Inverted Membrane Roof Systems

In an inverted membrane system, the conventional membrane arrangement is inverted or turned upside down. Inverted roof membrane assembly (IRMA) systems are used in applications where the membrane requires protection from site-specific hazards. These systems are typically applied in conditions where there is extensive roof traffic or to protect from excessive weather conditions such as multiple hail events. IRMA roofs protect the membrane from ultraviolet degradation and constant temperature changes.

Illustrations courtesy of American Hydrotech, Inc.

Proper IRMA design is as follows:

- The membrane is applied directly to the substrate. The membrane should be fully adhered to the substrate.
- Insulation is applied over the membrane in accordance with the manufacturer’s requirements.
- Surfacing is applied over the insulation. Surfacing can consist of pavers, ballast, concrete pours, or vegetation with soil.
- Drainage can be accomplished with proper substrate slope (a minimum of ¼ inch per foot) and substrate level drains, surface drains, filter fabrics or a drainage bed, depending on specific project requirements.
Planters or containers that are installed on the slab require waterproofing at two locations. Waterproofing at the exterior or underside of the container should be applied in a continuous fashion over the slab. The container is then set over the waterproofing.

Waterproofing at the interior of the container is completed as a typical horizontal waterproofing application. The waterproofing is applied directly to the interior container substrate. Application is completed at all interior vertical and horizontal substrates so that the container is completely lined with waterproofing. A protection board or lead liner is applied to protect the waterproofing from interior fillers including soil and plants. Planters installed in temperate weather zones require the installation of insulation to avoid false plant or tree blooming in winter months.