Technical Documentation

As of 18.02.19

This picture shows a computer visualisation
## Content

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The **imi-beton facade panel** is a high-quality panel material based on basalt rock. Consisting of a highly compressed rock wool core board and an approx. 1 mm thick, mineral imi-beton coating.

The product combines the robust properties of stone and the easy workability of wood. Where other panel materials reach their limits, imi-beton facade panels offer an excellent solution. Easy and fast to process, sustainable and appealing in design.

imi-beton facade panels are ideally suited for both new build and renovation projects in areas such as:

- facade;
- roofline applications: like roof edging, projections, gutter finishing, dormers, fascia boards or parapets;
- other detailing such as on soffits, entrances and infill panels.

**Variants**

The board material is available in two different variants:

- **Durable**: imi-beton facade panel for use in regular facade and roofline applications.
- **Xtreme**: imi-beton facade panel for use in facade applications when a greater degree of strength is required. For instance to withstand higher wind loadings or impact resistance.

This picture shows a computer visualisation
Storage and transport

Storage

• *imi*-beton facade panels are a decorative product! Therefore, always handle the boards with care.
• Store the board material in flat, dry, frost-free and protected conditions.
• Store on flat pallets and place the pallets on a level foundation.
• Make sure that the board material does not have direct contact with the floor.
• Never stack more than two pallets high.
• During storage, the board material can be more affected by moisture and night-time cooling than when installed. Before installing, the boards will need some time to allow any moisture and condensation to evaporate.

Site handling

• Individual panels must be lifted off the stack, not pulled or pushed, and carried upright.
• Protective foam membranes should be placed between the sheets again to protect the surface layer.
imi-beton facade panel base material (high pressure stone wool) is a safe product to work with. Produced from basalt, a natural and sustainable volcanic stone. High pressure stone wool is one of the most extensively researched and tested building materials.

Sawing
Standard tools can be used for sawing imi-beton facade panels or making cut-outs in the panels. In general the boards should be sawn with the decorative side facing upwards. With a handheld circular saw, the foot of which is guided along the top of the panel, it makes sense to turn the panel so that the decorative side faces downwards. However, you must ensure that the surface on which the panel is placed is clean and flat.

Tools:
• Handsaw, e.g. a hard point sawl.
• Circular saw, e.g. a fine-toothed Widia saw blade.
• Fretsaw, e.g. a fine-toothed saw blade for metal or a saw blade with tungsten coating.

Security guidelines:
• Use a dust mask (type P2).
• Use standard safety spectacles to protect your eyes from dust.
• Wear gloves during sawing.
• When sawing in closed rooms, use dust-reducing sawing equipment in combination with an extraction hood in a well-ventilated room.
• When sawing outdoors, position the saw so that the wind blows away any dust and, if possible, use dust-reducing sawing equipment.

Edge processing not required
Processing of the saw edges and edge processing to protect against moisture is not necessary for imi-beton facade panels.

Chamfering is easy using the reverse (non decorative) side of a leftover strip to lightly sand the edge. If required for aesthetic reasons the side edges can be painted in a corresponding colour (Art. No. 5785). For special orders, the side edges can also be finished in the production process. Without finishing the edges naturally age within several months to a grey-brown colour.
• The surface is impregnated at the factory.
• The facade panels do not require any cleaning.
• The surface is subject to a natural aging process.
• However if cleaning is desired, the surface can be cleaned with water and a soft broom/brush and/or sponge. Abrasives should be avoided.
• Slight damage can be repaired with a repair set (Art. No. 7550).
• After a cleaning or a repair, a new impregnation if desired can be done. In this case we will be happy to advise you.

Bending and curving panels

The imi-beton facade panels can be curved and twisted into almost any desired shape, thus expanding your design scope.

The following values apply only to the Durable 8 mm* version. For other variants such as Xtreme, please contact our technical department.

