

# Sustainable Roofing Systems

Modular Green Roof System



## Wallbarn and SIG Design & Technology

SIG Design & Technology has partnered with Wallbarn to provide reliable and sustainable modular green roof systems that can transform both new and refurbishment projects.

Typical sector application includes:

- **Housing**
- **Schools and universities**
- **Offices**
- **Healthcare**
- **Military installation**
- **Leisure facilities**
- **Hotels**
- **Flat and condominium roof terraces**

Green roofs bring nature back into urban spaces. They improve air quality, aesthetics, help prevent flash flooding and encourage wildlife while mitigating the impact of construction in urban areas. Green roofs are very adaptable and can be designed for large or small areas on most structural decks.

### Improving the Environment

- Aesthetically pleasing
- Provides valuable habitat
- Attracts insects, invertebrates and birdlife
- Absorbs CO<sub>2</sub>, pollution and dust particles
- Helps combat the Urban Heat Island Effect
- Part of SUDs performance

### Protecting the Waterproofing Membrane

- Extends roof membrane's life by protecting it from pests
- Protects roof membrane from UV and heat degradation
- Provides an attractive alternative to pebbles or concrete slabs for holding down insulation boards or loose laid waterproof systems

### Rainwater Attenuation

- Absorbs rainwater into the substrate
- Reduced run-off by up to 50%
- Delays discharge into outlets by up to an hour

### Enhancing Insulation

- Sound: reduces transmission of noise and vibration
- Thermal: absorbs solar heat and provides cooling

### Optimising the Development Footprint

- Softens the building envelope
- Provides additional green space and helps BREEAM ratings
- Brings a feeling of open space to high density environments which can help with planning permission
- Improves financial yield of building

Hard-to-access areas such as single storey extensions, working hotels and other commercial spaces that can make installing roll-out very challenging, however the M-Tray® modular system can assist with overcoming these issues.



Wallbarn has developed a modular system which makes installing a green roof incredibly easy, with far less disruption to both plants, structure and inhabitants than other methods. The modules simply click together to create a seamless, instant green roof.

### **Convenience**

Mess and disruption can be a problem with rollout systems. Bags of aggregate-based substrate can spill easily and, being so granular, can damage waterproofing membranes. Sedum blankets are also supplied rolled up, so the plants get damaged during the transport and installation process. The M-Tray® modules overcome all of these issues.

### **Accessibility**

As each module is 500 x 500mm, one M-Tray® can be carried by one operative. For areas which are very difficult to access, such as single storey extensions, domestic projects and other completed structures, roll-out is simply not possible. M-Tray® can be handballed into even the most awkward areas, even carried through a window if necessary. They are the perfect retro-fit product.

### **Speed**

It is estimated that the M-Tray® can be installed at least twice as quickly as roll-out systems. A team of contractors can easily install approx. 400 square metres in a day.

### **Instant Results**

It is also an instant green roof. Since the plants are less shocked by the installation process, as soon as the trays are connected together the whole area is filled with well established plants. They will continue to mature straight away, forming a seamless layer of vegetation much faster.

### **Future-Proof your Roof**

Access to the roof is future proofed. If there are problems with the deck beneath or inspection is required, one M-Tray® or section can easily be lifted out without disruption to the whole roof.



**n55Plus**

## M-Tray® an Instant Modular Green Roof

The M-Tray® green roof system consists of specially-designed modular trays containing superior, engineered substrate and fully established flowering sedum.

- Easy-to-carry trays which click together to form a seamless green roof
- Fully established sedum plants nurtured from seed from UK nurseries

### What Makes the M-Tray® Green Roof Unique?

- Mature, established vegetation
- Click-together trays create seamless connection
- Easy to transport and install
- Specially-mixed substrate for longevity of plant life
- 100mm deep cavities for healthy roots
- Optimum drainage means stronger plants
- No sharp edges or mess meaning minimum disruption to plants, deck structure and inhabitants

### Instant Green Roofs

- M-Trays® are designed to click together forming a single verdant surface
- Once trays are connected they start to blend straight away, forming a seamless layer of vegetation
- Modular M-Trays® can be easily lifted out giving access to the deck without disruption to the rest of the roof



### Unique Design Shape

- Module measures 500 x 500 x 100mm
- 4 x units make up exactly 1sq metre making estimating far easier
- Carefully spaced drainage holes ensure modules retain water for longer, allowing plants to absorb more rainfall, increasing attenuation and delaying discharge into outlets
- Design ensures even greater water retention at edges of module, preventing sedum from dying back at the edges
- Stronger plant growth at the edges creates a more seamless layer of vegetation when the modules are connected
- Four gently ridged hand grips are positioned to enable installers to carry each module easier

