹⁾	≥ 65 ³⁾	31 ¹⁾
73	39	74 ¹⁾	38 ¹⁾	68 ²⁾	29 ¹⁾
76 ¹⁾	40	79 ¹⁾	34	74 ²⁾	23 ¹⁾

1) Calculation based on the detailed procedure acc. to DIN EN 12354

2) Measured values of basic ceiling and suspended ceiling without flooring

3) Calculation values derived from cladding 12.5 mm

■ Larger suspension heights / larger thicknesses of the basic ceiling improve sound insulation

D131.de Knauf Free-Spanning Ceilings

Sound insulation - free-spanning ceilings under wood joist ceilings



Weighted apparent sound reduction index R_w / weighted normalized impact sound level $L_{n,w}$ (without flanking paths)

■ $R_{w,R} / L_{n,w,R}$:

The index R is used to differentiate between the calculation value and the test stand values.

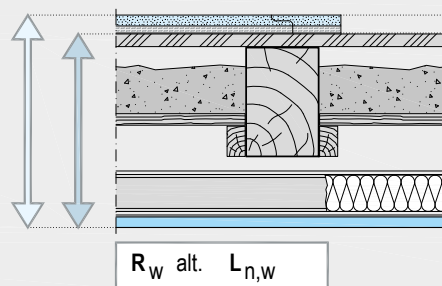
- Demands on the insulation layer (e.g. from Knauf Insulation): Mineral wool insulation layer 50 mm or 60 mm acc. to DIN EN 13162; building material class min B2; length-related flow resistance acc. to DIN EN 29053: $r \geq 5 \text{ kPa} \cdot \text{s/m}^2$

- The impact sound values have been determined by the prognosis method from the System Data Sheet D15.de.

The values include a margin of 4 dB according to System Data Sheet D15.de on page 33.

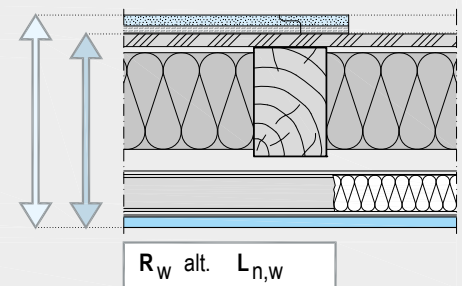
Test configuration

Wood joist ceiling **A** (heavy inlay)



R_w alt. $L_{n,w}$

Wood joist ceiling **B** (light inlay)



R_w alt. $L_{n,w}$

■ Flooring

- without or with 18 mm Brio WF

■ Wood joist ceiling **A**

- Wooden composite board: 24 mm
- Wooden beams: 120 / 180 mm, axial spacing 500 mm
- Ceiling sound board of 24 mm wooden composite board with 100 kg/m² sand load

■ Free-spanning ceiling

■ Flooring

- without or with 18 mm Brio WF

■ Wood joist ceiling **B**

- Wooden composite board: 22¹⁾ alt. 24 mm
- Wooden beams: 120 / 180 mm, axial spacing 500 alt. 625¹⁾ mm
- Insulation layer made of mineral wool: 100¹⁾ alt. 160 mm, pushed between the beams

■ Free-spanning ceiling

1) with combined cladding Diamant + Silentboard

Wood joist ceiling system	Cladding mm	Additional insulation layer Wooden joist ceiling	
		A mm	B mm

Wood joist ceiling A				Wood joist ceiling B			
without flooring		with flooring		without flooring		with flooring	
$R_{w,R}$ dB	$L_{n,w,R}$ dB	$R_{w,R}$ dB	$L_{n,w,R}$ dB	$R_{w,R}$ dB	$L_{n,w,R}$ dB	$R_{w,R}$ dB	$L_{n,w,R}$ dB

New building / old building partly gutted, fully gutted

Suspended ceiling D131.de ■ 2x CW 75	12.5 Diamant		
		18 Diamant	
		2x 12.5 Diamant	
		12.5 Diamant + 12.5 Silentboard	

62	48	63	44	61	56	64	47
-	-	-	-	61	55	62	46
63	45	63	38	63	52	64	42
-	-	-	-	-	-	72	42

Old building

Suspended ceiling D131.de ■ 2x CW 75	12.5 Diamant		
		18 Diamant	
		2x 12.5 Diamant	

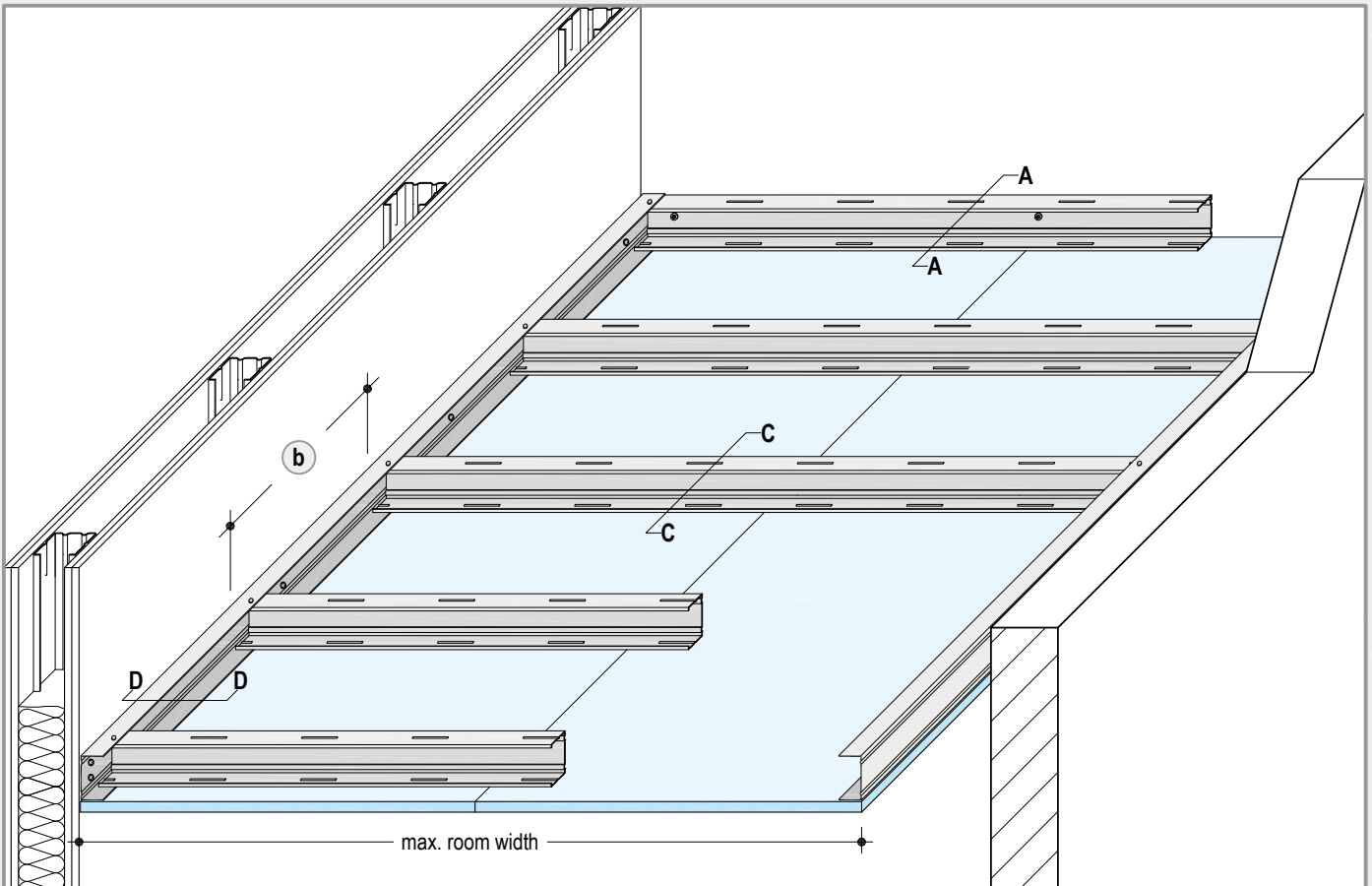
58	56	62	51	55	62	59	56
-	-	-	-	58	61	61	55
61	51	63	45	59	55	61	51

D131.de Knauf Free-Spanning Ceilings

Without fire protection - max. room widths



Scheme drawing



Max. room widths in m ¹⁾

Knauf profile	Cladding in mm (lateral cladding)							
	Knauf Wallboard		Diamant				Silentboard	Silentboard 12.5 + Diamant 12.5
	12.5	2x 12.5	12.5	15	2x 12.5	18	12.5	
Metal gauge	Max. axial clearances furring channel b in mm							
0.6 mm	500	500	500	500	500	625	400	400
CW single profile								
CW 50	2.50	2						
CW 75	3	2.50						
CW 100	3.50	3						
CW 125	4	3.50						
CW 150	4.50	4						
CW double stud profile								
2x CW 50	2.75 (2.35)	2.25 (2.20)	2.50 (2.35)	2.50 (2.30)	2.25 (2.15)	2.25 (2.15)	2.65 (2.40)	2.40 (2.20)
2x CW 75	3.50 (2.95)	3 (2.75)	3.25 (2.95)	3.25 (2.90)	2.75 (2.70)	3 (2.75)	3.30 (3)	3 (2.80) ²⁾
2x CW 100	4 (3.50)	3.50 (3.25)	3.75 (3.45)	3.75 (3.40)	3.50 (3.20) ²⁾	3.50 (3.15)	3.90 (3.50)	3.55 (3.25) ²⁾
2x CW 125	4.50 (3.95)	4 (3.70) ²⁾	4.25 (3.90)	4.25 (3.85)	3.75 (3.60) ²⁾	4 (3.60)	4.40 (3.95) ²⁾	4 ²⁾ (3.70) ²⁾
2x CW 150	5 (4.35) ²⁾	4.50 (4.10) ²⁾	4.75 (4.30) ²⁾	4.75 (4.25) ²⁾	4.25 (4) ²⁾	4.25 (4) ²⁾	4.85 (4.40) ²⁾	4.45 ²⁾ (4.10) ²⁾

Knauf Profiles

Knauf CW Profile as the furring channel	Knauf UW perimeter runner as connection to wall
CW 50/ 2x CW 50	→ UW 50
CW 75/ 2x CW 75	→ UW 75
CW 100/ 2x CW 100	→ UW 100
CW 125/ 2x CW 125	→ UW 125
CW 150/ 2x CW 150	→ UW 150

- Larger room widths possible on request.
- Free-spanning ceiling profiles may not be joined or extended.

▶ Example "Multi-level ceiling system" see page 41

() Values in brackets: Room widths with system "Multi-level ceiling system".

1) Max. room widths: including additional loads (0.05 kN/m² = 5 kg/m²) for insulation layers required for fire protection and/or sound insulation.

2) Required cladding thickness with flanking metal stud partitions on the side of the supporting connection: ≥ 18 mm Knauf Boards / ≥ 15 mm Diamant.

D131.de Knauf Free-Spanning Ceilings

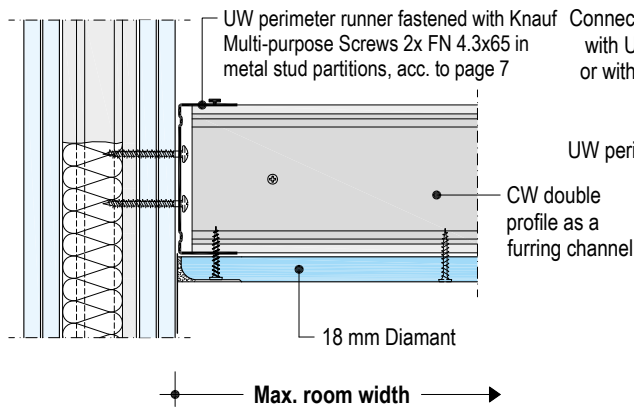
Without fire protection - details



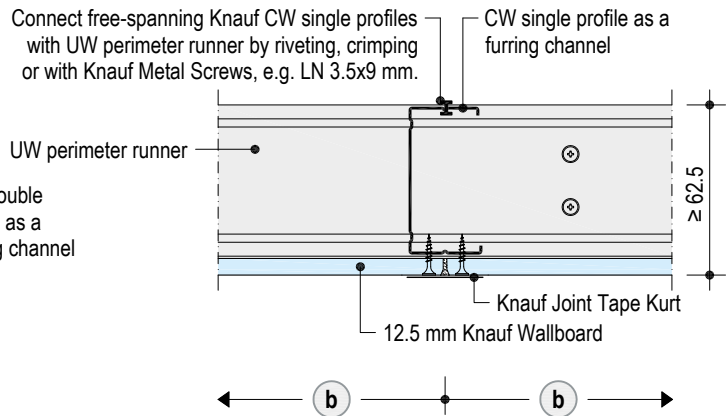
Details, scale 1:5

Examples, all dimensions in mm

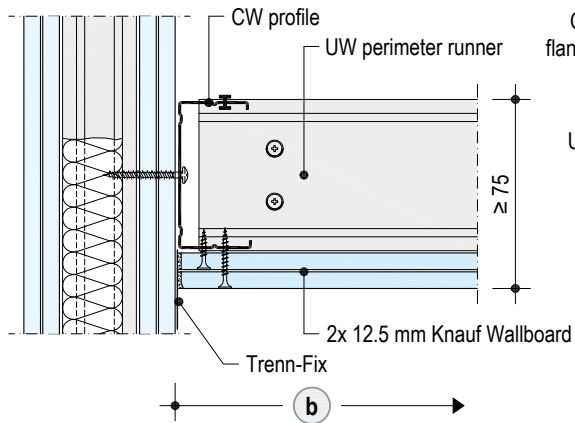
D131.de-D1 Load bearing connection to partition



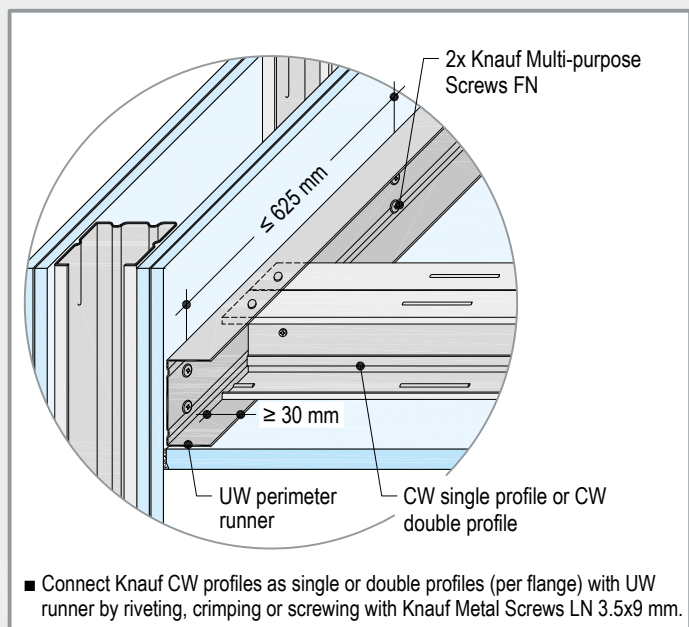
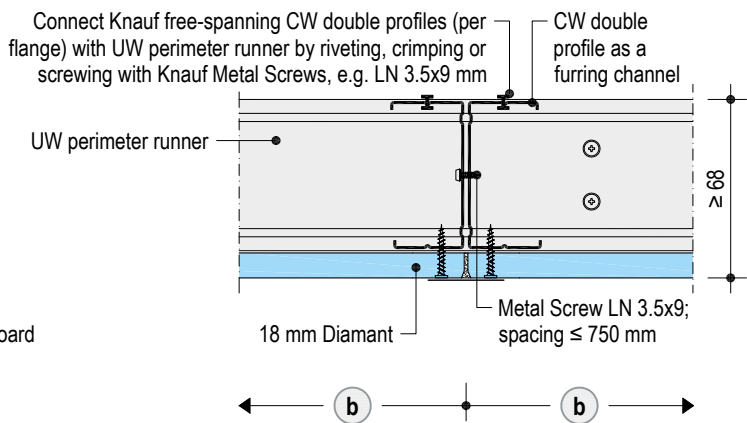
D131.de-C1 Front edge joint - single profile



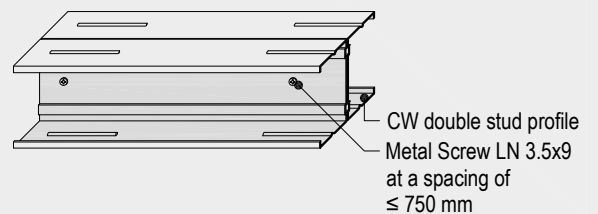
D131.de-A1 Structural connection to partition



D131.de-C2 Front edge joint double profile



■ Knauf CW double profile: Screw connect with Metal Screws LN 3.5x9 at a spacing of ≤ 750 mm



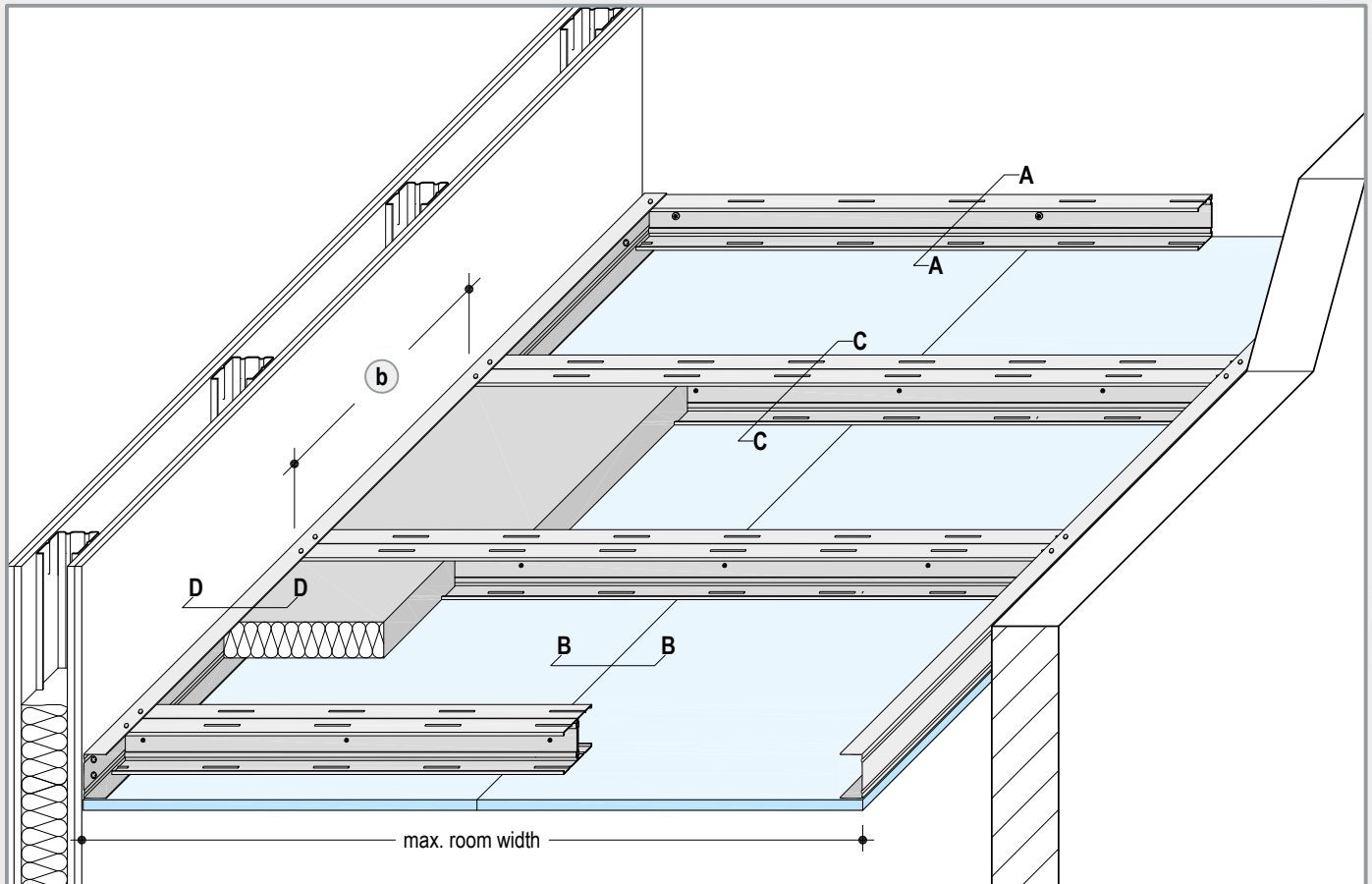
D131.de Knauf Free-Spanning Ceilings



Fire protection F30 ■ solely from below - max. room widths

Please observe the updated specifications for fire resistance, refer to the section: Unterdecken „alleine“ - freitragend in the Fire resistance folder (German only).

Scheme drawing



Knauf Profiles

Knauf CW Profile as the furring channel		Knauf UW perimeter runner as connection to wall
2x CW 50	→	UW 50
2x CW 75	→	UW 75
2x CW 100	→	UW 100
2x CW 125	→	UW 125
2x CW 150	→	UW 150

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

Max. room widths in m ¹⁾

Knauf Profile	Cladding in mm (lateral application)					
	Knauf Fire-Resistant Board 18		Solid Board (GKF) 25	Diamant 18	2x 12.5	Silentboard 12.5 + Diamant 12.5
Metal gauge 0.6 mm	Max. axial clearances furring channel (b) in mm					
	625	500	625	625	500	400
CW double stud profile						
2x CW 50	2.25 (2)	2.25 (2)	2.25 (2)	2.25 (2)	2.25 (2)	2.25 (2)
2x CW 75	3 (2.75)	3 (2.75)	3 (2.75)	3 (2.75)	2.75 (2.50)	3 (2.75)
2x CW 100	3.50 (3.25)	3.50 (3.25)	3.50 (3.25)	3.50 (3)	3.50 (3)	3.50 (3.25) ²⁾
2x CW 125	4 (3.50)	4 (3.50) ²⁾	4 (3.50) ²⁾	4 (3.50)	3.75 (3.50) ²⁾	4 ²⁾ (3.50) ²⁾
2x CW 150	4.50 (4) ²⁾	4.50 (4) ²⁾	4.50 (4) ²⁾	4.25 (4) ²⁾	4.25 (4) ²⁾	4.45 ²⁾ (4) ²⁾

() Values in brackets: Room widths with system "Multi-level ceiling system"

1) Max. room widths: including additional loads (0.05 kN/m² = 5 kg/m²) for insulation layers required for fire protection and/or sound insulation

2) Required cladding thickness with flanking metal stud partitions on the side of the supporting connection: ≥ 18 mm Knauf Boards / ≥ 15 mm Diamant.

■ Larger room widths possible on request.

D131.de Knauf Free-Spanning Ceilings



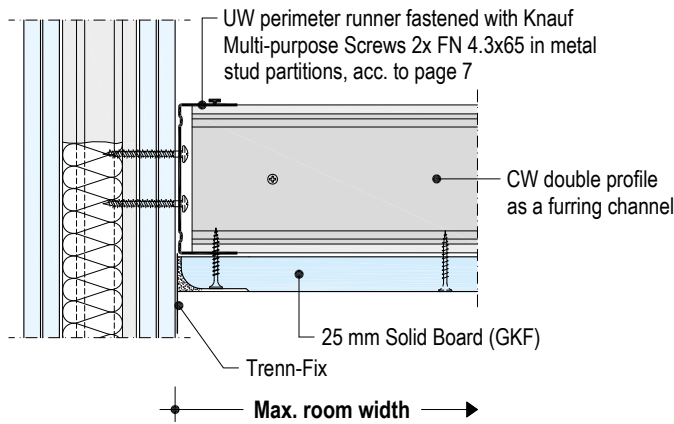
Fire protection F30 **solely from below** - details

Please observe the updated specifications for fire resistance, refer to the section: Unterdecken „alleine“ - freitragend“ in the Fire resistance folder (German only).

