

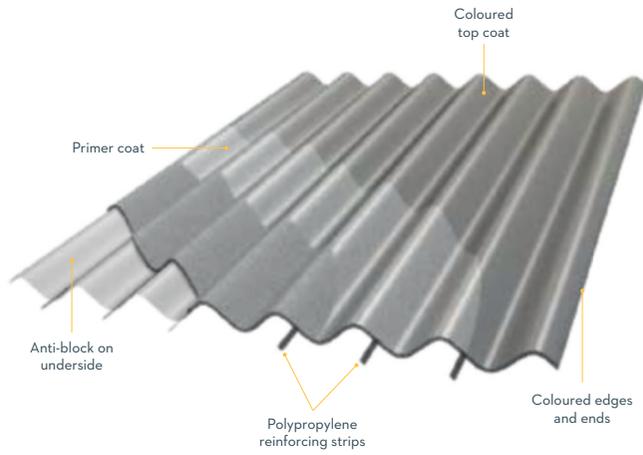
CEMBRIT

Fix & Forget Guide

Cembrit Cemsix & B5 Corrugated Sheets & Accessories



Cemsix corrugated sheets



Features and benefits of fibre cement corrugated sheets

Corrosion resistant

Fibre cement is rust and rot free and able to cope with external weathering as well as the aggressive atmospheres within livestock buildings.

Reinforcement strips

These polypropylene strips are embedded in the sheets at manufacture to ensure compliance with ACR[M]001: 2000 Test for Fragility of Roofing Assemblies for a non-fragile assembly.

Lower noise levels

Steel cladding materials generate high levels of wind chatter and rain drum. Fibre cement minimises these acoustic issues and creates a benign internal environment.

Condensation reduction

The absorbency of fibre cement prevents condensation formation and the dripping of water onto livestock or produce, again maintaining a benign environment.

Cemsix corrugated accessories

1. Cemsix cranked crown ridge



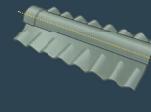
To suit a variety of roof pitches. 3 Girths to provide smooth closure of roof apex.
 Dimensions
 Available in 900mm (5°, 10°, 12.5°, 15°, 17.5°, 22.5°).
 Available in 1200mm (12.5°, 15°)
 Available in 1800mm (12.5°, 15°, 17.5°, 22.5°)

2. Cemsix cranked crown ventilation ridge



Normally used in single-skin construction, particularly in agricultural buildings. This fitment may not be fully weatherproof in swirling snow or rain.
 Dimensions
 Available in 900mm (10°, 12.5°, 15°, 17.5°, 22.5°)
 Available in 1200mm (12.5° & 15°) MADE TO ORDER
 Available in 1800mm (12.5°, 15°, 17.5°, 22.5°)
 Free air area: 800cm

3. Cemsix two-piece close fitting ridge



Two piece ridge fitting adjustable to roof pitches not covered by standard cranked crown ridges.
 Dimensions
 370mm wing
 Net cover: 1016mm
 For roof pitches between 5° and 15°, it is necessary to trim the roll of the outer ridge wing on site to clear the corrugated portion of the inner ridge wing along the length of the ridge.

4. Two-piece adjustable ventilation ridge



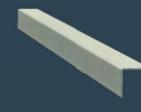
Two piece ridge fitting adjustable to roof pitches not covered by standard cranked crown ridges, to provide ventilation.
 Dimensions
 Net cover: 1016mm
 Wing: 370mm
 Free air area: 800cm
 For roof pitches between 5° and 15°, it is necessary to trim the roll of the outer ridge wing on site to clear the corrugated portion of the inner ridge wing along the length of the ridge.

5. Cemsix two-piece plain wing ridge†



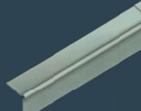
Two piece ridge fitting adjustable to roof pitches not covered by standard cranked crown ridges.
 Dimensions
 Wing: 350mm
 Net cover: 1060mm
 For roof pitches between 5° and 15°, it is necessary to trim the roll of the outer ridge wing on site to clear the corrugated portion of the inner ridge wing along the length of the ridge.