* thickness of the carrier board

<table>
<thead>
<tr>
<th>Panel length (Curve, mm)</th>
<th>3050</th>
</tr>
</thead>
<tbody>
<tr>
<td>Radius R minimum (mm)</td>
<td>2500</td>
</tr>
<tr>
<td>Angle $\alpha$</td>
<td>69,9°</td>
</tr>
<tr>
<td>Chord (mm)</td>
<td>2864</td>
</tr>
<tr>
<td>Level (mm)</td>
<td>451</td>
</tr>
<tr>
<td>Common ground c.t.c. (mm)</td>
<td>400</td>
</tr>
<tr>
<td>Fixing distance c.t.c. (mm)*</td>
<td>300</td>
</tr>
</tbody>
</table>

*For urban and rural environments. In case you want to install curved boards on buildings higher than 10 meter or on buildings in areas with higher wind load, please contact our technical department.
Finishing the edges is only necessary to meet any design or aesthetic requirements. For an attractive finish of corners and edges there are different solutions:

**Assembly corner joint with natural grey-brown edges**

Without finishing, the basic material changes colour to natural grey-brown under the effect of UV.

**Corner profiles in a RAL colour**

A solution with a corner profile in a compatible RAL colour ensures a perfect finish.

**Edge paint**

The finishing of the edges with the matching colour paint is another option (Art. No.: 5785).

**Mitre joint**

For the highly skilled installer, a mitre joint can be made with the material, thereby creating a precise and uniform finish.

**Bonding to aluminium or wooden substructure**

In cooperation with Bostik, the manufacturer of the carrier board has developed a fireproof, EU-certified adhesive system called Tack-S for invisible fastening. The system meets the strict fire protection requirements so that the European building material class of at least B-s2, d0 (flame retardant) is achieved:

- Wooden substructures with ROCKPANEL strips, or on
- Aluminium substructures.

When bonding the **imi-beton facade panels**, follow Bostik’s processing instructions. If you want to use a different adhesive system, check whether the selected system meets the requirements for the application in combination with **imi-beton facade panels**.

Installation with other adhesive systems is the responsibility, technical approval and warranty of the manufacturer of the adhesive system concerned.

**Note:** The quality of the adhesive connection depends, among other things, on the weather conditions during installation. For further information on application, please contact the manufacturer of the adhesive system.
This chapter deals with the fastening guidelines and the maximum distances between fastening points for imi-beton facade panels on wooden or aluminium substructures.

The table lists the maximum distances between fastening points for a vertical wooden or aluminium substructure according to the European approvals ETA-07/0141 and ETA 08/0343. When used in a specific project, individual calculations may have to be made.

### Maximum distances between fastening points according to approval (facade panel)

<table>
<thead>
<tr>
<th>Fastening type</th>
<th>imi-beton facade panel 8 mm*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Torx screw according to specification</td>
<td>600</td>
</tr>
<tr>
<td>Rivet</td>
<td>600</td>
</tr>
<tr>
<td>Adhesive system</td>
<td>The maximum span between the adhesive tracks on an 8 mm* panels is 600 mm (a)</td>
</tr>
</tbody>
</table>

* Thickness of the carrier board

### Determination the fixing distances

When determining the fixing distances the following variables should be taken into account:

- **Wind load**
  - Determine the fundamental local basic wind velocity;
  - Determine the maximum height of the building;
  - Determine the site altitude;
  - Determine the distance from the coast;
  - Determine the distance to the town border.
- **Board type and thickness used**
- **Selected fastening system**
- **Static load absorption**, for example 1-field- or 2-field span
- **Legal local requirements**
- **Building area**: zone A (corner area) or zone B (area between corners). For details see the figure below.

---

A = Corner area  
B = Area between the corners  
h = Total building height
Fixing distances

The tables (pages 10 and 11) show examples of the most frequently occurring situations. For the correct interpretation of the tables, the wind zones in Germany according to DIN EN 1991-1-4/NA:2010-12 are shown in the following graphic.
## Calculation examples: Fixing distances

**Maximum distance:** imi-beton facade panel 8mm* on wooden or aluminium substructure

* Thickness of the carrier board

### Germany
- Inland
- Building height <10 m
- Ratio building height / width 1
- Wooden substructure c24/s10
- Substructure made of aluminium according to approval
  - $a_{R1} \geq 15 \text{ mm}$
  - $a_{R2} \geq 50 \text{ mm}$

