5 Green Roof Maintenance

Maintenance, conducted by qualified personnel will ensure the initial establishment and continued health of the green roof system. It is strongly recommended that the installing contractor remains responsible for the maintenance of the green roof during this establishment stage (between 12 - 15 months) and prior to the assignation of maintenance duties to the building owner's representative. Maintenance contractors with specialist training in green roof care from organisations such as GRO (The Green Roof Organisation) should be used, where possible.

When designing a green roof, it is important that the green roof system is specified accounting for any budgetary constraints. The costs of roof maintenance should therefore form part of the life cycle cost analysis for the building, allowing the most appropriate green roof specification to be realised.

5.1 General Maintenance Actions

All maintenance actions carried out at roof level must be in full compliance with the appropriate health and safety regulations, and particularly those specifically dealing with working at height. BS 4428:1989 – Code of practice for general landscape operations (excluding hard surfaces) and BS7370-4:1993 Grounds maintenance - Part 4: Recommendations for maintenance of soft landscape (other than amenity turf) provide guidelines for maintenance actions.

5.1.1 Irrigation

(See Section **3.6** for details.)

5.1.2 Fertilizing

Fertilization is the process by which additional nutrients can be supplied to the plants, enhancing germination, flowering and resistance to weather extremes. The regularity and type of fertilization requirement will therefore depend on the type of green roof and its plant specification. See (Section **5.2** for further details.)

Intensive and simple intensive roofs are based on a more fertile growing medium and the planting installed will require regular fertilization.

5.1.3 Plant management

Undesirable plant species are best avoided by establishing a complete coverage of the desired plant species. Any wind-blown seeds or cuttings should be removed before they have the opportunity to take root. (See Section **5.2.2** for exemptions.)

5.1.4 General clearance/removal

Generally the removal of dead material is desirable as it allows plants the space to develop a greater coverage, improving the finished appearance of the roof, whilst also reducing the risk of fungal disease forming and spreading. However, in some biodiverse applications, removing plant debris could be counter-productive in creating habitat.

5.2 Maintenance Actions by Roof Types

5.2.1 Extensive roof maintenance - < 100mm low nutrition substrate

- Irrigation: Post-establishment, irrigation should not be required for most extensive green roofs, although the water storage capacity of the system and the plants' water demands should be appropriately assessed.
- Fertilization: Extensive green roofs typically have low nutrient requirements and are therefore often fertilized on an annual basis, each spring, using a slow-release fertilizer.
- Plant management: Removal of undesirable plant species and fallen leaves should take place twice each year
- General: Drainage outlets (including inspection chambers) and shingle/gravel perimeters to be cleared of vegetation, twice yearly

5.2.2 Biodiverse – very low to low nutrition substrate

- Irrigation: Typically not required
- Fertilization: Generally not required, particularly where indigenous species are being encouraged to replicate native habitats. Whilst a low vegetative density is common, zero vegetation is generally undesirable
- Plant Management: A maintenance programme should be drawn up to follow the biodiversity hypothesis, ensuring that no materials are removed from the roof that may adversely affect the biodiversity potential of the roof
- General: Drainage outlets (with inspection chambers) and gravel/shingle perimeters should be inspected twice yearly and cleared of any living or dead vegetation

5.2.3 Semi intensive – 100mm to 200mm low to medium nutrition substrate

- Irrigation: Periodic irrigation is expected, depending upon the plant specification and the climatic and microclimatic conditions prevailing at roof level.
- Fertilization: With a wider range of planting, using a more fertile growing medium, more regular fertilization is required.
- Plant management: Removal of undesirable vegetation on the greened area twice yearly.
- General: Drainage outlets (including inspection chambers) and shingle/gravel perimeters to be cleared of vegetation, twice yearly

5.2.4 Intensive – 200mm + medium nutrition substrates and top soils

- Irrigation: Regular irrigation is often required, subject to the plant specification and the climatic and microclimatic conditions prevailing at roof level.
- Fertilization: With a wider range of planting, using a more fertile growing medium, more regular fertilization is required.
- Plant management: The intensive maintenance of lawns, hedges, borders etc is required on a regular basis, so as to maintain the roof aesthetics. Undesirable vegetation should be removed from the green areas at least twice yearly. Failed plants in excess of 5% of the plants installed should be replaced.
- General: Drainage outlets (including inspection chambers) and shingle/gravel perimeters to be cleared of vegetation, twice yearly. Where excessive substrate settlement has occurred, this should be replenished.