Installation
Cembrit Cover, Solid and Transparent

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**Product Information**

Cembrit fibre-cement is a modern building material made from natural and environmentally friendly raw materials. The technology has been developed by Cembrit, holding more than 80 years of experience within the manufacture of fibre cement. Our wide experience ensures a sustainable product which has accumulated all the advantages of fibre cement.

**Quality:**


The facade range:

- is manufactured in accordance with the quality management system ISO 9001:2008 and the environmental management system ISO 14001:2004
- holds an Environmental Product Declaration EPD-CEM-2012111-E according to ISO 14025
- complies with the provisions set out in the Construction Products Regulation (EU) No. 305/2011
- complies with the CE Declaration of Performance

The Ufacade range can be used in all self-ventilated light weight facade constructions. Featuring properties such as non-combustibility, sound and weather insulation as well as high impact strength, Cembrit fibre-cement boards are the ideal facade material.

The fibre-cement boards are produced from a composition of Portland cement, mineral fillers, cellulose and plastic fibres.
Ventilated facade, principle

1. Load bearing wall
2. Insulation
4. EPDM underlay (only on wood sub structures)
5. Air gap min 25 mm
6. Aluminium frame system
7. Rivet 4.0 x 20 K14 or screw
21. Facade board

Surface appearance and colours
Because of its natural composition, variations in appearance may occur in the individual boards and from board to board. Please note that this does not have any negative effect upon the durability of the boards. In order to minimise differences, it is recommended that boards intended for the same facade are taken from the same batch as minor variations may occur from one production lot to another.

Over time colours may change as a consequence of the impact from UV light and the environment in general. Cembrit boards will, however, maintain their colour and gloss level to a high extent. According to the European standard EN 20105 Test for colour fastness, Part A02 Grey Scale for assessing change in colour, most colours will maintain grade 4-5 after a QUV test of 3000 hours, which in oral terms means that changes are hardly visible.

Preferred application areas are:
- Self-ventilating facades
- Attics
- Weatherboards
- Window elements
- Eaves and roof edges
- Balconies
- Prefabricated facade elements

Self-ventilating facades
The self-ventilating facade is a physical construction which contributes to reducing temperature variations in the wall throughout the year. Sunlight is reflected in the summertime, and the dry insulation reduces heat loss in cold seasons. At the same time the construction ventilates interior condensation.

The boards can be installed with open horizontal joints, with joint profiles or as a weather boarding.

The sub-construction is anchored to the inner wall and transfers the load of the facade boards to the main construction.
Dimensions

Finishing
If boards are cut to size on site, cutting edges should be bevelled with sand paper. After trimming, the edges must be sealed with Cembrit Universal Edge Sealer included in the delivery. Please see instructions on page 38.
# Product Datasheet for Cembrit Transparent, Cembrit Cover and Cembrit Solid

<table>
<thead>
<tr>
<th>Property</th>
<th>Unit</th>
<th>Value Cembrit Transparent</th>
<th>Value Cembrit Cover</th>
<th>Value Cembrit Solid</th>
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<td>Moisture movement (50-90% RH)</td>
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<td>Tolerances (ref. EN 12467)</td>
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<td>A2-s, do</td>
</tr>
</tbody>
</table>

Cembrit complies with the relevant provisions of the Construction Products Regulation (EU) No. 305/2011
Accessories

Cembrit screws for fixing facade boards are made of stainless steel for achieving the highest corrosion resistance. Mushroom head wood screws 4.5 x 36/41 are used for wooden sub-constructions. The screws have a sharp point and a fast cutting thread which ensure firm fixing with a high pull-out value.

Furthermore, a washer is fixed on the tip of the screw to centralise it and to minimise penetration of water into the screw hole.

An alternative solution for wooden sub-constructions is the wing screw 4.9 x 38 which is equipped with a cutting bit and therefore requires no pre-drilling.

For steel sub-constructions with profiles ≥ 0.5 use Cembrit stainless steel self drilling and thread cutting screw 4.8 x 29 #1 with drilling capacity 0.5-1.5 mm. As an alternative use Cembrit stainless steel rivets 4.8x19 K14.

All screws are delivered in their natural colour or powder painted in the same colour as the facade boards, and with a screw bit included ready to use.

On aluminium sub-constructions rivets are most commonly used. Cembrit rivets 4.0 x 20 K14 feature an aluminium body with a stainless steel mandrel. At fix-points, a sleeve is used to prevent movement of the board.

In order to allow the boards to move freely in sliding points when influenced by moisture and temperature changes, a stand-off head must be used ensuring a small space between the board and the rivet head. Drill holes are made correctly with the centering device.

For securing the above mentioned free movement of the boards, it is of great importance that the drill hole in the aluminium sub-construction and the drill hole in the Cembrit board are concentric. This is ensured by using an assisting tool:

4.1 mm HSS drill for rivets in aluminium profiles (4.0 x 20 K14).
4.9 mm HSS drill for rivets in steel profiles (4.8 x 19 K14).

