



## *Curved Ceiling & Wall* **INSTALLATION** **Installation Principles**

Plasterboard can be curved to create imaginative architectural drama and effects.



## **Version 1** ***Curved Ceiling & Wall* INSTALLATION • Installation Principals** **April 2023**

With proper framing methods and careful installation, curved walls and ceilings are possible. GypSorb panels can achieve tight and gentle curves with proper preparation. All of the GypSorb plasterboard product range can be curved if required.

For technical assistance, please contact:

**206.571.5710**  
**tech@gypsorb.com**

# DESIGN AND SPECIFICATION

## USE OF THE PRODUCT

GypSorb Acoustic Panels are the perfect solution for combining unique interior design and acoustic performance. GypSorb can be curved on a ceiling or wall when built on a metal grid system and doesn't have any visible joints. The curved ceiling and walls can be used in many different segments, like, schools, office buildings, health care facilities, library, lobbies and so on. The GypSorb panels are fully recyclable materials.

### Size Availability

See GypSorb website for available sizes in Sonus / Strata / Stratum. [www.gypsorb.com](http://www.gypsorb.com)

### Surfaces

GypSorb panels come in multiple perforation pattern options. Sonus / Strata / Stratum. The gypsum surface is intended to be painted after installation and not left unpainted. Paint must be applied with a short nap roller (1/4" recommended). Do not spray paint panels as this will substantially degrade the panel's acoustic performance. Joints should be taped, finished, and sanded. See page 5 #10, #11 and #12 for joint finishing.

### Attachment

GypSorb panels are attached to radius track ceiling or wall framing systems consisting of a minimum of 1-3/4" screw surface for adequate attachment.

**Fire**  
ASTM E 1264 Classification: Type XII, Form 2, Pattern G, Fire Class A.

### Load

Maximum point load is 2.2 pounds. If a higher load is needed, the elements should be independently suspended from the structure.

### Stability

GypSorb should be installed and used in rooms with relative low humidity not exceeding 70% or temperatures that exceed 104° F. GypSorb can be curved (dry) to a maximum 10-foot radius and curved (wet) to a maximum 5-foot radius.

### Weight

1.80 PSF

### Cleaning

GypSorb panels can be cleaned with a damp lint free cloth depending on the final surface treatment. The use of a mild detergent is recommended.

### Maintenance

Individual GypSorb panels can be replaced as needed. Repainting should be done with a short nap roller and blended into neighboring panels. Panels must not be spray painted.

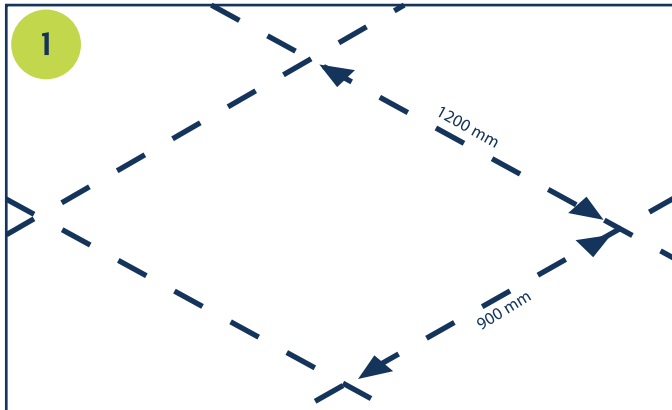
GypSorb panels should be installed in climate-controlled conditions.

### Safety and Handling

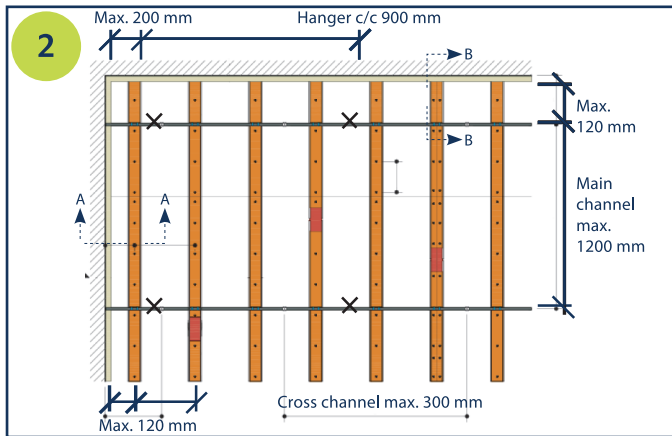
When cutting product, eye protection and ear protection is recommended.

# INSTALLATION FOR GYPORB CURVED CEILING & WALL

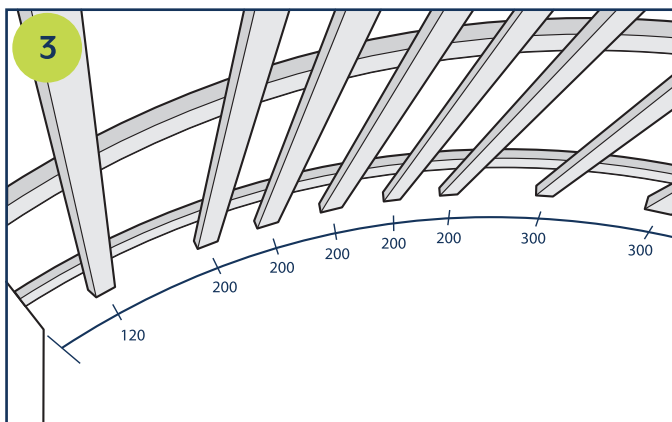
## READ THE ENTIRE MANUAL BEFORE INSTALLING



Make a plan of where you will place the hangers. Fix the hangers using the appropriate fasteners. Hanger center distance = 900 mm. Main channel center distance = 1200 mm.