### Smooth Edges & Connecting Bracket

- The connecting brackets are designed to give a tight connection, with the minimum gap between each module
- The joint is only 6mm so the plants will grow over it quickly, making it disappear in ultra-quick time
- The corners of the modules are rounded and smooth, so no sharp edges (which might puncture the membrane beneath) are present – this also makes handling the trays easier and the edges can be mounted onto Wallbarn pedestals if additional height is required

### Trims & Edging

- 100mm aluminium edge trims and connectors fit neatly onto the sides of the modules. Fixings are designed to slot together neatly although they are not always necessary.





## Green Roof Systems

### Drainage Layers

Drainage layers have the vital job of filtering water in a manner that means plant growth isn't uncontrollable yet the vegetation has consistent access to water. A well designed and installed drainage layer will slowly drain the water away from the substrate, reducing the risk of too much weight and stagnant water.

### Filter Layers

Filter layers are very important in a Green Roof system. They hold the nutrients and fines within the system and stop them from being washed away by the rain. The filter layer is made from a strong yet flexible polymer that is robust enough to protect against the elements yet can be moulded to fit into any design of Green Roof.

### Growing Media

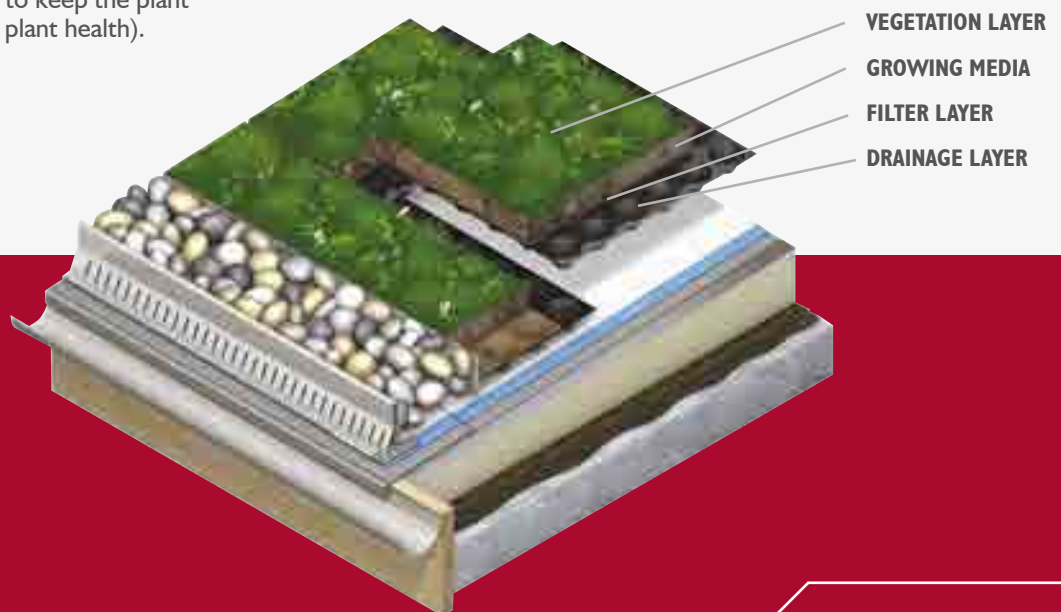
The growing media is an integral component of a Green Roof. Fundamentally it must contain low levels of nutrients to keep the plants easy-to-maintain, hold a certain level of water yet be free-draining to prevent root rotting, and have a granular texture to keep the plant roots well aerated (vital for plant health).

### Vegetation Layer

The vegetation layer of the green roof provides nature and life with a home best suited to its needs.

Green Roofs can have a variety of planting options; the system below is designed in accordance with this to ensure successful coverage is achieved. We supply many different vegetation layers ranging from fully established blankets (wildflowers or grasses) that roll out like turf, to plug plants, seeds, and cuttings.

The location and environment of the roof are paramount in considering the type of materials selected, taking sunlight, wind, regional considerations (such as coastal environments) and natural flora into account.



## About SIG Design Technology

SIG Design Technology is a part of SIG Roofing, a leading division of SIG plc, a FTSE listed company and the UK's market leading specialist supplier to professionals in the building and construction industry.

SIG Design Technology has put together an 8-step guide to identify the challenges and ensure that a roof's design meets a building's requirements.