Special drill bit such as TCT Drill (7-8-9 mm) from Irwin Tools for pre-drilling in the facade boards.

Aluminium corner profiles for internal and external corners are available on request.

Cembrit EPDM rubber underlay (3 x 90 mm and 3 x 30 mm) should always be placed under the Cembrit boards using mechanical fixing.

Cembrit boards can be fixed by gluing them to a sub-structure of planed impregnated wood or aluminium.

Note! The glue supplier’s recommendations must be followed in this type of installation. For further information, please contact your local Cembrit representative.
Sub-constructions and Supports

Important! Cladding with Cembrit products must always be carried out as a ventilated facade with min 25 mm distance between the cladding and the rear lining (insulation material). However, in special situations (e.g. high rise buildings), local regulations may demand a larger ventilation gap. Inlet and outlet openings must have a cross section of least 200 cm²/m.

<table>
<thead>
<tr>
<th>Wooden sub-construction</th>
<th>Metal sub-construction</th>
<th>Combined sub-construction</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aluminium sub-construction</td>
<td>Steel sub-construction</td>
<td></td>
</tr>
</tbody>
</table>

Basic sub-constructions
## Fixing Details

### Vertical board orientation

**Installation on wood, vertical sub-construction**

Max dimensions 8 x 1250 x 2500/3050 mm  
Drill hole in the boards: Ø8

<table>
<thead>
<tr>
<th>Max support distance</th>
<th>Max fixing distance</th>
<th>Edge distance</th>
<th>Corner distance</th>
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<tbody>
<tr>
<td>k mm</td>
<td>h, g mm</td>
<td>a mm</td>
<td>c mm</td>
</tr>
<tr>
<td><strong>400-600</strong></td>
<td><strong>350-600</strong></td>
<td><strong>25-150</strong></td>
<td><strong>100-150</strong></td>
</tr>
</tbody>
</table>

*Overhang e.g. windows or foundations max 200 mm  
**Depending on windload.  
Contact Cembrit for further details.

### Horizontal board orientation

**Installation on wood, vertical sub-construction**

Max dimensions 8 x 1250 x 2500/3050 mm  
Drill hole in the boards: Ø8

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<td><strong>25-150</strong></td>
<td><strong>100-150</strong></td>
</tr>
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*Overhang e.g. windows or foundations max 200 mm  
**Depending on windload.  
Contact Cembrit for further details.

### Front view vertical orientation

The installer is responsible for establishing a plane and strong sub-construction able to obtain the loads appearing on the actual facade and observing the fixing distances described in this manual.

### Front view horizontal orientation

Facade boards are normally installed in a vertical position on a vertical sub-structure. It is however possible to install the boards in a horizontal position. The guidelines for fixing are identical, which means the edge distances, corner distances etc. follow the sub-structure.
Fixing details screws on wood

Horizontal cross section vertical joint

1. Load bearing wall
2. Insulation
4. Wind break
5. Air gap min 25 mm
6. Batten min 25 x 125 mm
8. EPDM underlay 90 mm
9. Facade screw 4.5 x 36/41
21. Facade board
   a. Edge distance 25-150 mm
   b. Joint width 8 mm

Horizontal cross section intermediate support

1. Load bearing wall
2. Insulation
4. Wind break
5. Air gap min 25 mm
6. Batten min 25 x 62 mm
7. EPDM underlay 30 mm
9. Facade screw 4.5 x 36/41
21. Facade board
Horizontal cross section external corner

1  Load bearing wall
2  Insulation
4  Wind break
5  Air gap min 25 mm
6  Batten min 25 x 125 mm
8  EPDM underlay 90 mm
9  Facade screw 4.5 x 36/41
21  Facade board
  a  Edge distance 25-150 mm
  b  Joint width 8 mm

Horizontal cross section internal corner

1  Load bearing wall
2  Insulation
4  Wind break
5  Air gap min 25 mm
6  Batten min 25 x 125 mm
8  EPDM underlay 90 mm
9  Facade screw 4.5 x 36/41
21  Facade board
  a  Edge distance 25-150 mm
  b  Joint width 8 mm
Horizontal cross section window
(Window recess max. 200 mm without ventilation)

1 Load bearing wall
2 Insulation
4 Wind break
5 Air gap min 25 mm
6 Batten min 25 x 125 mm
8 EPDM underlay 90 mm
9 Facade screw 4.5 x 36/41
21 Facade board
22 Window
   a Edge distance 25-150 mm
   b Joint width 8 mm
Vertical cross section horizontal joint

1. Load bearing wall
2. Insulation
4. Wind break
5. Air gap min 25 mm
8. EPDM underlay 90 mm
9. Facade screw 4.5 x 36/41
21. Facade board
b. Joint width 8 mm
c. Corner distance 100-150 mm

Vertical cross section foundation

1. Load bearing wall
2. Insulation
4. Wind break
5. Air gap min 25 mm
8. EPDM underlay 90 mm
9. Facade screw 4.5 x 36/41
18. Foundation
21. Facade board
23. Insect grating
c. Corner distance 100-150 mm
d. Ventilation inlet min 200 cm²/m
f. Overhang approx. 30 mm
Vertical cross section roof edge

