

Profiled Sheetting – UrbanPro Material Information & Fixing Sheet

TECHNICAL
NOTE
UKEt-05/01/en/v3

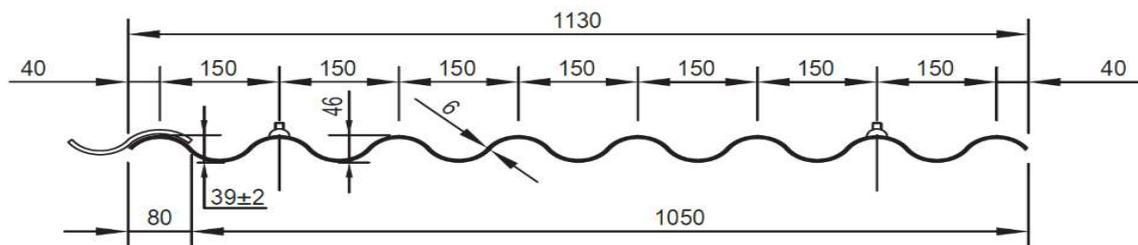
Working with UrbanPro

All current health and safety and HSG 33 recommendations should be followed at all time while installing UrbanPro sheets. This includes edge protection, fall protection, access and working platforms for example for the whole work area. Any access over UrbanPro sheets should be on appropriate access equipment adequately supported so not to apply pressure on the sheets.

UrbanPro sheets are classified as fragile, Do **not** walk on the sheets – always use appropriate access equipment.

Technical Data

UrbanPro sheets are made of: Cement; Cellulose; Water; Lime; Silica; Synthetic fibres (PVA).



	UrbanPro
Overall width	1130 mm
Net covering width	1050 mm
Thickness	6.0 mm
Density	≥ 1.4g/cm ³
Pitch of corrugations	150 mm
Depth of profile	41 mm
Profile height category	B
Side lap	80 mm
Minimum end lap	150 mm
Maximum purlin centres	1000 mm
Maximum unsupported over hang	250mm
Approx. weight of roof as laid, with 150mm end laps, single skin including fixings	15.2kg/m ²
Minimum roof pitch	7°
Fire Rating	A2, s1-d0

Fixing guidance

All sheets must be fixed in accordance with the recommendations of BS 8219.

Profiled sheeting should always be fixed with 2 fasteners per sheet per purlin, with maximum 1000mm purlin centres.

The selection of the correct sheet fastener is extremely important. The integrity of the roof covering, type of purlin or rail system, and weatherproofing with washers and caps all must be considered to avoid premature failure, corrosion, or a leaking roof.

Lap Requirements

Establish the requirement for lapping and sealing by reference to the map of the UK right and the tables below.

Sheltered to moderate sites

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

Minimum Roof Pitch	Minimum End Lap	End Lap Treatment	Side Lap Treatment
>22.5°	150mm	Unsealed	Unsealed
>15°	300mm	Unsealed	Unsealed
>15°	150mm	Sealed	Unsealed
>10°	150mm	Sealed	Sealed
>7°	300mm	Double Sealed	Sealed

*Maximum slope length of 15m for 7° - 10° roof pitch.

Moderate to severe sites

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

Minimum Roof Pitch	Minimum End Lap	End Lap Treatment	Side Lap Treatment
>22.5°	150mm	Unsealed	Unsealed
>15°	150mm	Sealed	Unsealed
>15°	150mm	Sealed	Sealed
>10°	300mm	Sealed	Sealed
>7°	300mm	Double Sealed	Sealed

*Maximum slope length of 15m for 7° - 10° roof pitch.

Buildings that stand above their surroundings, or are in area with no windbreaks within 1km, such as on coasts or hilltops, should be considered to be in areas of severe exposure.

For buildings in the North and West of Scotland and the Isles, denoted on the map by  refer to next page.

