



CEDRAL ON A METAL SUPPORTING STRUCTURE

Application instructions

Ventilated façade

1 General

These application instructions are specifically intended for the fastening of CEDRAL as outside wall cladding on a ventilated and insulated metal supporting structure. A number of basic principles are given that must be adhered to. For variations or additional advice one can always contact ETERNIT.

This application instruction for CEDRAL can be used in combination with the application instruction for OPERAL SOFFIT.

2 Cladding material

The following ETERNIT products are treated in this document.

• CEDRAL	:	10 mm
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For product data and the details of the processing of CEDRAL reference is made to the CEDRAL product information sheet, available from ETERNIT.

Remarks concerning the wood colours "CL 1xx RC":

- Cut edges have to be treated with the hydrophobation product ETERSILAN
- Applications with visible fixings (e.g. vertical or flat horizontal installation) are not advised.

3 Area of application¹

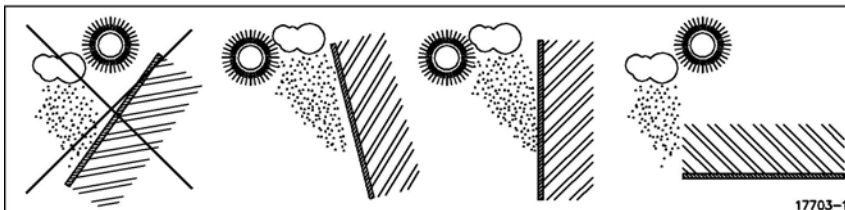
These instructions apply for buildings up to a certain height and subjected to a maximum actual wind load in a certain wind zone. The maximum intermediate distance of the supporting structure is determined in relation to the occurring wind load taking into account a safety factor. The table below only shows non-binding reference values for the wind loads. The exact values can be found in the standards EN 1991-1-4 (Eurocode 1) and the national NAD.

The fixing of CEDRAL sidings to a building height higher than 20m is not treated in this application guideline. For installation on building height over 20m high, special measures and calculations need to be considered. Ask for advice at ETERNIT.

Location	Building height	Middle area façade		Edge area façade and single span	
		Max. actual wind load	Max. center-to-center distance supporting laths	Max. actual wind load	Max. center-to-center distance supporting laths
Wind zone	m	N/m ²	mm	N/m ²	mm
Land	0-10	650	600	1000	500
Land	10-20	800	600	1200	500
Coast	0-20	1000	500	1500	400

The width of the edge area amounts to at least 1 m from the corner of the building and must be further determined on the basis of prevailing national standards and conditions. If variations of the aforementioned load limits occur (e.g. due to certain location or form factors, etc.), the design must be determined by building services engineers.

When the façade planks are exposed to weather conditions (rain, sun) they may only be assembled on a vertical or leaned over supporting structure. For ceiling applications reference is made to the relevant application guidelines.



¹ These instructions are only valid for applications in the European Union, for applications outside this territory the Technical Service Centre of ETERNIT should be consulted.



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4 Supporting structure

The guidelines for the construction of a ventilated aluminium structure can be found in the applicable instructions " D005-aluminium supporting structure_ai_eng.pdf".

The guidelines for the construction of a ventilated galvanised structure can be found in the applicable instructions " D006-galvanised supporting structure_ai_eng.pdf".

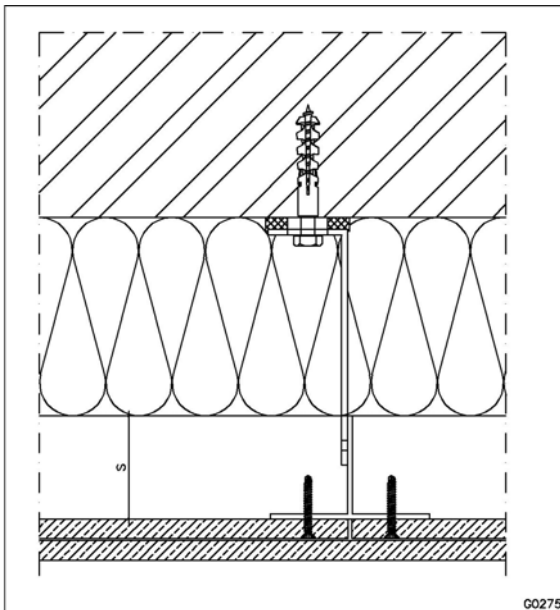
The dimensions of the supporting profiles (thickness and width) and the different fastening variants are fully explained in the above mentioned application guideline.