1 Load bearing wall
2 Insulation
4 Wind break
5 Air gap min 25 mm
8 EPDM underlay 90 mm
9 Facade screw 4.5 x 36/41
20 Window sill
21 Facade board
22 Window
c Corner distance 100-150 mm
d Ventilation outlet min 200 cm²/m
f Overhang approx. 30 mm

Vertical cross section window sill

1 Load bearing wall
2 Insulation
4 Wind break
5 Air gap min 25 mm
8 EPDM underlay 90 mm
9 Facade screw 4.5 x 36/41
20 Window sill
21 Facade board
22 Window
c Corner distance 100-150 mm
d Ventilation outlet min 200 cm²/m
f Overhang approx. 30 mm
Screws on wooden sub-constructions

Vertical cross section window upper edge
(Window recess max 200 mm without ventilation)

1  Load bearing wall
2  Insulation
4  Wind break
5  Air gap min 25 mm
7  EPDM underlay 90 mm
9  Facade screw 4.5 x 36/41
21  Facade board
22  Window
23  Insect grating
c  Corner distance 100-150 mm
d  Ventilation inlet min 200 cm²/m
f  Overhang approx. 30 mm

Ceiling
Facade boards may also be installed as under-cladding or ceiling. The installation principles are the same as for vertical installation. Edge distance for screws 25 mm. Corner distance 100 mm. Max support and fixing distances 400 mm.
In order to achieve a correct and safe aluminium sub-construction, the supplier of the system should be consulted. However, there are a few rules to consider when it comes to the functionality of the facade boards:

- Length of the aluminium profiles is minimised to 3000 mm (one storey)
- The aluminium profiles must be fixed with one fix-point at the middle or the upper end and all other fixations as sliding points
- All joints of the aluminium profiles must be aligned so they can be followed by joints of the facade boards. A board must never cross an aluminium profile joint and be fixed to two separate aluminium profiles across a joint
- The facade boards must be fixed with a fix-point in the middle of the board. All other fixations are sliding points. In case of two intermediate supporting profiles, two fix-points at the same horizontal level are allowed
- Every 12 m of the facade a double framing must be installed in order to create a dilatation joint.
- Important! With installation with rivets, begin with the fix-points, followed by the sliding points above and finally the sliding points below.

### Fixing details

#### Vertical board orientation

**Installation with rivets on aluminium, vertical sub-construction**

Max dimensions 8 x 1250 x 2500/3050 mm

Drill hole in the boards: Ø9

<table>
<thead>
<tr>
<th>Max support distance</th>
<th>Max fixing distance</th>
<th>Edge distance</th>
<th>Corner distance</th>
</tr>
</thead>
<tbody>
<tr>
<td>k mm</td>
<td>h, g mm</td>
<td>a mm</td>
<td>c mm</td>
</tr>
<tr>
<td>400-600**</td>
<td>400-600**</td>
<td>30-150</td>
<td>100-150*</td>
</tr>
</tbody>
</table>

*Overhang e.g. windows or foundations max 200 mm

**Depending on windload.

Contact Cembrit for further details.
Horizontal orientation
Facade boards may be installed in a horizontal position on a vertical sub-structure. On metal framing, the edge distance a ≥ 40 mm and corner distance c ≥ 100 mm.

Horizontal board orientation
Installation with rivets on aluminium, vertical sub-construction
Max dimensions 8 x 1250 x 2500/3050 mm
Drill hole in the boards: Ø9

<table>
<thead>
<tr>
<th>Max support distance</th>
<th>Max fixing distance</th>
<th>Edge distance</th>
<th>Corner distance</th>
</tr>
</thead>
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<tr>
<td>k mm</td>
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<td>a mm</td>
<td>c mm</td>
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<tr>
<td>400-600**</td>
<td>400-600**</td>
<td>40-150</td>
<td>100-150*</td>
</tr>
</tbody>
</table>

*Overhang e.g. windows or foundations max 200 mm
**Depending on windload.
Contact Cembrit for further details.
**Horizontal cross section vertical joint**

1. Load bearing wall  
2. Insulation  
3. Air gap min 25 mm  
4. EPDM underlay 90 mm (optional)  
5. Rivet 4.0x20 K14  
6. Aluminium frame system  
7. Facade board  
   a. Edge distance min 30/40 mm  
   b. Joint width 8 mm

**Horizontal cross section intermediate support**

1. Load bearing wall  
2. Insulation  
3. Air gap min 25 mm  
4. EPDM underlay 30 mm (optional)  
5. Rivet 4.0x20 K14  
6. Aluminium frame system  
7. Facade board
**Horizontal cross section external corner**

1. Load bearing wall
2. Insulation
3. Air gap min 25 mm
4. EPDM underlay 30 mm (optional)
5. EPDM underlay 90 mm (optional)
6. Rivet 4.0x20 K14
7. Aluminium frame system
8. Aluminium angle 60x60x2 mm
9. Facade board
10. Edge distance min 30/40 mm
11. Joint width 8 mm
12. Dist. to wall fixing max 200 mm

