



BRUAG
Innovation for Architecture

Room Acoustic Systems & Noise-Virus-Catcher®

MDF design
OAK PLYWOOD design
CELLON® design

Technical data sheet for planning,
construction and execution

1.3

Version 3.0

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General Information

01.

Material

The **MDF board** is a wood-based material made of finely fibrillated softwood, which is pressed into a board product that is equally homogeneous in the longitudinal and transverse directions.

Application area: Interior (e.g. ceiling and wall cladding, stair railings)
Panel thickness (weight): 10mm (approx. 7kg/m²), 19mm (approx. 14kg/m²), 30mm (approx. 22kg/m²)
Reaction to fire class: RF3, D-s2-d0 (EN 13986)

The **OAK PLYWOOD panel** consists of individual layers of wood, which are glued and pressed crosswise to their fibre direction. This reduces directional properties such as swelling and shrinkage.

Application area: Interior (e.g. ceiling and wall cladding)
Panel thickness (weight): 18mm (approx. 7kg/m²)
Reaction to fire class: RF4, E (EN 13986)

The **CELLON® panel** is a high-pressure laminate panel (HPL Compact or solid core panel) consisting of 70% cellulose webs and 30% phenolic resin. The extremely weather and frost-resistant material is ideal for outdoor applications.

Application area: mounted vertically in outdoor areas (e.g. facades, balcony railings)
Panel thickness (weight): 8mm (approx. 12kg/m²), 10mm (approx. 15kg/m²)
Reaction to fire class: RF2, B1 (DIN 4102-1), B-s1-d0 (EN 13501-1)

The raw panels are project-specifically cut to the desired dimensions using laser technology (including drill holes). You choose the **width (x)** and the **length (y)** of the panels individually. Do you want round cuts or additional cut-outs? Simply draw them in your DXF plan and they will be **manufactured to size**.

Panel Formats

Please consider the following raw panel formats for waste optimisation:

perforated panels

MDF® design

Raw width	Raw length
2050 mm	4080 mm

perforated panels

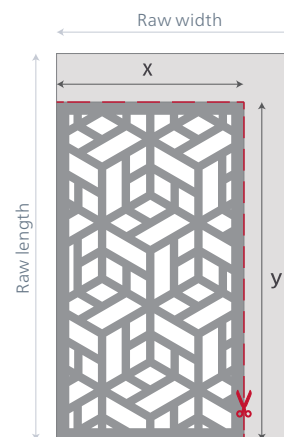
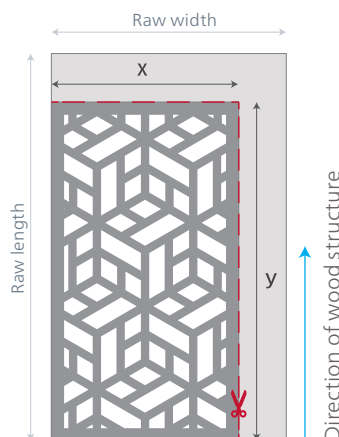
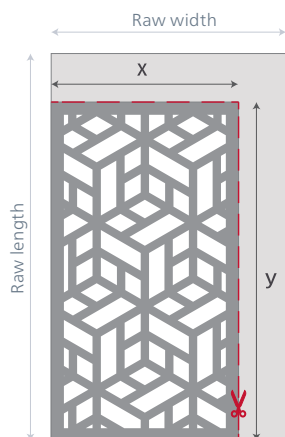
OAK PLYWOOD design

Raw width	Raw length
1500 mm	3000 mm

perforated panels

CELLON® design

Raw width	Raw length
1200 mm	2400 mm
1280 mm	3000 mm
1500 mm	3600 mm
1800 mm	3600 mm



Whenever possible, the raw material sizes should be considered when planning the panel layout so that panel waste can be minimised. We support you with this.

General Information

01.

Data Transmission for Orders

Please note the following when placing an order:

Data Format

- DWG / DXF Data
- Cadwork 2D or 3D Data
- Parts lists in Excel (if only as Excel without CAD file is sent, it might result in additional work in our work preparation)

Data Content and Structure

- Panels are drawn on a separate layer
- Drawing in 1:1 ratio
- Measurement of at least one long and short side to be able to verify the scale
- Boreholes (drawn as a closed circle), cut-outs, etc. are marked accordingly
- Special requests for grouping and/or palletisation must be explicitly specified. Normally there is room on one pallet for 120 square metres of panels. Within the pallet there is no sorting by panel numbers etc.

Own Design (the following specifications must be observed for own designs)

- Design must be created as CAD drawing (DWG or DXF file)
- Contours must be neatly closed and drawn as a line (not several lines on top of each other)
- Size ratio must be clearly visible

In the event of post-processing by Bruag Design Factory AG, the resulting additional work will be invoiced.

Storage and Cleaning Instructions

The panels must never be stored outdoors. The panels can be cleaned with water and a fabric or magic sponge. Do not use any chemical cleaning agents.

Cutting and Drilling Guidelines

Basically, cutting to size on site should be avoided and the panels should already be ordered to the project-specific size whenever possible. However, in exceptional cases it is possible to process the panels on site, with the note that the panels are coated and the cut edge will therefore not have the same colour after cutting as the surface. Tools with carbide cutting edges or diamond cutting edges are advantageous as cutting items. The visible side should be at the top when cutting and, if possible, a guide rail should be used.

