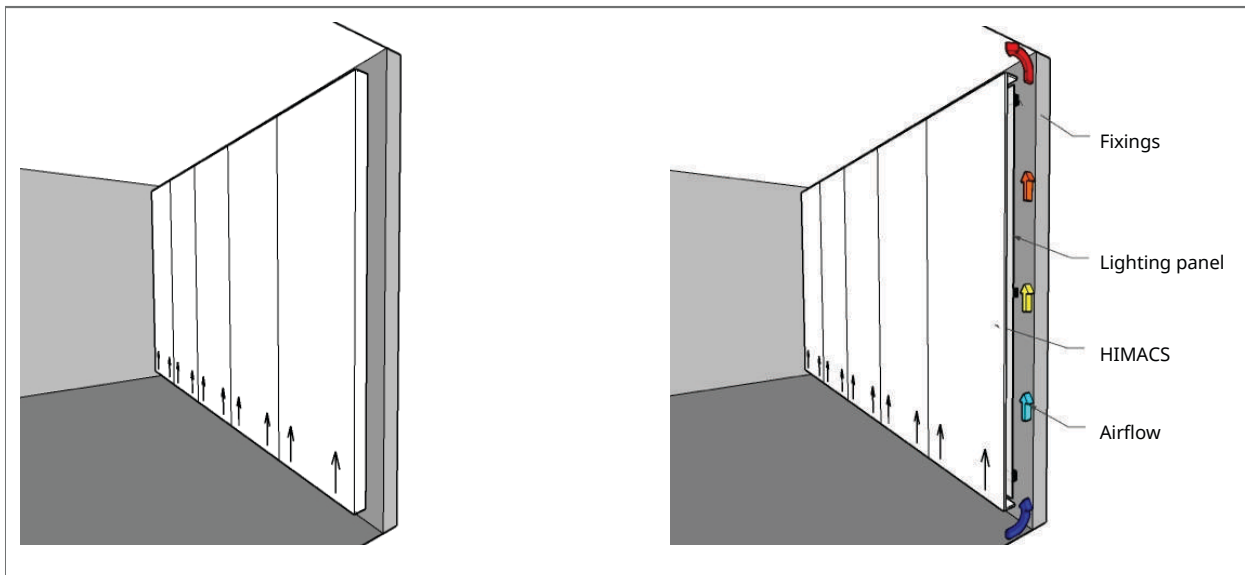


## ■ TECHNICAL DATA SHEET INTERIOR WALL CLADDING



HIMACS sheet materials can be used for many wall covering applications. Choosing the right thickness for the right job depends on the desired fixing method and also performance requirements.



When considering a HIMACS Wall Cladding application check if the desired wall is an exterior or an interior wall of the building. Covering the internal face of an exterior wall made of stone, brick or concrete may lead to condensation forming. To prevent this LX Hausys would recommend installing walls with air-rotation-flow only.

**Hint:**

When planning a HIMACS Wall Cladding application as shown above ensure all the panels are installed to one another, running in the same direction as production and following sequential sheet number order.

When bonding HIMACS Wall Panels with HIMACS Adhesive consider expansion and contraction, and also the limitation of movement in the substructure being bonded too.

Be aware, that seamless wall covering needs special preparation for construction, ensuring it is even and level will aid the HIMACS panel final finishing process.

Ensure the surface finish looks uniform and same sanding level from different views of the room.

## 1. Sanding / finishing

The reference is as recommended with our standard products: For further details: See Technical Guidelines: "Sanding".



Festool RO150 & Festool Langhalsschleifer

		Standard recommendation				
FINISH-LEVEL	MATT-FINISH		SEMI-GLOSS-FINISH		HIGH-GLOSS-FINISH	
HIMACS colour family	for all colours		for all colours		for all colours	
Sanding steps	micron-sandpaper	grid-sandpaper	micron-sandpaper	grid-sandpaper	micron-sandpaper	grid-sandpaper
Step 1	100/80 µ	150/180	100/80 µ	150/180	100/80 µ	150/180
	take dust away		take dust away		take dust away	
Step 2	60 µ	220	60 µ	220	60 µ	220
	take dust away		take dust away		take dust away	
Step 3	"useit®" Superpad S/G Scotch Brite™ Maroon 7447	280	40/30 µ	280/320	30 µ	280/320
	take dust away		take dust away		take dust away	
Step 4	industrial paper towel	"useit®" Superpad S/G Scotch Brite™ Maroon 7447	"useit®" Superpad S/G Scotch Brite™ Maroon 7447	380/400	15 µ	380/400
	take dust away		take dust away		take dust away	
Step 5		industrial paper towel	industrial paper towel	"useit®" Superpad S/G Scotch Brite™ Maroon 7447	9 µ	600/800
				take dust away	take dust away	
Step 6				industrial paper towel	Finesse-it™ Finish- component	1200
					take dust away	
Step 7						1500
						1800
						2500

HIMACS can be used as Wall Cladding application in many different designs and fixing methods. If adding some type of mechanical fixing (recommended), drill a hole into the HIMACS panel sheet and insert a flexible rubber tube (or plastic insert), so that the metallic hug does not cause a crack through impact stress.

## 2. Wall Coverings

There is a wide range of thicknesses of HIMACS depending on application and design needs with a wide range of sizes to use HIMACS material; from 4,5mm up to 20mm available product. Panels are easy to install and can be attached to nearly any type of solid substrate:

- Waterproof plasterboard
- Water resistant plywood
- Phenol resin board
- Water resistant MDF board
- Plaster board
- Fire cement board
- Fermacell cement board for wet rooms
- Aluminum frame systems
- etc

**Hint:**

Ensure to choose the right product & the right system for the right application of wall cladding.

**Choice of fixing:**

Mechanical fixing or Bonding with permanent elastic adhesive (based on PU or alternative Silicone)

**Hint:**

LX strongly recommending to take measurements; using templates when necessary and prepare the panels in the workshop for easy and quick installation.

HIMACS is not a structural or waterproofing material, it is a decorative surfacing material. When making cut-outs for electrical outlets or switches etc, always use a router, making these openings at least 12mm larger in overall height and width than the insert, radius all corners at least 3mm and smooth - sand the cut of the edges with a 150-grit sand paper. Larger openings require corners to have a radius of  $\geq 5$ mm.

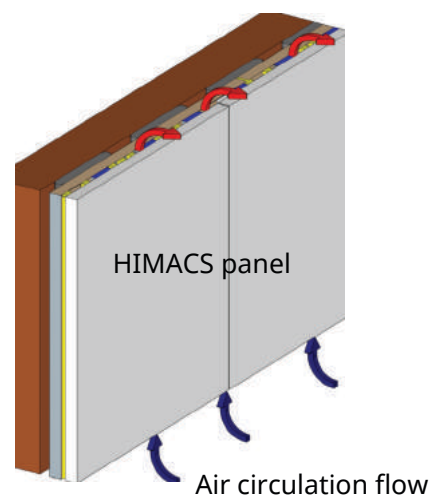
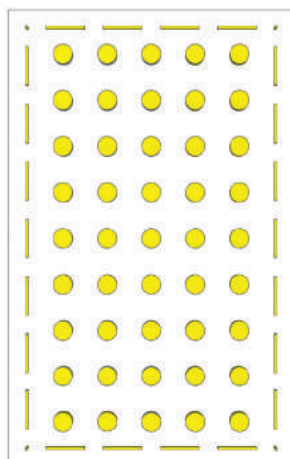
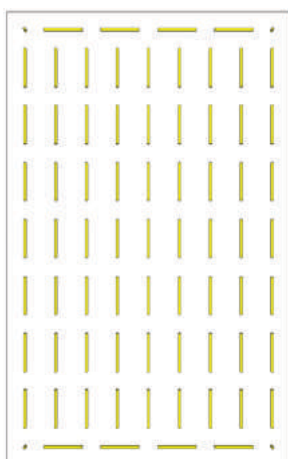
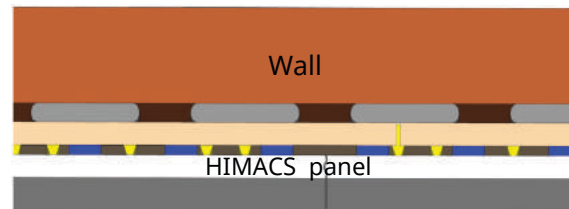
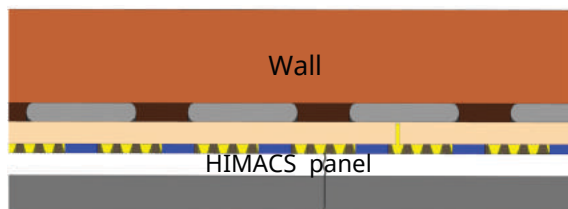
Bond the material to the existing wall material using 100% silicone sealant or alternative using a permanent elastic PU-adhesive (Poly-Urethane) only. If required use a primer for each surface. Apply the silicone sealant in 25mm diameter "spots" of a thickness of minimum 2mm spaced 100mm to 150mm apart. Apply a continuous broken bead of silicone sealant along the entire perimeter of the HIMACS material including any cutouts. Do not use a dark-colour silicone sealant because it may be visible through the HIMACS material translucent performance.

When using thin material, like 4.5mm thick HIMACS make a all-over adhesion with a tooth spread and ensure the material is placed leveled to a sub-construction board.

**Hint:**

Avoid any creation of moisture of the backside of HIMACS panel.  
Best to reach with:

- All-over adhesion with toothed spatula and with permanent elastic adhesive (especially when using thin sheets of HIMACS(4.5mm thickness))
- Permanent elastic adhesive and air circulation\*)
- Mechanical fixing and air circulation \*)



Glue application systems\*) for HIMACS panel

\*) = not recommended for thin sheet material of HIMACS

For applications larger than sheet dimensions the HIMACS can be seamed using joint adhesive or colour-matched silicone sealant. Adhesive joints should be completed one after the other but carefully cleaned to avoid time consuming sanding. Also using 100% silicone sealant joints can be done with the material in place. In dry applications the seams can be either vertical or horizontal. For wet environments seams should be vertical to facilitate draining.

**Hint:**

Be aware that any flexible adhesive which becomes visible after several years of use and care maintenance is not covered under any Warranty Program of LX Hausys Europe GmbH.



For any thickness material provide expansion control joints of not less than 6mm of 3,5meter vertically and horizontally. Provide the same space at inside corners and at floors and/or ceilings.

If expansion/control joints are present in the backer material the HIMACS expansion/control joint must be placed at the same location.

Expansion/control joints and other spaces are closed with matched 100% silicone sealant.

Attach batten strips, seam reinforcement, crown or base trim, and corner trim as required using 100% silicone sealant.

**Hint:**

Do not fix skirtings' made of HIMACS in saunas, swimming pools or steam rooms.

Dark, sensitive colours should not be used in a shower application.

## 2.1 Installation of Wall Covering

### ADHERING HIMACS TO SURFACES

Once all the parts are scribed and seamed, the critical stage of bonding HIMACS to the wall commences. Use silicone or permanent elastic polyurethane (PU) to bond HIMACS to the wall; do not use LX HIMACS Adhesive.

Best steps to follow:

1. Clean off dust and grease off the walls to be covered.
2. Lay HIMACS panels face down and remove any dust, grease, pencil marks and labels.
3. Place installation tape strips (2-3mm thickness) in a distance of 200 – 250mm on the backside of HIMACS sheet.
4. Using permanent elastic PU adhesive in between, put dabs of adhesive evenly on the back of the sheet and a perimeter bead about 35 mm from the edges of the sheet. Allow air circulation from bottom to top
5. Push LX HIMACS panel firmly onto the wall and make sure it is lying evenly. Check with water level or laser level units.
6. Repeat this procedure for all parts.
7. Seaming; caulk out all seams with colour-matched silicone .
8. Clean off silicone with plastic spatula .
9. Wipe off sheets with water and liquid soap (mixed 4:1) and dry with a soft paper towel.