5 Fixing

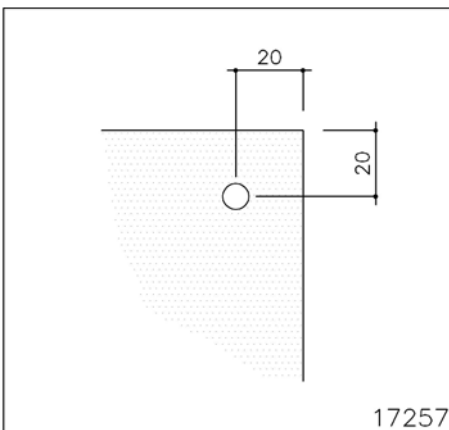
CEDRAL is screwed, manually or automatically. Fastening with screws offers the following advantages:

- can be disassembled
- higher resistance to wind load
- fast installation using an automatic drill

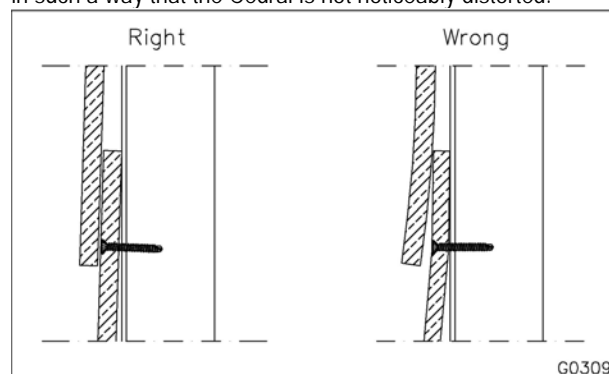
Each CEDRAL must be fixed on each supportive supporting profile once. There must always be a supporting profile at the edge of a CEDRAL.



The following minimum distances from the edges of the fastening accessories must be respected.



The fasteners must be perpendicular to the fibre cement strip and be applied in such a way that the Cedral is not noticeably distorted.



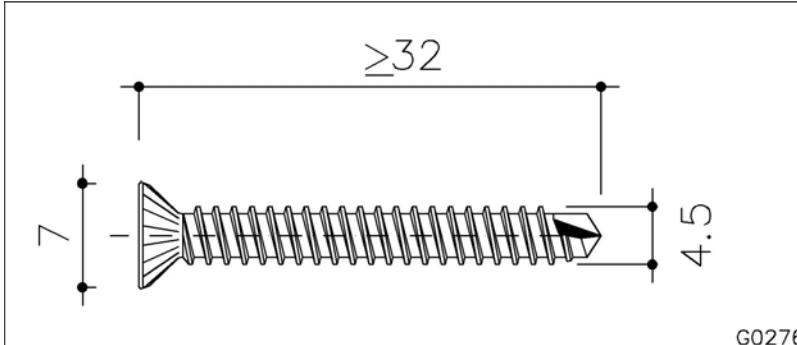


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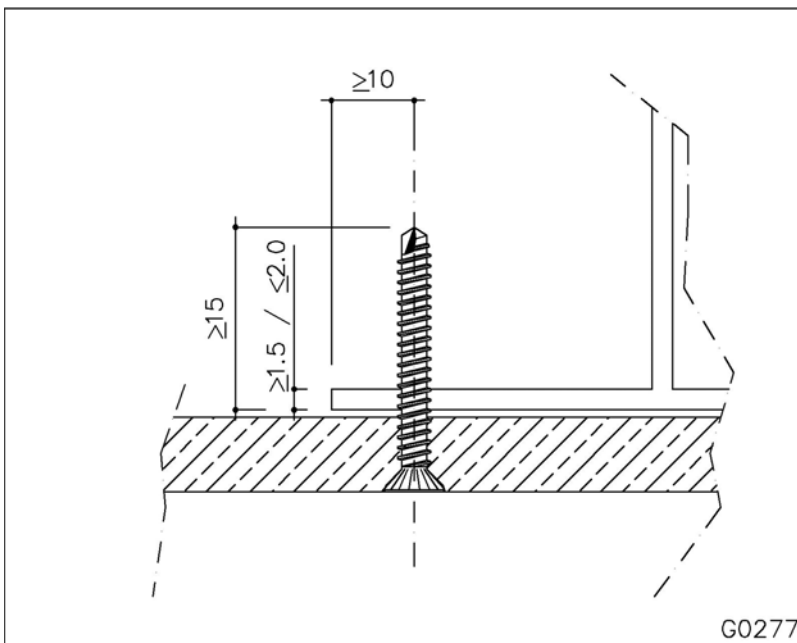
Application instructions