The first hanger should be placed with a maximum distance of no more than 200 mm from the wall. The center distance for the main channels are 1200 mm. The first main channel should be placed no more than 120 mm from the wall. See image 3 below.

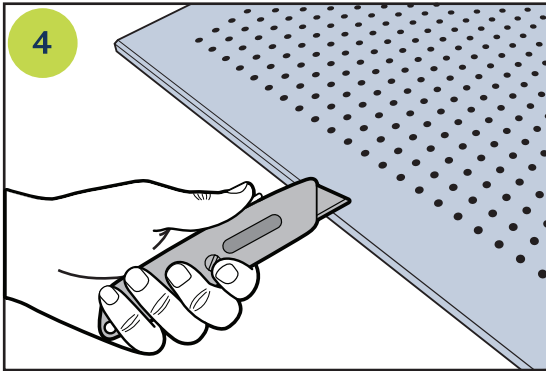


Where there is a connection between the short edges of the GypSorb panel, it is important to place the cross channels with a center distance of 200 mm to secure a smooth curved transition between the GypSorb panels.

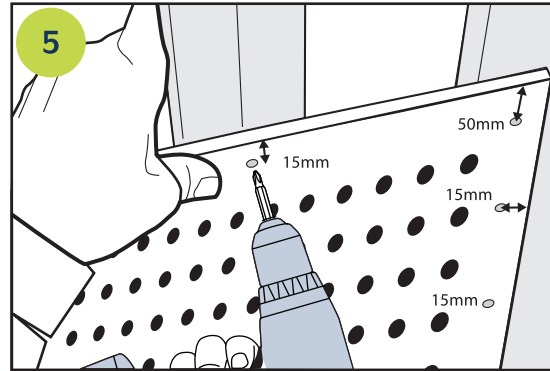


# INSTALLATION FOR GYPSORB CURVED CEILING & WALL

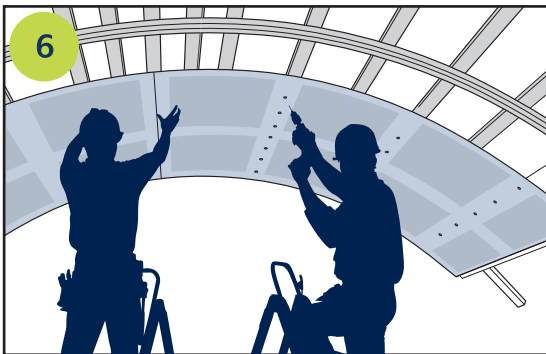
## GYPSORB PANEL, DRY CURVING



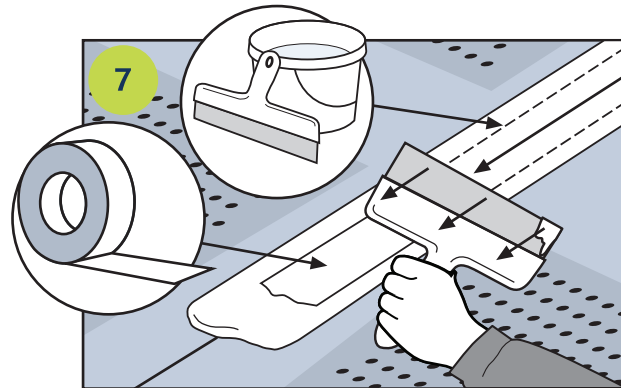
PolySorb has only taped edges on the long sides. On the short side/end, it is important to make a beveled edge with a knife or sanding pad so filler can be used in the connections between the panels.



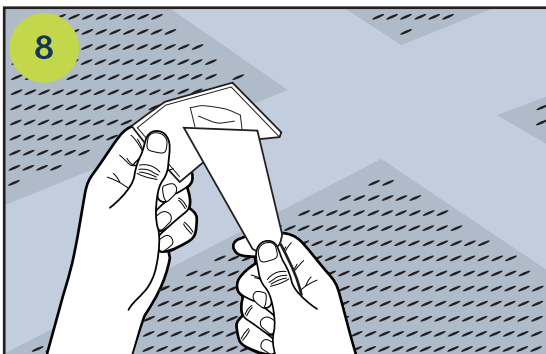
The panel must be attached to the steel system with proper screws for application. All short edges must be supported by the steel grid system as well.



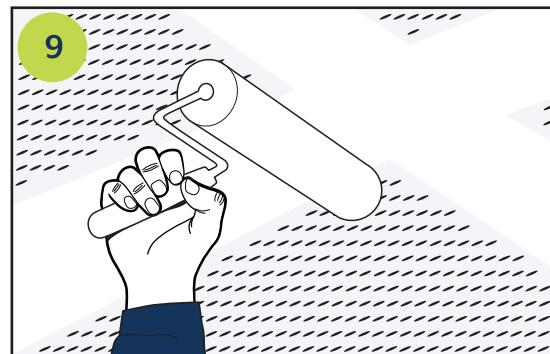
Installation of the panels on the grid system, must be done with an even amount of pressure applied slowly to the boards. Place the screws according to the fixing template on page 4. The dry panels must be curved along its length, not width.



Fill all joints with an appropriate GypSorb Ready Mix filler along with sheet rock paper tape/strips. When the filler is dry, use fine sandpaper to make a smooth surface between the panels. Do not overlap the sheet rock paper tape/strips.