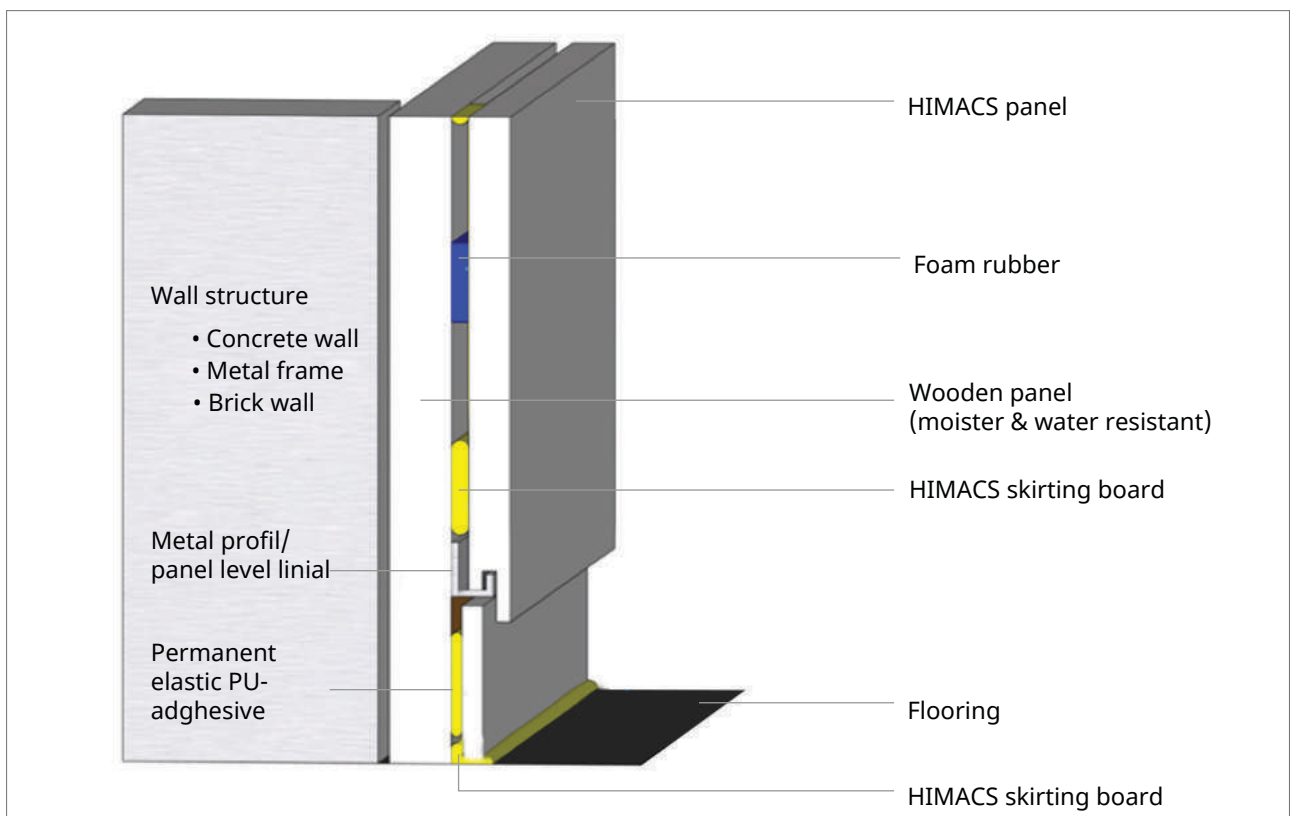
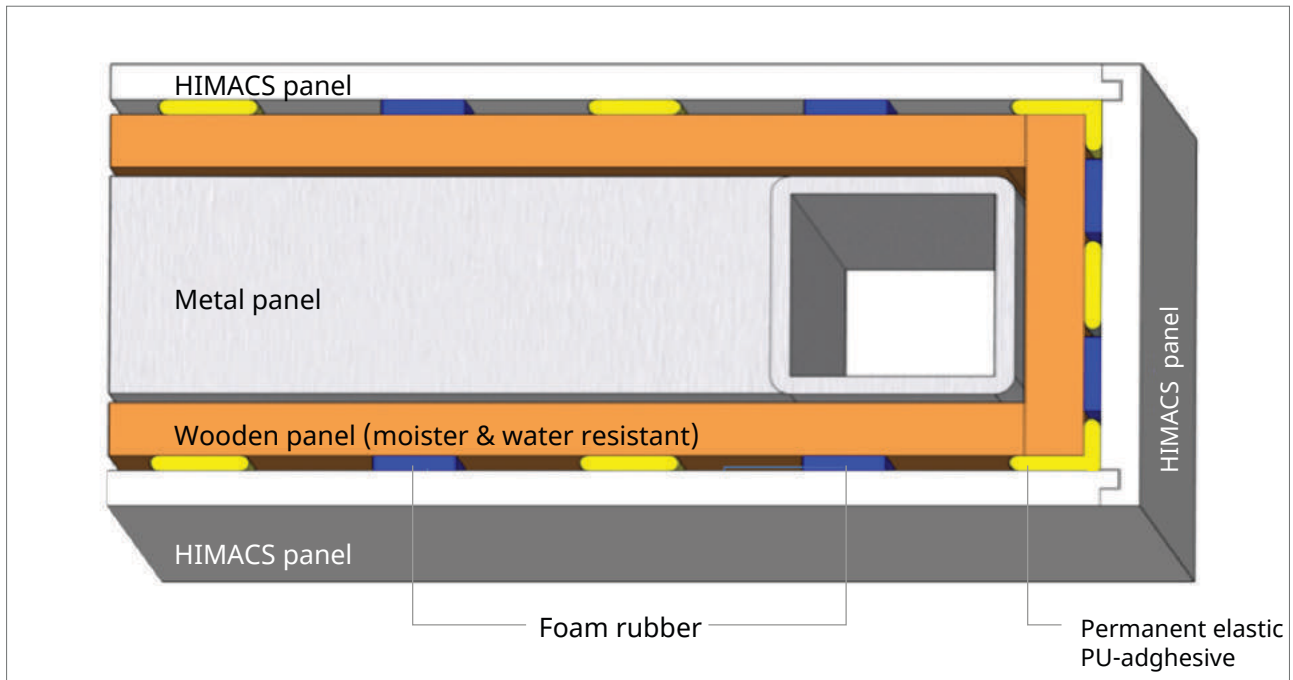
**Hint:**

When working with 6 mm HIMACS, especially in large sheet as is usual for vertical applications, be careful with handling.

Do not install an inappropriate thickness of LX HIMACS for the impact to which the vertical application is to be subjected.

In case of using HIMACS Lucent Collection or any other highly lucent effect colour, extra care is required due to high risk of substrate visible shadowing. The substrate will need to be painted to a matching colour of the sheet to be used. Only translu-cent flexible adhesives should be used when bonding the sheet to the substrate. Make a test sample to ensure professional evidence adhesive or frameworks are not visible once installed.

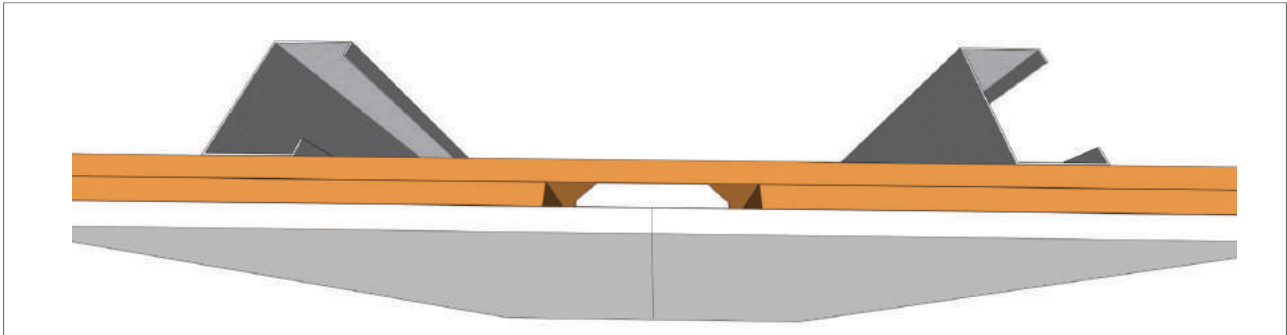
### Partition Walls: self-supporting metal construction



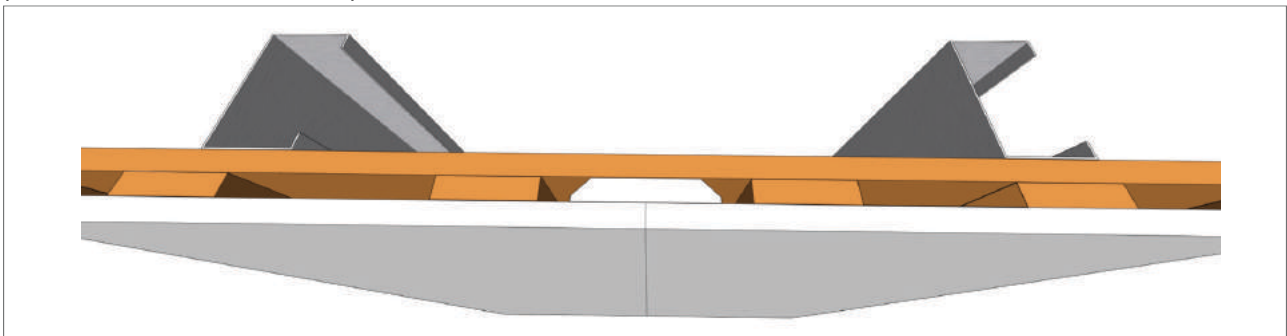


## 3. Seam reinforcement

The seams must be reinforced from behind to ensure a correct bond. You may need to cut a groove into the supporting wall so that the reinforcement strip fits.

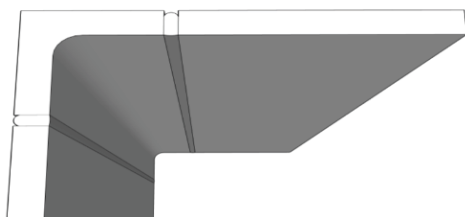


Also, if you use strips to level the wall, you can use the gaps between them to position the reinforcement strips.



There are different possibilities to create internal corners and integrate some space. You may use silicone to fill in the space. Create the corner section and cut it to the required size. Attach the corner piece in place and bond it to the walls of HI·MACS using silicone or permanent elastic PU adhesive.

Sample 1: Create a corner by connecting two strips using a curved corner.



Sample 2: Create a corner by connecting two strips using a thermoformed curved corner.



HIMACS also can be used to create window ledges or shelves. Make sure you leave a gap of 2 mm between the HIMACS and the wall to allow the standard material.

Attach the shelf with flexible adhesive to allow for movement (P-404, outdoor silicone, etc.).

Always round the edges and never leave sharp corners. Make sure shelves have substantial support.

**Hint:**

Be aware sanding vertical application are sensitive and time consuming during installation. Special care is a goal for an unique look of the wall cladding panels.

**Hint:**

Due to the special material performance of HIMACS translucency at many HIMACS family products be aware to choose the right product and its thickness to avoid shadowing after installation.

To avoid time consuming installations you may choose a panel system with shadow lines:

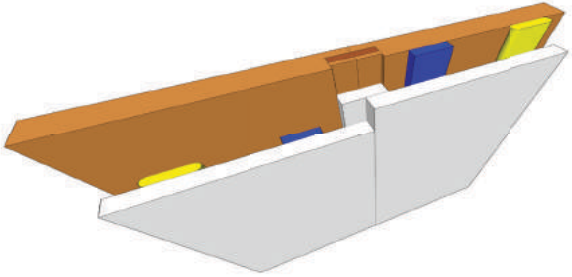
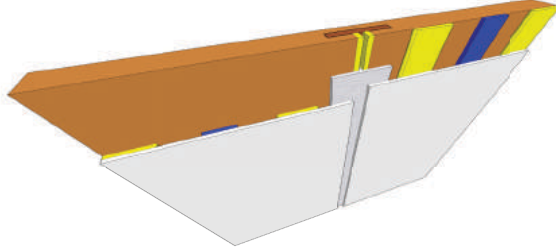
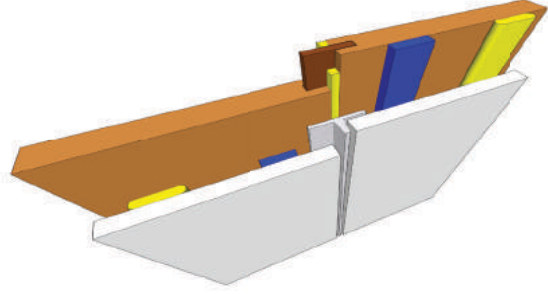
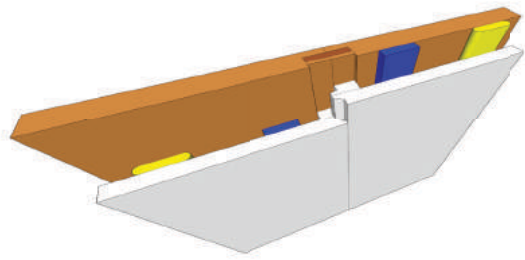
- Less time for bonding
- Less time for installation
- Preparation of unique surface finishing in
- workshop Ready to go Installation

Seam Design:



### 3.1 Seam Design: panel seam connections

The seams must be reinforced from behind to ensure a correct bond. You may need to cut a groove into the supporting wall so that the reinforcement strip fits.

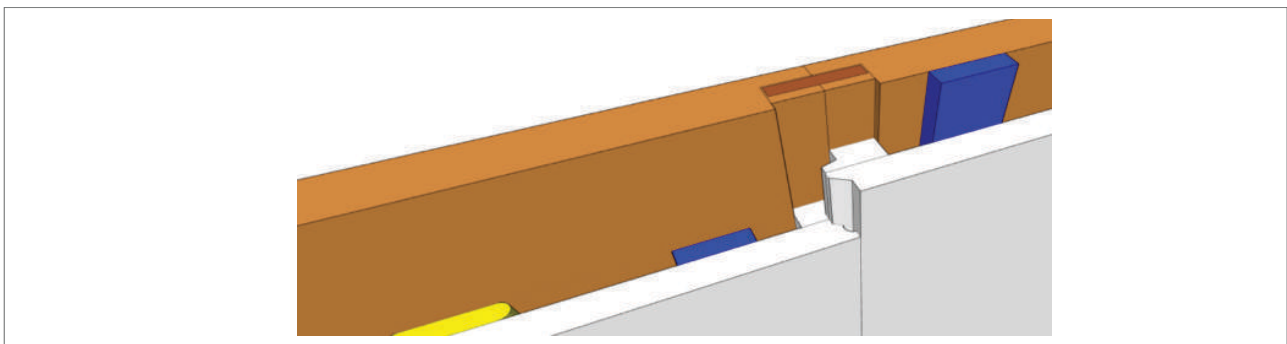
<p>Seam Design: Straight Cut (butt seam)</p>	
<p>Seam Design: Straight Cut with back strip</p>	
<p>Seam Design: Straight Cut with metal profile</p>	
<p>Seam Design: Tongue &amp; Groove</p>	

To avoid time consuming installation on leveling issues, simply prepare a male and female profile instead a simple butt-seam:

### 3.2 Seam design

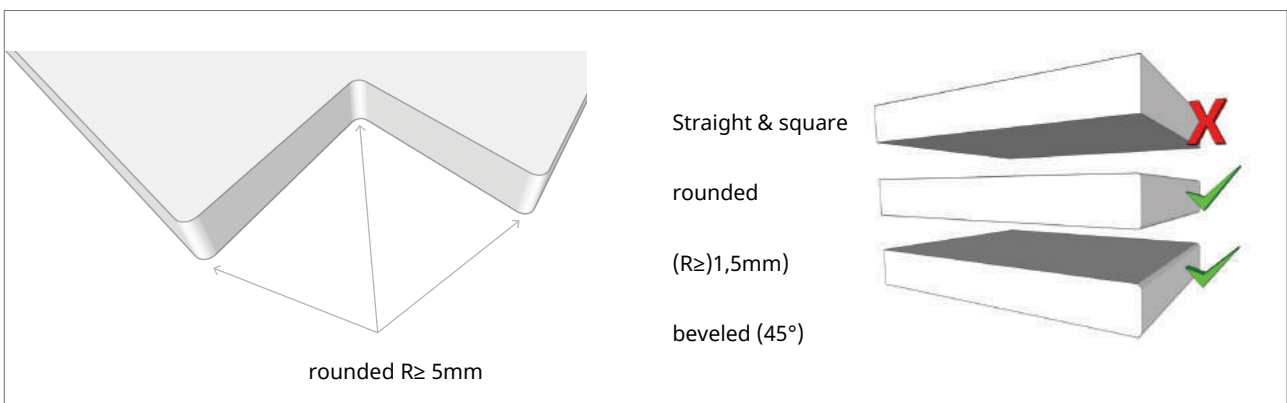


Alternative solution: to use the reinforcement strip for strengthen a feather seam opportunity:

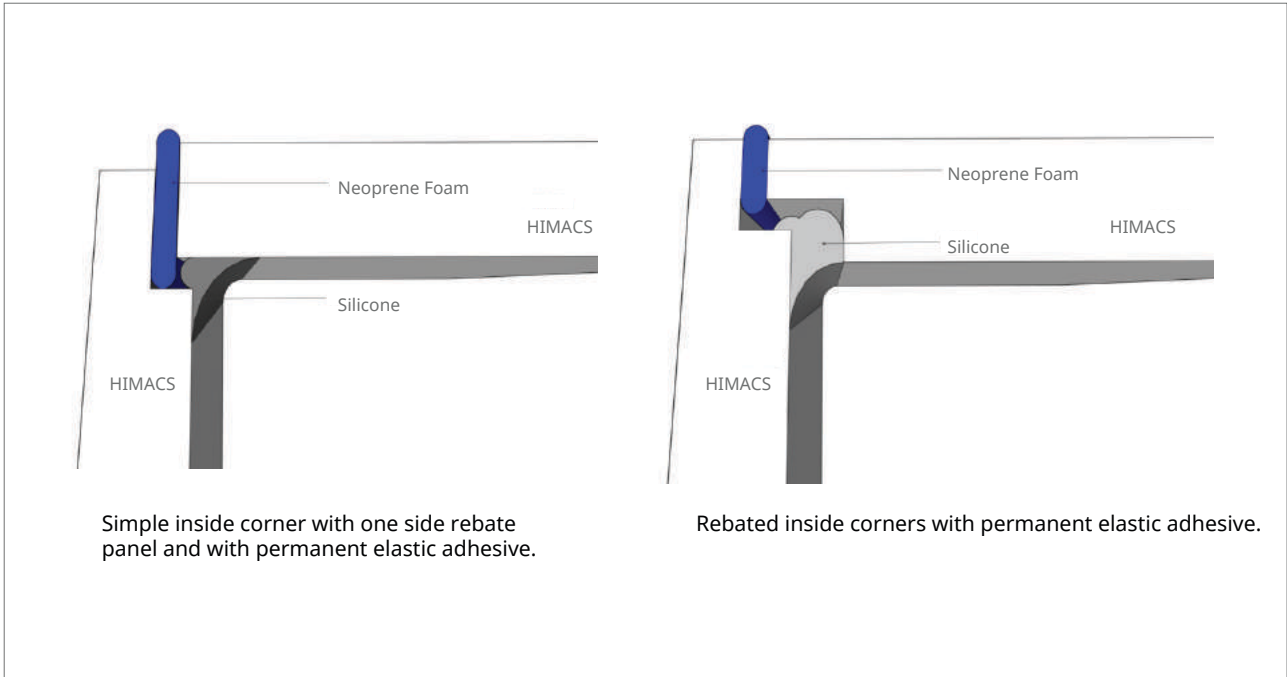


### 3.3 Sheet preparation

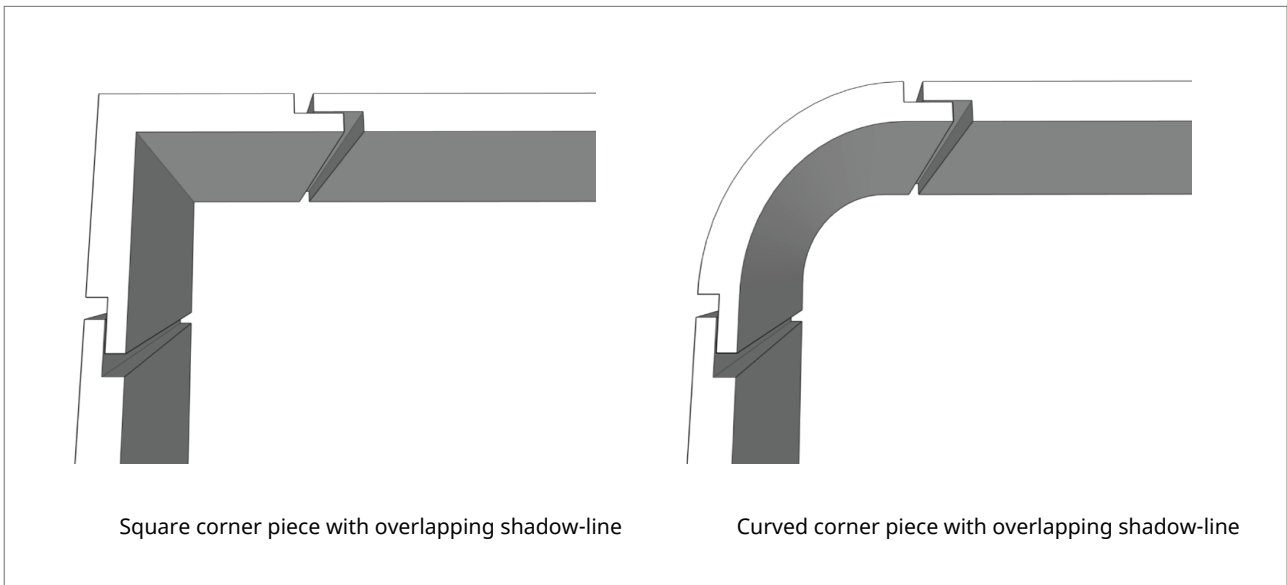
All edges and all corners of a HIMACS panel have to be rounded by at least  $R \geq 3\text{mm}$  and prepared with a broken edge of  $R \geq 1,5\text{mm}$ .



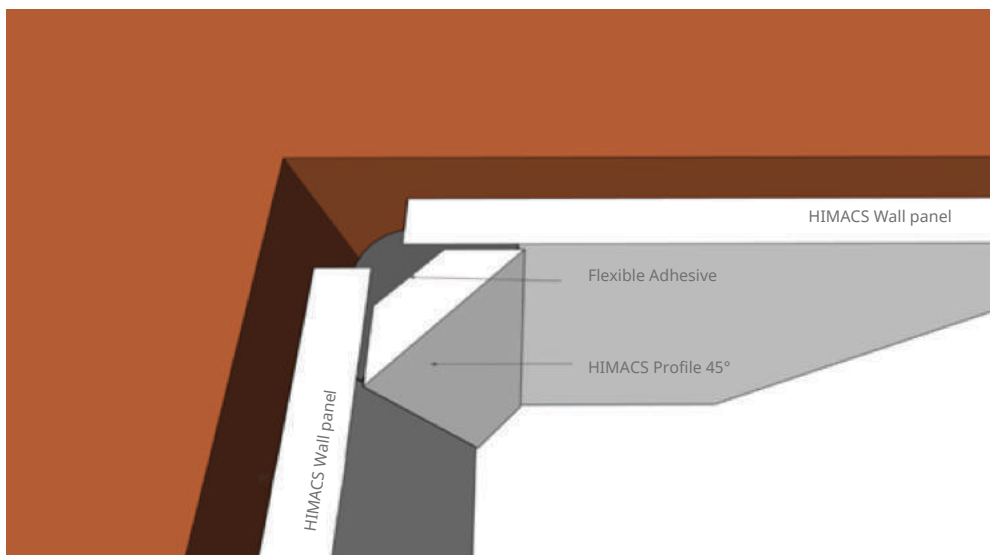
### 3.4 Corner I



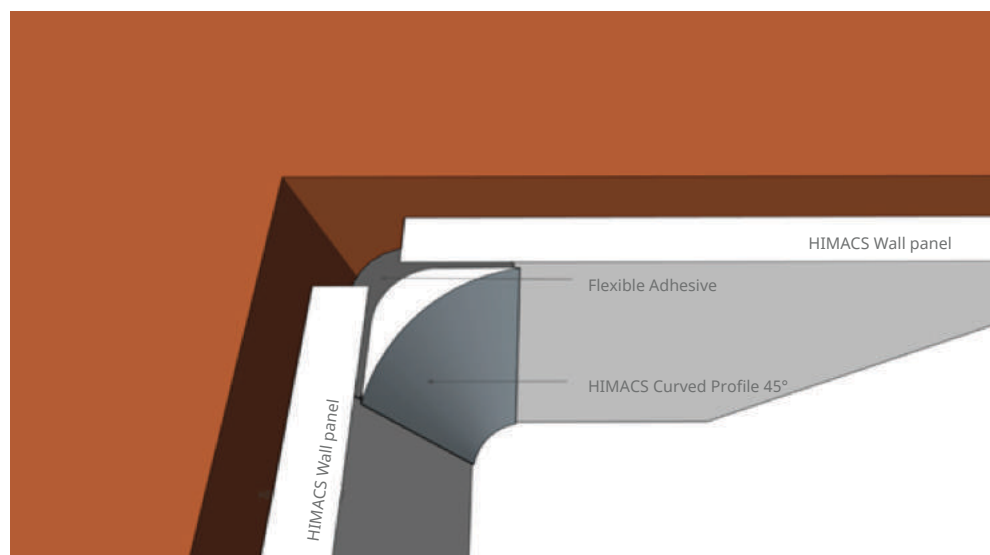
### 3.5 Corner II



### 3.6 Corner III



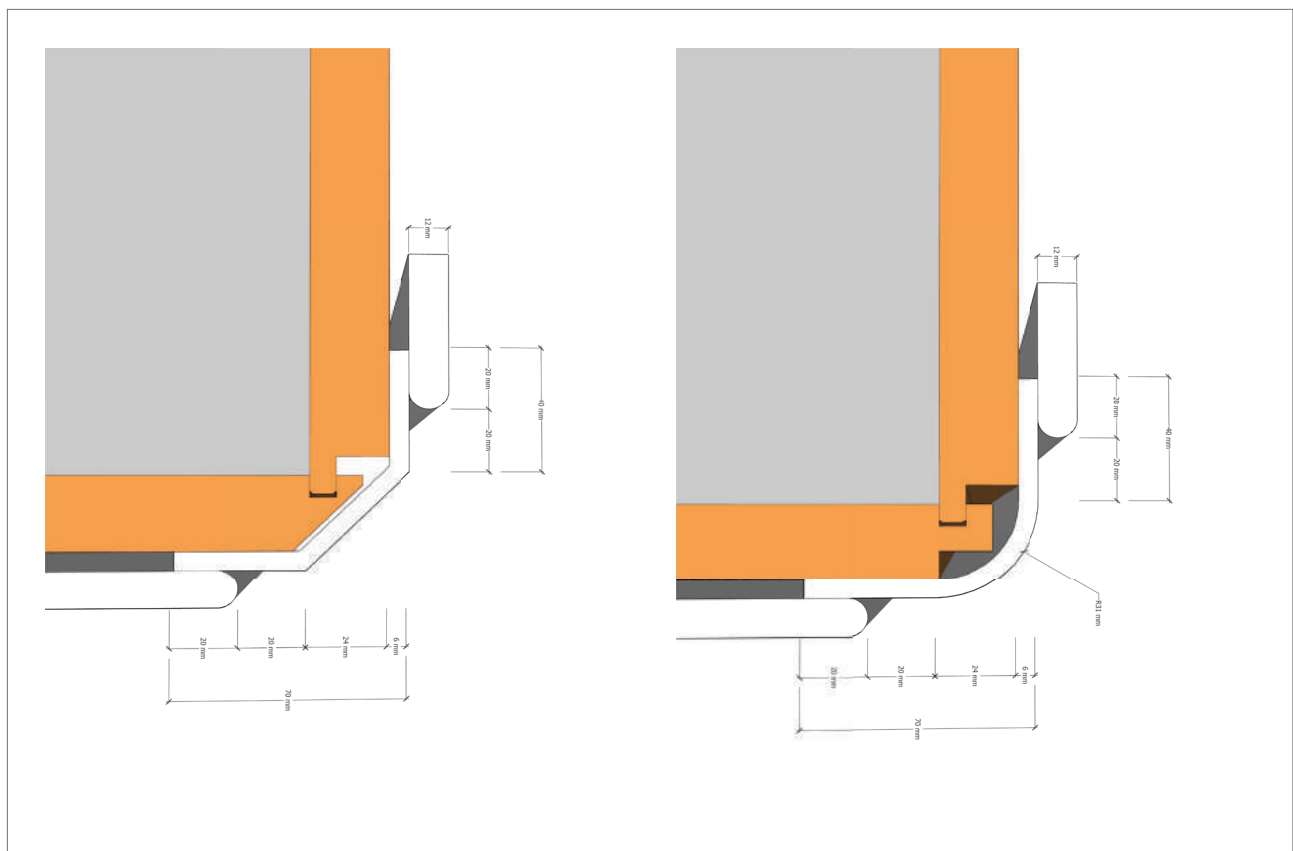
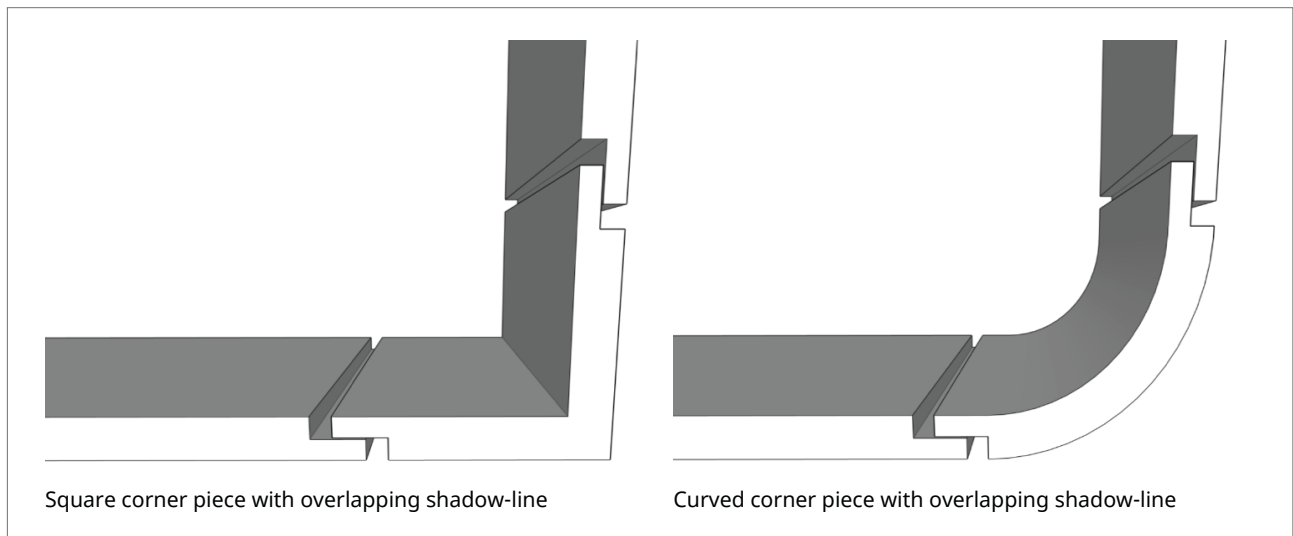
Corner: with angled corner strip assembled with a permanent elastic adhesive (like elastic PU-adhesive)



Corner: with a curved corner strip assembled with a permanent elastic adhesive (like elastic PU-adhesive)