### Wind zone 1

<table>
<thead>
<tr>
<th>Component</th>
<th>$b$</th>
<th>a Intermediate profile</th>
<th>a Round profile</th>
</tr>
</thead>
<tbody>
<tr>
<td>Torx screw according to specification</td>
<td>600 mm</td>
<td>540 mm</td>
<td>600 mm</td>
</tr>
<tr>
<td>Rivets on aluminium</td>
<td>600 mm</td>
<td>600 mm</td>
<td>600 mm</td>
</tr>
</tbody>
</table>

### Wind zone 2

<table>
<thead>
<tr>
<th>Component</th>
<th>$b$</th>
<th>a Intermediate profile</th>
<th>a Round profile</th>
</tr>
</thead>
<tbody>
<tr>
<td>Torx screw according to specification</td>
<td>600 mm</td>
<td>415 mm</td>
<td>600 mm</td>
</tr>
<tr>
<td>Rivets on aluminium</td>
<td>600 mm</td>
<td>510 mm</td>
<td>600 mm</td>
</tr>
</tbody>
</table>

### Wind zone 1

<table>
<thead>
<tr>
<th>Component</th>
<th>$b$</th>
<th>a</th>
</tr>
</thead>
<tbody>
<tr>
<td>Torx screw according to specification</td>
<td>600 mm</td>
<td>500 mm</td>
</tr>
<tr>
<td>Rivets on aluminium</td>
<td>600 mm</td>
<td>500 mm</td>
</tr>
</tbody>
</table>

### Wind zone 2

<table>
<thead>
<tr>
<th>Component</th>
<th>$b$</th>
<th>a</th>
</tr>
</thead>
<tbody>
<tr>
<td>Torx screw according to specification</td>
<td>600 mm</td>
<td>370 mm</td>
</tr>
<tr>
<td>Rivets on aluminium</td>
<td>600 mm</td>
<td>455 mm</td>
</tr>
</tbody>
</table>
Germany
- Inland
- Building height <10 m
- Ratio building height / width 1
- Wooden substructure c24/s10
- Substructure made of aluminium according to approval
  - $a_{R1} \geq 15 \text{ mm}$
  - $a_{R2} \geq 50 \text{ mm}$

<table>
<thead>
<tr>
<th>Wind zone 1</th>
<th>Wind zone 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Torx screw according to specification</td>
<td>Torx screw according to specification</td>
</tr>
<tr>
<td>600 mm</td>
<td>600 mm</td>
</tr>
<tr>
<td>500 mm</td>
<td>500 mm</td>
</tr>
<tr>
<td>Rivets on aluminium</td>
<td>Rivets on aluminium</td>
</tr>
<tr>
<td>600 mm</td>
<td>600 mm</td>
</tr>
<tr>
<td>500 mm</td>
<td>500 mm</td>
</tr>
<tr>
<td>Wind zone 1 b a a</td>
<td>Wind zone 2 b a a</td>
</tr>
<tr>
<td>Torx screw according to specification</td>
<td>Torx screw according to specification</td>
</tr>
<tr>
<td>600 mm</td>
<td>600 mm</td>
</tr>
<tr>
<td>500 mm</td>
<td>500 mm</td>
</tr>
<tr>
<td>400 mm</td>
<td>400 mm</td>
</tr>
<tr>
<td>Rivets on aluminium</td>
<td>Rivets on aluminium</td>
</tr>
<tr>
<td>600 mm</td>
<td>600 mm</td>
</tr>
<tr>
<td>500 mm</td>
<td>500 mm</td>
</tr>
<tr>
<td>400 mm</td>
<td>400 mm</td>
</tr>
<tr>
<td>Wind zone 1 b a a</td>
<td>Wind zone 2 b a a</td>
</tr>
</tbody>
</table>

Pre-drilling is recommended. An HSS steel drill is recommended for drilling the screw holes. For fixing according to approval, the following table must be observed:

<table>
<thead>
<tr>
<th>borehole diameter (mm)</th>
<th>imi-beton facade panel 8 mm* Durable</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Fixing material</td>
</tr>
<tr>
<td></td>
<td>Screws</td>
</tr>
<tr>
<td>fixed points</td>
<td>3,2</td>
</tr>
<tr>
<td>moving points</td>
<td>6,0</td>
</tr>
</tbody>
</table>

* Thickness of the carrier board

Application as ceiling or roof overhang
When using imi-beton facade panels horizontally, e.g. for ceilings or roof overhangs, the weight of the imi-beton facade panels must be taken into account when calculating the total load. As a rule of thumb, it is sufficient to multiply the fixing distances by a factor of 0,75.
Fixtures

The fastening systems are also part of a certification system. The calculated values were determined using the fasteners specified in the European approval. It is therefore important to meet these specifications.

Specifications of fasteners indicated in the detailed drawings as “Torx screw according to specification” and “Rivets according to specification”:

<table>
<thead>
<tr>
<th>Torx screw according to specification</th>
<th>Rivet according to specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Torx screw</td>
<td>Aluminium rivets with flat head</td>
</tr>
<tr>
<td>Stainless steel,</td>
<td>ø 14mm of typ AP14-50180-5</td>
</tr>
<tr>
<td>Material No. 1.4401 of 1.4578</td>
<td>Material EN-AW-5019 according EN</td>
</tr>
<tr>
<td>Matching RAL colour: 7044</td>
<td>755-2</td>
</tr>
<tr>
<td></td>
<td>material no. of rivet 1.4541</td>
</tr>
<tr>
<td></td>
<td>(according EN 10088)</td>
</tr>
</tbody>
</table>

The fixings suitable for the imi-beton facade panel correspond to those for the Rockpanel panels. These fixings are listed in the ETA certificate.

Facade

1a. Mechanically fixed on timber support

1. imi-beton facade panel 8 mm*
2. Torx screw according to specification
3. EPDM foam gasket
4. Breathable membrane
5. Battens 28 x 70 mm

D  Assembly joint
a₁, 15 mm minimum edge distance

1b. Mechanically fixed to timber supports, internal and external corner

1. imi-beton facade panel 8 mm*
2. Breathable membrane
3. Insulation (for example ROCKWOOL)
4. Torx screw according to specification
5. EPDM foam gasket

D  Assembly joint

* Thickness of the carrier board
1c. Mechanically fixed to timber supports, with external corner profile

- **imi-beton facade panel 8 mm***
- Torx screw according to specification
- Battens 28 x 70 mm
- EPDM foam gasket
- Corner profile

2a. Mechanically fixed to aluminium supports, abutment vertical joint

- **imi-beton facade panel 8 mm***
- Air cavity
- Blind rivet according to specification
- Insulation (for example ROCKWOOL)

Important: For aluminium constructions in an open facade we recommend a cavity depth of 40-100 mm.

2b. Mechanically fixed to aluminium supports, external corner

- **imi-beton facade panel 8 mm***
- Air cavity
- Rivet according to specification
- Insulation (for example ROCKWOOL)

* Thickness of the carrier board

*Thickness of the carrier board
**Detailing**

**Roofline**

3a. Mechanically fixed to timber supports, fascia board new build

1. **imi-beton facade panel** 8 mm*
2. Gasket
3. Battens
4. Breathable membrane
5. Insulation (for example ROCKWOOL)
6. Torx screw according to specification
7. Ventilation profile
8. Ventilation

* Thickness of the carrier board

3b. Mechanically fixed to timber supports, fascia board renovation

1. **imi-beton facade panel** 8 mm*
2. EPDM foam gasket
3. Existing multi-ply cladding (in sound condition)
4. Insulation (for example ROCKWOOL)
5. Torx screw according to specification
6. Ventilation
7. Chair profile

* Thickness of the carrier board

Attention: An EPDM foam gasket should be provided to ensure watertight connections at the point where the **imi-beton facade panel** is fixed over the existing sub frame.
Roofline

3c. Mechanically fixed to timber supports, soffit board new build

1. *imi*-beton facade panel 8 mm*
2. Ventilation
3. EPDM gasket
4. Torx screw according to specification
5. Battens
6. Insulation (for example ROCKWOOL)
7. Ventilation gap in horizontal battens