To cover the screws, use GypSorb Ready Mix. Do not get filler in perforations. Repeat using filler and fine sandpaper until surface of the board is smooth and paint ready.



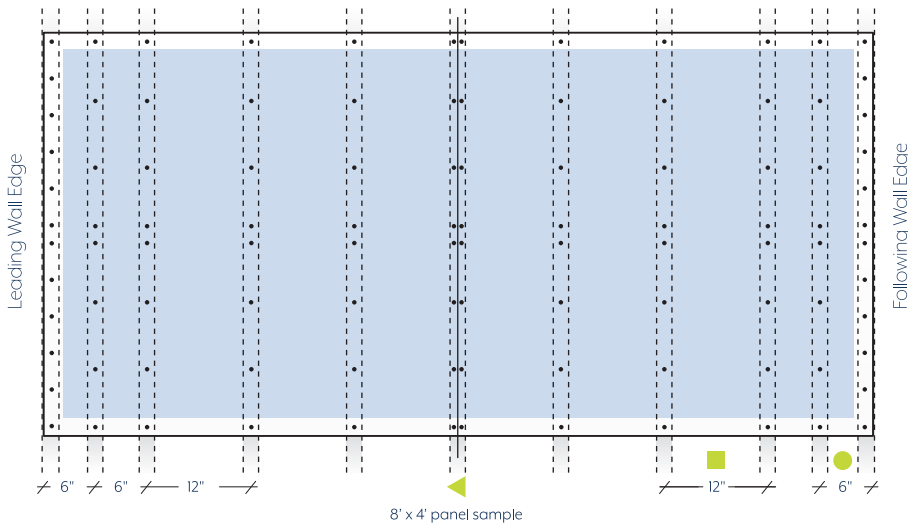
Paint GypSorb panels with a short napped roller. Prime the panel first and paint twice. Avoid getting paint in the perforation holes. Do NOT spray paint panels, because getting paint on the interior acoustic tissue will strongly reduce the acoustic panel performance.

# INSTALLATION FOR GYPSORB CURVED CEILING & WALL

## GYPSORB PANEL, BENT ON LENGTH, DRY CURVING

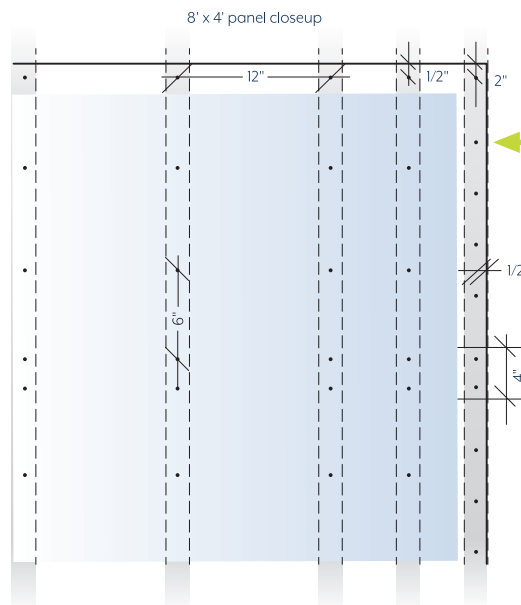


Length bending can be done on dry panels if the radius isn't too extreme.



### Fixing Template

Main channels o.c. 1200mm (48") ◀  
and cross channels o.c. 300mm (12") ■  
(cross channels o.c. 150mm (6") ●  
at the short edges).



**Screw Spacing:**  
Space screws equally to spread the load.  
Do not set too close to the panel edges!

# INSTALLATION FOR GYPORB CURVED CEILING & WALL

## GENERAL REQUIREMENTS

|                                                                                                |
|------------------------------------------------------------------------------------------------|
| Only use GypSorb for applications where the radius is less than 900mm.                         |
| Fix ceiling framing at 300mm maximum centers for installation of GypSorb.                      |
| Ensure that the radius on the convex side is not too tight for the corresponding concave side. |
| Stagger recessed edges and butt joints by 200mm minimum between layers.                        |
| Curve plasterboard along the short edge (width ways) for tighter radii and easier jointing.    |
| Curve fire rated walls and ceilings to a minimum radius of 3000mm.                             |

## Wetting Curved Plasterboard

Hot, humid conditions are ideal for curving plasterboard. In cold, low-humidity conditions or if very tight curves are required, prepare the plasterboard as follows:

- > Use a clean paint roller or sponge to apply a small amount of water to the plasterboard surface that will be in compression. Add a small amount of detergent to the water in very dry conditions to act as a wetting agent.
- > Allow at least 15 minutes for the water to soak in before bending the plasterboard.

- > **A Rondo Flexi-Track and stud system is recommended for framing curved walls or ceilings.**
- > **Avoid joints parallel to studs in the curved section.**
- > **Only the face layer needs to be jointed.**
- > **The minimum curve radius is determined by the concave side.**
- > **A minimum of two layers of GypSorb is recommended.**

## Framing

### Maximum Frame Spacing And Minimum Curve Radius For GypSorb

|                                        | Curve Radius (mm)            |         |         |          |           |           |           |           |           |        |
|----------------------------------------|------------------------------|---------|---------|----------|-----------|-----------|-----------|-----------|-----------|--------|
|                                        | 250-450                      | 450-650 | 650-900 | 900-1000 | 1000-1500 | 1500-2000 | 2000-2500 | 2500-3000 | 3000-4000 | > 4000 |
|                                        | Maximum Framing Centres (mm) |         |         |          |           |           |           |           |           |        |
| Concave GypSorb<br>Curved along length | –                            | –       | 200     | 200      | 200       | 250       | 300       | 350       | 450       | 550    |
| Convex GypSorb<br>Curved along length  | –                            | 200     | 200     | 200      | 200       | 250       | 300       | 350       | 450       | 550    |
| Concave GypSorb<br>Curved along width  | –                            | 150     | 150     | 150      | 200       | 250       | 300       | 350       | 450       | 550    |
| Convex GypSorb<br>Curved along width   | 125                          | 150     | 150     | 150      | 200       | 250       | 300       | 350       | 450       | 550    |

