GREEN SUSTAINABLE PRODUCTS COMPANY LIMITED

Enviro*tile*

Installation Guide & Technical Specification

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Company No 07875673 Registered in England and Wales

The Envirotile Interlocking Roof System must be installed in accordance with BS:5534-2014 code of practice for slating & tiling; BS:8000-6-1990 code of practice for workmanship on building sites for slating & tiling of roofs and cladding.

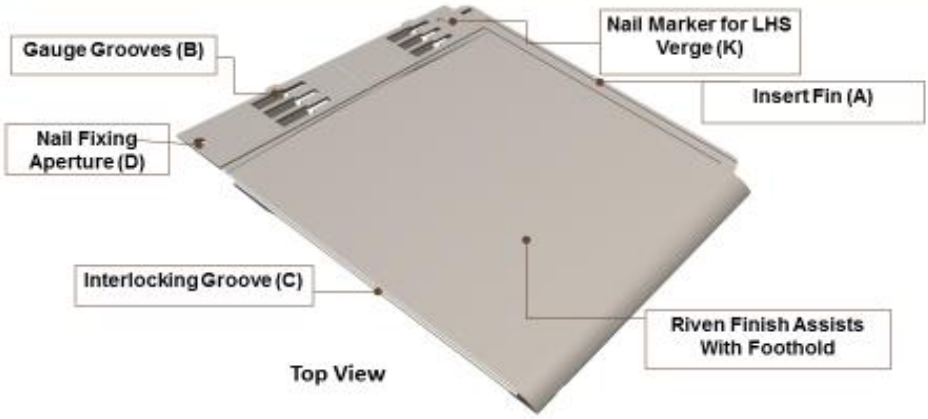
Envirotile offers unrivalled technical performance along with excellent eco-credentials. Its precision crafted design fully utilises the latest in recycled material technology, which not only ensures every tile meets the strictest levels of quality, but also makes installation easy for installers.

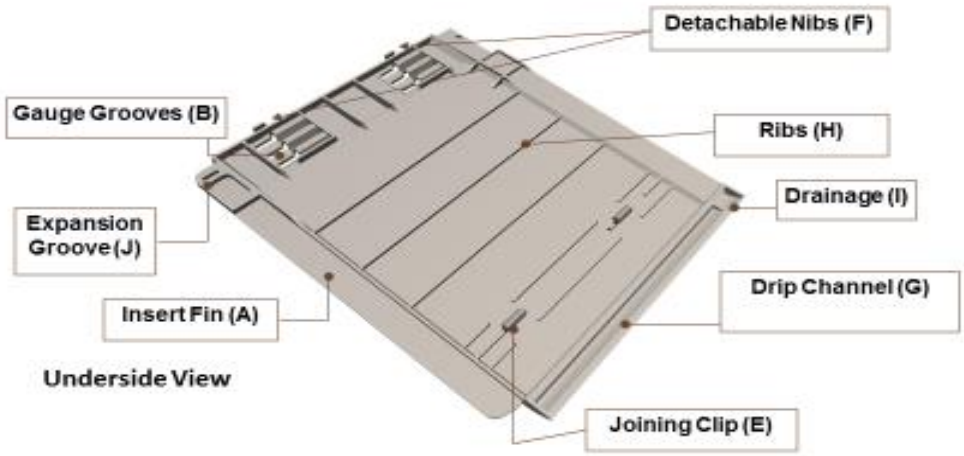
At a glance Technical Information

Envirotile Composition	**Manufactured to BS:9001 for quality assurance. Moulded using 72% of reliably sourced UK reprocessed polypropylene**
Tile Colours	**Anthracite Slate Grey Brown Terracotta**
Tile Size	**325mm x 365mm**
Gauge Recommended Setting 12.5° – 22.5° (Low Pitch) 250 mm Gauge 22.5° to 90° 265 mm Gauge 280 mm Gauge	**Head lap 110 mm 95 mm 80 mm**
Coverage per metre 280 mm 265 mm 250 mm	** 11.9 tiles 12.6 tiles 13.4 tiles**
Envirotile Weight Easy carry Pack = 10 Tiles	**645 g 6.45 kg**
Roof Pitch	**12.5° to 90° (Vertical)**
Fixing Batten to Rafter - Recommendation given in BS:5534	**Graded Battens to be used 38 mm x 25 mm for 450 mm Rafter centres 50 mm x 25 mm for 600mm Rafter centres**
Batten Fixing Nails to BS:5534-3	**65mm x 3.35mm**
Envirotile nail recommended fixing to BS:EN1202-3 on a normal pitch of 30° & over. Low Pitch fixing from 12.5° to 30°	**Every tile to be fixed 30 mm x 3.35 mm s/steel angular ring shank 30 mm x 4 mm Countersunk s/steel screw**
Envirolay Bre certified Conforms & relevant to BS:EN 13859-1 & BS:EN 12310-1 Suitable for use with both warm & cold roofing.	**Droop 10-15 mm between rafter centres 3 Fixings per rafter Overlap 150 mm each course**
Bond	**A half bond using a cut half starter tile at verge – similar in appearance to a double lap tile or slate bond when laid to roof**
Expansion gap between tiles	**5 mm (moulded guide line to assist installer)**
First batten eave course measurement at fascia	**300 mm**
Cutting of Envirotile	**The use of a medium toothed handsaw is recommended. The use of a chalk line to determine straight edge cutting is recommended for use with valley & hip detail**