Fastening with screws:

CEDRAL can be fixed with stainless steel (A2) bimetal screws with countersunk head with the following sizes. The screw head is provided with milling ribs and the screw has a special cutting point in carbon steel.

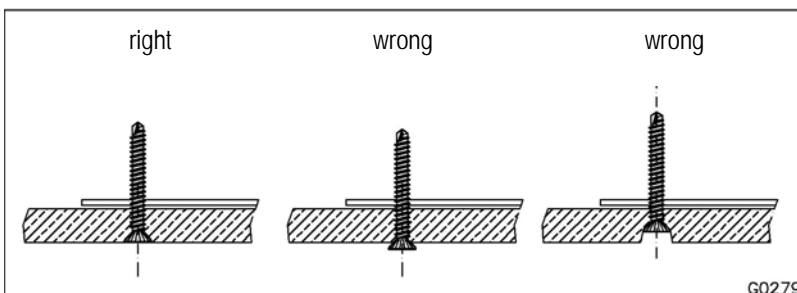


The following distances from the edge must be respected for the fastening of the screw in the metal supporting profile.



The screws are inserted using an electric drill with a high quality bit suitable for the type of screw head.

The head of the screw may not be driven too deep into the CEDRAL and may also not protrude.





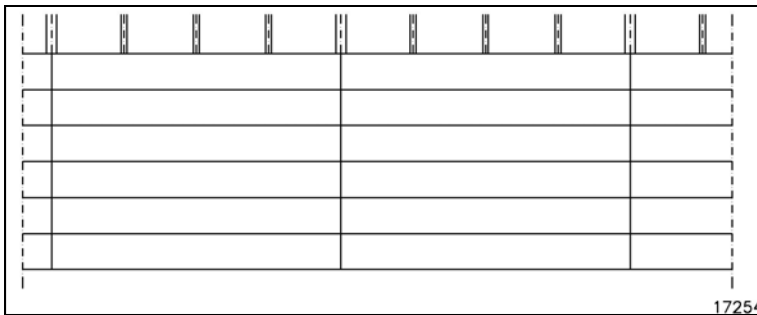
6 Horizontal overlap application

For technical reasons the application with visible fixings of CEDRAL wood stain colours is not supported by ETERNIT.

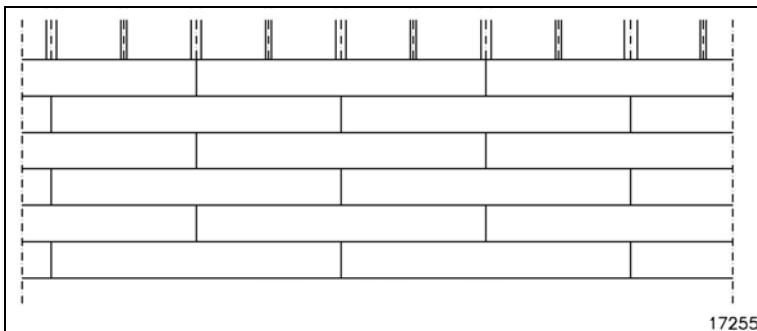
CEDRAL are fixed horizontally in a weather boarded (or overlapping or scale-like) way on metal supporting profiles. Ventilation is provided between the vertical supporting profiles.

The following overlap patterns are possible.