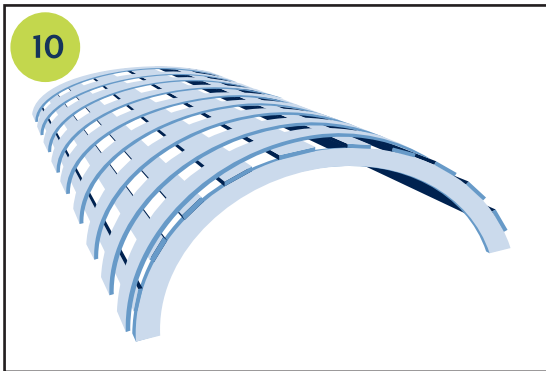
### MAXIMUM FRAME SPACING AND MINIMUM CURVE RADIUS FOR OTHER PLASTERBOARD

|                        | Masta Shield only            |           |           |           | All plasterboard except AcoustiShield* |           |        |
|------------------------|------------------------------|-----------|-----------|-----------|----------------------------------------|-----------|--------|
|                        | Curve Radius (mm)            |           |           |           |                                        |           |        |
|                        | 900-1000                     | 1000-1500 | 1500-2000 | 2000-2500 | 2500-3000                              | 3000-4000 | > 4000 |
| Plasterboard Thickness | Maximum Framing Centres (mm) |           |           |           |                                        |           |        |
| 10mm                   | 150                          | 200       | 250       | 300       | 350                                    | 400       | 500    |
| 13mm                   | –                            | 150       | 200       | 250       | 300                                    | 400       | 500    |
| 16mm                   | –                            | –         | –         | –         | 200                                    | 250       | 350    |

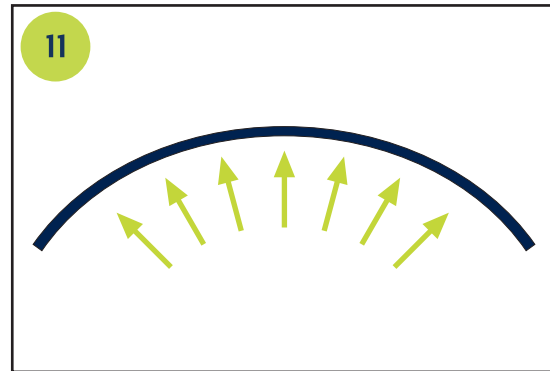
\*GypSorb has a minimum curve radius of 5000mm

# INSTALLATION FOR GYPSORB CURVED CEILING & WALL

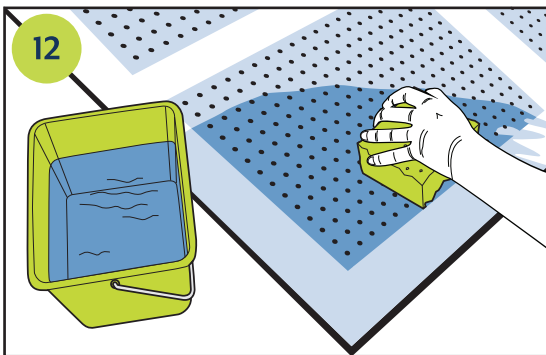
## GYPSORB PANEL, BENT ON WIDTH, WET CURVING



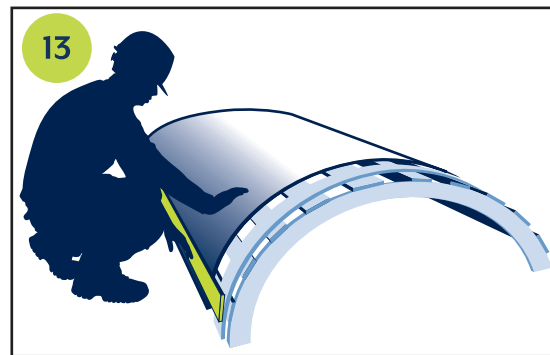
Make a buck/template to curve the wet GypSorb panels in the desired curve radius – Radius from 9 feet to 5 feet use wet bending technic.



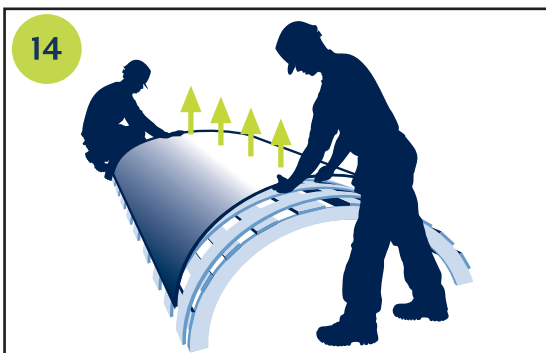
Use clean warm water to soften the GypSorb panel. Water must be applied on the sides of the GypSorb panels close to the center of the radius.



