

Drawing nr.	Structure layers	R _w [dB]
SPA70-RW-01-EN	Sono 150	33
SPA70-RW-02-EN	SPA S 100 + 1 x Gypsum board or steel plate	34
SPA70-RW-03-EN	SPA E 150 + studs 50 mm + mineral wool 50 mm + fabric + Design-profile 30%	35
SPA70-RW-04-EN	SPA E 150 + 1 x Gypsum board or steel plate	36
SPA70-RW-05-EN	Sono 150 + 1 x Gypsum board or steel plate	38
SPA70-RW-06-EN	SPA E 150 + 2 x Gypsum board or steel plate	39
SPA70-RW-07-EN	SPA E 150 + studs 100 mm + mineral wool 100 mm + fabric + Design-profile 30%	39
SPA70-RW-08-EN	Sono 150 + air gap 5 mm + SPA E 100	40
SPA70-RW-09-EN	SPA S 100 + studs 50 mm + mineral wool 50 mm + 1 x Gypsum board or steel plate	43
SPA70-RW-10-EN	Sono 150 + studs 50 mm + mineral wool 50 mm + 1 x Gypsum board or steel plate	45
SPA70-RW-11-EN	SPA S 100 + studs 50 mm + mineral wool 50 mm + 2 x Gypsum board or steel plate	47
SPA70-RW-12-EN	SPA E 100 + mineral wool 50 mm + air gap 50 mm + SPA E 100	48
SPA70-RW-13-EN	Sono 150 + studs 50 mm + mineral wool 50 mm + 2 x Gypsum board or steel plate	48
SPA70-RW-14-EN	SPA E 100 + mineral wool 50 mm + air gap 50 mm + SPA E 150	49
SPA70-RW-15-EN	SPA S 100 + mineral wool 50 mm + air gap 50 mm + SPA S 100	53
SPA70-RW-16-EN	Sono 100 + mineral wool 50 mm + air gap 50 mm + SPA S 100	53
SPA70-RW-17-EN	Sono 100 + mineral wool 50 mm + air gap 50 mm + SPA S 150	54
SPA70-RW-18-EN	SPA S 100 + mineral wool 50 mm + air gap 50 mm + SPA S 150	54
SPA70-RW-19-EN	Sono 150 + air gap 100 mm + SPA E 100	54
SPA70-RW-20-EN	Sono 100 + mineral wool 50 mm + air gap 50 mm + Sono 100	55
SPA70-RW-21-EN	Sono 150 + mineral wool 50 mm + air gap 50 mm + SPA E 100	55
SPA70-RW-22-EN	Sono 150 + mineral wool 50 mm + air gap 50 mm + Sono 100	57
SPA70-RW-23-EN	Sono 150 + air gap 100 mm + SPA S 150	57
SPA70-RW-24-EN	Sono 150 + mineral wool 50 mm + air gap 150 mm + SPA E 100	57
SPA70-RW-25-EN	Sono 150 + air gap 100 mm + SPA S 100	58
SPA70-RW-26-EN	Sono 150 + mineral wool 50 mm + air gap 50 mm + SPA S 150	59
SPA70-RW-27-EN	Sono 150 + mineral wool 50 mm + air gap 50 mm + SPA S 100 + 1 x Gypsum board or steel plate	61
SPA70-RW-28-EN	Sono 150 + air gap 100 mm + SPA S 100 + 1 x Gypsum board or steel plate	62
SPA70-RW-29-EN	Sono 150 + mineral wool 150 mm + air gap 50 mm + SPA S 100	63
SPA70-RW-30-EN	Sono 150 + mineral wool 100 mm + SPA S 100 + 1 x Gypsum board or steel plate	64
SPA70-RW-31-EN	Sono 150 + mineral wool 200 mm + SPA S 100	64

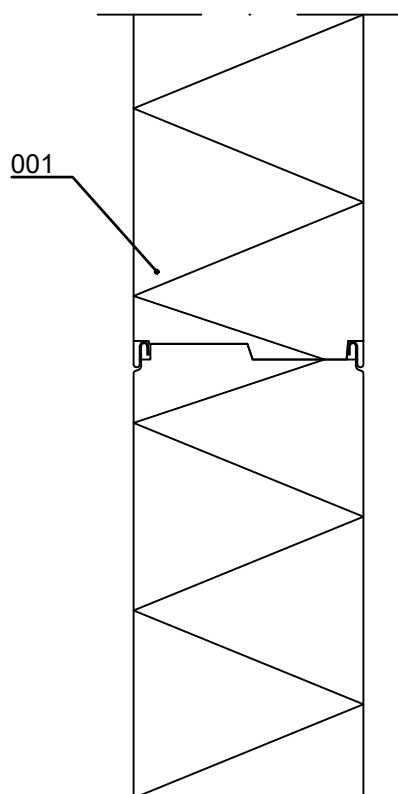
City sector	Block	Site/Reg. nr.	File nr.		
Building type			Drawing type		
Building, Name and address			Nr.		
 Ruukki Construction Oy Vimpelintie 661 FI - 62900 ALAJÄRVI FINLAND tel +358 2059 127 fax +358 2059 27700 www.ruukki.com			Contents of drawing		Scale
			RUUKKI ACOUSTIC STRUCTURE TYPES		
Date	Designer	Work nr.	Work nr.	Drw. nr.	Rev.
02.09.2026					
Drawn by	Checked				
Ruukki					



Contents of drawing

Sound insulation structure type
Sono 150

Date 02.09.2026	Rev. date	Work nr.	Drawing nr. SPA70-RW-01-EN
Drawn by Ruukki	Rev.		
Scale 1:5	Building		File nr.



f [Hz]	1/3	1/1
	R [dB]	R [dB]
50	19,7	19,4
63	25,1	
80	16,8	
100	19,1	21,8
125	23,8	
160	24,9	
200	24,4	26,9
250	28,7	
315	29,6	
400	31,8	33,0
500	33,2	
630	34,4	
800	33,0	27,5
1000	28,6	
1250	24,6	
1600	33,9	35,8
2000	38,4	
2500	36,2	
3150	42,0	45,4
4000	47,5	
5000	51,8	

☐ 001. Sandwich panel, Sono 150 mm with 30% perforating

$R_w = 33$ dB (Measurement)

$R_w + C_{tr} = 29$ dB (Measurement)

☒ Ruukki's delivery

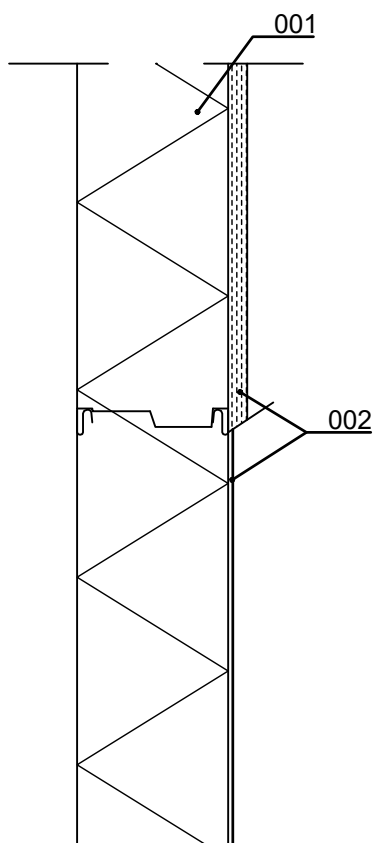
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Contents of drawing

Sound insulation structure type
SPA S 100 + 1 x Gypsum board or steel plate

Date 02.09.2026	Rev. date	Work nr.	Drawing nr. SPA70-RW-02-EN
Drawn by Ruukki	Rev.		
Scale 1:5	Building		File nr.



f [Hz]	1/3 R [dB]	1/1 R [dB]
50	23,3	18,2
63	27,4	
80	14,1	
100	25,8	25,5
125	24,6	
160	26,3	
200	23,9	26,9
250	29,8	
315	30,1	
400	30,8	29,6
500	28,8	
630	29,5	
800	31,6	32,9
1000	33,3	
1250	34,4	
1600	35,5	35,9
2000	36,6	
2500	35,7	
3150	42,5	46,7
4000	52,9	
5000	54,7	

- ☐ 001. Sandwich panel, SPA S 100 mm
- ☐ 002. 1 x Gypsum board or steel plate (~10 kg/m²)

$R_w = 34$ dB (Measurement)

$R_w + C_{tr} = 31$ dB (Measurement)

☒ Ruukki's delivery

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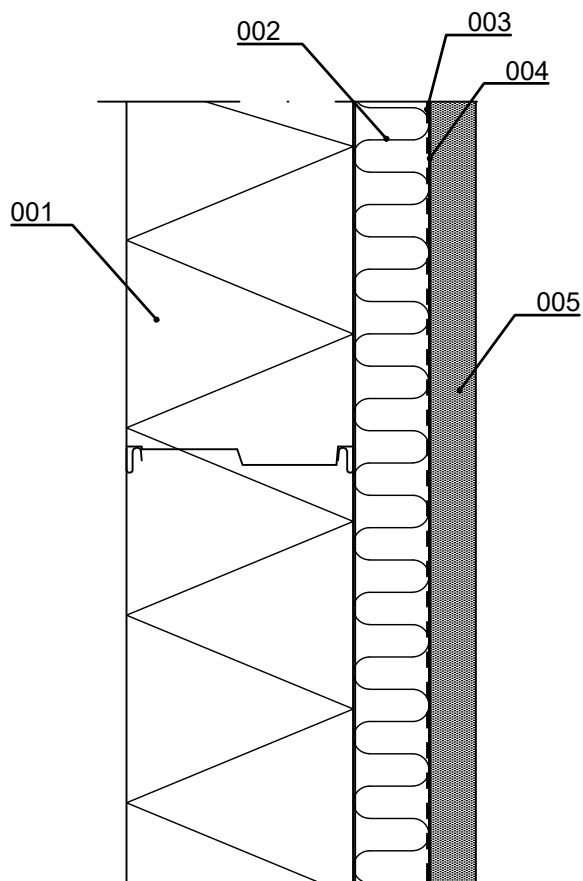


Contents of drawing

Sound insulation structure type

SPA E 150 + studs 50 mm + mineral wool 50 mm
+ fabric + Design profile 30%

Date 02.09.2026	Rev. date	Work nr.	Drawing nr. SPA70-RW-03-EN
Drawn by Ruukki	Rev.		
Scale 1:5	Building		File nr.



f [Hz]	1/3	1/1
	R [dB]	R [dB]
50	19,4	19,2
63	31,2	
80	16,2	
100	22,0	22,6
125	22,5	
160	23,3	
200	21,5	
250	25,6	24,2
315	28,0	
400	31,2	
500	34,0	32,9
630	34,3	
800	31,7	
1000	27,8	30,7
1250	36,9	
1600	45,3	
2000	44,3	45,8
2500	49,1	
3150	55,2	
4000	60,5	58,0
5000	60,5	

- ☐ 001. Sandwich panel, SPA E 150 mm
- ☐ 002. Mineral wool 50 mm
- ☐ 003. Studs H50 c/c600
- ☐ 004. Fabric, dark dust cover 80-100 g/m², air permeability 500l/m²
- ☐ 005. Any Ruukki Design profile with 30% perforating

 $R_w = 35 \text{ dB}$ (Measurement) $R_w + C_{tr} = 30 \text{ dB}$ (Measurement)☒ Ruukki's delivery

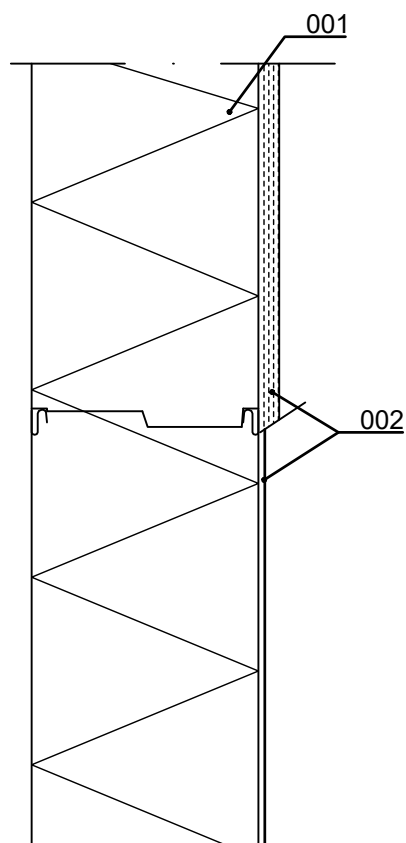
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Contents of drawing

Sound insulation structure type
SPA E 150 + 1 x Gypsum board or steel plate

Date 02.09.2026	Rev. date	Work nr.	Drawing nr. SPA70-RW-04-EN
Drawn by Ruukki	Rev.		
Scale 1:5	Building		File nr.