6. Cemsix barge board



Used to close verge at gable ends. Nominal 200mm wing for single skin constructions and 300mm x 300mm for double skin.
 Lengths:
 200mm x 200mm x 2400mm or 3000mm
 300mm x 300mm x 1600mm, 2400mm or 3000mm

7. Cemsix roll top bargeboard



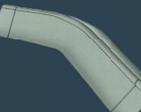
Used to close verge at gable ends. Nominal 200mm wing for single skin constructions and 300mm x 300mm for double skin.
 Dimensions
 200mm x 200mm x 2500mm or 3000mm
 Available in 300mm x 300mm 1800mm, 2400mm or 3000mm

8. Cemsix cranked bargeboard



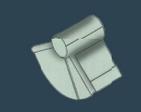
Closes verge apex when crown cranked ridge sheets are used.
 Dimensions
 Available in 200mm x 200mm wing at 1300mm girth (10°, 12.5°, 15°, 17.5°, 22.5°)
 Available in 300mm x 300mm wing at 1300mm girth (10°, 15°)

9. Cemsix cranked roll top bargeboard



Closes verge apex when crown cranked ridge sheets are used.
 Dimensions
 Available in 1300mm girth 200mm x 200mm wing (10°, 12.5°, 15°, 17.5°, 22.5°)
 300mm x 300mm wing (10°, 12.5°, 15°, 22.5°)

10. Two-piece roll top finial



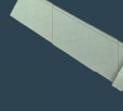
Used in conjunction with roll top bargeboards and close fitting ridges.
 Dimensions
 200mm wing x 360mm deep

11. One-piece finial



Used in conjunction with plain wing bargeboard and close fitting ridges.
 320mm x 370mm

12. Plain wing angle ridge



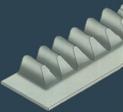
Available in 300 x 300 wing and 240 x 240 wing 5° to 60° in 5° increments
 Dimensions
 Length: 1200mm
 Net cover: 1080mm

13. Cemsix apron flashing piece



Used where cladding changes from pitched to vertical or where sloping roof abuts a brick wall.
 Dimensions
 1060mm left (shown) and right hand available
 Net cover: 1016mm

14. Cemsix eaves filler



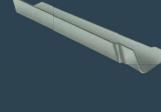
Used to prevent birds, vermin or wind driven particles entering at the eaves and provides a soffit to the underside of the sheets.
 Dimensions
 Net cover: 1016mm

15. Cemsix eaves closer



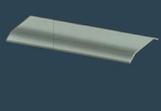
Used to prevent birds, vermin or wind driven particles entering at the eaves with a drip into the gutter.
 Dimensions
 Net cover: 1016mm 100mm upstand

16. Cemsix open ridge



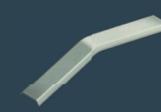
Prevents rain ingress through ridge where sheets finish short to allow ventilation through apex of roof.
 Dimensions
 1500mm long with spigot
 Net cover: 1350mm

17. Cemsix movement joint



Used in long stretches of roofing and cladding to allow for expansion or structural building movement.
 Dimensions
 Length: 3000mm
 Net cover: 311mm

18. Cemsix cranked movement joint



Closes movement joint apex where movement joints are used.
 Dimensions
 Width: 330mm
 Net cover: 1300mm

19. Translucent sheets



Used where increased light levels are required within structure.
 Fix each translucent sheet through every full corrugation to each purlin, with standard corrugated sheet fixings.
 Side-stitch the translucent sheet with stitch bolt every 300mm to 400mm to the adjacent Cemsix sheet.
 Dimensions
 Net cover: 1016mm
 Available in selected sizes lengths corresponding to Cemsix sheet lengths between 1525mm & 3660mm.