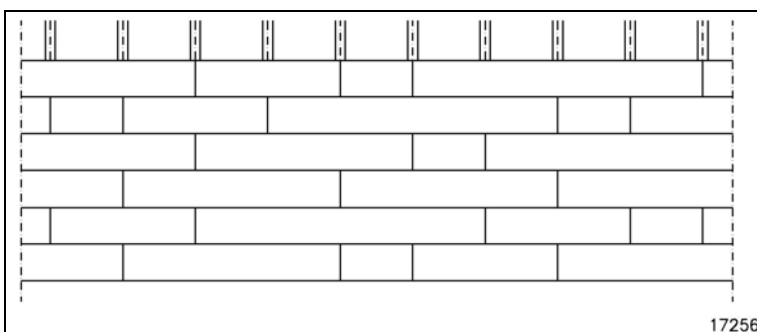
- Straight pattern (for aesthetic reasons a joint of 5 to 10 mm is desirable)



- Semi-pattern (the ends of the CEDRAL are placed against each other)



- Free pattern (the ends of the CEDRAL are placed against each other)





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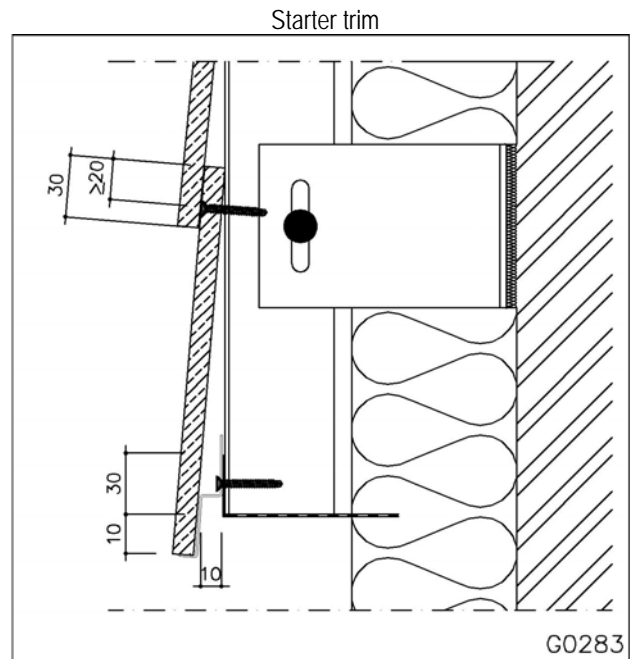
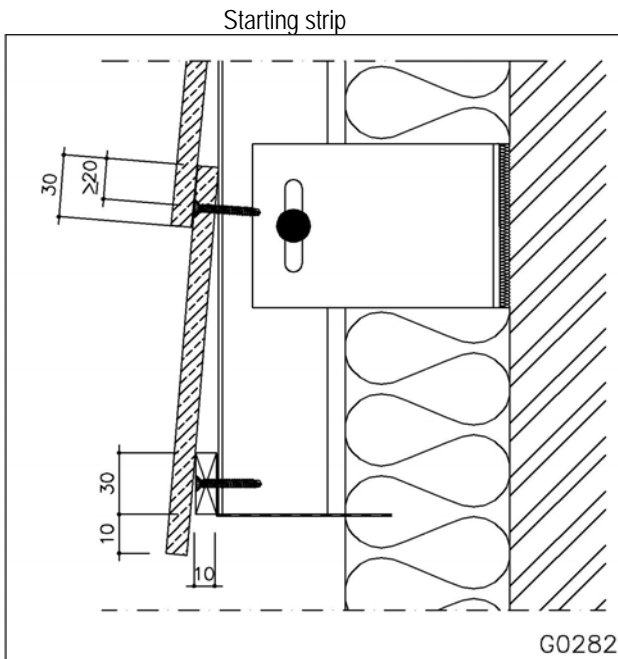
Application instructions

Assembly starts at the bottom of the outside wall where an aluminium starter trim is first applied, which places the first CEDRAL at the correct angle. This trim is available in the same colour as the CEDRAL.

An alternative is to fix a starting strip (with the same thickness as the CEDRAL and with the same length of the overlap). This is overlapped by the first CEDRAL that is accordingly placed at the correct angle (4° as standard).