* Thickness of the carrier board

3d. Mechanically fixed to timber supports, soffit board renovation

1. *imi*-beton facade panel 8 mm*
2. Ventilation
3. EPDM foam gasket
4. Torx screw according to specification
5. Existing multi-ply cladding (in sound condition)
6. Insulation (for example ROCKWOOL)
7. Ventilation gap in horizontal battens

* Thickness of the carrier board
**Detailing**

**Around the window**

4a. Mechanically fixed to timber supports, junction at window-sill

1. **imi-beton facade panel 8 mm***
2. Aluminium window-sill
3. Ventilation
4. EPDM foam gasket
5. Battens
6. Breathable membrane
7. Insulation (for example ROCKWOOL)

* Thickness of the carrier board

4b. Mechanically fixed to timber supports, junction at window head

1. **imi-beton facade panel 8 mm***
2. EPDM foam gasket
3. Battens
4. Breathable membrane
5. Framework
6. Insulation (for example ROCKWOOL)
7. PU foam
8. Torx screw according to specification

D Assembly joint

* Thickness of the carrier board
Connection at ground level

4c. Mechanically fixed to timber supports, connection at ground level

1. **imi-beton facade panel** 8 mm*
2. EPDM foam gasket
3. Battens/ventilation
4. Breathable membrane
5. Insulation (for example ROCKWOOL)
6. Lead flashing / cavity tray
7. Access for ventilation

* Thickness of the carrier board

---

4d. Mechanically fixed to timber supports, connection at ground level

1. **imi-beton facade panel** 8 mm*
2. EPDM foam gasket
3. Battens/ventilation
4. Breathable membrane
5. Access for ventilation
6. Insulation (for example ROCKWOOL)
7. Torx screw according to specification

* Thickness of the carrier board
Dimensions und weights

**Formats**
2.480 x 1.180 mm and 3.030 x 1.180 mm
optionally also available in width 1.230 mm*

**Special dimensions**
You can have your panels manufactured to your specifications. The length can vary depending on the requirements of your project. Thanks to the innovative manufacturing process, our panels are now also available in any length between 1.680 mm and 3.030 mm and in width 1.230 mm. We will be happy to advise you on the possibilities.

* Optional width of 1.230 mm: from 100 m², longer delivery times.
** Special dimensions in length: from 300 m², longer delivery times and extra charge.
Please contact us for the exact conditions.

<table>
<thead>
<tr>
<th>Weight</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>imi-beton facade panel Durable 8 mm</strong></td>
<td>10,1 ± 1,2 kg/m²</td>
</tr>
<tr>
<td><strong>imi-beton facade panel Durable 10 mm</strong></td>
<td>12,2 ± 1,5 kg/m²</td>
</tr>
<tr>
<td><strong>imi-beton facade panel Xtreme 8 mm</strong></td>
<td>11,3 ± 0,8 kg/m²</td>
</tr>
<tr>
<td><strong>imi-beton facade panel Xtreme 10 mm</strong></td>
<td>13,7 ± 1,0 kg/m²</td>
</tr>
</tbody>
</table>

* Thickness of the carrier board.
ETA and CE marking

The imi-beton facade panels have been evaluated and approved on the basis of a specially developed guideline for innovative products, EAD. Based on this directive, imi-beton facade panels have received a European Technical Assessment (ETA).

Based on this ETA, imi-beton façade panels have a declaration of performance and CE marking and therefore meet the European requirements for building materials throughout Europe.

**ETA:**

- ETA-18/0449: "imi-beton facade panels Durable 8 mm*"
- ETA-18/0448: "imi-beton facade panels Xtreme 8 mm*"

* Thickness of the carrier board

Fire classification

Euroclass B-s2,d0 (Durable/Xtreme) EN 13501-1

More Informations

To learn more about our products and find answers to your questions, visit our website at www.imi-beton.com

Samples

Are you looking for even more inspiration?

We are happy to support you in your creative work:

Please call us at +49 (0) 2557 9377-40 or send us an e-mail to info@imi-beton.com

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