NRCA's new green roof systems manual

by Mark S. Graham

This month, NRCA is publishing *The NRCA Green Roof Systems Manual—2007 Edition*. This new manual provides NRCA's best-practices guidelines applicable to the design, materials and installation of quality vegetative green roof systems.

Manual format

The manual is arranged into three primary sections: General Green Roof Project Considerations, Green Roof System Guidelines and Green Roof System Construction Details.

The project considerations section provides project information concerning the design and installation of green roof systems. For example, for horizontal green roof systems, NRCA strongly recommends the waterproofing membrane be water-tested before the installation of overburden to ensure watertightness.

The guidelines section provides specific information such as the three primary categories of green roof systems. Extensive (shallow) green roof systems use engineered soil-based growth media about 2 to 6 inches deep. Semi-intensive (moderate depth) green roof systems use engineered soil-based growth media about 6 to 10 inches deep. Intensive (deep) green roof systems use engineered soil-based growth media greater than 10 inches deep.

The construction details section provides 54 section-view drawings of various detail conditions applicable to green roof systems. For example, construction detail configurations are provided for representative wall flashings, parapets, roof drains, pipe and curb penetrations, expansion joints and door thresholds.

Also, a glossary of green roof system-related terms is provided.

NRCA's positions

NRCA takes a best-practices approach to making its suggestions and recommendations in the manual.

For example, in the manual, NRCA recommends only the following waterproofing membrane types be used for green roof systems: nominal 215-mil (0.215-inch) minimum thickness, fabric-reinforced, hot-fluid-applied polymer-modified asphalt membrane; two-layer minimum APP- or SBS-polymer-modified bitumen sheet membrane; 60-mil minimum thickness, reinforced EPDM membrane with stripped-in lap seams; or fabric-reinforced, one- or two-component, fluid-applied elastomeric membrane.

NRCA recognizes other waterproofing membrane types may be used as components of green roof systems; however, NRCA recommends only those indicated.

Furthermore, NRCA recommends waterproofing membranes for green roof systems be fully adhered directly to the substrate and the membrane should be able to provide adequate hydrostatic resistance to withstand the amount of retained water and drainage anticipated.

NRCA also recommends all green roof systems include appropriate protection courses, root barriers, drainage courses, moisture-resistant insulation, aeration layers, moisture-retention layers, filter fabrics and engineered soil-based growth media with plantings.

The protection course is intended to protect the waterproofing membrane during installation of the overburden; the root barrier prevents the migration of plant roots from damaging the waterproofing membrane. The drainage course provides a location for moisture to move laterally through the green roof system; this enhances the waterproofing membrane's performance by relieving hydrostatic pressure. Moisture-resistant insulation, typically extruded polystyrene, is used to enhance the roof system's thermal resistance. The aeration layer provides for a layer of air at the top surface of the insulation layer, optimizing the insulation's thermal performance. The moisture-retention and reservoir layers help retain and store moisture for overburden growth. The filter fabric protects the underlying layers from becoming clogged with fine soil particles and other contaminants. And the growth media provide for a proper environment for plant growth.

Closing thoughts

After being used in some European countries for years, vegetative green roof systems are increasing in popularity in the U.S.

The NRCA Green Roof Systems Manual—2007 Edition provides building owners, designers, product manufacturers and installers with authoritative, reliable, best-practice guidelines regarding the design, materials and installation of quality green roof systems.

To purchase the manual, contact NRCA InfoExpress at (866) ASK-NRCA (275-6722) or log on to shop.nrca.net.

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