CEWOOD

CEWOOD ACOUSTIC PANEL
HIDDEN PROFILE STRUCTURES

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CEWOOD ACOUSTIC PANELS

CEWOOD acoustic panels are a durable and nature friendly material made of top quality wood wool and cement.

CEWOOD panels are made of wood wool, using grey or white cement as the binder.

By combining fire resistance with good acoustic and heat insulation properties, the product offers the widest variety of design solutions.

Acoustic panels are widely used in public and residential building interior design, it is eco-friendly and harmless for health. The panels are very suitable for suspended ceiling constructions and wall finishing. Owing to its natural composition and outstanding properties, they are widely used in premises with increased acoustic load, where sound insulation and noise absorption are of essence. The panels do not change their properties in premises with an increased level of humidity, they absorb excess humidity and ensure pleasant microclimate, typical in premises with wood decoration.

Panels with thickness of 15, 25 and 35 mm made of 1.5 and 1 mm thick wood wool are used for ceiling decoration.

The quality of all CEWOOD materials corresponds to LVS EN 13168 requirements.

1. TECHNICAL SPECIFICATIONS

CEWOOD acoustic panels – 1.0 mm wood wool

Thickness	mm	15	25	35	50
Size (standard panel)	mm	2400x600; 1200x600; 600x600			
Size (for suspended ceilings)	mm	1195x595; 595x595			
Dimensional tolerance (EN 13168)		L4; W2; T2; S2; P2			
Weight	kg/m^2	8.6	11.5	14.5	19.5
Density	kg/m^3	570	460	410	390

Thermal resistance (Ro)	m^2·K/W	0.20	0.35	0.50	0.75
Thermal conductivity (λD)	W/m·K	0,066			
Specific heat (c)	J/(kg·K)	2100			
Bend (EN 12089)	kPa	≥ 1700	≥ 1300	≥ 1000	≥ 700
Compression (EN 826)	kPa	≥ 300	≥ 300	≥ 200	≥ 200
Chloride content (EN 13168)	%	≤ 0,06 Klase Cl3			
Reaction to fire (EN 13501-1:2007)		B-s1, d0			

CEWOOD acoustic panels – 1.5 mm wood wool

Thickness	mm	15	25	35	50
Size (standard panel)	mm	2400x600; 1200x600; 600x600			
Size (for suspended ceilings)	mm	1195x595; 595x595			
Dimensional tolerance (EN 13168)		L4; W2; T2; S2; P2			
Weight	kg/m^2	8.0	10.5	13.5	18.5
Density	kg/m^3	530	420	380	370

Thermal resistance (Ro)	m^2·K/W	0.20	0.35	0.50	0.75
Thermal conductivity (λD)	W/m·K	0.066			
Specific heat (c)	J/(kg·K)	2100			
Bend (EN 12089)	kPa	≥ 1700	≥ 1300	≥ 1000	≥ 700
Compression (EN 826)	kPa	≥ 300	≥ 300	≥ 200	≥ 200
Chloride content (EN 13168)	%	≤ 0,06 Klase Cl3			
Reaction to fire (EN 13501-1:2007)		B-s1, d0			

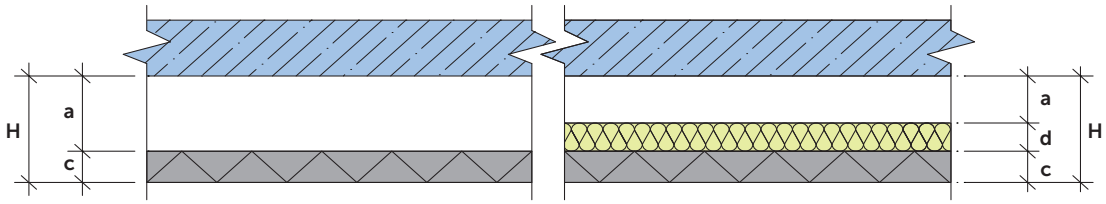
CEWOOD akustiskās plātnes – 3,0 mm ēveļskaida (tiek ražotas pēc pasūtījuma)

Thickness	mm	25	35	50
Size (standard panel)	mm	2400x600; 1200x600; 600x600		
Size (for suspended ceilings)	mm	1195x595; 595x595		
Dimensional tolerance (EN 13168)		L4; W2; T2; S2; P2		
Weight	kg/m^2	11.5	14.5	19.5
Density	kg/m^3	460	410	390

Thermal resistance (Ro)	$m^2 \cdot K/W$	0.35	0.50	0.75
Thermal conductivity (λD)	W/m·K	0.066		
Specific heat (c)	J/(kg·K)	2100		
Bend (EN 12089)	kPa	≥ 1300	≥ 1000	≥ 700
Compression (EN 826)	kPa	≥ 300	≥ 200	≥ 200
Chloride content (EN 13168)	%	≤ 0.06 Klase Cl3		
Reaction to fire (EN 13501-1:2007		B-s1, d0		

2. SOUND ABSORPTION

Practical sound absorption coecient in the α_p octave band according to standart EN ISO 354, Extended sound absorption coecient α_w and sound absorption class according to standart LVS EN ISO 11654:1997



H – height; **a** – air gap; **d** – mineral wool; **c** – CEWOOD panel.

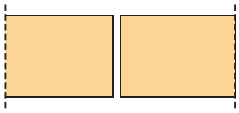
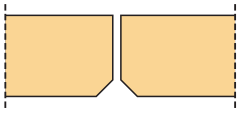
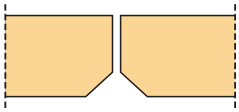
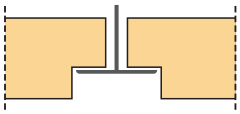
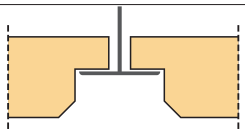
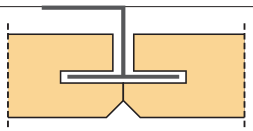
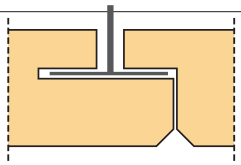
H mm	a mm	d mm	c mm	120 Hz	250 Hz	500 Hz	1000 Hz	2000 Hz	4000 Hz	Absorption coeff. α_w	Absorption class
85	60	0	25	0.10	0.30	0.55	0.60	0.50	0.60	**0.55**	D
225	200	0	25	0.25	0.50	0.55	0.50	0.60	0.65	**0.55**	D
250	200	0	50	0.40	0.60	0.55	0.65	0.70	0.70	**0.65**	C
85	10	50*	25	0.40	0,79	0,78	0.76	0.73	0.70	**0.80**	B
225	100	100*	25	0.79	0.72	0.73	0.81	0.78	0.72	**0.80**	B
225	150	50*	25	0.52	0.81	0.74	0.87	0.77	0.73	**0.80**	B
55	0	30**	25	0.25	0.55	1.00	0.95	0.85	0.85	**0.85**	B
75	0	50**	25	0.35	0.70	1.00	0.95	0.85	0.95	**0.90**	A
75	50	0	25	0.10	0.25	0.55	0.65	0.55	0.65	**0.50**	D
65	0	50**	15	0.30	0.65	1.00	0.85	0.75	0.80	**0.85**	B
65	50	0	15	0.10	0.20	0.50	0.65	0.55	0.65	**0.50**	D

* Mineral wool, 30 kG/m^3; ** Mineral wool, 90 kG/m^3.

