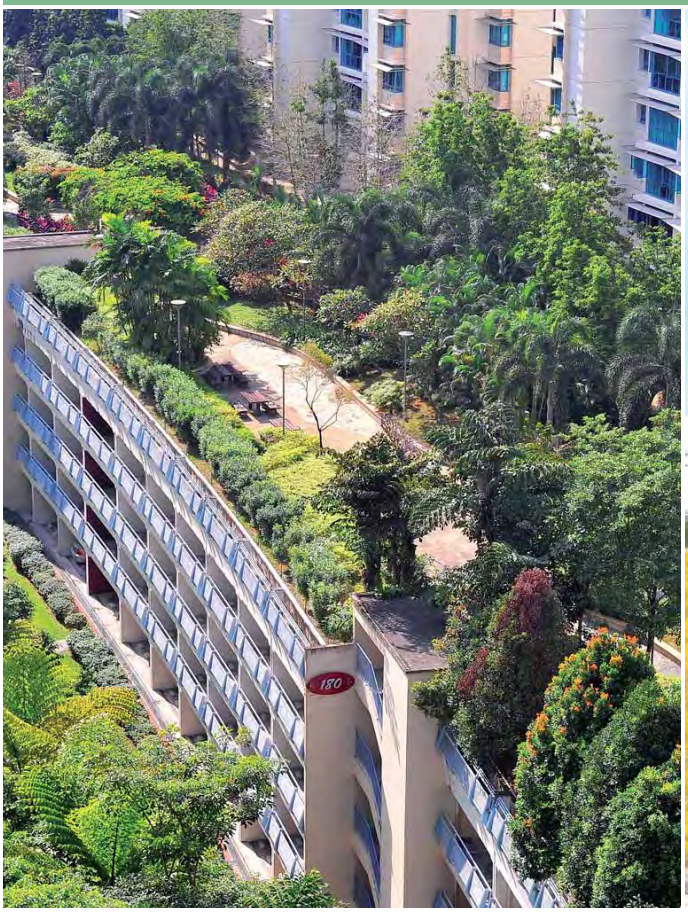
enhancing the environment with

# Green Roof Systems



Green Roofs enhance our environment by reducing green house gas emissions, air borne pollutants, energy requirements and storm water run-off

ELMICH

# What are Green Roofs?

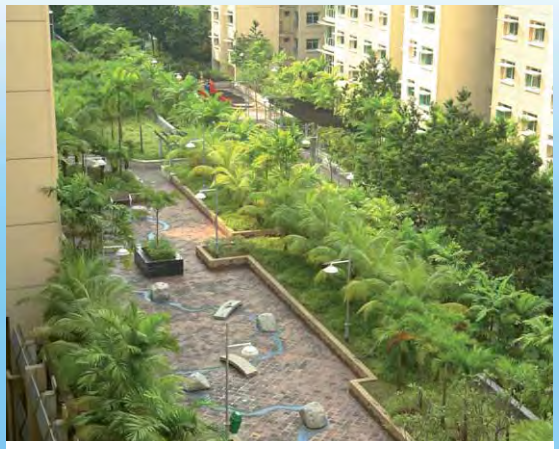
Green Roofs are increasing in popularity and incorporate vegetation, growing media and waterproofing membranes, water retention, drainage and irrigation systems.

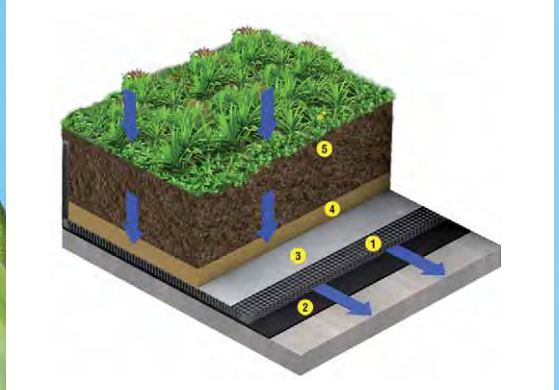
Elmich, a leading designer and manufacturer of products for the building and construction industries world – wide, has developed systems that incorporate a range of proprietary products that enable unattractive and heat absorbing roofs to become aesthetically pleasing and environmentally sustainable structures.

## Green roofs are categorized into:

### Intensive

More than 300mm depth of growing media, irrigation with a wide variety of shrubs, grass and tree species on slopes less than 3%.





1 VersiCell
2 Evalon Waterproofing membrane
3. Geotextile
4 Sand
5 Plant Media

### Extensive

Less than 300mm depth of growing media, minimal irrigation with hardy, low growing plant and ground cover species on slopes up to 30%.

1 Evalon Waterproofing membrane
2 VersiDrain 25P
3 Geotextile
4 VersiWeb
5 Plant Media

# Elmich Green Roof Systems

**The system incorporates:**

1 Evalon® waterproofing membrane
2 VersiCell® & VersiFlex® drainage modules
3 VersiDrain® 25P water retention & drainage trays
4 Geotextile filter fabric
5 VersiWeb® cellular confinement cells
6 Lightweight growing media
7 Plant species

## Evalon® Waterproofing Membrane

A high tensile strength, root-resistant (FLL rated) ethylene vinyl acetate and PVC terpolymer thermoplastic sheet waterproofing membrane with a proven 30 year world-wide performance track record. Has excellent elongation and puncture resistance, is highly resistant to UV, rot and soil-borne chemicals and microbial organisms.