f [Hz]	1/3 R [dB]	1/1 R [dB]
50	17,3	
63	18,7	18,6
80	20,2	
100	21,8	
125	23,5	23,3
160	25,1	
200	26,8	
250	28,4	28,2
315	30,1	
400	31,6	
500	32,9	32,7
630	33,9	
800	34,2	
1000	33,2	34,3
1250	36,0	
1600	38,3	
2000	39,0	39,0
2500	39,7	
3150	42,2	
4000	44,5	44,1
5000	46,6	

- ☐ 001. Sandwich panel, SPA E 150 mm
- ☐ 002. 1 x Gypsum board or steel plate (~10 kg/m²)

$R_w = 36$ dB (Prediction)

$R_w + C_{tr} = 32$ dB (Prediction)

☒ Ruukki's delivery

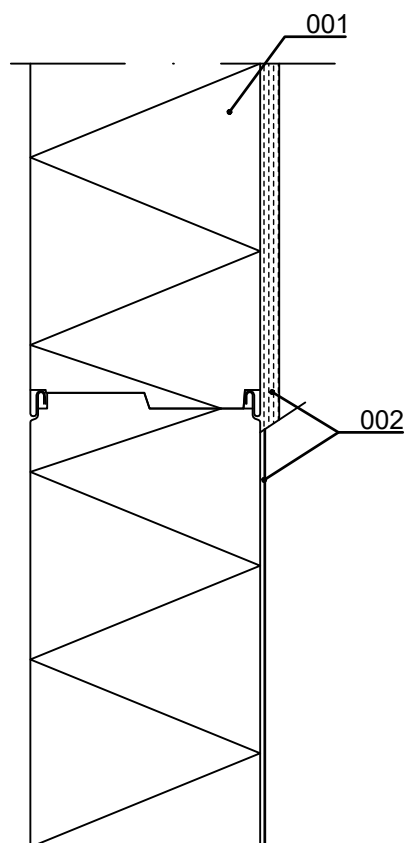
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Contents of drawing

Sound insulation structure type
Sono 150 + 1 x Gypsum board or steel plate

Date 02.09.2026	Rev. date	Work nr.	Drawing nr. SPA70-RW-05-EN
Drawn by Ruukki	Rev.		
Scale 1:5	Building		File nr.



f [Hz]	1/3 R [dB]	1/1 R [dB]
50	20,2	
63	21,5	21,4
80	23,0	
100	24,5	
125	26,1	25,9
160	27,7	
200	29,4	
250	31,0	30,8
315	32,6	
400	34,2	
500	35,6	35,4
630	36,8	
800	37,5	
1000	37,3	36,5
1250	35,0	
1600	38,6	
2000	40,8	40,4
2500	42,6	
3150	45,3	
4000	47,8	47,3
5000	50,0	

- ☐ 001. Sandwich panel, Sono 150 mm with 30% perforating
- ☐ 002. 1 x Gypsum board or steel plate (~10 kg/m²)

$R_w = 38$ dB (Prediction)

$R_w + C_{tr} = 35$ dB (Prediction)

☒ Ruukki's delivery

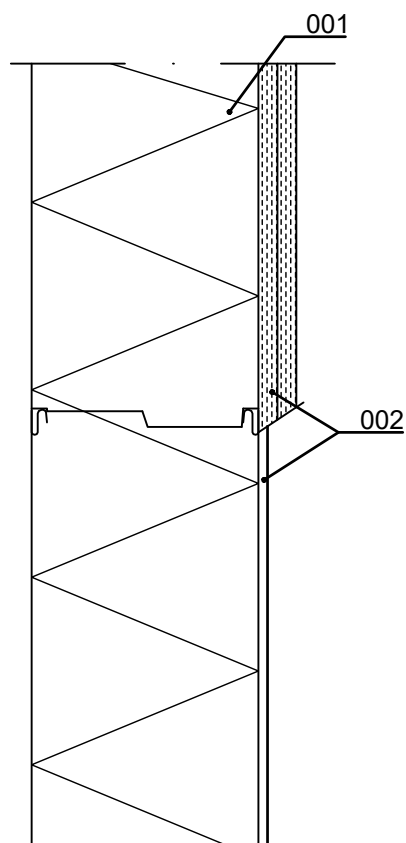
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Contents of drawing

Sound insulation structure type
SPA E 150 + 2 x Gypsum board or steel plate

Date 02.09.2026	Rev. date	Work nr.	Drawing nr. SPA70-RW-06-EN
Drawn by Ruukki	Rev.		
Scale 1:5	Building		File nr.



f [Hz]	1/3 R [dB]	1/1 R [dB]
50	19,6	21,0
63	21,2	
80	22,8	
100	24,5	26,1
125	26,3	
160	28,0	
200	29,8	31,3
250	31,5	
315	33,2	
400	34,9	36,1
500	36,4	
630	37,6	
800	38,4	38,9
1000	38,3	
1250	40,3	
1600	41,6	41,1
2000	41,1	
2500	40,5	
3150	43,1	45,0
4000	45,4	
5000	47,7	

- ☐ 001. Sandwich panel, SPA E 150 mm
- ☐ 002. 2 x Gypsum board or steel plate (~10 kg/m² per board or total weight ~20 kg/m²)

$R_w = 39$ dB (Prediction)

$R_w + C_{tr} = 36$ dB (Prediction)

☒ Ruukki's delivery

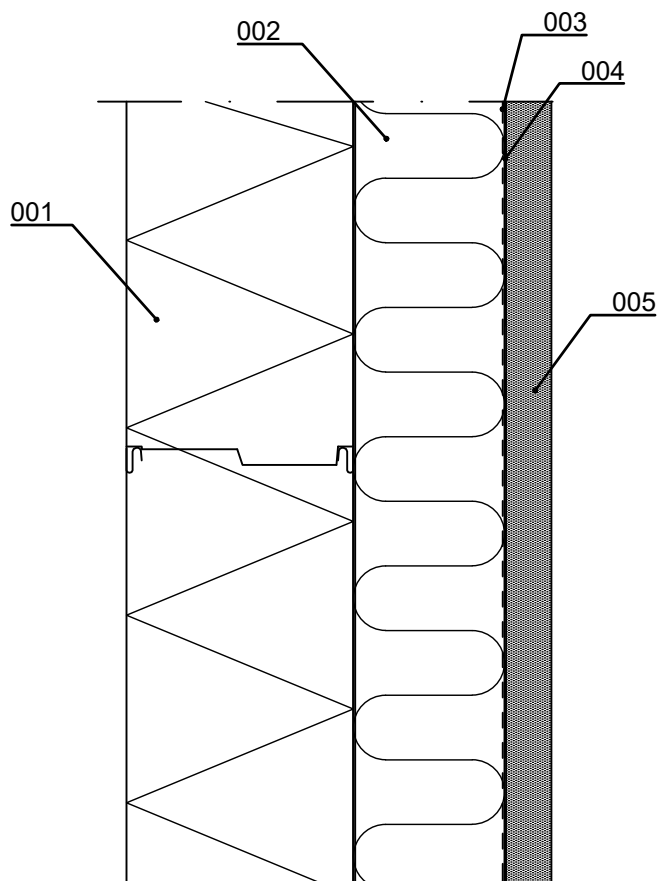
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Contents of drawing

Sound insulation structure type
SPA E 150 + studs 100 mm + mineral
wool 100 mm + fabric + Design profile 30%

Date 02.09.2026	Rev. date	Work nr.	Drawing nr. SPA70-RW-07-EN
Drawn by Ruukki	Rev.		
Scale 1:5	Building		File nr.



f [Hz]	1/3	1/1
	R [dB]	R [dB]
50	21,3	18,6
63	31,4	
80	14,8	
100	25,8	24,5
125	24,4	
160	23,6	
200	24,5	
250	28,1	27,3
315	33,1	
400	37,0	
500	39,8	38,4
630	39,0	
800	37,2	
1000	34,0	36,7
1250	43,0	
1600	51,4	
2000	50,7	52,1
2500	55,8	
3150	59,1	
4000	62,5	60,7
5000	61,1	

- ☐ 001. Sandwich panel, SPA E 150 mm
- ☐ 002. Mineral wool 100 mm
- ☐ 003. Studs H100 c/c600
- ☐ 004. Fabric, dark dust cover 80-100 g/m², air permeability 500l/m²
- ☐ 005. Any Ruukki Design profile with 30% perforating

$R_w = 39$ dB (Measurement)

$R_w + C_{tr} = 34$ dB (Measurement)

☒ Ruukki's delivery

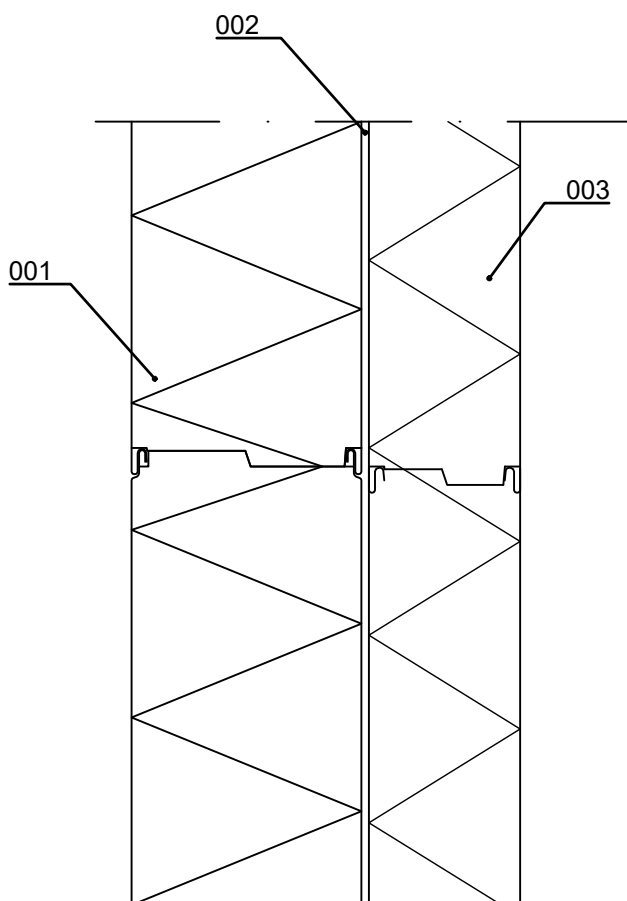
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Contents of drawing

Sound insulation structure type
Sono 150 + air gap 5 mm + SPA E 100

Date 02.09.2026	Rev. date	Work nr.	Drawing nr. SPA70-RW-08-EN
Drawn by Ruukki	Rev.		
Scale 1:5	Building		File nr.



f [Hz]	1/3	1/1
	R [dB]	R [dB]
50	20,9	22,5
63	33,1	
80	20,8	
100	26,7	27,5
125	25,7	
160	33,0	
200	32,2	31,7
250	31,9	
315	31,1	
400	33,9	36,8
500	38,4	
630	41,2	
800	42,4	38,4
1000	41,1	
1250	35,3	
1600	42,3	46,2
2000	50,3	
2500	54,5	
3150	59,0	61,8
4000	63,6	
5000	65,6	

- ☐ 001. Sandwich panel, Sono 150 mm with 30% perforating. Perforated surface outwards.
- ☐ 002. Air gap 5 mm
- ☐ 003. Sandwich panel, SPA E 100 mm

$R_w = 40$ dB (Measurement)

$R_w + C_{tr} = 37$ dB (Measurement)

☒ Ruukki's delivery

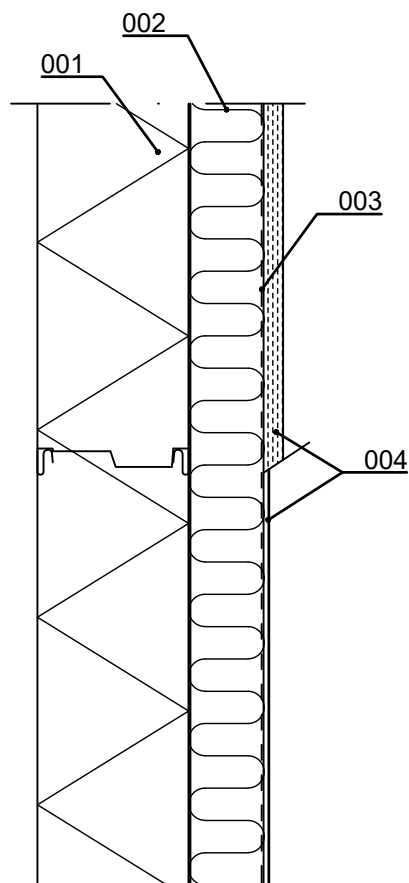
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Contents of drawing