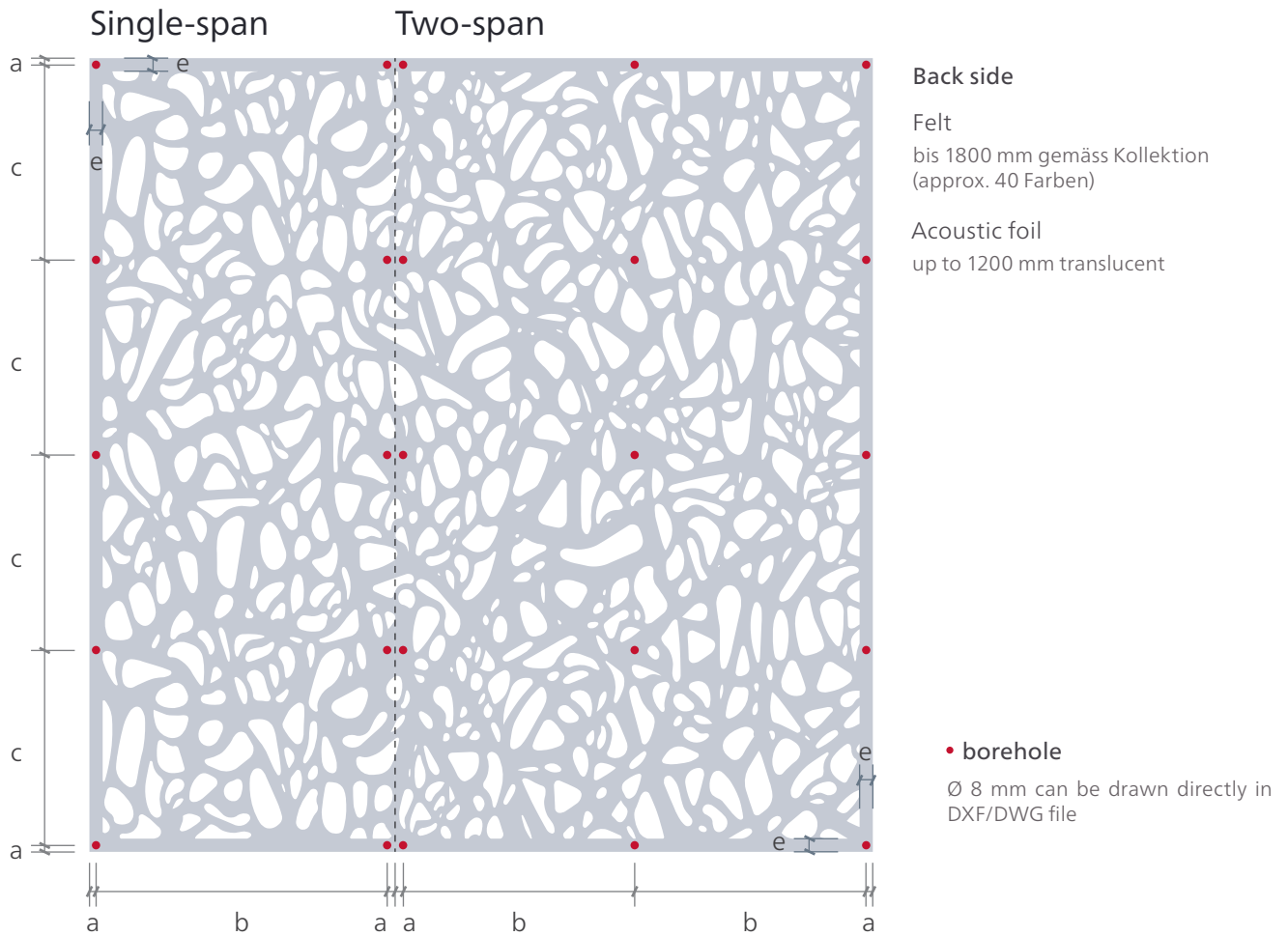
Spiral or dowel drills made of solid carbide are ideally used for drilling.

The material does not require post-treatment from the point of view of weather protection. However, if necessary, the edge can be coated with the supplied reserve paint.

Fastenings

02.

Fastening Distances



Position in mm	Description	Maximum distance				
		MDF		OAK PLYWOOD	CELLON®	
		10 mm	19 mm	18 mm	8 mm	10 mm
a	Distance borehole to edge	20				
b	Horizontal borehole distance	700	875	875	970	970
c	Vertical borehole distance	600	700	700	645	645
e	Frame without perforation	50				

Reciprocal conversion:

$$c \text{ (adjusted)} = b \text{ (max)} / b \text{ (effectiv)} \times c \text{ (max)}$$

$$b \text{ (adjusted)} = c \text{ (max)} / c \text{ (effectiv)} \times b \text{ (max)}$$

Fastenings

02.

Fasteners

Wooden Substructure

Truss-head Screw

Material:	Stainless steel A2
Length:	38 mm
Nominal diameter:	4.8 mm
Head diameter:	12 mm
Drives:	TX20
Borehole diameter:	8 mm



Metal Substructure

Hexagon-head screw (self-drilling with sealing washer)

Material:	Stainless steel A2 (with drill point and shaped thread made of hardened steel)
Length:	32 mm
Nominal diameter:	5.5 mm
Head diameter:	16 mm
Drives:	SW8, hexagon head
Borehole diameter:	8 mm



Blind Rivet

Material:	Aluminium/Stainless steel A2
Length:	8-13 mm
Nominal diameter:	5.0 mm
Head diameter:	14 mm
Drives:	Blind rivet tool
Borehole diameter:	8 mm



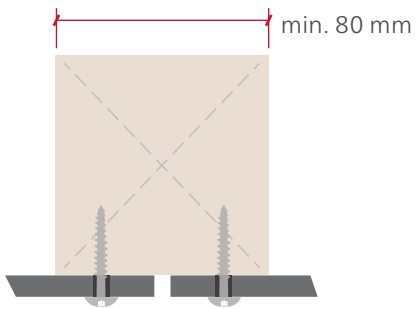
Substructure

03.

