



BRUAG
Innovation for Architecture

Balcony Acoustic Systems

CELLON[®] design
FORMBOARD[®] design

Technical data sheet for planning,
construction and execution

A.5

Version 3.0

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General Information

01.

Material

Our **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 **FORMBOARD TOP PINE®** panel is a high-density wood-based panel bonded with polyurethane. The material is moisture and temperature resistant and is used in protected outdoor areas.

Application area: protected outdoor areas (e.g. soffits, protected facade parts)
Panel thickness (weight): 10mm (ca. 8kg/m²), 18mm (ca. 14kg/m²)
Reaction to fire class: RF3, B2 (DIN 4102-1), D-s2-d0 (EN 13986)

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**.

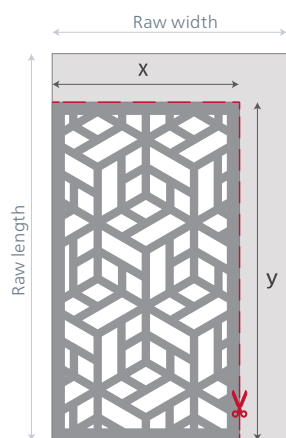
Panel Formats

Please consider the following raw panel formats for waste optimisation:

perforated panels

CELLON® design

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

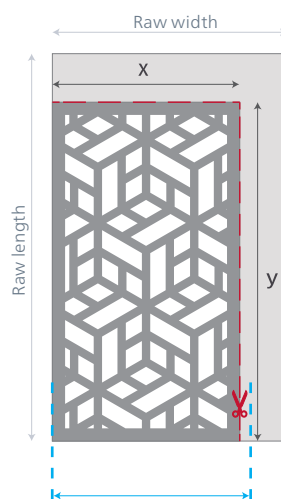


*Only this format is also available with a decor surface in stone or wood look.

perforated panels

FORMBOARD® design

Raw width	Raw length
1300 mm	4050 mm



Raw material format is 2050 mm but **coating** is only possible up to a width of **1300 mm**.

Note

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

CELLON® and FORMBOARD TOP PINE® panels must never be stored unprotected horizontally outdoors. If water remains on the horizontally lying panels, damage to the paint may occur! Please always place the dry PU foam foils supplied as a separating layer between the individual boards.

The boards can be cleaned with water and a cloth or magic sponge. Careful use of a high-pressure cleaner is also possible with sufficient distance and little pressure. 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.