**Horizontal cross section internal corner**

1. Load bearing wall
2. Insulation
3. Air gap min 25 mm
4. EPDM underlay 30 mm (optional)
5. EPDM underlay 90 mm (optional)
6. Rivet 4.0x20 K14
7. Aluminium frame system
8. Aluminium angle 60x60x2 mm
9. Facade board
10. Edge distance min 30/40 mm
11. Joint width 8 mm
Rivets on aluminium

**Horizontal cross section window**
(Window recess max 200 mm without ventilation)

1. Load bearing wall
2. Insulation
3. Air gap min 25 mm
4. EPDM underlay 30 mm (optional)
5. EPDM underlay 90 mm (optional)
6. Rivet 4.0x20 K14
7. Aluminium frame system
8. Aluminium angle 60x60x2 mm
9. Facade board
10. Window
   a. Edge distance min 30/40 mm
   b. Joint width 8 mm

**Vertical cross section horizontal joint**

1. Load bearing wall
2. Insulation
3. Air gap min 25 mm
4. EPDM underlay 90 mm (optional)
5. Fixing point profile/bracket
6. Rivet 4.0x20 K14
7. Aluminium profile
8. Aluminium frame system
9. Facade board
10. Joint width 8 mm
11. Corner distance min 100 mm

Note! Boards must never be fixed to two separate profiles!
**Vertical cross section foundation**

1. Load bearing wall
2. Insulation
3. Air gap min 25 mm
4. EPDM underlay 90 mm (optional)
5. Fixing point profile/bracket
6. Rivet 4.0x20 K14
7. Aluminium profile
8. Aluminium frame system
9. Foundation
10. Facade board
11. Insect grating
12. Corner distance 100-150 mm
13. Ventilation inlet min 200cm²/m
14. Overhang approx. 30 mm

**Vertical cross section roof edge**

1. Load bearing wall
2. Insulation
3. Air gap min 25 mm
4. EPDM underlay 90 mm (optional)
5. Rivet 4.0x20 K14
6. Aluminium profile
7. Aluminium frame system
8. Facade board
9. Corner distance 100-150 mm
10. Ventilation outlet min 200cm²/m
11. Overhang approx. 30 mm
Rivets on aluminium

**Vertical cross section window sill**

1 Load bearing wall  
3 Insulation  
5 Air gap min 25 mm  
8 EPDM underlay 90 mm (optional)  
11 Rivet 4.0x20 K14  
15 Aluminium profile  
16 Aluminium frame system  
20 Window sill  
21 Facade board  
22 Window  

c Corner distance 100-150 mm  
d Ventilation outlet min 200cm²/m  
f Overhang approx. 30 mm

**Vertical cross section window sill**

1 Load bearing wall  
3 Insulation  
5 Air gap min 25 mm  
8 EPDM underlay 90 mm (optional)  
11 Rivet 4.0x20 K14  
15 Aluminium profile  
16 Aluminium frame system  
20 Window sill  
21 Facade board  
22 Window  

c Corner distance 100-150 mm  
d Ventilation outlet min 200cm²/m  
f Overhang approx. 30 mm

**Vertical cross section window upper edge**  
(Window recess max 200 mm without ventilation)

1 Load bearing wall  
3 Insulation  
5 Air gap min 25 mm  
8 EPDM underlay 90 mm (optional)  
11 Rivet 4.0x20 K14  
15 Aluminium profile  
16 Aluminium frame system  
21 Facade board  
22 Window  
23 Insect grating  

c Corner distance 100-150 mm  
d Ventilation inlet min 200cm²/m  
f Overhang approx. 30 mm
In order to achieve a correct and safe steel sub-construction, the supplier of the system should be consulted. However, there are a few rules to consider when it comes to the functionality of the facade boards:

- Length of the steel profiles is maximum 3000 mm (one storey)
- The steel profiles must be fixed with one fix-point at the middle or the upper end and all other fixations as sliding points
- All joints of the steel profiles must be aligned allowing them to be followed by joints of the facade boards. A board must never cross a joint in the steel profiles. A board must never cross a steel profile joint and be fixed to two separate steel profiles across a joint
- The facade boards must be fixed with a fix-point in the middle of the board. All other fixations are sliding points. In case of two intermediate supporting profiles, two fix-points at the same horizontal level are allowed
- Every 12 m of the facade a double framing must be installed in order to create a dilatation joint.
- **Important!** Fasten the boards at the fix-point(s), followed by the sliding points above and finally the sliding points below.

