GREEN ROOF SHELTERS - Ecological value, biodiversity and BREEAM

Most planning policies expect green infrastructure, such as green roofs, to be incorporated into proposals.

In addition to secure cycle parking or bin storage, **Green Roof Shelters** supply the additional features:
- species-rich biodiversity (a substantial biodiverse green roof),
- SUDS (sustainable urban drainage),
- invertebrate-nesting wall panels and bird nesting boxes,
- a green roof that's visible at head height,
- summer cooling (evapotranspiration),
- education / explanation (interpretation panels),

Green Roof Shelters do *not* use lightweight sedum roofs. Sedums as plants have their place, but are of low ecological value compared to the species on a deeper, heavier, biodiverse roof.

Green Roof Shelters are a ready-made solution to the provision of living roofs on site.

Green Roof Shelters are a very visible way of contributing additional wildlife habitat to built environments. They can also contribute to mitigation for lost habitats, species or features.

Open mosaic habitat - often on previously developed land - is frequently a priority habitat and therefore a material planning consideration. Green Roof Shelters can act as a 'stepping stones' of wildlife connectivity across urban developments and be tailored to local habitat needs.

Performance specification
Each shelter for 6 bicycles provides 5.7m2 (or 8 bicycles 7.5m2) of growing roof habitat that is largely free from disturbance by people, dogs, and herbicide spraying. Roof substrate depth is 150mm+, with areas of mounding to vary the suitability for different species. When saturated, substrate weighs 225kg/m2.

Each shelter typically has 1.6m2 of habitat nesting material per shelter (12 habitat nesting material panels).
Over 1000 drilled holes, in durable coppiced UK chestnut, for solitary bee nesting, in increments from 2mm to 10mm - with the potential for brood nesting of 8000 solitary bees.



IKEA's flagship Greenwich store (2019) used **Green Roof Shelter Cycleparking** (above) as part of their bid for BREEAM 'Outstanding' accreditation.
As well as 56 cycle parking spaces, IKEA Greenwich's Green Roof cycle shelters provided 52.5m2 of high quality, undisturbed habitat - suitable for pollinator forage and ground-nesting bee nesting. Additionally all shelters had bird nesting boxes, nesting materials and considerable nesting for aerial-nesting solitary bee species.

Your ecologist can tell you the BREEAM points value of the collective aspects of a Green Roof Shelter in your location.

Roof substrate, plant species and roof habitats

Roof substrate
With a substrate depth of 150+mm, the low nutrient growing medium can support a broad variety of nectar-rich planting. Mounding and varying depths of substrate allow different plant species to co-exist.
The roof substrate's rainfall retention and slow rate of runoff contributes to SUDS and evapotranspiration.

Biodiverse roof planting
Planting is drought tolerant, thriving on the low-fertility substrate and in 'stressed' environments. Roofs are not intended to be 'gardened', but left 'wild', reflecting the seasons and provide much needed nectar-source plants for bees, butterflies, hoverflies and other invertebrates.
We plant our roofs with a diverse mix of native wildflower plants (& some non-natives as early & late nectar sources) Typically we plant 46+ plant species on each roof, both as plug plants and seed. Planting can be tailored to particular local conditions or BAPS target species. Over subsequent years, planting will change according to the success of different species in your location and climate, and incoming plant seeds.

Roof habitats
We include areas of bare ground on the roof to allow wild plants to colonise, sand mounds for ground nesting solitary bees, and part-buried log piles as important invertebrate habitat.

Habitat wall panels and nesting

Habitat panels
Durable coppiced UK chestnut, drilled for solitary bee nesting. We use all the hole sizes for UK hole nesting solitary bee species. (We also make space for ground nesting bees on the roof.)
All shelters have bird nesting boxes, for blue or great tits, or social nesting boxes for house sparrows.
We often include (especially for schools) habitat panels containing sheep's wool - that birds can be seen taking for nest-making.
At ground level, we use crushed reclaimed brick and concrete gabions, both as shelter ballast weight, but also as invertebrate refuge.

Interpretation panel
Shelters have a graphic interpretation panel that explains what's (typically) growing on the green roof - plant species - and the benefits of all pollinators and wildlife in general.

Maintenance
Watering is desirable during the first growing season to help establish the perennial plants, especially through dry spells.
The planting on a Green Roof Shelter can benefit from annual removal of any unwanted plant species, carried out from a low step ladder. This can create spaces that encourage a diversity of flora.

Delivery / fixing down
Green Roof Shelters arrive complete, including planting and all habitat. The delivery lorry's hiab simply lowers the shelters onto customers pre-prepared base or pads. 4 subsequent rawlbolt ground fixings (or similar) are usually made by customer's contractor.