Eternit Profiled Sheeting
Product Authority Data Sheet

TECHNICAL NOTE
Et-01/09/en/v4

Eternit profiled sheets and fittings are manufactured from fibre cement, with or without a colour finish, and are used for roofing and cladding. The products comply with the requirements of BS EN 494 and should be installed in accordance with BS 8219 and the relevant parts of BS 5427.

Profile 6 sheets are reinforced with polypropylene strips and are classified as non-fragile class C when tested to the ACR(M)001 impact test.

Section 1 - Regulations

Eternit profiled sheets can meet or contribute to meeting the relevant requirements.

The Building Regulations 2010 (For use in England).

Requirement B2	Internal fire spread (linings).
Requirement B3	Internal fire spread (structure). Provisions must be made for compartmentation and use of cavity barriers
Requirement B4(1)	External fire spread Profile 6 is suitable for the cladding of buildings. Profile 3 is suitable for the cladding of buildings other than those with a storey at least 18m above ground level and which contains one or more dwellings, contains an institution, or contains a room for residential purposes.
Requirement B4(2)	External fire spread Eternit profiled sheets meet the requirements for roofs as they fulfil the requirements of Commission Decision 2000/553/EC.
Requirement C2 (England).	Roofs (Resistance to moisture from the outside). Eternit profiled sheets installed in accordance with BS 8219 meet the requirements.
Regulation 7	Materials and workmanship Eternit profiled sheets and fittings are manufactured to meet the requirements of BS EN 494 and are CE marked with the intended use of roofing and internal/external wall coverings.

The Building Regulations 2010 (For use in Wales).

Requirement B2	Internal fire spread (linings).
Requirement B3	Internal fire spread (structure). Provisions must be made for compartmentation and use of cavity barriers.
Requirement B4(1)	External fire spread Profile 6 is suitable for the cladding of buildings. Profile 3 is suitable for the cladding of buildings other than those with a storey at least 18m above ground level and which contains one or more dwellings, contains an institution, or contains a room for residential purposes.
Requirement B4(2)	External fire spread Eternit profiled sheets meet the requirements for roofs as they are designated National class AA or European class B_{roof} (t4).
Requirement C2	Roofs (Resistance to moisture from the outside). Eternit profiled sheets installed in accordance with BS 8219 meet the requirements.
Regulation 7	Materials and workmanship Eternit profiled sheets and fittings are manufactured to meet the requirements of BS EN 494 and are CE marked with the intended use of roofing and internal/external wall coverings. Profile 6 is suitable for the cladding of buildings. Profile 3 is suitable for the cladding of buildings other than those with a storey at least 18m above ground level and which contains one or more dwellings, contains an institution or contains a room for residential purposes.

The Scottish Building Standards

Standard 2.5	Internal linings
Standard 2.4	Cavities
Standard 2.6 Standard 2.7	Fire spread to neighbouring buildings Fire spread on external walls Eternit profiled sheeting is suitable for the cladding of buildings.
Standard 2.8	Fire spread from neighbouring buildings. Eternit sheets are classed as low vulnerability.
Regulation 8	Durability, workmanship and fitness of materials. Eternit profiled sheets and fittings are manufactured to meet the requirements of BS EN 494 and are CE marked with the intended use of roofing and internal/external wall coverings.

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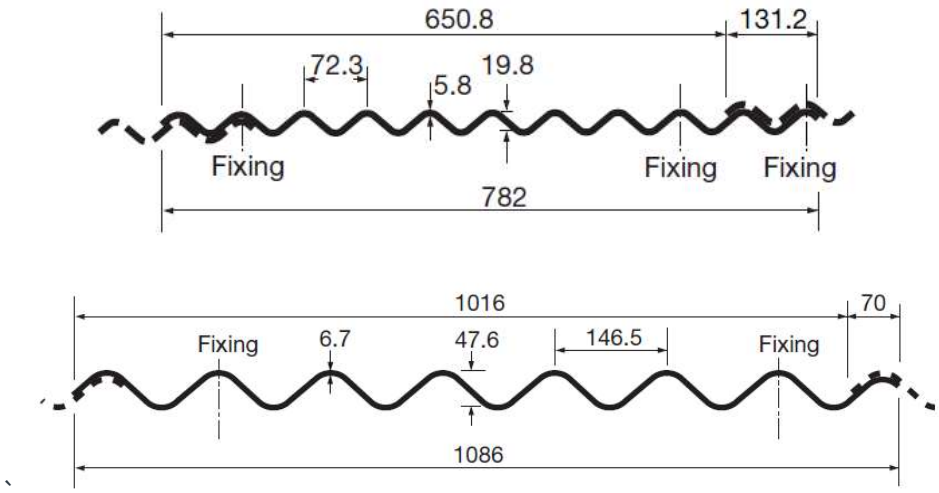
Section 2 - Description