Exposure and windloadings



Introduction

Exposure, prevailing wind direction and wind loading are critical criteria in the design and specification process for corrugated sheeting, as they dictate lap, sealing and fixing specifications. Correct specification leads, in turn, to durable, secure and cost effective roofs (and walls) with minimal maintenance requirements.

Exposure

Buildings located in open countryside with roofs or walls in the direct path of prevailing winds - such as coastal or elevated sites, or site unprotected by trees or other local cover - will be subject to severe exposure. The exposure zone for your building can be established from the wind-driven rain map, right.

Exposure Zones

Approximate volume of wind-driven rain (litres/m²) per spell:

- less than 56.5
- more than 56.5
- Highlands and Islands

Note: from BS 8219

BS 8104: 1992 'Code of practice for assessing exposure of walls to wind-driven rain' offers guidance on assessing exposure to wind-driven rain.

Windloadings

Wind loading must be calculated and designed for in accordance with BS EN 1991 Eurocode 1: Actions on structures - Part 1-4: General actions - Wind actions.

Sheltered to moderate sites

Less than 56.5 l/m² of wind-driven rain per spell

Minimum roof pitch	Minimum end lap	End laps treatment	Side laps treatment
≥ 22½°	150mm	Unsealed	Unsealed
≥ 15°	300mm	Unsealed	Unsealed
≥ 15°	150mm	Sealed	Unsealed
≥ 10°	150mm	Sealed	Sealed
≥ 5°	300mm	Double sealed	Sealed

Moderate to severe sites

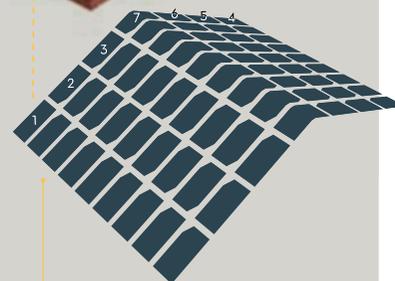
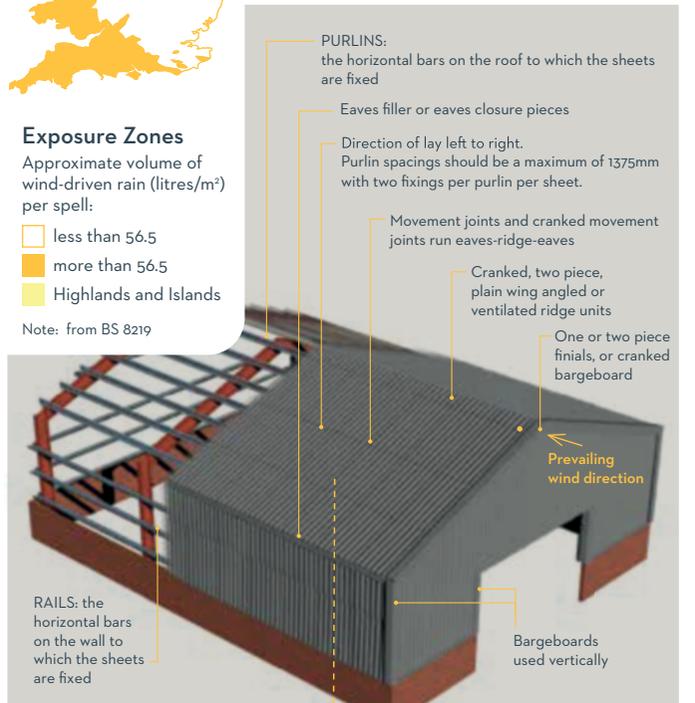
More than 56.5 l/m² of wind-driven rain per spell

Minimum Roof pitch	Minimum end lap	End laps treatment	Side laps treatment
≥ 25°	150mm	Unsealed	Unsealed
≥ 17½°	150mm	Sealed	Unsealed
≥ 15°	150mm	Sealed	Sealed
≥ 10°	300mm	Sealed	Sealed
≥ 5°	300mm	Double sealed	Sealed

* The minimum pitch for Cemsix corrugated sheet is 5°. On roof pitches between 5° and 10° the maximum slope length is 15m. For longer spans please contact Cembris for advice.

