Omni Infinity Media within a Vegetative Roof Assembly

Maintenance Guidelines

Thank you for caring for your Vegetative Roof Assembly with Omni Infinity Media! We are excited about sharing the opportunity to transform the urban landscape into a more beautiful, life-sustaining habitat. With the proper on-going stewardship, a Vegetative Roof Assembly using Omni Infinity Media yields exceptional stormwater management and robust, resilient ecosystems that provide many ecological services.

Overview

A Vegetative Roof Assembly (VRA) is the growth media, vegetation, and certain other accessories which are above the waterproofing system on a landscaped area above a waterproofed structure. Other accessories making up the VRA do not include components essential to the waterproofing system but may include edging, irrigation system, erosion control blanket, etc. A VRA is also known as a green roof.

Omni Infinity Media® (OIM) is a lightweight, high-porosity growth media that is used as the rooting substrate supporting plant growth in many on-structure or at-grade applications. OIM is comprised of GEO and BIO, plus a Slow-Release Fertilizer, and is 100% peat free. GEO is a geological substrate comprised of lightweight mineral aggregate, and BIO is a proprietary set of probiotic, mineral, geological, and cellulosic components. Through colonization, biochemistry, and strategic ecosystem development, OIM supports microbial communities and plant life within the geological substrate. By creating the conditions for life to flourish and encouraging that natural process, these materials transform into a robust landscape that grows within weeks after installation during a region's typical growing season.

Omni Infinity Media's high infiltration rate and high porosity make it an effective stormwater management tool. OIM has been used in bioinfiltration and bioretention depressions and berms, bioswales, rain gardens, and VRAs. OIM used within a VRA is highly accommodating to your project goals. A built-in-place VRA can be employed from a minimum depth of 3" to 48" or deeper to support the growth of grasses, annuals, perennials, shrubs, and trees—all with Omni Infinity Media.

4131 South State Street ● Chicago, IL 60609
312-337-3196 ● info@omniecosystems.com ● www.omniecosystems.com

Preparation

- **Read all maintenance guidelines prior to maintenance.**
- **Follow all OSHA and job site safety requirements, using good judgment and common sense.**
- To successfully maintain OIM used within a VRA, maintenance providers should have the following skills, experience, or access to licensed professionals and/or certified technicians, including:
    - Access to certified and/or licensed irrigation contractors as required by state and local codes.
    - Experience operating and troubleshooting irrigation controller, solenoids, and related wiring.
    - Familiarity with OSHA regulations and standard jobsite safety practices, particularly those involving working at heights.
    - Access to any tools and equipment required for maintenance and safety.
    - Familiarity with installation instructions for OIM used within a VRA.
    - Basic horticulture and landscaping maintenance knowledge.
- **Maintenance Plan**: The VRA maintenance provider should prepare a maintenance plan specific to the VRA. The VRA maintenance plan should include safety, roof access, timing & frequency of visits, staffing & equipment needs, scheduling annual services, recordkeeping, and other relevant considerations. The maintenance provider should consider site specific conditions such as fire or wind risk, client expectations, design intent, and other pertinent factors in the VRA maintenance plan.
- **Maintenance Planning Meeting(s)**: Meet with the project stakeholders and participants, such as the owner, property manager, tenants, architect, landscape architect, roofing manufacturer, roofing contractor, general contractor, landscaping and/or hardscaping contractor, irrigation contractor, vegetative roof assembly maintenance provider, and others to review the VRA maintenance plan in advance of installation and maintenance. Early and open communication with installers, ownership, building management, and other stakeholders ensures a smooth maintenance hand-off. Access to the project during construction and after occupancy, irrigation controller and backflow preventer locations, parking, safety requirements, timing for the start of maintenance, maintenance visit frequency, client expectations, and design intent, among other factors, should be clear from the outset.
- **Roofing System**: The VRA is above a roofing system which has a primary purpose of keeping the building free of water. Extreme care should be taken while working on the VRA and getting to/from the VRA which may involve interacting with the roofing system. If damage to the roofing system occurs during maintenance or is discovered during a maintenance visit, report any such occurrence, and ensure that the damage has been addressed and tested, if required.
- **Irrigation**: Active water at the Point of Connection (POC) with adequate pressure and flow must be available at the VRA level, and the irrigation system *must* be confirmed to work properly at all areas of the VRA. Confirm the location of the irrigation controller, solenoid valves, rain sensor, and other components of the irrigation system. All VRA using OIM must be installed with an irrigation system to ensure proper vegetation establishment and survival of the ecosystem during periods of drought. Once the vegetation is established, the irrigation system can and should be adjusted to reduce non-essential water consumption.
- **Foot Traffic**: Heavy foot traffic should be avoided unless the VRA has been installed with geosynthetic