(The following illustrations show installation with screws – details are similar for rivets)

### Fixing details

**Vertical board orientation**  
*Installation on steel, vertical sub-construction*

Max dimensions 8 x 1250 x 2500/3050 mm  
Drill hole in the boards: Ø8

<table>
<thead>
<tr>
<th>Max support distance</th>
<th>Max fixing distance</th>
<th>Edge distance</th>
<th>Corner distance</th>
</tr>
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<tbody>
<tr>
<td>k mm</td>
<td>h, g mm</td>
<td>a mm</td>
<td>c mm</td>
</tr>
</tbody>
</table>

400-600**  
30-150  
100-150*

*Overhang e.g. windows or foundations max 200 mm
**Depending on windload.
Concact Cembrit for further details.
Screws and rivets on steel sub-construction

Horizontal orientation

Facade boards may be installed in a horizontal position on a vertical sub-structure. On metal framing, the edge distance must be \( a \geq 40 \text{ mm} \) and corner distance \( c \geq 100 \text{ mm} \).

![Diagram showing fixing points](image)

Fix Point

Sliding point

Horizontal board orientation

Installation on steel, vertical sub-construction

Max dimensions 8 x 1250 x 2500/3050 mm

Drill hole in the boards: \( \varnothing 8 \)

<table>
<thead>
<tr>
<th>Max support distance</th>
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<tbody>
<tr>
<td>( k \text{ mm} )</td>
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<td>400-600**</td>
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</table>

*Overhang e.g. windows or foundations max 200 mm

**Depending on windload.

Contact Cembrit for further details.
Horizontal cross section vertical joint

1. Load bearing wall
2. Insulation
3. Air gap min 25 mm
4. EPDM underlay 90 mm (optional)
5. Facade screw 4.8x25
6. Facade board
7. Steel profile
   a. Edge distance min 30/40 mm
   b. Joint width 8 mm

Horizontal cross section intermediate support

1. Load bearing wall
2. Insulation
3. Air gap min 25 mm
4. EPDM underlay 30 mm (optional)
5. Facade screw 4.8x25
6. Facade board
7. Steel profile
Screws and rivets on steel sub-construction

Horizontal cross section external corner

1. Load bearing wall
2. Insulation
3. Air gap min 25 mm
4. EPDM underlay 30 mm (optional)
5. EPDM underlay 90 mm (optional)
6. Facade screw 4.8x25
7. Facade board
8. Steel profile
   a. Edge distance min 30/40 mm
   b. Joint width 8 mm

Horizontal cross section internal corner

1. Load bearing wall
2. Insulation
3. Air gap min 25 mm
4. EPDM underlay 30 mm (optional)
5. EPDM underlay 90 mm (optional)
6. Facade screw 4.8x25
7. Facade board
8. Steel profile
   a. Edge distance min 30/40 mm
   b. Joint width 8 mm
Screws and rivets on steel sub-construction

**Horizontal cross section window**
(Window recess max 200 mm without ventilation)

1. Load bearing wall
2. Insulation
3. Air gap min 25 mm
4. EPDM underlay 90 mm (optional)
5. Facade screw 4.8x25
6. Facade board
7. Window
8. Steel profile
   a. Edge distance min 30/40 mm
   b. Joint width 8 mm

**Vertical cross section horizontal joint**

1. Load bearing wall
2. Insulation
3. Air gap min 25 mm
4. EPDM underlay 90 mm (optional)
5. Facade screw 4.8x25
6. Facade board
7. Steel profile
   a. Joint width 8 mm
   b. Corner distance min 100 mm
Screws and rivets on steel sub-construction

**Vertical cross section foundation**

1  Load bearing wall
3  Insulation
5  Air gap min 25 mm
8  EPDM underlay 90 mm (optional)
9  Facade screw 4.8x25
18  Foundation
21  Facade board
23  Insect grating
24  Steel profile
   c  Corner distance 100-150 mm
   d  Ventilation inlet min 200 cm²/m
   f  Overhang approx. 30 mm

**Vertical cross section roof edge**

1  Load bearing wall
3  Insulation
5  Air gap min 25 mm
8  EPDM underlay 90 mm (optional)
9  Facade screw 4.8x25
19  Eave
21  Facade board
24  Steel profile
   c  Corner distance 100-150 mm
   d  Ventilation outlet min 200 cm²/m
   f  Overhang approx. 30 mm
Screws and rivets on steel sub-construction

**1** Load bearing wall  
**3** Insulation  
**5** Air gap min 25 mm  
**8** EPDM underlay 90 mm (optional)  
**9** Facade screw 4.8x25  
**20** Window sill  
**21** Facade board  
**22** Window  
**24** Steel profile  
  c Corner distance 100-150 mm  
  d Ventilation outlet min 200 cm²/m  
  f Overhang approx. 30 mm

**Vertical cross section window sill**

**Vertical cross section window upper edge**  
(Window recess max 200 mm without ventilation)

1 Load bearing wall  
3 Insulation  
5 Air gap min 25 mm  
8 EPDM underlay 90 mm (optional)  
9 Facade screw 4.8x25  
21 Facade board  
22 Window  
23 Insect grating  
24 Steel profile  
  c Corner distance 100-150 mm  
  d Ventilation inlet min 200 cm²/m  
  f Overhang approx. 30 mm
Weatherboards

Weatherboards are very much used on dormers, eaves, gables, carports, etc. They can be fixed on vertical as well as horizontal sub-constructions. Visible fixing and invisible, concealed fixing are possible. Weatherboards can be cut to size on site, or they can be ordered cut to size from Cembrit.