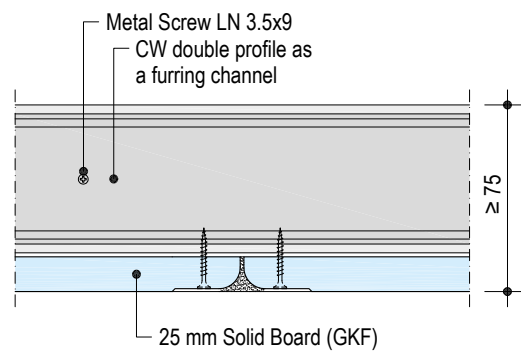
Details, scale 1:5

Examples, all dimensions in mm

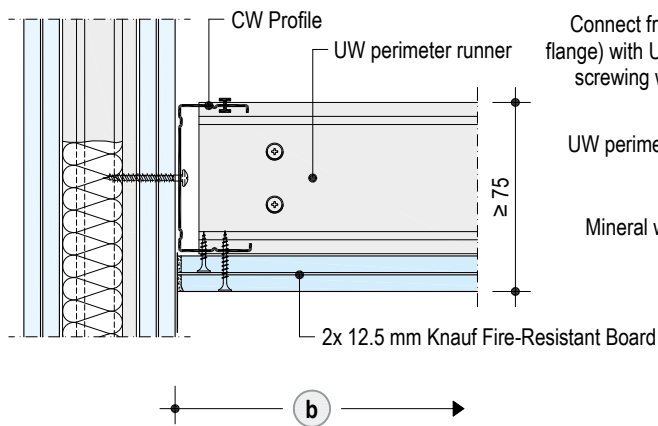
D131.de-vu-D1 Load bearing connection to partition



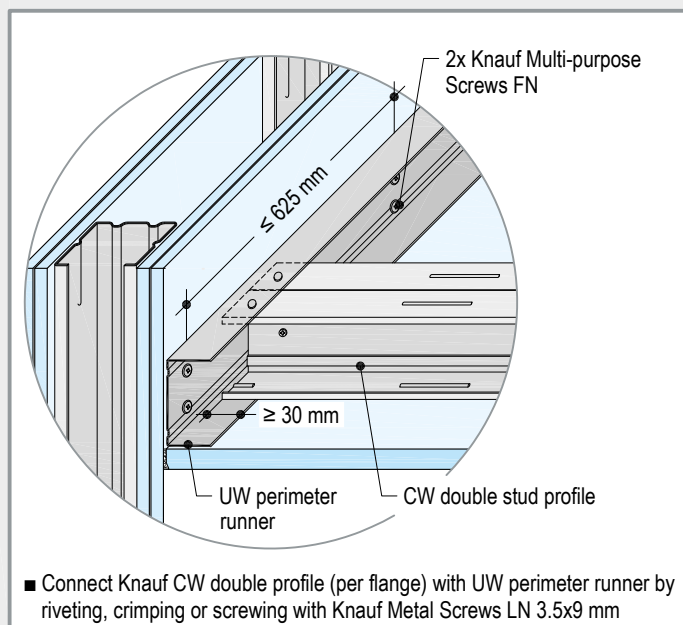
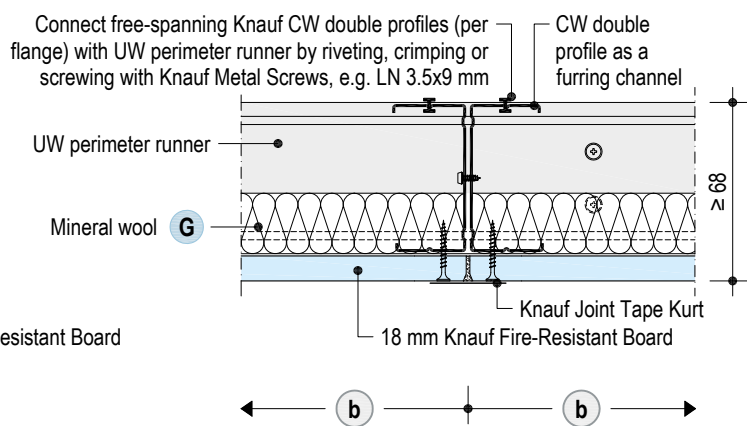
D131.de-vu-B1 Longitudinal edge joint



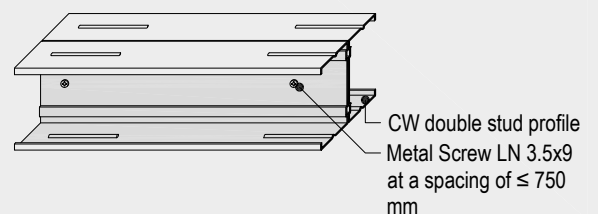
D131.de-vu-A1 Structural connection to partition



D131.de-vu-C1 Front edge joint



■ Knauf CW double profile: Screw connect with Metal Screws LN 3.5x9 at a spacing of ≤ 750 mm



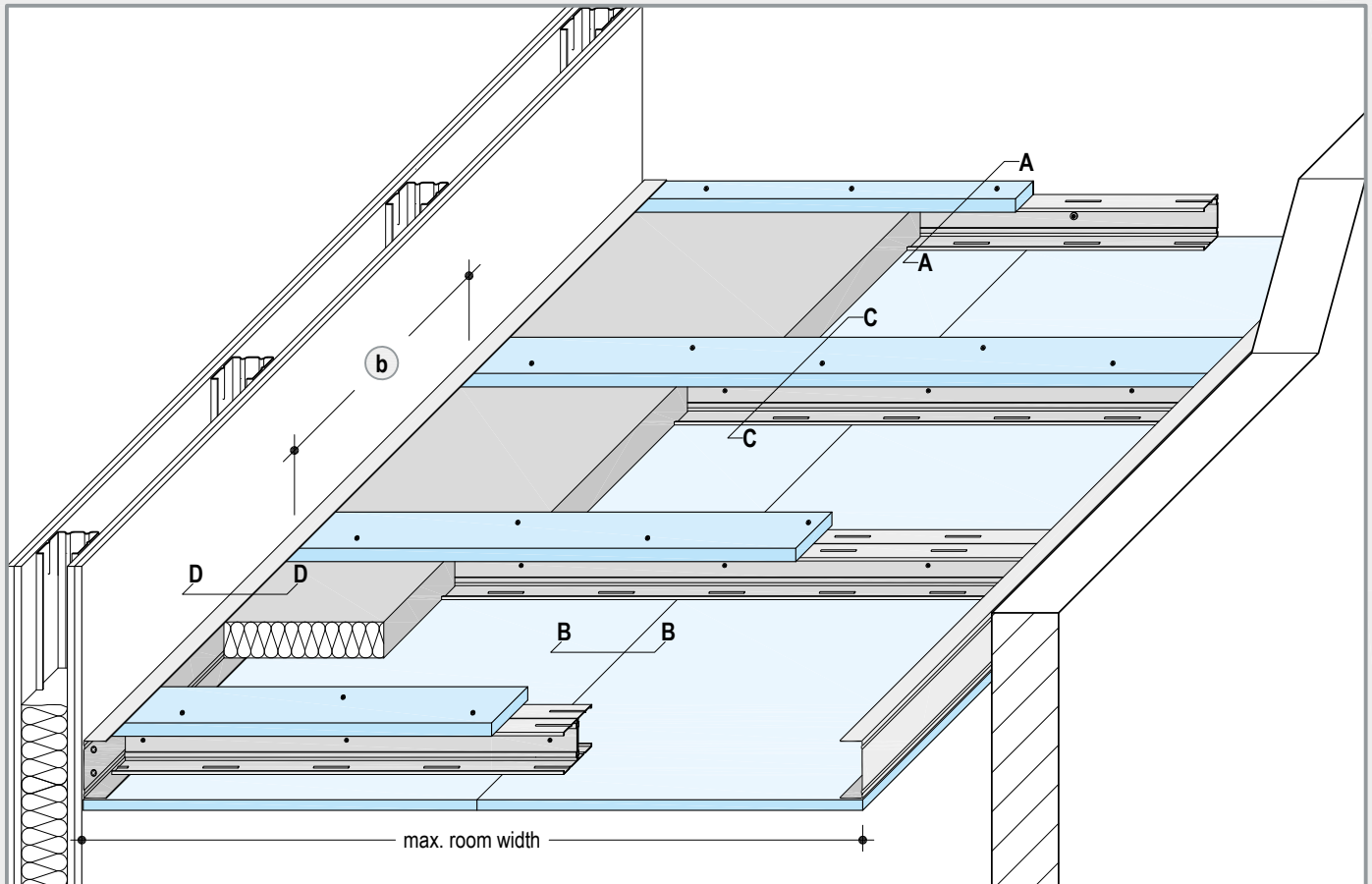
D131.de Knauf Free-Spanning Ceilings



Fire protection F30 ■ solely from below and from above - max. room widths

Please observe the updated specifications for fire resistance, refer to the section: Unterdecken „alleine“ - freitragend in the Fire resistance folder (German only).

Scheme drawing



Knauf Profiles

Knauf CW Profile as the furring channel	Knauf UW perimeter runner as connection to wall
2x CW 50	→ UW 75
2x CW 75	→ UW 100
2x CW 100	→ UW 125
2x CW 125	→ UW 150

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

Max. room widths in m ¹⁾

Knauf Profile	Cladding (lateral application)	
	Knauf Fire-Resistant Board 18 mm	Diamant 18 mm
Metal gauge 0.6 mm	Max. axial clearances furring channel b	
	625 mm	625 mm
CW double stud profile		
2x CW 50	2.25 (2)	2.25 (2)
2x CW 75	3 (2.75)	3 (2.75)
2x CW 100	3.50 (3.25)	3.50 (3)
2x CW 125	4 (3.50)	4 (3.50) ²⁾

() Values in brackets: Room widths with system "Multi-level ceiling system"

1) Max. room widths: including additional loads (0.05 kN/m² = 5 kg/m²) for insulation layers required for fire protection and/or sound partition

2) Required cladding thickness with flanking metal stud partitions on the side of the supporting connection: ≥ 18 mm Knauf Boards / ≥ 15 mm Diamant.

■ Larger room widths possible on request.

▶ Example "Multi-level ceiling system" see page 41

D131.de Knauf Free-Spanning Ceilings



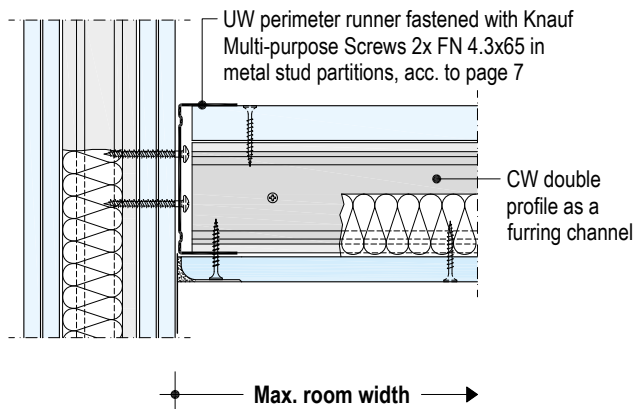
Fire protection F30 **solely from below and from above** - details

Please observe the updated specifications for fire resistance, refer to the section: Unterdecken „alleine“ - freitragend in the Fire resistance folder (German only).

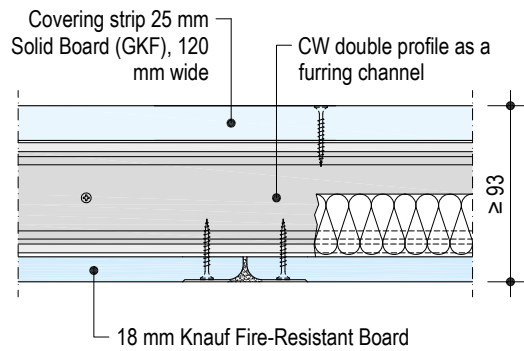
Details, scale 1:5

All dimensions in mm

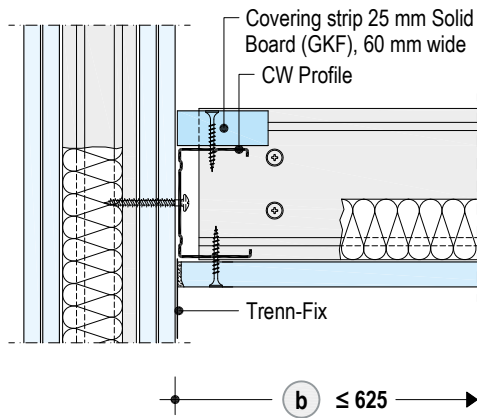
D131.de-vuvo-D1 Load bearing connection to partition



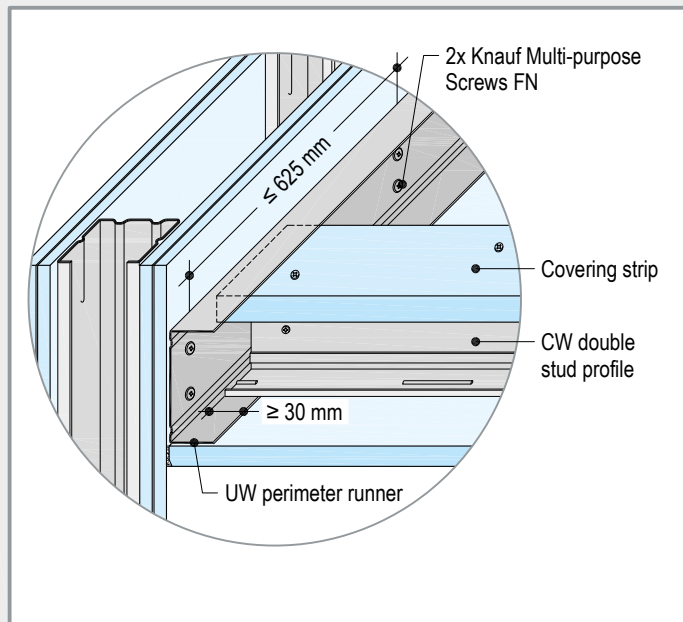
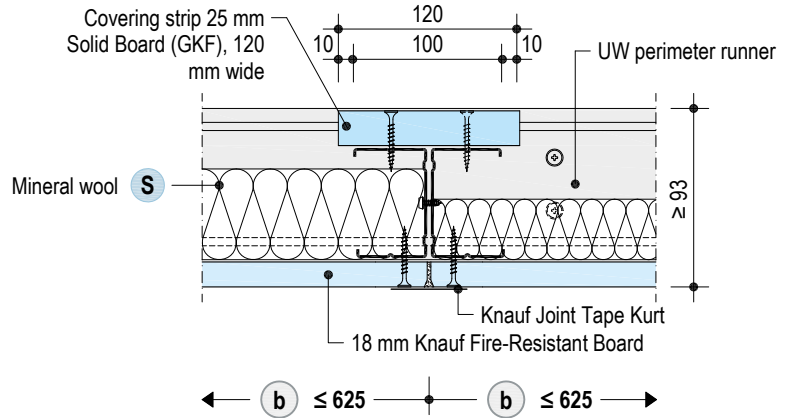
D131.de-vuvo-B1 Longitudinal edge joint



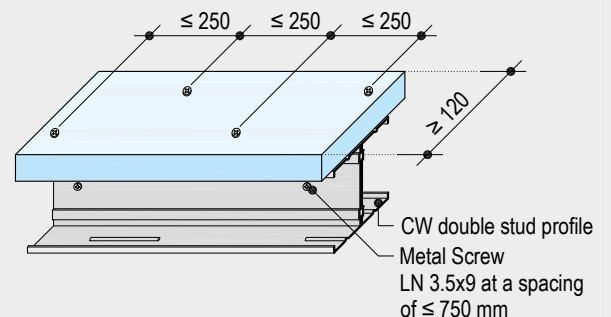
D131.de-vuvo-A1 Structural connection to partition



D131.de-vuvo-C1 Front edge joint



- Screw fasten covering strip 25 mm Solid Board GKF with Drywall Screws TN 3.5x35 staggered in the CW double profile. Prefabricated board strips are available.
- Knauf CW double profile: Screw connect with Metal Screws LN 3.5x9 at a spacing of ≤ 750 mm

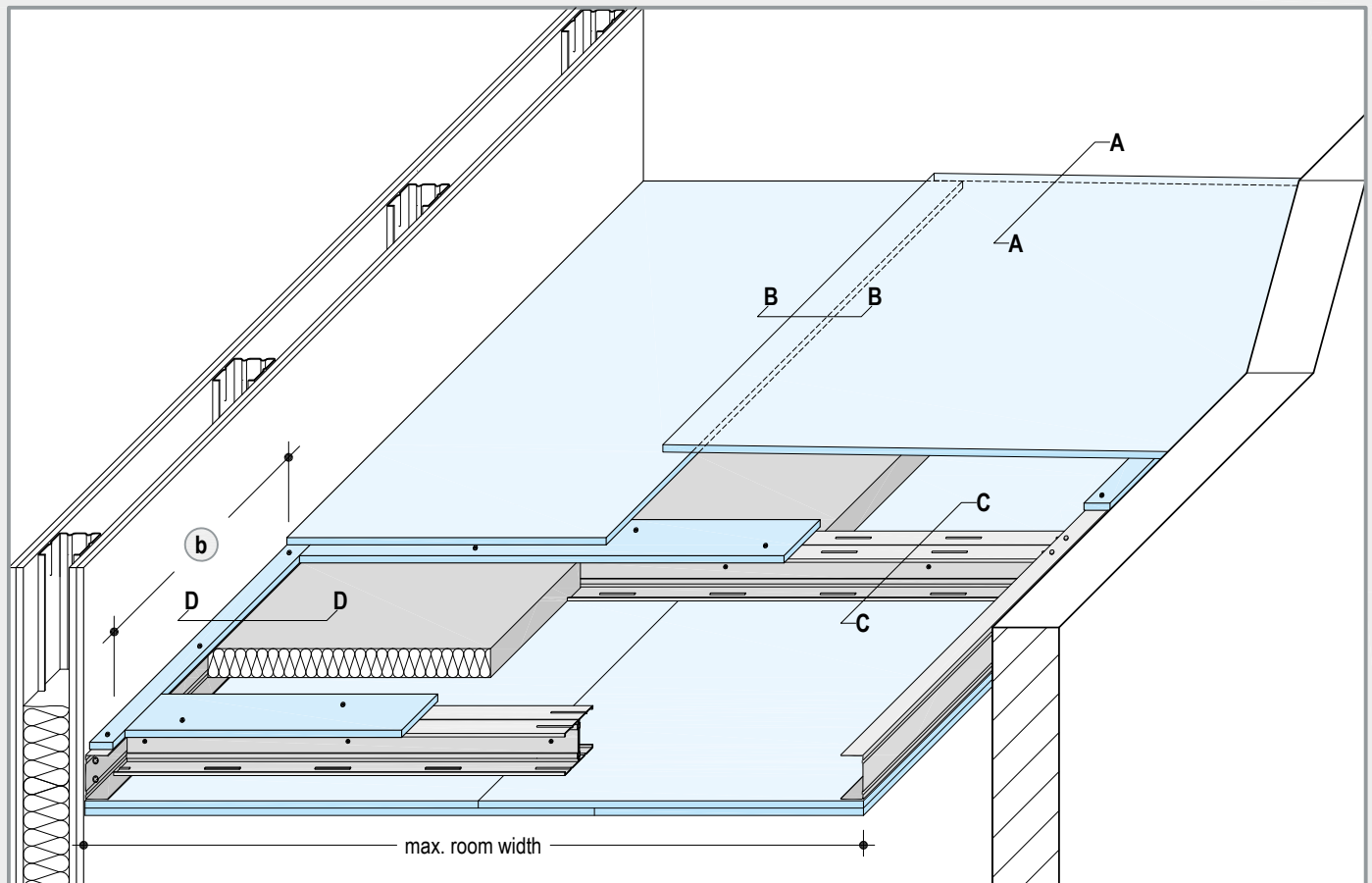


D131.de Knauf Free-Spanning Ceilings

Fire protection F60 ■ solely from below ■ solely from below and from above - max. room widths



Scheme drawing



Knauf Profiles

Knauf CW Profile as the furring channel	Knauf UW perimeter runner as connection to wall
2x CW 50	→ UW 50
2x CW 75	→ UW 75
2x CW 100	→ UW 100
2x CW 125	→ UW 125
2x CW 150	→ UW 150

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

Max. room widths in m ¹⁾

Knauf Profile	Cladding (lateral application)
	Knauf Fire-Resistant Board 2x 12.5 mm
Metal gauge 0.6 mm	Max. axial clearances furring channel (b) 500 mm
CW double stud profile	
2x CW 50	2.15
2x CW 75	2.70
2x CW 100	3.20 ²⁾
2x CW 125	3.60 ²⁾
2x CW 150	4.05 ²⁾

1) Max. room widths: including additional loads (0.05 kN/m² = 5 kg/m²) for insulation layers required for fire protection and/or sound insulation

2) Required cladding thickness with flanking metal stud partitions on the side of the supporting connection: ≥ 18 mm Knauf Boards / ≥ 15 mm Diamant.

D131.de Knauf Free-Spanning Ceilings

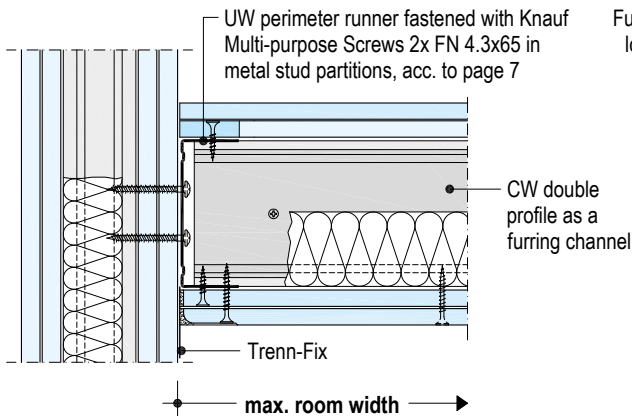
Fire protection F60 ■ solely from below ■ solely from below and from above - details



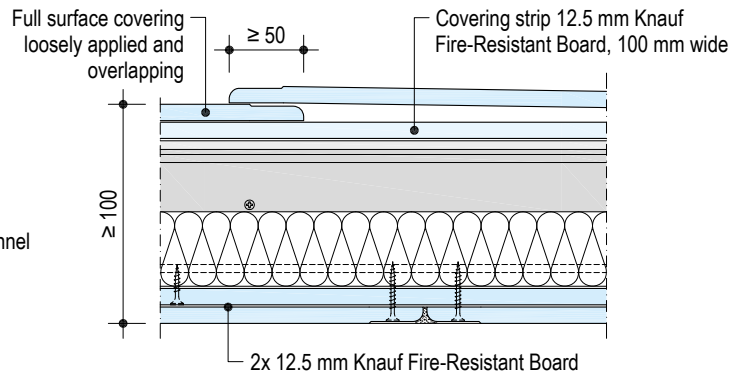
Details, scale 1:5

All dimensions in mm

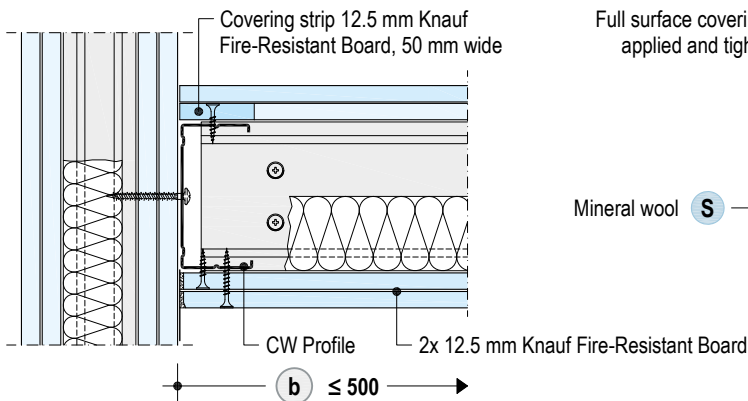
D131.de-vuvo-D3 Load bearing connection to partition



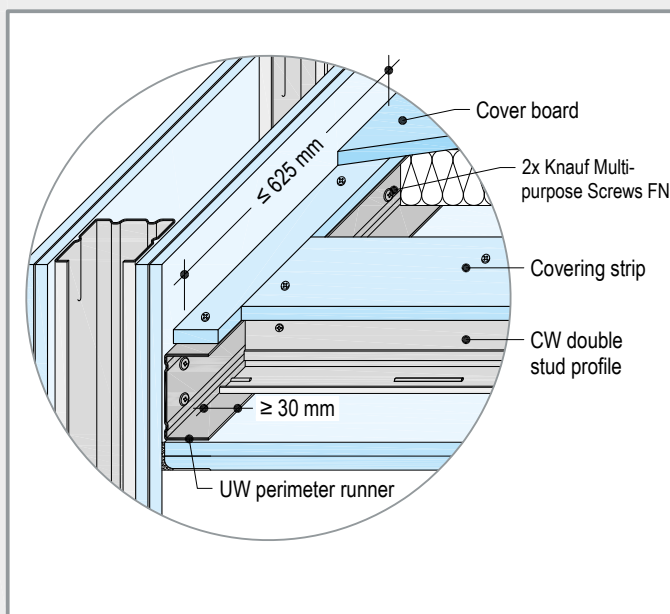
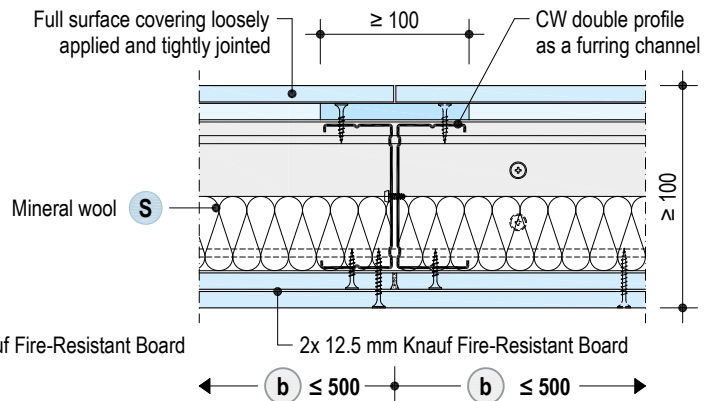
D131.de-vuvo-B3 Longitudinal edge joint



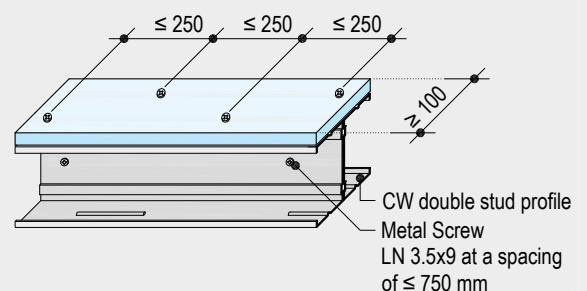
D131.de-vuvo-A3 Structural connection to partition



D131.de-vuvo-C3 Front edge joint



- Cover board: Apply 12.5 mm Knauf Fire-Resistant Board covering to the entire surface, apply loosely
 - Front edge joints on CW double profiles, tightly jointed
 - Long edge joints with joint overlap ≥ 50 mm
- Cover strips: Screw fasten staggered 12.5 mm Knauf Fire-Resistant Board with Drywall Screws TN 3.5x25 in the CW double profile. Pre-fabricated board strips are available.
- Knauf CW double profile: Screw connect with Metal Screws LN 3.5x9 at a spacing of ≤ 750 mm



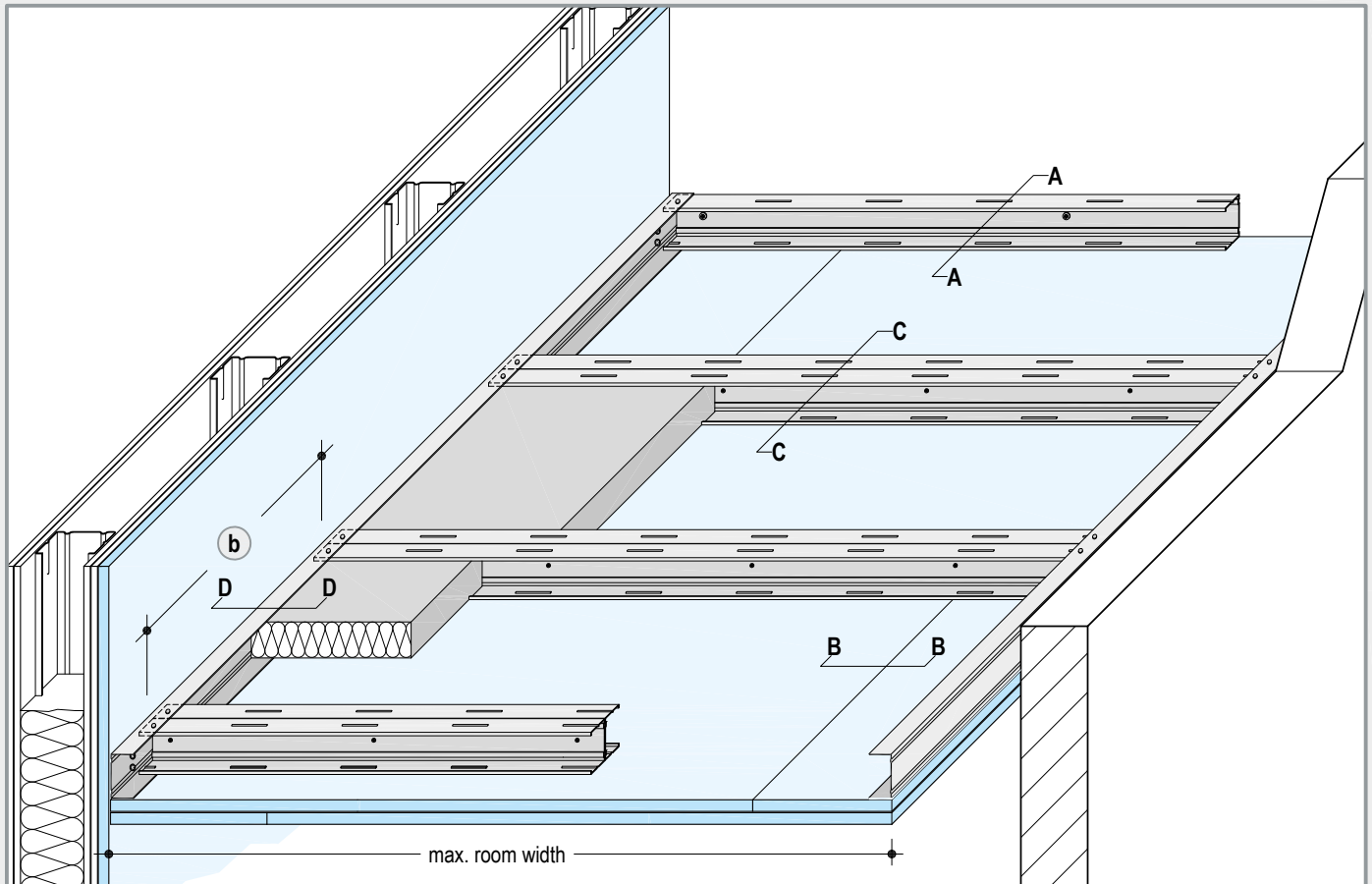
K219.de Knauf Free-Spanning Fireboard Ceilings A1



Fire protection F90 ■ solely from below - max. room widths

Please observe the updated specifications for fire resistance, refer to the section: Unterdecken „alleine“ - freitragend in the Fire resistance folder (German only).