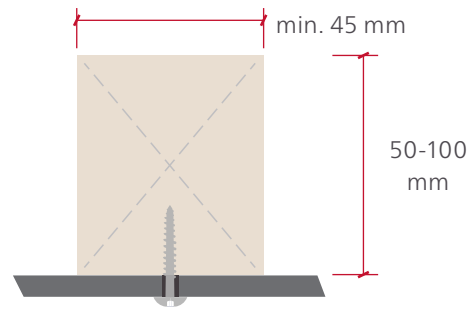
The substructure should be at least 50 mm, **ideally 100 mm**. It can be made in wood or metal.

Wooden Substructure

in Joint Area



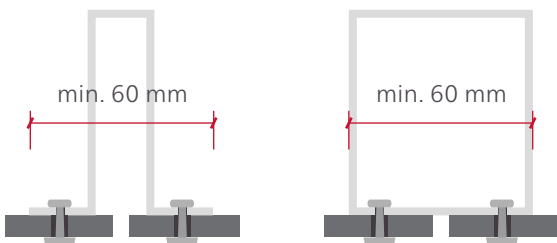
at Intermediate Batten



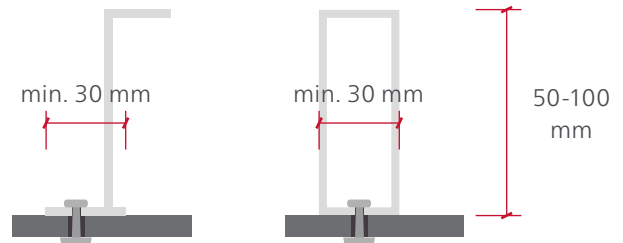
Metal Substructure

Metal Profiles

in Joint Area

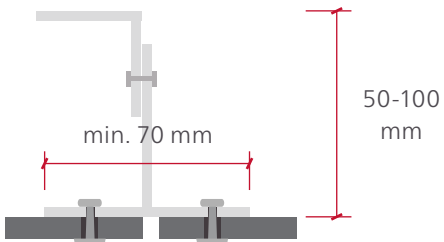


at Intermediate Fixation

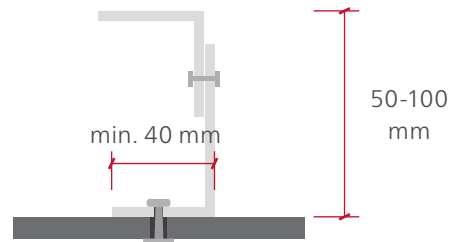


Hangers in the Ceiling Area

in Joint Area



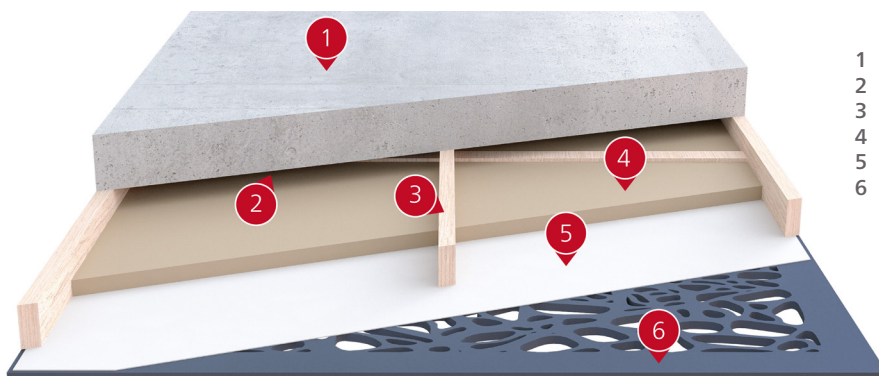
at Intermediate Fixation



Substructure

03.

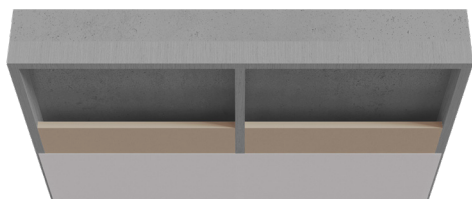
Perforated panels made of MDF, OAK PLYWOOD or CELLON® can be used to create visually unique acoustic structures. The perforation should have an open area of at least 40% for optimal sound absorption. Behind the perforated panel is a felt and a 30 mm thick sound absorber. The air space above the absorber should be correspondingly 20 to 70mm, so that the low tones can be absorbed as best as possible. The larger the air space, the better these tones are absorbed.



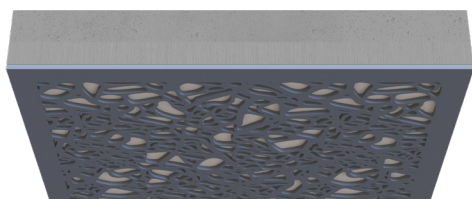
- 1 Concrete ceiling
- 2 Cavity
- 3 Construction frame in wood/metal
- 4 Sound absorber (30 mm)
- 5 Felt
- 6 MDF, OAK PLYWOOD or CELLON® Panel