Ventilation – **Universal ventilation products other than Envirotile dedicated products must be used that conform to BS:5250:2003**	**At fascia on roof pitches above 15° 10,000 mm of airflow per metre run is recommended for conformity** **On roof pitches below 15° 25,000 mm of airflow per metre run is required and recommended for conformity**
Packaging	**900 tiles supplied shrink wrapped on a wooden pallet consisting of 90 packs of 10 tiles**
Storage conditions	**Dry conditions on flat surface area for storing pallets**
Fixing in freezing conditions	**Not to be fixed to roof in sub-zero temperatures**
Recommended universal dry fix products to be used	**Filon GRP Valley Trough (GDFVT-70)** **Filon GRP Abutment Flashing (GAS –O1)**
Dry fix verge & ridge products (Universal)	**Must conform & be relevant to BS:5534-2014**

Technical Features





Enviro*tile* Installation

The structure of a pitched roof should be designed and erected to meet all the necessary and relevant building regulations. Envirotile is an impervious roofing product that complies with part C of the UK Building Regulations when installed correctly to BS:5534-2014. This installation guide will detail the recommended installation method to ensure the finished Envirotile Roof System will be long lasting and free from installation defects.

Installation

Installation should commence only after the necessary procedures outlined in BS:8000-6 have been undertaken by the installer in compliance to the British Standard that governs the code of practice for workmanship on building sites for slating & tiling of roofs & cladding.

The roof design and product requirements will already be known to the installer. The roof details will include the layout, pitch and ventilation requirements and the size of the project. With this information the Envirotile quantity and associated products can be determined and ordered from a local supplier or direct from Green Sustainable Products Company Limited.

Setting out

The first installation procedure is to measure and set up the roof area ready for the roof covering stage with Envirotiles; this initial procedure will determine the roof square and the gauge to be used for the fixing of underlay and batten to rafters.

There are four steps that need to be performed before the commencement of laying Envirotiles to the roof area, the procedures are outlined in Steps 1-4 below.

Step 1

Fix the ventilated **OVEP-10** or **OVEP-25** Eave Protector in place by nailing to the fascia board across the whole width of roof. Dependant on the pitch ventilation requirements at the eave area there may be a requirement to lower the fascia board to accommodate the eave protector. This will prevent excess lift of the eave tiles at the first course.

Step 2

Mark and measure a distance of 900 mm horizontally along the pitched rafter and drive temporary nails to assist a chalk line. This measurement is taken from the top rear edge of **OVEP-10** at the rafter (right hand side) and last rafter (left hand side). This detail is to assist a chalk line that acts as a guide for levelling the first course of Envirolay **GSP-06**

Whilst covering the rafters with Envirolay **GSP-06** a sag of 10-15 mm between rafter centres is required to conform to BS: 5534-2014. With the first course of Envirolay **GSP-06** level and in place it is time for the next step of fixing the first course of straight graded wood batten to rafters.

Step 3

Mark and measure a 300 mm distance from the outside fascia edge at the first rafter (right hand side) and last rafter (left hand side) to drive temporary nails to be used for another chalk line. When the chalk line is evident use as a guide line to fix the graded battens to rafters using recommended fixing nails, 65 mm x 3.35 mm as set out in BS: 10230-1 in conformance with BS:5534-2014
It is strongly recommended that the installer check the level of the battened eave course for correct alignment and plumbing using a level before the next step.

Step 4

Measure the distance between the roof apex deducting 50 mm from the total measurement and the first course of batten. This will determine the gauge to be used and how many courses of batten are required. The recommended gauge for a normal pitch over 30° is 280 mm, for lower pitches consult the 'At a Glance Technical Information Page'.

Repeat this process of fixing the underlay & batten to rafter to BS:5534-2014 fixing guidelines until the roof area is completely covered.

Valley & Abutment Wall

ABUTMENT WALL**:** When an abutment wall is in situ the batten detail needs to compensate for a secret gutter. Please refer to www.greensustainableproductsco.com – Technical Specifications - for further information.