reinforcement. Foot traffic disturbs the VRA by over-compacting OIM and killing emerging young plants. Prompt plant establishment is essential to the success of the VRA, and heavy foot traffic severely damages the assembly.

Components of a Vegetative Roof Assembly using Omni Infinity Media

A VRA includes accessory components in addition to the growth media and vegetation. These accessories may include root barrier or separation geotextile, drainage mat, edging, irrigation, mulch, and erosion control blanket. Please consult the manufacturer of the accessory components for maintenance guidelines.

Omni Infinity Media consists of:

- **GEO**: This lightweight mineral aggregate makes up the bulk of the depth of the VRA.
- **BIO**: This probiotic, mineral, geological, and cellulosic amendment is distributed as a thin layer or "top dressing" above GEO during installation (or reapplications) and develops into the rhizosphere over time.
- **Fertilizer**: This slow-/controlled-release granular fertilizer (14-14-14) is distributed evenly above BIO during installation (or reapplication, if needed).

Plantings may include accent plants, sod, sedum mats, trees, and/or seeds. Omni offers the following seed mixes:

- **Omni Meadow Seed Mix**: seed mix designed to facilitate the establishment of a robust and biodiverse meadow landscape.
- **Omni Edge Seed Mix**: seed mix designed to accompany the Omni Meadow Seed Mix for use around the edges of a VRA. This mix is comprised of heartier plants that can survive along landscape edges.
- **Custom Seed Mix**: available upon request.

Maintenance

Supporting the growth of a resilient, healthy plant ecosystem is the core purpose of Omni Infinity Media. Plants require a balance of temperature, light, gas exchange, water and nutrients. Plants will flourish in an environment that balances and monitors these factors. Closely monitor the plants and their environment and adjust accordingly to ensure plant health. Basic horticultural knowledge is an important prerequisite for effective VRA maintenance stewards.

Many types of plants can grow in Omni Infinity Media used in a Vegetative Roof Assembly. Over 780 documented plant taxa have been successfully grown in Omni Infinity Media from both seeding and transplanting in 33 geographic regions across North America. A Floristic Quality Inventory analysis of a vegetative roof using Omni Infinity Media project has scored as a High Quality Natural Area. Plant types typically grown in VRAs using OIM include: accent plants, lawns from seed or from sod, food meadows, native meadows, production farms, sedum, trees, and more. Providing proper plant maintenance appropriate to each plant type is essential to the long-term success of a VRA using OIM.

KEY TERMS

- The **growing season** is when plants are photosynthesizing and growing and varies based on the regional climate and the VRA micro-climate site conditions. In the Midwestern & Northeastern United States, the growing season is typically between April 1 and October 31.
- The **plant establishment period** is the first 6 to 8 weeks after planting or seeding. The plant establishment period duration depends on:
    - Plant type and maturity at the time of installation. (Lawn sod, e.g. may take 2-3 months)
    - Time of installation. If the plant establishment period encroaches out of the growing season, the plant establishment period can extend through the start of the next growing season.
    - Disturbances from weather events, foot traffic, intermittent irrigation, and other external factors.

WHEN TO BEGIN

Maintenance should commence from the time of seeding or planting Omni Infinity Media (and possibly during installations of a significant duration or size). The most critical period for a VRA using OIM is the plant establishment period, which often coincides with the close-out rushes of a construction job site, and the plants, especially seedlings, will suffer if trampled, irrigation is disrupted, or other neglect or damage occurs.