Step 1
Fixation of the substructure

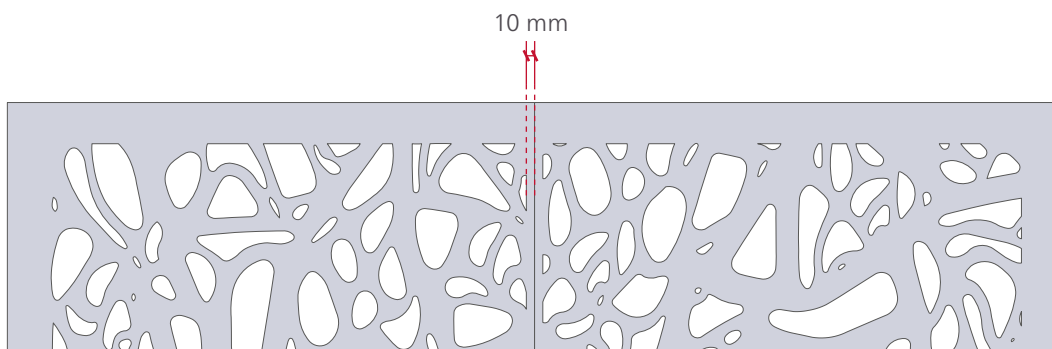


Step 2
Staple the felt onto the substructure and at the same time place the insulation on the felt (pay attention to the open areas of the perforated panels so that the staples are not visible at the end)



Step 3
Attachment of the perforated panels to the substructure

If the perforation is to run seamlessly over the panel joints, the felt must first be mounted on the substructure before the panels are fastened. For elements that shall be covered with felt on the back ex works, we recommend a closed edge of at least 10 mm at the butt joints. In this way, the transitions can be optimally processed and it is avoided that the felt is wrinkled in the joint area. This interrupts the pattern only very weakly and results in a nice transition between panels.

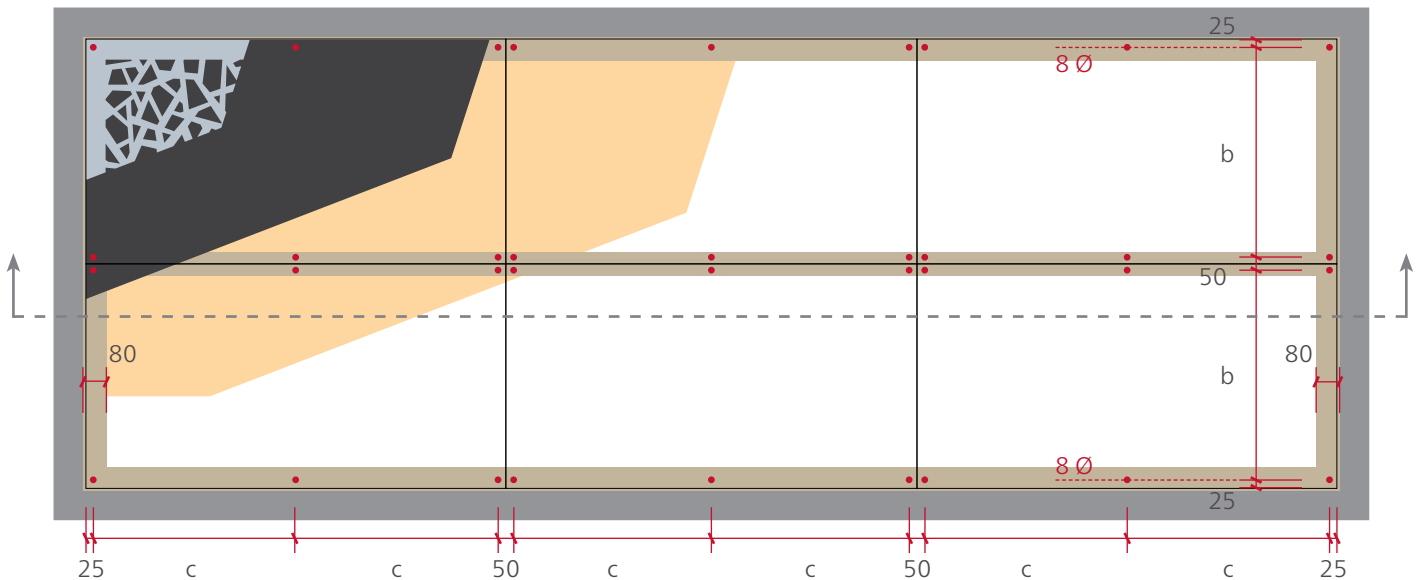


Construction Solutions

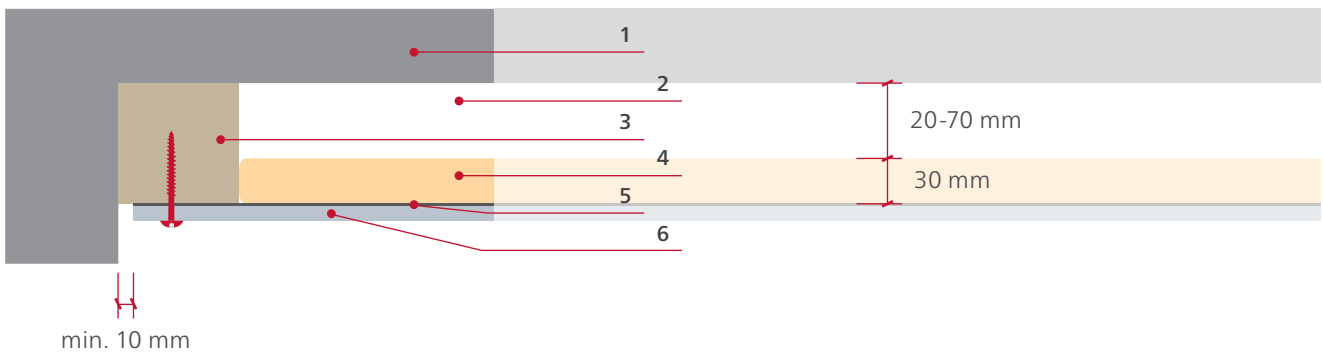
04.