An exceptionally effective type of application is sound-absorbing structures in large-sized premises, to reduce the sound reverberation time in the room and to improve working conditions. CEWOOD panels can be used to make panel-type screens with marked sound-absorbing qualities to reduce the capacity of noise emitted by equipment in the high tone frequency range. An even more effective acoustic solution is creating threedimensional finishing elements, such as pyramids which produce much higher absorption coefficient values, owing to sound diffraction around edges.

Panels with 3 mm wide wood wool and higher density ensure better sound absorption in lower frequencies. Whereas the 1 mm and 1.5 mm wood wool panels have better absorption properties in the higher frequency range. The optimum sound absorption solution can be achieved by combining CEWOOD panels with a layer of mineral wool insulation.

3. PROFILES OF PANEL EDGES

Code	Profile	Panel thickness, mm			Frame structur		
		15	25	35	Wood laths	CD profiles	T profiles
PO		+	+	+	+	+	+
P5		+	+	+	+	+	
P11			+	+	+	+	
POG			+	+			+
P5G			+	+			+
P5H			+	+			+
P5S				+			+

4. CEWOOD PANEL CEILING ON HIDDEN PROFILES

The offered mounting technique of CEWOOD panels allow creating a seamless ceiling plane without visible panel fastening structures. Edge profiles P5H and P5S are used in the structure.

CEWOOD panels with edge profile P5H are mounted as follows:

- "sliding" of T-profile in the profile frame. The structure is not dismountable.
- by using tin clips fastened at CD profile frame or directly at the slab structure.

Fig. 4.1. CEWOOD acoustic panel edge profile P5H.

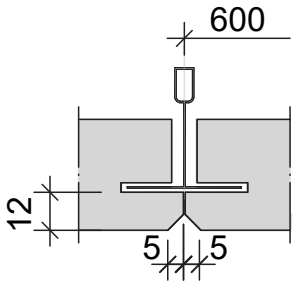
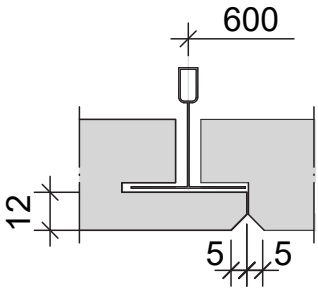


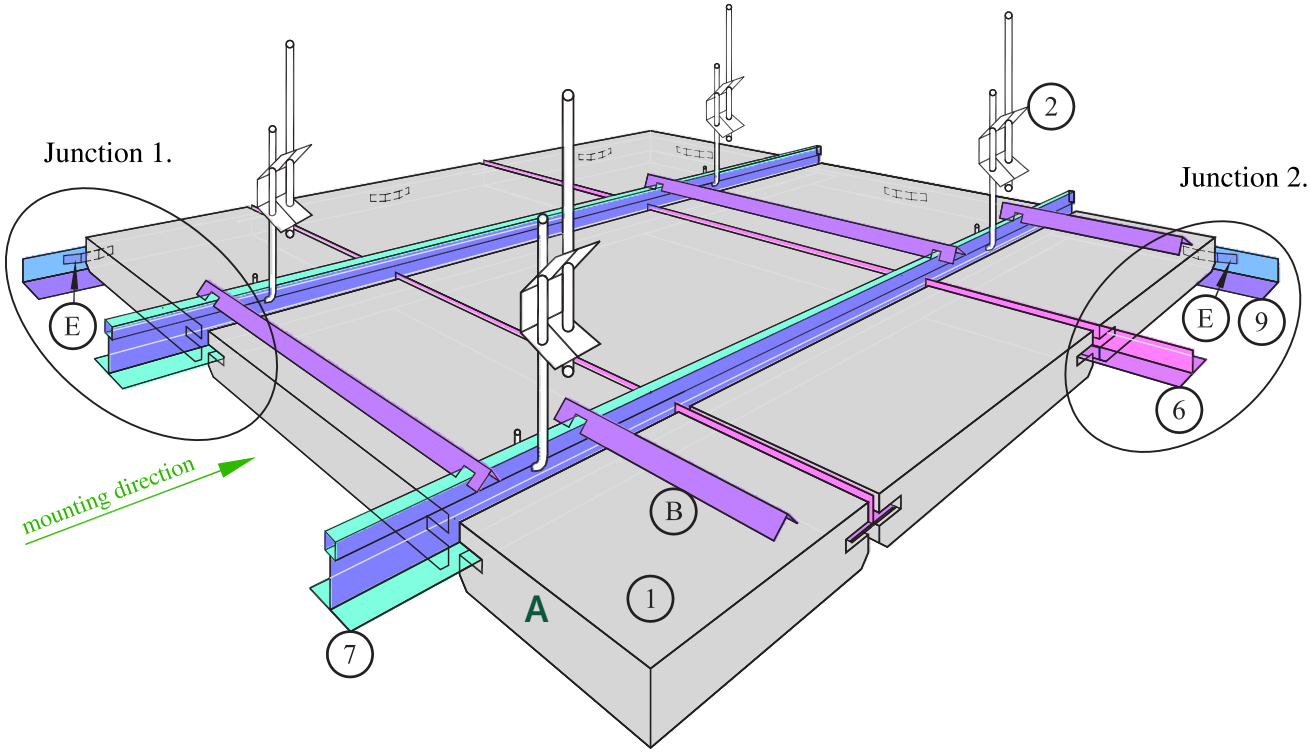
Fig. 4.2. CEWOOD acoustic panel edge profile P5S.



CEWOOD panels with edge profile P5S are mounted on T-profile frame. The structure is dismountable.

Structural frame, including cross-fastenings of the elements, are mounted according to the instructions of the structural frame manufacturer. It is not allowed to change the structural frame during mounting. Some measures should be intended to protect the structural frame from corrosion according to the conditions dominant in the premises.

5. SLIDING OF CEWOOD PANELS INTO T-PROFILE FRAME



T-profile suspended ceiling frame is manufactured by a number of manufacturers. CEWOOD panel mounting instructions have been elaborated specifically for the frame element system DONN DX-T35. Bearing profiles T 35/38.

Possible thickness of panels are 25 mm and 35 mm, sizes are 600x600, 600x1200 mm. Panel's sides have grooves and they are milled along the perimeter.

They can be used in premises where shock load (for example from sports ball) is expected. The structure cannot be disassembled and assembled for the second time. Access to inter-ceiling space is ensured only through maintenance openings. In premises where building's structures can be subject to vibrations, the suspended ceiling structures must have additional fastenings.

Numerācijas - apzīmējumu skaidrojums:

1 - CEWOOD acoustic panel - 35x(600x600; 600x1200).

2 - Quick suspension.

6 - Transverse profile l = 590 mm.

7 - Bearing profile T-35/38.

9 - Wall profile L24/24 mm.

B - Distance profile.