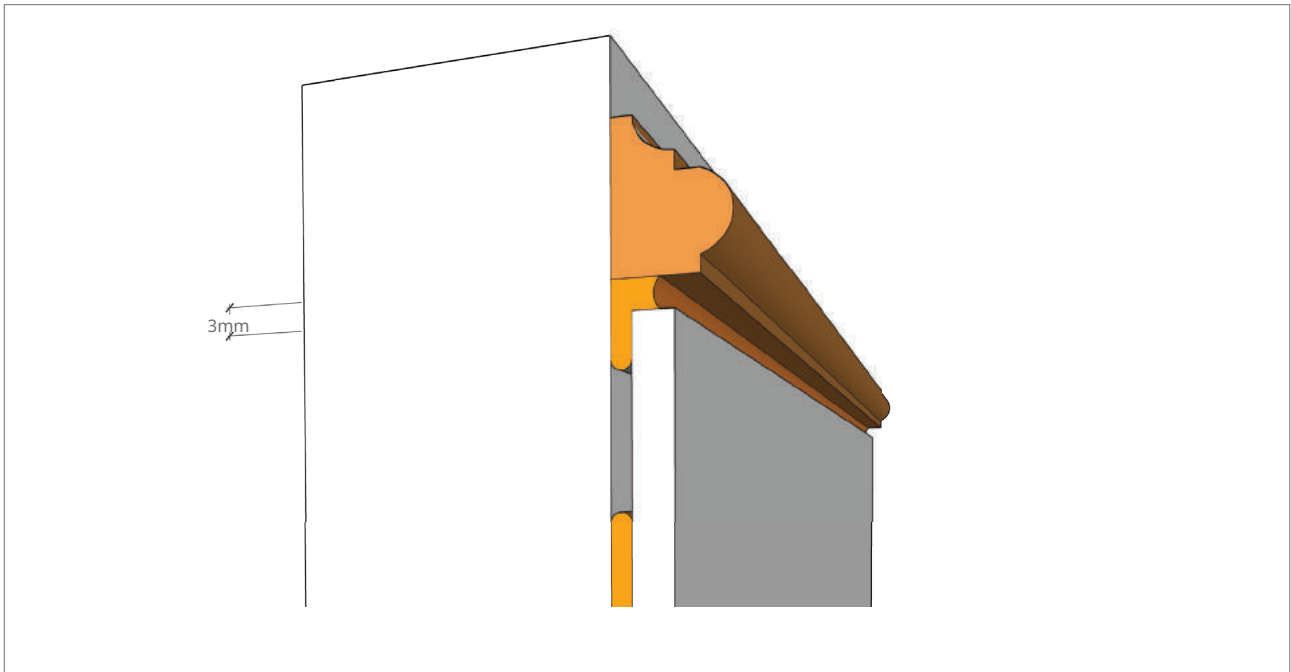
### 3.7 HIMACS Corners

Corners: With a calculation of a maximum dilatation of corner panels and shadow-lines

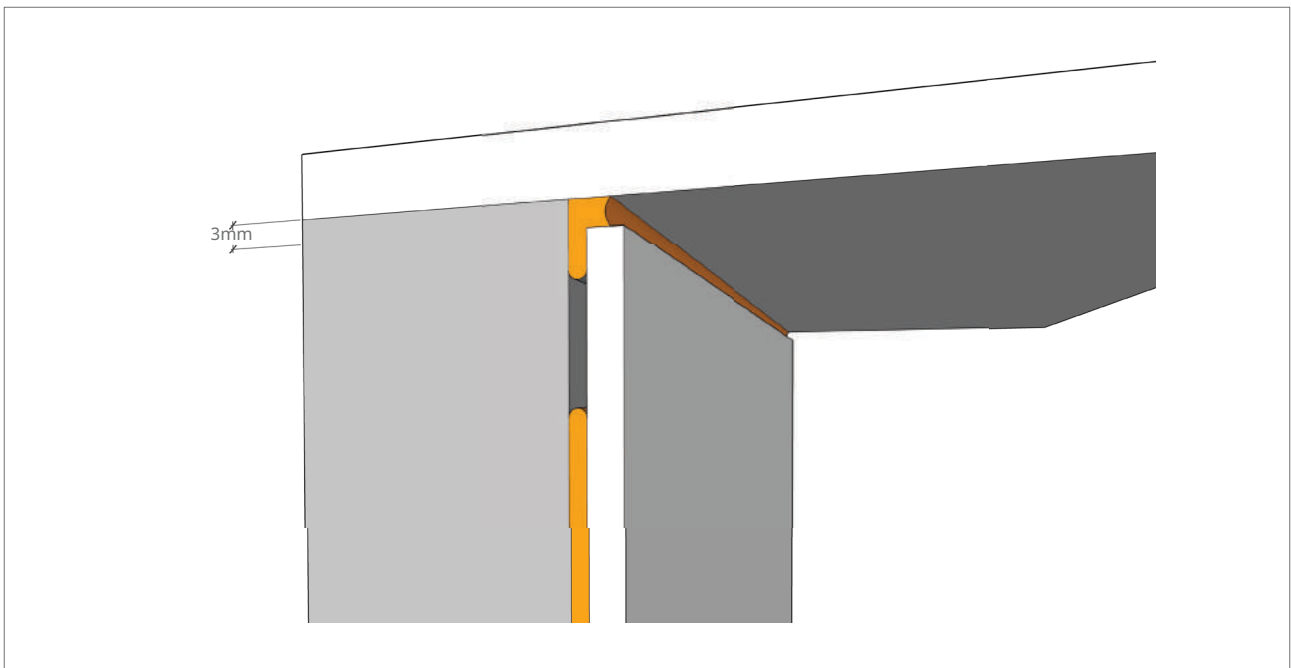


### 3.7 HIMACS Corners

End-Cover pieces: With a multitude of options, here are a few:



Sample 1

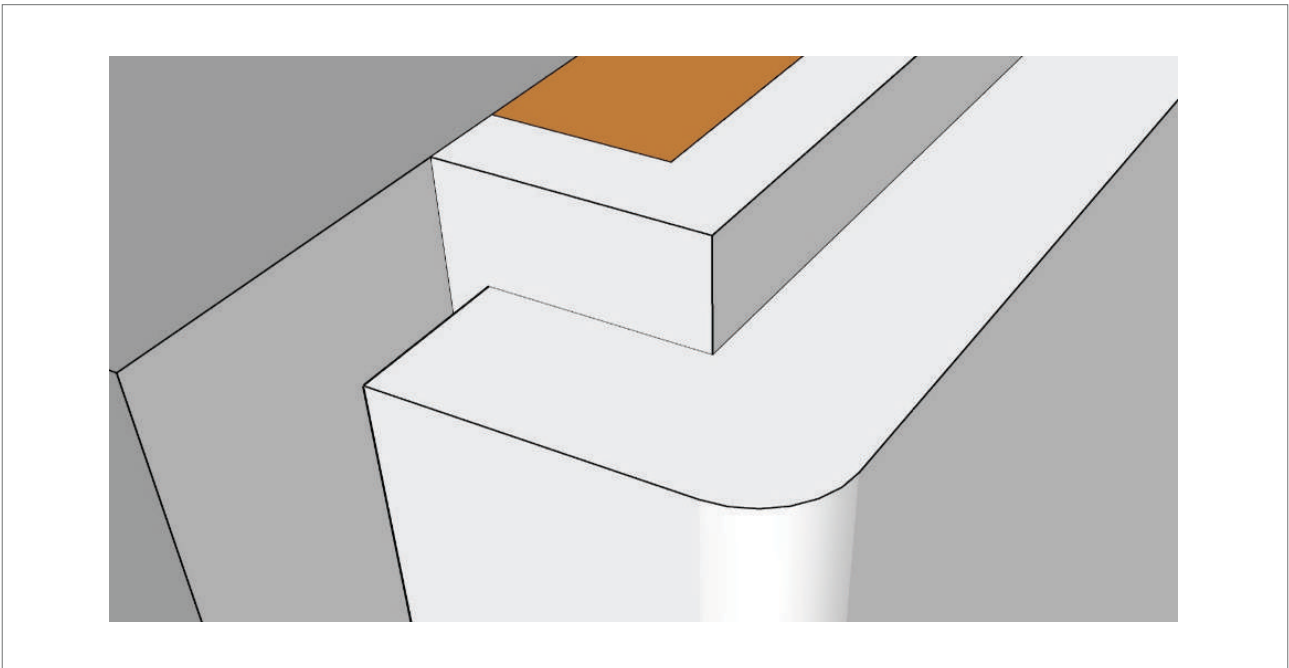


Sample 2: wet wall ceiling Interface.

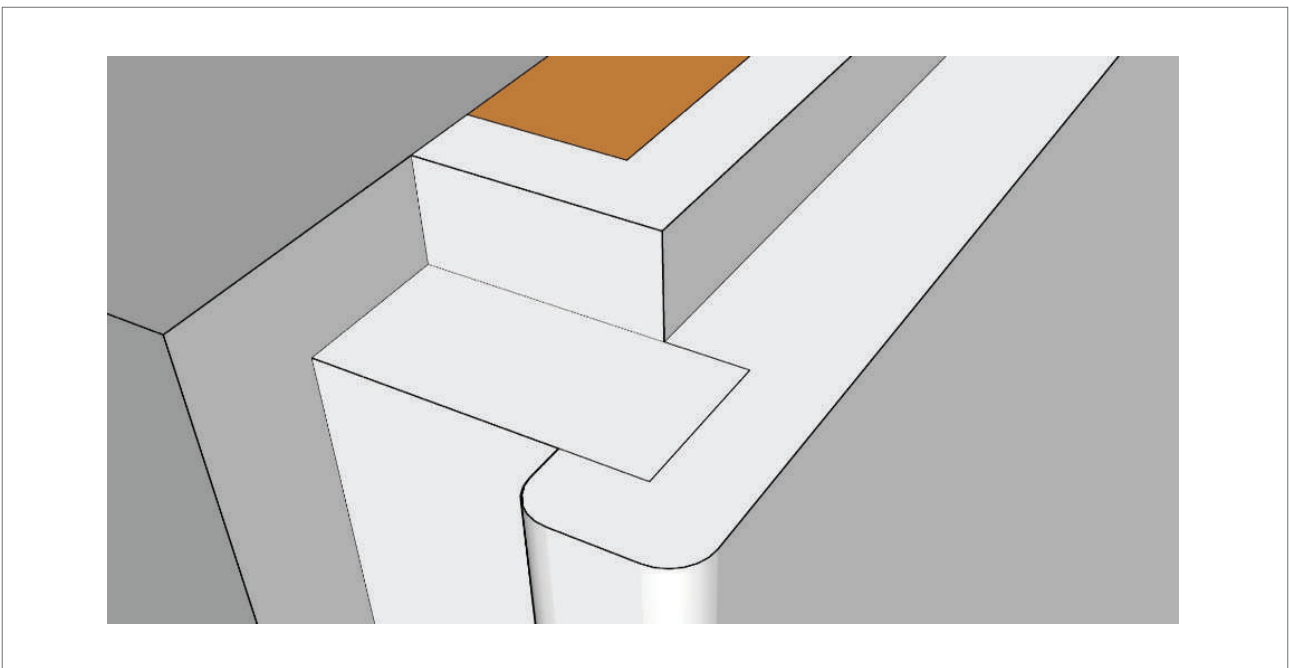


### 3.7 HIMACS Corners

End-Cover pieces: With a multitude of options, here are a few:

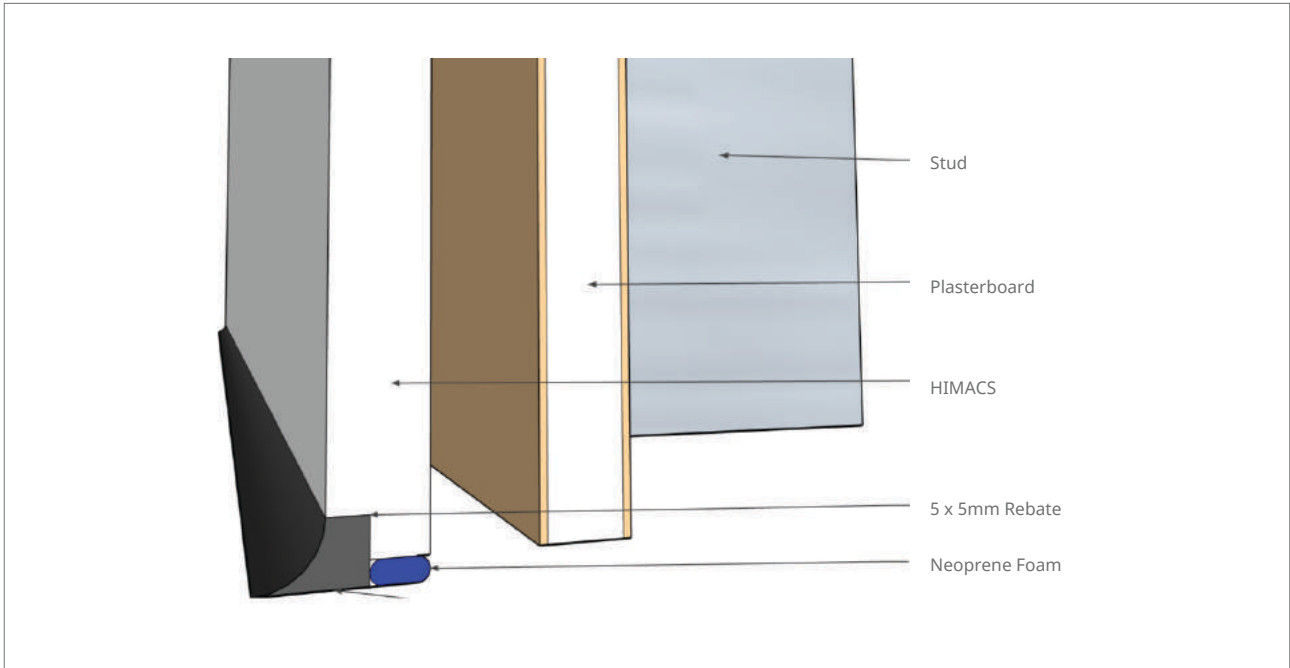


Sample 3

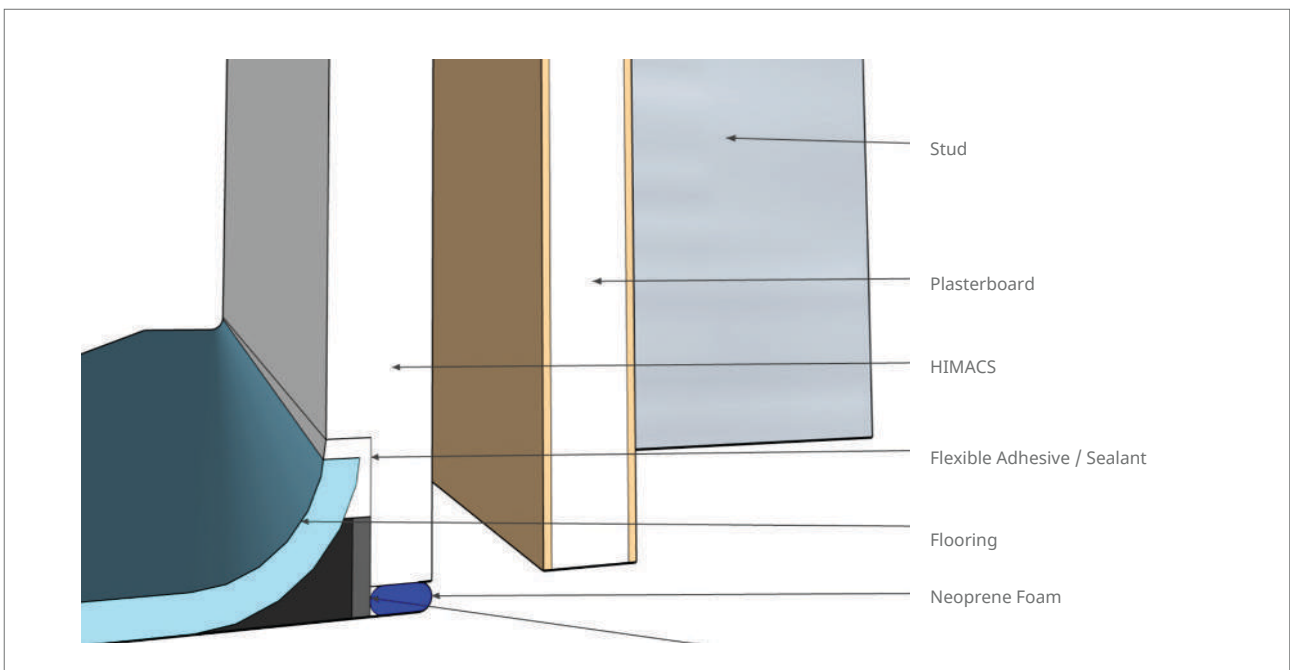


Sample 4

## 4. Floor connection

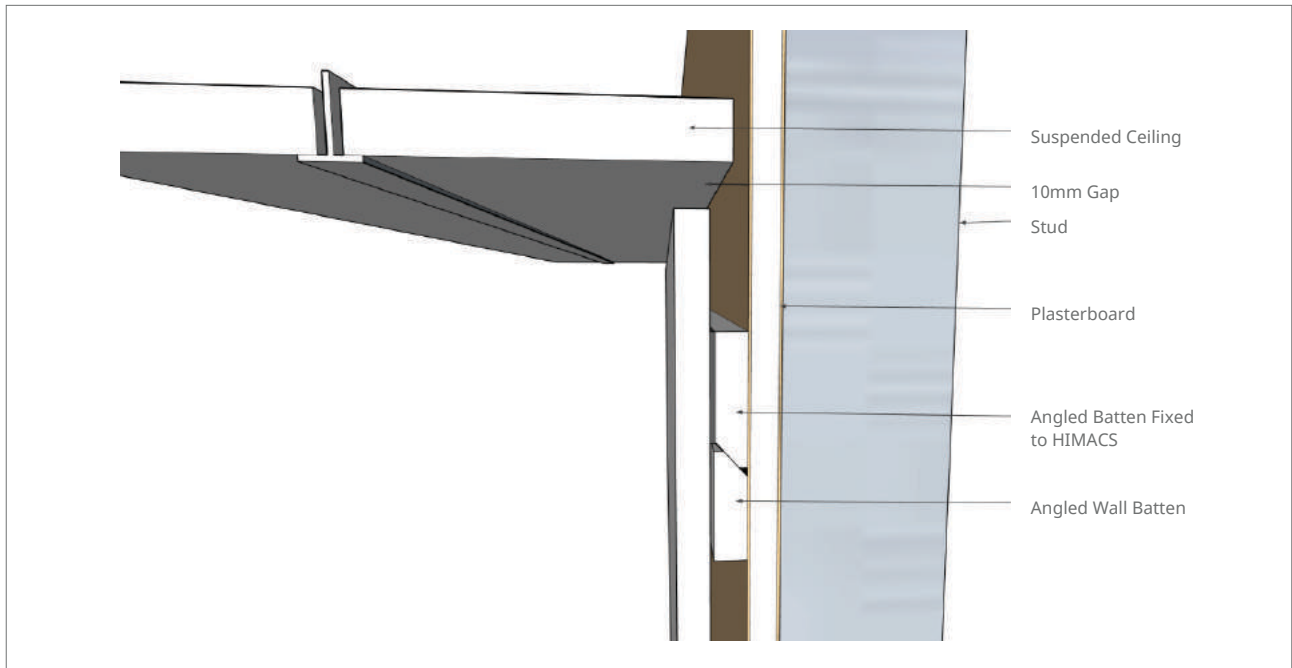


Bottom connection with elastic adhesive or elastic PU profile

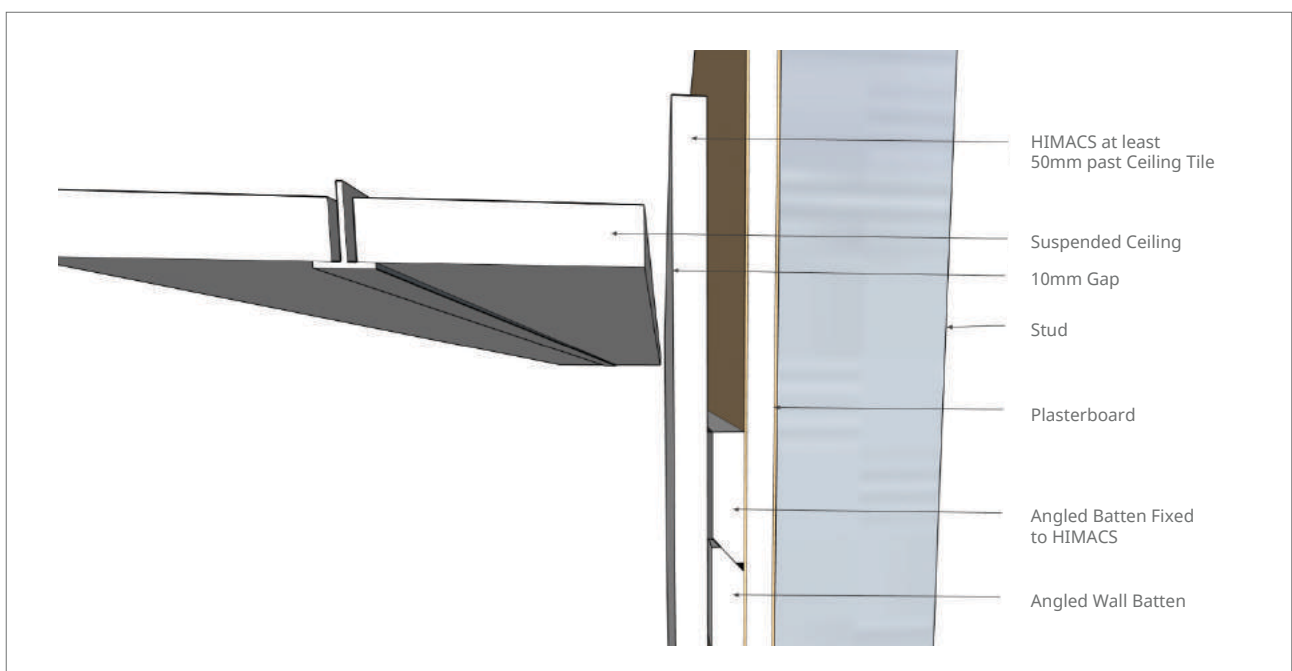


Bottom connection with curved flooring

## 5. Ceiling connection

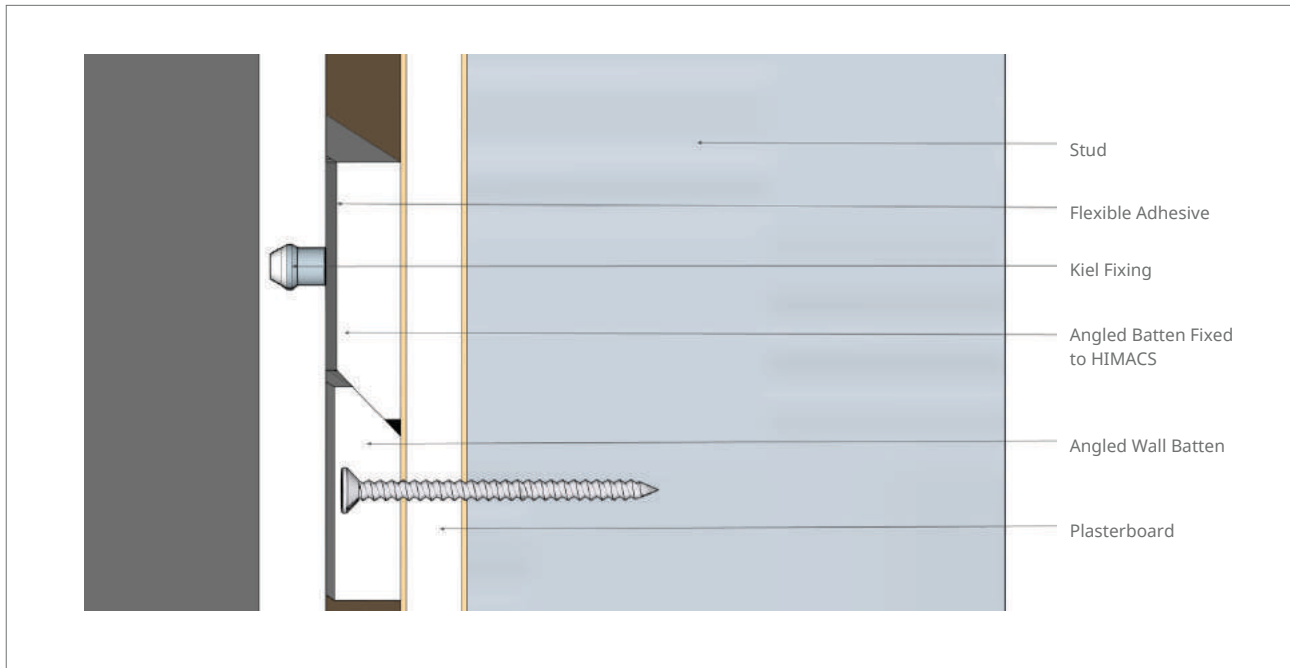


Ceiling connection with space for air circulation up to ceiling and panel hanging system with angled wooden strips

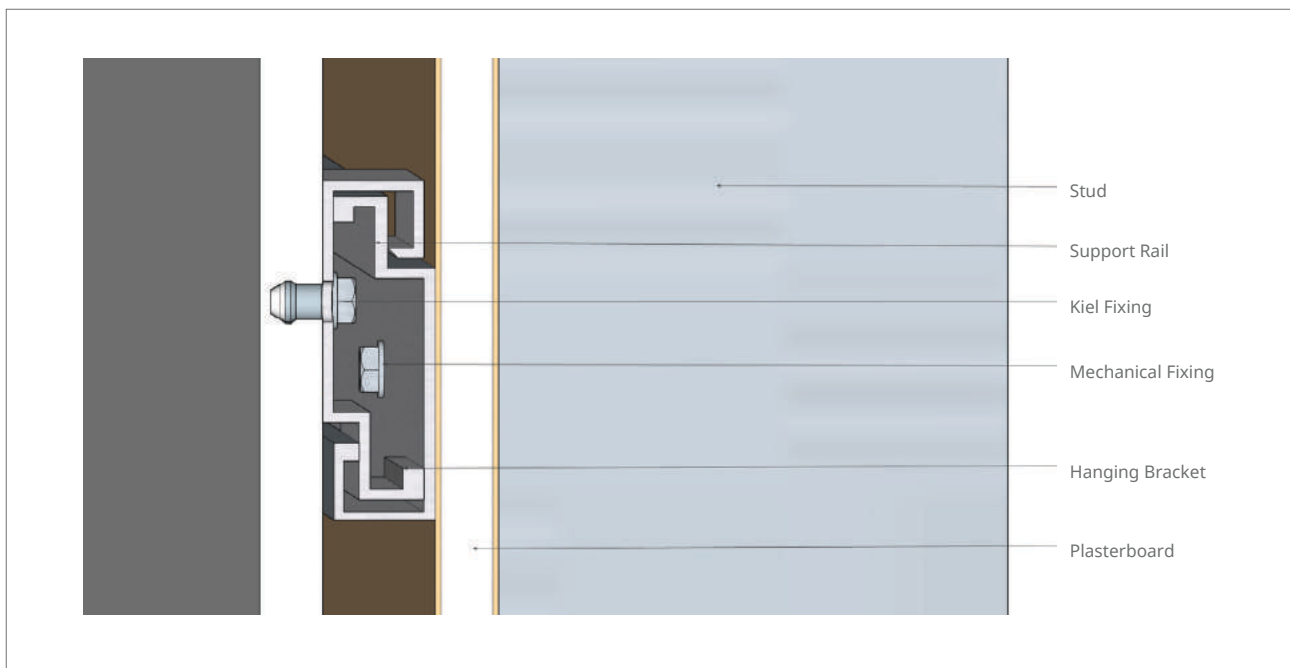


Ceiling connection by suspended ceiling with space for air circulation and panel hanging system with angled wooden strips

## 6. Panel fixing possibilities

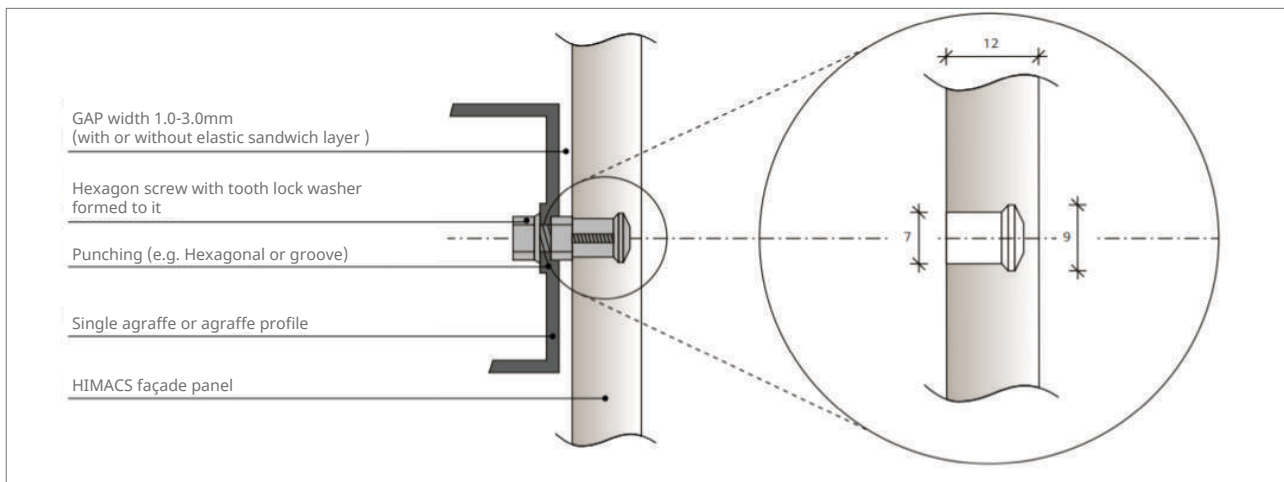


With angled wooden strips: needs pre-size working



With Aluminum profiles: leveling adjustable

## 7. HIMACS Panel with mechanical fixing



Sample showing an undercut anchor of h=8,5mm for HIMACS panel of 12mm thickness.