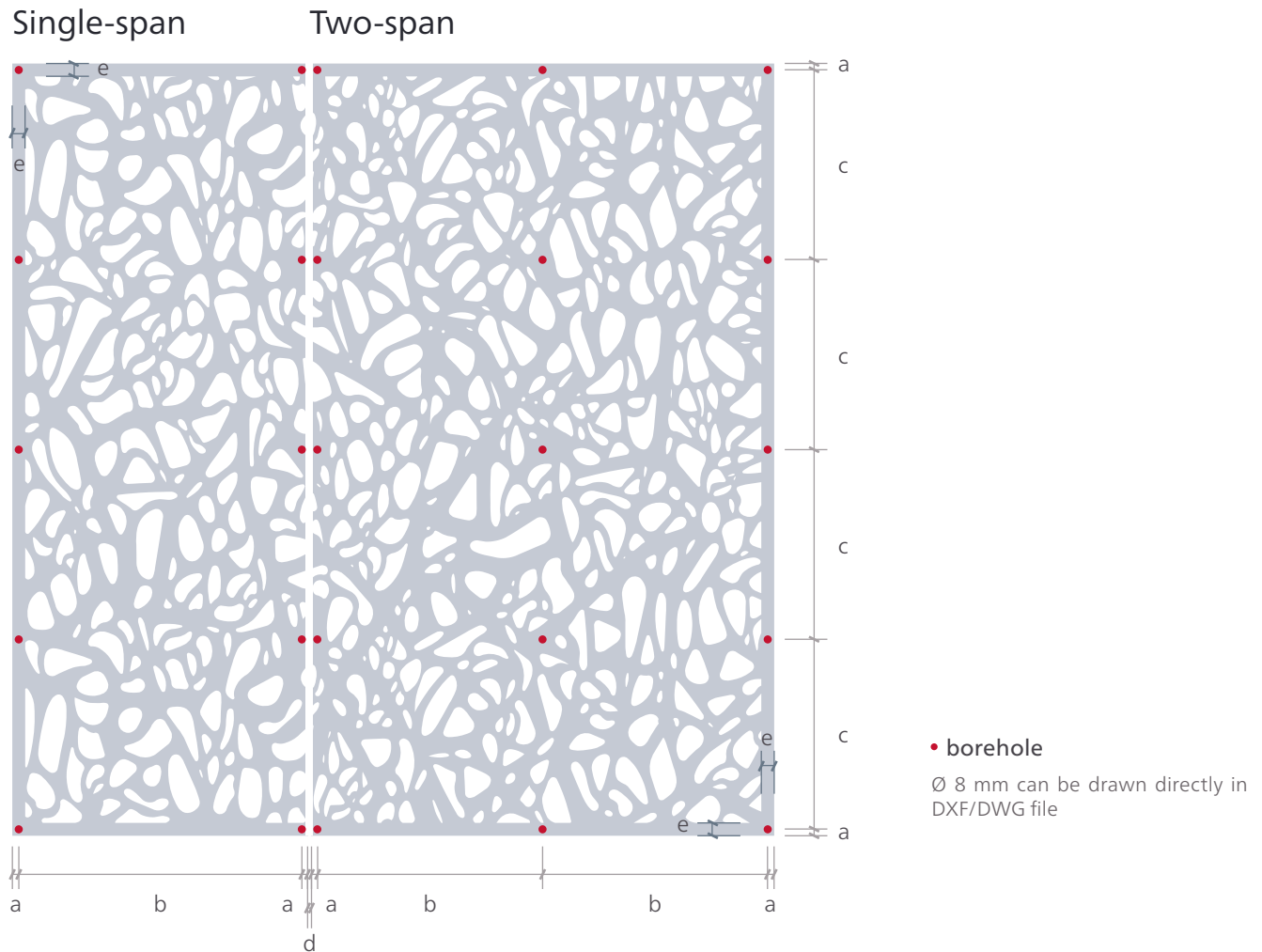
Spiral or dowel drills made of solid carbide are ideally used for drilling.

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



Maximum distance according to wind load q_{ek} (wind pressure or suction)

Position	Description	CELLON® 8 mm FORMBOARD TOP PINE® 10 mm				CELLON® 10 mm FORMBOARD TOP PINE® 18 mm			
		0.5 kN/m ²	1.0 kN/m ²	1.5 kN/m ²	2.0 kN/m ²	0.5 kN/m ²	1.0 kN/m ²	1.5 kN/m ²	2.0 kN/m ²
a	Distance borehole to edge	20				20			
b	Horizontal borehole distance	970	815	735	685	1300	1200	1030	890
c	Vertical borehole distance	645	465	350	235	290	170	130	115
d	Joint	6				6			
e	Frame without perforation	50				50			

Reciprocal conversion:

c (adjusted) = b (max) / b (effectiv) x c (max)
 b (adjusted) = c (max) / c (effectiv) x b (max)

The values given are guidelines and do not release you from having an object-related inspection carried out by a qualified engineer. Test results for the tests according to EN 789, EN1048, EN 14358, EN 383, EN 1383, EN 310 and EN 13879 can be found in a separate test report.

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



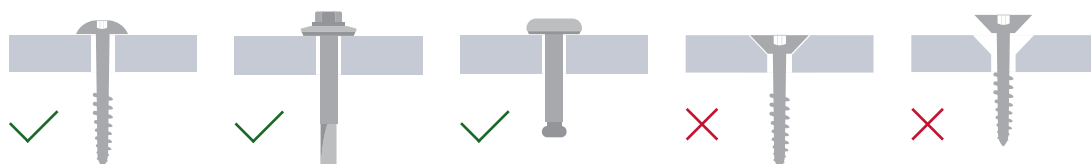
Blind Rivet

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



Note

Screws and rivets are to be placed concentrically in the drilled holes. **NO COUNTERSUNK SCREWS MUST BE USED!**



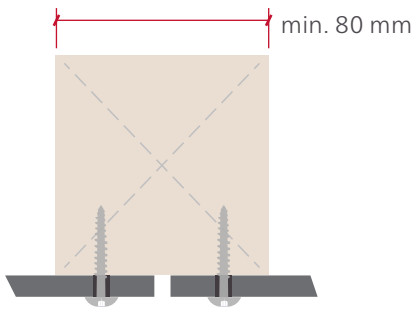
Substructure

03.