FREQUENCY

Maintenance visits for the VRA should be conducted regularly during the growing season. During the plant establishment period, carry out maintenance visits **every 2 weeks** during the growing season. On an on-going basis after plant establishment, carry out maintenance visits **every month** during the growing season. Frequency may vary based on customer goals and plant type. For example, a lawn VRA which is regularly used by building tenants may require visits every 1-2 weeks during the growing season for routine mowing. Similarly, a VRA with diverse perennial planting at a highly visible project may require weekly visits for grooming and weeding to meet client expectations.

TASKS

During maintenance visits, carefully inspect the VRA and perform the following tasks:

- **Adjust & monitor irrigation**. Test the irrigation system for proper flow and operation. Inspect irrigation coverage and adjust spray arcs as needed. Repair, clean, and replace irrigation parts as needed. Adjust irrigation controller settings based on plant health, site microclimate, season and recent & forecasted weather.
- **Deadhead**. If applicable, when a target species goes to seed, remove seeds from plant, and distribute seeds in VRA where species is desired. Many species may re-seed on their own. If a species has become overly aggressive, it may be appropriate to remove seed or cut back flowering stalks before seed can develop.
- **De-compact.** Heavy foot traffic can over-compact growth media and prevent proper drainage. De-compact (aerate) OIM by inserting a long-handled manual cultivator tool into the top 3-4” of the growth

media and loosen the media taking care not to mix or blend the GEO and BIO layers. Do not damage the roof membrane, root barrier, drainage layer, irrigation lines, or other materials.

- **Monitor drainage**. Inspect scuppers, gutters, and/or roof drains, and remove debris or hindrances that impair the flow of water.
- **Monitor for fertility**. Inspect plants for proper nutrition. If applicable, carry out soil testing. Amendments may be applied to OIM within a VRA from time to time. For assistance, reach out to Omni Ecosystems with questions about whether amendments would be helpful and if so, which amendments to consider and at what mixture ratios and quantities.
- **Monitor for pests**. Inspect plants for pests and take mitigating action, if necessary. Most insects are beneficial, and any damage may be merely cosmetic. Reach out to Omni Ecosystems with questions about pests and/or mitigation steps.
- **Mow**. If applicable, mow the VRA with string or hedge trimmer, preferably cordless electric. Mowing with other equipment can damage the VRA and/or the underlying roof system. Take care to avoid the roofing system, irrigation risers, penetrations, and other materials with the string trimmer. Do not allow cut debris to blow or fall off the roof. In some circumstances, cut debris may be left in the VRA to decompose, however maintenance provider should consider all factors including wind risk and other specific site conditions in establishing the VRA's maintenance plan.
    - Accent planted: typically, no mowing needed. Groom perennials and woody plants by hand with pruners.
    - Lawn from seed: mow the lawn to the height and at the frequency desired by the customer in the growing season. No-mow or low-mow grass can be trimmed to 4-8" height with a string trimmer once or twice per year, typically in spring and/or autumn for the Midwestern & Northeastern United States.
    - Lawn from sod: mow the lawn to the height and at the frequency desired by the customer during the growing season. Small, lightweight lawnmowers may be used, preferably cordless electric.
    - Food meadow: mow or hand cut cover crops to appropriate height every 4-12 weeks, or as needed depending on species once the roof is established, only during active farming of cover crop areas, and during the growing season.
    - Native meadow: mow the meadow to 6-12" height with a string or hedge trimmer once per year, typically in autumn or early spring for the Midwestern & Northeastern United States. Spring mowing events are preferred as dried plant material is easier to cut and vegetation left upright over the winter offers habitat for wildlife, however maintenance provider should consider all factors including fire risk and other specific site conditions in establishing the VRA's maintenance plan.
    - Production farm: typically, no mowing needed.
    - Sedum: mow sedum to 2-4" height with string trimmer once per year, typically in April for the Midwestern & Northeastern United States, though mowing may not be necessary if the plants are lower than 4" tall.
- **Reapply OIM**: Inspect VRA for areas without intended OIM coverage or depth. If applicable, it can be useful to reapply areas of OIM if there has been an external disturbance to the ecosystem (e.g., excessive foot traffic, irrigation system failure, roof leak, etc). Due to OIM's light weight, only apply when winds

are less than 15 mph and with adequate supplemental water. Confirm that the season is appropriate for re-application based on plant selection and local climate conditions. Review Installation Instructions for Omni Infinity Media within a Vegetative Roof Assembly for complete instructions prior to reapplication. Replanting or reseeding may also be applicable if reapplying OIM. Reach out to Omni with additional questions.