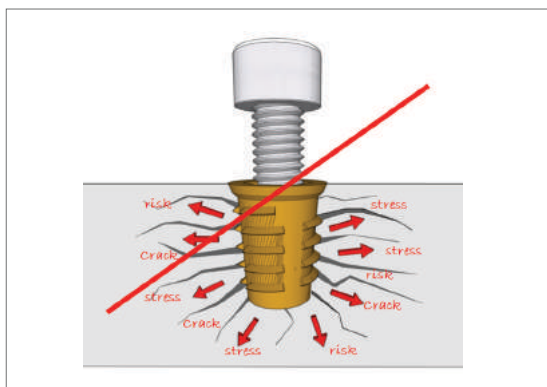


KEIL undercut anchor

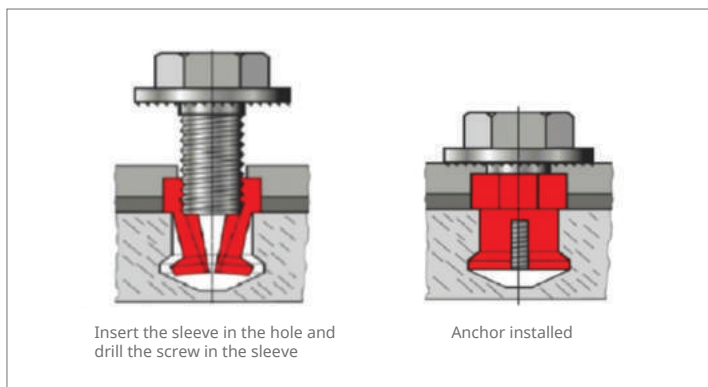
Photos taken by Lothar Moritz

### Important Hint:

When installing any mechanical fixing into a HIMACS panel make sure to install without any stress and pressure.




High risk insert installation



Stress free installation

### Undercut anchor KH AA

**555**



**Undercut anchor KH AA**

6.0	4.0	1.0	M6x0.5	14	900 020 920
6.0	4.0	2.0	M6x1.0	14	900 020 740
6.0	5.0	2.0	M6x1.0	14	900 020 890
6.0	5.0	1.0	M6x1.0	14	900 020 724
6.0	5.5	2.0	M6x1.5	14	900 020 712
6.0	5.5	2.0	M6x1.5	14	900 020 846
6.0	7.0	2.0	M6x1.0	14	900 020 894
6.0	7.0	2.0	M6x1.5	14	900 020 780
6.5	7.0	2.0	M6x1.5	14	900 020 490
11.0	6.0	2.0	M6x1.5	14	900 020 820
11.0	8.0	1.0	M6x1.0	14	900 020 752
11.0	8.0	2.0	M6x1.5	14	900 020 770
16.0	10.0	2.0	M6x1.0	14	900 020 860
16.0	10.0	1.0	M6x1.5	14	900 020 794
16.0	10.0	2.0	M6x1.0	14	900 020 718
16.0	11.0	2.0	M6x1.5	14	900 020 760
16.0	13.0	1.0	M6x1.5	14	900 020 862
16.0	15.0	2.0	M6x1.5	14	900 020 810
16.0	15.0	1.0	M6x1.0	14	900 020 788
16.0	15.0	2.0	M6x2.0	14	900 020 828

**Specifications:**

- Anchor sleeve: 100% boronized ball with locking washer or stainless steel AA
- For use in:
  - Natural stone
  - Manufactured stone
  - Carapalis
  - Accessories
  - Depth control guide for anchor sleeve
  - Target anchor 24.0mm
  - Anchor sleeve 20.0mm
  - Special spacer plate
- For use in:
  - For use in fixed facade panels
  - For use in:
    - Natural stone
    - Manufactured stone
    - Carapalis
    - Accessories
  - Depth control guide for anchor sleeve
  - Target anchor 24.0mm
  - Anchor sleeve 20.0mm
  - Special spacer plate
- For use in:
  - For use in fixed facade panels
  - For use in:
    - Natural stone
    - Manufactured stone
    - Carapalis
    - Accessories
  - Depth control guide for anchor sleeve
  - Target anchor 24.0mm
  - Anchor sleeve 20.0mm
  - Special spacer plate

**Notes:**

- 1) See appropriate approval table.
- 2) KH AA undercut anchors are restricted by approval bodies.
- 3) Other dimensions on request.

**Usage:**

- Application only as per approval and KH AA installation instructions.

KEIL undercut anchor specification data

### General installation instructions

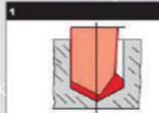
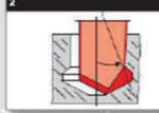

#### Drilling and Undercutting

The undercut holes on the back of the facade panels must be made using KEIL System tools under workshop conditions.

The KEIL System tools comprise the KEIL facade drill bit, the KEIL drill head and the undercutting and drilling machine (e.g. KEIL portable drill, KEIL bench drill or automatic drilling machine with KEIL drill head).

The undercut hole is produced in one step (cylindrical drilling [1] and undercutting [2]).

Correct installation of the undercut anchor is possible only if a precisely undercut hole exists [3]. The hole geometry is regularly monitored with the KEIL gauge matching the insertion depth of the anchor. The hole depth is set by means of this gauge, and all major hole dimensions can be checked efficiently with it.

- 
- 
- 

#### Assembly

The undercut anchor consists of an anchor sleeve and its hex screw.

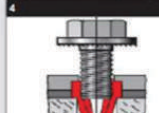
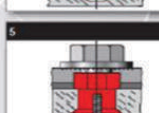
Hole, anchor sleeve and screw length have to be matched to the hole depth required and to the panel bracket chosen. Only the use of matching components results in quick, simple and safe installation.

The anchor sleeve, which is compressed in the lower end, is placed in the hole with the specified panel bracket [4].

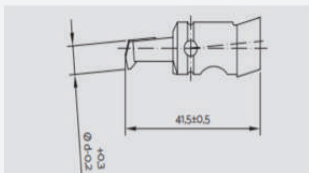
The screw is screwed in while exerting slight pressure on the panel bracket (to fix the anchor) [5]. The locking ratchet of the screw cuts into the panel bracket to secure it.

The panel bracket forms a rigid unit with the KEIL facade anchor for this type of installation.

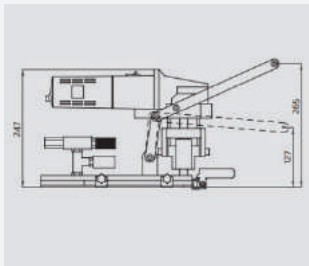
The anchor sleeve is expanded to its original dimension by inserting the screw to a controlled depth, so that the sleeve sits snugly against the undercut section of the hole in the facade panel. After installation, the anchor sits stress-free in the undercut hole (i.e. the bracket can still be rotated with a certain amount of effort).

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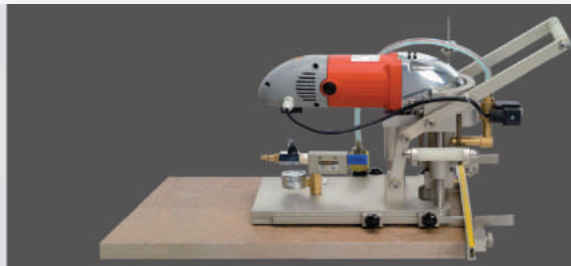
KEIL undercut anchor installation steps



KEIL driller bit for undercut anchor



KEIL drilling machine for undercut anchor





## 8. HIMACS Panel with Aluminum profiles

ATK 103 P-20 clip for Keil Hexagonal

With cellular rubber

View from above, adjustable clip

- B = 36 mm: Art. 28535
- B = 60 mm: Art. 28560
- B = 80 mm: Art. 28580

View from above, standard clip

- B = 36 mm: Art. 28535
- B = 60 mm: Art. 28560
- B = 80 mm: Art. 28580

View

B

32

33

20.4

B/2 B/2

B

04/2007

**BWM**  
KONSTRUKTIONS-SYSTEME FÜR DEN FASSADENAUFBAU

**Lieferprogramm ATK 103 T für Keil-Dübelssystem**

**Tragprofile**

Horizontal-Tragprofil eingelocht  $\pm 3\text{mm}$   
Material: EN AW 6063 T66

L [mm]	Artikel-Nr.
6000	668430

Horizontal-Tragprofil gelocht  $\pm 3\text{mm}$   
Material: EN AW 6063 T66

L [mm]	Artikel-Nr.
6000	668430

**Agraffen**

Agraffen justierbar  $\pm 3\text{mm}$   
Material: EN AW 6063 T66

B [mm]	Artikel-Nr.
36	66031
60	66032
80	66033

Mit Stellschraube und Teilen zur Plattenklemmung

Agraffen starr  $\pm 3\text{mm}$   
Material: EN AW 6063 T66

B [mm]	Artikel-Nr.
36	66034
60	66035
80	66036

Technische Änderungen vorbehalten  
Seite 01

Sample showing a profile of BWM. Material thickness in 2 or 3mm available. Check size of stroke for project needs.

### Häfele hanging profile - Panel-Installation-System Eilox Standard

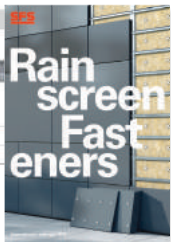
12

17

40

8

To build a HIMACS wall cladding, LX Hausys suggests using a structure made from a ventilated profile structure system using SFS Façade Fixing Systems made in Aluminum.


FXA / FBN-II / FAZ-II


**Technical information**


**Material**

**Fastener**

- FXA/FAZ-II: Zinc-plated steel or Stainless steel
- FBN-II: Stainless steel



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SXR-T / SXR-FUS / SXRL-T / SXRL-FUS


**Technical information**

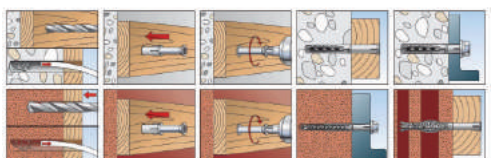
**Material**


**Fastener**

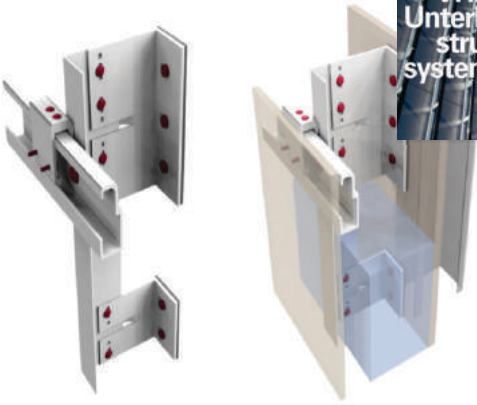
- SXR-T/SXR-FUS/SXRL-T/SXRL-FUS: Zinc-plated steel or Stainless steel

**Anchor sleeve:** High value Polyamide

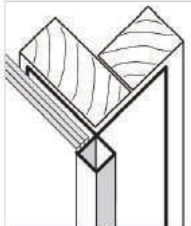
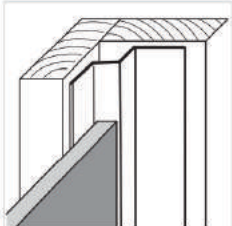
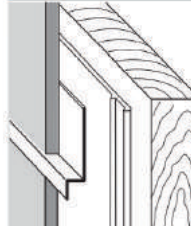
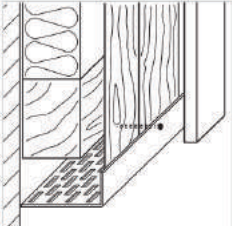
**Screw:** Zinc-plated steel or Stainless steel, grade A4-316 (European Standard 14401)



KX03 for a mechanical and non visible fixing system.




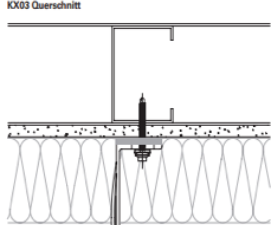
SFS: profiles corner / seam / bottom

**Einstellbereiche – 50 x 50 mm 'L' oder 100 x 50 mm 'T'**

Größe (mm)	Min (mm)	Max (mm)	Aluminium	Edelstahl
40	75	106	•	•
60	101	116	•	•
90	119	148	•	•
120	148	179	•	•
150	179	208	•	•
180	208	238	•	•
210	238	268	•	•
240	268	298	•	•
270	298	328	•	•
300	328	358	•	•
330	358	388	•	•
360	388	418	•	•
390	418	448	•	•

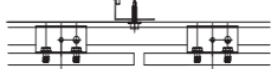
**KX03 Querschnitt**



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**Einstellbereiche – 60 x 40 mm 'L' oder 100 x 40 mm 'T'**  
(40 mm Schenkel in Wandkonsolle)

Größe (mm)	Min (mm)	Max (mm)	Aluminium	Edelstahl
40	65	85	•	•
60	85	106	•	•



---

**Einstellbereiche – 60 x 40 mm 'L' oder 100 x 60 mm 'T'**  
(60 mm Schenkel in Wandkonsolle)

Größe (mm)	Min (mm)	Max (mm)	Aluminium	Edelstahl
60	112	126	•	•
90	119	158	•	•
120	148	168	•	•
150	179	218	•	•
180	208	248	•	•
210	238	278	•	•
240	268	308	•	•
270	298	338	•	•
300	328	368	•	•
330	358	398	•	•
360	388	428	•	•
390	418	458	•	•

**KX03 = KX01 + KX03 Komponenten (mechanisch verdeckte Befestigung)**

Wählen Sie die KX01 Komponenten (Dübel und Schenkel), dann die KX03 Komponenten. Weitere Varianten von Agraffen auf Anfrage.