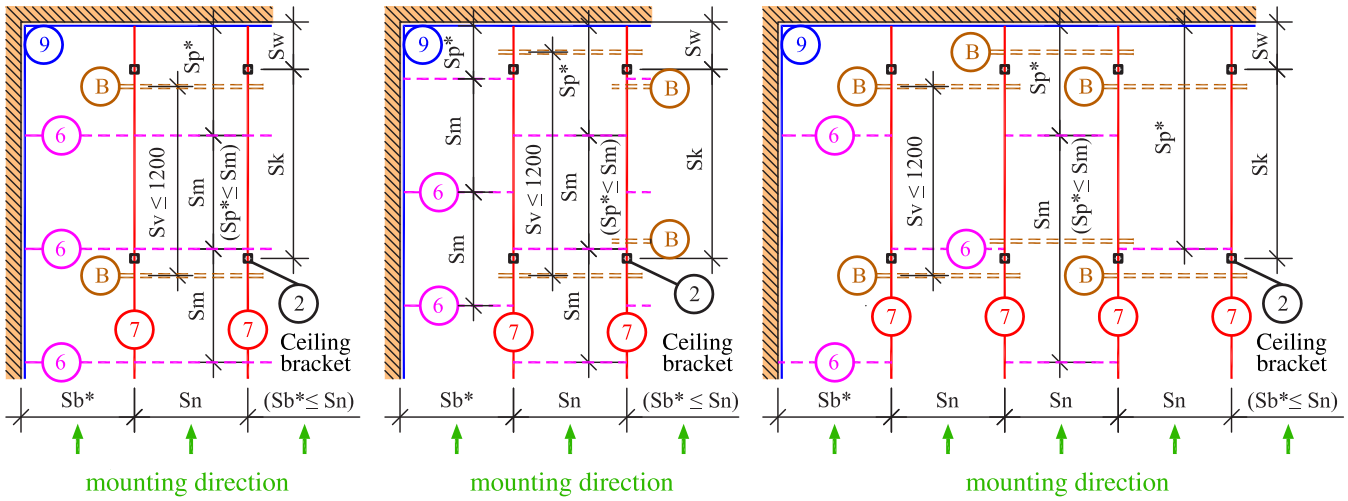
E - Flexible fastening.

T-shape configuration of frame elements

a) Configuration of profiles for mounting of panels 600x600.

b) Configuration of profiles for alternate mounting of panels 600x600.

c) Configuration of profiles for mounting of panels 600x1200.



Explanation of numeration-designations:

1 - CEWOOD acoustic panel - 35x(600x600; 600x1200).

2 - Quick suspension.

6 - Transverse profile l = 590 mm.

7 - Bearing profile T-35/38.

9 - Wall profile L24/24 mm.

B - Distance profile.

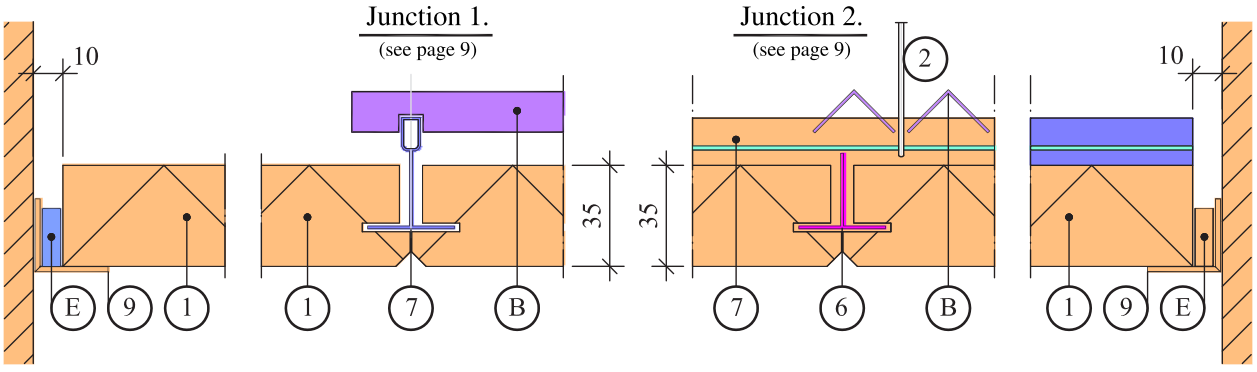
E - Flexible fastening.

Tab. 5.1. Hanger (load bearing capacity 0.15 kN) step.

Load kN/m²	0.15	0.20	0.25	0.30
Step between bearing profile ledges Sn mm	600	600	600	600
Step between hangers Sk mm	≤1100	≤1000	≤1000	≤800
Step between hanger and wall Sk mm	≤250	≤200	≤200	≤200
Step between transverse profile ledges Sm mm	600 1200	600 1200	600 1200	600 1200
Sb* and Sp* starting or ending panel size and step between the bearing profile ledges are adjusted depending on size of the room. Max. distance of profile ledge from the wall is 600mm.				

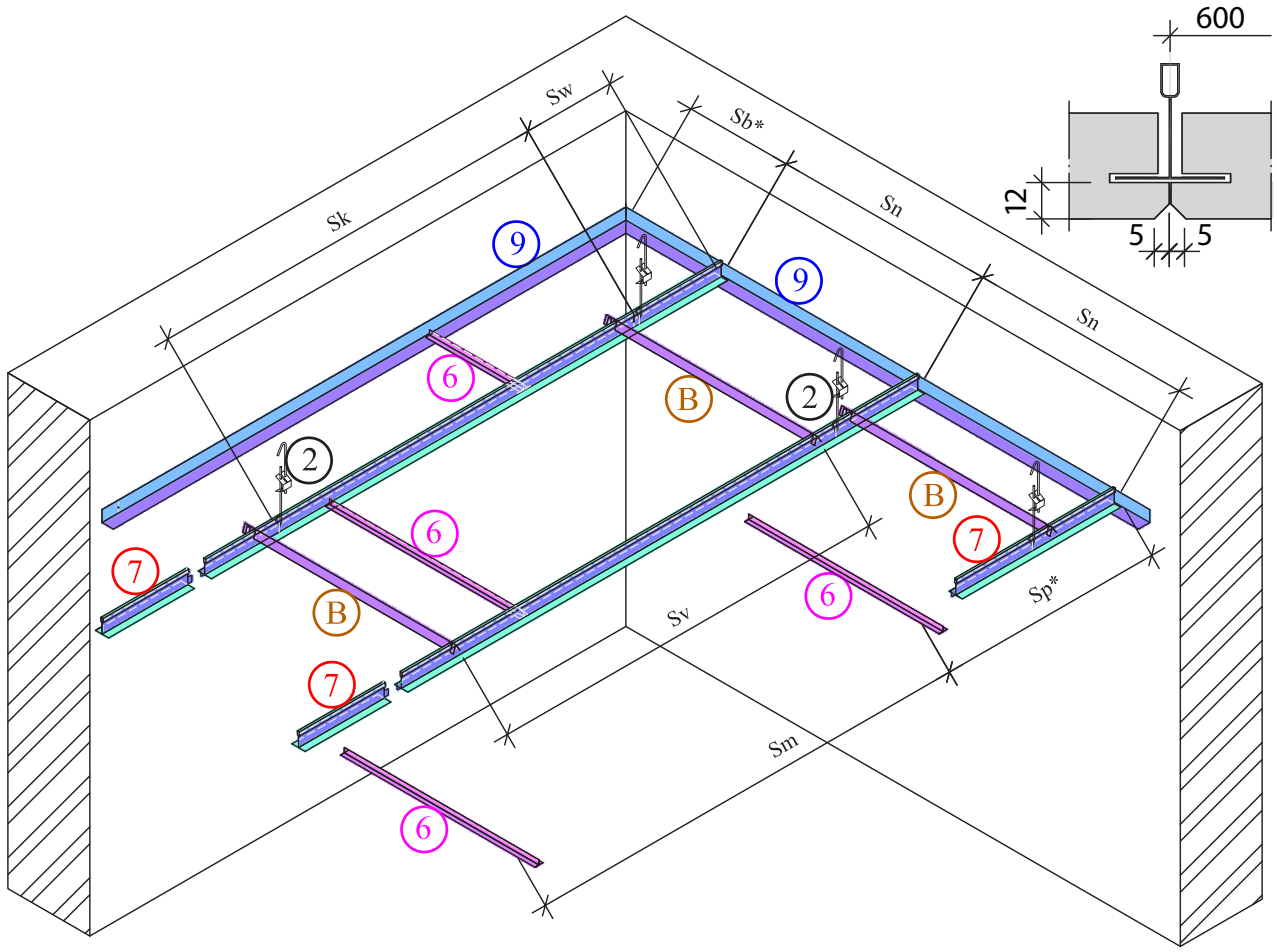
Note — under larger load the step between the hangers must be reduced proportionally

- (Sp*≤ Sm); (Sb*≤ Sn)..