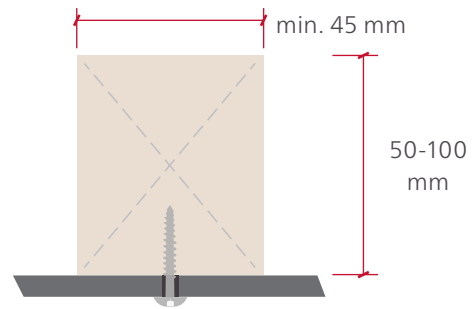
The substructure should be at least 50 mm, **ideally 100 mm**. It can be made in wood or metal.

Wooden Substructure

in Joint Area



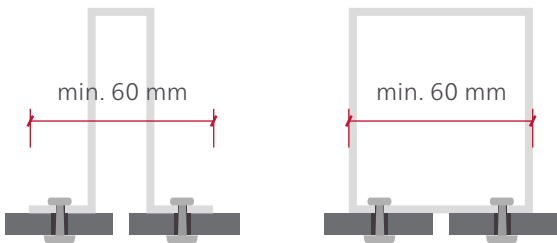
at Intermediate Batten



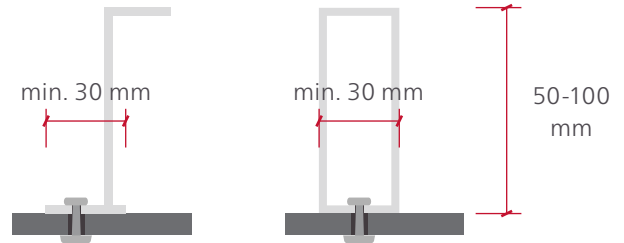
Metal Substructure

Metal Profiles

in Joint Area

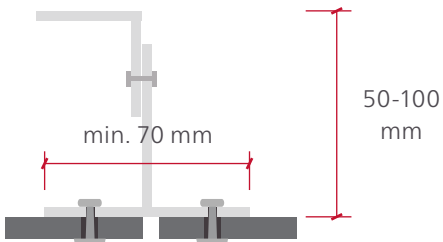


at Intermediate Fixation

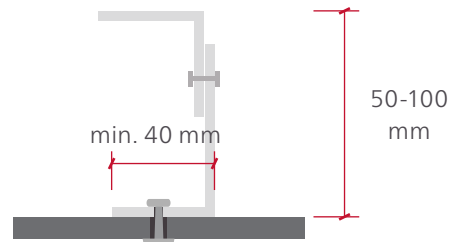


Hangers in the Ceiling Area

in Joint Area



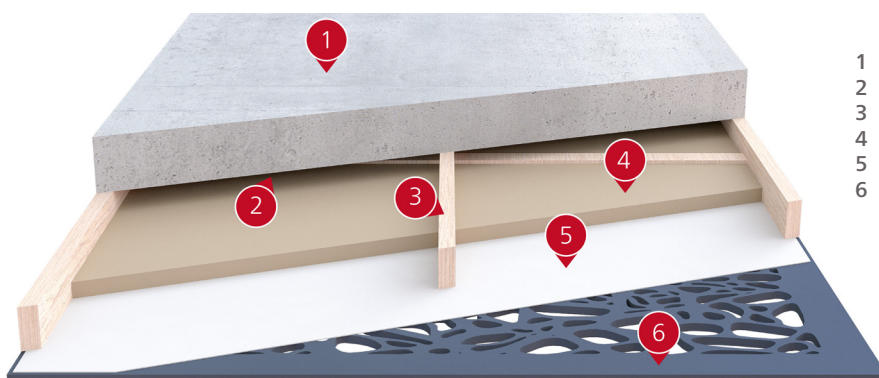
at Intermediate Fixation



Substructure

03.