Exposure zones

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

-  less than 56.5
-  more than 56.5

Note: Taken from BS 8219



Highlands and Islands specification

For users in the North and West of Scotland and the Isles, [indicated by shading ] for wind loads up to 2.5kN/m², we recommend the following:



Due to the exceptionally high wind loads which are experienced on the Scottish Islands and exposed Coasts, specific recommendations are required for the use of fibre cement profiled sheets as detailed below. These recommendations should be considered as the minimum requirements for fixing sheets in the shaded area of the map, but where design wind loads exceed 2.5kN/m²,

Please note: there should always be 2 fixings per sheet width per purlin.

UrbanPro can be fixed to purlins at 675mm maximum centres providing curved diamond washers, together with diamond felt washers are used under the head of the fasteners to increase the bearing area and therefore prevent the sheets lifting over the fasteners. The diamond washers are used in addition to the standard sealing washers. Please note that commercially available diamond washer should be checked to ensure that the curvature is correct for the UrbanPro sheets.

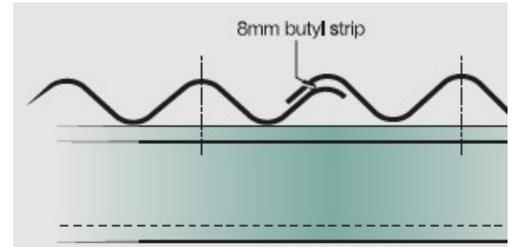
Sealing requirements

It is important to select a good quality sealant. Inferior sealants can lead to cracking, chalking and failure in use. For best results, BS 8219 recommends a pre-formed 8mm diameter mastic ribbon of butyl or a polyisobutylenebased material, which has a rubbery, tacky consistency, and which will adhere to both surfaces when sheets are overlapped and never sets hard.

Side Lap –

When sealed side laps are required, butyl strips should be positioned as shown in Fig.1

Fig.1



End laps

The minimum end lap for UrbanPro is 150mm

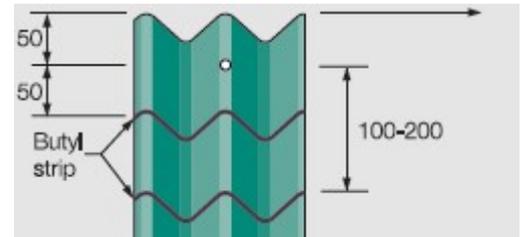
Single sealed end laps

Butyl strip sits 50mm below fixing point

Double sealed end laps

Where double sealing is necessary, with a 300mm end lap, the second butyl strip should be positioned 100 to 200mm below the fixing, as shown in Fig.2

Fig. 2



Topfix fasteners

Eternit Self-drilling, self-tapping 'topfix' fasteners are generally used to fix UrbanPro sheets to purlins for roof pitches 7° - 30°.

These fasteners drill through the profile sheet, creating a 2mm oversize hole and self tap into the purlin. It is important that the fasteners are installed using the correct power tools, which should have an adjustable depth setting device to ensure the washers are seated correctly see (Fig. 4). The fasteners typically have different drill points to suit the different purlin types, please refer to the relevant fixing data sheets for further information.

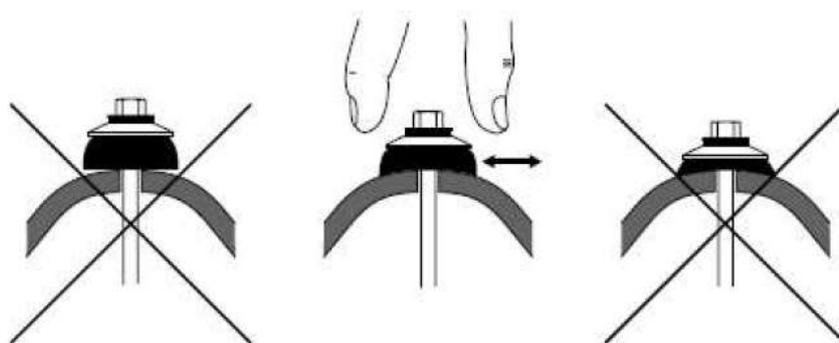


Fig. 4 Checking the topfix fasteners for tightness

When using Eternit Topfix fasteners, please give particular regards to minimum purlin thickness as per below table:

<u>Product Number</u>	<u>Dimensions (mm)</u>	<u>Material</u>	<u>Application</u>
4069994	6,5x130	Carbon Steel	on min 50x75mm wood purlin
4069996	6,5x130	Stainless Steel	on min 50x75mm wood purlin

Setting out of the roof

Checking the structure -

Before sheeting is commenced, the structure should be checked to ensure that all purlins are in a true plane, correctly spaced and securely fixed and adequately restrained.

Laying the sheets –

All UrbanPro sheets are pre-mitred ready for sheeting right to left only.

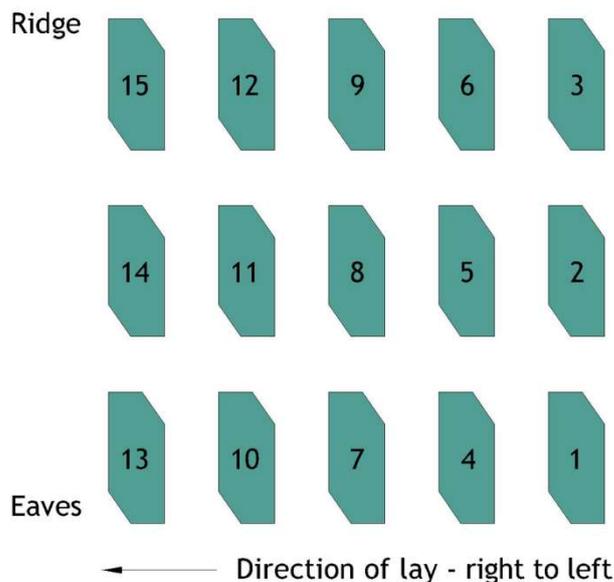
Roof sheeting for UrbanPro sheets should commence from the right hand side of the building at eaves level, rising in vertical tiers, one sheet wide, from eaves to ridge.

The end laps of each row of sheets should form a continuous straight line from gable to gable and must not be staggered. Similarly, the side laps should be aligned from eaves to ridge.

Mitring -

UrbanPro sheets are factory mitred, meaning the sheets can only be laid right to left on both roof slopes at 150mm end lap.

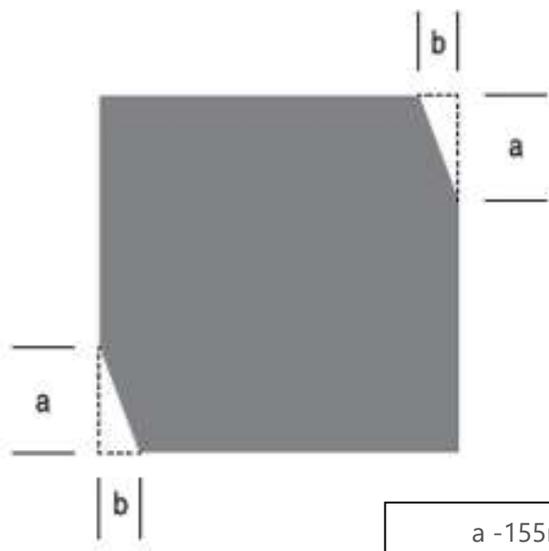
Mitring is required to avoid four thicknesses of sheeting at the junctions of side and end laps, it is necessary for two of the sheets at each junction to be mitred at the corners so that they lie in the same plane.