Sliding of CEWOOD panels into T-profile frame

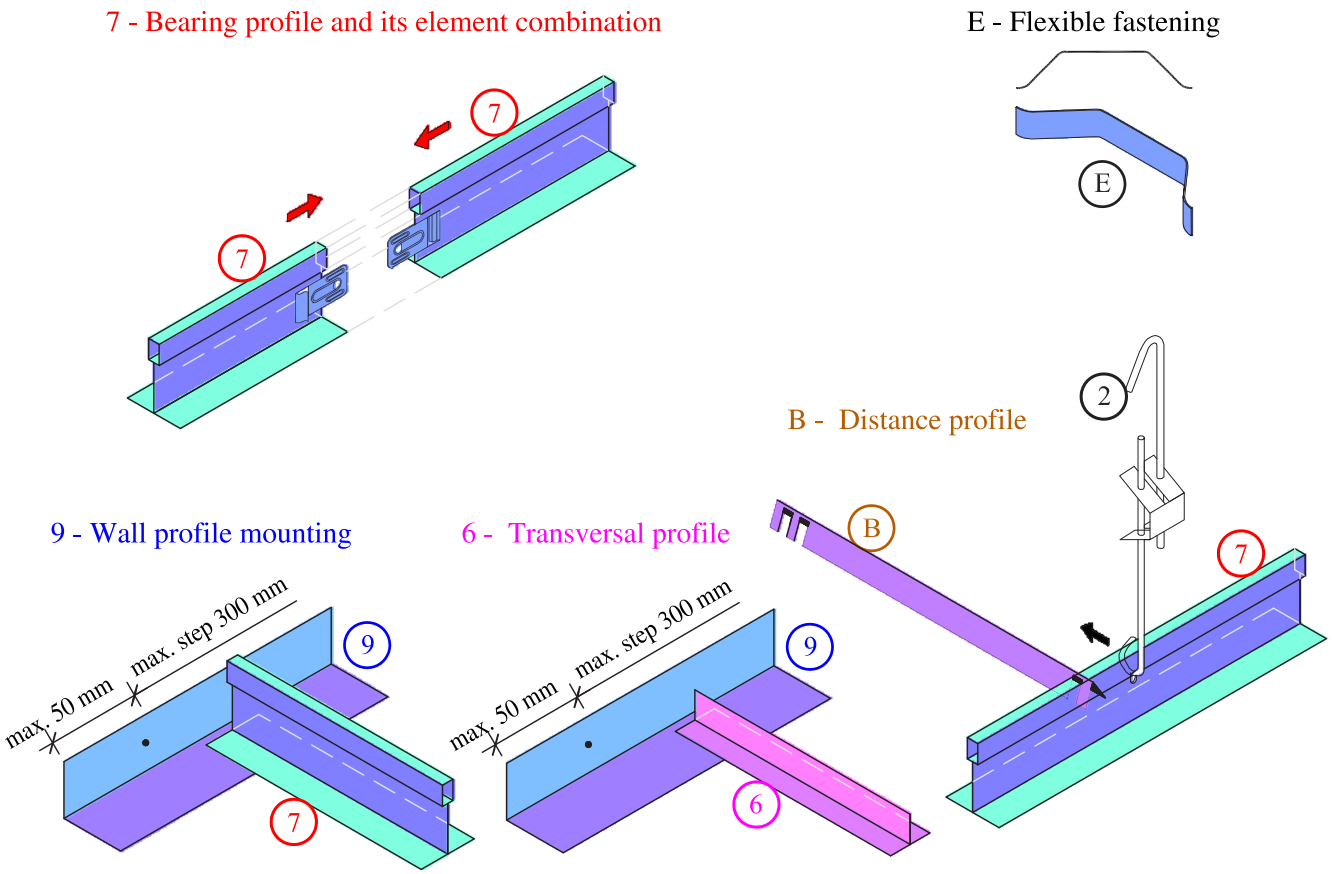
CEWOOD acoustic panel edge profile P5H



Tab. 5.2. Approximate material consumption per 100 m².

Nr.	Designation	Mounting element	Unit	On ceiling 100 m² (*)	
				Configuration of profiles 600/600	Configuration of profiles 600/1200
1.	1	CEWOOD panel	pcs. m²	308 110.9	151 108.7
2.	7	Bearing profile T-35/38	r.m.	165	165
3.	B	Distance profile	pcs.	154	154
4.	9	Wall profile L24/24	r.m.	45	45
5.	6	Transverse profile l = 590 mm	pcs.	297	154
6.	E	Flexible fastening	pcs.	75	75
7.	2	Quick suspension.	pcs.	140	140
All indicators in the table are shown approximately and without surpluses. (*)Assumed room for calculation 6100x16400 mm.					