- **Remove debris**. Remove any unwanted materials that may have been introduced to the VRA via wind, birds, people, or other factors.
- **Remove weeds**. Remove non-target species by hand, not using herbicides, and before they go to seed. If they are removed after going to seed, quickly isolate them from the VRA and dispose them off-site to avoid distributing seeds of non-target species. Take care to minimize disturbance to the growth media to preserve microbiota. Weeds are best pulled when young; larger weeds may require a second hand at the base of the stem to prevent media disruption when pulling or can be cut at the base of the stem. Annual weeds, like Ragweed, can be cut and removed before seeds develop to prevent spread.
- **Re-mulch**. For accent planted VRAs and other VRAs which were mulched at installation, reapplication of mulch may be needed from time to time. Take care not to damage/step on plants or bury their crowns when re-mulching. Do not exceed the depth of mulch originally specified on the VRA.
- **Re-plant/re-seed**. Inspect VRA for areas without intended vegetative coverage. If applicable, re-plant or re-seed. Dig planting holes just large enough to accept plant material—minimizing disturbance to the growth media layers is critical. Review Installation Instructions for Omni Infinity Media within a Vegetative Roof Assembly for complete instructions prior to replanting or reseeding. Reapplying OIM or an OIM component may also be helpful when replanting or reseeding. Reach out to Omni with additional questions.
- **Snow removal**. Do not pile snow on the roof structure. Do not throw snow over the roof edge. Do not use de-icing materials on the VRA.

IRRIGATION

Irrigation duration and timing should be adjusted occasionally throughout the season. Consult with an irrigation professional to create a project-specific irrigation plan for the plant establishment period and beyond. Reach out to Omni Ecosystems with additional questions.

For Native Meadow VRAs in the Midwestern & Northeastern United States, an irrigation plan may be:

- Timing & duration:
    - Plant establishment period: Run irrigation 2 to 3 times daily for 10 to 20 minutes each cycle so that OIM remains damp. Early morning and evening irrigation runs are optimal to avoid unnecessary evaporation.
    - After plant establishment: Run irrigation no more than once daily for 5 to 10 minutes each cycle during cooler months of growing season when temperatures are above 55-degrees Fahrenheit. In hotter months, irrigation frequency and duration needs may increase depending on site conditions, planting scheme, and local weather conditions.

- Set the irrigation system to operate in conjunction with specified sensors for rain, wind, and/or growth media moisture and with historical data and/or current weather data systems, to minimize water use.
- Monitor water needs of the plants closely at every visit, especially after adjusting irrigation settings.
- Charge and test the irrigation system after the last frost in the spring.
- Winterize the irrigation system before the first frost in the fall.
- If temperatures are unseasonably warm and precipitation has not allowed sufficient hydration during winter months when the irrigation system is turned off, it may be necessary to manually water the VRA and take care to drain and winterize at the end of each watering. Evergreen trees and shrubs are particularly susceptible to winter desiccation.

LOG

Record all VRA maintenance activity. Keep a log with a description of the task performed, the date, and observations. A sample maintenance log follows. Take reference images each visit.

Additional Resources

Further information for Omni Infinity Media including detailed installation instructions and Safety Data Sheets for GEO and BIO can be found at www.omniecosystems.com, by calling or emailing Omni, at this link, or via the QR code.

No two VRAs with OIM are the same. There will be times when situations arise that are not covered in this document. For any further questions, please contact rewild@omniecosystems.com.

Sample Maintenance Log

Project ID: _____ Address: _____

Date of Visit: _____ Last Visit: _____ Next Visit: _____

Routine Maintenance	Notes
Remove non-target species	
Clear scuppers/drains	
Clear vegetation free zones	
Check irrigation system	

Plant Species	Notes

Maintenance, as Required	Notes
Set/adjust irrigation system	
Turn on/off irrigation	
Manual watering	
Mowing	
Growth media tests	
Amendments	

Additional Notes

Maintenance by: _____ Customer by: _____