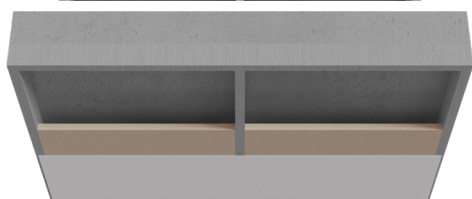
Perforated panels made of CELLON® or FORMBOARD TOP PINE® can be used to create visually unique acoustic structures. The perforation should have an open area of at least 40% for optimal sound absorption. Behind the perforated panel is a fleece and a 30 mm thick sound absorber. The air space above the 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.



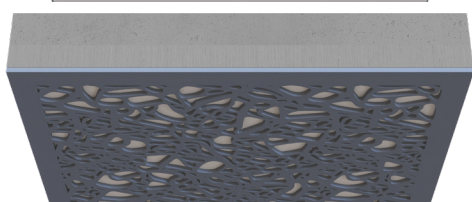
- 1 Concrete ceiling
- 2 Cavity
- 3 Construction frame in wood/metal
- 4 Sound absorber (30 mm)
- 5 Fleece
- 6 FORMBOARD TOP PINE® or CELLON® Platte



Step 1
Fixation of the substructure

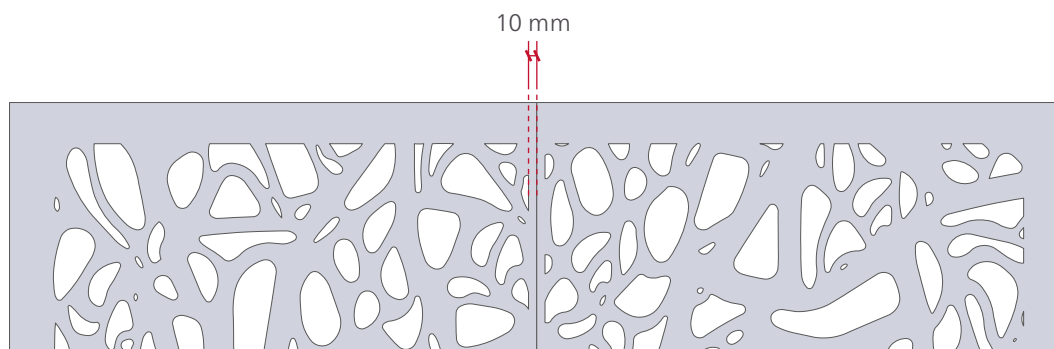


Step 2
Staple the fleece onto the substructure and at the same time place the insulation on the fleece (pay attention to the open areas of the perforated panels so that the staples are not visible at the end)



Step 3
Attachment of the perforated panels to the substructure

If the perforation is to run seamlessly over the panel joints, the fleece must first be mounted on the substructure before the panels are fastened. For elements that shall be covered with fleece 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 fleece is wrinkled in the joint area. This interrupts the pattern only very weakly and results in a nice transition between panels.