Frame elements



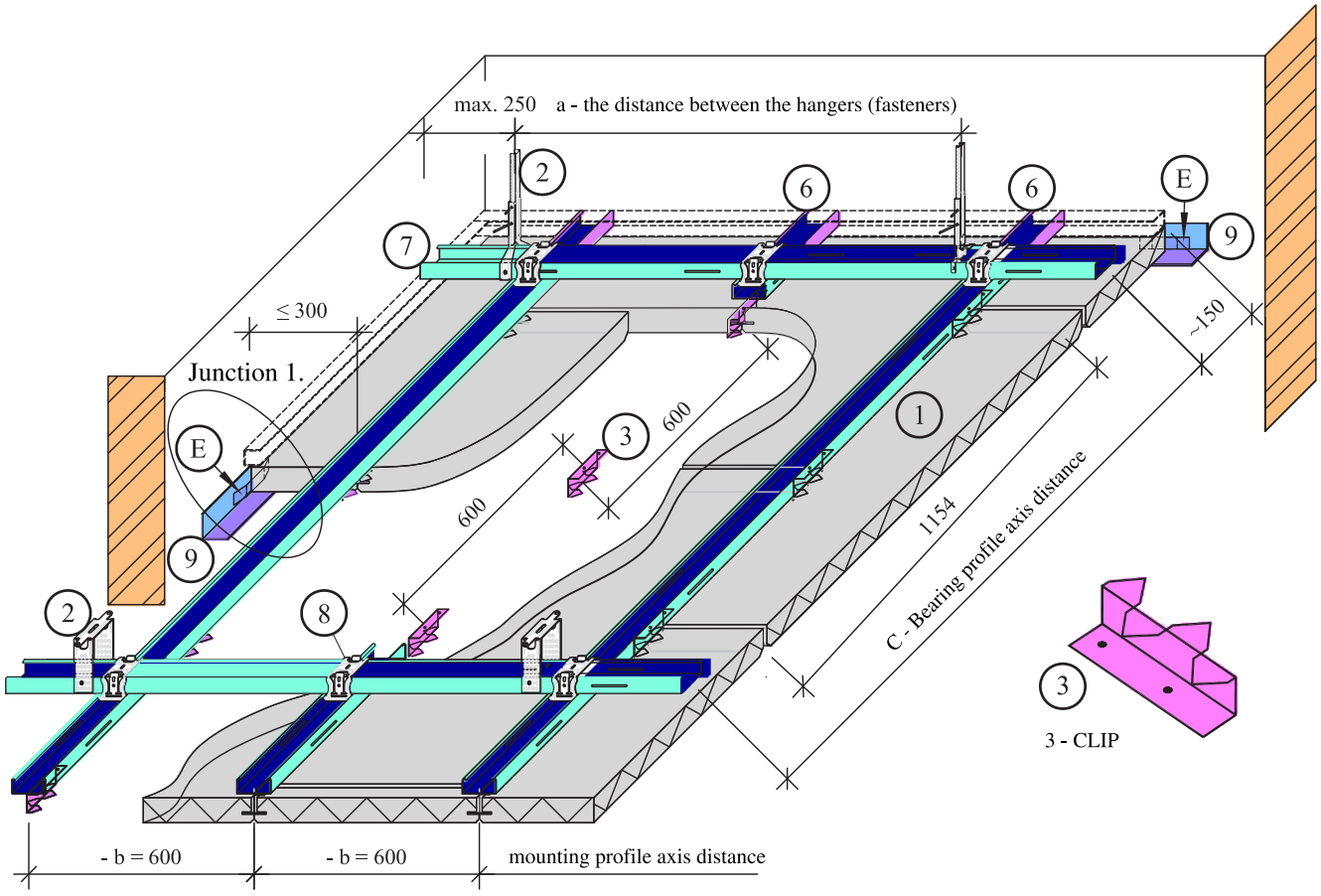
Mounting

1. Attach wall profile 9 at the wall.
2. Divide edge length in equal sections according to distances of the bearing profiles of the frame.
3. Mount the "quick suspension" 2 with step ≤ 1200 mm and attach the bearing profile 7 to it.
4. Adjust heights and distances of the bearing profile 7.
5. Slide CEWOOD 35 mm panel into the grooves of the panel on/between the bearing profiles, starting from the middle of the room.
6. Insert transversal profile 6 and fasten the bearing profiles by placing the distance profile B on them. Slide in the next plate.
7. To insert the next panel, slightly push the bearing profile sideways. Distance profile B step Sv ≤ 1200 mm.
8. Place lateral CEWOOD panels approximately 10mm away from the wall and fasten with the flexible fastening E.

6. MOUNTING OF CEWOOD PANELS ON TIN CLIPS

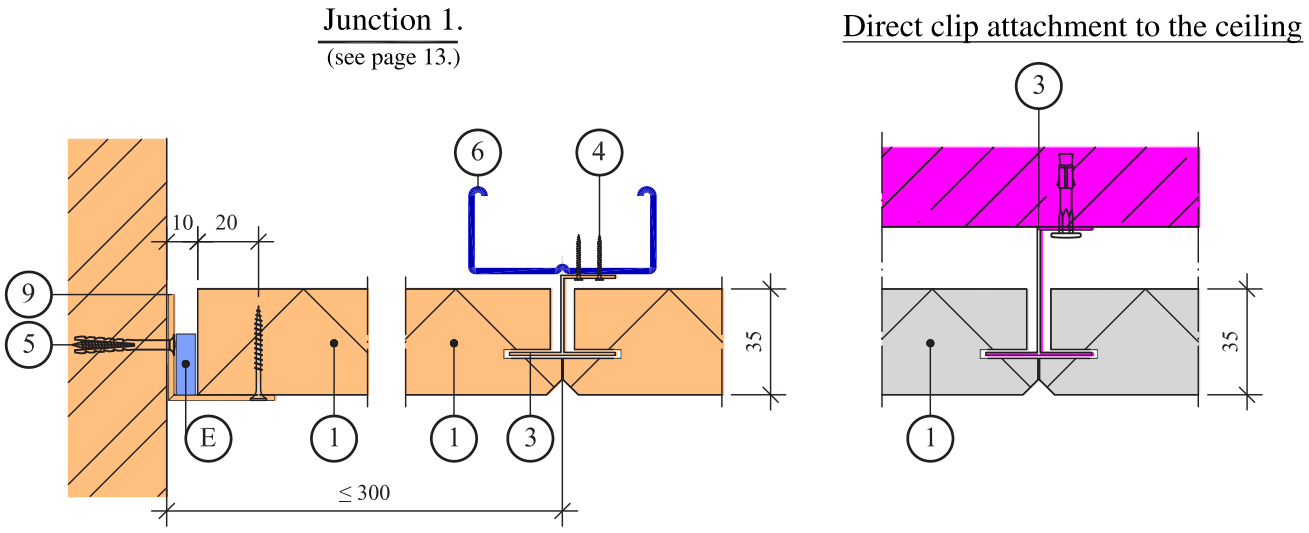
The frame is built form Knauf CD profiles 60/27/0.6 arranged perpendicularly to each other. Configure CD profiles, fasten at the bearing structures and connect to each other according to *Knauf* instructions D11 and D112. Join CD bearing and mounting profiles together with Knauf cross-connection panel.

Fasten CD profile frame at the bearing structures with U-suspension, wire suspension or so-called quick suspension as well as nonius bracket. Hanger elements and load carrying capacity are shown in Tab. 6.2., page 15.



Explanation of numeration-designations:

1 - CEWOOD acoustic panel - 35x(600x600; 600x1200).
2 - Hanger
3 - CLIP.
4 - Assembling bolt 4.0 x 25 mm.
5 - Screw plug, wedge anchor — match dimensions to wall structure.
6 - Mounting profile (*Knauf* CD 60/27/0.6 mm).
7 - Bearing profile (*Knauf* CD 60/27/0.6 mm).
8 - Cross-connection plate for CD profile 60x27x0,6 mm (bend by 90° before mounting). Alternative: 2x anchor angle for CD profile 60x27x0.6 mm (bend before mounting).
9 - Wall profile L35/35 mm (fasten along perimeter of walls).
E – Flexible fastening.