Sound insulation structure type
SPA S 100+studs 50 mm+mineral wool 50 mm
+ 1 x Gypsum board or steel plate

Date 02.09.2026	Rev. date	Work nr.	Drawing nr. SPA70-RW-09-EN
Drawn by Ruukki	Rev.		
Scale 1:5	Building		File nr.



f [Hz]	1/3 R [dB]	1/1 R [dB]
50	18,0	19,0
63	19,2	
80	19,9	
100	21,5	23,4
125	23,1	
160	27,2	
200	32,7	35,5
250	37,3	
315	39,3	
400	41,0	42,4
500	42,6	
630	44,1	
800	45,5	46,2
1000	46,5	
1250	46,8	
1600	45,6	43,2
2000	40,8	
2500	44,7	
3150	49,1	51,4
4000	52,2	
5000	54,8	

- ☐ 001. Sandwich panel, SPA S 100 mm
- ☐ 002. Mineral wool 50 mm
- ☐ 003. Studs H50 c/c600
- ☐ 004. 1 x Gypsum board or steel plate (~10 kg/m²)

$R_w = 43$ dB (Prediction)

$R_w + C_{tr} = 37$ dB (Prediction)

☒ Ruukki's delivery

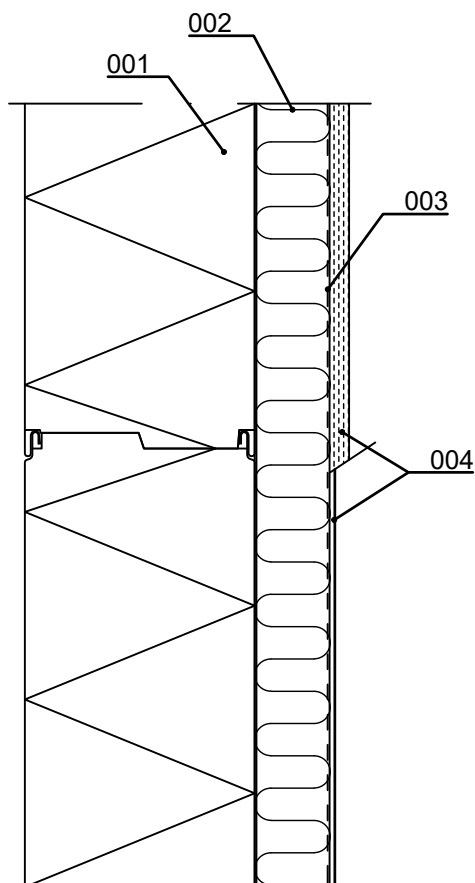
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Contents of drawing

Sound insulation structure type
Sono 150+studs 50 mm+mineral wool 50 mm
+ 1 x Gypsum board or steel plate

Date 02.09.2026	Rev. date	Work nr.	Drawing nr. SPA70-RW-10-EN
Drawn by Ruukki	Rev.		
Scale 1:5	Building		File nr.



f [Hz]	1/3 R [dB]	1/1 R [dB]
50	20,2	
63	21,3	21,1
80	22,0	
100	23,6	
125	25,3	25,6
160	30,1	
200	35,6	
250	38,9	37,8
315	40,5	
400	42,0	
500	43,4	43,2
630	44,6	
800	45,3	
1000	45,1	44,3
1250	42,8	
1600	46,5	
2000	48,6	48,2
2500	50,4	
3150	53,2	
4000	55,6	55,1
5000	57,9	

- ☐ 001. Sandwich panel, Sono 150 mm with 30% perforating. Perforated surface outwards.
- ☐ 002. Mineral wool 50 mm
- ☐ 003. Studs H50 c/c600
- ☐ 004. 1 x Gypsum board or steel plate (~10 kg/m²)

$R_w = 45$ dB (Prediction)

$R_w + C_{tr} = 39$ dB (Prediction)

☒ Ruukki's delivery

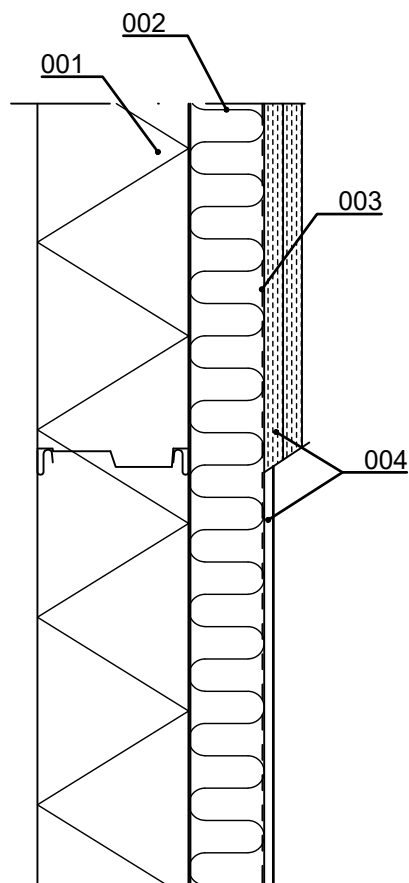
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Contents of drawing

Sound insulation structure type
SPA S 100+studs 50 mm+mineral wool 50 mm
+ 2 x Gypsum board or steel plate

Date 02.09.2026	Rev. date	Work nr.	Drawing nr. SPA70-RW-11-EN
Drawn by Ruukki	Rev.		
Scale 1:5	Building		File nr.



f [Hz]	1/3 R [dB]	1/1 R [dB]
50	20,2	
63	21,5	21,2
80	22,4	
100	24,0	
125	27,7	26,9
160	33,2	
200	38,1	
250	40,3	39,9
315	42,1	
400	43,8	
500	45,5	45,3
630	47,1	
800	48,5	
1000	49,7	49,4
1250	50,1	
1600	49,2	
2000	44,8	46,2
2500	45,8	
3150	50,0	
4000	53,1	52,3
5000	55,7	

- ☐ 001. Sandwich panel, SPA S 100 mm
- ☐ 002. Mineral wool 50 mm
- ☐ 003. Studs H50 c/c600
- ☐ 004. 2 x Gypsum board or steel plate (~10 kg/m² per board or total weight ~20 kg/m²)

$R_w = 47$ dB (Prediction)

$R_w + C_{tr} = 40$ dB (Prediction)

☒ Ruukki's delivery

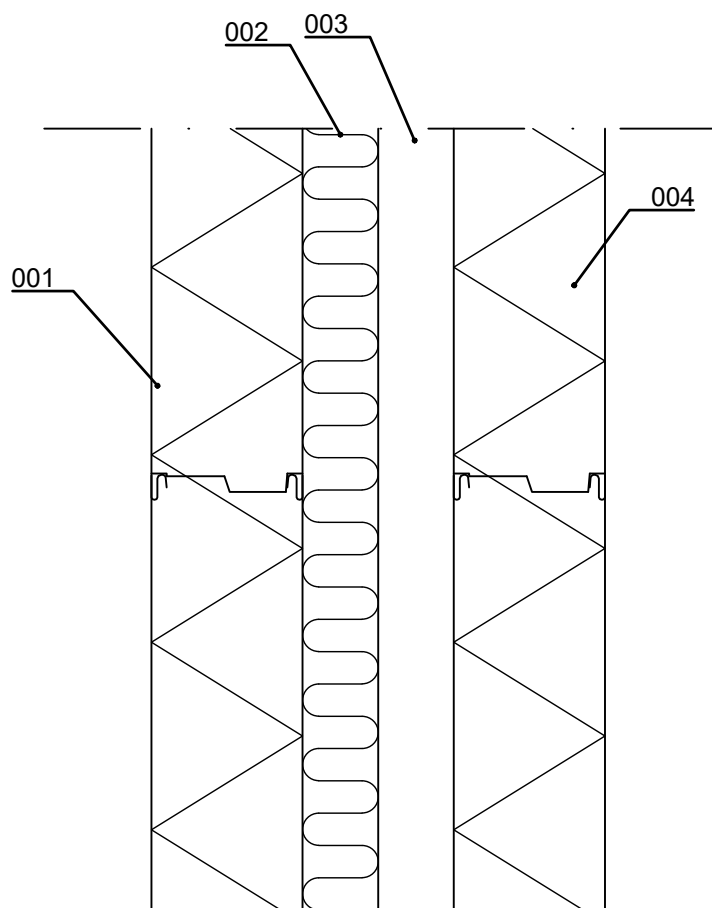
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Contents of drawing

Sound insulation structure type
SPA E 100 + mineral wool 50 mm
+ air gap 50 mm + SPA E 100

Date 02.09.2026	Rev. date	Work nr.	Drawing nr. SPA70-RW-12-EN
Drawn by Ruukki	Rev.		
Scale 1:5	Building		File nr.



f [Hz]	1/3	1/1
	R [dB]	R [dB]
50	19,1	17,4
63	16,4	
80	17,2	
100	20,9	24,1
125	25,8	
160	30,7	
200	35,6	38,8
250	40,4	
315	45,1	
400	49,5	51,8
500	53,1	
630	54,4	
800	51,9	45,7
1000	41,5	
1250	55,8	
1600	64,7	67,2
2000	68,3	
2500	71,0	
3150	73,4	75,2
4000	75,6	
5000	77,6	

- ☐ 001. Sandwich panel, SPA E 100 mm
- ☐ 002. Mineral wool 50 mm
- ☐ 003. Air gap 50 mm
- ☐ 004. Sandwich panel, SPA E 100 mm

$R_w = 48$ dB (Prediction)

$R_w + C_{tr} = 38$ dB (Prediction)

☒ Ruukki's delivery

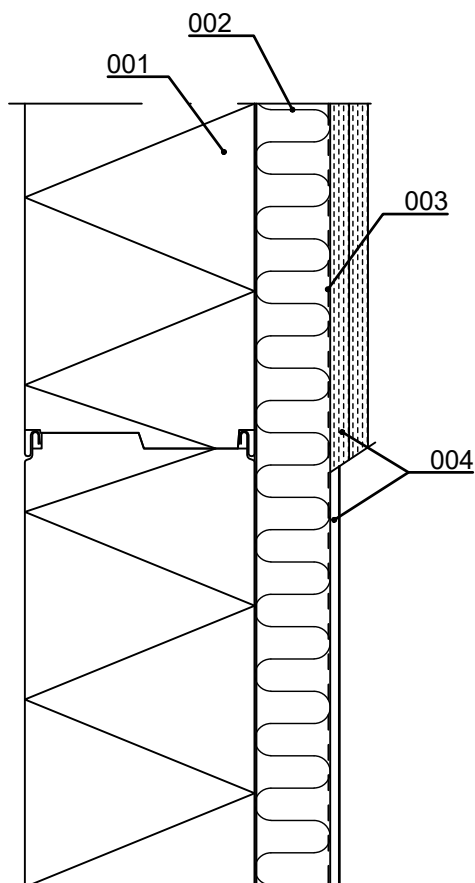
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Contents of drawing

Sound insulation structure type
Sono 150+studs 50 mm+mineral wool 50 mm
+ 2 x Gypsum board or steel plate

Date 02.09.2026	Rev. date	Work nr.	Drawing nr. SPA70-RW-13-EN
Drawn by Ruukki	Rev.		
Scale 1:5	Building		File nr.



f [Hz]	1/3 R [dB]	1/1 R [dB]
50	21,9	23,0
63	23,2	
80	24,0	
100	25,7	29,0
125	30,7	
160	36,1	
200	39,1	40,6
250	40,8	
315	42,5	
400	44,2	45,5
500	45,7	
630	47,0	
800	48,0	47,7
1000	48,3	
1250	47,1	
1600	49,3	49,9
2000	50,0	
2500	50,6	
3150	53,4	55,4
4000	55,9	
5000	58,2	

- ☐ 001. Sandwich panel, Sono 150 mm with 30% perforating. Perforated surface outwards.
- ☐ 002. Mineral wool 50 mm
- ☐ 003. Studs H50 c/c600
- ☐ 004. 2 x Gypsum board or steel plate (~10 kg/m² per board or total weight ~20 kg/m²)

$R_w = 48$ dB (Prediction)

$R_w + C_{tr} = 42$ dB (Prediction)