**Note!** The table below covers weatherboards up to a width of 300 mm with a single side fixing. Wider boards should be fixed with double sided fixing in accordance with the fixing details in the table page 9. With this installation method, the board length is limited to max 2500 mm.

### Fixing details for vertical sub-construction

<table>
<thead>
<tr>
<th>Board Thickness mm</th>
<th>Max support distance</th>
<th>Min edge distances</th>
<th>Drill holes in board</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>k mm</td>
<td>a mm</td>
<td>m mm</td>
</tr>
<tr>
<td>8</td>
<td>400</td>
<td>25 on wood 30 on aluminium and steel</td>
<td>40</td>
</tr>
</tbody>
</table>

### Front view

- **Vertical sub-construction – visible fixing**
- **Vertical sub-construction – invisible, concealed fixing**
Weatherboards

Horizontal cross section vertical joint

1. Load bearing wall
2. Insulation
4. Windbreak
5. Air gap min 25 mm
6. Batten min 25 x 125 mm planed
8. EPDM underlay 90 mm
9. Facade screw
21. Facade board
a. Edge distance min 25 mm
b. Joint width 8 mm

Vertical cross section invisible, concealed fixing

1. Load bearing wall
2. Insulation
4. Windbreak
5. Air gap min 25 mm
8. EPDM underlay 90 mm
9. Facade screw
21. Facade board
m. Edge distance min 40 mm
Vertical cross section visible fixing

1 Load bearing wall
2 Insulation
4 Windbreak
5 Air gap min 25 mm
8 EPDM underlay 90 mm
9 Facade screw
21 Facade board
m Edge distance min 40 mm

1 on 2 (double cladding)

Fixing details on wood

<table>
<thead>
<tr>
<th>Thickness mm</th>
<th>Max support distance ≤8 floors</th>
<th>Max fixing distance &gt;8 floors</th>
<th>Min edge distances</th>
<th>Drill holes in board</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>k mm</td>
<td>b mm</td>
<td>a mm</td>
<td>m mm</td>
</tr>
<tr>
<td>8</td>
<td>400</td>
<td>400</td>
<td>300</td>
<td>25</td>
</tr>
<tr>
<td></td>
<td>Screws on wood</td>
<td>Rivets on aluminium</td>
<td>Screws on steel</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Ø8</td>
<td>Ø9</td>
<td>Ø8</td>
<td></td>
</tr>
</tbody>
</table>

Front view

1 on 2 (double cladding)
Weatherboards

Horizontal cross section 1 on 2

1. Load bearing wall
2. Insulation
4. Wind break
5. Air gap min 25 mm
6. Batten min 25 x 62 mm planed
7. EPDM underlay 30 mm
9. Facade screw
21. Facade board
   a. Edge distance min 25 mm
   m. Edge distance min 40 mm

Vertical cross section 1 on 2

1. Load bearing wall
2. Insulation
4. Windbreak
5. Air gap min 25 mm
7. EPDM underlay 30 mm
9. Facade screw
21. Facade board
   b. Joint width 8 mm
   c. Corner distance min 100 mm
Storing and Handling

Storing and handling
Cembrit products are delivered with plastic protection cover. If undamaged the plastic cover provides good protection against weather conditions during transportation.

Transport and warehousing
Cembrit boards should preferably be stored dry under roof and always on a flat and dry level surface on pallets or sleepers with max 500 mm distance. Max 5 pallets in a stack.

Note! If stored more than 2-3 weeks the pallets should be kept inside under dry and ventilated conditions.

At the building site
The plastic cover is for dust protection only. If upon arrival at the building site the pallets are stored outside the plastic cover should be removed and replaced with a tarpaulin leaving the possibility of ventilation around the boards.

Note! If stored more than 2-3 weeks the pallets should be kept inside under dry and ventilated conditions.

Lifting products off the pallet
The boards must be lifted off the pallet and not drawn over the next board. This will cause scratches and damages on the surface. Keep the pallets covered with a tarpaulin during storage.

Processing

Safety
As for all other building materials, safety precautions must be taken into account and local laws and regulations must be observed. Cutting and drilling are subject to dust development, and proper precautions must be taken by using appropriate dust extraction equipment. Dust from fibre-cement boards is characterised as mineral dust and a prolonged exposure to this may cause lung disease.

Protective foam
Cembrit painted boards are equipped with polyethylene foam between the boards for protection of the surface during transportation and processing. Polyethylene is an environmentally friendly polymer which can be disposed of by deposition or incineration.

Cutting
Cutting to size may be done with normal slow or fast running hand tools or stationary equipment. When using fast running tools, dust exhaustion must be employed. All Cembrit boards may be cut with a circular saw or a jigsaw equipped with a diamond tipped blade. Sharp edges are made with fast running diamond tipped tools. Cut edges should be bevelled with sand paper.