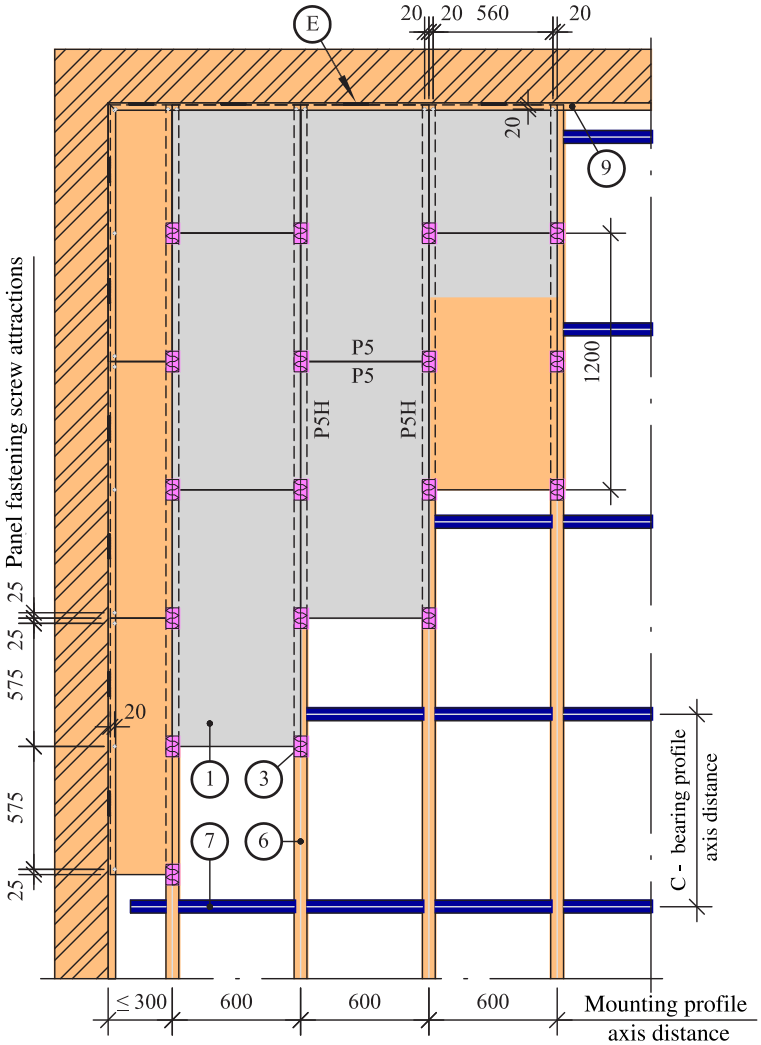
Tab. 6.1. Approximate material consumption per 100 m².

No.	Designation	Mounting element	Unit	On ceiling 100 m² (*)	
				Configuration of profiles 600/600	Configuration of profiles 600/1200
1.	1	CEWOOD panel	pcs. m²	308 110.88	154 110.88
2.	7	Bearing profile CD 60/27/0.6 mm	r.m.	85.4	85.4
3.	6	Mounting profile CD 60/27/0.6 mm	r.m.	164	164
4.	9	Wall profile L35/35	r.m.	45	45
5.	3	CLIP	pcs.	270	270
6.	E	Flexible fastening	pcs.	75	75
7.	2	Hanger	pcs.	160	160
8.	8	Cross-connection plate for CD profile	pcs.	240	240
9.	4	Assembling bolt 4.0 x 25 mm	pcs.	540	540
All indicators in the table are shown approximately and without surpluses. (*)Assumed room for calculation 6100x16400 mm.					

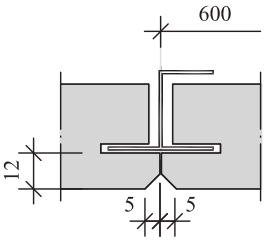
Configuration of CEWOOD panels 1200 x 600

Fig. 6.3. (view upwards)

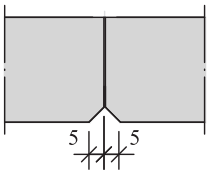
Each CEWOOD panel 1200x600 is supported by 6 clips. Panel's longitudinal edge profile P5H, end profile P5.

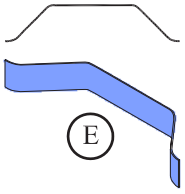


CEWOOD acoustic panel edge profile P5H



CEWOOD acoustic panel edge profile P5





E - Flexible fastening

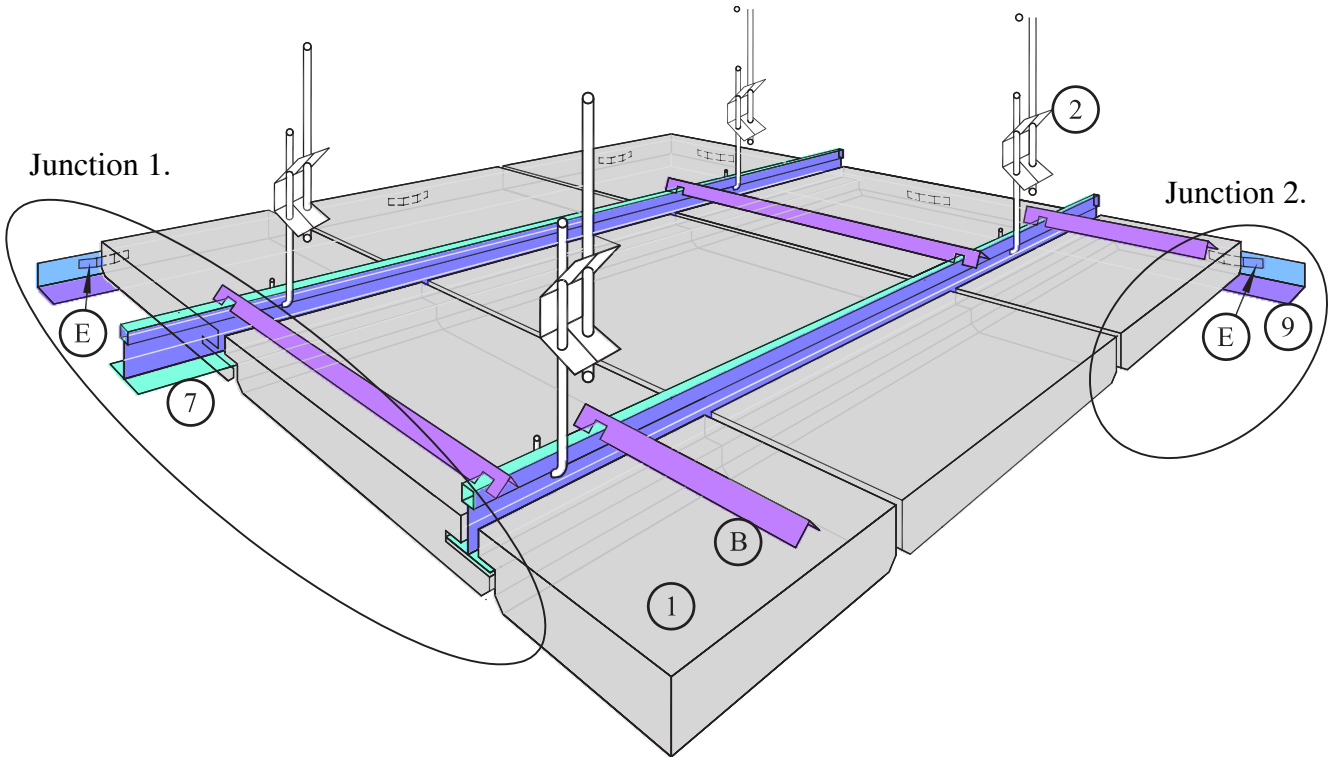
Explanation of numeration-designations:

1 - CEWOOD acoustic panel - 35x(600x600; 600x1200).
3 - CLIP.
6 - Mounting profile (Knauf CD 60/27/0.6 mm).
7 - Bearing profile (Knauf CD 60/27/0.6 mm).
9 - SWall profile L35/35 mm (fastened along wall perimeter).
E - Flexible fastening.

TTab. 6.2. Maximum frame distances.