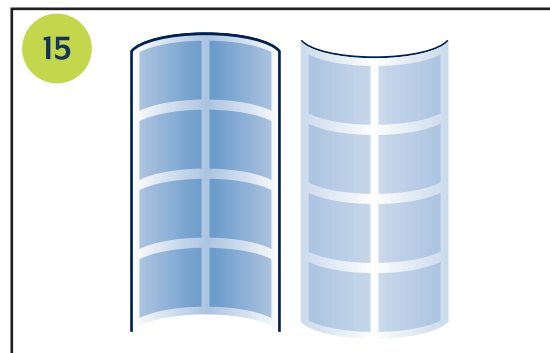
Place one panel on an even floor or table. Work a small amount of water at a time with a sponge on to the panel. If needed, apply more water after 2-5 minutes (continue to apply water for 15-20 minutes in total). Avoid excessive water inside of the perforations.



2+ people carefully lift the wet panel and place it on top of your buck/template. Lightly apply pressure on the edges with a straight, wooden or steel stud and fix the stud with clamps until the gypsum panel is 100% dry.



With 2+ people, carefully lift up the panel straight up when it is 100% dry and install no more than 2 hours after it is removed from the form.

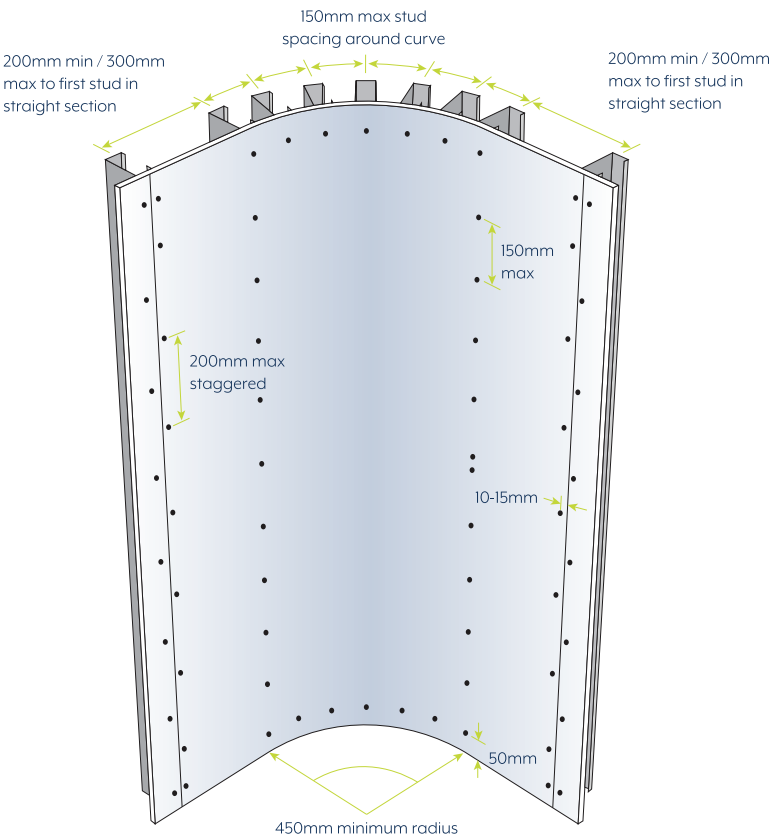
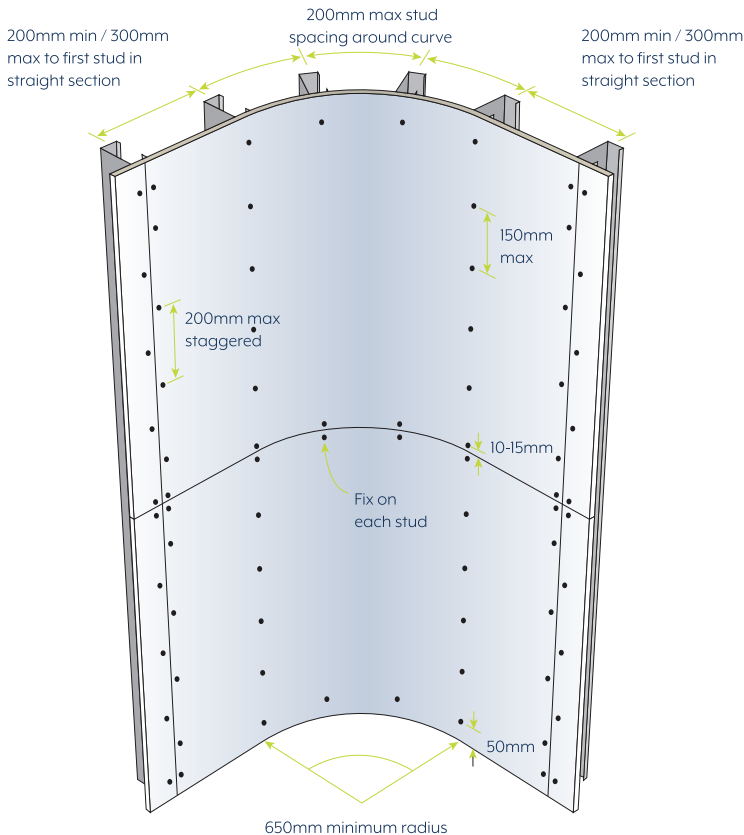


GypSorb panels can be wet curved width-wise with the perforations inside or outside of the radius. See pages 9 and 10.