The Filon Universal Secret Gutter Product **GAS-01** is recommended for use with Envirotile.

DRY FIX VALLEY: When a valley is in situ the batten detail needs to accommodate a Dry Fix GSP Valley Trough. Please refer to www.greensustainableproductsco.com – Technical Specifications - for further information.

The BBA approved Filon Dry Fixed Valley **GDFVT-70** is recommended for use for this fixing application with Envirotile.

Step 5

Fix a whole course of Eave Bars **GSP-05** (moulded product of two sections) to the fascia edge section using the fixed **OVEP-10** Eave Protector as a saddle.

Before fixing the Eave Bar retract the swivel insert bar from the bottom section to reveal three screw holes for fixing to the head of the fascia. Position and saddle the bottom section to the seat edge of the Eave Protector and screw in position. Once the bottom bar is fixed securely push the swivel insert bar back into its former position, repeat this detail leaving a 10 mm drainage gap between eave bars until you have reached the far left hand gable end.

Step 6

Universal dry fixed verge systems are available for use with the Envirotile. The installer should choose a product that conforms to BS: 5534-2014
GSPC recommends the maximum rafter length **does not** exceed 3 metres for a continuous dry verge used in one section. Should you wish the rafter length to exceed 3 metres in length there will be a requirement for products to be fixed at 2 metre lengths with a joining clip feature that is designed to allow for expansion. These dry fix verge products are easily fixed and secured to either the underside or topside of the batten at the gable verge dependent upon which type of universal product is used.

If there's a requirement to mechanically fix under or to the top of the batten the fixing detail will need to be performed before the tile covering commences. If the dry fix verge product is one that can be mechanically fixed after the tiles have been fixed to roof then this detail commences at a later stage of installation.

Universal products used with Envirotile Roof System must be installed to the manufacturer's instructions.

Tiling the Roof

The roof area should now be completely covered with Envirolay and Batten and gable ends attached with Continuous Dry Fix Verge. It is time to load up the roof with tiles for fixing.

Packs of 10 tiles cover an area of approximately 0.75 m². Load from the right hand side of the apex area of the roof placing packs of tiles between battens approx. 1 metre apart across the whole width of roof.

Envirotiles are a lightweight product – it is advised that installers only load enough Envirotiles to the roof sections that the installer will cover during the set work period – a preventive measure to prevent damage/injury during high winds.

With the whole roof loaded it is time to run through the bottom eave course with loose tiles in order to establish where the last tile finishes on the left hand gable side of roof. This procedure also establishes if the installer requires a full or half tile at the end of the course. Stretching between neighbouring tiles may be required to achieve correct 38 mm overhang.

Full sized starter tiles used at the right hand gable end require the Interlocking fin (A) to be sawn off flush.

Half tiles are cut from full tiles using the designated moulded mark. The cutting mark is based at the centre of the tile at the head.

Envirotiles are laid in a step sequence using three tiles at a time. This sequence starts at the fascia where Envirotiles are fixed to the first batten at the right hand gable

Using the fixed batten as a guide position the first tile into place using the underside joining clips (**E**) to enter into the gap section of the fixed Eave Bar **GSP-05** - this is done either by pushing the Envirotile into the groove with the palm of your hand or by using a lightweight rubberised hammer.

Once the Envirotile is connected to the Eave Bar **GSP-05** slide the first starter tile into its position allowing for the 38 mm overhang then screw or nail into the batten.

Repeat the process of fixing Envirotiles into the gap section of Eave Bars **GSP-05** interlocking the tiles during the process. Push the tiles together using the fixed batten as a guide - insert the interlocking fin (A) into the enveloped gap (C) of the previous laid tile using a screw or nail to fix both tiles at (D) Repeat this process until the full first course of eave tiles are permanently fixed to batten.

On subsequent courses align the underside clips (E) into the designated gauge at (B). The slot used will correspond with the gauge of the battens. Using the same sequence as detailed use three tiles at a time to fill in the roof area until fully covered.

Interlocked tiles must be spaced with a 5 mm gap between tiles to allow for expansion. A dedicated moulded line is detailed on the interlocking fin for ease of this procedure

Whilst traversing over an area of fixed tiles always take care to walk on the foot section of the overlapped tiles.

Universal Dry Ridge Systems used as an accessory with Envirotile for the main ridge sections or hip areas must provide the required ventilation for airflow at the of 5000 mm per metre run and conform to the fixing guidelines of BS:5534-2014. Please consult the Ridge Manufacturer's own technical fixing instructions.

Cement or plastic ridge tiles can be used for dry fix installation of the Envirotile Roof System.

This installation guide has covered the basic installation procedure for fixing of the Envirotile System to roof. For further detail please consult the fixing guidelines of BS:5534-2014.