Referenzbezeichnung	Detaillangaben	Artikelnr.
NV-CP-NV3-3000	Tragprofil NV3 System x 3000	1821321
NV-CP-NV3-6000	Tragprofil NV3 System x 6000	1821334
NV3-TUF-S-ADJ-F3.5mm	NV3 justierbare Agraffe für TUF-S	1549012
NV3-TUF-S-STAT3.5mm	NV3 statische Agraffe für TUF-S	1549015
NV-NV3-KEILSTAT	NV3 statische Agraffe für 1x Keil	1821456
NV-NV3-KEILADJF	NV3 justierbare Agraffe für Keil	1821454

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**Einstellbereich**

Abmessungen enthalten keinen SFS Thermostopp. Falls Thermostopp benötigt werden, sind die Abmessungen in der Tabelle minimal um die Dicke der Thermostopp zu erhöhen. Die Abmessungen in den obigen Tabellen schließen die benötigten 26 mm für die horizontalen SFS KX03 Agraffen und Tragprofile ein.

**Befestigungen**

Befestigungen	Referenzbezeichnung	Detaillangaben	Artikelnr.
SD4S	SD4S/5.6/H13/54/4.5/27	Profil an Wandkonsolle, Tragprofil an vertikales Profil, Sicherung Agraffe (Fisurpunkt)	1807972
ASO-D14	ASO-D14/80/46/L	Profil an Wandkonsolle, Tragprofil an vertikales Profil	1816425

24

Last Revision Year: 2022  
HIMACS Technical Data Sheet

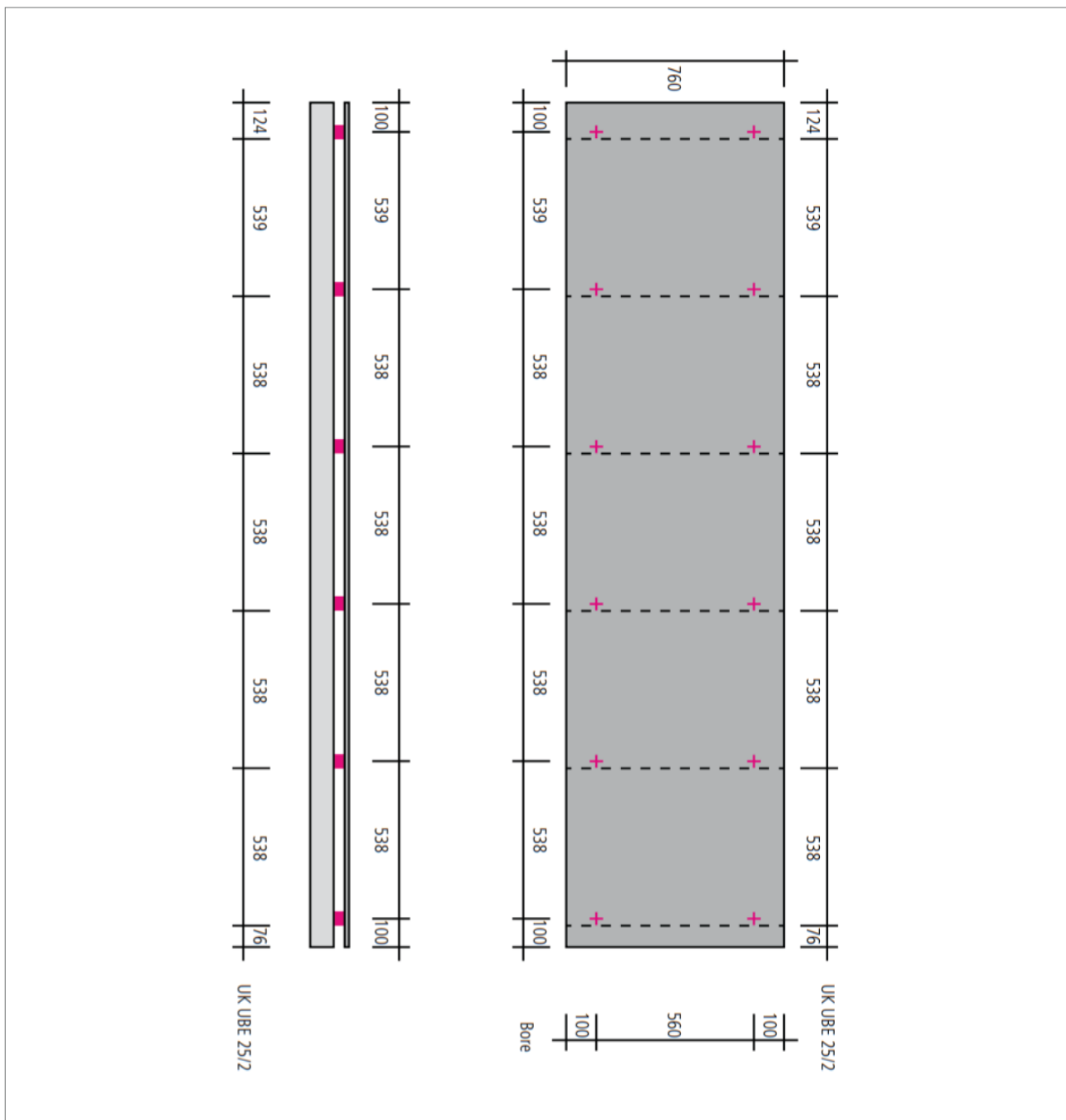


## 9. Recommended fixing positions for hanging brackets

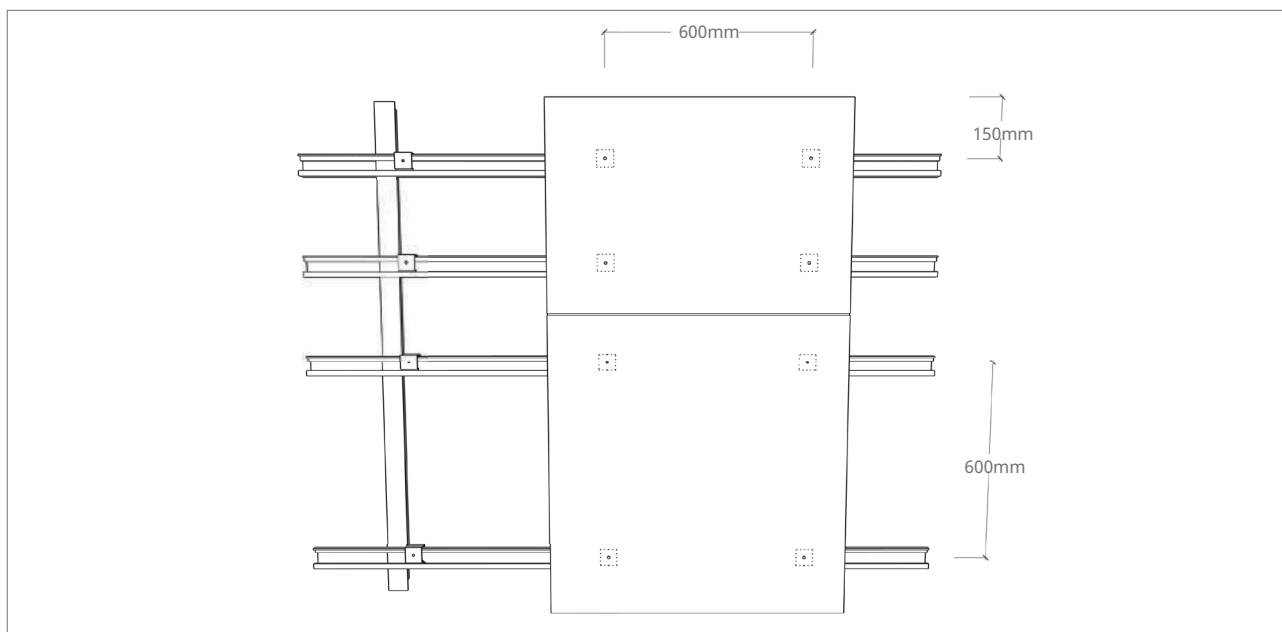
When installing a wall with panels and with shadow gaps, each HIMACS panel requires a fix point with the others having sliding points.

To avoid any panel warping on interior applications LX Hausys recommend maximum fixing centers of between 540mm up to 600mm and a HIMACS material thickness of 12 or 19mm.

Ensure the wall condition is able to carry the pieces for wall covering and contact your architect or structural engineer.



## 10. Best measures of placing hug connection



Sample 3

## 11. Available HIMACS sheet size and product weight

STANDARD FORMATS				SHEET THICKNESS IN MM			SHEET THICKNESS IN MM		
				SHEET THICKNESS IN MM	SHEET WIDTH IN MM	SHEET LENGTH IN MM	SHEET THICKNESS IN MM	SHEET WIDTH IN MM	SHEET LENGTH IN MM
760x2490mm	4.5	930	3000 *	6 **** 9 **** 12 ***	1220	2490	1350	2490	910
910x2490mm	6	760	2490			3090			
760x3000mm		910	2490 *			3680			
1350x2490mm		1350	3680 *		2490				
760x3680mm	9	760	3680		3090				
910x3680mm		910	3680 *		3680				
1350x3680mm		1350	3680 *	2490					
760x3680mm	12	760	3680	3090					
910x3680mm		910	3680 *	3680					
1350x3680mm		1350	3680 *	2490					
910x3680mm	20	1520	3680 *	3680					
1350x3680mm		760	3000	3680					
1520x3680mm		910	3680 *	3680					
	12	1520	3680 *	6 *****	910	2490	9 *****	910	3680
		760	3000	12 *****	910	3680	12 *****	910	3680
		910	3680 **	20 ***	760	3680	20 ***	760	3680
		930	3680 **						
	1520	3680 **							

\* Only available in S028 Alpine White  
 \*\* Only available in S928 Alpine White  
 \*\*\* Available in all colours except for Eden Plus, Marmo Collection and M551 Chic Concrete. M552 Shadow Concrete and M553 Ebony Concrete.  
 \*\*\*\* Available in all Solid colour  
 \*\*\*\*\* Only available in S006 Arctic White

## 12. HIMACS Panel with mechanical fixing

- For interior fixing you may use other well known fixing.
- Ensure the fixing allows proper material movement and avoid any sheet warping
- Avoid constructions to the limits. Consult engineering support.



**Hint:**

Ensure your sub-construction is strong enough to take the weight of the wall paneling. LX recommends to consult an engineer for static calculations of your project.

## 13. HIMACS Panel fixing with bonding

The installation can be done with permanent elastic adhesive systems.

- There are several systems in the market available
- For facade system LX is recommending the product from INNOTEK ([www.INNOTEK.de](http://www.INNOTEK.de))
- Always check for proper engineering calculations to your construction wall

**For any public applications all bonding systems have still to apply for an official local or European authorising authority approval.**

**Hint:**

Ensure your sub-construction is strong enough to take the weight of the wall paneling. LX recommends to consult an engineer for static calculations of your project.

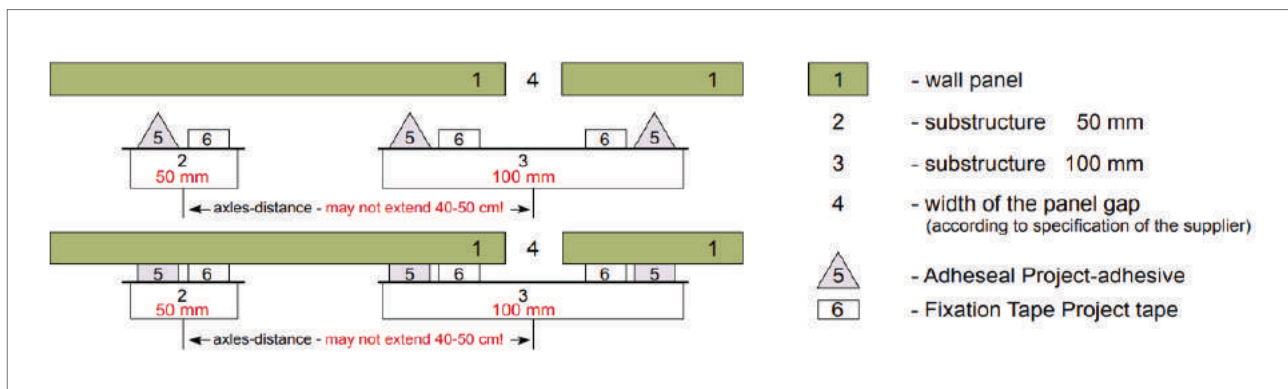
## 14. Cladding System

### 14.1 HIMACS bonding with Innotec

Innotec Project System is a high-quality, easy to apply bonding system for a highly economical assembly of wall panels on aluminium or wooden substructures in the field of: Industrial and private homes Metal panelling  
Insulation with polystyrene cellular plastics in garages New buildings and renovation projects Façades and roof elements Metal and façade construction Finishings HPL panels in lifts

#### Schematic description:

vertical substructure – bonding – façade panels The distance between the axes of the vertical substructure may not extend 40-50 cm OR conform the instructions of the constructor.



When applying Adheseal Project adhesive, a distance of at least 3 mm to the tape and to the edge of the substructure has to be respected!

On the substructure [3] under the panel gap [4] the tape [6] is to be applied on the inside, leaving from the middle, and the adhesive joint [5] is to be applied on the outside. When applying the tape [6], there has to be enough space on the outside for the distance (2 x 5 mm) plus adhesive joint (8mm)!