Ceiling System with Shadowline

Floor Plan



Shadowline



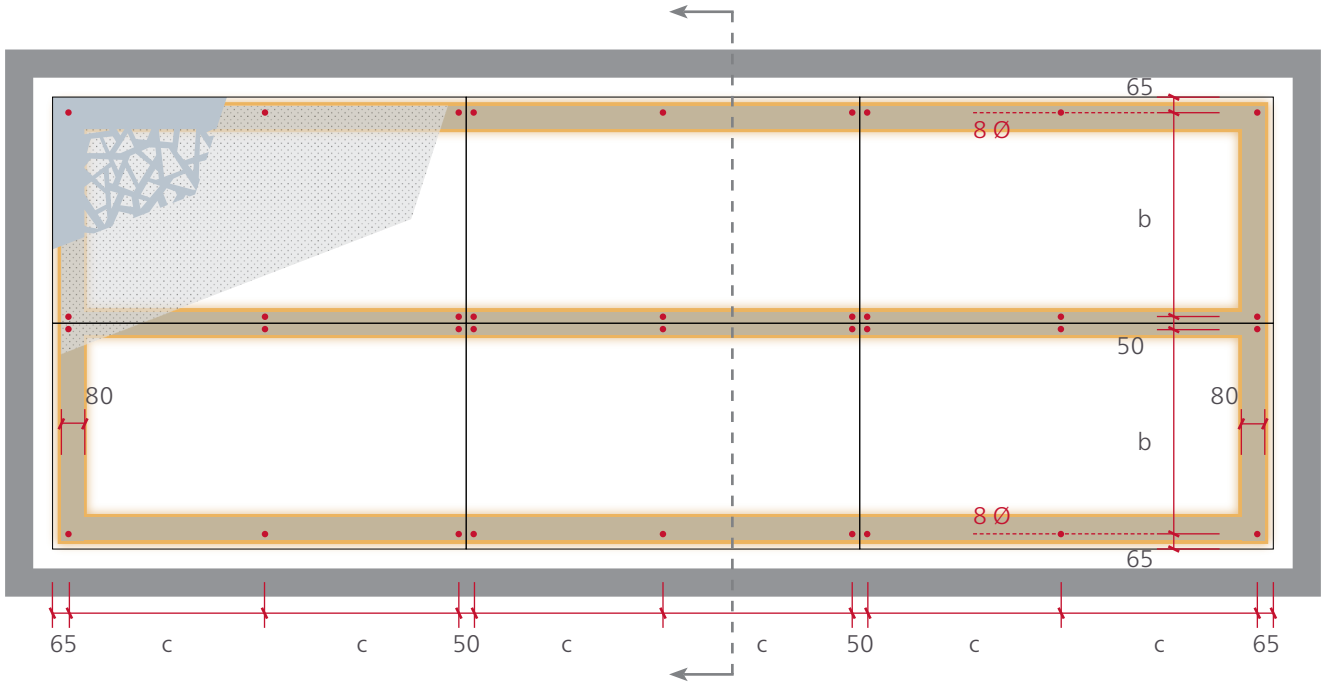
- 1 Concrete ceiling
- 2 Cavity
- 3 Substructure in wood or metal
- 4 Sound absorber
- 5 Felt
- 6 MDF, OAK PLYWOOD or CELLON® Panel

Construction Solutions

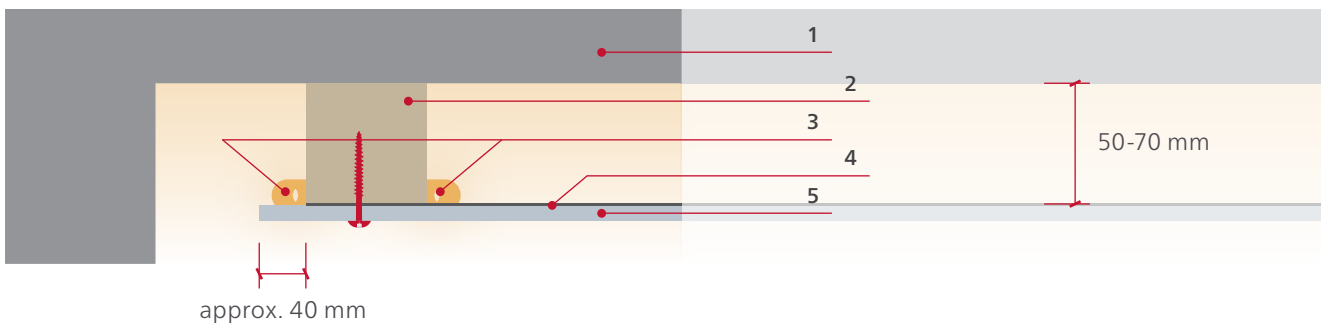
04.

Ceiling System with Integrated Lighting

Floor Plan



Edge distance with LED lighting



- 1 Concrete ceiling
- 2 Substructure in wood or metal
- 3 LED lighting
- 4 Translucent acoustic foil
- 5 MDF, OAK PLYWOOD or CELLON® Panel