Design

Cemsix corrugated sheet can be fixed to steel, concrete or timber purlins. Fixing holes should be predrilled, or self-drilling, self-tapping top fix fixings can be used. Fixing should be undertaken according to BS 8219: 2001.



Laying and mitring procedure Sheets are laid from eaves to ridge one column at a time, with the side lap corresponding to the prevailing wind direction. On duo pitched roofs, opposing columns of sheets should be installed sequentially (numbers 1-3, followed by numbers 4-6), to assist in locating the cranked crown (7). Sheets are mitred as shown in the schematic. Mitrting details are shown on the next page.

Pre-drilling

Every sheet should be twice fixed at each purlin



It is extremely important that the correct roof purlins/rail system, type of fixing and washers are selected, to eliminate leakage/corrosion and the general deterioration of the construction. It is recommended that a self-drilling Top-Fix screw is adopted. This simple method offers a fast, low-cost fixing solution. Using a high-speed screw gun, drive in the fixing. The fixing system is only suitable for roofs up to and including 30° pitch.



Using a tungsten carbide tipped drill at 90° angle to the sheet, drill a hole 2mm larger than the selected fixing. The drill point should be no less than 60° to the sheet. Always drill at the 'apex' of the profile. Do not fix a sheet in the 'valley' or on a 'slope' of the profile.



To achieve a watertight and weathertight seal, it is important to confirm that the sealing washer is correctly tightened. **Not over tight, not too loose.** After a period of time, when the material has settled, the fixings may require re-tightening with hand tools. Be sure to use roof ladders to avoid walking on the roof sheets.



NEVER hammer fixing through the sheet. This will invalidate the guarantee. Fibre-cement sheets will shatter under impact and subsequently allow water to penetrate the apparent fixing. ALWAYS pre-drill.

NEVER fix through side laps as this causes thermal movement and this will cause sheets to crack

Mitrting scheme

To avoid 4 layers of overlapping roof sheets, the corners of two sheets must be mitred.

Each mitre must be cut straight and cleanly either by hand or by power saw. The angle and size of mitre is governed by the end and side lap dimensions. It is recommended that a good quality butyl mastic strip is used to seal the overlapping sheets to provide a weatherproof joint. Two corners of opposing sheets should be mitred the equivalent of the head and side lap (i.e. maximum 70mm x 150mm for Cemsix or 110mm x 150mm for B5) with a gap between sheets of 3-6mm.

Sheets on the perimeter of the roof will have one mitre (except the first and last sheets which remain complete), all other sheets will therefore have two mitres.

Always cut mitres on the ground not on scaffolding or on the roof slope.

Do not stack sheets on the roof.

Fixing the eaves course and sheets above rooflights requires 2 people.

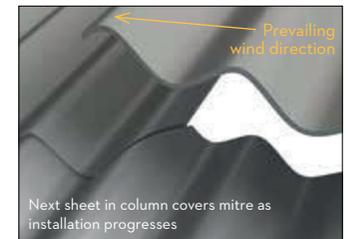
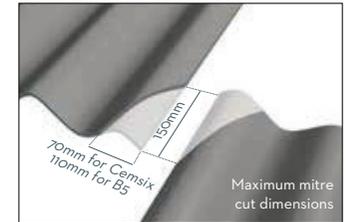
Do not wear loose clothing or Wellington boots when sheeting.

Do not walk on sheets or use sheets as a platform when working.

Fibre cement corrugated sheet is fragile. Safe access to the roof is paramount. Always use crawling boards roof ladders or walkways. Use safety netting below the roof and/or drop harnesses when working on the roof. Do not allow workers to operate below a roof being sheeted.