Note! When using hand tools, cut the boards backside up. When using stationary saw equipment, cut the boards front-side up (the saw blade must always attack the board from the front-side). The periphery speed of the circular saw should be 40-50 m/s. Cutting depth 10-15 mm beyond the board.

Fast running electrical equipment
Hand held circular saws leave a fine and sharp edge on the boards and provide fine dust. Due to the speed of the blade the dust is dispersed over a larger area. Therefore, it is necessary to establish sufficient exhaustion and if needed the operator should carry personal safety equipment.

Operation parameters for Cembrit saw blades

<table>
<thead>
<tr>
<th>Saw blade Ø mm</th>
<th>Ø160</th>
<th>Ø190</th>
<th>Ø216</th>
<th>Ø250</th>
<th>Ø300</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thickness mm</td>
<td>2.4 mm</td>
<td>2.4 mm</td>
<td>2.6 mm</td>
<td>2.6 mm</td>
<td>2.8 mm</td>
</tr>
<tr>
<td>Hole size mm</td>
<td>20 mm</td>
<td>30 mm</td>
<td>30 mm</td>
<td>30 mm</td>
<td>30 mm</td>
</tr>
<tr>
<td>Rpm</td>
<td>4800</td>
<td>4000</td>
<td>3500</td>
<td>3000</td>
<td>2800</td>
</tr>
</tbody>
</table>

Alternative equipment

<table>
<thead>
<tr>
<th>Tool</th>
<th>Model</th>
<th>Saw blade</th>
</tr>
</thead>
<tbody>
<tr>
<td>Festool</td>
<td>AXT 50 LA TF56, 170 x 2.0 x 30 mm</td>
<td></td>
</tr>
</tbody>
</table>

Slow running electrical equipment
Normally, slow moving electrical machinery develops heavy dust or chips. Cutting quality depends on the specific tool applied.

Operation parameters for stationary circular saw

<table>
<thead>
<tr>
<th>Saw blade Ø mm</th>
<th>150</th>
<th>230</th>
<th>250</th>
<th>260</th>
<th>300</th>
<th>350</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rpm</td>
<td>3800</td>
<td>2500</td>
<td>2300</td>
<td>2200</td>
<td>1900</td>
<td>1650</td>
</tr>
</tbody>
</table>

Cut-outs
Cut-outs may be made with a jigsaw or a key-hole saw equipped with a hard metal, bi-metal or diamond tipped blade. In order to avoid creating a notch at the inside corner, it is recommended to drill a min 8 mm hole before cutting. Cut edges should be bevelled with sand paper.
Storing, Handling and Processing

Drilling
Drill holes from the front-side with a hard metal drill at 1500 rpm. Always, place an underlay, e.g. a woodchip-board, under the Cembrit board in order to achieve neat drilling holes. Cembrit recommends carbide tipped Irwin TCT twisted drill bit (DIN 338) which is available from Cembrit in 7-8-9 mm. The Irwin TCT drill will drill materials up to a hardness of 50 Rockwell C.

Cleaning of boards after cutting and drilling
It is important immediately to remove dust caused by cutting and drilling from the front and back side of the boards with a soft brush/duster or a vacuum cleaner as it otherwise might damage the boards. Ensure that the boards are properly cleaned before installation, and if necessary use clean water or water with a mild detergent and a soft sponge or brush to remove dirt and dust from the surface. Thereafter, wipe the boards with a damp cloth. It may also be necessary to wash the surface after installation, if the building site conditions have been unfavourable. This is done with lots of clean water or water with a mild detergent and a soft sponge or brush and finally wiping the boards with a damp cloth.

Removal of calcium based residues
Calcium carbonate residue may occasionally be seen on the board surface. This can be difficult to remove with water or even with detergents, because it does not dissolve in water. For cleaning purposes 10% acetic acid (CH₃COOH) solution is used to dissolve the calcium compounds.

Note! Carefully observe safety precautions (MSDS) when working with acetic acid. R-phrase R36/R38 is valid: “Irritating to eyes, respiratory system and skin”. Use proper clothing, nitrile rubber gloves, eye protection goggles and approved respirator (filter A, E or A/E). Carry out the mixing outdoors. Apply the diluted 10% acetic acid solution evenly with a spray can on the surface of the stained board. Leave it to react for a few minutes. Do not allow the solution to dry, but rinse with lots of clean water. Repeat the process if necessary and rinse with water afterwards.

Note! Do not execute the cleaning process with acetic acid in direct sunlight and on hot surfaces. This might create permanent stains in the surface paint.

Cleaning of neighbouring areas
Windows and glass in particular but also other adjacent areas must be kept clean during the facade board installation and if necessary protected with plastic film. Alkaline leaching from cement bonded materials (dust from cutting or drilling holes in concrete basic wall, etc.) is prone to damage glass and other materials. Therefore, frequent cleaning during and after the construction period is needed.