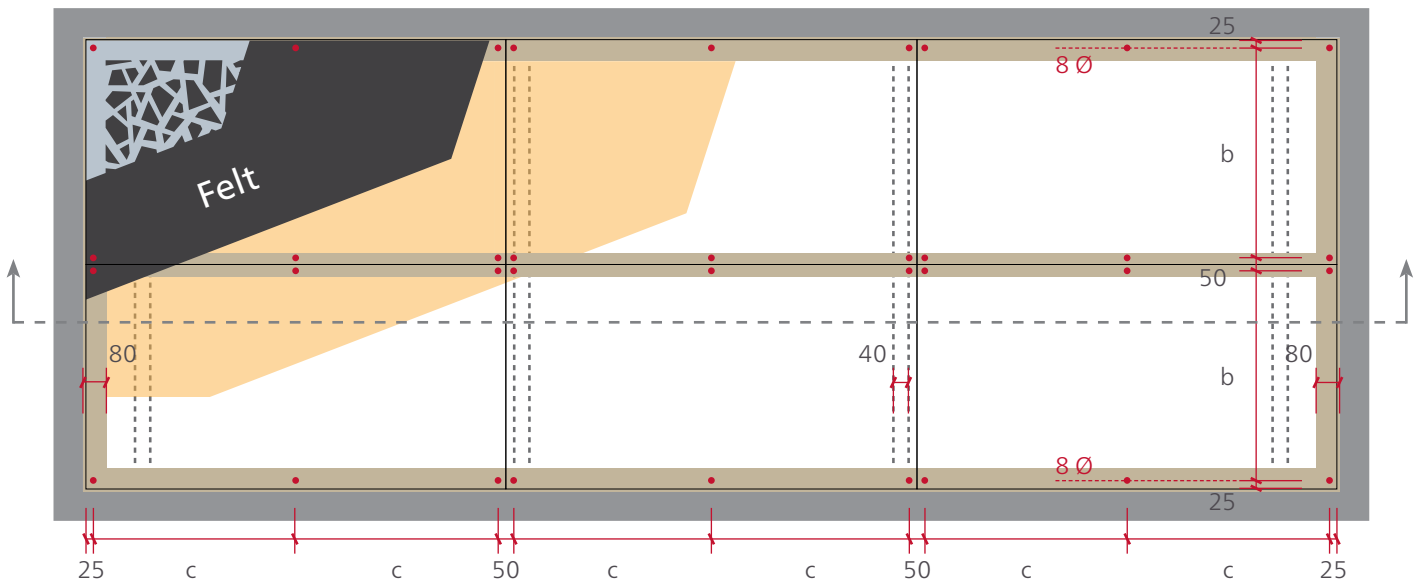
Construction Solutions

04.

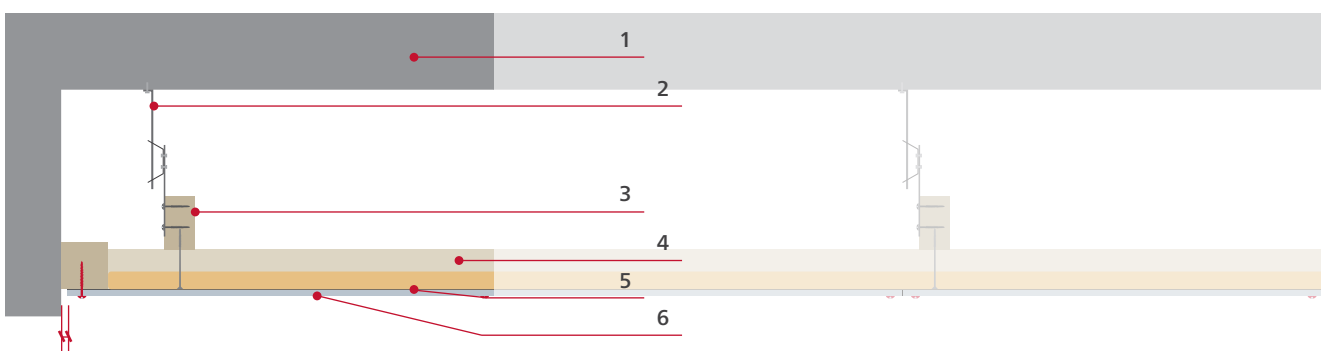
Ceiling System Visibly Screwed with Hanger

The panels can also be used for suspended ceiling systems. The dimensions of the basic and supporting battens, as well as the number of hangers and the distances between them must be in accordance with the guidelines from the system manufacturer. Panel weight for MDF 19mm, OAK PLYWOOD 18mm or CELLON® 8mm with approx. 40% open area is approximately 10 kg /m².

Floor Plan



Shadowline



min. 10 mm

- 1 Concrete ceiling
- 2 Hanging system e.g. from Knauf
- 3 Base batten 40 x 60 mm
- 4 Support batten 70 x 30 mm
- 5 Felt
- 6 MDF, OAK PLYWOOD or CELLON® Panel