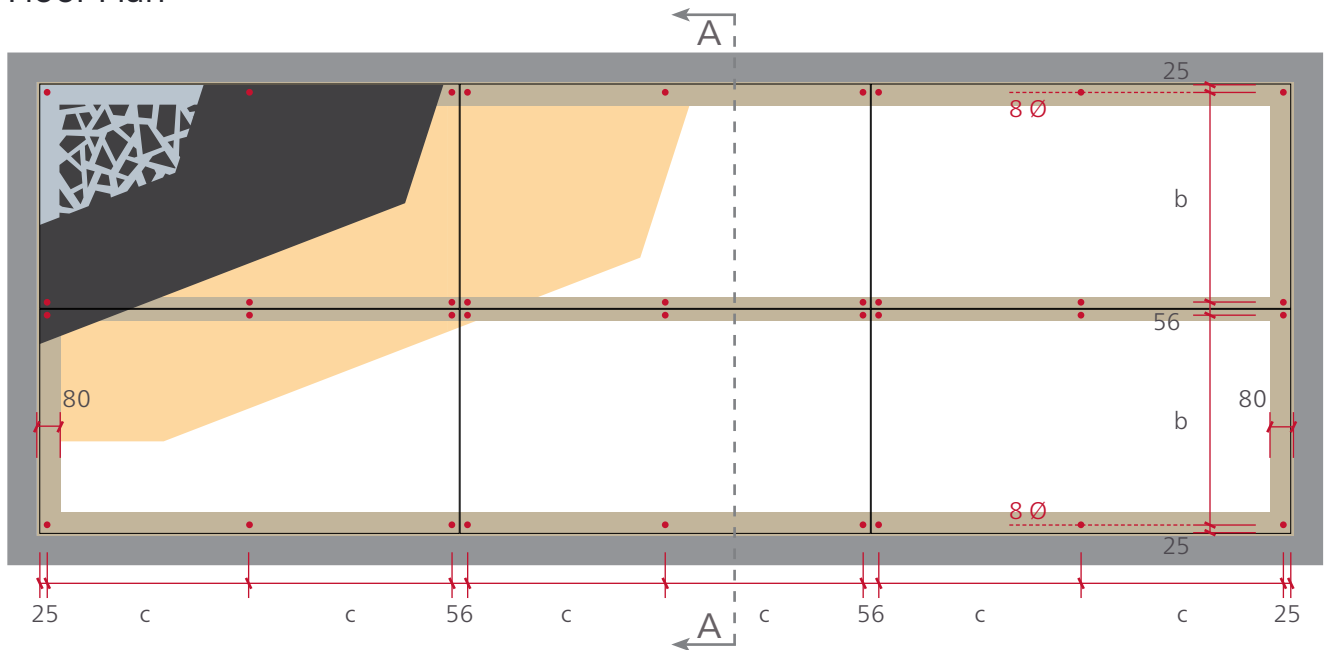


Construction Solutions

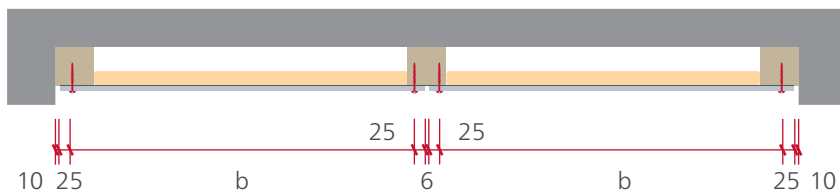
04.