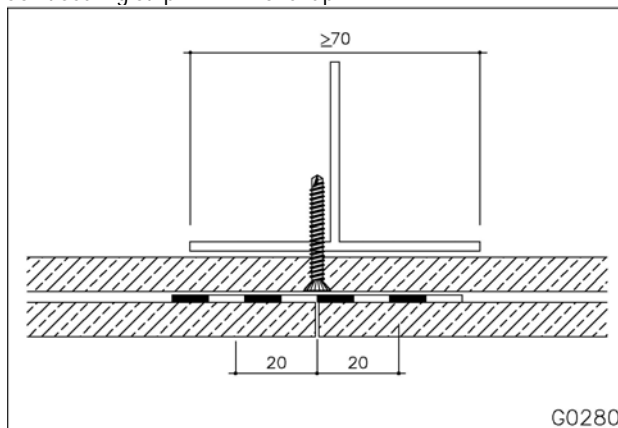
For technical reasons the application of the start profile with CEDRAL wood stain colours is not supported by ETERNIT.

- minimum horizontal overlap : 30 mm

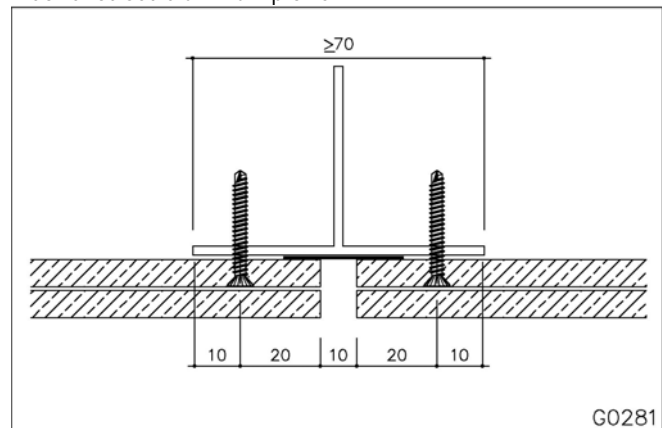


The CEDRAL are placed with the ends against each other and always on top of an underlying supporting lath. Behind the joints between the CEDRAL, a joint sealing strip with sufficient stiffness is used to prevent water infiltration. Because the joint sealing strip is not exposed to light, a black polyethylene (PE) 0.5 mm-thick joint sealing strip is sufficient. The joint sealing strip is also applied in overlap to avoid the penetration of water and is fixed separately. With continuous vertical open joints, a joint tape is not necessary. On the profiles a black UV resistant tape is applied. Another possibility is to use black anodized profiles. For aesthetic reasons additional fastening at the bottom of the CEDRAL along both sides of the joint is recommended.

Joint sealing strip in PE in overlap



Black anodised aluminium profile





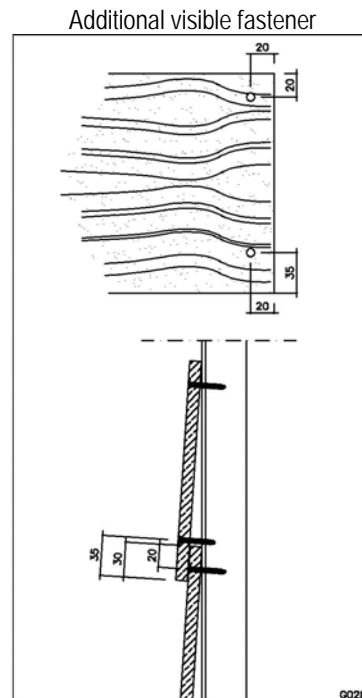
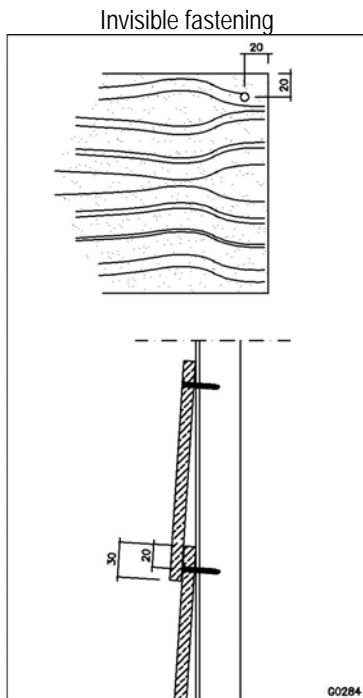
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The maximum centre to centre distance between the fastening accessories is determined by the wind load and the strength characteristics of the CEDRAL and amounts to:

	Maximum centre to centre distance between the fastening accessories		
	Inland: 0-10 m	Inland: 10-20 m	Coast: 0-20 m
Centre area façade	600 mm	600 mm	500 mm
Edge area façade	500 mm	400 mm	400 mm + visible fastening
Single span	500 mm + visible fastening	400 mm + visible fastening	400 mm + visible fastening

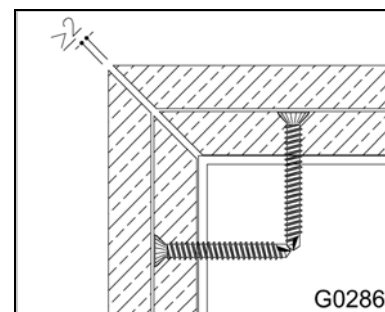
Prefabricated elements may need additional visible screws. The elements must be sufficiently rigid so that movements during transport (transportation, movements by crane) are restricted. Depending on the height of the building visible fastening is also required.



The consumption of material can be calculated for a continuous outside wall with CEDRAL with, for example, an overlap of 30 mm and a distance between the fastening accessories of 600 mm.

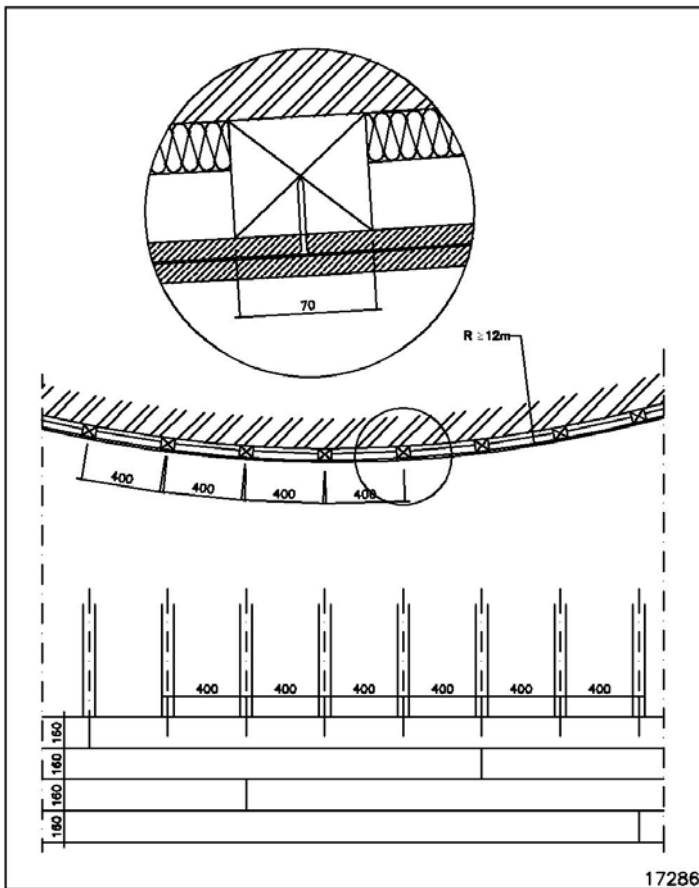
- CEDRAL CLASSIC used : 6.25 m/m² or qty. 1.74/m²
- CEDRAL SMOOTH used : 6.25 m/m² of qty. 1.74/m²
- fastening accessories used : qty. 12.5/m²
- joint sealing strip used : ± 0.4 m/m²

External corners can be finished with aluminum corner profiles available at Eternit. External corners can also be mitred. This can be done by setting the saw blade at an angle of 45 °, and the lateral guide at an angle of 4 °, to the left or to the right depending on the placement. Always saw the CEDRAL face down.