## VersiCell® & VersiFlex® Drainage Modules

Lightweight, high strength, interlocking modules that capture and transport high water volumes and protect the waterproofing membrane. Ideally suited for use in intensive green roof systems where load weight bearing capacity and efficient drainage is important.

## VersiDrain® 25P Water Retention & Drainage Trays

A lightweight, cost-effective water management tray used below the growing media that functions to store and drain water and to protect the waterproofing membrane. The high water storage capacity of the cells coupled with high discharge capacity ensures effective capillary irrigation, eliminates the possibility of water-logging, reduces irrigation frequency and minimizes fertilizer runoff and usage.

## Geotextile Filter Fabric

A needle-punch geotextile filter fabric placed onto either VersiCell® or VersiDrain® 25P prevents fine particles in the growing media from entering and causing clogging. A > 50mm layer of coarse washed sand is positioned on the geotextile in intensive green roof systems before the addition of lightweight growing media. The geotextile also acts as a 'capillary wick' when positioned onto VersiDrain® 25P.

## VersiWeb® Cellular Confinement Cells

Lightweight, expandable, high strength and flexible thermoplastic strips that are ultrasonically bonded to form a strong, dimensionally stable and inert honeycomb structure that both contains and prevents, growing media movement on sloped roofs.

## Lightweight Growing Media

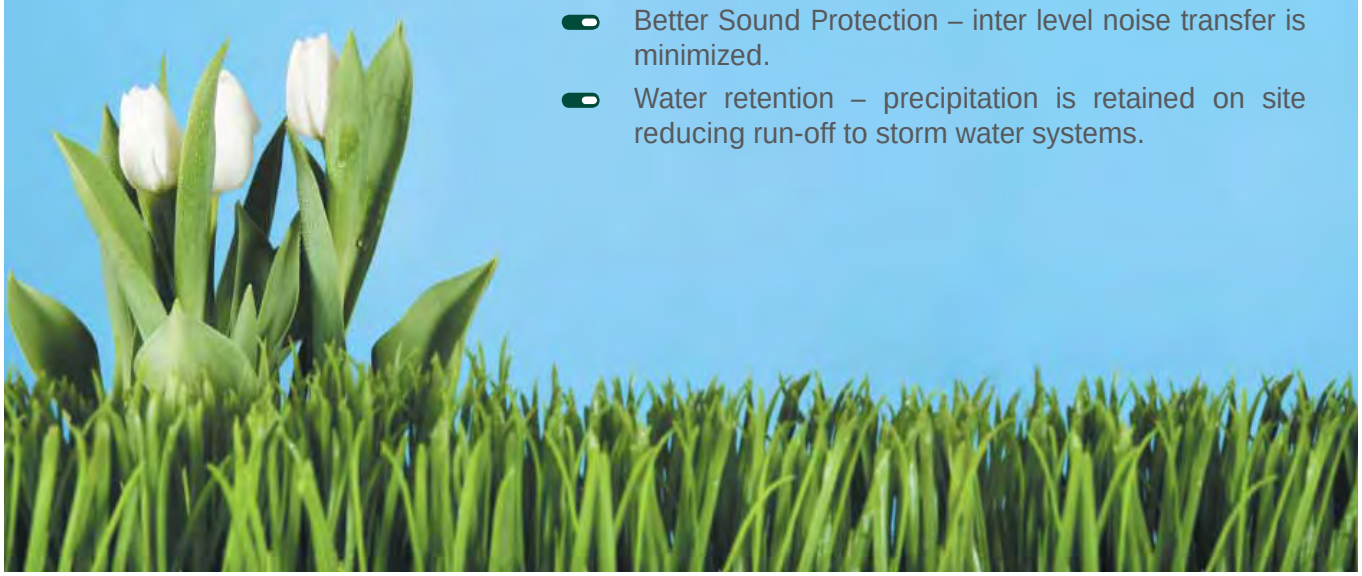
The lightweight mix, as recommended by the specifier, should incorporate expanded clay aggregate or vermiculite and other lightweight, high water storage capacity components such as peat moss, composted sawdust and bark fines, coco peat, washed sand and recommended fertilizers and water retaining crystals.

## Plant Species

Species, as recommended by the specifier, should include plant varieties selected for greening quality, adaptibility to growing media, irrigation regimes and local environmental conditions.

## Advantages of Green Roofs

- Planted roof areas increase the ‘permeable to hard-stand’ ratio on building sites and allow the creation of utilizable commercial and recreational roof gardens and terrace areas.
- Improved Environment – plant species minimize greenhouse gas emissions, pollutants are adsorbed onto growth media particles and plant species provide a habitat for a diverse range of fauna.
- Reduced Energy Costs – radiation is minimized and growth media insulation ensures cooler buildings in the summer and warmer buildings in winter.
- Reduced Maintenance – roofing materials and waterproofing membranes are protected against UV degradation, hail and storm conditions.
- Better Sound Protection – inter level noise transfer is minimized.
- Water retention – precipitation is retained on site reducing run-off to storm water systems.



Elmich Green Roof Systems enable unattractive roofs to become aesthetically pleasing and environmentally sustainable structures.

## enhancing the environment with

# Green Roof Systems



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