Clear loose material or tools from the roof as sheeting progresses.

Painted sheets and wet sheets could be slippery. Wind can make sheets difficult for one person to handle. Extra care should be taken in these circumstances.



Overlap sealing

The overlaps on low pitched roofs should be sealed with butyl strips, creating a windproof joint and protecting the fixing holes from wind driven precipitation.

At pitches of 5-10 degrees or below where double lap sealing is necessary (300mm endlaps) the second strip should be positioned 100-200mm below the fixing.



Example:

Butyl strip is shown in dotted white beneath the Cemsix sheet (coloured orange for clarity) and in solid white below the (grey) Cemsix sheet in the next course above and below the adjacent (grey) sheet to the right.

Note: Where B5 is used as a vertical cladding, sheets should be fixed in the valley of the 1st corrugation in from the overlap.

B5 corrugated accessories

1. Cranked Crown Ridge



One piece close fitting ridge

Available in 300 x 300 wing in 5°, 12.5°, 20°

Length: 1020mm

Net cover: 910mm

2. Two-piece Close Fitting Ridge

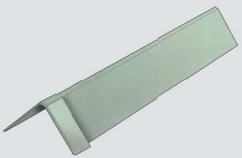


Two piece ridge fitting adjustable to roof pitches not covered by standard cranked crown ridge.

320mm wing

Net cover: 910mm

3. Plain Wing Angle Ridge



Can be used to create high level ventilation

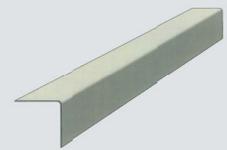
300 x 300 wing

5° to 60° in 5° increments

Length: 1200mm

Net cover: 1080mm

4. Cemsix Barge Board



Used to close verge at gable ends.

Nominal 200mm wing for single skin constructions and 300mm x 300mm for double skin.

Lengths: 200mm x 200mm x 2400mm or 3000mm

300mm x 300mm x 1600mm, 2400mm or 3000mm

5. Cemsix Roll Top Bargeboard



Used to close verge at gable ends.

Nominal 200mm wing for single skin constructions and 300mm x 300mm for double skin.

Lengths: 1800mm (300mm x 300mm only), 2500mm and 3000mm

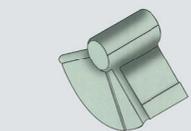
6. One-piece Finial



Closes verge apex when plain wing bargeboard is used.

320mm x 370mm

7. Two-piece Roll Top Finial



Closes verge apex when roll-top bargeboard is used.

200mm wing x 360mm deep

Ready B5 sheet and translucent lengths

B5 corrugated fibre-cement sheets & matching translucent sheets

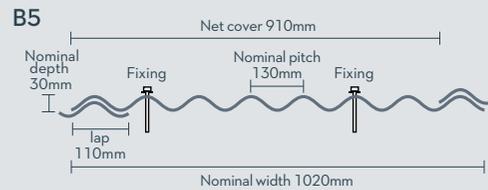
1375mm (4'6")	1525mm (5') (Translucent available)	1675mm (5'6")
1825mm (6') (Translucent available)	1975mm (6'6")	2125mm (7') (Translucent available)
2275mm (7'6")	2400mm (8') (Translucent available)	2600mm (8'6")
2750mm (9') (Translucent available)	2900mm (9'6")	3050mm (10') (Translucent available)

B5 colours



B5 Profile specification comparison

	Existing 3" profile	New B5 profile
Cover width	651mm	910mm
Width	782mm	1020mm (±1%)
Side lap	131mm	110mm
Min. end lap	150mm	150mm
Max. purlin centres	925mm	1200mm
Overhang	250mm	250mm
Thickness	5.8mm	6mm (±2%)
Density	1400kg/m ³	1400kg/m ³
Weight of roof (with 150mm end laps)	14.5kg/m ²	13kg/m ²
Pitch of Corrugations	72.3mm 25.6mm	130mm (±3%) 36mm (±3%)
Min. pitch ¹	10°	5° (see below)
Fixing points	2 nd and 9 th corrugation	2 nd and 6 th corrugation
Rail centres		1525mm MAX



Fixings

For timber construction, fixings should be at least 90mm long and 6mm diameter drilled at least 40mm into purlin.