☒ Ruukki's delivery

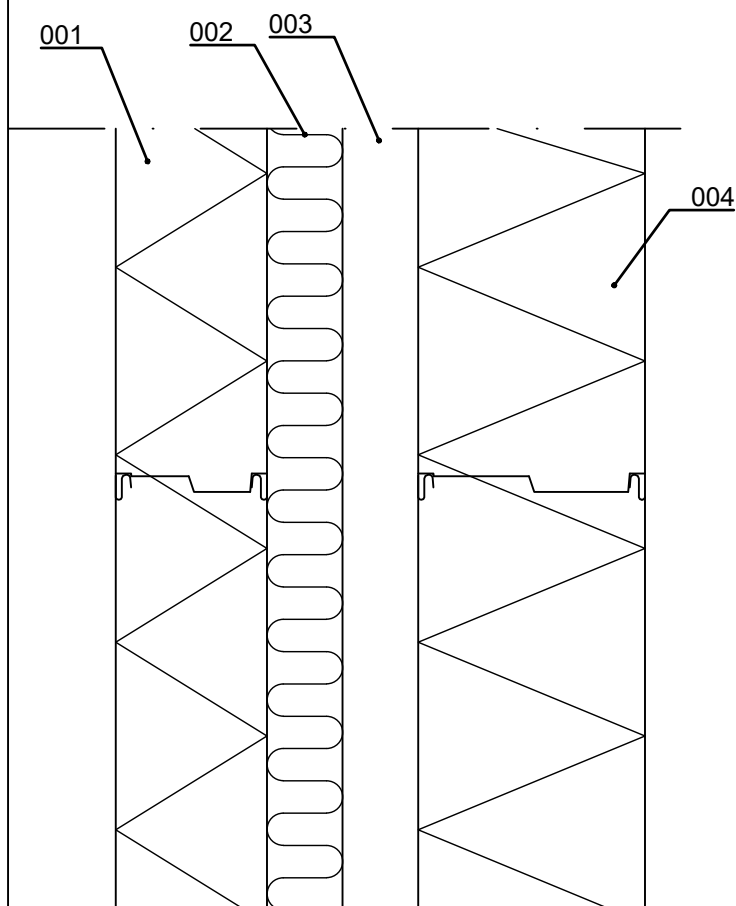
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Contents of drawing

Sound insulation structure type
SPA E 100 + mineral wool 50 mm
+ air gap 50 mm + SPA E 150

Date 02.09.2026	Rev. date	Work nr.	Drawing nr. SPA70-RW-14-EN
Drawn by Ruukki	Rev.		
Scale 1:5	Building		File nr.



f [Hz]	1/3	1/1
	R [dB]	R [dB]
50	19,6	18,0
63	17,0	
80	17,9	
100	22,0	25,2
125	26,8	
160	31,7	
200	36,6	
250	41,5	39,8
315	46,2	
400	50,5	
500	54,2	52,8
630	55,4	
800	52,9	
1000	42,5	46,8
1250	56,9	
1600	65,4	
2000	68,8	67,8
2500	71,5	
3150	73,9	
4000	76,1	75,7
5000	78,1	

- ☐ 001. Sandwich panel, SPA E 100 mm
- ☐ 002. Mineral wool 50 mm
- ☐ 003. Air gap 50 mm
- ☐ 004. Sandwich panel, SPA E 150 mm

$R_w = 49$ dB (Prediction)

$R_w + C_{tr} = 39$ dB (Prediction)

☒ Ruukki's delivery

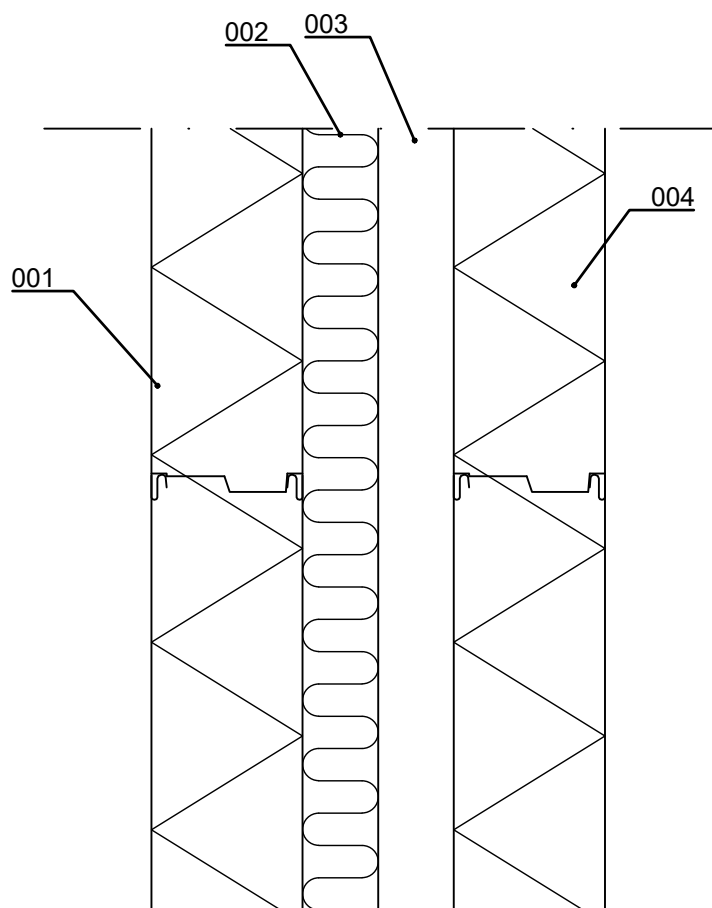
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Contents of drawing

Sound insulation structure type
SPA S 100 + mineral wool 50 mm
+ air gap 50 mm + SPA S 100

Date 02.09.2026	Rev. date	Work nr.	Drawing nr. SPA70-RW-15-EN
Drawn by Ruukki	Rev.		
Scale 1:5	Building		File nr.



f [Hz]	1/3 R [dB]	1/1 R [dB]
50	21,1	
63	18,4	19,8
80	20,4	
100	25,0	
125	29,9	28,2
160	34,9	
200	40,0	
250	45,1	43,3
315	50,3	
400	55,3	
500	60,3	58,5
630	63,8	
800	66,1	
1000	67,6	67,1
1250	67,6	
1600	63,7	
2000	55,4	59,4
2500	70,8	
3150	75,5	
4000	78,6	77,8
5000	81,2	

- ☐ 001. Sandwich panel, SPA S 100 mm
- ☐ 002. Mineral wool 50 mm
- ☐ 003. Air gap 50 mm
- ☐ 004. Sandwich panel, SPA S 100 mm

$R_w = 53$ dB (Prediction)

$R_w + C_{tr} = 43$ dB (Prediction)

☒ Ruukki's delivery

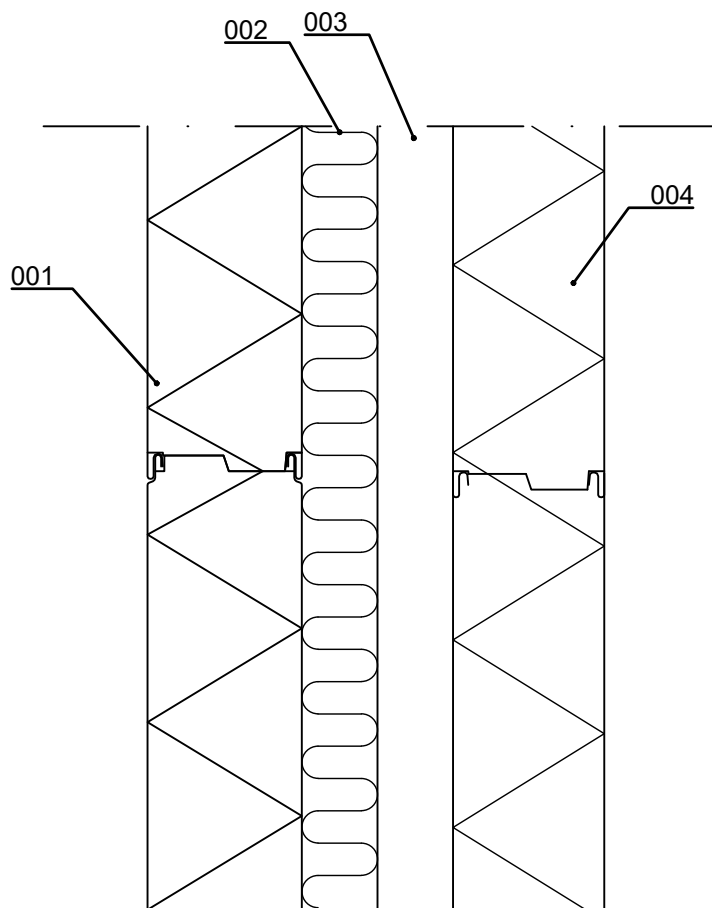
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Contents of drawing

Sound insulation structure type
Sono 100 + mineral wool 50 mm
+ air gap 50 mm + SPA S 100

Date 02.09.2026	Rev. date	Work nr.	Drawing nr. SPA70-RW-16-EN
Drawn by Ruukki	Rev.		
Scale 1:5	Building		File nr.



f [Hz]	1/3 R [dB]	1/1 R [dB]
50	25,8	
63	26,1	20,4
80	16,5	
100	24,9	
125	28,2	27,6
160	33,9	
200	36,9	
250	46,8	41,2
315	53,4	
400	58,9	
500	62,2	61,1
630	63,8	
800	67,2	
1000	69,3	67,8
1250	67,3	
1600	65,3	
2000	67,4	67,2
2500	70,5	
3150	70,8	
4000	72,4	71,6
5000	71,9	

- ☐ 001. Sandwich panel, Sono 100 mm with 30% perforating. Perforated surface outwards.
- ☐ 002. Mineral wool 50 mm
- ☐ 003. Air gap 50 mm
- ☐ 004. Sandwich panel, SPA S 100 mm

$R_w = 53$ dB (Measurement)

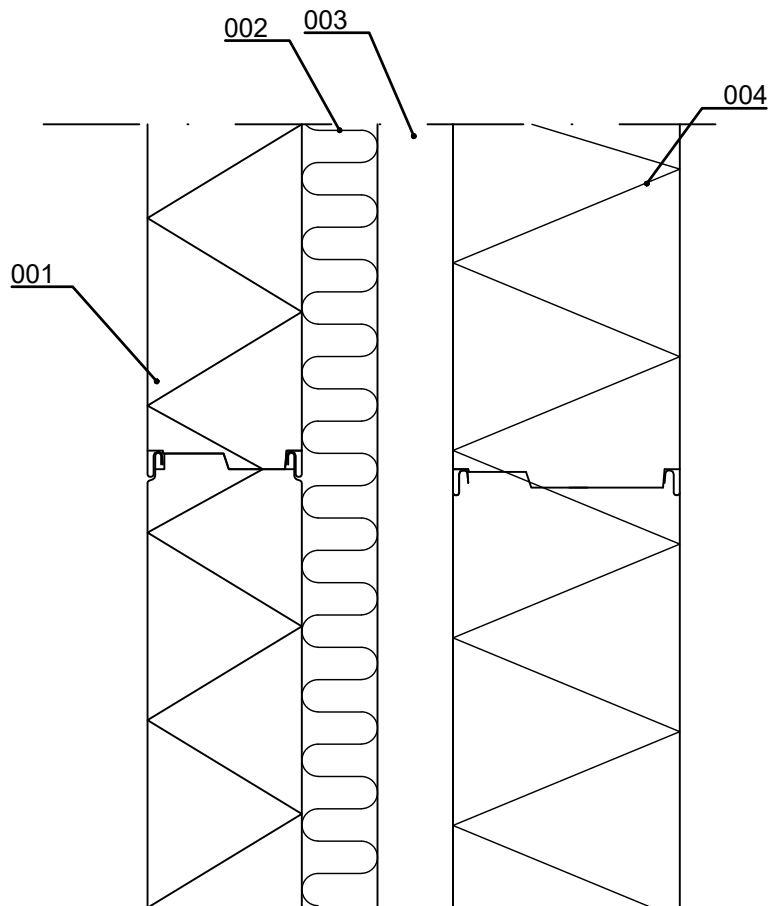
$R_w + C_{tr} = 42$ dB (Measurement)

☒ Ruukki's delivery

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Sound insulation structure type
Sono 100 + mineral wool 50 mm
+ air gap 50 mm + SPA S 150

Date 02.09.2026	Rev. date	Work nr.	Drawing nr. SPA70-RW-17-EN
Drawn by Ruukki	Rev.		
Scale 1:5	Building		File nr.



f [Hz]	1/3 R [dB]	1/1 R [dB]
50	21,6	
63	18,9	20,4
80	21,1	
100	25,9	
125	30,8	29,2
160	35,8	
200	40,9	
250	45,9	44,1
315	50,9	
400	55,8	
500	60,4	58,7
630	63,4	
800	64,7	
1000	64,2	61,9
1250	59,2	
1600	55,9	
2000	69,1	60,4
2500	73,3	
3150	76,4	
4000	78,9	78,4
5000	81,2	

- ☐ 001. Sandwich panel, Sono 100 mm with 30% perforating. Perforated surface outwards.
- ☐ 002. Mineral wool 50 mm
- ☐ 003. Air gap 50 mm
- ☐ 004. Sandwich panel, SPA S 150 mm

$R_w = 54$ dB (Prediction)