# INSTALLATION FOR GYPSORB CURVED CEILING & WALL

## GYPSORB PANEL FIXING



**FIGURE 1**  
Concave Wall – Horizontal  
Curved lengthways

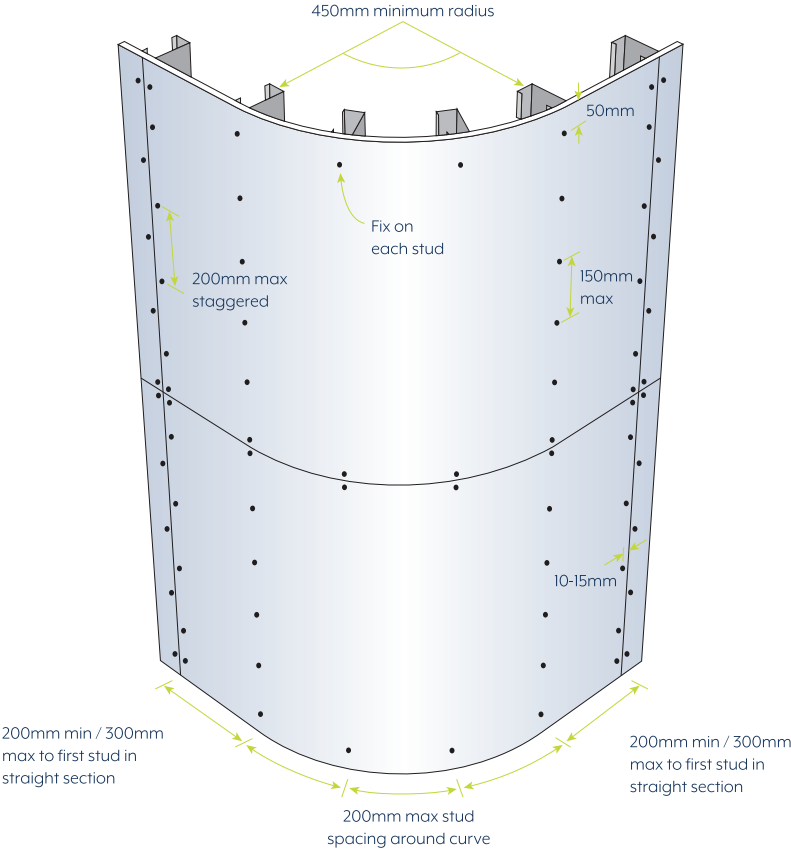
|                |                                                                                                                                     |
|----------------|-------------------------------------------------------------------------------------------------------------------------------------|
| Fixing         | Screw Only Method                                                                                                                   |
| Sheet Layout   | Horizontal                                                                                                                          |
| Fasteners      | Perimeter screws 10-15mm from sheet edges except at top and bottom tracks. Plasterboard must not be fixed to top and bottom tracks. |
| Field          | Fix at 150mm max centres on straight sections. Do not fix screws on the field of the plasterboard in the curved section.            |
| Recessed Edges | Fix on each stud. Stagger recessed edges by 300mm min between layers.                                                               |
| Butt Joints    | Fix at 200mm max centres and stagger screws. Stagger butt joints by 300mm between layers and on opposite sides of the wall.         |
| Sealant        | Use sealant on all gaps and around perimeter to maintain acoustic integrity. [Refer to Construction Details]                        |

Dry versus wet depends on the radius severity

**FIGURE 2**  
Concave Wall – Vertical  
Curved width ways

|                               |                                                                                                                                                                                                                                |
|-------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Fixing                        | Fastener Only Method                                                                                                                                                                                                           |
| Sheet Layout                  | Vertical                                                                                                                                                                                                                       |
| Perimeter                     | Perimeter fasteners 10-15mm from sheet edges                                                                                                                                                                                   |
| Field                         | Fix screws or double nails at 300mm max centres. Fix nails at 200mm max centres.                                                                                                                                               |
| Recessed Edges                | Fix screws at 200mm max centres. Fix nails at 150mm max centres. Stagger fasteners. Stagger recessed edges by 300mm min on opposite sides of the wall. Recessed edges must be backed by a stud.                                |
| Butt Joints                   | Fix screws at 200mm max centres. Fix nails at 150mm max centres. Stagger fasteners. Stagger butt joints by 600mm min on adjoining sheets and on opposite sides of the wall. 1st layer butt joints must be backed by a nogging. |
| Internal and External Corners | Fix at 200mm max centres                                                                                                                                                                                                       |
| Openings                      | Fix at 200mm max centres                                                                                                                                                                                                       |
| Fire Sealant                  | Use fire sealant on all gaps and around perimeter to maintain fire and acoustic integrity. [Refer to Construction Details]                                                                                                     |
| Joining Face Layer            | As a minimum, only use paper tape with either two coats of MastaBase/MastaLongset or three coats of MastaLite. [Refer to Section 4]                                                                                            |