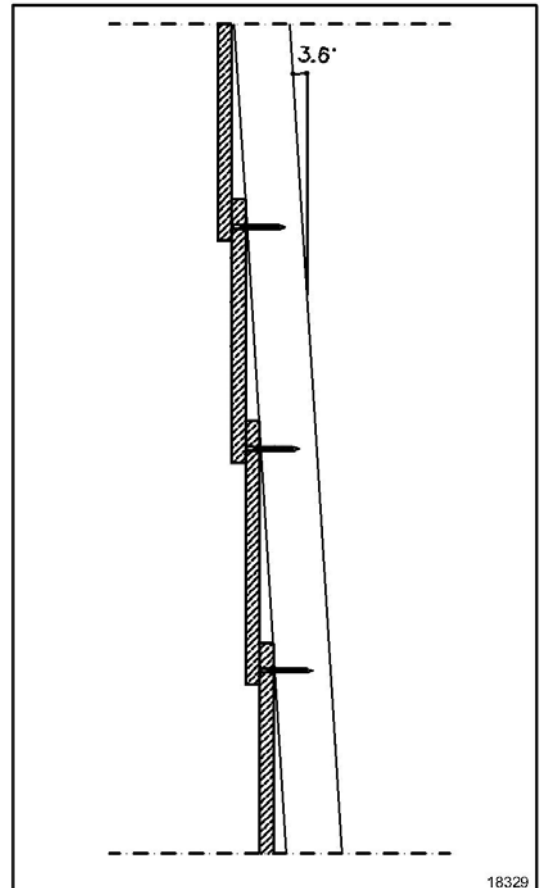


7 Curved horizontal application in overlap

CEDRAL in a curved construction are fixed with screws. The screws are not tightened too much so the CEDRAL is evenly bent. The ends are slightly shortened and rounded so that they fit against each other. The minimum bend radius is 12 m.



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It is also recommended to have the wall incline slightly (3.6°) in such a way that the bent CEDRAL are not twisted.

8 Expansion joints

Surface expansion joints are provided according to the maximum expansion of the cladding system. Different options are possible:

- 1 Installing Cedral next to each other without joints: expansion joint of 10 mm every 20 m.
- 2 Installing Cedral with 2 to 3 mm joints: no further expansion joints necessary.
- 3 Installing Cedral next to each other without joints for facades up to 20 m in length: leave a 5 mm margin at the end and/or corner profiles.

Structural expansion joints in the back construction are always to be included in the cladding.



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9 Accessories²

The following accessories can be obtained from ETERNIT.

Bimetal screw	Stainless steel - bimetal	4.5 x 32 mm
Perforated profile	Milled aluminium	50 x 30 x 2500 mm
Perforated profile	Milled aluminium	70 x 30 x 2500 mm
Perforated profile	Milled aluminium	100 x 30 x 2500 mm
Symmetrical outer corner trim	Coated aluminium	35 x 25 x 30 x 25 x 3000 mm
Asymmetrical outer corner trim	Coated aluminium	35 x 10 x 30 x 25 x 3000 mm
Connection profile for outer corner trim	Black coated aluminium	Length 300 mm
Inner corner trim	Coated aluminium	25 x 25 x 3000 mm
End trim	Coated aluminium	8 x 27 x 45 x 3000 mm
Connection trim window	Coated aluminium	8 x 15 x 45 x 3000 mm
Starter trim	Coated aluminium	30 x 10 x 30 x 9 x 3000 mm
Joint strip	PE	100 x 0.5 mm
Joint strip (UV resistant)	EPDM	100 x 0.75 mm
Single sided adhesive foam strip	PVC	6 x 9 mm x 15 m
Touch up paint		0.5 L
CEDRAL installation tool (set of 2 clamps)	Aluminium	
CEDRAL shears	Metal	

• CEDRAL CLAMP

Coated aluminium body provided with an adjustable Teflon support and a toggle clamp. Overlap is adjustable so that the visible part of the CEDRAL can vary from approximately 155 mm to 170 mm. By adjusting the installation tool the visible part of the CEDRAL can vary to obtain an optimum partition of the CEDRAL panels on the facade.