2.1 Eternit Profiled Roof and Wall Cladding is manufactured in the profiles shown in Figure 1.

Figure 1 Eternit Profiled Roof and WallCladding



2.2 The standard sheet sizes, profiled fittings and non-profiled fittings are defined in Tables l, 2 and 3 respectively.

2.3 Laid as a single skin, the w eight of the corrugated sheets is approximately:

Profile 3 – 14.5 kg/m^2
Profile 6 – 17 .0 kg/m^2

2.4 The profiled sheets, flashings and fittings are available with a Factory Applied colour finish.

2.5 The sheets are manufactured from cellulose and polymeric fibres, Portland cement and other constituents using the Hatschek process. Profile 6 has polypropylene strips which run the full length of the sheet in each corrugation to provide impact strength. Each sheet bears the manufacturer's production code by indent on the upper surface of a crest corrugation.

2.6 The accessories are hand moulded from flat sheet in the matching profile material.

2.7 Quality control includes checks on density, thickness, dimensions, and squareness, break strength and water absorption.

Table1. Standard sheet sizes

	Profile 3	Profile 6	Farmscape
Length		1220	
		1375	
	1525	1525	1525
		1675	1675
		1825	
		1975	
		2125	
		2275	

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	2450	2440	2440
		2600	
		2750	2750
		2900	2900
	3050	3050	3050
Overall width	782	1086	
Cover width	650.8	1016	
Nominal thickness	5.8	6.7	
Pitch of corrugations	72.3	146.5	
Height of corrugations	19.8	47.6	

Table 2. Profiled fittings

	Profile 3	Profile 6	Farmscape
Curved sheet		X	
Eaves Bend Sheet		X	
Cranked ridge sheet		X	X
Cranked vent sheet		X	X
2-piece plain wing ridge	X	X	X
2-piece close fitting ridge	X	X	X
2-piece vent ridge	X	X	X
Apron flashing	X	X	X
Movement joint		X	X
Finial	X	X	X
Eaves closer	X	X	
Eaves filler	X	X	

Table 3. Non-profiled fittings

	Straight	Cranked	Eaves bend
External corners 200 x 200mm	X	X	
Roll top bargeboard 200 x 200mm	X	X	X
Internal corners	X		

Section 3 - Factory Applied colour finish sheet

3.1 The profiled sheets, flashings and fittings are available with a Factory Applied painted finish, in the colour range listed in Table 4. In addition, Farmscape anthracite sheets are Profile 6 with pigments applied to the surface during the manufacturing process.

Table 4 Painted Colour Range

Colour	BS4904 reference
Blue	18 B 29
Laurel Green	12 B 29
Van Dyke Brown	08 B 29
Black	
Sherwood	

3.2 Liquid paint is available for use on site on small, damaged areas and exposed cut edges.

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3.3 The Factory Applied colour finish is applied in a continuous production process in which the uncoated sheet is pre-heated, sprayed with acrylic paint, heat cured and cooled. Continuous process control checks are conducted on oven temperatures and paint coverage.

3.4 The coated accessories are pre-heated, hand sprayed with acrylic paint, and then heat dried.

3.5 Quality control tests are conducted on the paint for colour, viscosity and solids content, and on the coated products for resistance to adhesion and efflorescence.

Section 4 - Delivery and site handling

4.1 Sheets are supplied shrink-wrapped, in full packs of 50 sheets, bearing identification of sheet profile, length, production date and pack number. Part packs may also be supplied and are also shrink wrapped.

4.2 Packs of sheets are supported on pallets to facilitate off-loading by forklifts; they can also be off-loaded by hand, lifting sheets individually at each end.

4.3 Sheets should be stored as close as possible to the area of works on a firm level base. Stacks should generally not exceed 1200mm high unless a level concrete base is available, in which case the maximum height is 1500mm.

4.4 A separate stack should be made for each length of sheet; if this is not possible stack with the longest sheets at the bottom, ensuring the smaller 'under rolls' are on the same side of the stack. Sheets should always be stacked weather (smooth) side upwards.

4.5 Sheets should not be stacked in full sun during the summer months as the differential temperatures across the sheets can result in unacceptable stresses and can lead to edge cracking.

4.6 If sheets are to be retained in the packs for more than 3 months, they should be stored inside a building where they can be protected from extreme variations of temperature and moisture.

4.7 Ingress of moisture into the packs may result in efflorescence staining, bowing during installation or permanent distortion.

4.8 Natural grey sheets. The shrink wrapping should be retained as long as possible to control the environment around the sheets. Once the pack has been opened or if the packaging is damaged and allowing the ingress of water, the sheets should be stored under cover.

