



metal roof to green roof

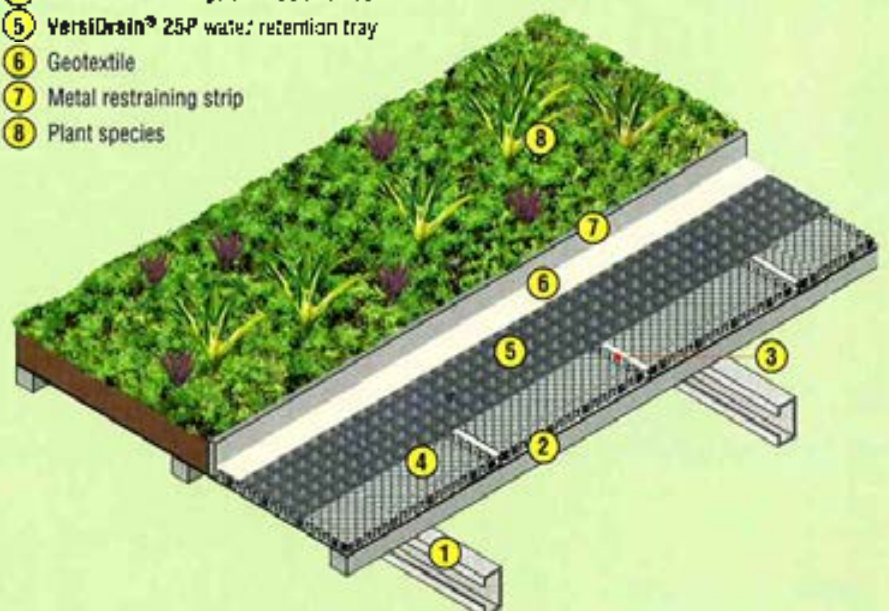
Elmich (Far East) Pte Ltd has developed a system that allows the low cost conversion of metal sheet roofs to environmentally friendly green roofs.

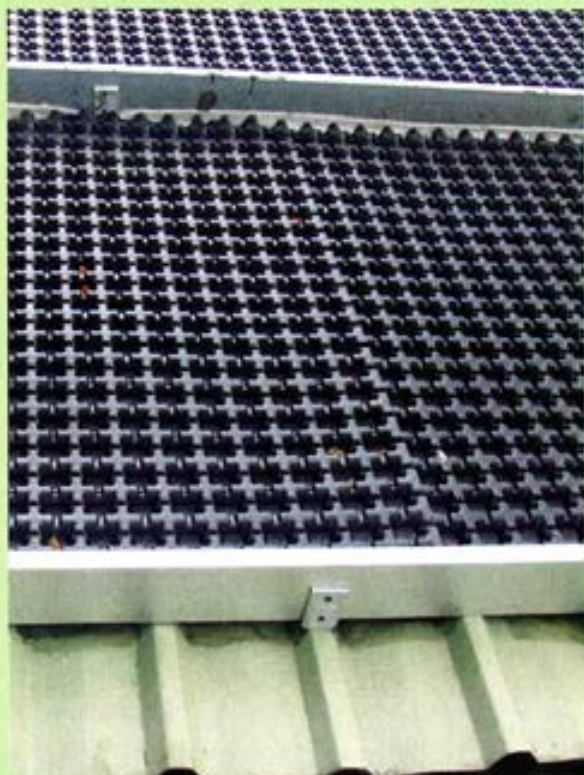
The Aramsa Garden Spa, a garden sanctuary set in the heartland of Bishan Park in Singapore, had an unattractive exposed metal roof which detracted from the aesthetically pleasing spa environment. The metal roof created excessive noise during periods of rainfall and did not provide insulation against high ambient tropical temperatures and humidity.

The components included VersiCell®, interlocking drainage and air insulation cells, VersiDrain® 25P, a drainage and water retention tray, filter fabric, lightweight 'soil-less' growing media and selected plant species specifically adapted to Singapore's tropical environment.

Aluminium battens, to prevent soil media movement, were anchored onto the metal sloping roof. VersiCell® drainage cells were placed between the metal ribs to provide an insulation barrier and a level surface for subsequent installation of VersiDrain® 25P drainage and water retention trays. A lightweight filter

- ① Steel C-section
- ② Steel purlin
- ③ Metal roof
- ④ VersiCell® drainage/air insulation cell
- ⑤ VersiDrain® 25P water retention tray
- ⑥ Geotextile
- ⑦ Metal restraining strip
- ⑧ Plant species





fabric was positioned on the drainage and retention trays and a 100 mm layer of a lightweight pH stabilized soil-less mix then installed on the filter fabric. Key factors in the selection of the proprietary growing media included readily available components, water retention properties, low weight (80 kg/m³ wet weight) and low heat absorbcency.

Locally sourced plant species selected for hardiness, colour, height, the ability to tolerate high tropical rainfall conditions followed by hot and dry periods and low maintenance were planted into the growing media. Plant species included: Furcraaa Foetida, Zephyranthes, Tradescantia Pallida, Sedum Mexicanum, Pedillanthes and Rhoec.

The Aramsa Garden Spa is now reaping the benefits of converting an unattractive metal roof that was not in keeping with the aesthetics associated with the and spa environment. The planted roof, with its range of coloured flowering plants, provides an aesthetically pleasing view and an attractive environment for butterflies and birds. The reduced energy consumption as a consequence of minimized heat absorption due to increased thermal insulation saves cost and creates improved comfort inside the building as well as noise elimination from impact of heavy rainfall.

Elmich is an ISO 9001 certified company that ensures the most appropriate and cost effective system is installed



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