Scheme drawing



Knauf Profiles

Knauf CW Profile as the furring channel	Knauf UW perimeter runner as connection to wall
2x CW 50	→ UW 50
2x CW 75	→ UW 75
2x CW 100	→ UW 100
2x CW 125	→ UW 125
2x CW 150	→ UW 150

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

Max. room widths in m ¹⁾

Knauf Profile	Cladding (parallel cladding)	
	Fireboard 2x 20 mm	
Metal gauge 0.6 mm	Max. axial clearances furring channel (b)	
	625 mm	
CW double stud profile		
2x CW 50	2	(2)
2x CW 75	2.75	(2.50)
2x CW 100	3.25	(3)
2x CW 125	3.50	(3.25)
2x CW 150	4	(3.75)

() Values in brackets: Room widths with system "Multi-level ceiling system"

1) Max. room widths: including additional loads (0.03 kN/m² = 3 kg/m²) for insulation layers required for fire protection and/or sound insulation

■ Larger room widths possible on request.

▶ Example "Multi-level ceiling system" see page 41

K219.de Knauf Free-Spanning Fireboard Ceilings A1



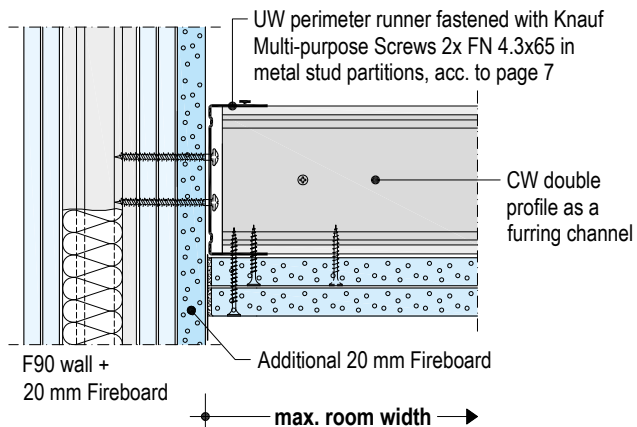
Fire protection F90 **solely from below** - details

Please observe the updated specifications for fire resistance, refer to the section: Unterdecken „alleine“ - freitragend in the Fire resistance folder (German only).

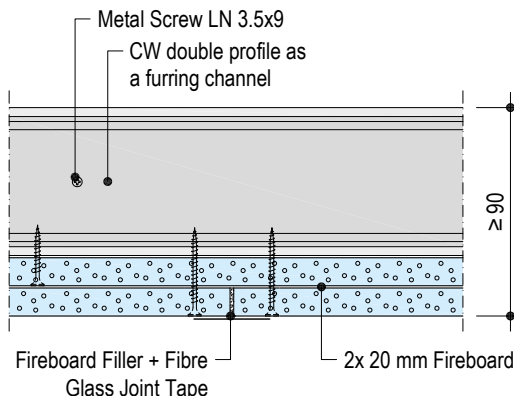
Details, scale 1:5

All dimensions in mm

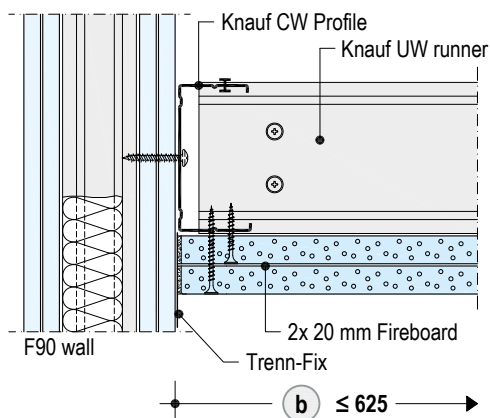
K219.de-vu-D3 Load bearing connection to partition



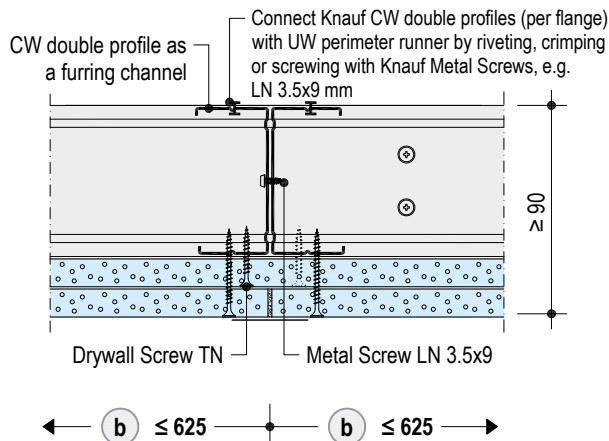
K219.de-vu-B3 Front edge joint



K219.de-vu-A3 Structural connection to partition

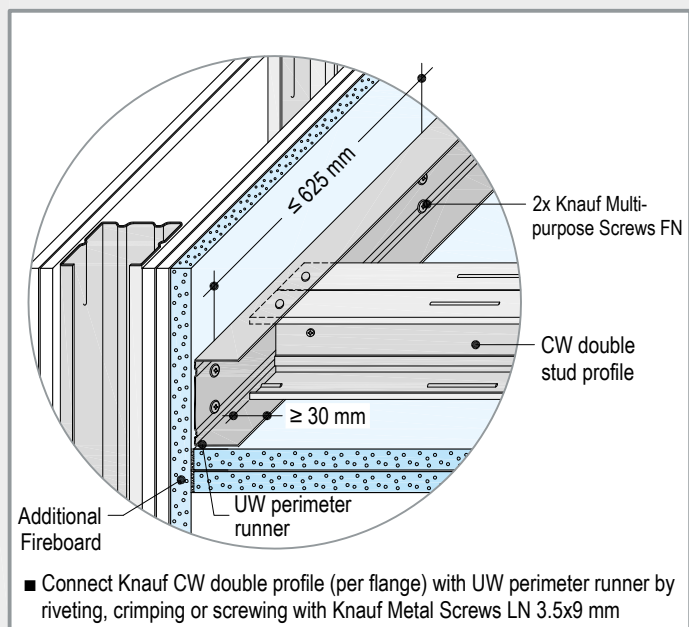


K219.de-vu-C3 Longitudinal edge joint

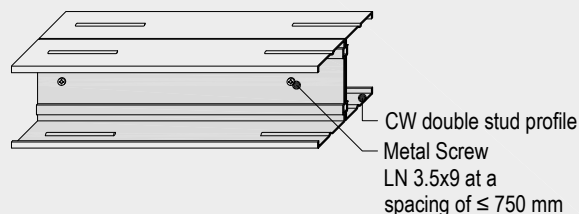


Note

If the free-spanning ceiling is connected (anchored) to a lightweight partition (F90), an additional, 20 mm thick Fireboard cladding layer is required for the partition on the side of the supporting connection.



■ Knauf CW double profile: Screw connect with Metal Screws LN 3.5x9 at a spacing of ≤ 750 mm



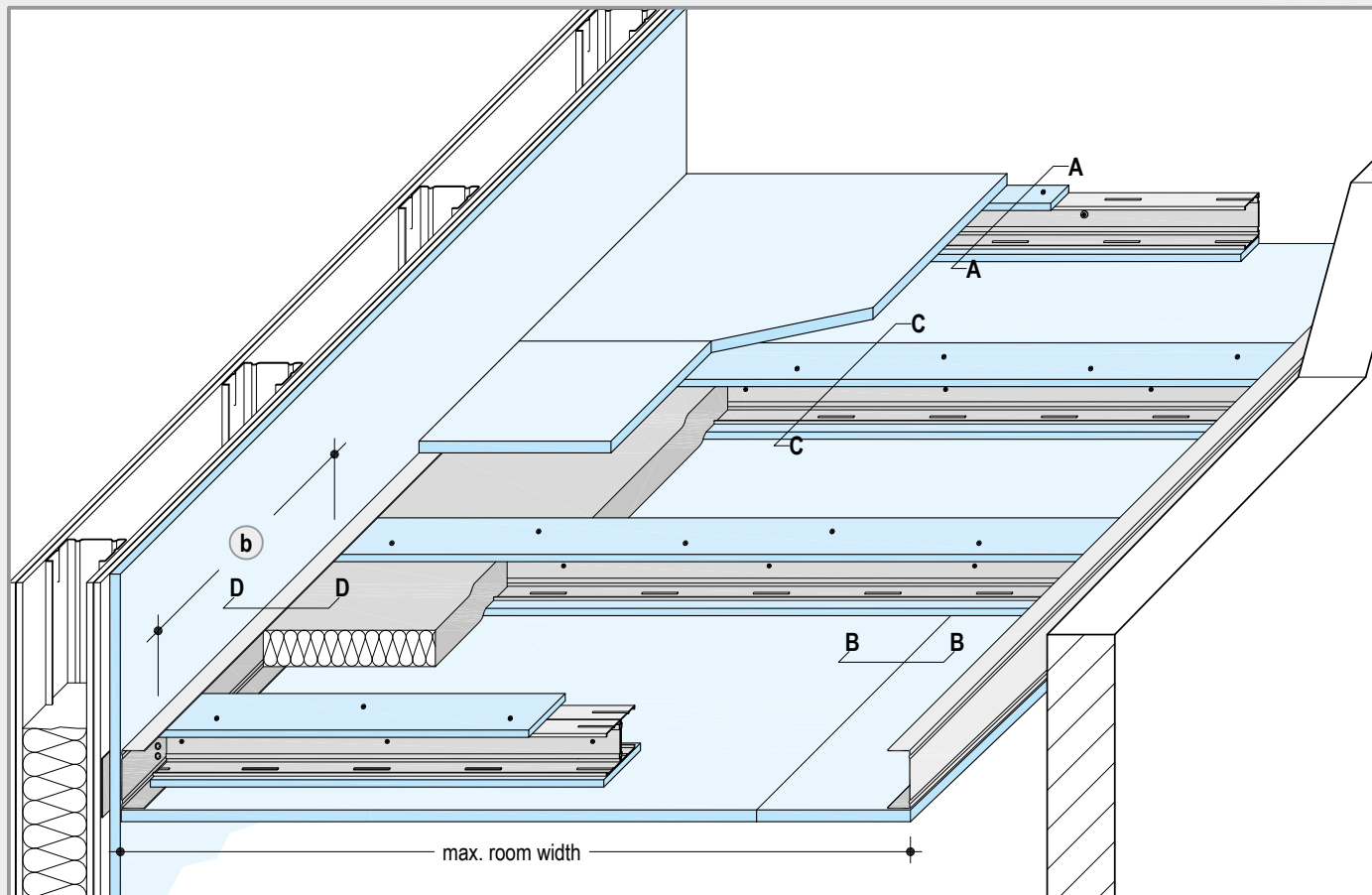
K219.de Knauf Free-Spanning Fireboard Ceilings A1



Fire protection F90 ■ solely from below and from above - max. room widths

Please observe the updated specifications for fire resistance, refer to the section: Unterdecken „alleine“ - freitragend in the Fire resistance folder (German only).

Scheme drawing



Knauf Profiles

Knauf CW Profile as the furring channel	Knauf UW perimeter runner as connection to wall
2x CW 75	→ UW 100
2x CW 100	→ UW 125
2x CW 125	→ UW 150

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

Max. room widths in m ¹⁾

Knauf Profile	Cladding (parallel cladding)
	Fireboard 20 mm
Metal gauge 0.6 mm	Max. axial clearances furring channel (b) 625 mm
CW double stud profile	
2x CW 75	2.75
2x CW 100	3.25
2x CW 125	3.50

1) Max. room widths: including additional loads (0.03 kN/m² = 3 kg/m²) for insulation layers required for fire protection and/or sound insulation

■ Larger room widths possible on request.

K219.de Knauf Free-Spanning Fireboard Ceilings A1

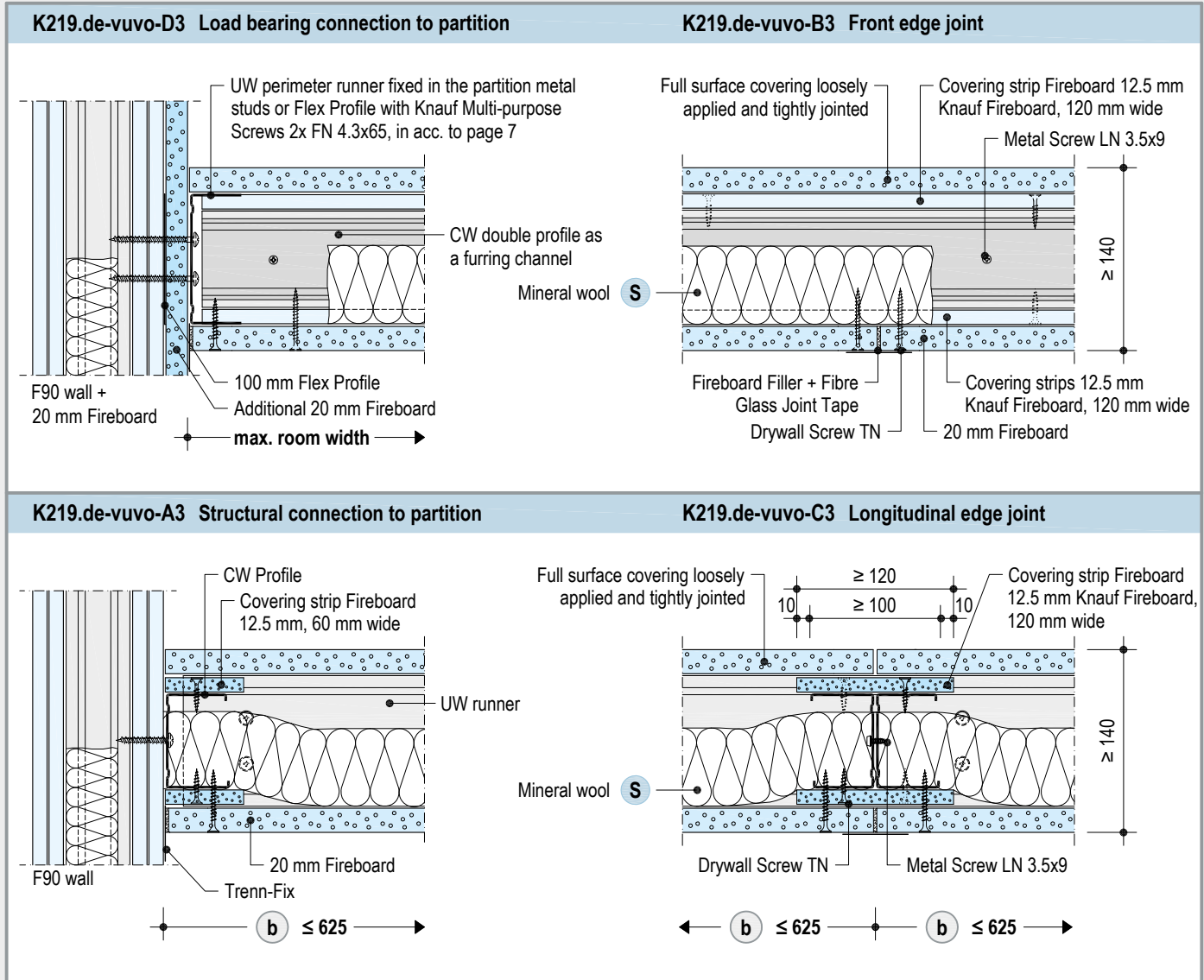


Fire protection F90 **solely from below and from above** - details

Please observe the updated specifications for fire resistance, refer to the section: Unterdecken „alleine“ - freitragend in the Fire resistance folder (German only).

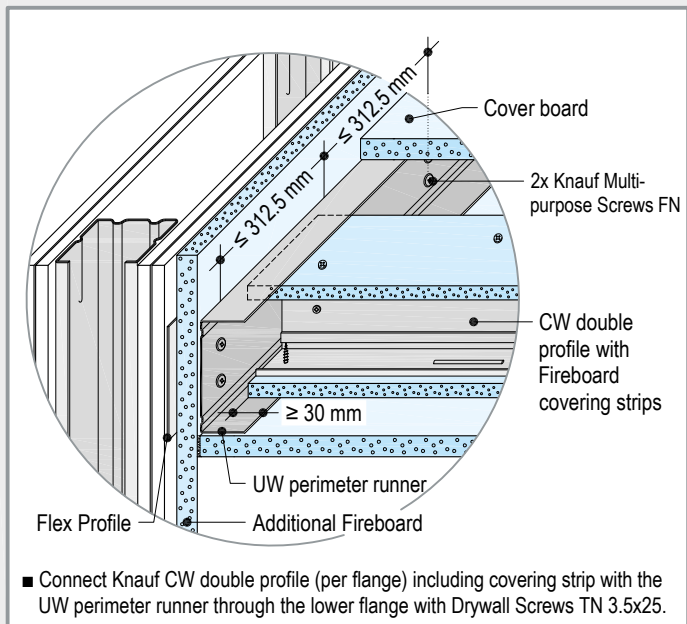
Details, scale 1:5

All dimensions in mm

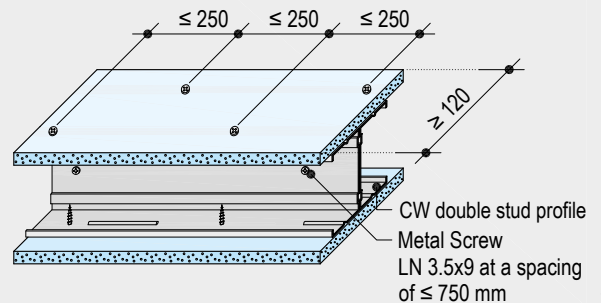


Note

If the free-spanning ceiling is connected (anchored) to a lightweight partition (F90), an additional 20 mm thick Fireboard cladding layer is required for the partition on the side of the supporting connection.



- Cover board: 20 mm Fireboard entire surface covering, applied loosely and tightly jointed.
- Covering strip: Screw fix 12.5 mm Fireboard with Drywall Screws TN 3.5x25 staggered in the CW double profile. Prefabricated board strips are available.
- Knauf CW double profile: Screw connect with Metal Screws LN 3.5x9 at a spacing of ≤ 750 mm

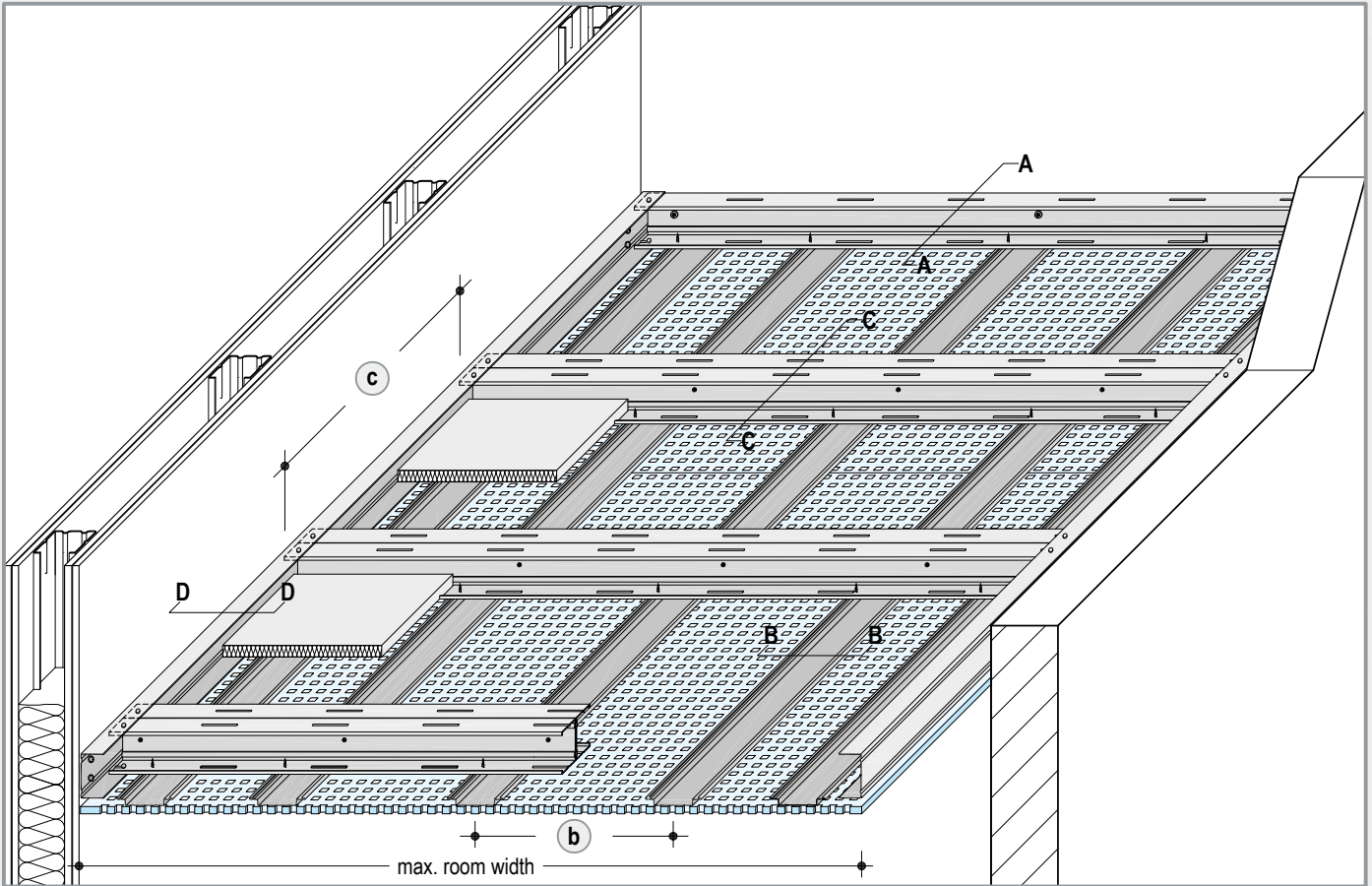


D137.de Knauf Cleaneo Acoustic Free-Spanning Ceilings

Without fire protection - max. room widths



Scheme drawing



Knauf Profiles

Knauf CW profile as a carrying channel	Knauf UW perimeter runner as connection to wall
CW 50 / 2x CW 50	→ UW 50
CW 75 / 2x CW 75	→ UW 75
CW 100 / 2x CW 100	→ UW 100
CW 125 / 2x CW 125	→ UW 125
CW 150 / 2x CW 150	→ UW 150

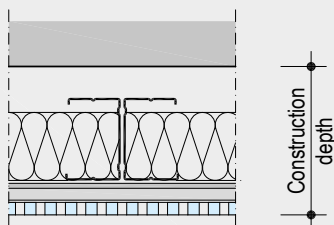
Knauf Hat-Shaped Channel as a furring channel
Hat-Shaped Channel 98x15, axial clearances max. 333.5 mm in dependence on the perforation design of the Knauf Cleaneo Acoustic board, see System Data Sheet D12.de

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

Max. room widths in m¹⁾

Knauf Profile	Cladding
Metal gauge 0.6 mm	Knauf Cleaneo Acoustic board 12.5 mm
	Max. axial clearances furring channel b 333.5 mm
	Max. axial clearances carrying channel c 500 mm
CW single profile	
CW 50	2
CW 75	2.50
CW 100	3
CW 125	3.50
CW 150	4
CW double stud profile	
2x CW 50	2.50
2x CW 75	3
2x CW 100	3.50
2x CW 125	4
2x CW 150	4.50

A decisive factor for the acoustic effectiveness is the construction depth.



▶ Absorption values, see System Data Sheet D12.de

1) Max. room widths: including additional loads (0.05 kN/m² = 5 kg/m²) for insulation layers required for fire protection and/or sound insulation

■ Larger room widths possible on request.