Instruction for use:

- Set the tools to the desired overlap by adjusting the Teflon support of the tool. Make sure both tools are set identical.
- Always use 2 installation tools to simplify the mounting.
- Stick the tool under the CEDRAL already installed.
- Tighten the toggle clamp to the surface of the CEDRAL.
- Put the next CEDRAL on the installation tools.
- Fasten this CEDRAL with screws or nails respecting the minimum edge distance of 20 mm.
- Loosen and take away the installation tools and proceed with the next CEDRAL.
- Repeat this procedure for the next CEDRAL.



• CEDRAL SHEARS

Shears to cut CEDRAL panels to length in a quick and easy way without producing any dust.

Instruction for use:

- The shears should be placed on a solid base.
- The CEDRAL is placed on the shears front side up.
- The CEDRAL must be put against the stopper to have a square cut.
- Long CEDRAL planks must be supported by the accompanying support.
- The CEDRAL can be cut in one single move.
- If necessary the edges can be smoothed with fine emery cloth or a sanding block.



² Use Eternit accessories; not using standard Eternit accessories may lead to cancellation of the Eternit guarantee.



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10 Detail drawings

Detail finishing is provided in such a way that no tension is exerted on the CEDRAL. This implies that the free expansion may not be obstructed by the aluminium finishing trims and that a little margin (2 mm) between the trims and the CEDRAL is advised.

Finishing sections in metals that can leach (such as zinc, copper, lead, etc.) are not advised because of possible soiling.

Metal finishing trims (aluminium, zinc, steel ...) must be sufficiently thick protected or treated (coated, treatment, galvanized, ...) to avoid discoloration / deterioration due to bleeding alkaline rainwater from the fibre-cement sheets.

The following detail drawings are available at the ETERNIT website:

Drawings of details on metal subconstruction are in preparation

OUTER CORNER: Corner finishing can be provided by means of a joint sealing strip or a finishing trim of aluminium.

INNER CORNER: A joint sealing strip or finishing trim in aluminium can also be used here.

BOTTOM FINISHING: The open cavity between the back of the CEDRAL and the insulation or the back construction must be protected at the bottom with a perforated aluminium profile. This profile prevents the entry of birds and vermin. The raised leg of the sealing profile is clamped between the supporting profile and the CEDRAL. A starter trim is provided for the bottom CEDRAL in such a way that it is at the same angle as the other CEDRAL.

TOP FINISHING: Sufficient ventilation openings must be provided.

WINDOW FINISHING WITH RETURN: Sufficient ventilation openings must be provided at the top and bottom of the window.

WINDOW FINISHING WITHOUT RETURN: Sufficient ventilation openings must be provided at the top and bottom of the window.

SURFACE-MOUNTED WINDOW

ROUND WINDOW: The return section can be provided in the same material as the window. The bottom of the return section is provided with a fitting to prevent drip lines on the CEDRAL. The CEDRAL are finished around the window using a fretsaw and can be finished with a cover trim.

EXPANSION JOINT: The expansion joints in the building must also be included in the cladding. They are obtained by placing an aluminium profile on both sides of the joint.

11 Information on external suppliers

The following manufacturers dispose of specific advices and warranty declarations.

Sawing blade	LEITZ	N.V. Leitz-Service S.A. 0032 (0)2 756 02 34 www.leitz-service.be
Sawing blades	BOSCH	www.bosch-pt.be
Hole saw	METABO	www.metabo.be



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12 Health and safety aspects

During the mechanical machining of panels, dust can be released which can irritate the airways and eyes. Apart from this, the inhalation of fine (respirable size) quartz containing dust, particularly when in high concentrations or over prolonged periods of time can lead to lung disease and an increased risk of lung cancer. Depending on the working conditions, adequate machinery with dust extraction and/or ventilation should be foreseen. For more ample information, please check the Safety Data Sheet based on 1907/2006/EC, article 31.

13 More information

Information about the various cladding panels can be found in the ETERNIT product information sheets. They can be found on the website or can be obtained on demand by phone. Information about external suppliers can also be downloaded from the website.

These application instructions replace any previous editions. ETERNIT reserves the right to amend these instructions without prior notice. Readers should always satisfy themselves that they are referring to the most recent version of this document. No part of this text can be changed without permission of ETERNIT.



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