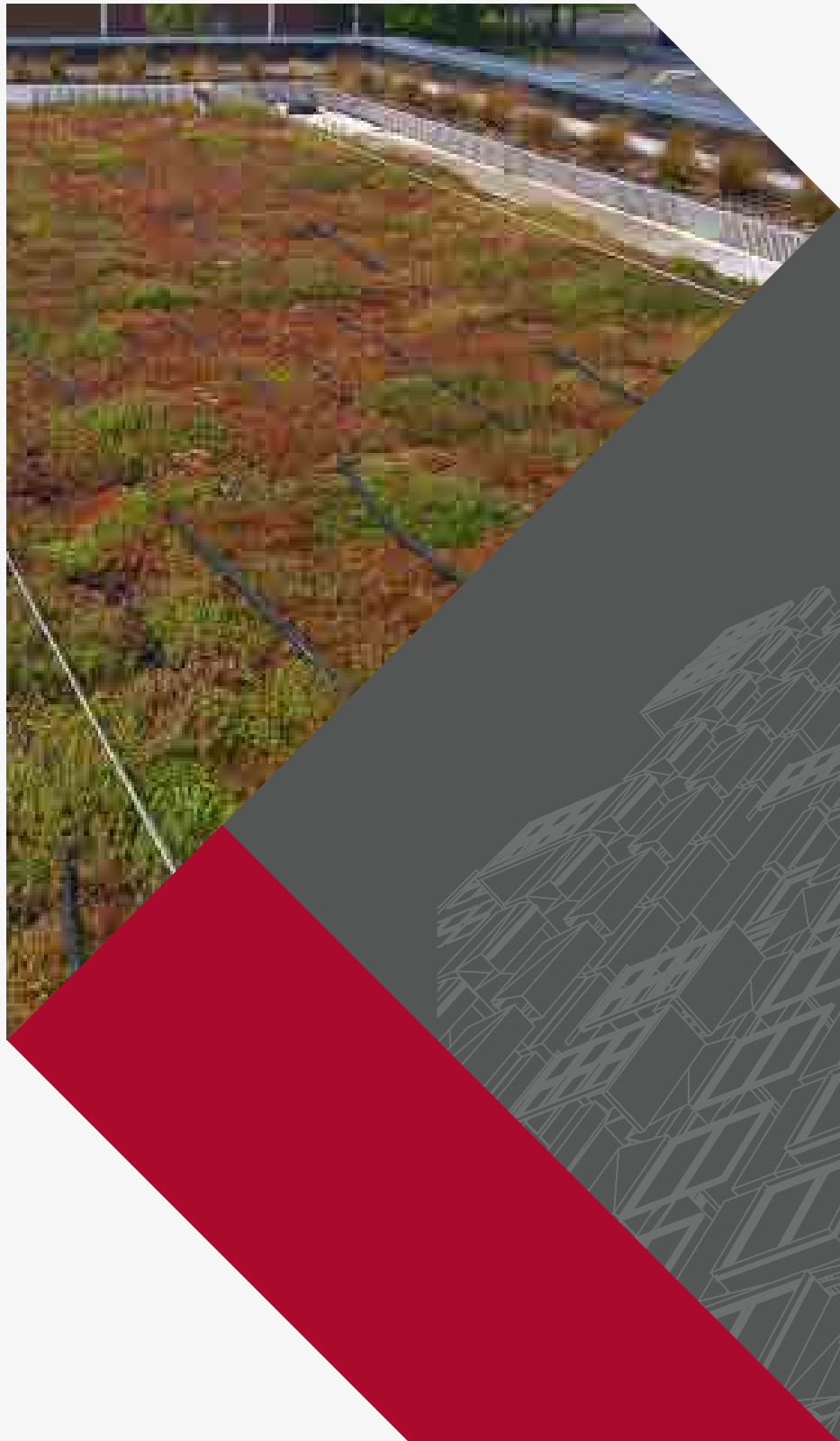
Called **#PerfectRoof**, the eight steps follow the process from product selection and design expertise through to full guarantees and planned maintenance. Its know-how is just part of the service that is provided absolutely free to customers.



## Take the risk out of roof design...

### ■ The right products for your project to meet requirements for:

- Carbon capture
- Insulation
- Roof longevity
- Energy generation
- Design covered by our PI insurance
- Genuine choice of waterproofing
- Part of a FTSE 250 company



SIG Design Technology  
Mannheim House, Gelders Hall Road,  
Shepshed, Leicestershire LE12 9NH  
Tel: 01509 505714  
[www.sigdandt.co.uk](http://www.sigdandt.co.uk)