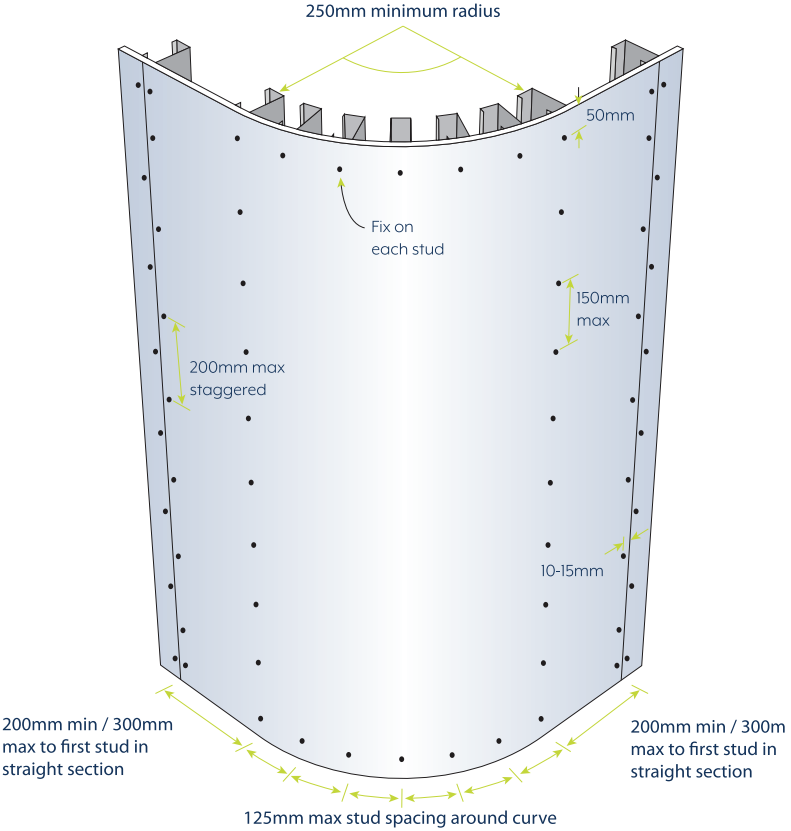
# INSTALLATION FOR GYPSORB CURVED CEILING & WALL



**FIGURE 3**  
Convex Wall – Horizontal  
Curved lengthways

|                |                                                                                                                                     |
|----------------|-------------------------------------------------------------------------------------------------------------------------------------|
| Fixing         | Screw Only Method                                                                                                                   |
| Sheet Layout   | Horizontal                                                                                                                          |
| Fasteners      | Perimeter screws 10-15mm from sheet edges except at top and bottom tracks. Plasterboard must not be fixed to top and bottom tracks. |
| Field          | Fix at 150mm max centres on straight sections. Do not fix screws on the field of the plasterboard in the curved section.            |
| Recessed Edges | Fix on each stud. Stagger recessed edges by 300mm min between layers.                                                               |
| Butt Joints    | Fix at 200mm max centres and stagger screws. Stagger butt joints by 300mm between layers and on opposite sides of the wall.         |
| Sealant        | Use sealant on all gaps and around perimeter to maintain acoustic integrity. [Refer to Construction Details]                        |

Dry versus wet depends on the radius severity

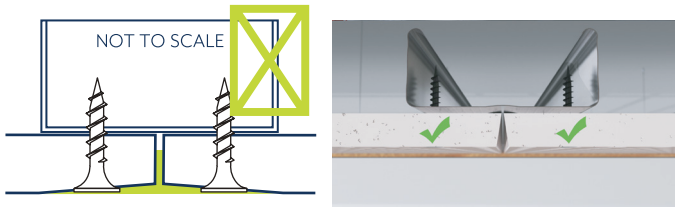


**FIGURE 4**  
Convex Wall – Vertical  
Curved width ways

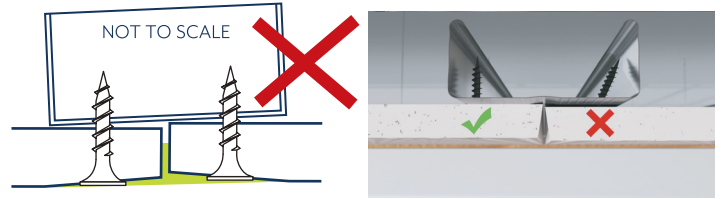
|                |                                                                                                                                                                                                                         |
|----------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Fixing         | Screw Only Method                                                                                                                                                                                                       |
| Sheet Layout   | Vertical                                                                                                                                                                                                                |
| Fasteners      | Perimeter screws 10-15mm from sheet edges except at top and bottom tracks. Plasterboard must not be fixed to top and bottom tracks.                                                                                     |
| Field          | Fix at 150mm max centres on straight sections. Do not fix screws on the field of the plasterboard in the curved section.                                                                                                |
| Recessed Edges | Fix at 200mm max centres and stagger screws. Stagger recessed edges by 300mm min between layers and on opposite sides of the wall.                                                                                      |
| Butt Joints    | Fix at 200mm max centres and stagger screws. Stagger butt joints by 600mm min between layers, on adjoining sheets and on opposite sides of the wall. 1st layer butt joints must be backed by a nogging or back-blocked. |
| Sealant        | Use sealant on all gaps and around perimeter to maintain acoustic integrity. [Refer to Construction Details]                                                                                                            |