Ceiling System with Shadowline

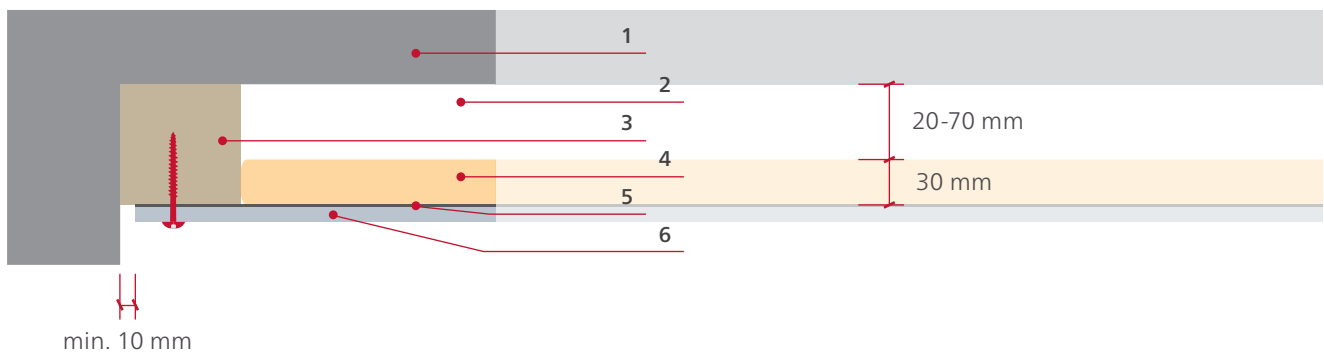
Floor Plan



Section Plan A-A



Shadowline



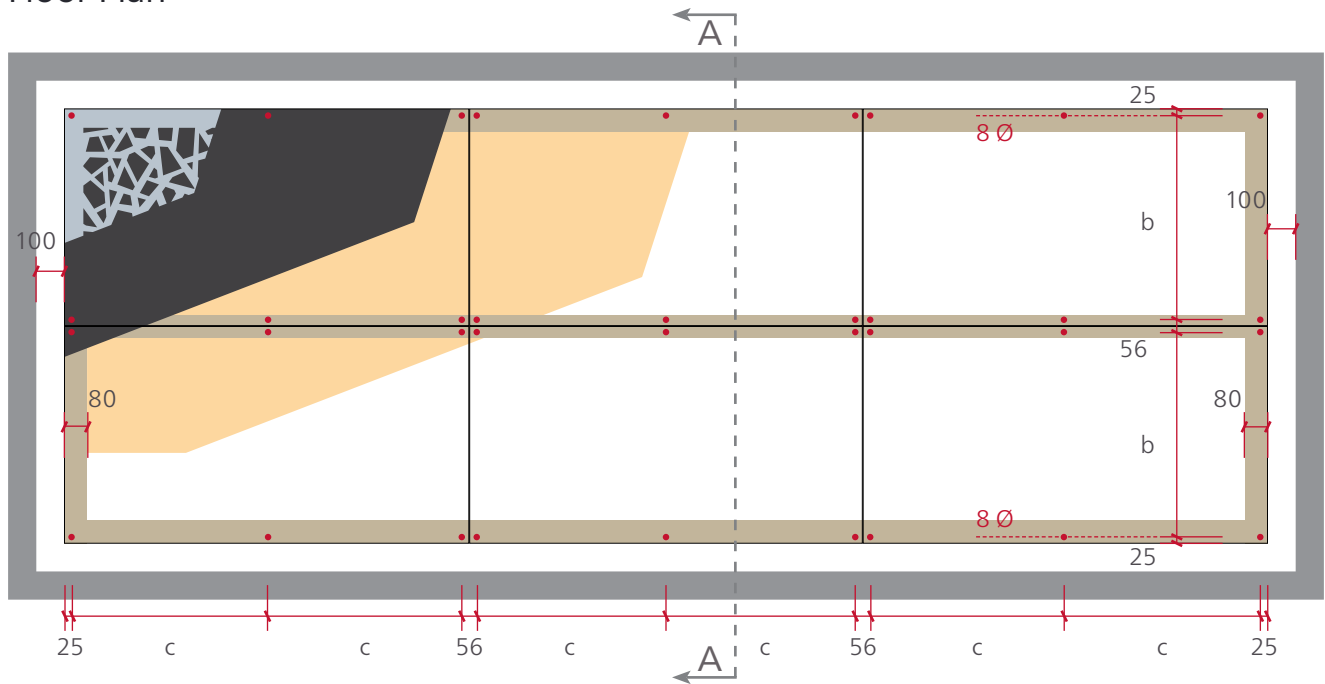
- 1 Concrete ceiling
- 2 Cavity
- 3 Substructure in wood or metal
- 4 Sound absorber
- 5 Fleece
- 6 FORMBOARD TOP PINE® or CELLON® Platte

Construction Solutions

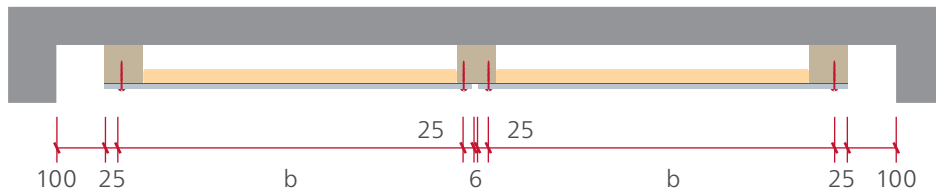
04.

