

Save the Rain: Green Infrastructure Program Standard Maintenance Procedure (SMP)

SMP-06: Green Roof Maintenance (after initial 2-3 year establishment period)

NOTE: Green roof maintenance must adhere to the project specifications/warranty provisions so that the long-term waterproofing warranty is not voided. Typically this involves a maintenance agreement and contractor approved by the waterproofing manufacturer. See the individual project warranty provisions for details. **In the case of a conflict between this SMP and the approved project-specific maintenance plan, the project-specific plan shall govern.**

A green (vegetated) roof is a layer of vegetation that is grown on and covers a roof. A green roof typically consists of multiple layers, including waterproofing, synthetic insulation, non-soil engineered growth media, geotextile fabric, drainage components, and plants. Routine maintenance is intended to increase survival of the vegetated cover, promote the development of robust and durable green roof plants, and prevent drainage problems and erosion. Plants used in green roofs should be drought tolerant and winter hardy. No watering is typically required after the initial 2-3 year establishment period unless there are periods of extreme drought. Supplemental maintenance may be provided to satisfy additional aesthetic requirements.

When maintaining a green roof, avoid using sharp tools of any kind to prevent damage to the underlying waterproofing system beneath the plant material. Avoid using lawn staples or stakes for any purpose. Also, minimize foot traffic on top of the green roof vegetation during maintenance activities, as green roof plants are not generally intended for pedestrian access.

Type of Maintenance - Preventative

Tools and Supplies

- Hand Pruners
- Safety equipment including fall protection as applicable
- Trash bag, gloves

Frequency: Spring and Fall (two times/year)

Labor Hours: 2 people for approximately 0.5 to 1 hour per 1000 square feet

Maintenance Procedure (numbers correspond with Maximo sequencing):

10 *Safety set-up:* Set up a safety perimeter.

20 *Inspect:* Visually inspect the green roof system for the following:

Plant Material: Inspect for large bare spots; colonization of the green roof by annual grass, moss, weeds, woody material, etc.; high mortality rates for one or more plant species; loss of plant material/growing media to wind scour or erosion; or consistently moist or spongy areas of the roof.

Waterproofing System: Inspect exposed components of the waterproofing system, including flashings and counter-flashings.

Drainage System: Inspect drain outlets (scuppers) to make certain that they are free from clogging or obstructions. Look for evidence of prolonged ponding of water following rainfall events.

Record observations in the **Maintenance Report Log** and report as necessary. If possible, take photographs to document site conditions. Follow approved maintenance agreement provisions closely to ensure warranty is not voided.

- 30 *Remove trash/debris:* Remove any large debris or trash that has accumulated on the green roof.
- 40 *Weed:* Weed the green roof plantings as necessary by hand pruning/pulling. Immature extensive green roofs are vulnerable to colonization by annual grass, especially crabgrass. A pre-emergent crabgrass treatment may be advisable in early spring.
- Do not use pointed or sharpened tools when weeding (such as trowels, shovels, spades, weeders, hand cultivators) to avoid damage to the underlying waterproofing system.
- Do not mow or scythe on a green roof.
- 50 *Plant Pruning:* Trim any plant material that may be growing within the drainage medium or interfering with the drainage system or waterproofing system.
- 60 *Replenish:* Patches of bare growing media (bare green roof) may be re-planted by taking cuttings from adjacent green roof plants or by separating and transplanting healthy plants. Plant cuttings should be at least one-inch long and should preferably include some 'air roots'. Cuttings set best in early spring or late fall, but can be planted at any time except when temperature is below freezing. Water and a light dusting of compost may accelerate plant growth.
- 70 *Fertilize:* Only fertilize if ideal total soluble nitrogen (nitrate plus ammonium) levels for the plantings fall below 5 ppm. Do not fertilize if soil test shows total soluble nitrogen levels exceeding 5 ppm. These measurements should be determined from annual (fall) soil tests. Apply fertilizers (nutrients) in early spring or fall. Over-fertilization can seriously disturb the green roof; use caution when applying and only apply approved/recommended fertilizers for green roofs.
- 80 *Record:* Make note of any additional observations in the **Maintenance Report Log**.
- 90 *Safety completion:* Remove safety perimeter.