# INSTALLATION FOR GYPSORB CURVED CEILING & WALL

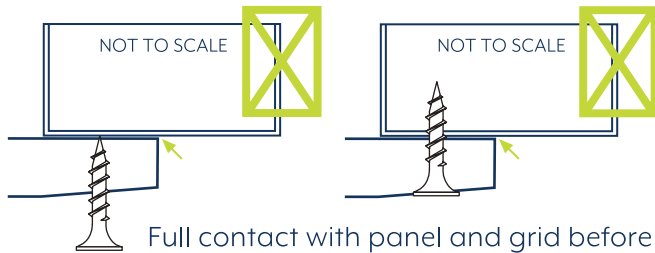
## GYPSORB PANEL, MOUNTING GOOD ADVISE



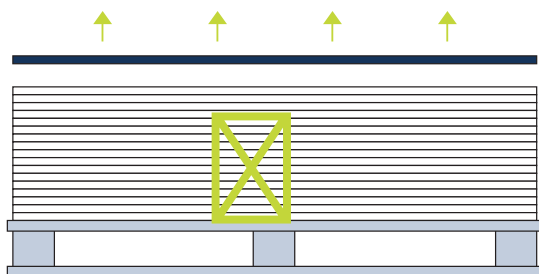
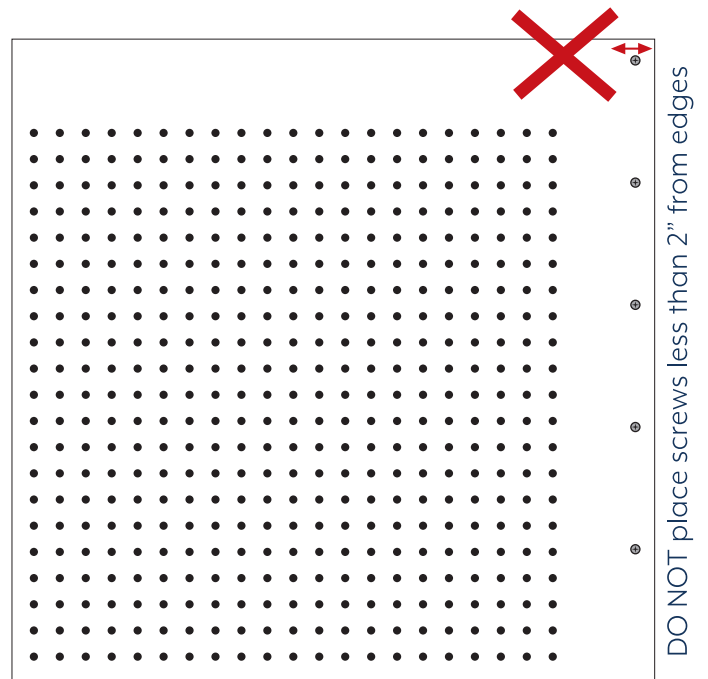
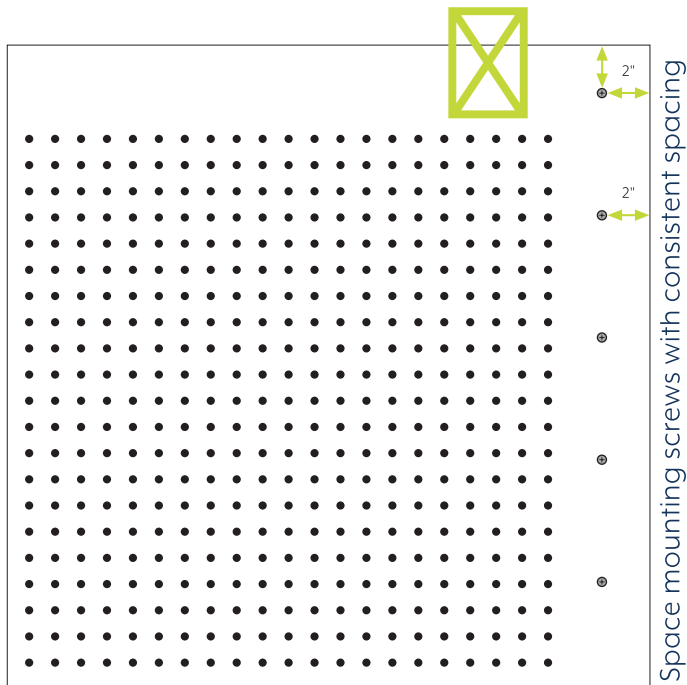
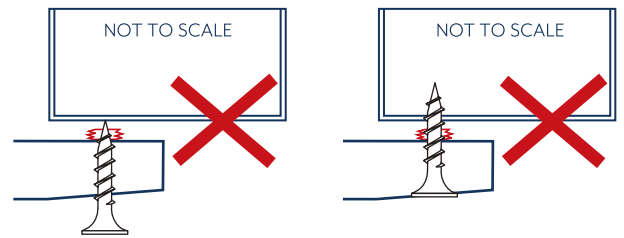
A 100% smooth surface



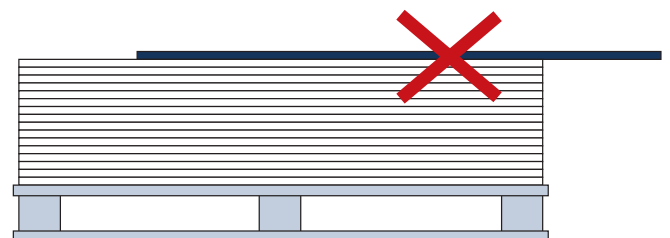
Make sure channel edges are level



Full contact with panel and grid before screwing



GypSorb panels must be lifted straight up from the stack to avoid damage.



If a panel is slid off the stack, the acoustic tissue on the backside might get rolled off of the panel. This might create some issues with the level between boards during the installation.

# INSTALLATION FOR GYPSORB CURVED CEILING & WALL

## CHECK LIST FOR INSTALLING GYPSORB PANELS ON A CURVE

- ☐ Humidity must not exceed 70% during construction or when the room is in use.
- ☐ Measure the room and lay out hangers properly, based off the dimensions of the space.
- ☐ Place an extra cross channel with a center distance of 150 mm on each short side/end of a panel in order to make a smoother curve.
- ☐ Make a small, beveled edge on the short side/end of the panel to obtain a smoother joint when applying filler.
- ☐ Never place a screw in a corner of a board.
- ☐ Place screws with a center distance of 100 mm, on the short side/ends of the board.
- ☐ Never dry bend a GypSorb Stratum, to less than a radius of 9 feet.
- ☐ Always prime the surface of the boards, before painting it twice.
- ☐ Read this installation manual before commencing the installation work.