$R_w + C_{tr} = 44$ dB (Prediction)

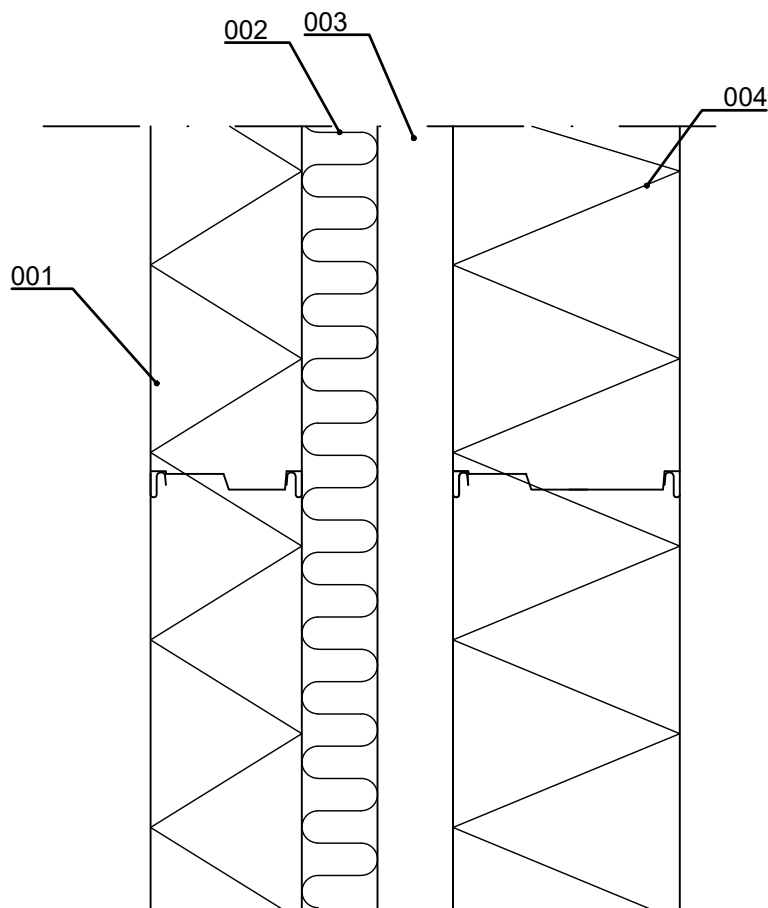
☒ Ruukki's delivery



Contents of drawing

Sound insulation structure type
SPA S 100 + mineral wool 50 mm
+ air gap 50 mm + SPA S 150

Date 02.09.2026	Rev. date	Work nr.	Drawing nr. SPA70-RW-18-EN
Drawn by Ruukki	Rev.		
Scale 1:5	Building		File nr.



f [Hz]	1/3 R [dB]	1/1 R [dB]
50	21,1	
63	18,4	19,8
80	20,3	
100	25,0	
125	29,9	28,2
160	34,9	
200	40,0	
250	45,0	43,2
315	50,1	
400	55,1	
500	59,8	58,1
630	63,1	
800	64,8	
1000	65,2	63,8
1250	62,1	
1600	57,2	
2000	62,3	60,7
2500	72,2	
3150	75,8	
4000	78,6	77,9
5000	81,0	

- ☐ 001. Sandwich panel, SPA S 100 mm
- ☐ 002. Mineral wool 50 mm
- ☐ 003. Air gap 50 mm
- ☐ 004. Sandwich panel, SPA S 150 mm

$R_w = 54$ dB (Prediction)

$R_w + C_{tr} = 43$ dB (Prediction)

☒ Ruukki's delivery

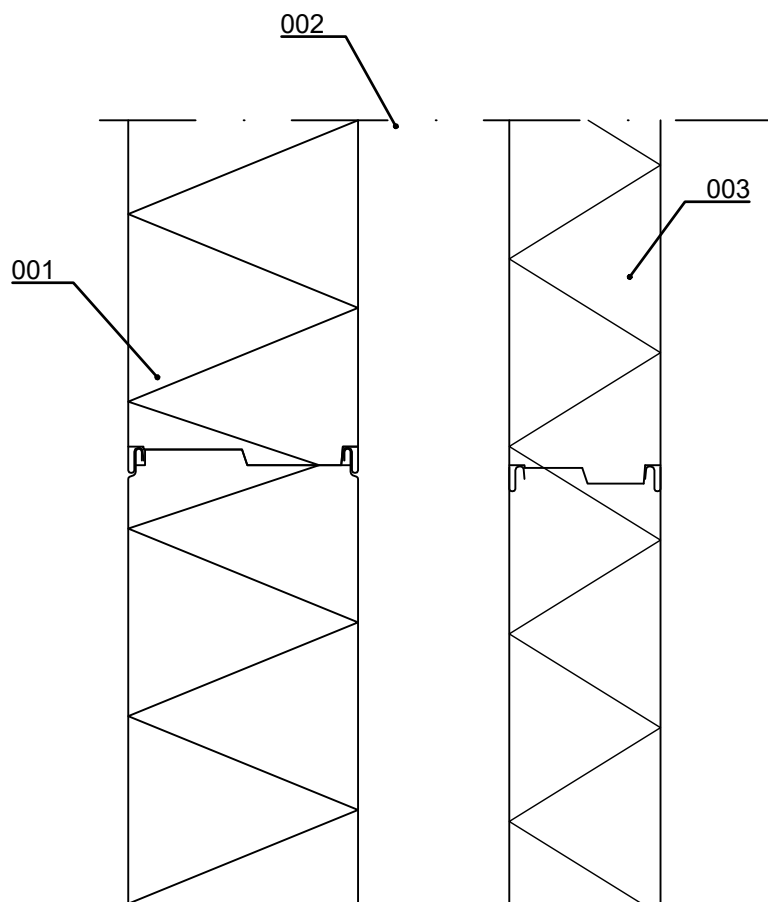
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Contents of drawing

Sound insulation structure type
Sono 150 + air gap 100 mm + SPA E 100

Date 02.09.2026	Rev. date	Work nr.	Drawing nr. SPA70-RW-19-EN
Drawn by Ruukki	Rev.		
Scale 1:5	Building		File nr.



f [Hz]	1/3 R [dB]	1/1 R [dB]
50	21,9	21,7
63	20,6	
80	22,7	
100	27,4	30,6
125	32,2	
160	37,2	
200	42,1	
250	47,0	45,3
315	51,8	
400	56,3	
500	60,4	58,9
630	62,2	
800	61,1	
1000	53,9	54,9
1250	53,2	
1600	66,3	
2000	70,7	69,2
2500	73,8	
3150	76,4	
4000	78,7	78,2
5000	80,8	

- ☐ 001. Sandwich panel, Sono 150 mm with 30% perforating. Perforated surface towards air gap
- ☐ 002. Air gap 100 mm
- ☐ 003. Sandwich panel, SPA E 100 mm

$R_w = 54$ dB (Prediction)

$R_w + C_{tr} = 45$ dB (Prediction)

☒ Ruukki's delivery

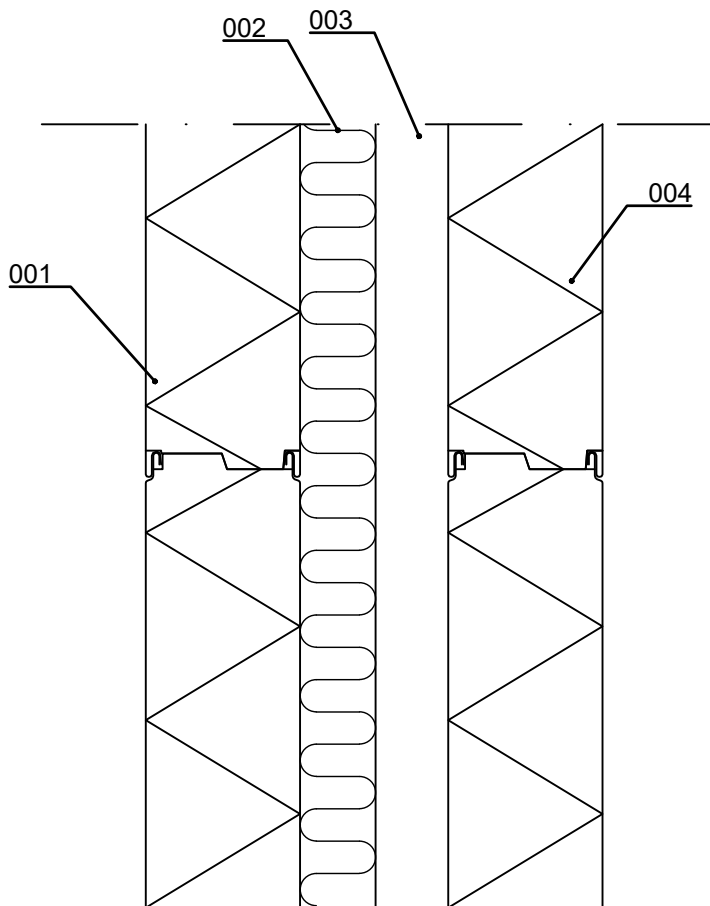
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Contents of drawing

Sound insulation structure type
Sono 100 + mineral wool 50 mm
+ air gap 50 mm + Sono 100

Date 02.09.2026	Rev. date	Work nr.	Drawing nr. SPA70-RW-20-EN
Drawn by Ruukki	Rev.		
Scale 1:5	Building		File nr.



f [Hz]	1/3 R [dB]	1/1 R [dB]
50	22,0	
63	19,4	20,6
80	20,7	
100	26,9	
125	31,8	30,1
160	36,8	
200	41,8	
250	46,9	45,1
315	51,9	
400	56,8	
500	61,5	59,8
630	64,5	
800	65,9	
1000	65,6	63,6
1250	61,2	
1600	55,4	
2000	69,3	60,0
2500	73,8	
3150	76,9	
4000	79,4	78,9
5000	81,7	

- ☐ 001. Sandwich panel, Sono 100 mm with 30% perforating. Perforated surface outwards.
- ☐ 002. Mineral wool 50 mm
- ☐ 003. Air gap 50 mm
- ☐ 004. Sandwich panel, Sono 100 mm with 30% perforating. Perforated surface outwards.

$R_w = 55$ dB (Prediction)

$R_w + C_{tr} = 45$ dB (Prediction)

☒ Ruukki's delivery

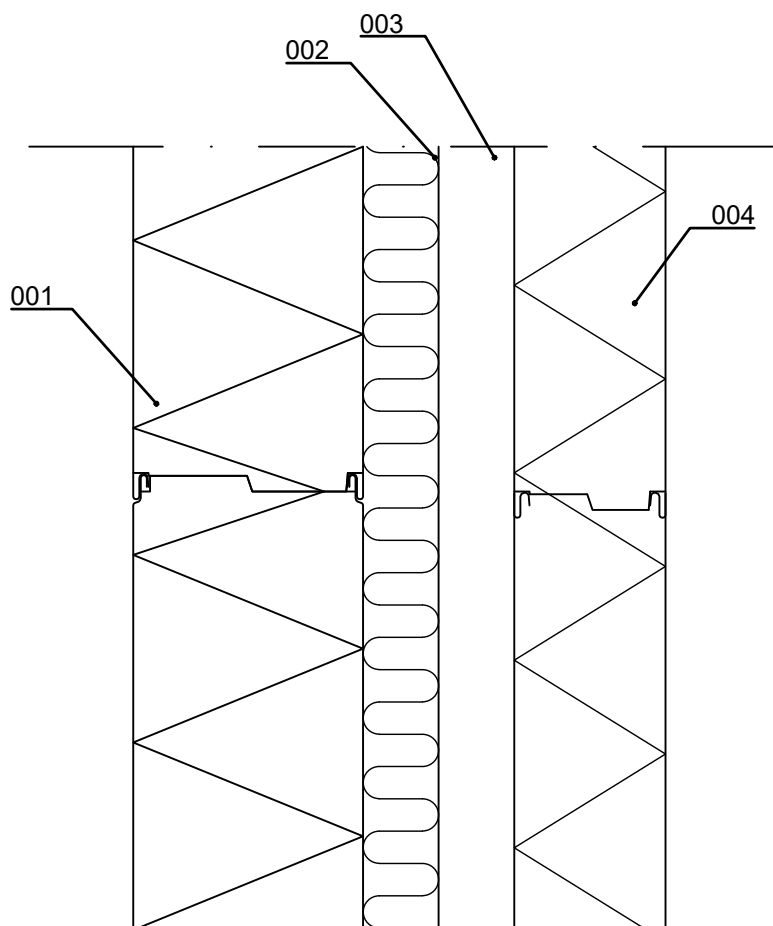
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Contents of drawing

Sound insulation structure type
Sono 150 + mineral wool 50 mm
+ air gap 50 mm + SPA E 100