Bearing profile CD 60/27/0.6 mm	Mounting profile CD 60/27/0,6 mm	a - distances/fastenings of hangers Load class kN/m²			Only ceilings under ceilings EI90
axis distance – C - mm	axis distance - b - mm	to 0.15	to 0.30	to 0.50	to 0.65
600	600	1150	900	750	700
900	600	1000	800		
1000	600	950	750		
1200	600	900			
Use hangers with load resistance 0.40 kN					

7. MOUNTING OF CEWOOD PANELS ON T-PROFILE FRAME



Mounting of CEWOOD panels on T-profile frame. Wall profile P5S.

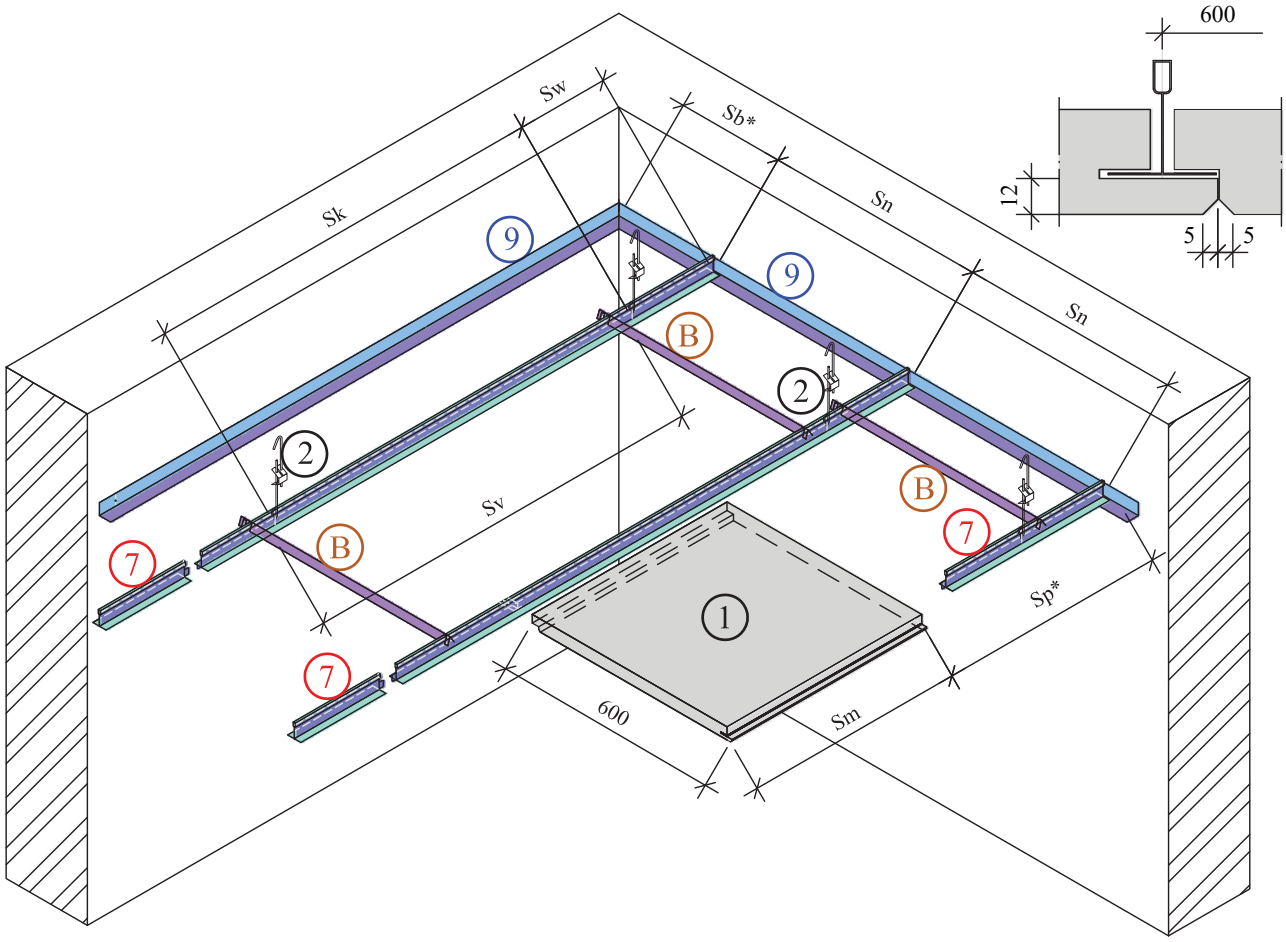
Suspended ceiling is supported by the bearing ledges of T-profile frame. These ceiling mounting recommendations intend using DONN DX35 profiles manufactured by Knauf. Similar profiles with equal load bearing capacity by other manufacturers can also be used. The structure allows lifting any panel, by finding the moving part of the panel, lifting it and accessing the inter-ceiling space. To ensure larger access openings, dismantle also some distance profiles B (spacers).

Explanation of numeration-designations:

1 - CEWOOD acoustic panel - 35x(600x600).
2 - Quick suspension.
7 - Bearing profile T-35/38.
9 - Wall profile L24/24 mm.
B - Distance profile.
E - Flexible fastening.

ZFig. 7.2. T-profile frame.