D137.de Knauf Cleaneo Acoustic Free-Spanning Ceilings

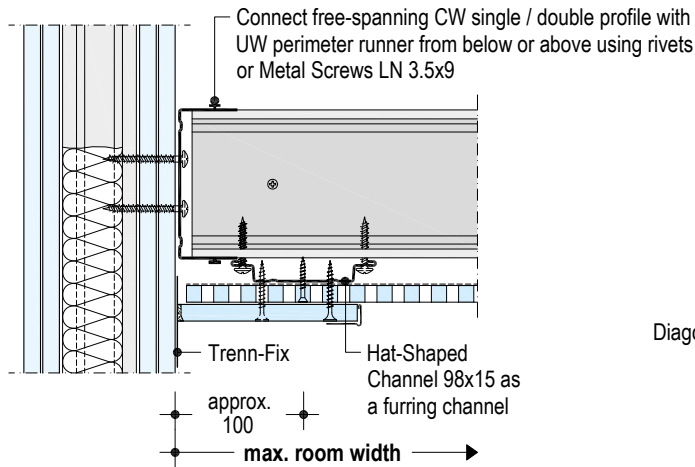


Without fire protection - details

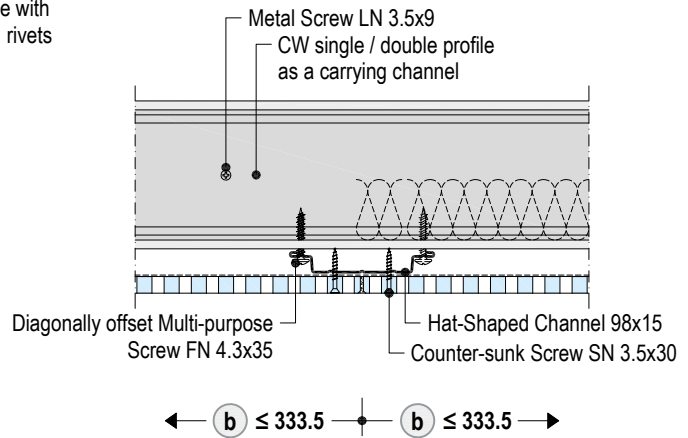
Details, scale 1:5

Examples, all dimensions in mm

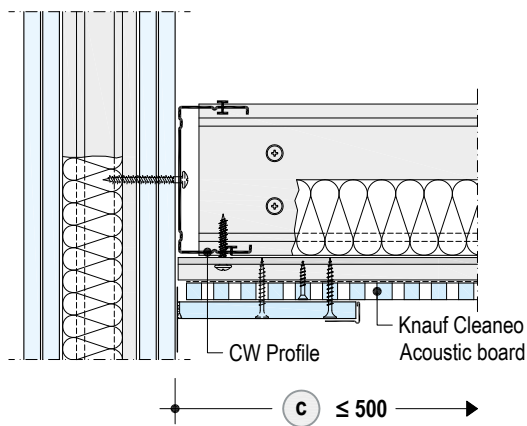
D137.de-D1 Load bearing connection to partition



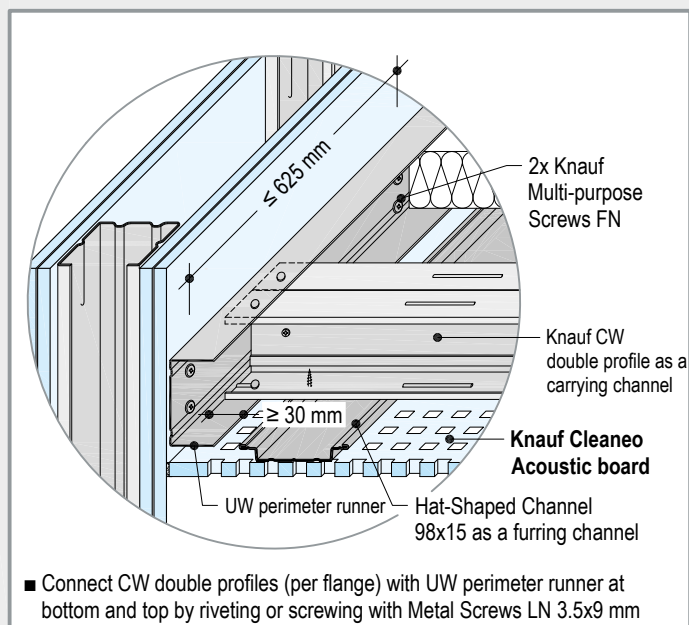
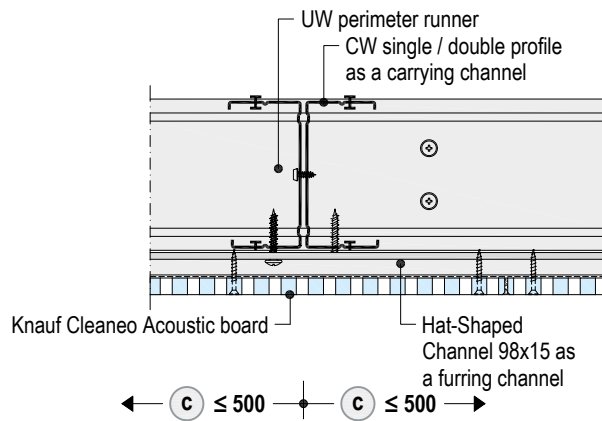
D137.de-B1 Front edge joint



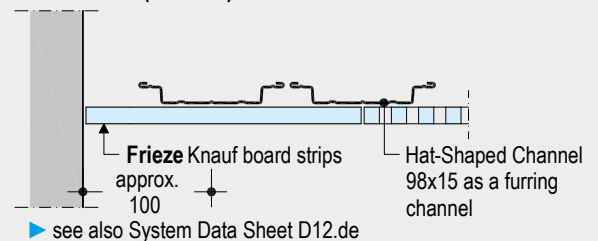
D137.de-A1 Structural connection to partition



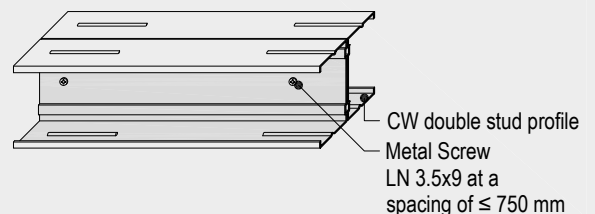
D137.de-C1 Longitudinal edge joint



Alternative (scheme) - Flush frieze



■ Knauf CW double profile: Screw connect with Metal Screws LN 3.5x9 at a spacing of ≤ 750 mm

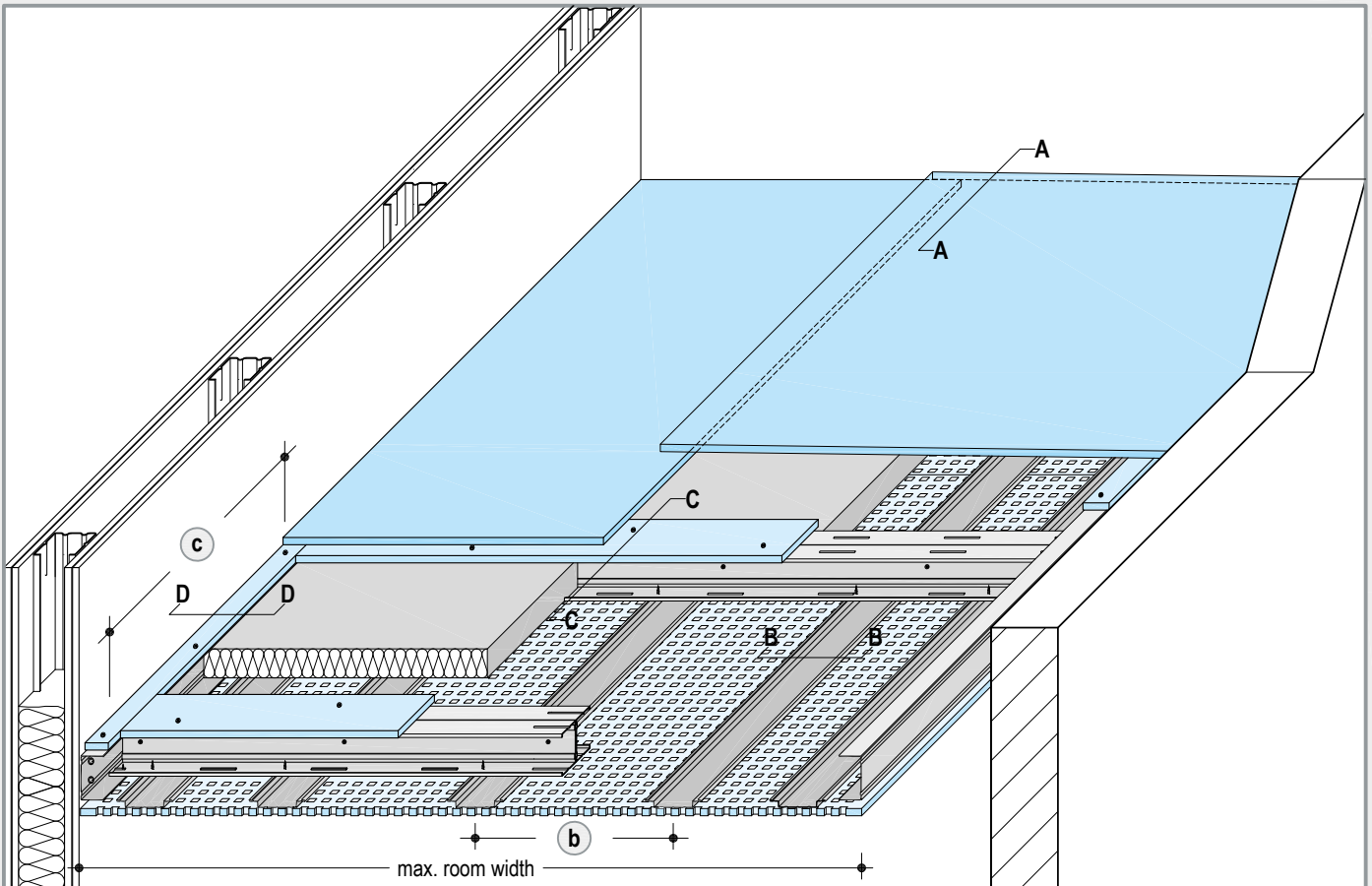


D134.de Knauf Cleaneo Acoustic Free-Spanning Fire Protection Ceilings **KNAUF**

Fire protection F30 ■ solely from below ■ solely from below and from above - max. room widths

Please observe the updated specifications for fire resistance, refer to the section: Unterdecken „alleine“ + Akustik in the Fire resistance folder (German only).

Scheme drawing



Knauf Profiles

Knauf CW profile as a carrying channel	Knauf UW perimeter runner as connection to wall
2x CW 50	→ UW 50
2x CW 75	→ UW 75
2x CW 100	→ UW 100
2x CW 125	→ UW 125
2x CW 150	→ UW 150

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

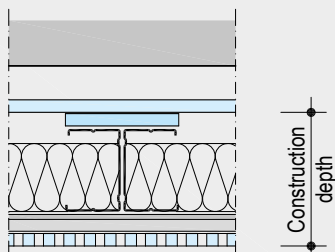
Knauf Hat-Shaped Channel as a furring channel

Hat-Shaped Channel 98x15, axial clearances max. 333.5 mm in dependence on the perforation design of the Knauf Cleaneo acoustic board, see System Data Sheet D12.de

Max. room widths in m ¹⁾

Knauf Profile	Cladding (lateral application)
	Knauf Cleaneo Acoustic board 12.5 mm
Metal gauge 0.6 mm	Max. axial clearances furring channel (b) 333.5 mm
	Max. axial clearances carrying channel (c) 500 mm
CW double stud profile	
2x CW 50	1.90
2x CW 75	2.40
2x CW 100	2.85
2x CW 125	3.20
2x CW 150	3.60

The sound absorption of the system is mainly determined by the construction depth of the acoustic level.



► Absorption values, see System Data Sheet D12.de

1) Max. room widths: including additional loads (0.05 kN/m² = 5 kg/m²) for insulation layers required for fire protection and/or sound insulation

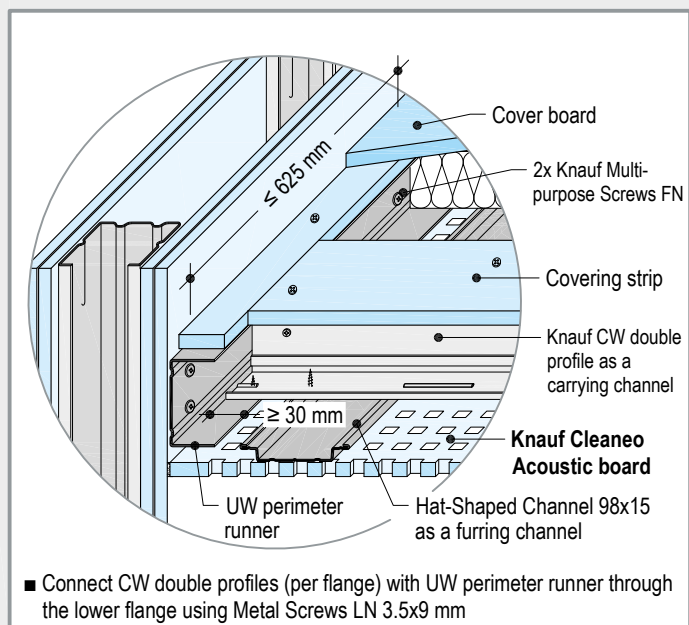
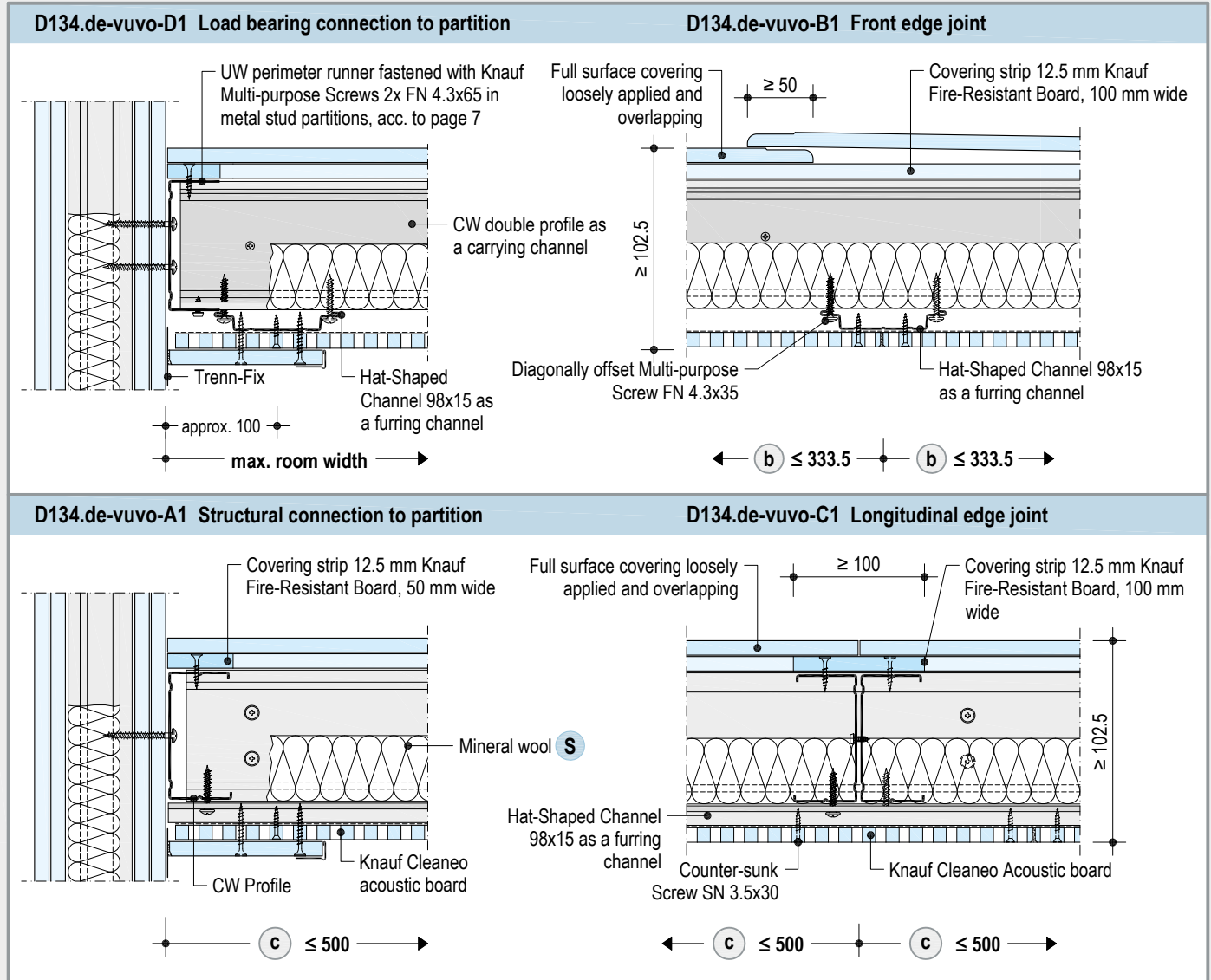
D134.de Knauf Cleaneo Acoustic Free-Spanning Fire Protection Ceilings **KNAUF**

Fire protection F30 ■ solely from below ■ solely from below and from above - details

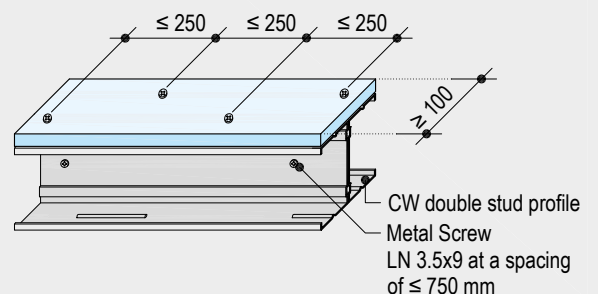
Please observe the updated specifications for fire resistance, refer to the section: Unterdecken „alleine“ + Akustik in the Fire resistance folder (German only).

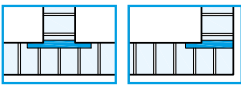
Details, scale 1:5

Examples, all dimensions in mm



- Cover board: Apply 12.5 mm Knauf Fire-Resistant Board covering to the entire surface, apply loosely.
 - Front edge joints on CW double profiles, tightly jointed
 - Long edge joints with joint overlap ≥ 50 mm
- Cover strips: Screw fasten staggered 12.5 mm Knauf Fire-Resistant Board with Drywall Screws TN 3.5x25 in the CW double profile. Prefabricated board strips are available.
- Knauf CW double profile: Screw connect with Metal Screws LN 3.5x9 at a spacing of ≤ 750 mm



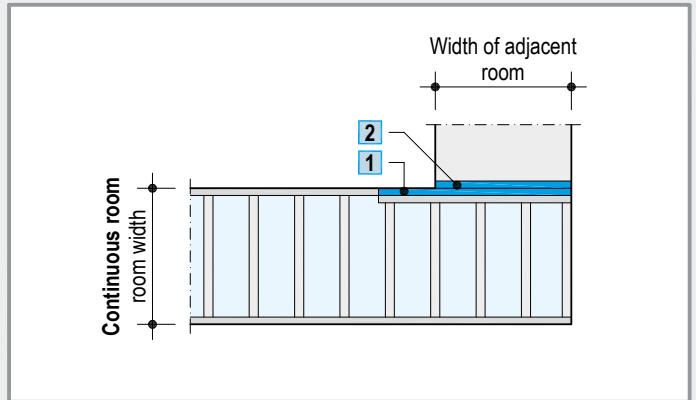
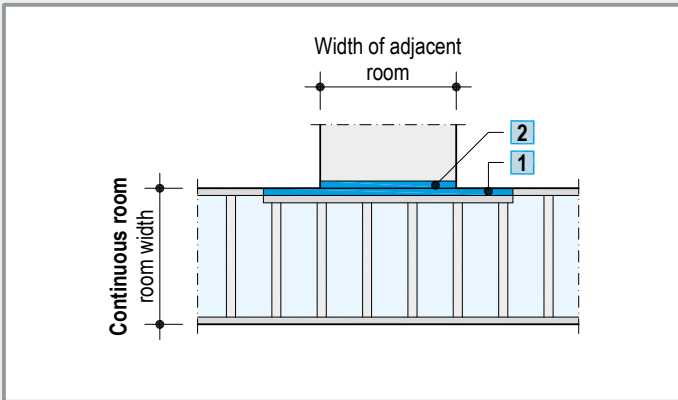


D13.de Knauf Free-Spanning Ceilings

Supporting profiles for T connection and L connection - Acc. to simplified procedure



T connection and L connection possible with system: **D131 without fire protection / ~~D131 fire protection F30 / K219 fire protection F90~~**



Without determination of weight - necessary profile size of the Knauf UA supporting profile **1** + **2** for room widths up to 3.5 m

Continuous room max. room width (m) *	Adjacent room max. room width (m) *	Profile size
2	2	2x UA 75
2.50	2.50	2x UA 100
3	3	2x UA 125
3.50	3.50	2x UA 150

* Use the appropriate table for the respective system for determination of the max. room width, see pages 12 to 17 and pages 20 to 23.

Example for determination of the necessary profile size of the Knauf UA supporting profile: D131.de - F30 solely from below and from above Value

Assuming:

- Continuous room: Knauf double profile CW 75 with a max. room width **3 m** (see page 16)
- Adjacent room: Knauf double profile CW 50 with a max. room width **2.25 m** (see page 16)

Necessary profile size of the Knauf UA supporting profile **1** + **2** :

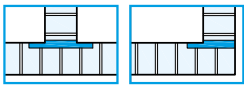
Room width of continuous room **3 m** → **table value 3 m** (from the table above) → **2x UA 125**

Room width of adjacent room **2.25 m** → **table value 2.50 m** (from the table above) → **2x UA 100**

→ **≥ 2x UA 125**

→ **resulting in the profile size of 2x UA 125 for the Knauf UA supporting profiles **1** and **2****

Note "Multi-level ceiling system not considered"

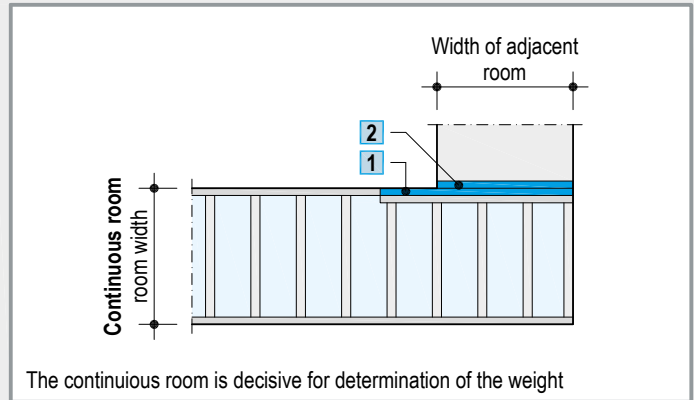
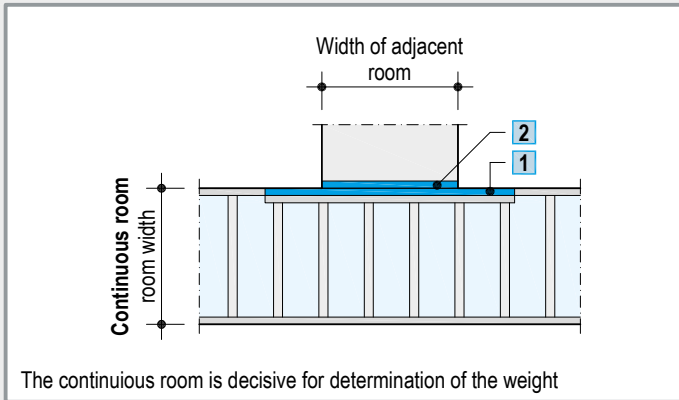


D13.de Knauf Free-Spanning Ceilings

Supporting profiles for T connection and L connection - Acc. to the exact procedure



T connection and L connection possible with system: ~~D131 without fire protection / D131 fire protection F30 / K219 fire protection F90~~



Self-weight of the ceiling - Determination of the self-weight of the ceiling is used as the basis of the necessary profile size of the UA supporting profile

Cladding weight		+	Grid weight kg/m ²				+	additional load kg/m ²	
Type	kg/m ³		Knauf Profile	CW single profile Axial spacing 500 mm	CW double stud profile Axial spacing 400 mm 500 mm 625 mm			e.g. ■ Insulation material ■ Lighting fixtures ■ Multi-level ceiling system (15 kg/m ²) ■ ...	
Assumed load for structural rating									
Knauf Wallboard, Knauf Fire-Resistant Board, Solid Board	900		CW 50	1.50	3.75	3	2.40		
Silentboard	1472		CW 75	1.75	4.35	3.50	2.80		
Fireboard	820		CW 100	2	4.95	4	3.20		
Diamant	1040		CW 125	2.25	5.55	4.50	3.60		
Knauf Cleaneo Acoustic	800		CW 150	2.50	6.15	5	4		
			Hat-Shaped Channel 98x15 (axial spacing 333.5 mm) 1.8 kg/m ²						

Calculation example: D131.de - F30 solely from below and from above Value

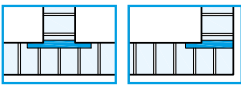
+	Knauf Fire-Resistant Board 18 mm	0.018 m x 900 kg/m ³	= 16.20 kg/m ²
+	Covering strip: Solid Board (GKF) 25 mm, 120 mm wide, axial spacing 625 mm	0.025 m x 0.12 m x 900 kg/m ³ / 0.625 m	= 4.32 kg/m ²
+	CW double profile 125, axial spacing 625 mm		3.60 kg/m ²
+	Insulation layer 60 mm, 30 kg/m ³	0.06 m x 30 kg/m ³	= 1.80 kg/m ²

Self weight 25.92 kg/m² → 0.259 kN/m² → load class: ≤ 0.30 kN/m²

With determination of weight - necessary profile size of the Knauf UA supporting profile 1 + 2

Continuous room Load class kN/m ²	Max. room width (m) *	Adjacent room max. room width (m) *							
		2	2.50	3	3.50	4	4.50	5	5.50
≤ 0.15	2.50								
	3.50	2x UA 50		2x UA 75		2x UA 100	2x UA 100	2x UA 125	2x UA 125
	4.50		2x UA 75		2x UA 100		2x UA 125	2x UA 150	2x UA 150
	5.50	2x UA 75		2x UA 100		2x UA 125	2x UA 150	2x UA 150	
≤ 0.30	2.50		2x UA 75				2x UA 125	2x UA 150	2x UA 150
	3.50	2x UA 75		2x UA 100	2x UA 125				
	4.50		2x UA 100			2x UA 150			
	5.50			2x UA 125	2x UA 150				
≤ 0.50	2.50	2x UA 75				2x UA 150			
	3.50		2x UA 100						
	4.50	2x UA 100		2x UA 125	2x UA 150				
≤ 0.65 Multi-level ceiling system	2.50	2x UA 100		2x UA 125	2x UA 150				
	3.50		2x UA 125	2x UA 125	2x UA 150				

* Use the appropriate table for the respective system for determination of the max. room width, see pages 12 to 17 and pages 20 to 23.