Date 02.09.2026	Rev. date	Work nr.	Drawing nr. SPA70-RW-21-EN
Drawn by Ruukki	Rev.		
Scale 1:5	Building		File nr.



f [Hz]	1/3	1/1
	R [dB]	R [dB]
50	26,0	23,1
63	31,0	
80	19,5	
100	27,8	30,3
125	31,0	
160	34,9	
200	38,8	43,3
250	51,8	
315	57,4	
400	63,7	66,5
500	68,2	
630	70,2	
800	71,4	62,0
1000	65,9	
1250	58,1	
1600	68,6	70,2
2000	71,8	
2500	70,8	
3150	71,0	72,3
4000	72,8	
5000	73,6	

- ☐ 001. Sandwich panel, Sono 150 mm with 30% perforating. Perforated surface outwards.
- ☐ 002. Mineral wool 50 mm
- ☐ 003. Air gap 50 mm
- ☐ 004. Sandwich panel, SPA E 100 mm

$R_w = 55$ dB (Measurement)

$R_w + C_{tr} = 45$ dB (Measurement)

☒ Ruukki's delivery

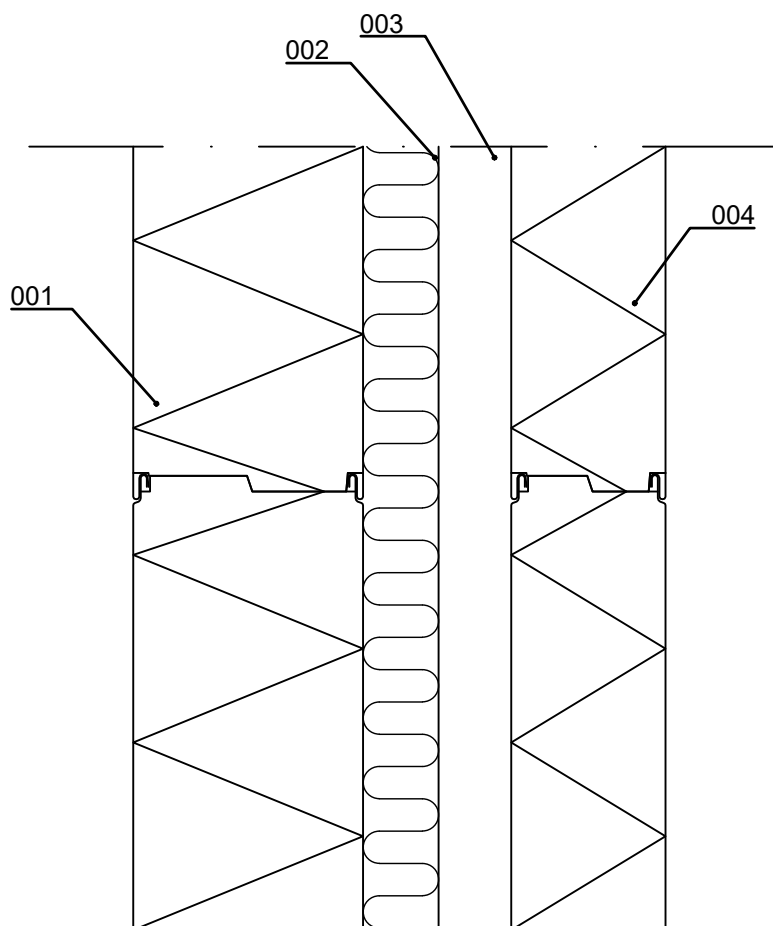
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Contents of drawing

Sound insulation structure type
Sono 150 + mineral wool 50 mm
+ air gap 50 mm + Sono 100

Date 02.09.2026	Rev. date	Work nr.	Drawing nr. SPA70-RW-22-EN
Drawn by Ruukki	Rev.		
Scale 1:5	Building	File nr.	



f [Hz]	1/3 R [dB]	1/1 R [dB]
50	23,1	
63	20,5	22,0
80	23,1	
100	28,9	
125	33,8	32,1
160	38,8	
200	43,8	
250	48,8	47,0
315	53,8	
400	58,6	
500	63,1	61,4
630	65,8	
800	66,6	
1000	65,0	60,6
1250	56,8	
1600	62,1	
2000	71,4	66,2
2500	75,1	
3150	78,0	
4000	80,4	79,9
5000	82,7	

- ☐ 001. Sandwich panel, Sono 150 mm with 30% perforating. Perforated surface outwards.
- ☐ 002. Mineral wool 50 mm
- ☐ 003. Air gap 50 mm
- ☐ 004. Sandwich panel, Sono 100 mm with 30% perforating. Perforated surface outwards.

$R_w = 57$ dB (Prediction)

$R_w + C_{tr} = 47$ dB (Prediction)

☒ Ruukki's delivery

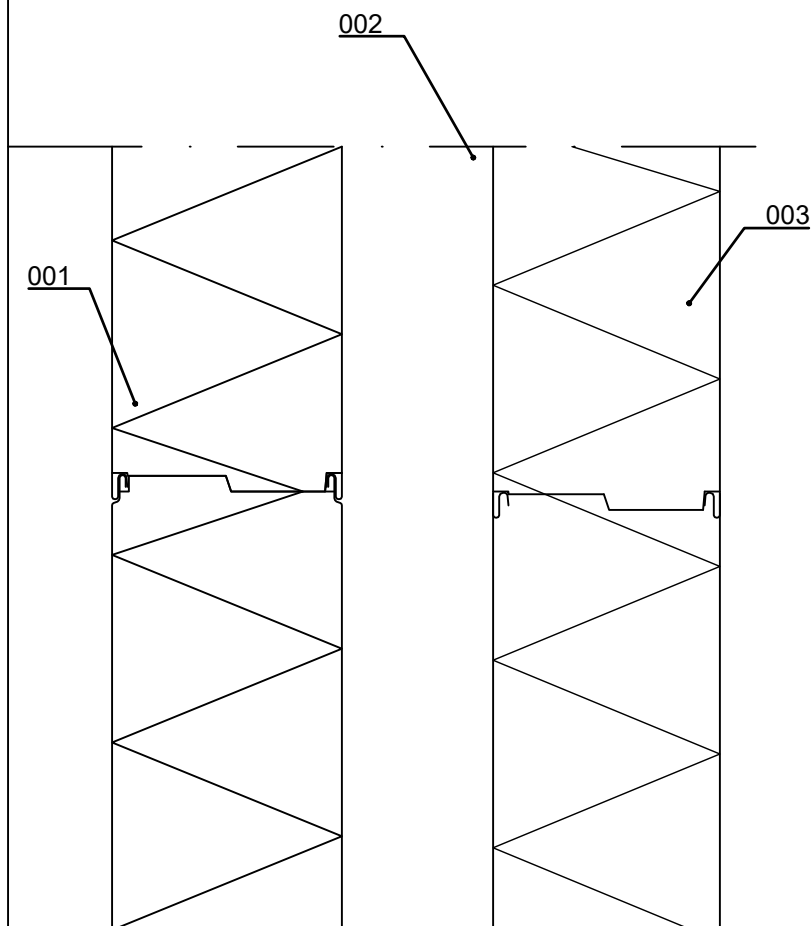
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Contents of drawing

Sound insulation structure type
Sono 150 + air gap 100 mm + SPA S 150

Date 02.09.2026	Rev. date	Work nr.	Drawing nr. SPA70-RW-23-EN
Drawn by Ruukki	Rev.		
Scale 1:5	Building		File nr.



f [Hz]	1/3	1/1
	R [dB]	R [dB]
50	30,3	31,0
63	35,7	
80	29,2	
100	32,9	35,3
125	35,4	
160	40,5	
200	46,2	49,7
250	52,3	
315	56,3	
400	58,9	61,0
500	61,3	
630	64,6	
800	63,0	55,6
1000	58,8	
1250	51,9	
1600	60,1	63,8
2000	68,4	
2500	69,1	
3150	70,2	71,9
4000	72,5	
5000	74,0	

- ☐ 001. Sandwich panel, Sono 150 mm with 30% perforating. Perforated surface towards air gap
- ☐ 002. Air gap 100 mm
- ☐ 003. Sandwich panel, SPA S 150 mm

$R_w = 57$ dB (Measurement)

$R_w + C_{tr} = 49$ dB (Measurement)

☒ Ruukki's delivery

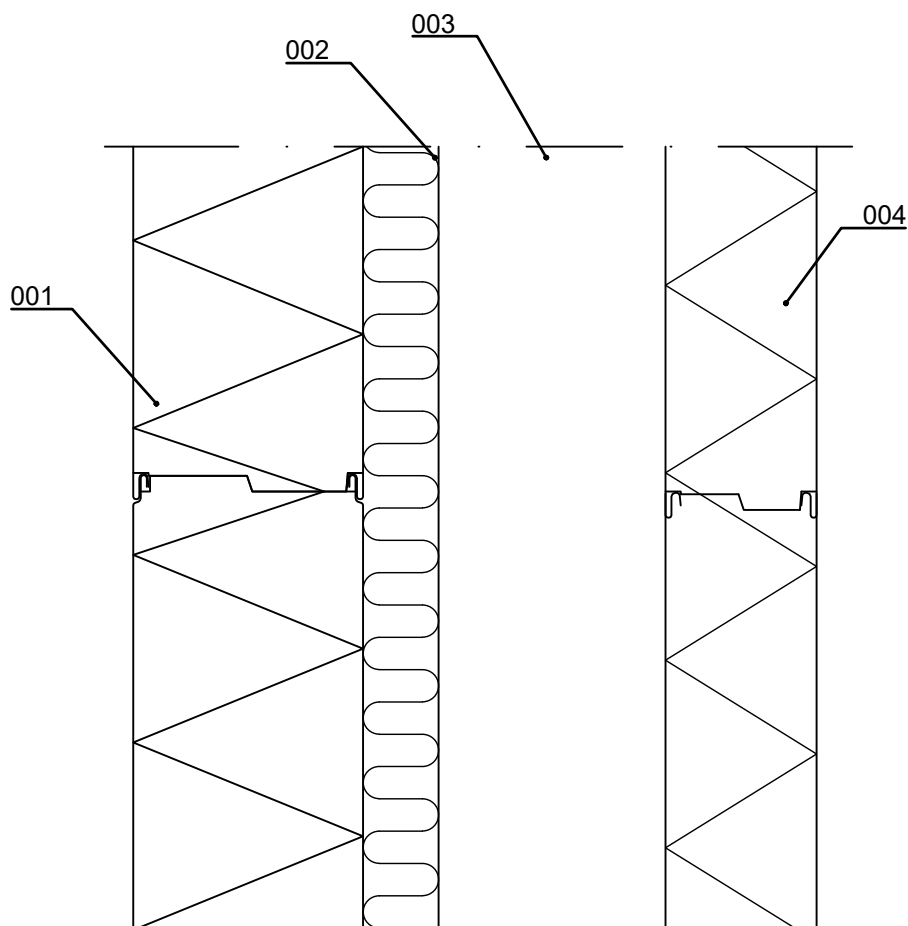
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Contents of drawing

Sound insulation structure type
Sono 150 + mineral wool 50 mm
+ air gap 150 mm + SPA E 100

Date 02.09.2026	Rev. date	Work nr.	Drawing nr. SPA70-RW-24-EN
Drawn by Ruukki	Rev.		
Scale 1:5	Building		File nr.



f [Hz]	1/3 R [dB]	1/1 R [dB]
50	24,6	
63	33,7	26,8
80	26,2	
100	30,5	
125	32,9	32,9
160	38,8	
200	44,6	
250	55,3	48,9
315	60,1	
400	65,2	
500	69,5	67,6
630	69,5	
800	71,8	
1000	65,9	61,1
1250	57,0	
1600	68,1	
2000	73,1	70,6
2500	72,4	
3150	71,8	
4000	73,2	73,0
5000	74,2	

- ☐ 001. Sandwich panel, Sono 150 mm with 30% perforating. Perforated surface outwards.
- ☐ 002. Mineral wool 50 mm
- ☐ 003. Air gap 150 mm
- ☐ 004. Sandwich panel, SPA E 100 mm

$R_w = 57$ dB (Measurement)

$R_w + C_{tr} = 48$ dB (Measurement)