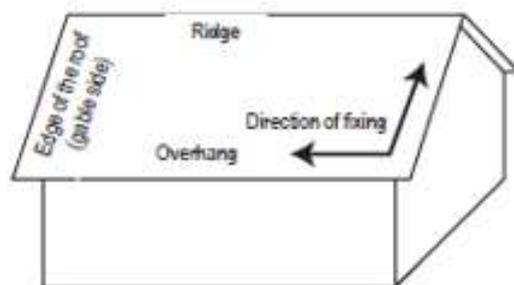
If sheets need to have hand cut mitres made due to premitred sheets needing trimming to length or the lap is greater than 150mm then the following rules apply. The width of the mitre measured from the corner of the sheet as dimension "b" below is always 85mm and is a true horizontal dimension. Therefore if you are recutting the mitres due to increase in lap this dimension does not get altered. The length of the mitre measure again from the corner of the sheet along the length of the sheet, as dimension 2a2 below, is the lap dimension plus 5mm. i.e for a 150mm lap it is $150 + 5 = 155\text{mm}$ and for a 300mm lap it would be $300 + 5 = 305\text{mm}$. Therefore if you are recutting the mitres due to increase in lap, align the 155mm mark on your tap measure or measuring rule with the end of the current precut mitre, to ensure your tap/rule is correctly aligned to where the corner of the sheet would of been. Now remark the new end of mitre position. The new mitre cut is from this mark to the current end of the mitre on the width of the sheet.

Ideally, the gap between mitres should be a minimum of 3mm to a maximum of 6mm. Box mitres must be avoided. The mitred joint is covered top and bottom by the other two sheets and is thus weatherproof and unseen.

(See typical mitring details below.) Note: Mitres must not be cut in situ.



a - 155mm (lap length + 5mm)
b - 85mm (unaltered regardless of lap length)



Mitring when sheets are layered from the right to the left

Vertical Installtion

Fibre cement sheeting has commonly been used in the past as a single skin weatherproof construction on agricultural and industrial buildings, where it is fixed to horizontal sheeting rails of either steel or timber.

The product is now often used as the external skin of a rainscreen cladding system where there is a ventilated cavity immediately behind the sheeting. The sheeting is typically fixed to horizontal timber battens or lightweight metal rails fixed back to the structural wall of masonry or studwork. Insulation may be positioned on the inside, the outside, or within the wall structure.

Sheeting Generally

Sheets are normally fixed in the same way as roof sheets with the corrugations aligned vertically. They can also be fixed with the corrugations aligned horizontally, but much of the detailing is significantly different so this method of fixing will not therefore be included in this document.

Vertically aligned sheets should generally be fixed with 150mm end laps and be mitred. There should be 2 fasteners per sheet width and there is no requirement for lap sealants. The maximum rail centres are 1350mm for UrbanPro.

The sheeting rails should be either timber or steel as sheet fasteners are readily available for these materials. Many rainscreen panels are rivet fixed to thin (2-3mm) aluminium rails but this is not a suitable fixing method for fibre cement profiled sheets.

Topfixed UrbanPro

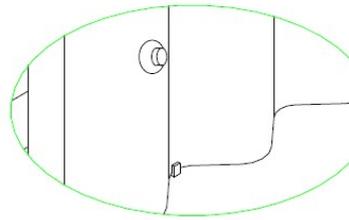
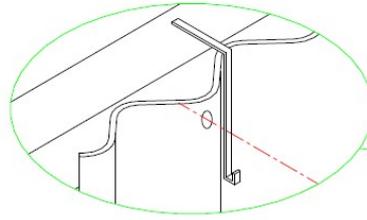
When UrbanPro is fixed vertically with Eternit topfix fasteners, the fasteners are overstressed and cannot withstand the self-weight of the material, allowing the sheets to move downwards. This is because the fasteners are relatively thin, there are few of them, and the load is applied 50mm away from rail because of the depth of the profile. To prevent this downward movement, support clips should be used to carry the self-weight of the sheets and the fasteners only used to withstand wind suctions.



UrbanPro fixed with Eternit topfix fasteners and support clips

Support clips are typically fabricated from 10 x 3mm steel bar and are galvanised. Their length should be determined by the end lap of the sheeting. 2 No required per sheet.