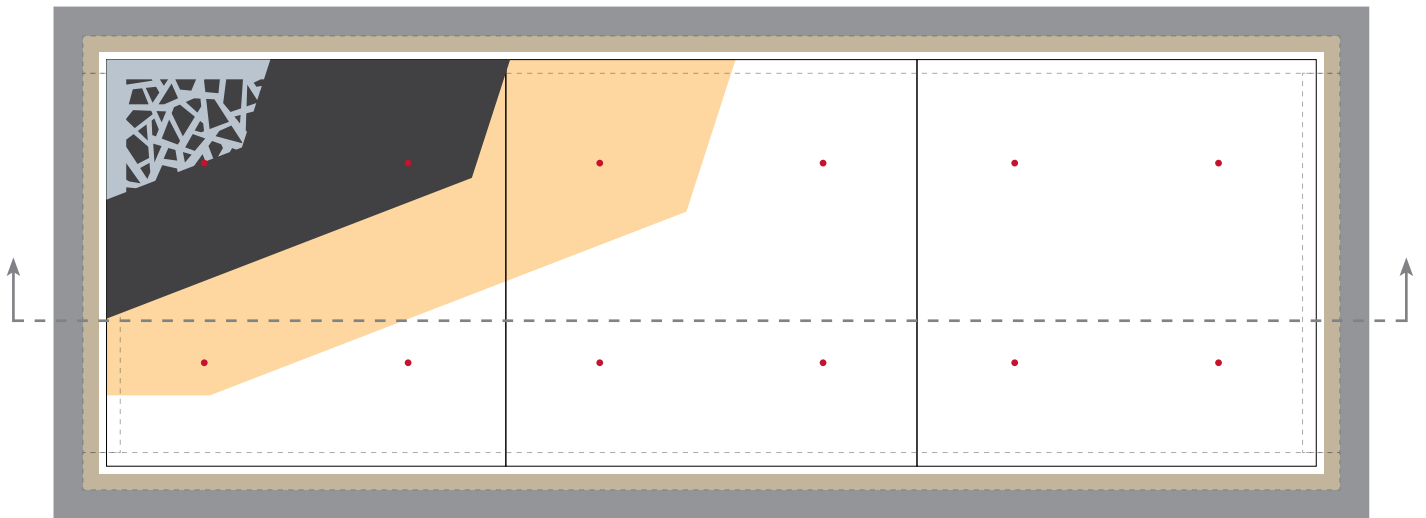
Construction Solutions

04.

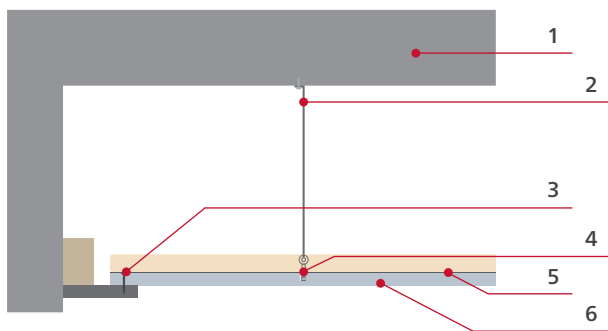
Ceiling System Invisibly Fixed with Hangers

Lateral edge support with a locking screw so that the panels can no longer move. Depending on the width, there are one or two point hangers in the middle, which can be attached to the panel with a threaded sleeve.

Floor Plan



Shadowline

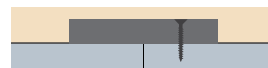


- 1 Concrete ceiling
- 2 Adjustable wire hanger
- 3 Locking screw
- 4 Threaded sleeve
- 5 Felt
- 6 MDF or OAK PLYWOOD Platte