☒ Ruukki's delivery

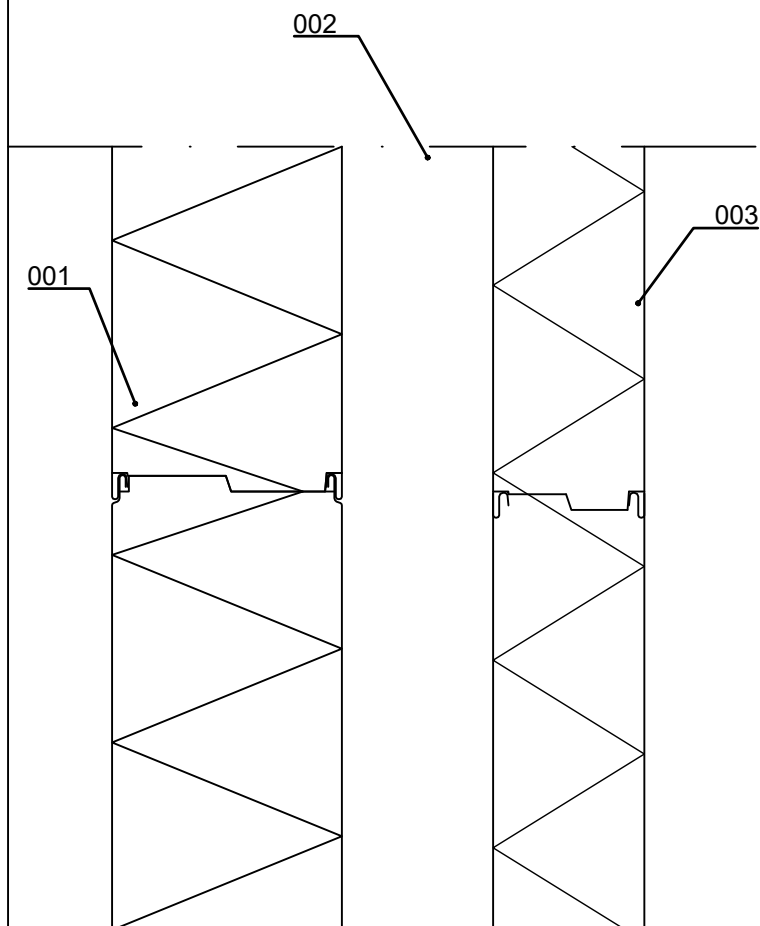
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Contents of drawing

Sound insulation structure type
Sono 150 + air gap 100 mm + SPA S 100

Date 02.09.2026	Rev. date	Work nr.	Drawing nr. SPA70-RW-25-EN
Drawn by Ruukki	Rev.		
Scale 1:5	Building		File nr.



f [Hz]	1/3 R [dB]	1/1 R [dB]
50	22,7	
63	21,4	22,7
80	24,4	
100	29,4	
125	34,3	32,6
160	39,3	
200	44,3	
250	49,4	47,6
315	54,4	
400	59,3	
500	63,9	62,2
630	66,7	
800	67,4	
1000	67,0	64,1
1250	61,1	
1600	66,9	
2000	67,1	68,4
2500	74,2	
3150	77,5	
4000	80,2	79,6
5000	82,5	

- ☐ 001. Sandwich panel, Sono 150 mm with 30% perforating. Perforated surface towards air gap
- ☐ 002. Air gap 100 mm
- ☐ 003. Sandwich panel, SPA S 100 mm

 $R_w = 58 \text{ dB}$ (Prediction) $R_w + C_{tr} = 47 \text{ dB}$ (Prediction)☒ Ruukki's delivery

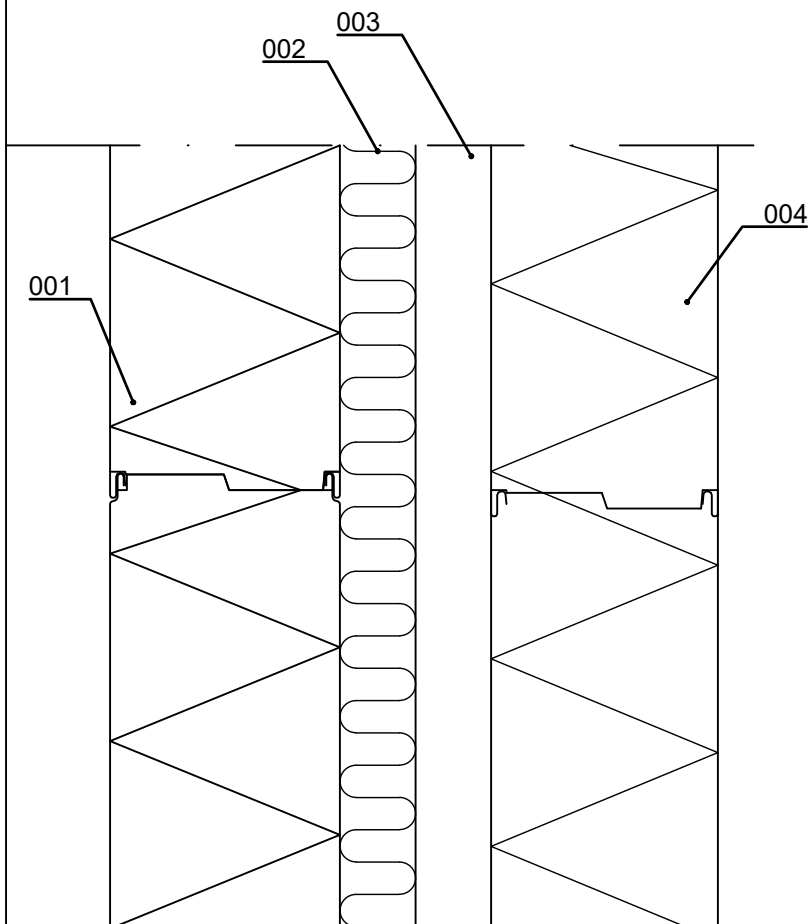
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Contents of drawing

Sound insulation structure type
Sono 150 + mineral wool 50 mm
+ air gap 50 mm + SPA S 150

Date 02.09.2026	Rev. date	Work nr.	Drawing nr. SPA70-RW-26-EN
Drawn by Ruukki	Rev.		
Scale 1:5	Building		File nr.



f [Hz]	1/3 R [dB]	1/1 R [dB]
50	28,1	
63	31,4	25,9
80	22,7	
100	31,3	
125	33,8	33,5
160	37,6	
200	45,5	
250	52,7	49,4
315	60,1	
400	65,1	
500	69,4	67,3
630	68,8	
800	72,7	
1000	67,3	64,5
1250	60,9	
1600	70,9	
2000	72,5	71,8
2500	72,1	
3150	71,5	
4000	73,1	72,7
5000	74,0	

- ☐ 001. Sandwich panel, Sono 150 mm with 30% perforating. Perforated surface outwards.
- ☐ 002. Mineral wool 50 mm
- ☐ 003. Air gap 50 mm
- ☐ 004. Sandwich panel, SPA S 150 mm

$R_w = 59$ dB (Measurement)

$R_w + C_{tr} = 48$ dB (Measurement)

☒ Ruukki's delivery

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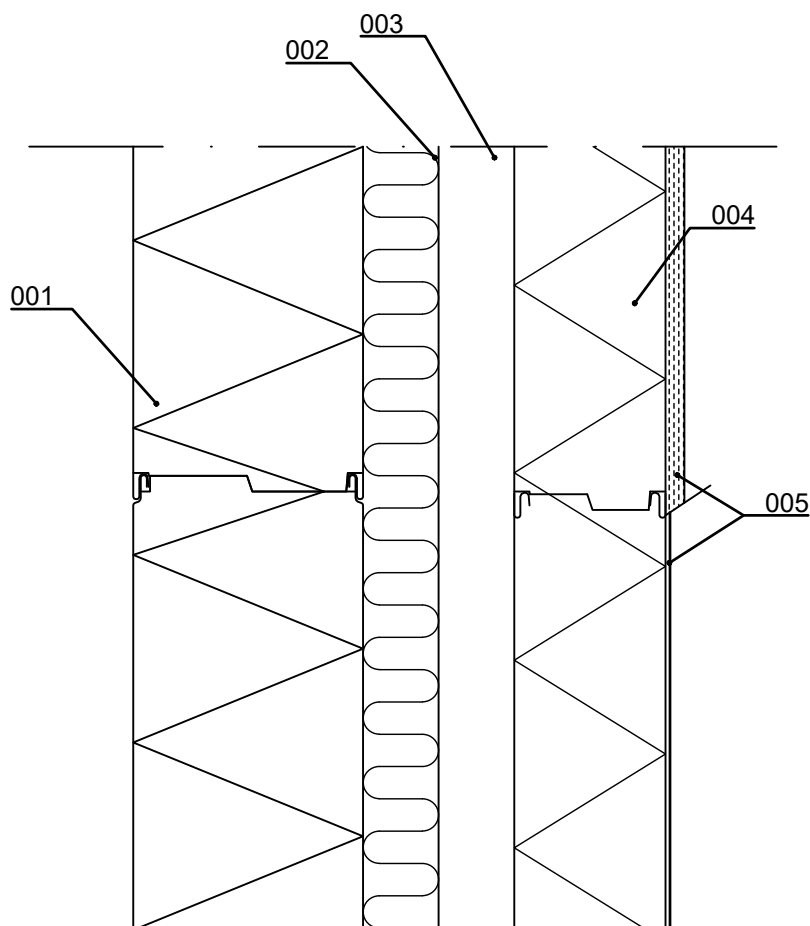


Contents of drawing

Sound insulation structure type

Sono 150 + mineral wool 50 mm + air gap 50 mm
+ SPA S 100 + 1 x Gypsum board or steel plate

Date	02.09.2026	Rev. date		Work nr.		Drawing nr.	SPA70-RW-27-EN
Drawn by	Ruukki	Rev.					
Scale	1:5	Building				File nr.	



f [Hz]	1/3 R [dB]	1/1 R [dB]
50	24,0	
63	21,5	23,6
80	26,6	
100	31,6	
125	36,7	34,9
160	41,8	
200	47,0	
250	52,2	50,3
315	57,4	
400	62,4	
500	67,1	65,3
630	69,3	
800	70,1	
1000	70,3	67,9
1250	65,3	
1600	70,3	
2000	70,9	71,6
2500	74,6	
3150	77,9	
4000	80,6	80,0
5000	82,9	

- ☐ 001. Sandwich panel, Sono 150 mm with 30% perforating. Perforated surface outwards.
- ☐ 002. Mineral wool 50 mm
- ☐ 003. Air gap 50 mm
- ☐ 004. Sandwich panel, SPA S 100 mm
- ☐ 005. 1 x Gypsum board or steel plate (~10 kg/m²)

 $R_w = 61 \text{ dB}$ (Prediction) $R_w + C_{tr} = 50 \text{ dB}$ (Prediction)☒ Ruukki's delivery

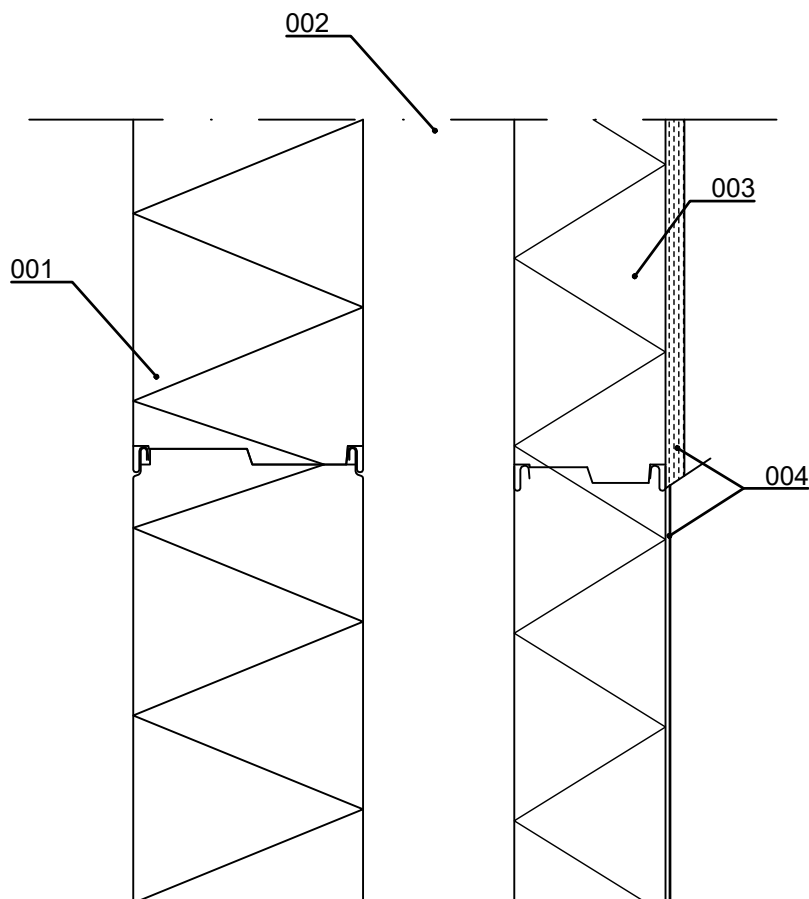
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Contents of drawing

