

Design Loads

A SarnaVert green roof will create an increased load on the finished roof area. This needs to be included in the structural design of a new building, or thoroughly checked in a refurbishment application.

Suggestions of critical areas to check, together with indicative design loads, are given below:

1. Check load bearing capacity and deflection of deck, new and refurbishment systems.
2. Ensure calculations take into account the wet load per surface of greenery, soil and live load (wind, snow, etc).
3. Check spot loads (trees, etc).
4. Check the compressive strength of thermal insulation.
5. When used on a pitch roof, the retention battens must provide sufficient resistance to the thrust of the build-up.

Substrate Media	Design load per 10mm thickness
SarnaVert Growing Medium	0.12 kN/m ²
SarnaVert AquaDrain	0.055 – 0.06 kN/m ²
Pumice, swelling clay*	0.08 kN/m ²
Pumice, swelling clay*	0.14 kN/m ²
Gravel*	0.18 kN/m ²
Drainage layers*	0.02 - 0.40 kN/m ²
Soil - peat mixture*	0.10 - 0.13 kN/m ²
Soil - sand mixture*	0.16 - 0.18 kN/m ²

Greening Media	Design Load
SarnaVert hydroplanting	0.05 – 0.15 kN/m ²
SarnaVert plug planting	0.05 – 0.15 kN/m ²
SarnaVert Nature Mat®	0.25 – 0.30 kN/m ²
Grass, herbs & moss*	0.05 - 0.15 kN/m ²
Shrubbery*	0.10 - 0.30 kN/m ²
Trees*	0.60 - 1.50 kN/m ²

* source, German FLL Guidelines, 1995