4.9 Coloured sheets. These should be stored under cover at all times, preferably inside a building. If this is not possible, they should be stored under a tarpaulin that is spaced off the top and sides of the pack to allow effective air circulation and avoid condensation. The plastic wrapping on coloured sheets is designed to protect the sheets in transit. It should be removed and carefully disposed of as soon as possible.

4.10 Sheets should be generally installed in accordance with BS8219 and the relevant parts of BS 5427. For agricultural buildings the recommendations of BS 5502 should be followed.

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4.11 Sheets should preferably be cut at ground level on suitable rigid supports using hand or powered reciprocal saws, ideally with blades having a tooth pitch of 3 - 3.5mm.

4.12 All fixing holes should be drilled, not punched, and adequate clearance provided for the fixing shank.

Section 5 – Design Data

5.1 Eternit Profiled Roof and Wall Cladding, with the appropriate flashings and fittings, is satisfactory for external use as a sheet roof or wall covering, generally in accordance with BS8219, BS 5427 and BS 5502 Parts 20 – 23. The sheets and fittings comply with the requirements of BS EN 494.

5.2 Profile 6 and Farmscape Anthracite sheets are reinforced with polypropylene strips and when tested to the ACR(M)001 impact test method is classified non-fragile Class C. They also achieve a pass at 1380mm span when tested to BS EN 15057.

Section 6 - Properties in relation to fire

6.1 The classification for Reaction to fire performance in accordance with EN 13501-1 is as follows:

- Profile 6: A2-s1-d0
- Profile 3: A2-s2-d0

6.2 Eternit profiled sheets meet the requirements for roofs as they fulfil the requirements of Commission Decision 2000/553/EC.

6.3 The products break up when exposed to intense heat and hence have no fire resistance. Where a given fire resistance is required, it must be achieved from a separate fire-resistant component.

Section 7 Thermal Conductivity

7.1 The products may be taken to have a thermal conductivity of 0.48 W/mK.

Section 8 Density

8.1 The products have a nominal density of 1500 kg/m^2.

Section 9 Water Absorption

9.1 After 24 hours immersion in water, the nominal water absorption of the product is 23% of the dry weight.

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Section 10 Water Tightness

10.1 When tested in accordance with BS EN 494, signs of dampness are permitted on the underside of the sheets, but drips do not form.

Section 11 Strength

11.1 When tested to BS EN 494clause 7.3.2.1, the minimum breaking load is as follows:

- Profile – 1400 N/m width
- Profile 6 and Farmscape - 4250 N/m width

11.2. When tested to BS EN 494, clause 7.3.2.2, the minimum bending moment per m length at rupture is:

- Profile 3: 40 Nm/m
- Profile 6: 55 Nm/m

Section 12 Maintenance

12.1 Eternit profiled sheets are low maintenance materials. Natural grey and Farmscape Anthracite sheets require no routine maintenance to achieve the design life of the material. If maintenance painting is to be carried out on painted sheets, this should be considered after 15 – 20 years. The paints used should be water-based acrylics. If the growth of moss interferes with drainage, this should be removed.

Section 13 Durability

13.1 The minimum life expectancy of the products is 50 years in normal atmospheric conditions.

13.2 The matrix material will carbonate and embrittle with time, increasing the fragility of the product.

Section 14 Installation

14.1 Safety at work. The recommendations of HSG 33 should be followed at all times.

The recommendations of HSG 33 should be followed at all times:

- A safe place of work should be provided. Health and Safety Provisions should comply with current regulations and be suitable for working at height. The use of safety nets as fall arrest equipment should always be considered.
- Profile 6 sheets, when new and first installed in accordance with our our recommendations, can be classified as a non-fragile Class C roof assembly in accordance with ACR[M]001. Once the roof has been completed and the

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netting/scaffolding removed, if any subsequent access is required on the roof, the sheets should be treated as a fragile assembly.

- Always use HSE recommended roof access systems whenever required.
- Always observe the relevant provisions of the Health and Safety at Work Act, and any other safety legislation currently in force.

Section 15 Procedure

15.1 The sheets should be installed in accordance with BS 8219, the relevant parts of BS 5427 and Eternit's recommendations.

Section 16 Testing

16.1 Factory Production Control. The following tests are carried out in accordance with BS EN 494 before releasing each batch of sheets to stock.

- Pitch of corrugation
- Height of corrugation
- Thickness
- Length
- Width
- Apparent density
- Breaking Load
- Bending Moment

16.2 Type Tests are carried out when there is a significant change to the sheet design, raw materials, or production process in addition to the Factory Production Control tests the following tests are carried out in accordance with BS EN 494.

- Reaction to fire
- Water permeability
- Warm water
- Soak/dry
- Freeze-thaw
- Heat-rain
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Section 17 Factory certified

The Meldreth factory is certified to comply with the following standards:

- BS EN ISO 9001 Quality Management system
- BS EN ISO 14001 Environmental Management System
- BS OHSAS 18001 Occupational Health and Management System

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