Connection with Lamello



Connection with Overlap



Threaded sleeve

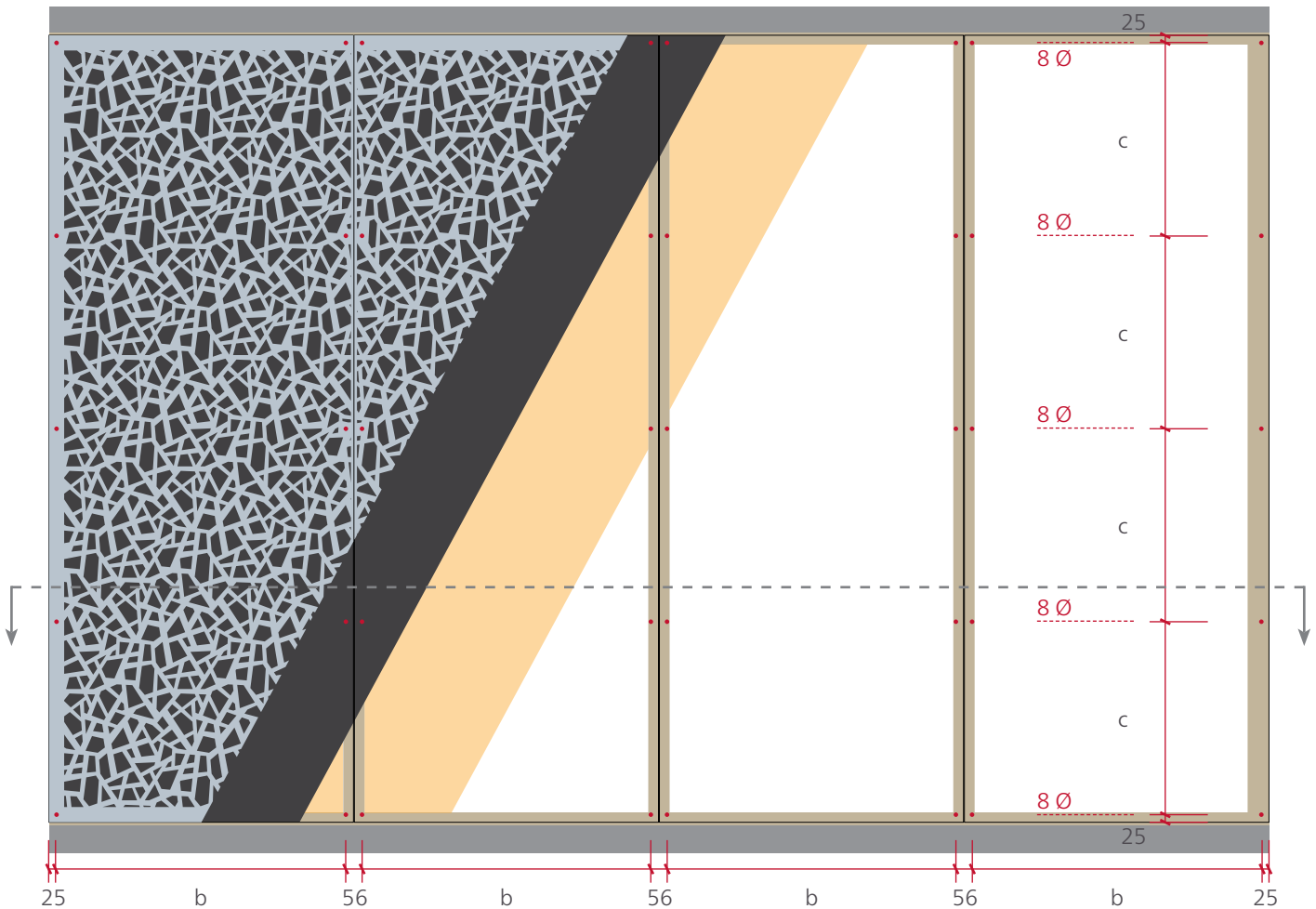


Construction Solutions

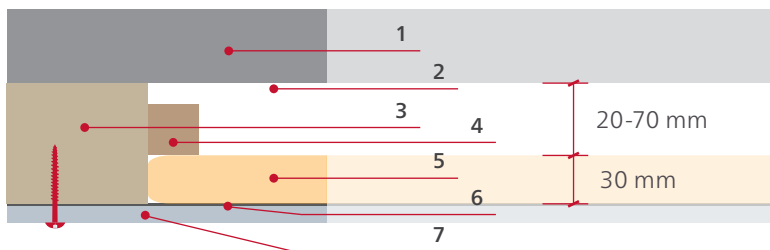
04.

Wall System

Elevation Plan



Detail



- 1 Wall
- 2 Cavity
- 3 Substructure in wood or metal
- 4 Strip
- 5 Sound absorber
- 6 Felt
- 7 MDF, OAK PLYWOOD or CELLON® Panel

Noise Virus Catcher®

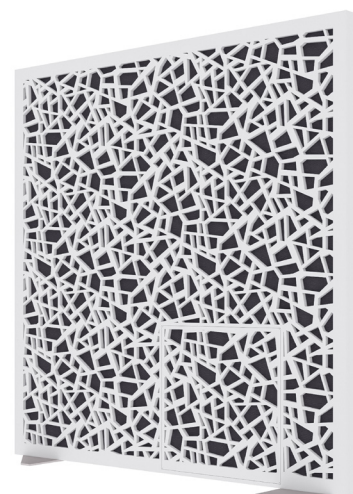
05.

Design Element | Portable Room Divider | Sound Absorber $aw\ 0.75$ | Virus Filter H14

General Information

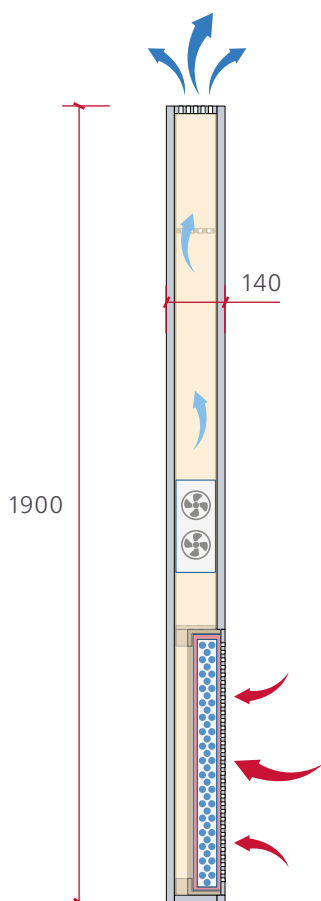
Material:	95% wood material
Standard size:	1900 x 1900 x 140 mm
Standard weight:	< 100 kg
Standard design:	Perforation 50101 with 56% open surface
Standard color:	RAL 9010 with black felt

Other formats, designs and colours on request!



Technical Information

- Filter size: 2 x (610 x 610 x 66 mm)
- Filter quality: H14 EN 1822 (each filter is certified)
- Filter performance: MPPS 99.995% | aerosol > 0.20 μm (as used in operating rooms)
- Ventilation performance: 180 m^3/h
- 100:1 recovery time: 23.9 minutes (theoretically best possible recovery time with clean air would be 23.4 minutes)
- Potentiometer allows stepless, individual regulation
- Entry air speed: 0.46 m/s
- Exit air speed: 7.00 m/s
- Silent even under full power
- Element can be ordered rotated by 180 degrees (so that the filters are on top) or can also be converted accordingly afterwards



- | | |
|--------------------|-----------------------------------|
| 1 MDF design | 4 Ventilation system |
| 2 Felt | 5 MDF design |
| 3 Sound insulation | 6 Construction frame + metal feet |

More details on the technical values can be found in the test report of the Lucerne University of Applied Sciences and Arts.



Additional Details

06.

Panel Connections

Lamello for MDF



Steel bolts for CELLON®



In the case of multi-part elements made of **MDF** and **OAK PLYWOOD**, **Lamello** connectors can be milled into the panel joints. A depth of 12 mm is required on each side for the milling. The pattern has sometimes to be adjusted slightly at these points.

For multi-part elements made of **CELLON®**, 12 mm long **steel bolts** can be drilled in at the panel joints on the face side. This ensures that the panels are always in the same alignment.

Edge Characteristics

The edges are black due to the laser cutting. A shimmering through of the black laser edge cannot be completely avoided with light colors, especially in acute-angled perforations. Slight puncture points from the laser are visible in the perforations. This is a product property and therefore not a reason for complaint.

Our outer edges are not reworked manually. This means that certain unevenness can occur with MDF 19 and 30 mm.

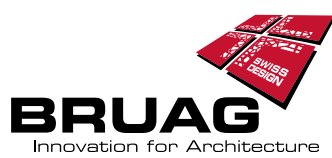


Design

07.

You can find the entire perforation collection in our catalogue.





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