For steel construction, fixings should be at least 90mm long and 5.5mm in diameter.

All fixings should be used with an aluminium or EPDM washer and bituminous gasket or plastic cap.

Maximum purlin centres - 1200mm

Cemsix Colours

Produced in the traditional 6" UK profile with overlaps / underlaps on both sides of the sheet. Cemsix is available in various colour options with matching accessories

- 1 Traditional natural grey fibre cement corrugated sheets and accessories
- 2 Coloured Corrugated sheets and accessories available in 2 colours

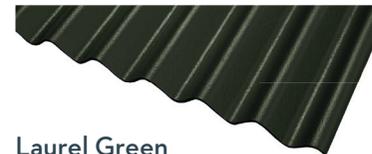
All sheets and fittings incorporate our unique 3 stage coating process.



Natural Grey



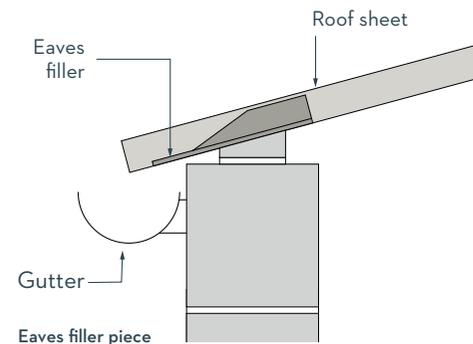
Blue/Black



Laurel Green

Overhangs, and end laps

Ensure that the first sheet at eaves is positioned so that all rain is captured by the rainwater gutters



The commonest way of detailing the verge is to incorporate a bargeboard. If the roof is designed without a bargeboard the sheets should overhang the gable by one complete corrugation

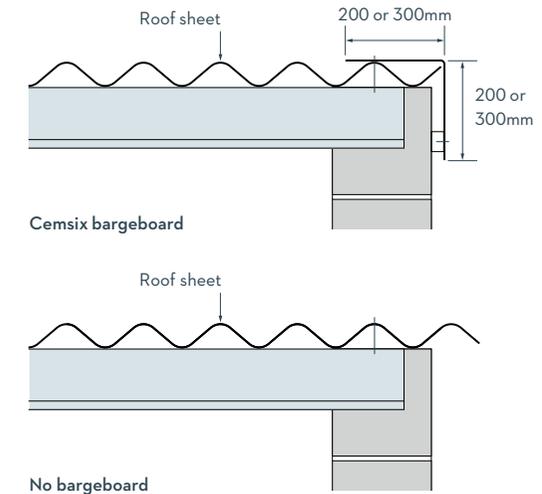
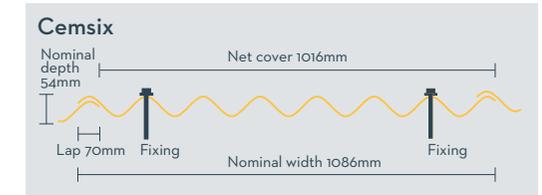
Cemsix Technical data

Available Sheet Lengths/Weight per sheet

1375mm (4'6")/20.78kg	2125mm (7')/32.12kg	2900mm (9'6")/43.83kg (Translucent available)
1525mm (5')/23.05kg (Translucent available)	2275mm (7'6")/34.39kg	3050mm (10')/46.10kg (Translucent available)
1675mm (5'6")/25.32kg (Translucent available)	2440mm (8')/36.88kg (Translucent available)	3660mm (12')/55.32kg (Translucent available)
1825mm (6')/27.58kg (Translucent available)	2600mm (8'6")/39.30kg (Translucent available)	
1975mm (6'6")/29.85kg (Translucent available)	2750mm (9')/41.57kg (Translucent available)	