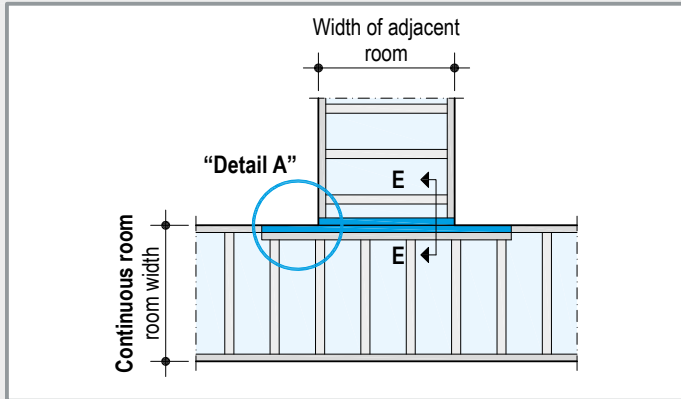


D13.de Knauf Free-Spanning Ceilings

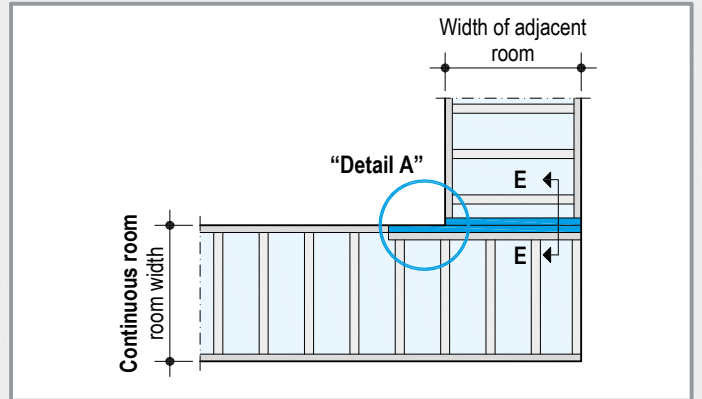
Supporting profile for T connection and L connection - edge fixing



T connection



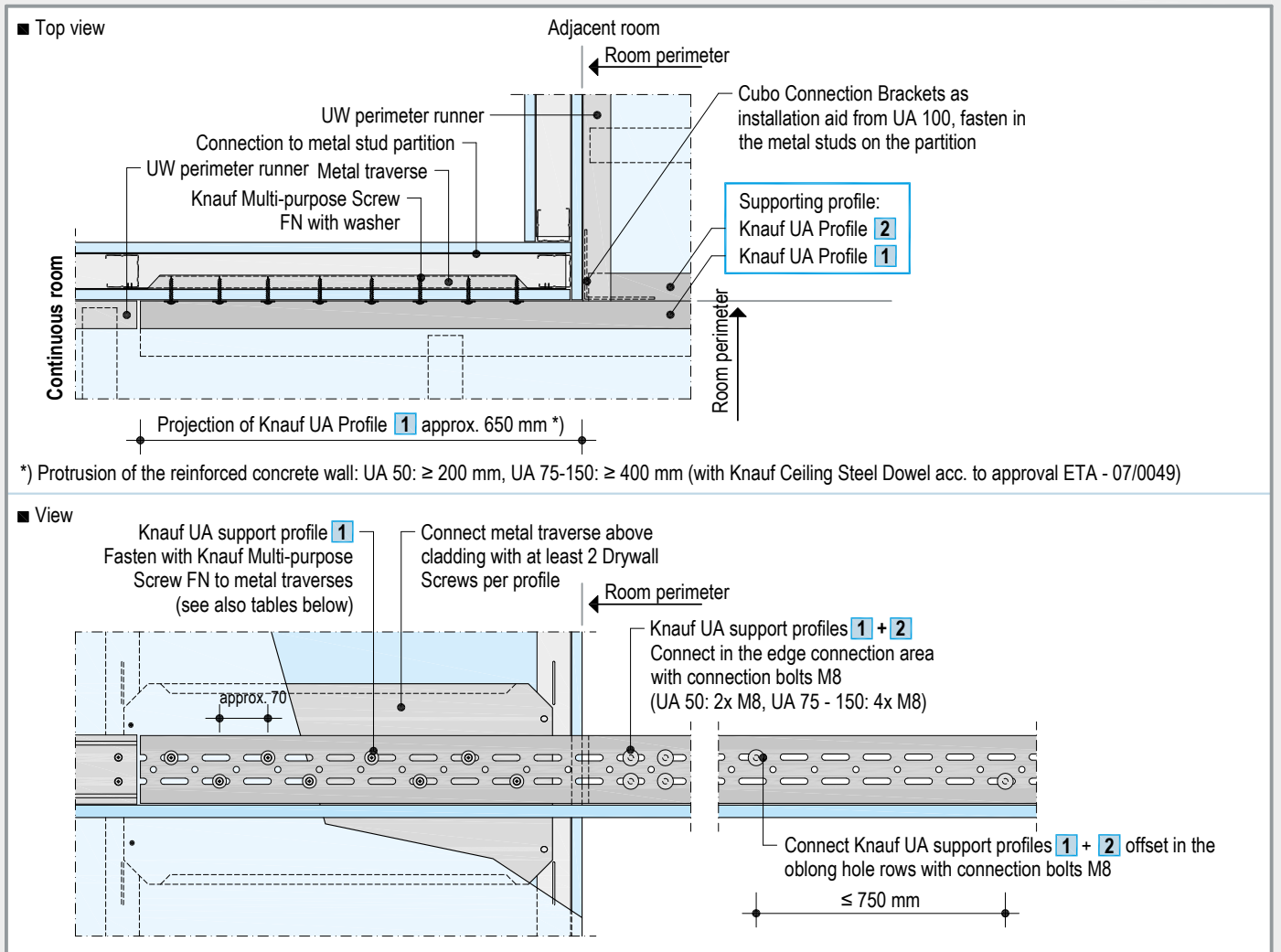
L connection



Top views - scheme drawings

“Detail A” - Direct fastening Knauf UA support profile 1 to wall

Representation of metal stud partition

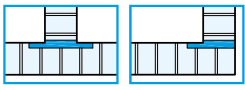


Direct fastening Knauf UA support profile 1 to wall

Anchoring substrate	Fasteners	Fastening spacing	Spacing to room perimeter
	Knauf UA Profile 50 Knauf UA Profile 75 - 150 alternating in oblong holes		First fastener
Connection to metal stud partition with metal traverse	4x Knauf Multi-purpose Screw FN 4.3 x 35 (cladding ≤ 20 mm) / FN 4.3 x 65 with suitable washer, d = 2 mm, \varnothing 30 mm	approx. 70 mm	50 mm + Thickness of partition cladding in adjacent room
Reinforced concrete wall	3x Knauf Ceiling Steel Dowels with suitable washer, d = 2 mm, \varnothing 30 mm	50 - 80 mm	50 - 80 mm
Other substrate	Suitable fastener, permissible total load: ≥ 1 kN	Observe the manufacturer's specifications	≥ 2 kN

Note

Configuration / attachment of the UW runners and the Knauf CW profiles (supporting profiles), see page 31 as well as page 33 to 35



D13.de Knauf Free-Spanning Ceilings

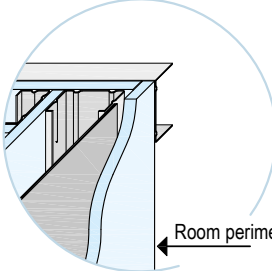
“Detail A” supporting profile for T connection and L connection



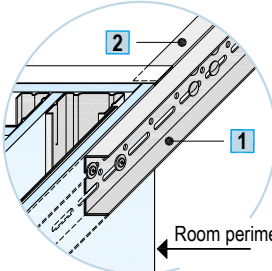
“Detail A” - installation

Scheme drawings - Rep. of metal stud partition

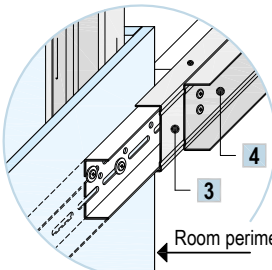
“View”



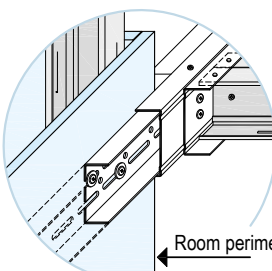
■ Metal traverse
Metal traverse installation*) in metal stud partition for attachment of Knauf UA support profile **1**



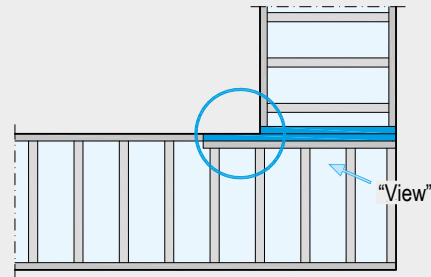
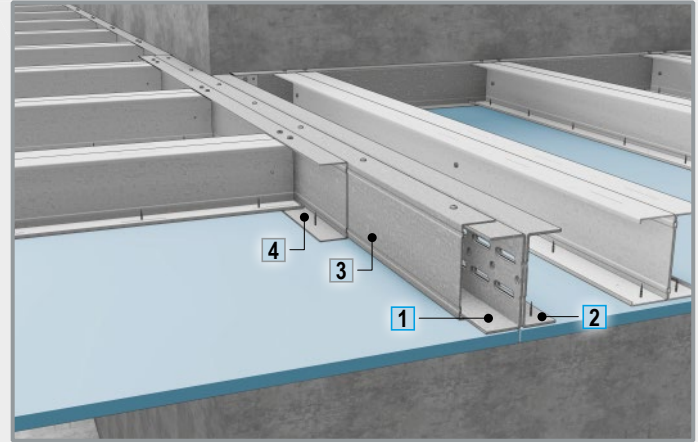
■ Supporting profile
Anchoring supporting Knauf UA Profile **1** on metal traverse with Knauf Multi-purpose Screws FN (see page 30)
Connect supporting Knauf UA Profiles **1** + **2** with connection bolts M8 alternating in oblong hole rows, at a spacing of ≤ 750 mm
Additionally connect supporting profiles at perimeter connection with M8 bolts (UA 50: 2x M8, UA 75 - 150: 4x M8)



■ UW runners
Nest UW Profiles **3** with the supporting Knauf UA Profile **1**, and connect them with Metal Screws LB 3.5x9.5 mm on the upper flange at a spacing of ≤ 250 mm
Connect UW perimeter runner **4** with the UW profile **3** with 2x Knauf Multi-purpose Screws FN at the web at a spacing of ≤ 500 mm



■ Knauf CW Profiles
Insert ceiling profiles of the continuous room in the UW perimeter runner (see corresponding system)



*) Installation of the metal traverse

▶ also refer to System Data Sheet W21.de Knauf Sanitär-Einbauteile (Knauf Sanitary Built-ins)

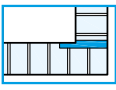
Notes

■ Fire protection:

For configuration with fire protection see pages 34 and 35

■ Washers: (d = 2 mm, Ø 30 mm)

The connection bolts M8 included with the Cubo Connection Brackets should be installed using 1 washer on the same side as the nut
Apply customary hexagon screws M8 (strength class 8.8) with 2 washers (one on each side)



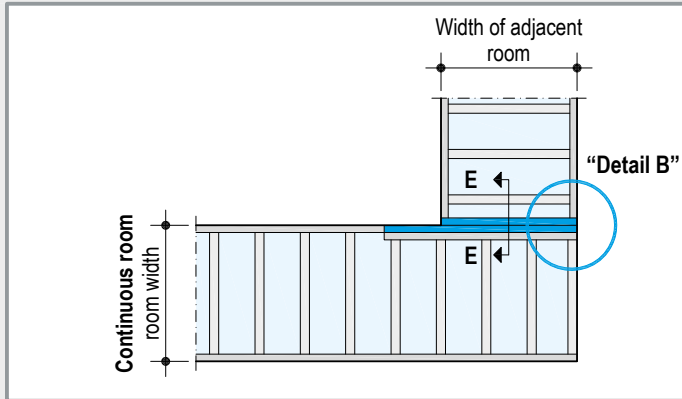
D13.de Knauf Free-Spanning Ceilings

Supporting profile for L connection



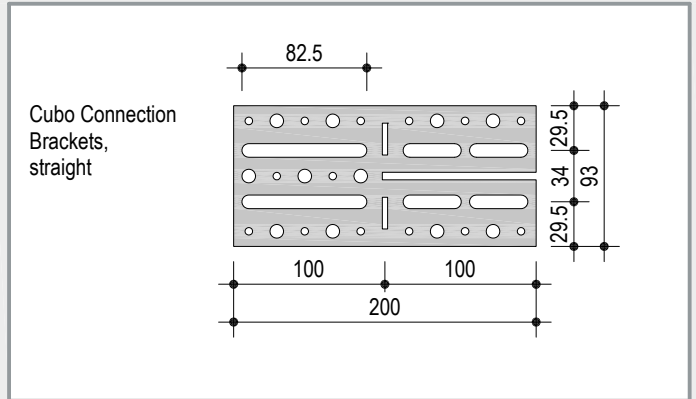
L connection

Top view - scheme drawing

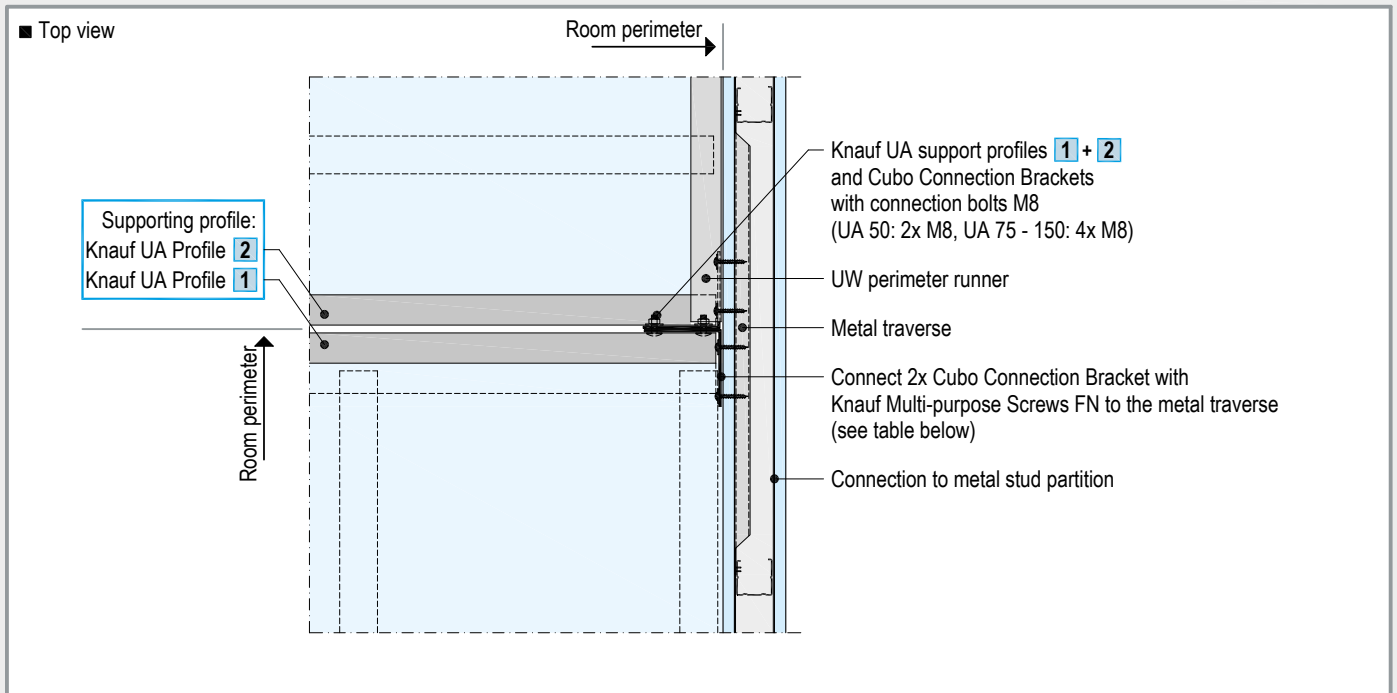


Cubo Connection Bracket

All dimensions in mm



“Detail B” - Anchoring of Knauf UA supporting profiles 1 + 2 with 2x Cubo Connection Brackets to the wall Representation of metal stud partition



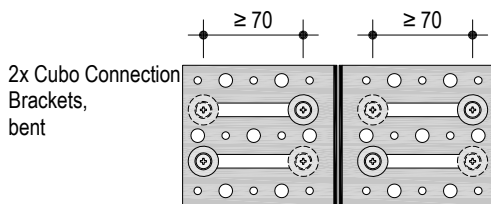
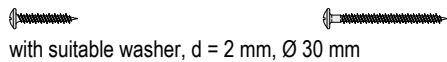
Anchoring of Knauf UA supporting profiles 1 + 2 using 2x Cubo Connection Brackets to the wall

All dimensions in mm

Substrate / fasteners / spacings

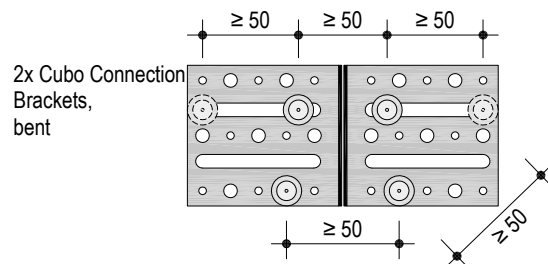
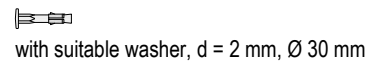
■ Metal Stud Partition with metal traverse

- UA 50: 4x Knauf Multi-purpose Screw
- UA 75 - 150: 8x Knauf Multi-purpose Screw FN 4.3 x 35 (cladding ≤ 20 mm) / FN 4.3 x 65



■ Reinforced concrete wall

- UA 50: 4x Knauf Ceiling Steel Dowels
- UA 75 - 150: 6x Knauf Ceiling Steel Dowels (in acc. to approval ETA - 07/0049)

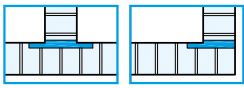


■ Other substrate

- suitable fasteners (screw spacings according to manufacturer's specifications)
- UA 50: permissible total load ≥ 1 kN
- UA 75 - 150: permissible total load ≥ 2 kN

Note

Configuration / attachment of the UW runners and the Knauf CW profiles (supporting profiles), see page 31 as well as page 33 to 35

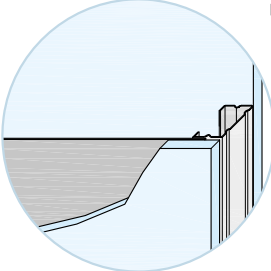


D13.de Knauf Free-Spanning Ceilings

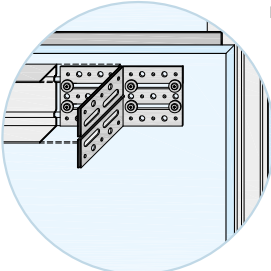


“Detail B” supporting profile for L connection

“Detail B” - installation Scheme drawings - Representation of metal stud partition “View”

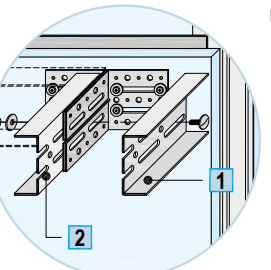


■ Metal traverse
Metal traverse installation*) in metal stud partition for attachment of Knauf Cubo Connection Bracket

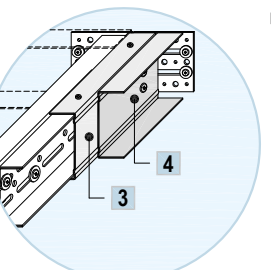


■ Cubo Connection Bracket
Anchoring of both bent Cubo Connection Brackets to the metal traverse with Knauf Multi-purpose Screws FN (see page 32)

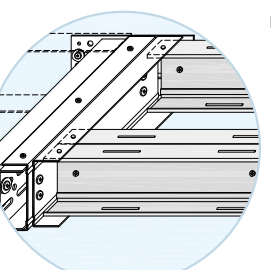
Insert the bracket into the UW perimeter runner of the adjacent room (If necessary, cut out the upper flange in the vicinity of the bracket)



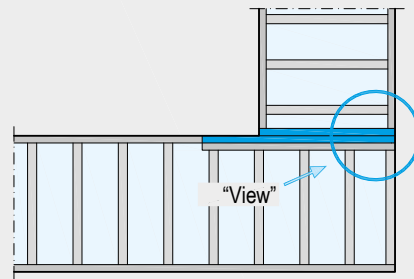
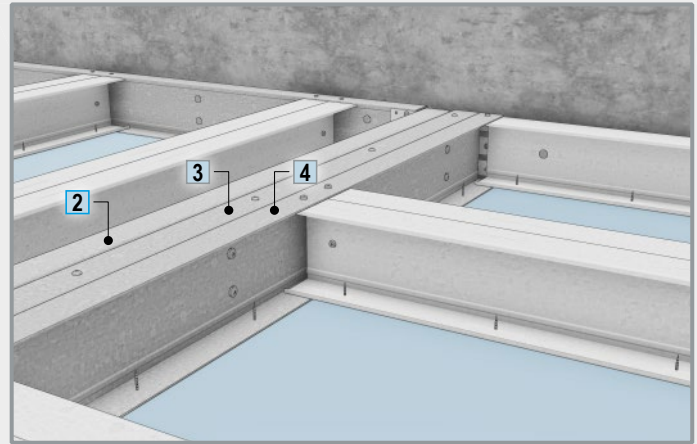
■ Supporting profile
Connect Knauf UA support profiles **1** + **2** and the Cubo Connection Brackets with connection bolts M8 (UA 50: 2x M8, UA 75 - 150: 4x M8)



■ UW runners
Nest UW Profiles **3** with the supporting Knauf UA Profile **1**, and connect them with Metal Screws LB 3.5x9.5 mm on the upper flange at a spacing of ≤ 250 mm
Connect UW perimeter runner **4** with the UW profile **3** with 2x Knauf Multi-purpose Screws FN at the web at a spacing of ≤ 500 mm



■ Knauf CW Profiles
Insert ceiling profiles of the continuous room in the UW perimeter runner (see corresponding system)



*) Installation of the metal traverse

▶ also refer to System Data Sheet W21.de Knauf Sanitär-Einbauteile (Knauf Sanitary Built-ins)

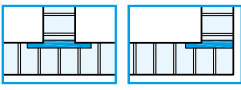
Notes

■ Fire protection:

For configuration with fire protection see pages 34 and 35

■ Washers: (d = 2 mm, Ø 30 mm)

The connection bolts M8 included with the Cubo Connection Brackets should be installed using 1 washer on the same side as the nut
Apply customary hexagon screws M8 (strength class 8.8) with 2 washers (one on each side)



D131.de Knauf Free-Spanning Ceilings

Supporting profiles for T connection and L connection - Details

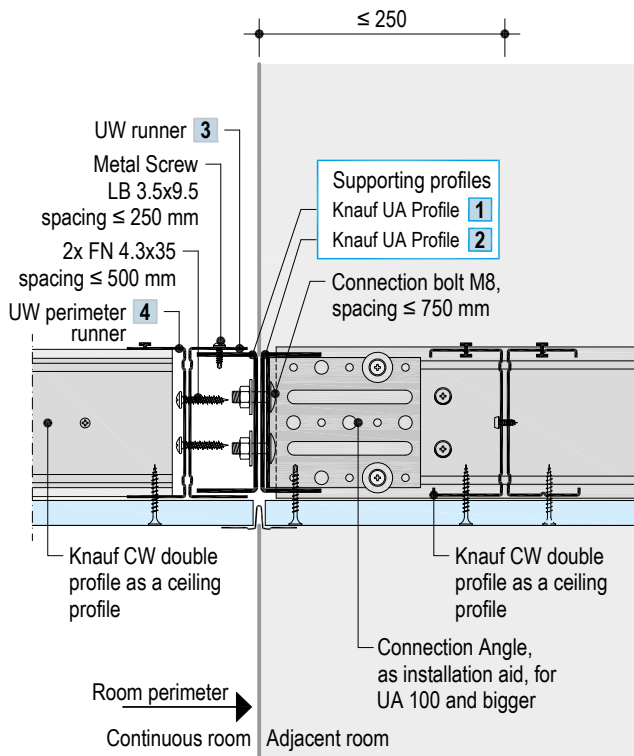


Details, scale 1:5

All dimensions in mm

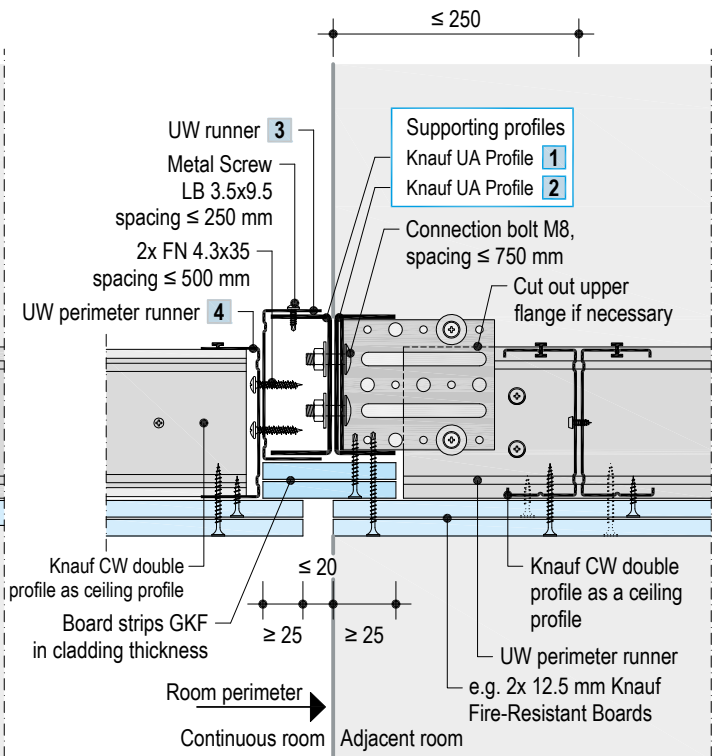
D131.de-E1 Supporting profiles for T and L connection

without fire protection



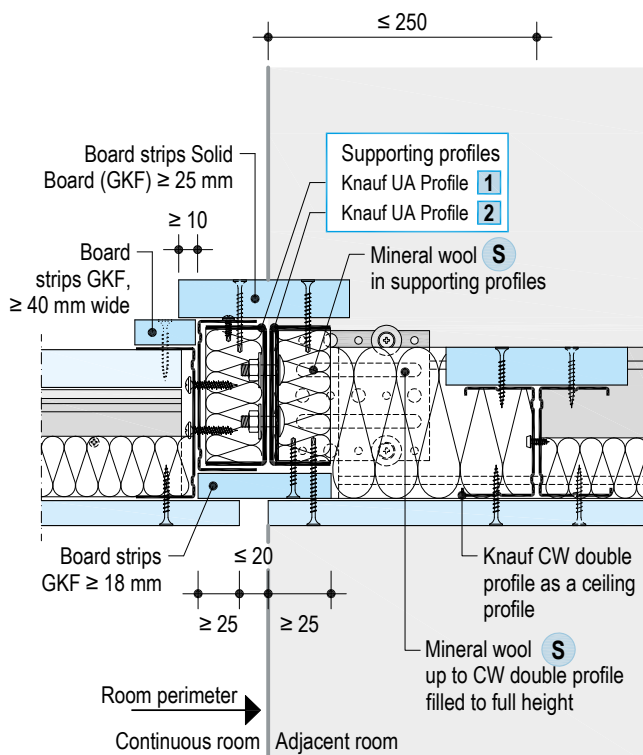
D131.de-vu-E1 Supporting profiles for T and L connection