Surface damages and scratches
Damages and scratches should be avoided by lifting the boards off the pallet and handling them carefully during installation. Scratches might leave white streaks on the paint layer which will turn dark when exposed to rain, because the board absorbs water through the scratch. Repair paint is not available. The only way to prevent dark stripes or spots is to carefully apply clear Cembrit Edge Sealer onto the scratch with a thin brush. In any case the dark area will diminish after 6 to 12 months, because of the carbonation reactions in the cement matrix of the board.

Wet framing at edges or wet spots around screw holes
The principles for scratches also apply to cut edges: Carefully apply Cembrit Edge Sealer according to Cembrit instructions. Drill holes for screws and rivets can hardly be sealed, but Cembrit screws and rivets are equipped with sealing washers. When properly installed, the sealing washers will prevent water penetration into drill holes.

Behaviour in wet conditions
Since the boards are made of Portland cement, their colour may turn darker when exposed to rain, if the board absorbs moisture through holes, scratches or insufficiently sealed edges. This is natural behaviour to any cement based product and it does not affect the integrity or long-term durability of the board. The original colour is restored as soon as the boards dry out. The darkening will show after heavy rainfall for the first months after installation. It will gradually reduce within 6 to 12 months, because the cement based matrix reacts with carbon dioxide from the atmosphere - carbonation - and thereby reduces water penetration.
Finishing of edges with Cembrit Universal Edge Sealer

**Product type**
Solvent based clear edge sealer for Cembrit Zenit and Cembrit Metro.

**Usage**
Cembrit Universal Edge Sealer must always be used to protect all unpainted edges of Cembrit Zenit and Cembrit Metro fibre cement boards. Factory cut edges are always painted. Only Cembrit Universal Edge Sealer should be used to protect the edges of Urbannature products.

**Surface preparation**
After cutting, edges must be treated immediately with Cembrit Universal Edge Sealer. Board must be dry. Edges should be bevelled with fine grade sand paper and must be thoroughly cleaned from dust and dirt before applying the edge sealer.

**Application conditions**
Board temperature and ambient temperature should be +5 °C - +30 °C and relative humidity <85 %. Process temperature must be min +5 °C.

**Application**
1. Shake the edge sealer can well before filling the applicator with edge sealer. Shake the filled applicator also before use if applicator unused for a while.
2. Remove the protective cap
3. Position the applicator horizontally
4. Place the sponge parallel to the board edge and run twice along the edge with a moderate pressure. Note! Carefully prevent the edge sealer to flow onto the front side of the board. Excess edge sealer on front side of the board must be wiped off immediately with a clean cloth
5. Check that the liquid has been applied over the entire edge surface
6. Close the applicator with the cap when interrupting the job
7. Replace the sponge when necessary

The boards can be handled 2 minutes after application of the edge sealer.

**Cleaning**
No cleaning of equipment necessary. Unintended spillage can be cleaned with white spirit.

**Storage**
Always keep the containers tightly closed and avoid direct exposure to sunlight. Store in a dry, cool and well ventilated place. Keep away from sources of ignition. No smoking. Shelf life is 6 months in unopened original packaging at cool temperatures. Can be stored at temperatures from -20 to +30 °C.

**Disposal**
Disposal of the edge sealer must be in compliance with local and national regulations. Please refer to Material Safety Data Sheet.

**Safety measures**
Please refer to Material Safety Data Sheet
Maintenance of installed boards

Annual Inspection
Normally, a Cembrit facade does not require maintenance to maintain its strength, properties and function. Environmental impacts may, however, influence the visual appearance of the facade. Therefore, an annual inspection of the surface, ventilation gaps, joints and fixings is recommended. Detection and repair of possible damages secure a prolonged lifetime for the facade.

Impact by Nature
The weather and nearby vegetation may affect the appearance of the facade. Pollution, dust and leaves from trees, bushes and flowers do all together have an impact on the facade. Cembrit facade products are manufactured by weather-resistant raw materials which reduces the risk of attack by algae, rot and dry rot.

Cleaning
Cembrit facade boards can be cleaned with cold or lukewarm water, if necessary with the addition of a mild household detergent not containing solvents. Rinse with plenty of clean water until the facade is perfectly clean. Before cleaning full scale, it is recommended to test the selected cleaning method on a smaller area to make sure it answers its purpose.

Moss and algae
Moss and algae growth can be removed with common detergents available on the market. Examples are hypochlorite (NaOCl e.g. trade mark: Klorin) that has no long-term effect or benzalconiumchloride (e.g. trade mark: Rodalon, BC50, BC80, BAC50, BAC80) 2.5% active that has a long-term effect preventing new growth. After wetting the facade with clean water, the agent is applied according to the supplier’s instructions. Do not leave the agent to dry completely. Rinse with lots of clean water.

High Pressure Cleaning
Warning! High Pressure Cleaning is a rough treatment of a fibre-cement cladding. Exaggerated or wrong use of a high pressure cleaner may damage the surface. Therefore, high pressure cleaning is not recommended.

General Information

Service
If you have any questions regarding the Cembrit facade boards, our dedicated employees are ready to assist you with advice and guidance. Please visit our website to ensure that these guidelines are the latest version.

Warranty
Warranty conditions can be commissioned at your local Cembrit representative.

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