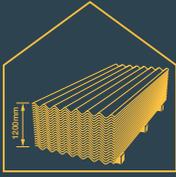
Overall width	1086mm
Net covering width	1016mm
Thickness (nominal)	6.0mm
Density (nominal)	1700kg/m ³
Pitch of corrugations	146.5mm
Overall depth	54mm
Side lap	70mm
Minimum end lap	150mm
Maximum purlin centres	1375mm
Maximum rail centres	1825mm
Maximum unsupported overhang	350mm
Approximate weight of roof as laid, with 150mm end laps, single skin including fixings	17 kg/m ²
Minimum pitch	5°
Spaced roofing width trimmed	1000mm

Remember to fix the sheets at corrugations 2+7



¹Minimum pitch - for small roof areas such as domestic garages pitches below 10° can be accommodated. End laps need to be extended to 300mm and be double sealed with mastic strips

Storage and Handling

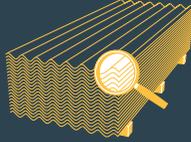


1. Coloured sheets and accessories should be stored internally. Until the sheets are in position on the building they could be subject to damage from site debris and accidental collision.

Rainwater, condensation and extreme weather conditions can also adversely affect the sheets (particularly coloured sheets) during storage.

2. Stacks without additional timber cross bearers should not exceed 1200mm. Cross bearers should be no more than one metre apart. Different length sheets should ideally be stacked separately, but if stacked with longer sheets they must be laid must line up vertically on the top and their cross bearers
3. The sheets are supplied covered in shrink-wrapping. It is strongly recommended that the wrapping is NOT removed until the sheets are required for fixing. Should any sheets remain at the end of the working period, the edges must be covered.

4. If several stacks are to be laid one on top of the other, timber cross bearers should be placed at 50mm intervals up to a maximum height of 300mm. It is important that the ground is level and firm.

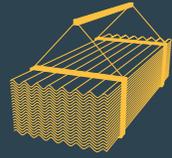


With a natural grey product, if it is stored outside, the stacks should be regularly inspected to ensure the moisture has not penetrated the coverings. Coloured sheets should only be stored inside and are particularly vulnerable at this stage.



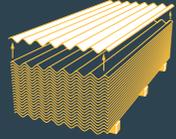
If it is not possible to store the product inside a building, a suitable site should be selected. The ground should be firm and level and as close to the construction work as possible. The sheets must be stacked on cross bearers, thus raising them off the ground.

A simple protective frame should be constructed and covered with a waterproof material. Air must be allowed to circulate all round the stack. The whole frame and stack should be tilted to encourage rainwater to drain freely.



Crane handling should be careful to avoid damage to the edges of the sheets. Use rope slings (not chains) and over-width spreaders to eliminate the possibility of damaging the edges of the sheets.

The corners of the sheets are particularly vulnerable during transportation.



Never push, drag or slide a sheet from a stack. Always consciously remove the sheet by lifting from the stack. Similarly lift the sheet into position on a roof, do not push or drag over the purlins or other roof sheets.

Invest in quality

- Cemsix fully compressed high density corrugated sheet resists abrasion
- Cembrit's 3 part painting process gives superior finish on painted sheets
- High dimensional tolerance for neat alignment of sheets on the roof slope
- Full range of accessories includes; ventilation, ridges cranked crowns and closers
- Translucent sheets



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The company's policy is one of continuous improvement. Cembrit limited therefore reserves the right to alter specifications at any time and without notice.

As with all manufactured materials, colours and textures of corrugated sheets and accessories may vary according to light and weather conditions. It is advisable to ask for samples of sheets prior to specification and purchase. Owing to this and limitations of the printing process, colours of sheets in this brochure may only be taken as indicative.

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