~~F30 solely from below~~



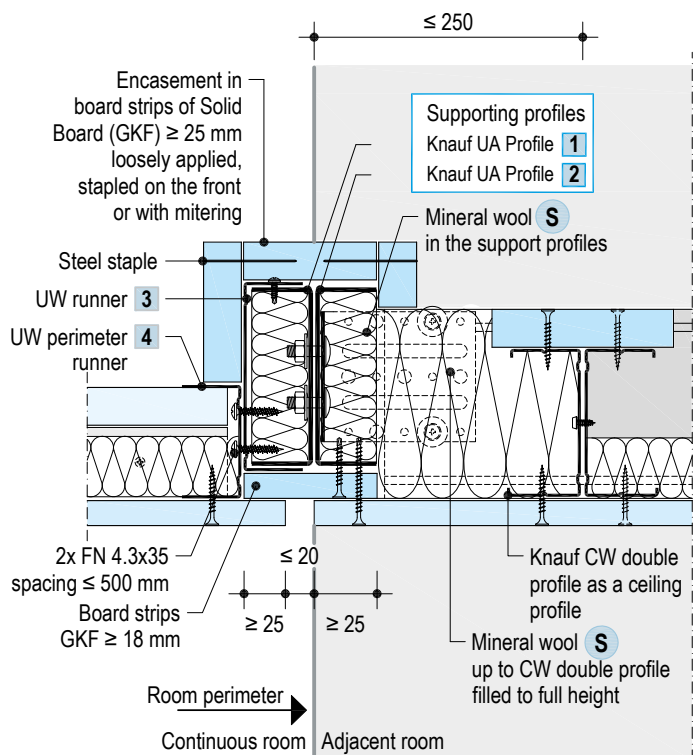
D131.de-vuvo-E1 Supporting profiles for T and L connection

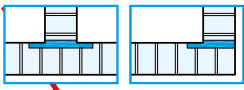
~~F30 solely from below and from above - Alternative 1~~



D131.de-vuvo-E2 Supporting profiles for T and L connection

~~F30 solely from below and from above - Alternative 2~~





K219.de Knauf Free-Spanning Fireboard Ceilings A1



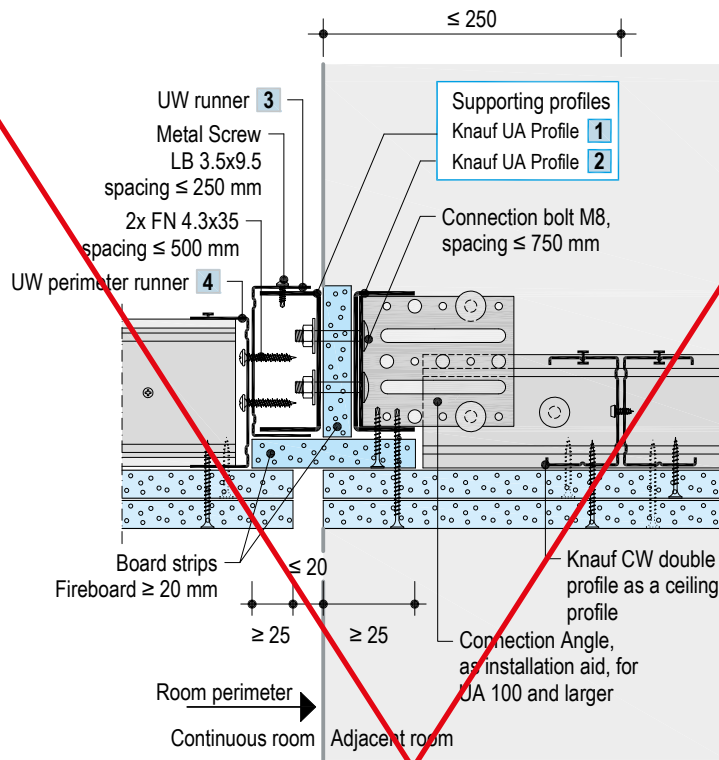
Supporting profiles for T connection and L connection - Details

Details, scale 1:5

All dimensions in mm

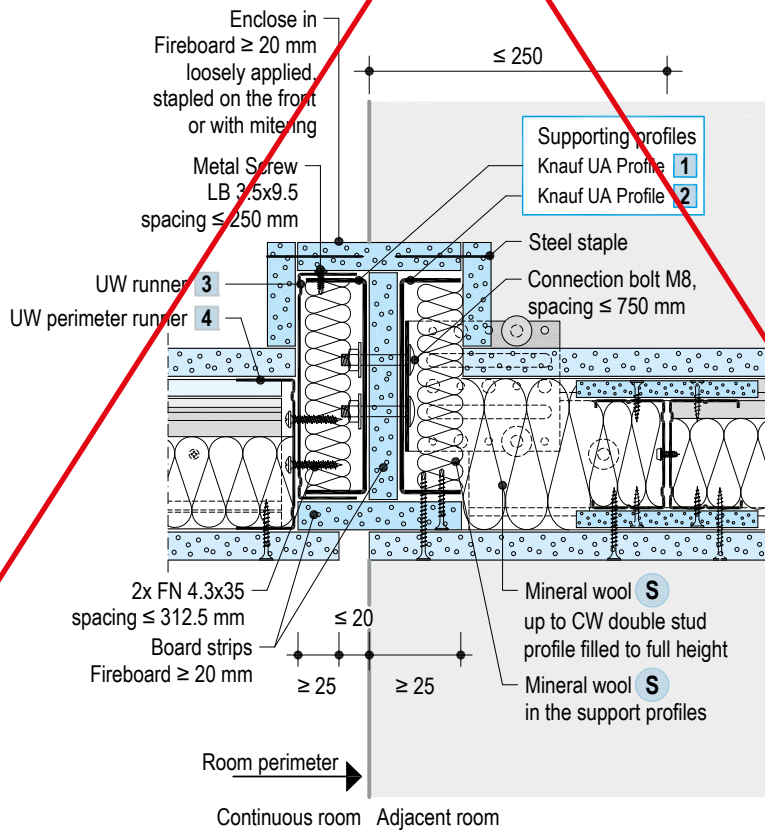
K219.de-vu-E1 Supporting profiles for T connection and L connection

F90 ■ solely from below



K219.de-vuvo-E1 Supporting profiles for T connection and L connection

F90 ■ solely from below and from above



Note

Observe the appropriate free-spanning ceiling alternative: (see pages 9 and 20 - 23)

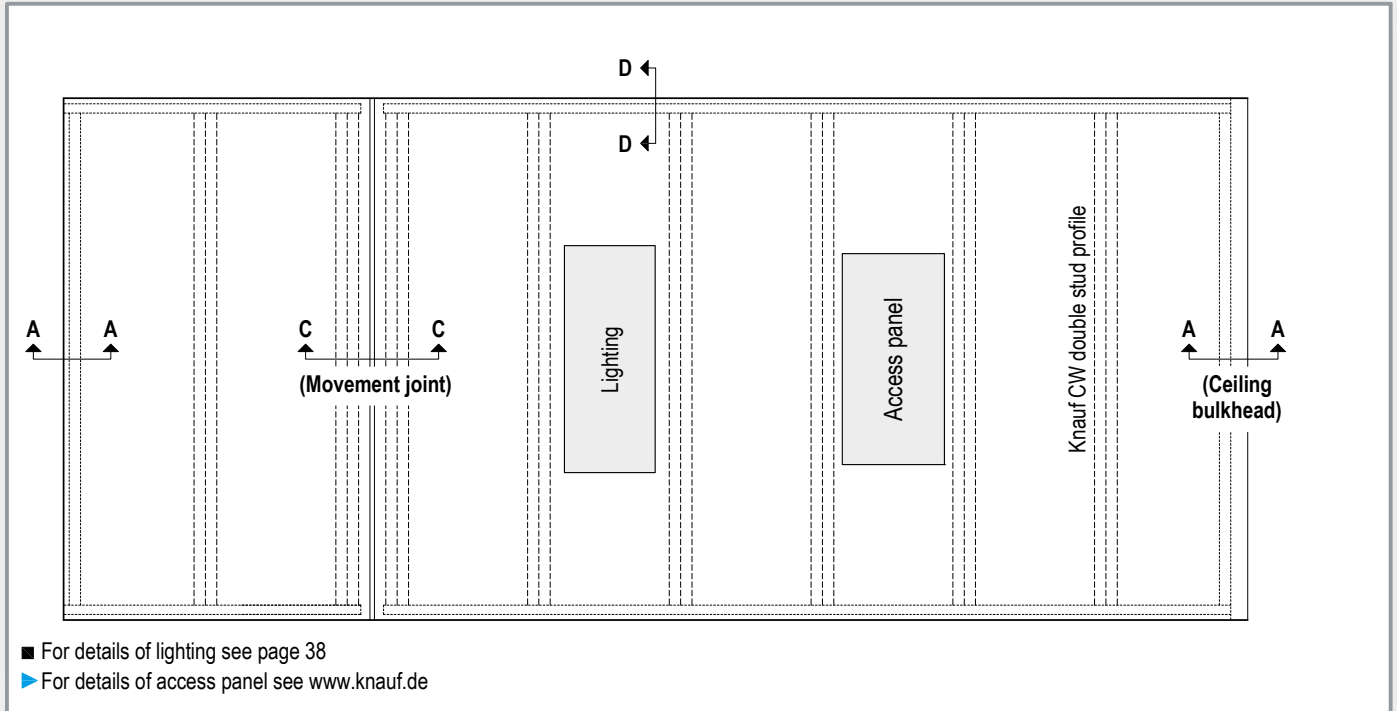
D13.de Knauf Free-Spanning Ceilings



Ceiling layout – Shadow gap, movement joint, ceiling bulkhead

Please observe the updated specifications for fire resistance, refer to the section: Unterdecken „alleine“ - freitragend / Unterdecken „alleine“ + Akustik in the Fire resistance folder (German only).

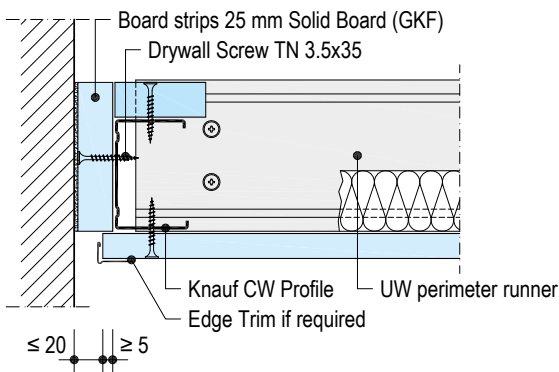
Ceiling plan



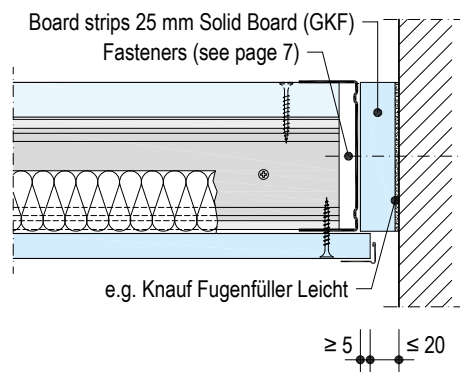
Details, scale 1:5

All dimensions in mm

D131.de-SO-A1 Connection to wall with shadow gap

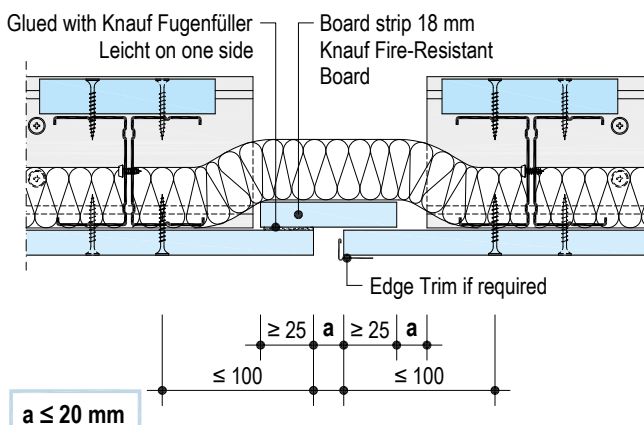


D131.de-SO-D1 Connection to wall with shadow gap



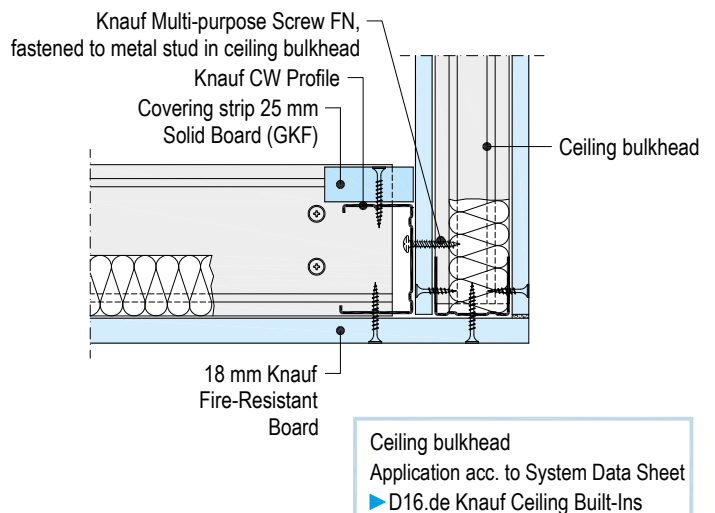
D131.de-SO-C3 Movement joint

D131.de - Fire protection F30



D131.de-SO-A2 Ceiling bulkhead

D131.de - Fire protection F30



K219.de Knauf Free-Spanning Fireboard Ceilings A1

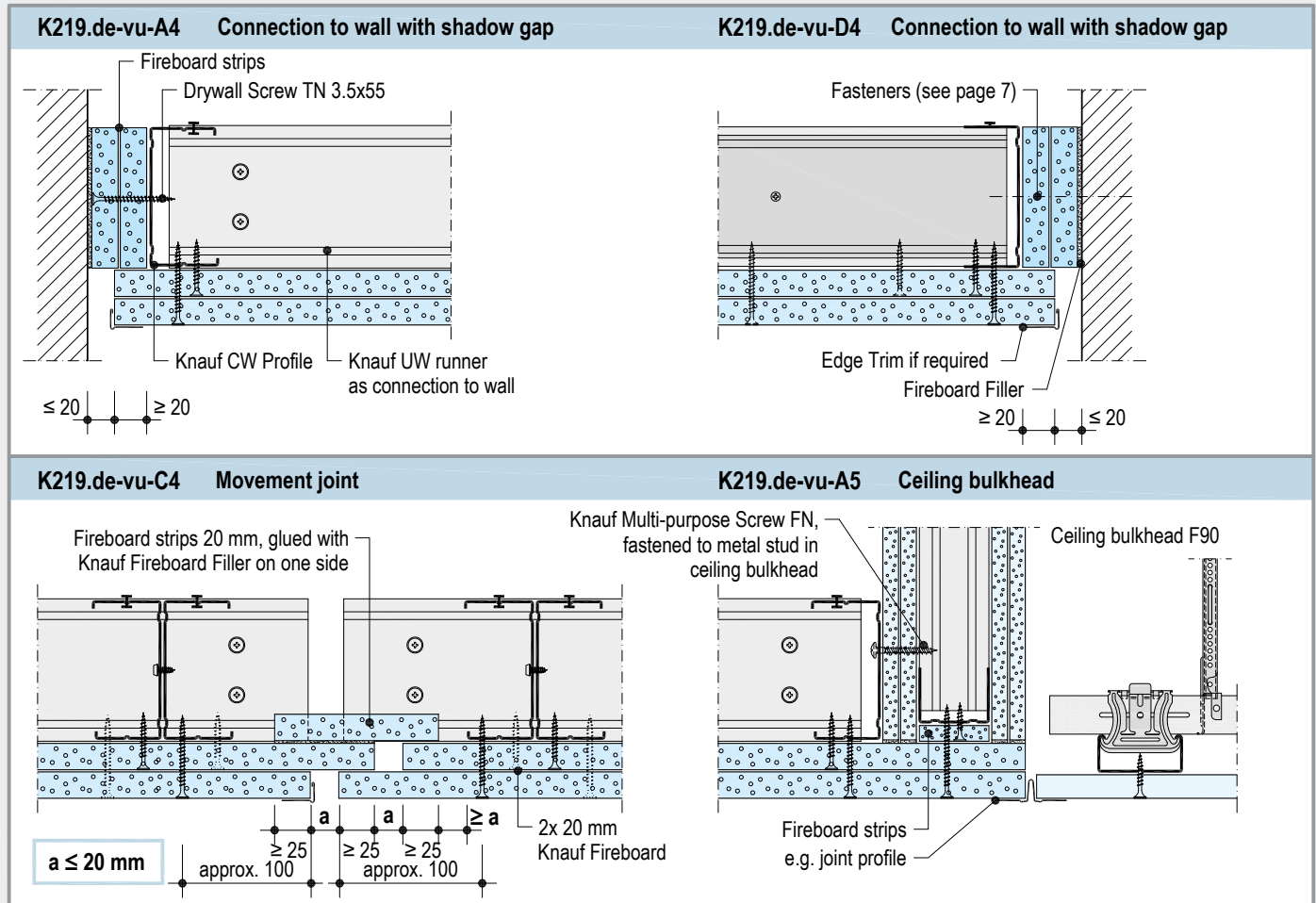


Shadow gap, movement joint, ceiling bulkhead

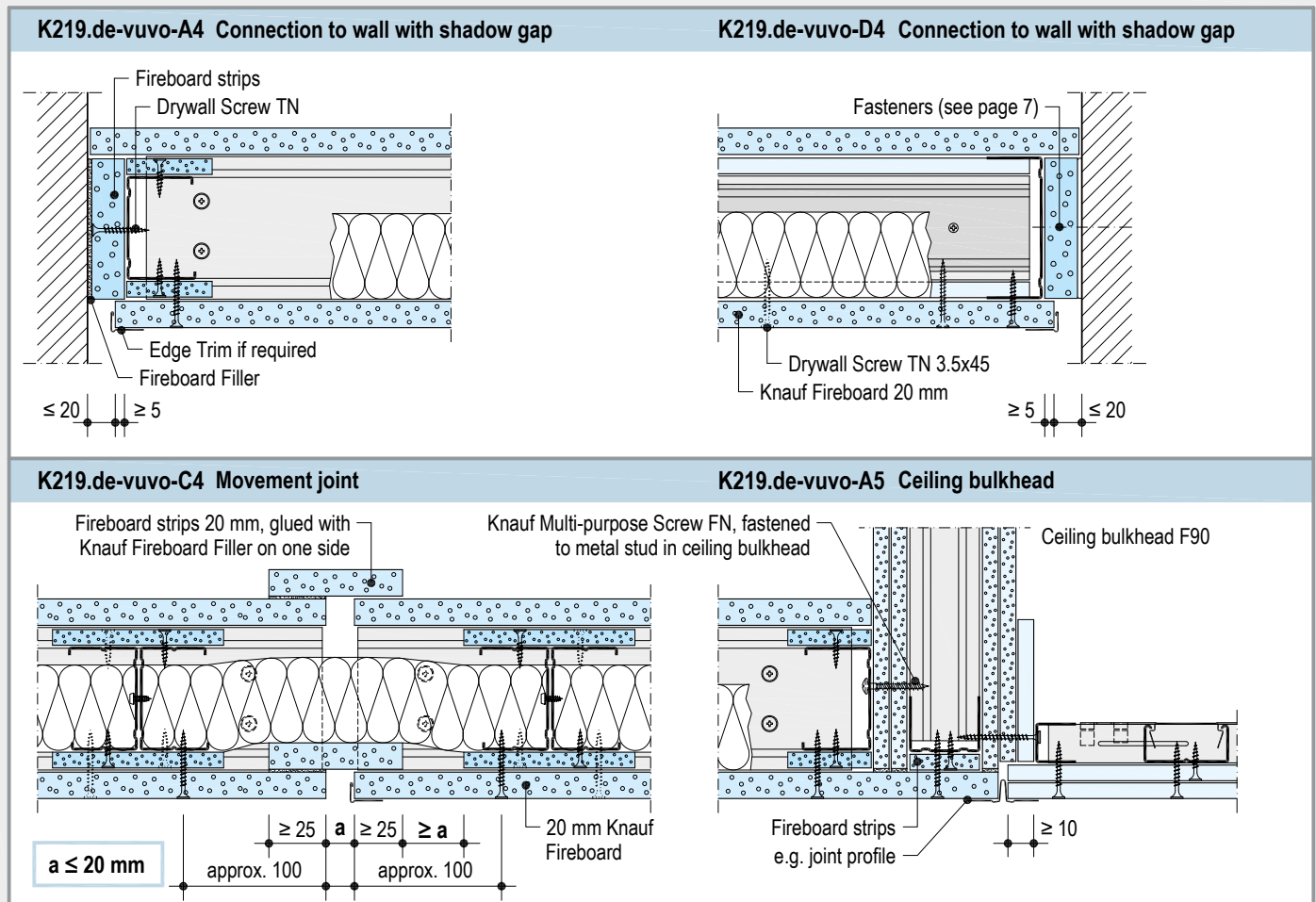
Please observe the updated specifications for fire resistance, refer to the section: Unterdecken „alleine“ - freitragend“ in the Fire resistance folder (German only).

Details, scale 1:5 Fire resistance F90 ■ solely from below

All dimensions in mm



Details, scale 1:5 Fire resistance F90 ■ solely from below and from above



D131.de Knauf Free-Spanning Ceilings

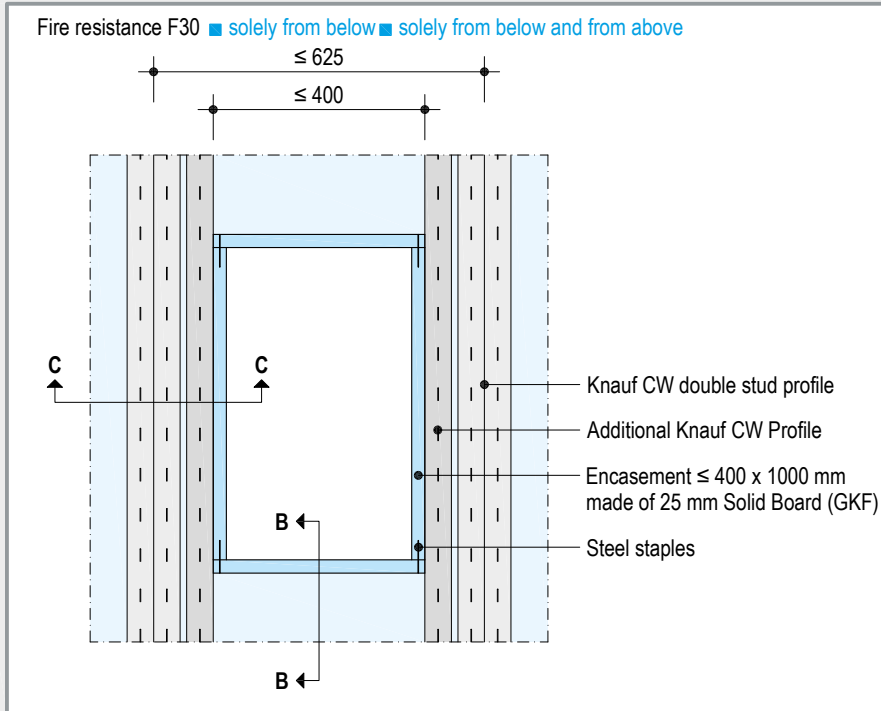


Fire-protected cladding for recessed luminaires

Please observe the updated specifications for fire resistance, refer to the section: Unterdecken „alleine“ - freitragend in the Fire resistance folder (German only).