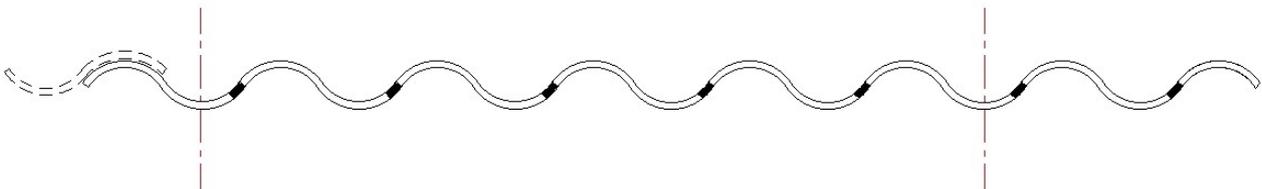
The top of each course of sheets should finish flush to 5mm below the top of the rail so the support clip can bear on the top of the rail. The clips are positioned in the valley corrugation adjacent to the fixing and support the next course of sheets with its appropriate valley corrugation located into the clip. This method of fixing does mean that the fixings are further up the lap than normal – typically 125mm instead of 100mm, is on the clips the fixings are not load bearing. but because the weight of the sheet is on the clips the fixings are not load bearing.



Valley Fixed UrbanPro

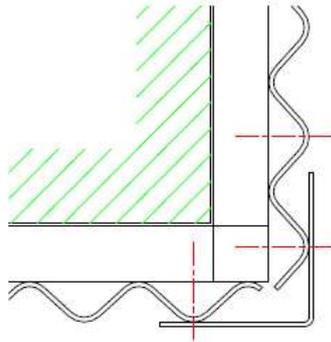
An alternative method of fixing that avoids the use of support clips is to fix through the valley corrugations. The sheets should be fixed in the corrugations indicated below. A 2mm oversize hole should always be pre-drilled through the sheets.

Valley Fixing Positions

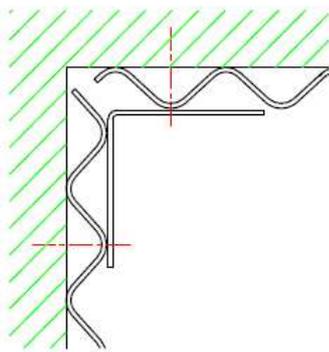


Detailing

When used in rainscreen cladding systems there should be a ventilated cavity behind the profiled sheets, with a minimum 10mm ventilation gap at top and bottom of the cladding (high rise buildings require larger ventilation openings). To keep out vermin and large insects, perforated closers or mesh with maximum 4mm diameter holes can be used to close the cavity at the base of the cladding. Alternatively proprietary eaves or soffit vents can be used.



External corner detail using the External Corner Piece

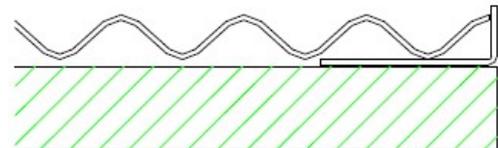


Internal corner detail using the Internal Corner Piece

Metal Trims

Metal trims should be designed and installed in accordance with MCRMA (Metal cladding and Roofing manufacturers Association) guidelines. The general minimum thickness for metal trims is 0.7mm for steel and 0.9mm for aluminium.

A metal trim is used around window and door openings because they are much thinner and affect the alignment of the corrugated sheet – typically 1mm thick. Positioned as per detail to the right.





Windows

Where there are a series of windows, consider using a zed shaped metal flashing at window head level so each course of sheets is independent – there are no end laps and therefore no mitres. It does however require a sheeting rail above and below the flashing.

The appearance of the sheeting is normally enhanced if end laps are aligned with windows or other features on the building, and this also avoids too much cutting around windows.

Where windows are close together, it is worth considering making these small strips into spandrel panels/ feature panels using for instance one of our Equitone boards windows to avoid fiddly cutting and fixing narrow strips of profiled sheets.