Ceiling System with Edge Distance

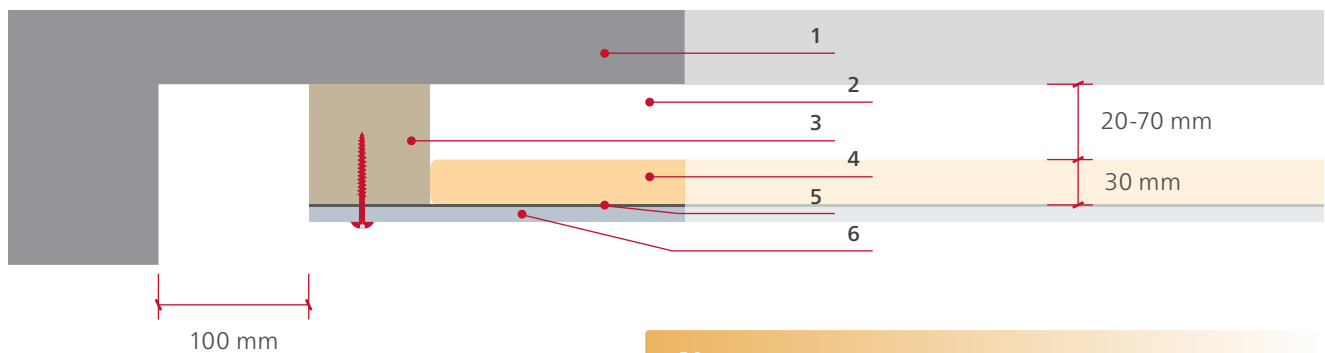
Floor Plan



Section Plan A-A



Edge Distance



- 1 Concrete ceiling
- 2 Cavity
- 3 Substructure in wood or metal
- 4 Sound absorber
- 5 Fleece
- 6 FORMBOARD TOP PINE® or CELLON® Platte

Note

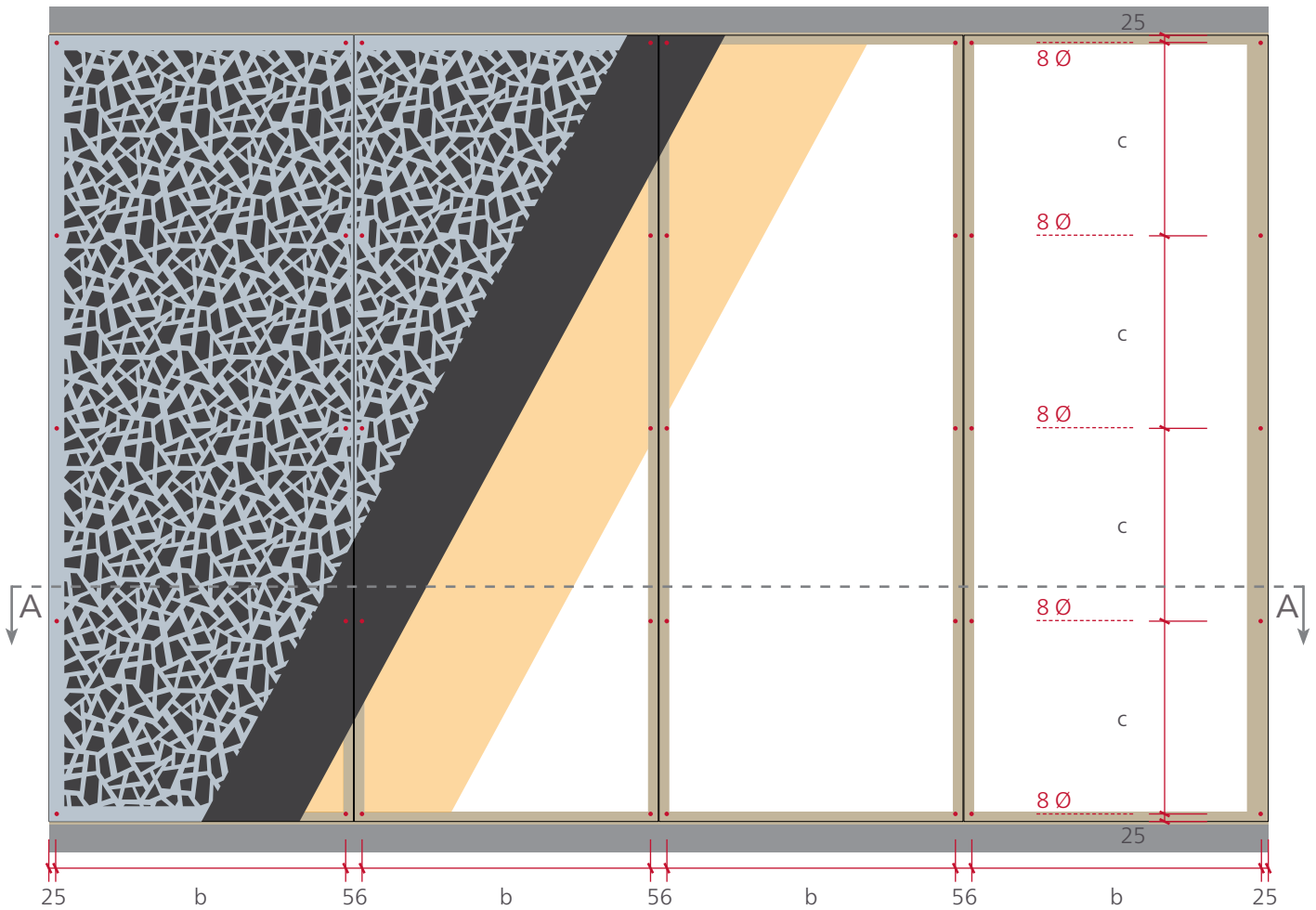
In the case of rectangular surfaces, it is advisable to start with the structure on all sides approx. 100 mm from the edge. This makes planning and installation more efficient.