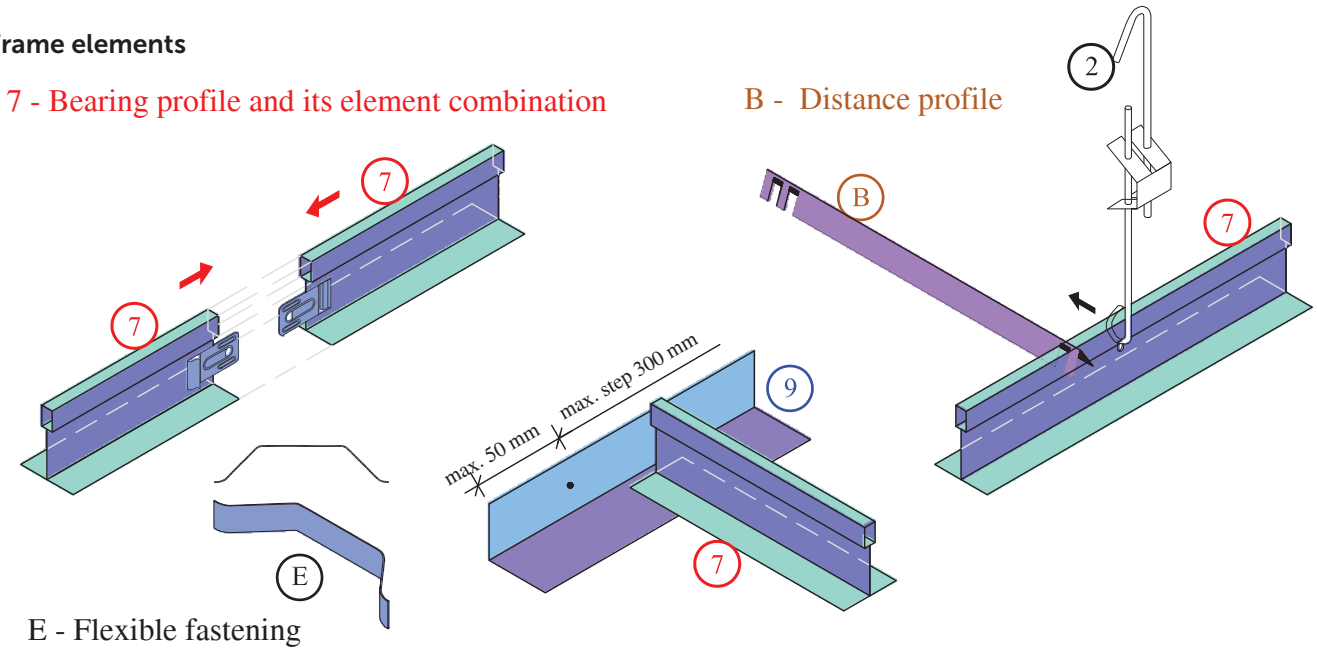
CEWOOD acoustic panel edge profile P5S



Frame elements

7 - Bearing profile and its element combination

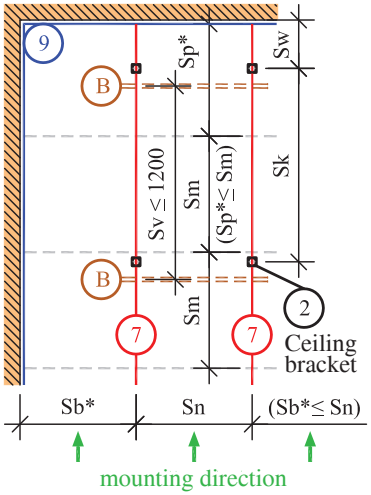
B - Distance profile



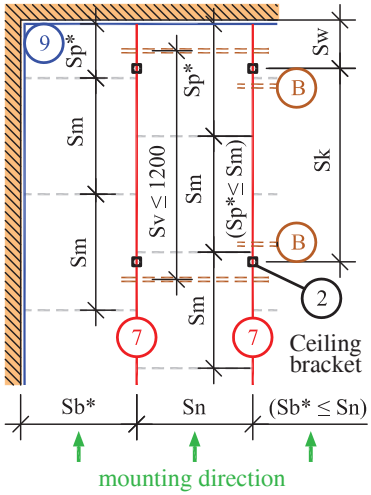
E - Flexible fastening

T-shape configuration of frame elements

a) Configuration of profiles for mounting of module 600x600mm.



b) Configuration of profiles for alternate mounting of module 600x600mm



Explanation of numeration-designations:

1 - CEWOOD acoustic panel - 35x(600x600).
2 - Quick suspension.
7 - Bearing profile T-35/38.
9 - Wall profile L24/24 mm.
B - Distance profile.
E - Flexible fastening.

Tab. 7.1. Hanger (load bearing capacity 0.15 kN) step.

Load kN/m²	0.15	0.20	0.25	0.30
Step between bearing profile ledges Sn mm	600	600	600	600
Step between hangers Sk mm	≤1100	≤1000	≤1000	≤800
Step between hanger and wall Sk mm	≤250	≤200	≤200	≤200
Panel size Sm mm	600	600	600	600
Sb* and Sp* starting or ending panel size and step between the bearing profile ledges are adjusted depending on size of the room. Max. distance of profile ledge from the wall is 600mm.				

Note — under larger load the step between the hangers must be reduced proportionally
- (Sp*≤ Sm); (Sb*≤ Sn).

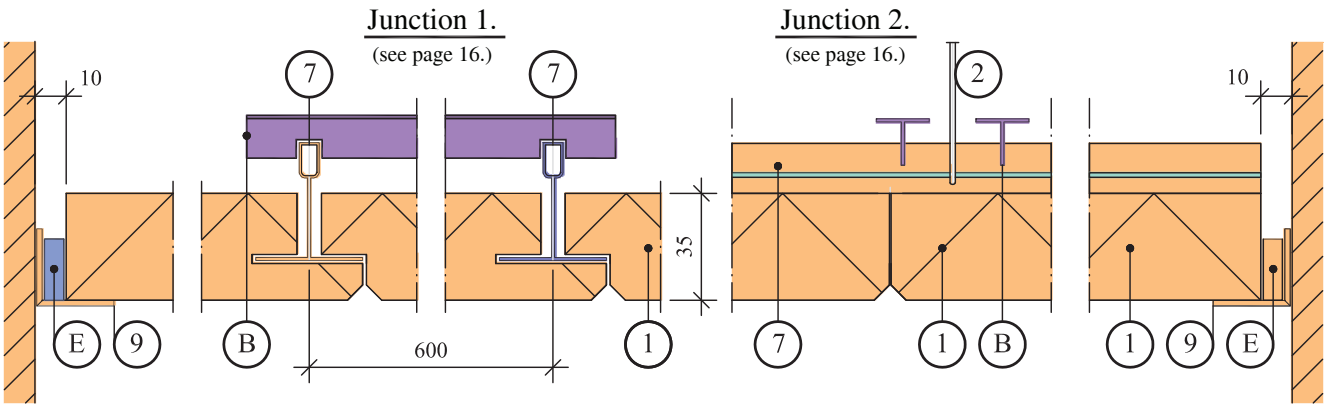
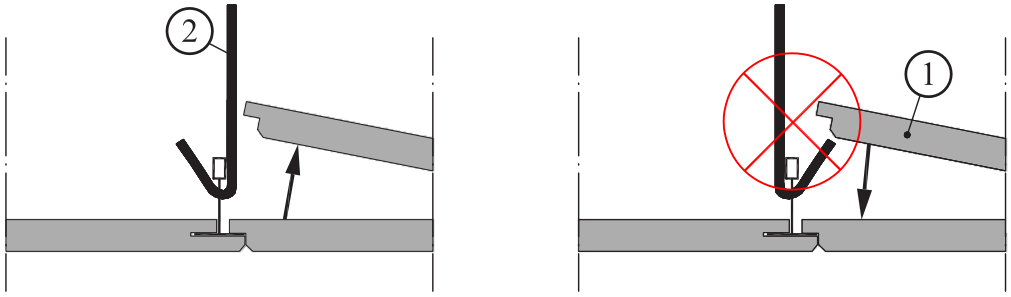


Fig. 7.5. Orientation of quick suspension mounting.



Mounting

1. Attach wall profile 9 at the wall;
2. Divide edge length in equal sections according to distances of bearing profiles of the frame;
3. Mount "quick suspension" 2 or other hanger to which the bearing profile 7 is fastened;

Observe orientation of the hanger hook depending on mounting direction of the panels — Figure 4.2;

4. Adjust heights and distances of the bearing profile 7;
5. Mount (install) CEWOOD 35 mm panels on/between the bearing profiles, starting from the middle of the room;
6. Fasten the bearing profiles by mounting the distance profile B with step Sv ≤ 1200 mm above them.
7. Place lateral CEWOOD panels approximately 10mm away from the wall and fasten with the flexible fastening E.

Tab. 7.2. Approximate material consumption per 100 m².

No.	Designation	Mounting element	Unit	On ceiling 100 m² (*)	
				Module 600/600	Module 600/1200
1.	1	CEWOOD panel	pcs. m²	308 113.7	151 111.4
2.	7	Bearing profile T-35/38	r.m.	165	165
3.	B	Distance profile	pcs.	154	154
4.	9	Wall profile L24/24	r.m.	45	45
5.	E	Flexible fastening	pcs.	75	75
6.	2	Quick suspension	pcs.	140	140
All indicators in the table are shown approximately and without surpluses. (*)Assumed room for calculation 6100x16400 mm.					

MATERIAL FOR COMFORT AND HEALTH

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