Fire protection encasement for built-in lighting

Scheme drawing, all dimensions in mm

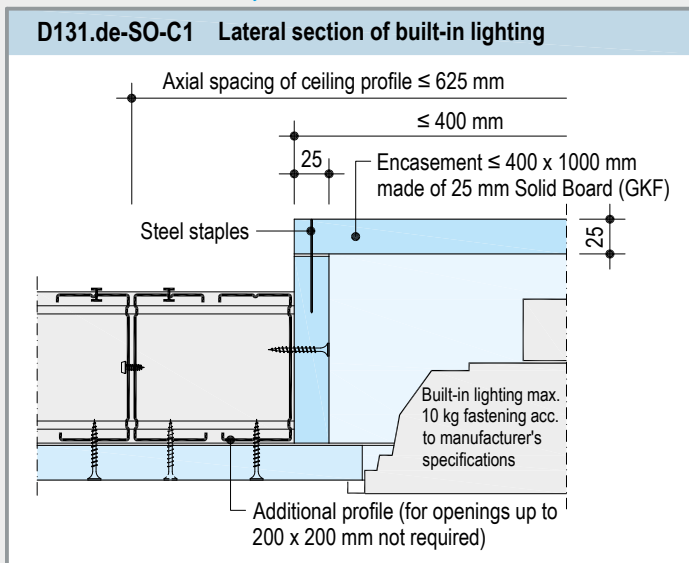


Front side stapling of the cladding

Cladding mm	Staple lengths	Max. spacings mm
20	50 mm	100
25	64 mm	

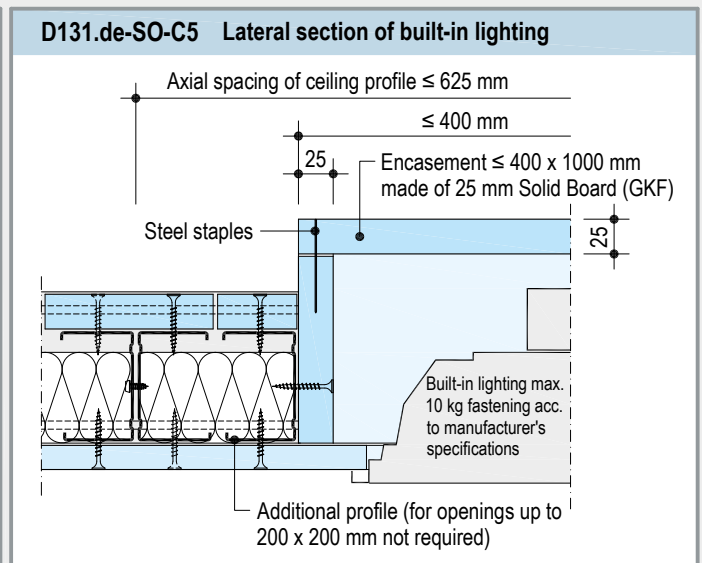
- Stapling of the cladding with steel staples acc. to DIN 18182-2 or DIN EN 14566 (e.g. Haubold or Poppers-Senco).

Fire resistance F30 ■ solely from below

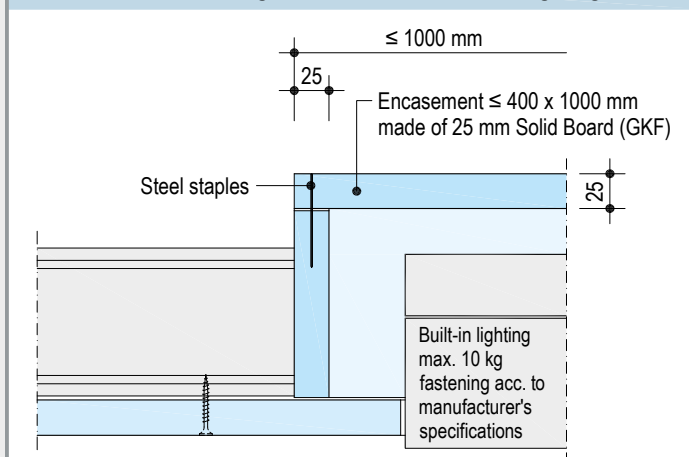


Fire resistance F30 ■ solely from below and from above

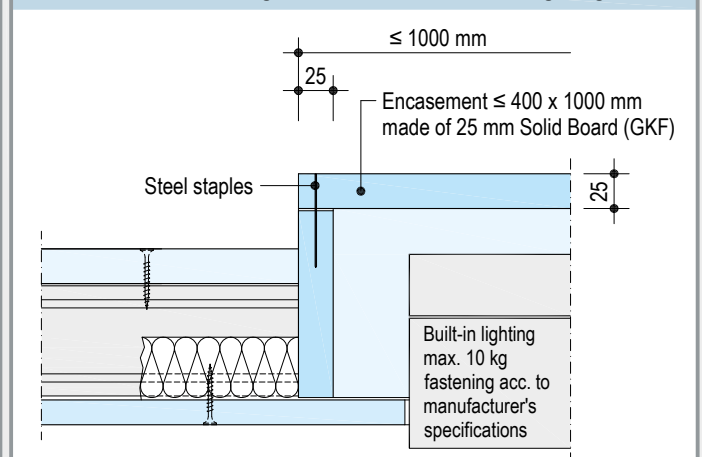
Details, scale 1:5



D131.de-SO-B1 Longitudinal section of built-in lighting



D131.de-SO-B5 Longitudinal section of built-in lighting



K219.de Knauf Free-Spanning Fireboard Ceilings A1

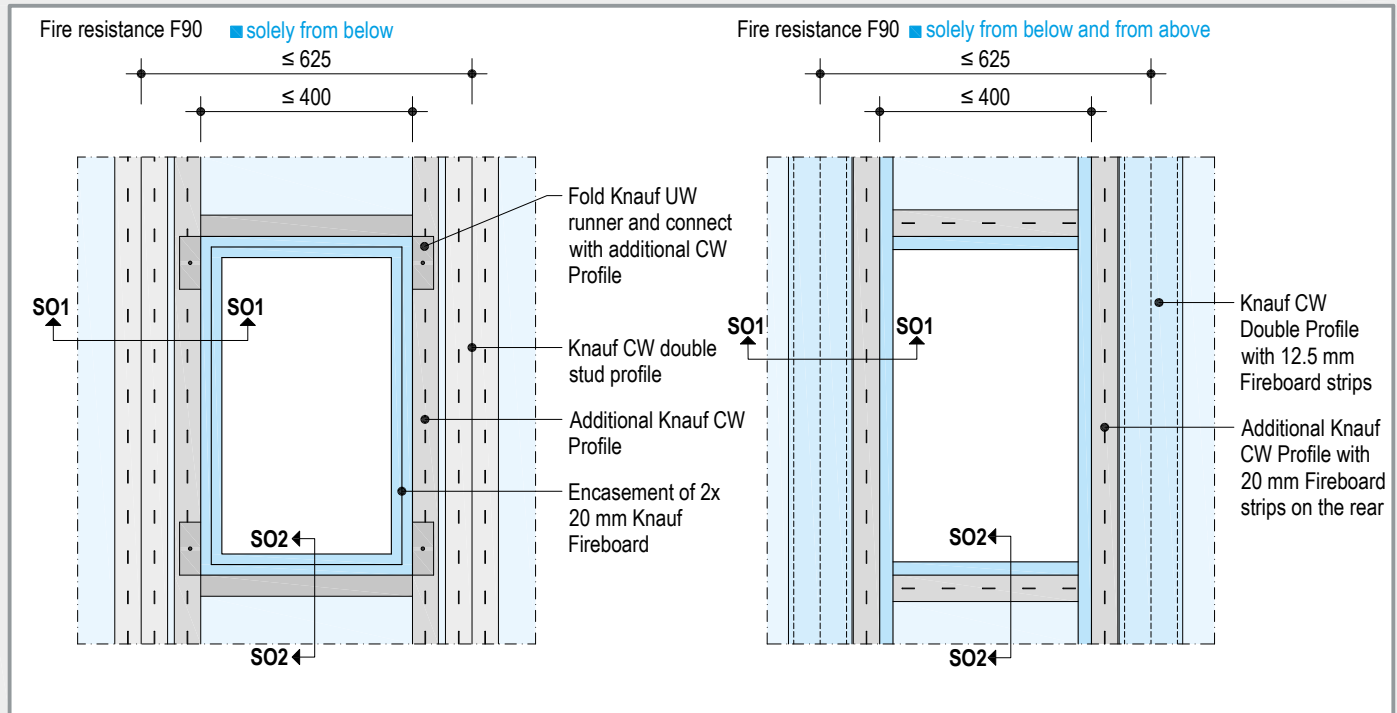


Fire-protected cladding for recessed luminaires

Please observe the updated specifications for fire resistance, refer to the section: Unterdecken „alleine“ - freitragend in the Fire resistance folder (German only).

Fire protection encasement for built-in lighting

Scheme drawing, all dimensions in mm

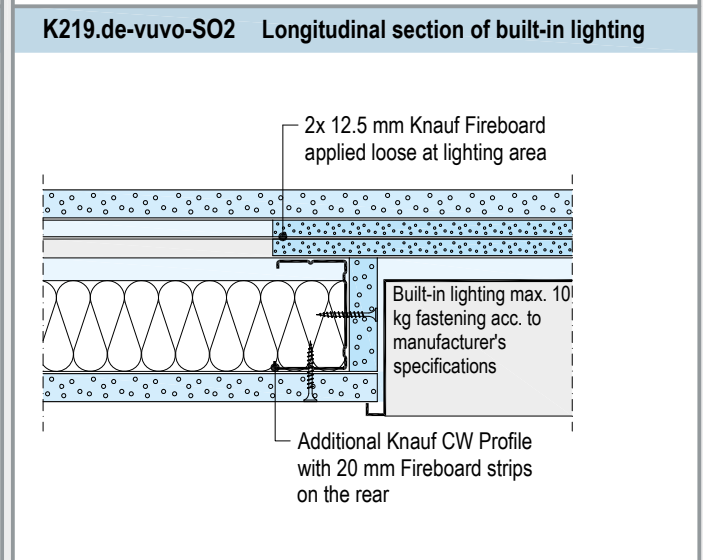
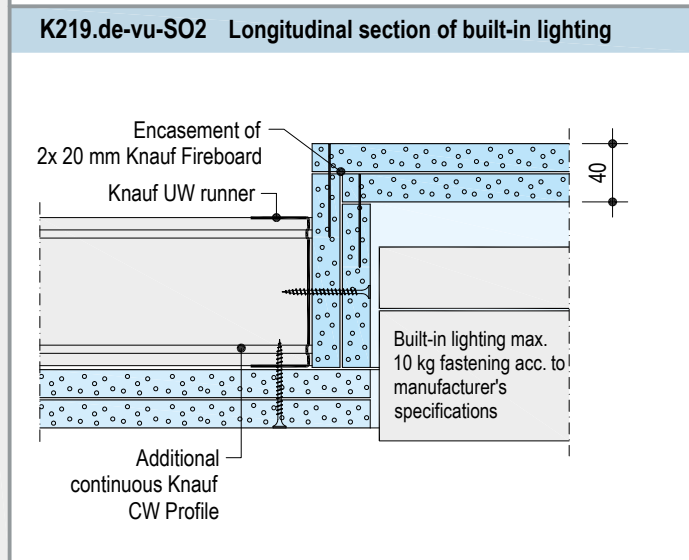
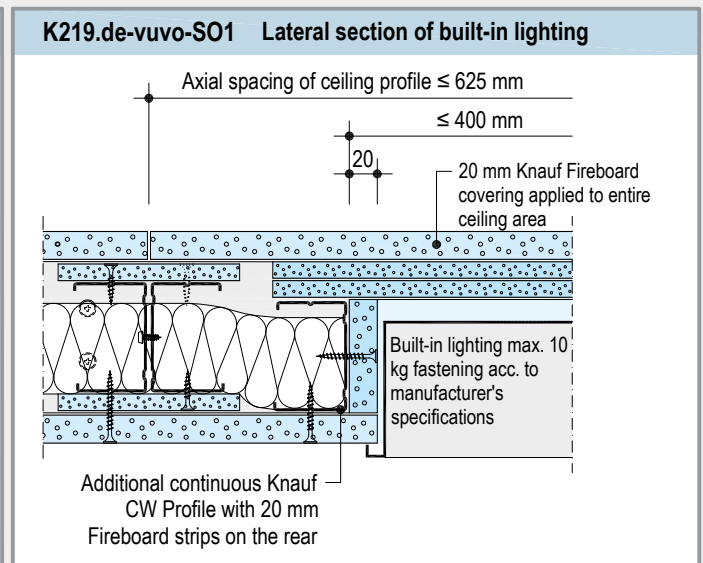
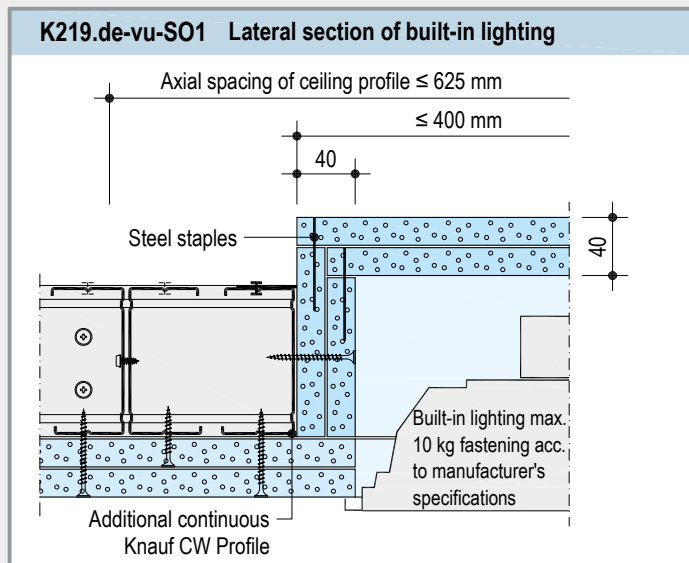


■ Front side stapling of the cladding, see table on page 38

Fire resistance F90 ■ solely from below

Fire resistance F90 ■ solely from below and from above

Details, scale 1:5



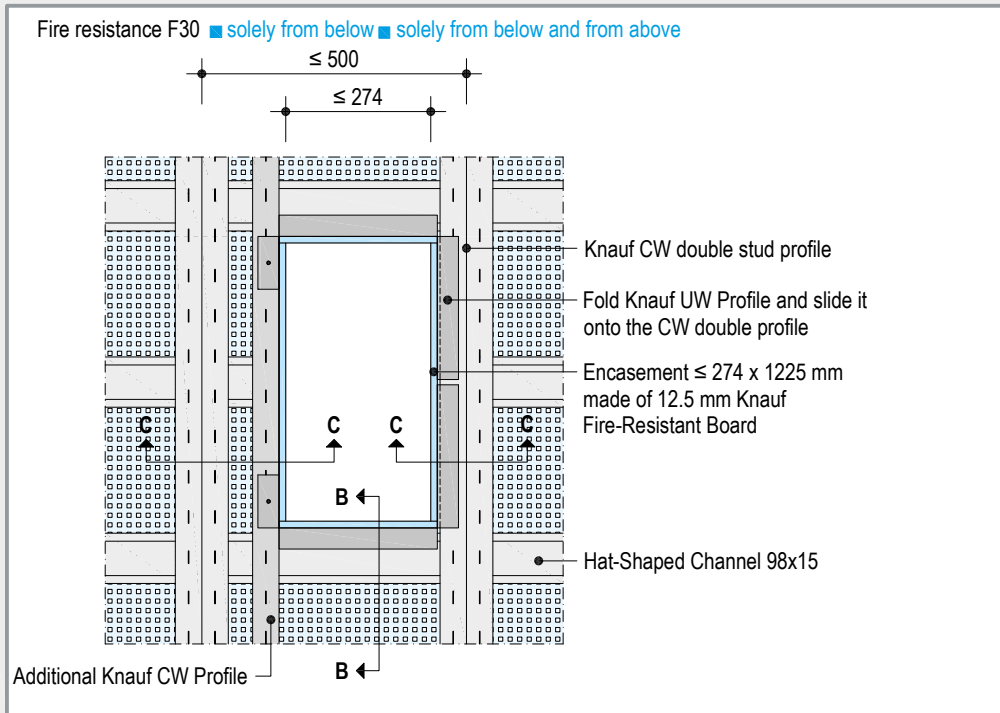
D134.de Knauf Cleaneo Acoustic Free-Spanning Fire Protection Ceilings **KNAUF**

Fire-protected cladding for recessed luminaires

Please observe the updated specifications for fire resistance, refer to the section: Unterdecken „alleine“ + Akustik“ in the Fire resistance folder (German only).

Fire protection encasement for built-in lighting

Scheme drawing, all dimensions in mm

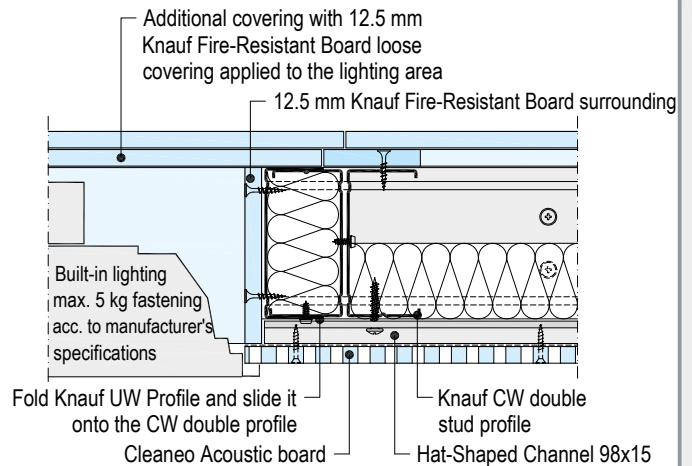
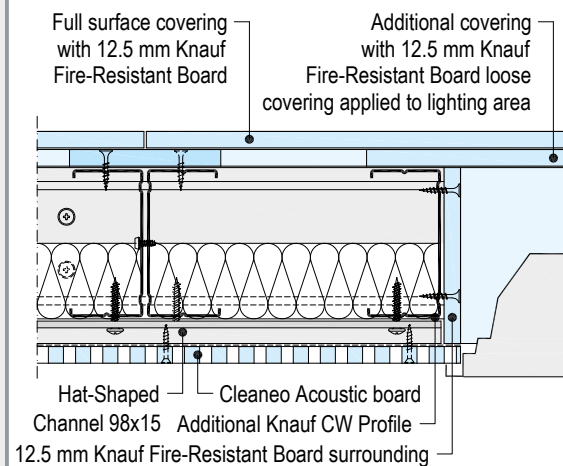


Fire resistance F30 ■ solely from below ■ solely from below and from above

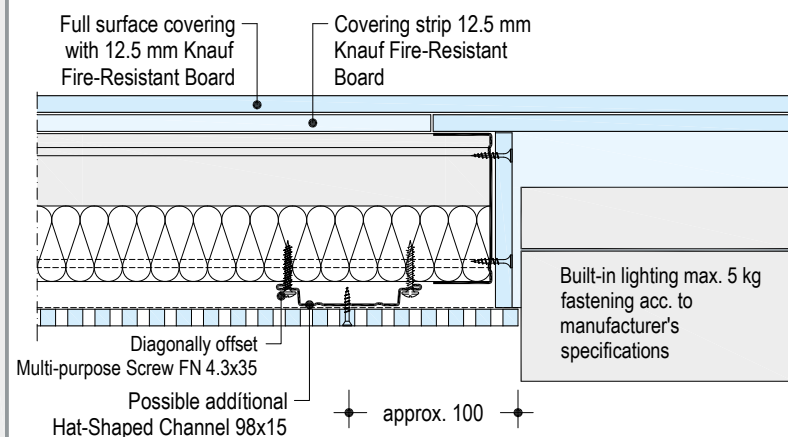
Details, scale 1:5

D134.de-SO-C1 Lateral section of built-in lighting

D134.de-SO-C2 Lateral section of built-in lighting



D134.de-SO-B1 Longitudinal section of built-in lighting



D13.de Knauf Free-Spanning Ceilings



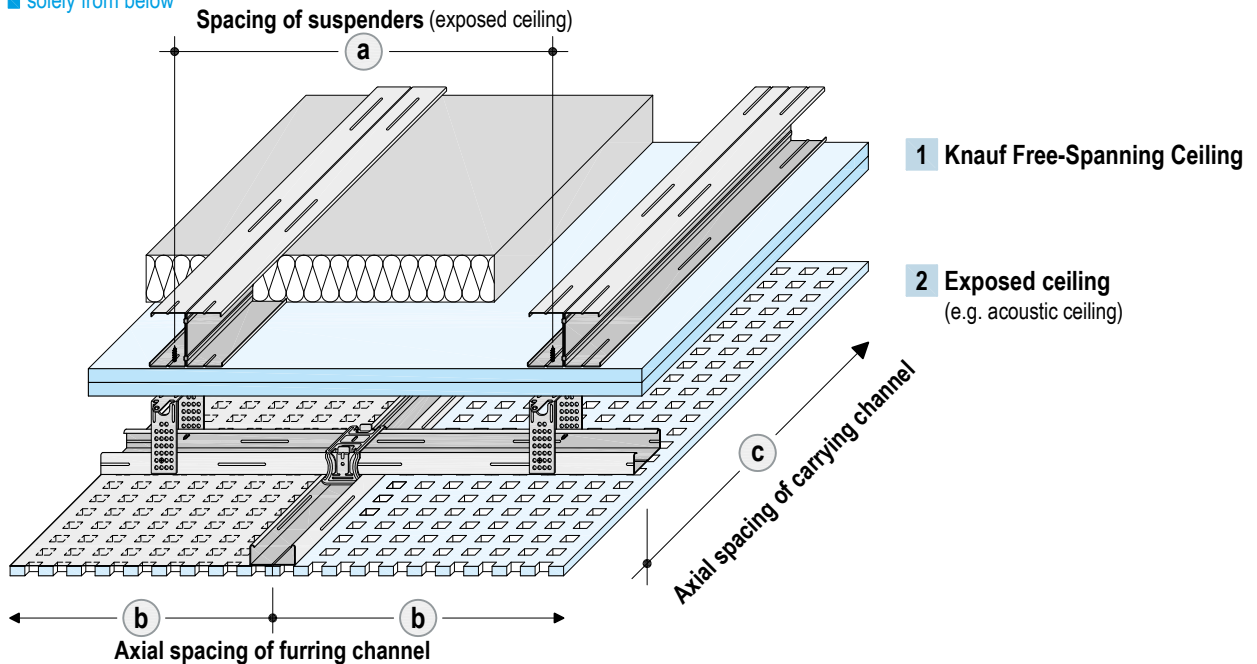
Multi-level ceiling system

Please observe the updated specifications for fire resistance, refer to the section: Unterdecken „alleine“ - freitragend / Unterdecken „alleine“ + Akustik in the Fire resistance folder (German only).

Revealed ceiling under free-spanning ceiling

Scheme drawing

D131.de without fire resistance / fire resistance F30 ■ solely from below ■ solely from below and from above
 K219.de ■ solely from below



1 Knauf Free-Spanning Ceiling

2 Exposed ceiling $\leq 0.15 \text{ kN/m}^2$

- e.g. Knauf Cleaneo Acoustic Design Ceiling (Application acc. to. System Data Sheet D12.de)
- Always apply suspended channels of exposed ceiling lateral to furring channel of the suspended ceiling
- Anchoring of suspenders in ceiling channels of the free-spanning ceiling with Knauf Multi-purpose Screws FN 4.3x35 / FN 4.3x65
- **Max. load of exposed ceiling 100 N per suspender**

1 Freely-suspended ceiling

The additional load of the exposed ceiling ($\leq 0.15 \text{ kN/m}^2$) has to be considered for the maximum ceiling span (room width) of the free-spanning ceiling (see pages 12-17 and pages 20-21).