Construction Solutions

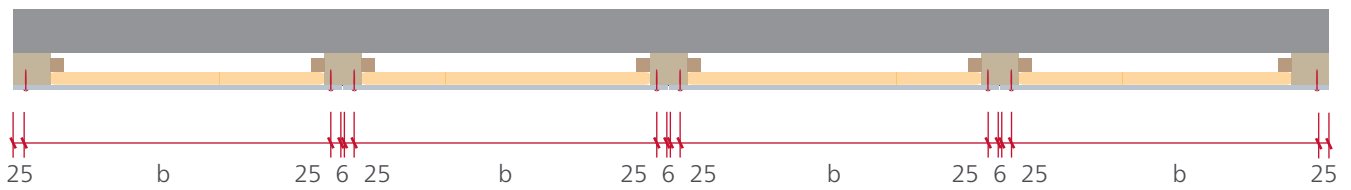
04.

Wall System

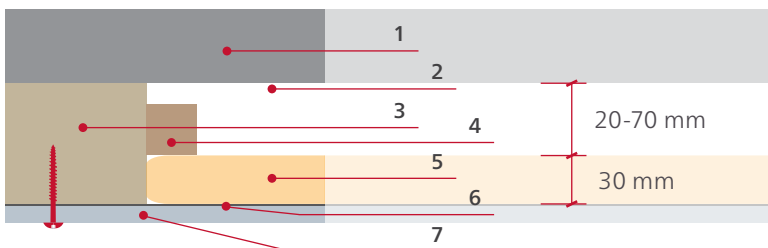
Elevation Plan



Section Plan A-A



Detail

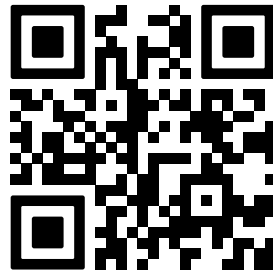


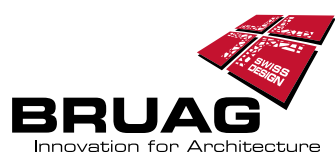
- 1 Wall
- 2 Cavity
- 3 Substructure in wood or metal
- 4 Strip
- 5 Sound absorber
- 6 Fleece
- 7 FORMBOARD TOP PINE® or CELLON® Platte

Design

05.

You can find the entire perforation collection in our catalogue.





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