Sound insulation structure type
Sono 150 + air gap 100 mm + SPA S 100
+ 1 x Gypsum board or steel plate

Date 02.09.2026	Rev. date	Work nr.	Drawing nr. SPA70-RW-28-EN
Drawn by Ruukki	Rev.		
Scale 1:5	Building		File nr.



f [Hz]	1/3 R [dB]	1/1 R [dB]
50	23,7	
63	22,6	24,1
80	27,4	
100	32,4	
125	37,4	35,7
160	42,6	
200	47,8	
250	53,0	51,1
315	58,1	
400	63,2	
500	67,5	65,9
630	69,2	
800	70,1	
1000	70,4	68,8
1250	66,9	
1600	71,8	
2000	73,9	73,9
2500	77,7	
3150	80,6	
4000	82,9	82,5
5000	85,0	

- ☐ 001. Sandwich panel, Sono 150 mm with 30% perforating. Perforated surface towards air gap
- ☐ 002. Air gap 100 mm
- ☐ 003. Sandwich panel, SPA S 100 mm
- ☐ 004. 1 x Gypsum board or steel plate (~8 kg/m²)

$R_w = 62$ dB (Prediction)

$R_w + C_{tr} = 50$ dB (Prediction)

☒ Ruukki's delivery

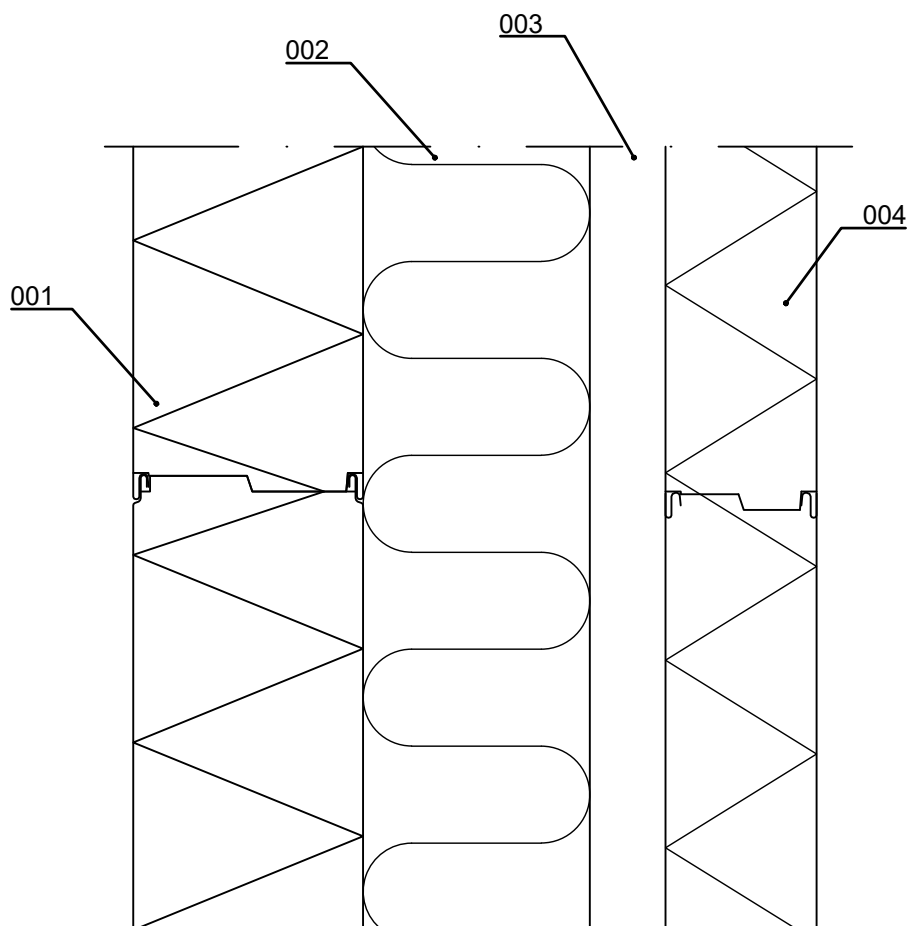
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Contents of drawing

Sound insulation structure type
Sono 150 + mineral wool 150 mm
+ air gap 50 mm + SPA S 100

Date 02.09.2026	Rev. date	Work nr.	Drawing nr. SPA70-RW-29-EN
Drawn by Ruukki	Rev.		
Scale 1:5	Building		File nr.



f [Hz]	1/3	1/1
	R [dB]	R [dB]
50	23,3	25,9
63	26,4	
80	31,0	
100	35,7	39,0
125	40,6	
160	45,6	
200	50,7	53,8
250	55,7	
315	59,5	
400	62,4	64,3
500	65,0	
630	66,8	
800	67,4	64,3
1000	67,0	
1250	61,4	
1600	67,0	68,5
2000	67,3	
2500	74,2	
3150	77,5	79,6
4000	80,2	
5000	82,5	

- ☐ 001. Sandwich panel, Sono 150 mm with 30% perforating. Perforated surface outwards.
- ☐ 002. Mineral wool 150 mm
- ☐ 003. Air gap 50 mm
- ☐ 004. Sandwich panel, SPA S 100 mm

$R_w = 63$ dB (Prediction)

$R_w + C_{tr} = 53$ dB (Prediction)

☒ Ruukki's delivery

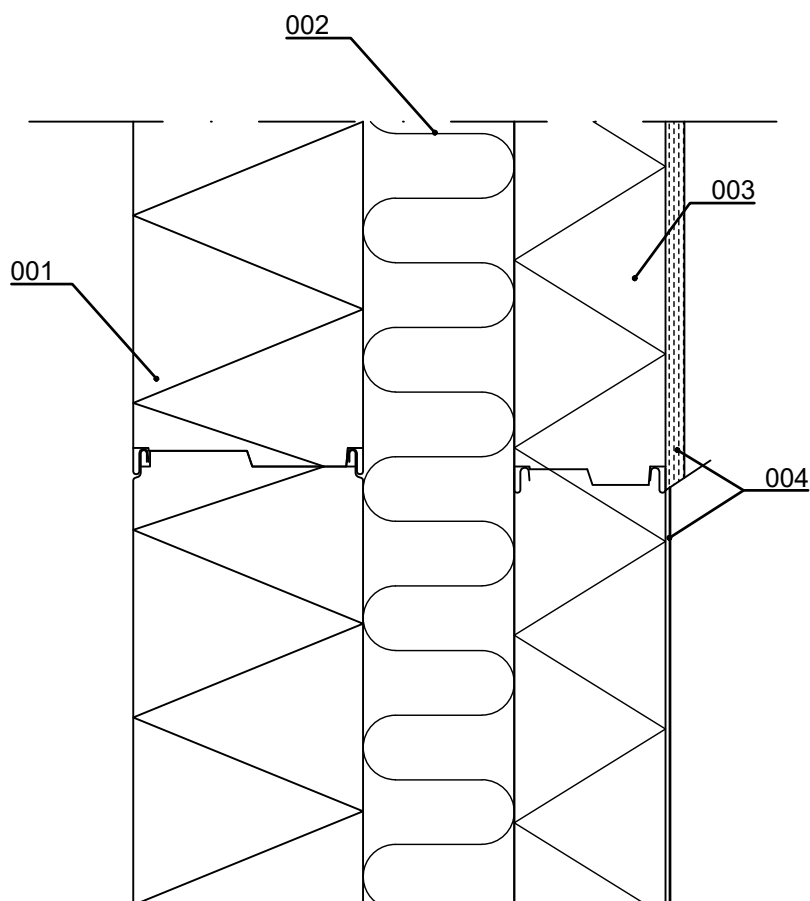
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Contents of drawing

Sound insulation structure type
Sono 150 + mineral wool 100 mm + SPA S 100
+ 1 x Gypsum board or steel plate

Date 02.09.2026	Rev. date	Work nr.	Drawing nr. SPA70-RW-30-EN
Drawn by Ruukki	Rev.		
Scale 1:5	Building		File nr.



f [Hz]	1/3 R [dB]	1/1 R [dB]
50	23,0	
63	24,3	24,9
80	29,6	
100	34,6	
125	39,7	37,9
160	44,8	
200	50,0	
250	55,2	53,4
315	60,4	
400	65,4	
500	70,2	68,5
630	73,4	
800	74,8	
1000	74,3	71,4
1250	68,3	
1600	75,4	
2000	75,9	77,1
2500	83,7	
3150	90,6	
4000	96,1	94,0
5000	100,8	

- ☐ 001. Sandwich panel, Sono 150 mm with 30% perforating. Perforated surface outwards.
- ☐ 003. Mineral wool 100 mm
- ☐ 004. Sandwich panel, SPA S 100 mm
- ☐ 005. 1 x Gypsum board or steel plate (~10 kg/m²)

$R_w = 64$ dB (Prediction)

$R_w + C_{tr} = 53$ dB (Prediction)

☒ Ruukki's delivery

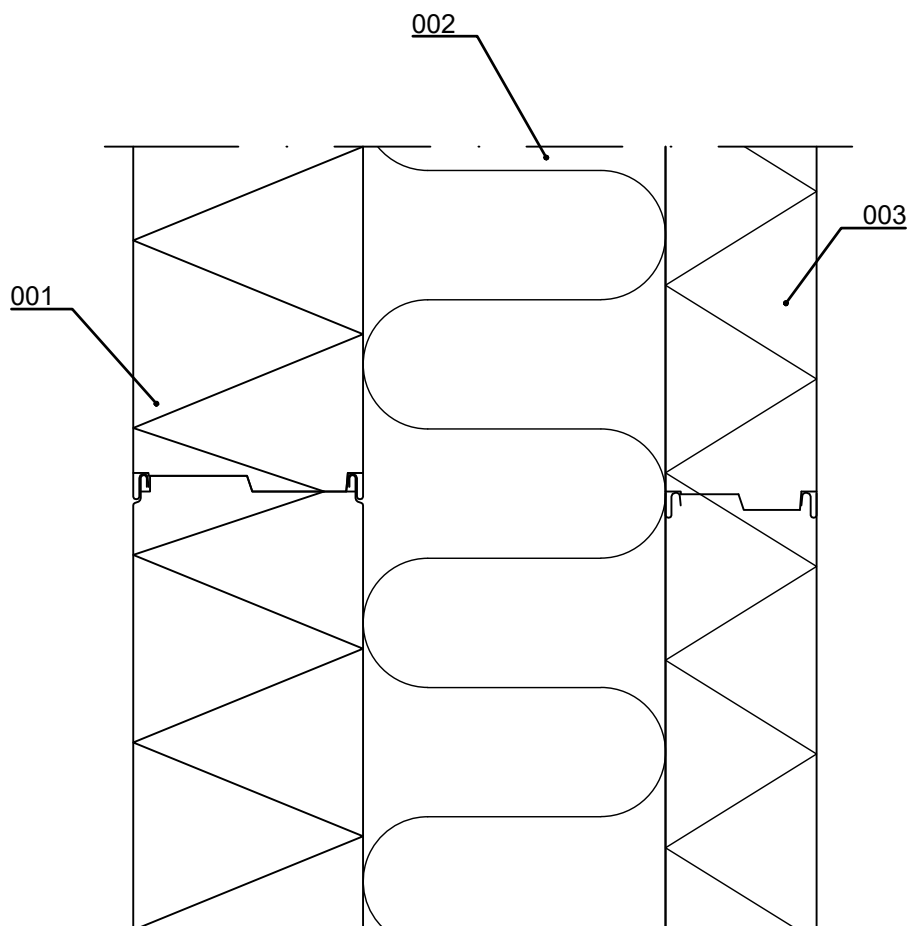
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Contents of drawing

Sound insulation structure type
Sono 150 + mineral wool 200 mm + SPA S 100

Date 02.09.2026	Rev. date	Work nr.	Drawing nr. SPA70-RW-31-EN
Drawn by Ruukki	Rev.		
Scale 1:5	Building		File nr.



f [Hz]	1/3 R [dB]	1/1 R [dB]
50	23,3	
63	27,7	26,3
80	32,2	
100	37,0	
125	41,9	40,2
160	46,9	
200	51,9	
250	57,0	55,1
315	60,7	
400	63,6	
500	65,7	65,2
630	66,8	
800	67,4	
1000	67,1	65,1
1250	62,5	
1600	67,1	
2000	67,8	68,8
2500	74,2	
3150	77,5	
4000	80,2	79,6
5000	82,5	

- ☐ 001. Sandwich panel, Sono 150 mm with 30% perforating. Perforated surface outwards.
- ☐ 002. Mineral wool 200 mm
- ☐ 003. Sandwich panel, SPA S 100 mm

$R_w = 64$ dB (Prediction)

$R_w + C_{tr} = 55$ dB (Prediction)

☒ Ruukki's delivery

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