2 Max. spacings of exposed ceiling

All dimensions in mm

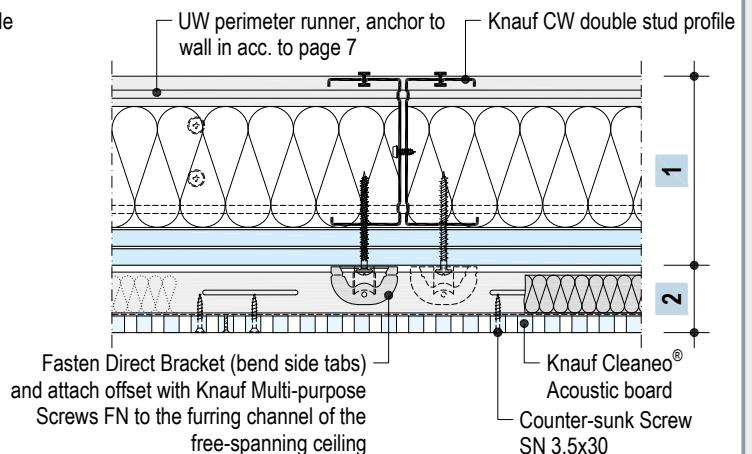
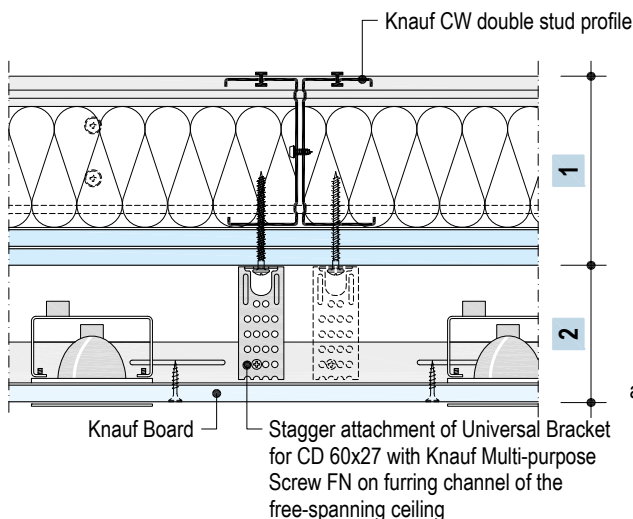
Max. axial spacings c carrying channel	Max. spacings suspender ¹⁾ load class kN/m^2 up to 0.15	Max. axial spacing of furring channel b	
		Knauf Board Ceiling	Knauf Acoustic Ceilings
1000	625	500	333.5 dependent on perforation design
1200	500		

1) Suspension must be fastened to ceiling profiles of the free-spanning ceiling

Details, scale 1:5

D131.de-D112.de-C1 Revealed ceiling under free-spanning ceiling

D131.de-D127.de-C1 Revealed ceiling under free-spanning ceiling



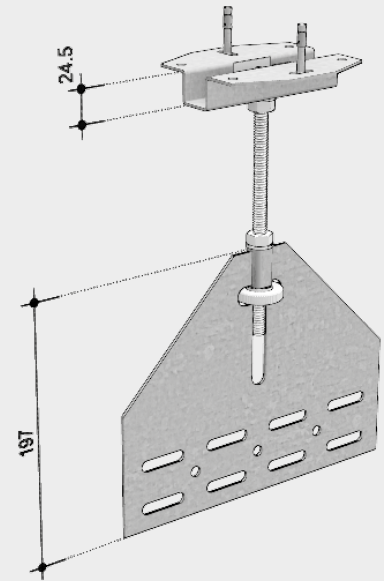
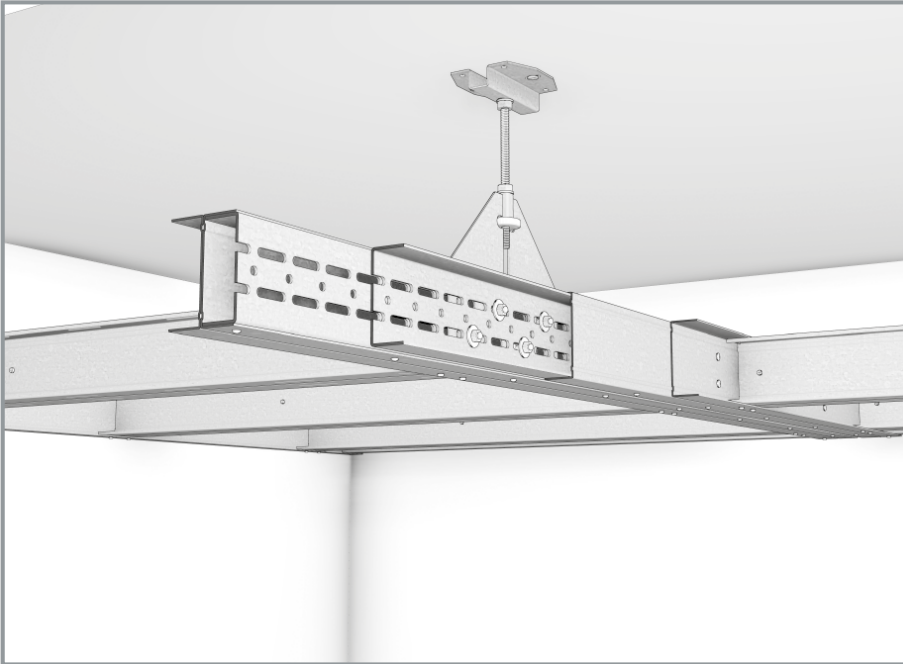
- ▶ See also System Data Sheet D11.de Knauf Board Ceiling
- ▶ See also System Data Sheet D12.de Knauf Cleaneo® Acoustic Ceilings

D13.de Knauf Free-Spanning Ceilings

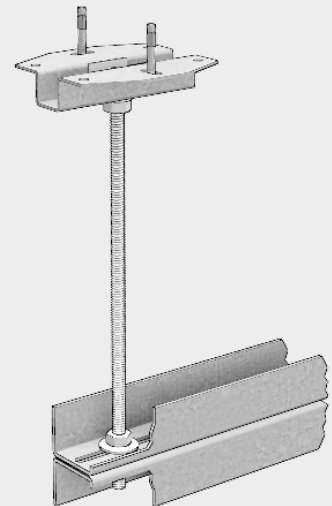
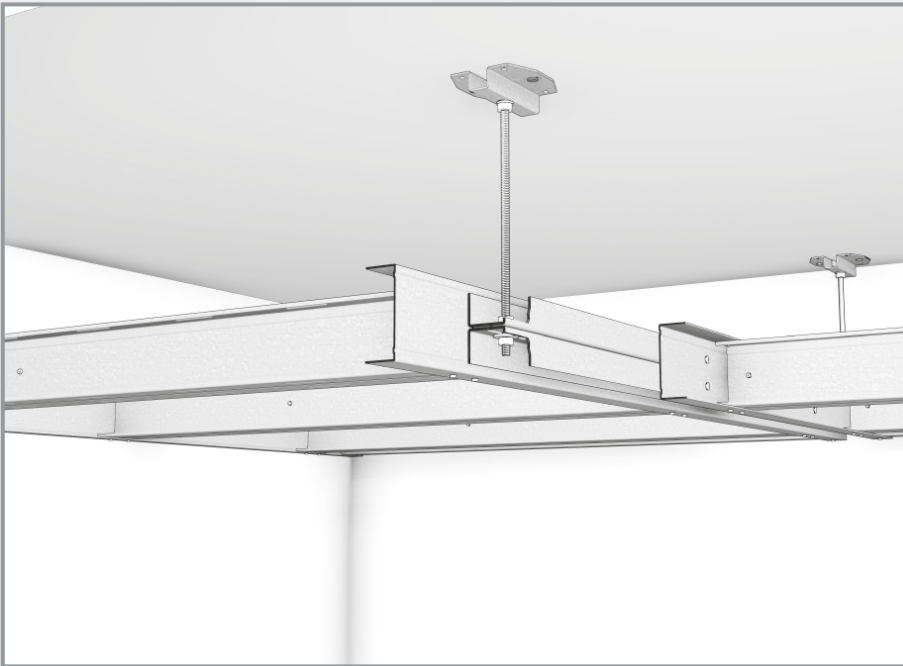
Centre suspension



Centre suspension - with UA centre suspension



Centre suspension - with threaded rod



- Centre suspensions facilitate larger ceiling span widths.
- Further information on request.

D131.de Knauf Free-Spanning Ceilings



Material requirement for selected examples

Please observe the updated specifications for fire resistance, refer to the section: Unterdecken „alleine“ - freitragend in the Fire resistance folder (German only).

Material requirement per m² ceiling without allowance for loss and waste.

The amounts refer to a ceiling area of 2.5 m x 10 m = 25 m²

Designation <i>Material not provided by Knauf = printed in italics</i>	Unit	Amount as average value				
		Without fire resistance	Fire resistance solely from below		Fire resistance solely from below+from above	
			F30	F30	F30	F60
		Cladding 12.5 mm	Cladding 2x 12.5 mm	Cladding 2x 12.5 mm	Cladding 18 mm	Cladding 2x 12.5 mm + 12.5 mm
		Profile spacing 500 mm	Profile spacing 400 mm	Profile spacing 500 mm	Profile spacing 625 mm	Profile spacing 500 mm
Connection to wall Knauf UW perimeter runner Knauf UW 50 / 75 / 100 / 125 / 150 x 40 x 0.6 <i>with anchors suited to the substrate, e.g.</i>	m	0.8	0.8	0.8	0.8	0.8
alt. Knauf Multi-purpose Screw FN with metal stud partition	pcs	2.7	2.7	2.7	2.7	2.7
Knauf Ceiling Steel Dowel with reinforced concrete wall	pcs	2.8	2.8	2.8	2.8	2.8
Knauf CW Profile - length acc. to span width (room width) Knauf CW 50 / 75 / 100 / 125 / 150 x 50 x 0.6 <i>with anchors suited to the substrate, e.g.</i>	m	0.2	0.2	0.2	0.2	0.2
alt. Knauf Multi-purpose Screw FN with metal stud partition	pcs	as required	as required	as required	as required	as required
Knauf Ceiling Steel Dowel with reinforced concrete wall	pcs	as required	as required	as required	as required	as required
Substructure Knauf CW single profile as a furring channel - length acc. to span width Knauf CW 50 / 75 / 100 / 125 / 150 x 50 x 0.6	m	1.9	-	-	-	-
Connection of CW Profile with UW perimeter runner: <i>e.g. metal rivet</i>	pcs	1.7	-	-	-	-
Knauf CW double profile as a furring channel - length acc. to span width Knauf CW 50 / 75 / 100 / 125 / 150 x 50 x 0.6	m	-	4.8	3.8	3	3.8
Knauf Metal Screw LN 3.5x9 mm (Knauf CW Profiles screwed at flange)	pcs	-	4	3	2.4	3
Connection of Knauf CW Profile with Knauf UW perimeter runner: <i>e.g. 2x metal rivets</i>	pcs	-	4	3.2	-	-
<i>Insulation layer, e.g. Knauf Insulation (Observe fire protection specs., see page 8)</i>	m ²	as required	as required	as required	1	1
Knauf boards Knauf Wallboard; 12.5 mm		1	-	-	-	-
alt. Knauf Wallboard; 12.5 mm		-	-	alt. 2	-	2
Diamant; 12.5 mm	m ²	-	1	2	-	-
Silentboard; 12.5 mm		-	1	-	-	-
Knauf Fire-Resistant Board / Diamant 18 mm		-	-	-	1	-
alt. Covering strip 120 mm wide: Solid Board (GKF); 25 mm		-	-	-	0.2	-
Covering strip 100 mm wide: Knauf Fire-Resistant Board; 12.5 mm	m ²	-	-	-	-	0.2
Covering strip 50 mm wide: Knauf Fire-Resistant Board; 12.5 mm		-	-	-	-	0.05
Cover board: Knauf Fire-Resistant Board; 12.5 mm	m ²	-	-	-	-	1
Screw fastening Fastening of Knauf Boards - Knauf Fasteners, see page 6						
1st layer	pcs	19	19	14	17	14
2nd layer		-	24	19	-	19
Fastening of covering strips - Knauf fasteners, see page 17, 19	pcs	-	-	-	8	13
Joint filling Trenn-Fix, 65 mm wide, self-adhesive	m	1	1	1	1	1
alt. Uniflott / Uniflott impregnated; for hand filling	kg	0.2	0.5	0.4	0.2	0.2
TRIAS; with hand filling		0.2	0.5	0.4	0.2	0.2
Joint Tape Kurt (for front edges)	m	0.35	0.5	0.35	0.35	0.35
or Fugenfüller Leicht; with hand filling	kg	0.25	0.5	0.4	0.2	0.4
Joint Tape Kurt (for front edges + long edges)	m	0.75	1	0.75	0.75	0.75
Knauf Edge Trim 23/13; 2.75 m long	m	as required	as required	as required	as required	as required
T connection / L connection (see page 30-35) Knauf UA Profiles / Knauf UW Profiles	m					-
Metal traverse / Cubo Connection Bracket	pcs	as required	as required	as required	as required	-
Suitable fasteners	pcs					-

K219.de Knauf Free-Spanning Fireboard Ceilings A1



Material requirement for selected examples

Please observe the updated specifications for fire resistance, refer to the section: Unterdecken „alleine“ - freitragend in the Fire resistance folder (German only).

Material requirement per m² ceiling without allowance for loss and waste.

The amounts refer to a ceiling area of 2.5 m x 10 m = 25 m²

Description <i>Material not provided by Knauf = printed in italics</i>	Unit	Amount as average value	
		Fire resistance ■ solely from below F90 Cladding 2x 20 mm Fireboard Profile spacing 625 mm	Fire resistance ■ solely from below and from above F90 Cladding 20 + 20 mm Fireboard Profile spacing 625 mm
Connection to wall Knauf UW perimeter runner Knauf UW 50 / 75 / 100 / 125 / 150 x 40 x 0.6 <i>with anchors suited to the substrate, e.g.</i> alt. Knauf Multi-purpose Screw 2x FN 4.3x65 mm with metal stud partition Knauf Ceiling Steel Dowel with reinforced concrete wall	m pcs pcs	0.8 2.7 2.8	0.8 5.3 3.3
Knauf CW Profile - length acc. to span width (room width) Knauf CW 50 / 75 / 100 / 125 / 150 x 50 x 0.6 <i>with anchors suited to the substrate, e.g.</i> alt. Knauf Multi-purpose Screw FN 4.3x65 mm with metal stud partition Knauf Ceiling Steel Dowel with reinforced concrete wall	m pcs pcs	0.2 as required	0.2 as required
Substructure Knauf CW double profile as a furring channel - length acc. to span width Knauf CW 50 / 75 / 100 / 125 / 150 x 50 x 0.6 Knauf Metal Screw LN 3.5x9 mm (CW Profiles screwed at flange) Connection of CW Profile with UW perimeter runner: alt. e.g. Knauf Metal Screw LN 3.5x9 mm e.g. Knauf Drywall Screw TN 3.5x25 mm	m pcs pcs	3 3 2.6 -	3 3 - 2.6
<i>Insulation layer, e.g. Knauf Insulation (Observe fire protection, see page 8)</i>	m ²	as required	1
Knauf boards Knauf Fireboard; 20 mm Covering strip 120 mm wide: Knauf Fireboard; 12.5 mm Cover board: Knauf Fireboard; 20 mm Additional board layer (doubling of layers) Knauf Fireboard; 20 mm	m ² m ² m ² m ²	2 - - as required	1 0.4 1 as required
Screw fastening see page 6 1st layer alt. Knauf Drywall Screw TN 3.5x35 mm Knauf Drywall Screw TN 3.5x45 mm 2nd layer Knauf Drywall Screw TN 3.5x55 mm Fastening cover strips: Drywall Screw TN 3.5x25 mm	pcs pcs pcs pcs	10 - 18 -	- 18 - 15
Joint filling Trenn-Fix; 65 mm wide, self-adhesive		1	1
Knauf Fireboard Filler Knauf Fibre Glass Joint Tape	kg m	0.65 1.1	0.55 1.1
Edge Trim 23/13; 2.75 m long	m	as required	as required
T connection / L connection (see page 30-35) Knauf UA Profile / UW Profile Metal traverse / Cubo Connection Bracket Suitable fasteners	m pcs pcs	as required	as required

D134.de / D137.de Knauf Cleaneo Acoustic Free-Spanning Ceilings

Material requirement for selected examples

Please observe the updated specifications for fire resistance, refer to the section: Unterdecken „alleine“ + Akustik“ in the Fire resistance folder (German only).

Material requirement per m² ceiling without allowance for loss and waste.

The amounts refer to a ceiling area of 2.5 m x 10 m = 25 m²

Description <i>Material not provided by Knauf = printed in italics</i>	Unit	Quantity as average value	
		D137.de without fire protection	D134.de Fire resistance ■ solely from below and from above F30 Cladding 12.5 mm Cleaneo Acoustic + 12.5 mm Knauf Fire-Resistant Board Profile spacing ≤ 333.5 mm
Connection to wall Knauf UW perimeter runner Knauf UW 50 / 75 / 100 / 125 / 150 x 40 x 0.6 <i>with anchors suited to the substrate, e.g.</i>	m	0.8	0.8
alt. Knauf Multi-purpose Screw 2x FN with metal stud partition	pcs	2.7	2.7
Knauf Ceiling Steel Dowel with reinforced concrete wall	pcs	2.8	2.8
Knauf CW Profile - length acc. to span width (room width) Knauf CW 50 / 75 / 100 / 125 / 150 x 50 x 0.6 <i>with anchors suited to the substrate, e.g.</i>	m	0.2	0.2
alt. Knauf Multi-purpose Screw FN with metal stud partition	pcs	as required	as required
Knauf Ceiling Steel Dowel with reinforced concrete wall	pcs	as required	as required
Substructure Knauf Hat-Shaped Channel 98x15 as a furring channel; 4 m long	m	3.2	3.2
Screw connect the connection of Knauf Hat-Shaped Channel 98x15 with Knauf CW double profile offset diagonally at the intersection: e.g. 2x Knauf Multi-purpose Screws FN 4.3x35	pcs	13.5	13.5
Knauf CW single profile as a furring channel - length acc. to span width Knauf CW 50 / 75 / 100 / 125 / 150 x 50 x 0.6	m	1.9	-
Connection of CW Profile with UW perimeter runner: e.g. Knauf Metal Screw LN 3.5x9 mm	pcs	3.4	-
alt.			
Knauf CW double profile as a furring channel - length acc. to span width Knauf CW 50 / 75 / 100 / 125 / 150 x 50 x 0.6	m	3.8	3.8
Knauf Metal Screw LN 3.5x9 mm (Knauf CW Profiles screwed at flange)	pcs	3	3
Connection of CW Profile with UW perimeter runner: e.g. Knauf Metal Screw LN 3.5x9 mm	pcs	6.4	3.2
<i>Insulation layer, e.g. Knauf Insulation (Observe fire protection, see page 8)</i>	m ²	as required	1
Knauf boards Knauf Cleaneo Acoustic board; 12.5 mm - with Acoustical Fleece black/white	m ²	1	1
Covering strip 100 mm wide: Knauf Fire-Resistant Board; 12.5 mm	m ²	-	0.2
Covering strip 50 mm wide: Knauf Fire-Resistant Board; 12.5 mm	m ²	-	0.05
Cover board: Knauf Fire-Resistant Board; 12.5 mm	m ²	-	1
Screw fastening see page 6 Knauf Counter-sunk Screw SN 3.5x30 mm (Cleaneo Acoustic board)	pcs	20	20
Fastening cover strips: Knauf Drywall Screw TN 3.5x25 mm	pcs	-	13
Joint filling Trenn-Fix; 65 mm wide, self-adhesive		1	1
alt. TRIAS / Uniflott; with hand filling	m	0.2	0.2
Knauf Cleaneo Rapid; with hand filling	m	0.08	0.08
Edge Trim 23/13; 2.75 m long	m	as required	as required

D13.de Knauf Free-Spanning Ceilings



Construction / Application

Please observe the updated specifications for fire resistance, refer to the section: Unterdecken „alleine“ - freitragend / Unterdecken „alleine“ + Akustik in the Fire resistance folder (German only).

Construction

Knauf free-spanning ceilings are attached exclusively as suspended ceilings anchored to the flanking walls. Knauf boards are fastened to a metal substructure grid made of Knauf CW profiles as single or double profiles. The application of additional loads like lighting fixtures with max. 100 N (10 kg) per double profile (max. 50 N per m² ceiling surface) and exposed ceilings such as D127 Knauf Acoustic Ceilings with load per unit area of 15 kg/m² or max. single load of 100 N with suitable anchors directly to the metal substructure is permissible. Regard extra loads for dimensioning the permissible room width of T or L connections.

Joints of free-spanning channels are not permissible! Movement joints have to be transferred into the construction of the free-spanning ceilings. Use control joints in the case of ceiling areas exceeding approx. 15 m in length, or for narrow ceiling spaces caused by a break of a wall. Separate connections of boards to components made of a different building material, especially columns, or thermally highly stressed built-ins such as lighting fixtures, for instance with shadow gaps. Knauf profiles are galvanized. The corrosion protective coating is sufficient for indoor application, including bathrooms and kitchens in private housing. For other areas, e.g. subject to exposure to outdoor air,

additional corrosion protection is necessary (see DIN 18168-1 table 2).

D131.de Knauf Free-Spanning Ceiling

Suspended ceilings with free-spanning furring channels made of CW single or double profiles. Single or double-layer cladding. For fire protection requirements where full surface fire protection insulation layer necessary. For fire protection from above with additional cover strips on the double profiles (F30) or top side cover layer of 12.5 mm Knauf Fire-Resistant Board, loosely applied with overlapping longitudinal joints (F60).

D134.de Knauf Cleaneo Acoustic Free-Spanning Fire Protection Ceiling

Suspended ceiling with free-spanning carrying channels made of CW double profiles. Hat-Shaped Channels as a furring channel are directly connected to the carrying channel with Multi-purpose Screws FN 4.3x35 at axial spacing \leq 333.5 mm (dependent on the perforation pattern). Cladding of the face side with Knauf Cleaneo Acoustic boards. From a fire protection standpoint the covering strips on the top should be placed on the CW double profiles and the UW perimeter runner, a full surface insulation material layer between the carrying channel as

well as a top covering layer of 12.5 mm Knauf Fire-Resistant Board, applied loosely with overlapping joints is necessary.

D137.de Knauf Cleaneo Acoustic free-spanning ceiling

Suspended ceiling with free-spanning carrying channels made of CW double profiles. Hat-Shaped Channels as furring channels directly anchored to the carrying channel. Cladding of the face side with Knauf Cleaneo Acoustic boards. In order to improve the sound absorption, a full surface insulation material layer can be placed between the carrying channels up to 5 kg/m².

K219.de Knauf Free-Spanning Fireboard Ceiling A1

Suspended ceilings with free-spanning furring channels made of CW double profiles. Single or double-layer cladding with Fireboard. For fire protection requirements from above with covering strips on and under the double profiles, full surface insulation material application for fire protection requirements as well as a top covering layer of 20 mm Fireboard, applied loosely with overlapping joints is necessary.

Installation

Free-spanning ceiling grid

- Supporting perimeter connection made of UW Profiles. Anchoring acc. to table on page 7.
- In case of sound protection requirements, seal up wall connection profiles carefully with Acoustical Sealant according to DIN 4109, supplement 1, chapter 5.2; porous sealant strips like Sealing Tape are usually not suitable in this case.
- Furring channels made of Knauf CW Profiles as single or double profiles. In case of fire protection requirements, apply only double profiles.
- Connect CW Profiles as double profiles at the web with Metal Screws LN 3.5x9 at a clearance of max. 750 mm.
- Support length of CW profiles in UW perimeter runners has to be at least 30 mm. Connect upper flanges of UW/CW profiles (with double profiles both upper flanges) by riveting, screwing or crimping, if no covering strip is required.

Grid systems D134.de/D137.de

The free-spanning CW double profiles serve as the carrying channel here. Attach a Hat-Shaped Channel to it at axial spacings \leq 333,5 mm (dependent on the perforation design) using 2 diagonally offset Multi-purpose Screws FN 4,3x35 at every junction point. Both lower flanges of the CW double profile should be bolted (D134.de/D137.de) to the UW perimeter runner using Metal Screws LN 3.5x9 or riveted (D137.de).

Additional measures with the grid for systems with fire protection

System D131.de F30 solely from below and from above

The UW perimeter runner must feature a web height

that is 25 mm larger than the CW double profile. Attach Knauf board strips GKF, 25 mm thick, 120 mm wide, as covering strips on CW double profiles with TN 3.5x35 mm alternating at clearances of max. 250 mm.

System D131.de F60 solely from below and from above

System D134.de F30 solely from below and from above

Attach Knauf board strips GKF, 12.5 mm thick, 100 mm wide, as covering strips on CW double profiles with TN 3.5x25 mm alternating at clearances of max. 250 mm. Also attach covering strips, 50 mm wide to the UW perimeter runners.

System K219.de

- If the free-spanning ceiling is connected (anchored) to a lightweight partition (F90), an additional, 20 mm thick Fireboard cladding layer is required for the partition on the side of the supporting connection.

System K219.de F90 solely from below and from above

- If the free-spanning ceiling is connected to a lightweight partition (F90), behind the required double layer an additional flexible corner profile for screwing on a Flex Profile (clearance 312.5 mm) of the UW perimeter runner must be installed in the partition construction.

- The UW perimeter runner must feature a web height that is 25 mm larger than the CW double profile.

Attach Knauf Fireboard strips, 12.5 mm thick, 120 mm wide alternately as cover strips on the upper and lower side of the CW double profile with TN 3.5x25 mm at a clearance of max. 250 mm.

- Connect both lower flanges of CW double pro-

file including the covering strips with the UW runner by screwing with Drywall Screws LB 3.5 x 9.5.

General free-spanning ceiling cladding

- Apply Knauf boards lateral to ceiling profiles.
- Stagger the front edge joints by at least 400 mm and arrange on the profiles. When Horizonboard is used (boards with four tapered edges), cross joints can be formed in conjunction with jointing with Knauf TRIAS and Knauf Joint Tape Kurt.
- Commence with the fixing of the boards in the board centre or on the board corner to avoid buckling/deformation. Press boards firmly on to the grid and fasten with Knauf Drywall Screws acc. to page 6.
- Use Trenn-Fix and filler for connections to other components.

Cladding system K219.de

- Apply Knauf Fireboard parallel to CW double profiles. Place long edge joints on profiles.
- Stagger front edge joints by 400 mm min.

Additional measures on systems with fire protection

Apply full surface insulation materials for fire protection and overlap the joints between the furring channels (D131.de/K219.de) or the carrying channels (D134.de).

System D131.de F60 solely from below and from above

System D134.de F30 solely from below and from above

Apply a loose top covering layer on the CW double profiles made of Knauf Fire-Resistant Board 12.5 mm and overlap the longitudinal joints by at least 50 mm. Arrange the front edge joints at the centre of the CW double profiles.

Installation (continued)

System K219.de F90 solely from below and from above

- Apply a loose top covering layer on the CW double profiles made of Knauf Fireboard 20 mm with tight joints.

Multi-level ceiling system

Application as detailed on page 41.

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, Oberflächenengüten" *
- With Fireboard, a skim coating of the entire surface with Fireboard Filler is additionally required before application of direct coatings or linings.

Filling materials

Appropriate joint filling materials:

- TRIAS: Hand filling without board tape in the long joint edges; easy blending, 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 strips in the long joint edges
- Uniflott impregnated: Hand filling of impregnated (green) boards without joint tape in the long joint edges; 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 filler to achieve the desired surface quality:

- Q2, hand application: Finish-Pastös, Sheetrock Fill&Finish Light
- Q3/Q4, hand application: Readygips, Sheetrock SuperFinish
- Q3/Q4, machine application: Readygips, Sheetrock ProSpray products
- Fireboard Filler for full surface skimming of Fireboard

Gypsum board joints

- For multi-layer cladding, fill the lower layers with filler; fill the joints of the visible layer. Filling the joints of covered cladding layers with multi-layer cladding is necessary to provide technical fire protection and sound insulation properties as well as the structural properties!
- Recommendation: 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, will require the application of Knauf Joint Tape Kurt as well.
- Fill in 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.

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 at least have quality level Q2, or for Fireboard, it must be dust free and 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 regulate the suction properties of the surface, coatings of primers such as Knauf Tiefengrund/Spezialgrund/Putzgrund are suitable.

Where a wallpaper lining is used, a primer that facilitates easier removal of wallpaper for redecoration is recommended.

A sealing primer of Knauf Flächendicht is required for covering splash water areas with tiles.

Suitable coatings and linings

The following coatings/linings can be applied to

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.

■ Plasters

- Finishing plasters (e.g. Knauf Noblo, Diamant Spritzputz, Rotkalk Filz) or full surface skim coat (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.

If necessary consider additional load when dimensioning with T and L connections.

■ Coatings

- Dispersion paints (e.g. Knauf Intol E.L.F., Malerweiss E.L.F.), multi-coloured (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 or after application of 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, such as Knauf Aton Sperrgrund for top coats, Knauf Atonol for coatings.

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

Information on sustainability of Knauf Products and free-spanning ceilings

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

Knauf free-spanning ceilings 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: Suitability for conversion
→ Flexible Knauf Drywalling
- Criterion: Acoustic comfort
→ Knauf Free-Spanning Ceilings also possible with Cleaneo Acoustic boards for reduction of the reverberation time

Technical quality

- Criterion: Fire protection
→ Comprehensive fire protection 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-blue.de

Special notes

It is certified herewith, that the constructions, details and stated products, contained in the **System Data Sheet D13.de Knauf Free-Spanning Ceilings - edition 2013/11**, 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 considered.

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All technical changes reserved. Only the current printed instructions are valid. The stated information represents current state-of-the-art Knauf technology. The entire state of approved engineering rules, appropriate standards, guidelines, and rules of craftsmanship are not included herewith. These and all application instructions have to be adhered to separately by the installer. Our warranty is expressly limited to our products in flawless condition. All application quantities and delivery amounts are based on empirical data that are not easily transferable to other deviating areas.

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