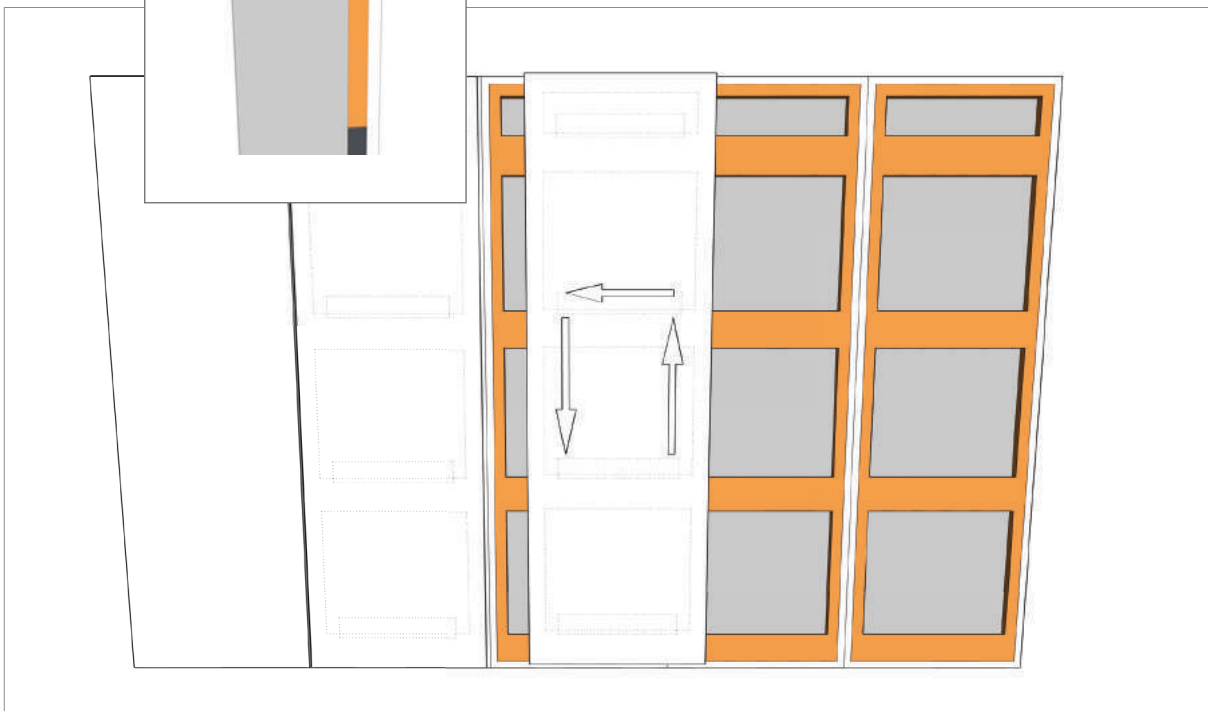
## 14.1 HIMACS bonding with Innotec

<p><b>Allgemeine bauaufsichtliche Zulassung/ Allgemeine Bauartgenehmigung</b></p>	
<p><b>Nummer:</b> <b>Z-10.8-483</b></p>	<p><b>Zulassungsstelle für Bauprodukte und Bauarten</b> <b>Bautechnisches Prüfamt</b> Eine vom Bund und den Ländern gemeinsam getragene Anstalt des öffentlichen Rechts Mitglied der EOTA, der UEAtc und der WFTAO</p> <p>Datum: 01.02.2019      Geschäftszeichen: 173-1.10.8-483/4</p>
<p><b>Antragsteller:</b> <b>PCS Innotec International N.V.</b> Schans 4 2480 DESSEL BELGIEN</p>	<p><b>Geltungsdauer</b> vom: <b>1. Februar 2019</b> bis: <b>1. Februar 2024</b></p>
<p><b>Gegenstand dieses Bescheides:</b> <b>Fassadensystem unter Verwendung des Klebesystems "Innotec Project System" zur Befestigung von hinterlüfteten Fassadenplatten auf einer Aluminium-Unterkonstruktion</b></p>	
<p>Der oben genannte Regelungsgegenstand wird hiermit allgemein bauaufsichtlich zugelassen/ genehmigt. Dieser Bescheid umfasst neun Seiten und zwölf Anlagen. Diese allgemeine bauaufsichtliche Zulassung/allgemeine Bauartgenehmigung ersetzt die allgemeine bauaufsichtliche Zulassung/allgemeine Bauartgenehmigung Nr. Z-10.8-483 vom 20. Juni 2018. Der Gegenstand ist erstmals am 12. Februar 2014 allgemein bauaufsichtlich zugelassen worden.</p>	
<p style="font-size: small;">DIBt   Kolonnenstraße 30 B   D-10629 Berlin   Tel.: +49 30 78730-0   Fax: +49 30 78730-320   E-Mail: dibt@dibt.de   www.dibt.de</p>	

## 14.2 Sample of Installation



Sample 2



Sample 3

### 14.3 HIMACS sheet product fire classification

HIMACS Standard Products

SPECIFICATION / SUBJECT	MATERIAL THICKNESS	RESULT	PRODUCT TESTED	TEST METHOD
Fire classification	20mm	B1	S028 19mm	DIN 4102-1 (Mai 1998)
		B - s1 - d0	S028 19mm	EN 13501-1
	9mm	B1	S028	DIN 4102-1 (Mai 1998)
		C - s1 - d0	S028	EN 13501-1
	6mm	C1	S028	DIN 4102-1 (Mai 1998)
		C - s1 - d0	S028	EN 13501-1
	3mm	C1	S028	DIN 4102-1 (Mai 1998)
		D - s1 - d0	S028	EN 13501-1

### 14.4 Technical Specification Data



S006 ARCTIC WHITE	
Thermal Conductivity	$\lambda_{10dry} = 0,55$ W/mK
Thermal Expansion Coefficient	$\alpha = 0,055$ mm/mK
Diffusion Resistance Coefficient	$\mu$ 16150

S007 PLATINUM GRANITE	
Thermal Conductivity	$\lambda_{10dry} = 0,55$ W/mK
Thermal Expansion Coefficient	$\alpha = 0,055$ mm/mK
Diffusion Resistance Coefficient	$\mu$ 16150

## 14.5 HIMACS Technical Specification Data Sheet (TSDS)

HIMACS is extremely resistant to dirt and wear and tear, so that you can enjoy many years', peace of mind with the outstanding quality of your new product.

SPECIFICATION	UNIT	RESULT SOLIDS	RESULT GRANITE	TEST METHODS
Flexural-E-modulus	MPa	8900	7730	DIN EN ISO 178
Flexural strength	MPa	70.1	64.3	ASTM D638
Breaking elongation	%	1	1.1	DIN EN ISO 178
Tensile strength	MPa	69.5	56.3	DIN EN ISO 527
Density	g/cm3 kg/m3	1.75 1750	1.65 1650	ISO 1183 ISO 1183
Ball indentation hardness	N/mm2	257	239	DIN EN ISO 2039-1
Mohs hardness		2 to 3	2 to 3	EN 101
Pencil hardness		>9H	>9H	ISO 15184
Water absorption weight strength/thickness		<0,1% <0,1%	<0,1% <0,1%	DIN EN 438 Part 12
Impact resistance impactor drop ball test (fall height)	N mm	≥25 ≥1500	≥25 ≥1500	E DIN EN 438, 02/02 Part 2/20 E DIN EN 438, 02/02 Part 2/21
Slip resistance		>0,32 – 0,9		GMG100 (replaces R9)
Slip resistance		angle of acceptance of more than 10° to 19° = R10		DIN 51130
Climate change resistance	°C	≥0,05	≥0,05	AMK
Dry heat (pan base)	°C	≥100 (7C)		DIN 68 861, Part 7, 04-'85
Damp heat (pan base)	°C	≥100 (7C)		DIN 68 861, Part 8, 04-'85
Temperature change resistance	°C	no change		UNI 9429
Resistance to cigarette burns		6C	6B	DIN 68 861, Part 6, 11-'82
Scratch resistance		4D	4B	DIN 68 861, Part 4, 11-'81
Electrostatics Conductivity	>1x1012Ω	insulating non-conductive		DIN IEC 1340-4-1, 04-'92 EN 61340-5-1
Thermal conductivity	W/mK	0.636	0.55	DIN EN 12664
Thermal resistance	m2K/W	0.038	0.045	DIN EN 12664
Thermal Expansion Coefficient for Standard HIMACS Products	mm/mK m/m/°C	0.048 48 x 10-6	0.055	DIN EN 14581
Water vapor transmission properties – diffusion resistance factor	μ	18607	16150	DIN EN ISO 12572
Dimensional change by change in relative humidity length thickness mass	% % %	-0.03 0.06 0.05	-0.02 0.03 0.05	DIN EN 318, edit. 5, 1998
Resistance to boiling water increase in weight increase in thickness	% %	<0,1 <0,1	>0,1 <0,1	E DIN EN 438, 02/02 Part 2/12
Light fastness (Xenon)	scale 0 – 10	better than 6	better than 6	DIN 53 387, 04-'89
Food tolerance		suitable for all colours		LMBG § 31
Hygiene		suitable	suitable	LGA Hygiene Certificate

SPECIFICATION / SUBJECT	MATERIAL THICKNESS	RESULT	PRODUCT TESTED	TEST METHOD
Fire Classification	12 mm	B1	HIMACS colour range** S928, M551, G554	DIN 4102
		B1	S028 (standard)	DIN 4102 / ABP
		M1	S728, S828, S028, T017, VW01, W001	NF P92-501
		B - s1 - d0	HIMACS colour range** (2007)	EN 13501-1
	12mm plus fibre cement board	B - s1 - d0	HIMACS colour range** (2014)	EN 13501-1
		B - s1 - d0	S728 CE MED	EN 13501-1 / SBI
	12 mm	C - s1 - d0	S928	EN 13501-1
		passed	S028 (standard)	DIN 5510
		passed R1/HZ3	S728 CE MED	EN 45545
		IMO certified	S728 CE MED	Module B & Module D
HI-MACS Exteria®	12 mm	ETA	S728	DIBT
		Avis Technique	S828	CSTB

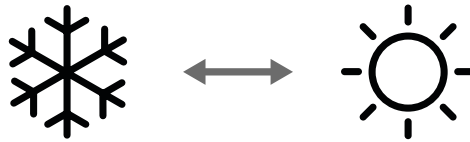
\* Not currently applicable to Strato, Ultra Thermoforming and Intense Ultra.  
\*\* Products tested in the year 2007 and 2014: Alpine White, Fiery Red & Black.

HIMACS – The Natural Acrylic Stone™ by LX Hausys – himacs.eu

Technical data sheet

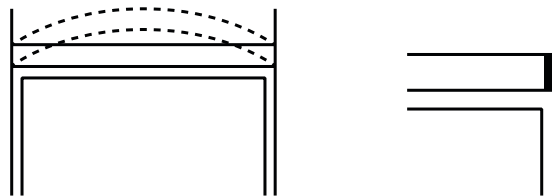


## 15. Thermal Expansion



Sufficient space should be given to compensate for expansion or contraction at the time of installation since this product may expand or contract depending on the temperature.

**Allow 1.5 mm per linear meter for expansion and contraction.**



Expansion coefficient **HIMACS** according to norm DIN EN 14851:  
 $\Delta t = \text{ca. } 48 \times 10^{-6} /K$

## 16. Quality Check

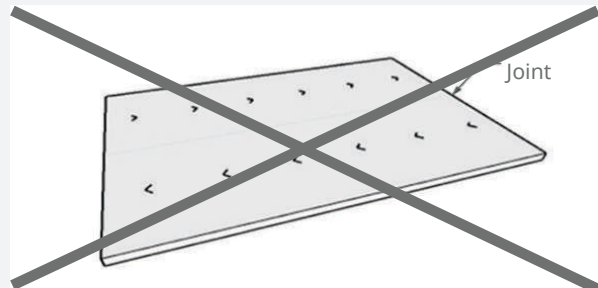
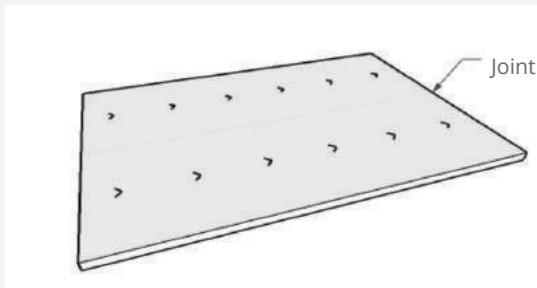
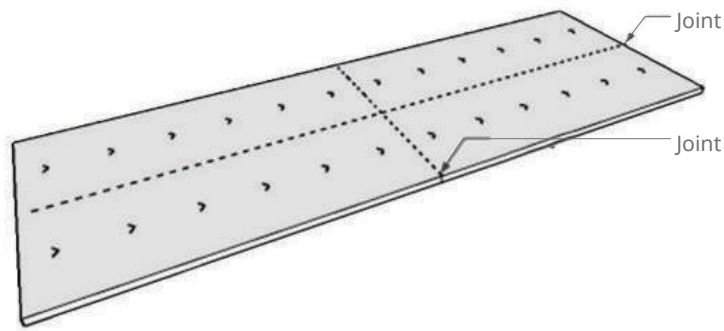
- Check any fabricated item on quality aspects before leaving the workshop.
- In case of any mistakes it easily can be repaired in the workshop and keeps the time of re-work very low.
- Any damage or any mistakes which will be recognized at a later time will make the fixing much more expensive.

### Important Hint:

Remember that the 15 Year Limited Installed Warranty does not cover any failures due to fabrication or installation mistakes.

## 17. Summary of Hints

When using several sheets for doing one job ensure a continuous flow of sequential numbers as well as the same production flow.  
Do not turn one sheet into a different direction from the next or opposite side (no turn of any sheet by 90°, 180° or 270°).



When preparing for a big project and you have to use different batches ensure the surface is sand equal to any other using surface sanding level. If not it is fabricators responsibility to adjust the right sanding level in his workshop. Therefore a proper project planning with following batch and sequential numbers is mandatory.

The adhesive is not developed as filler for repairs. In the case of damage to the surface it is strongly recommended to make a plug repair if possible (tools are available on the market – please contact your local technical support).

**Hint:**

Check all incoming goods for Quality specs and adjust sequential batch numbers. Check colour match. Contact your local Distributor for any questions you may have. Keep record on any material you are using for the project.

Remember that the 15 Year Limited Installed Warranty does not cover any failures due to fabrication or installation mistakes.

## Disclaimer

The information provided in this specific technical bulletin corresponds to our best knowledge on the subject at the date of its publication. This information may be subject to revision as new knowledge and experience becomes available. The data provided fall within the normal range of product properties and relates only to specific material designated. These data may not be valid for such material in combination with other materials or in any process, unless expressly indicated otherwise. It is offered exclusively to provide possible suggestions for your own experiments and needs approval from LX Hausys Europe GmbH, for Warranty.

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## 18. Appendix

**Tip:**

Before choosing a cladding-system it should be clarified the material needs of colour and possible thickness as well as its Design of its look-a-like...

After clarifying the issue above - choose the best system or possibility to avoid any mould creation and find the best and efficient installation possibility for your convenient best techniques and brings the best value to your customer clientele – if budget allows.

Here a short summery overview of important input to start with:

**For any shower wall installation**

Avoid any kind of mould formation in the back of HI-MACS(R) showe panel

To clarify in advance:

HI-MACS(R) material:

- Color
- Thickness

Design:

- Bonded – as one
- With shadow line

Through:

- Air circulation
- All-over adhesion

Floor connection:

- Air circulation flow possibillies
- If no, only all-over bonding

Ceiling connection:

- Air circulation flow possibillies
- If no, only all-over bonding

Fixing possibilities:

- Hanging system
- Pu adhesive systems
  - Sika Tuck Panel
  - Innotec
  - SFS Adhesive System
- Air circulation
- All-over adhesion

Further: check on correct and possible dimensions to allow this or another system.

## ■ LX Hausys Europe GmbH

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Frankfurt am Main, Germany

