Green Roof Assemblies

Green Roofs (or Garden Roofs) are contained areas of vegetation placed on top of human-made structures. Green roofs are becoming a mandatory requirement under city bylaws in major North American municipalities. For example, 492-2 of the Toronto Municipal Code states that any building or building addition of 2,000 m^2 or greater must have a percentage of roof that is dedicated towards green space.

Although, green roofs add to the building's construction cost, they provide many proven economic and environmental benefits if constructed properly.

Benefits

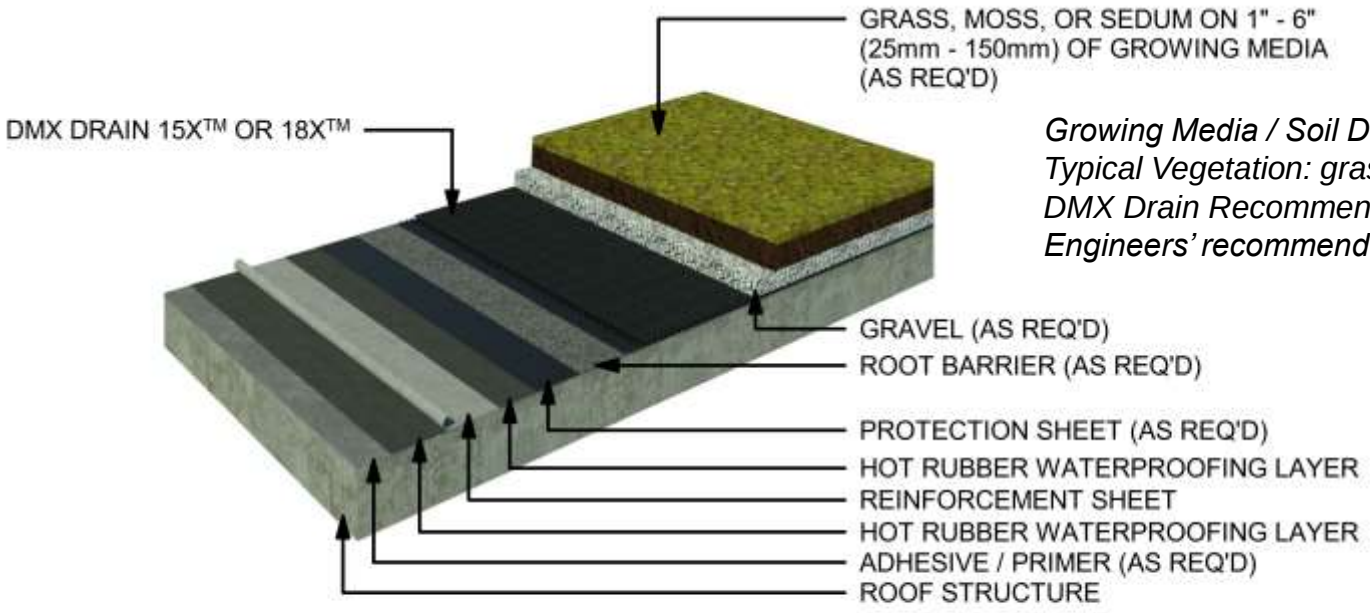
- **Positive Impact on Climate Change** – The plants on green roofs absorb airborne pollutants, reduce the distribution of dust and particulate matter, and potentially lower greenhouse gas emissions. It lessens the buildings contribution to the Urban Heat Island (UHI) effect by minimizing the amount of dark, heat absorbing surfaces that contribute to increasing temperatures.
- **Storm Water Management** – A green roof can mitigate storm water runoff, reducing the amount of water entering a city's drainage system.
- **Energy Efficiency** – The greater insulation offered by green roofs can reduce the amount of energy needed to moderate the temperature of a building, as roofs are the site of the greatest heat loss in the winter and the hottest temperatures in the summer.
- **Building Longevity** – The presence of a green roof decreases the exposure of waterproofing membranes to large temperature fluctuations, that can cause micro-tearing, and ultraviolet radiation.

TYPES OF GREEN ROOFS

When incorporating a green roof into a roofs waterproofing assembly the required type of green roof must be determined; *Extensive, Semi-Intensive* or *Intensive*. DMX Drainboards provide a strong base for all assembly types.

Extensive Green Roof

Extensive Green Roofs are the simplest type of green roof made up of a very thin layer of soil with shallow root plants including grass, moss or sedum.



EXTENSIVE GREEN ROOF
ON DMX DRAIN

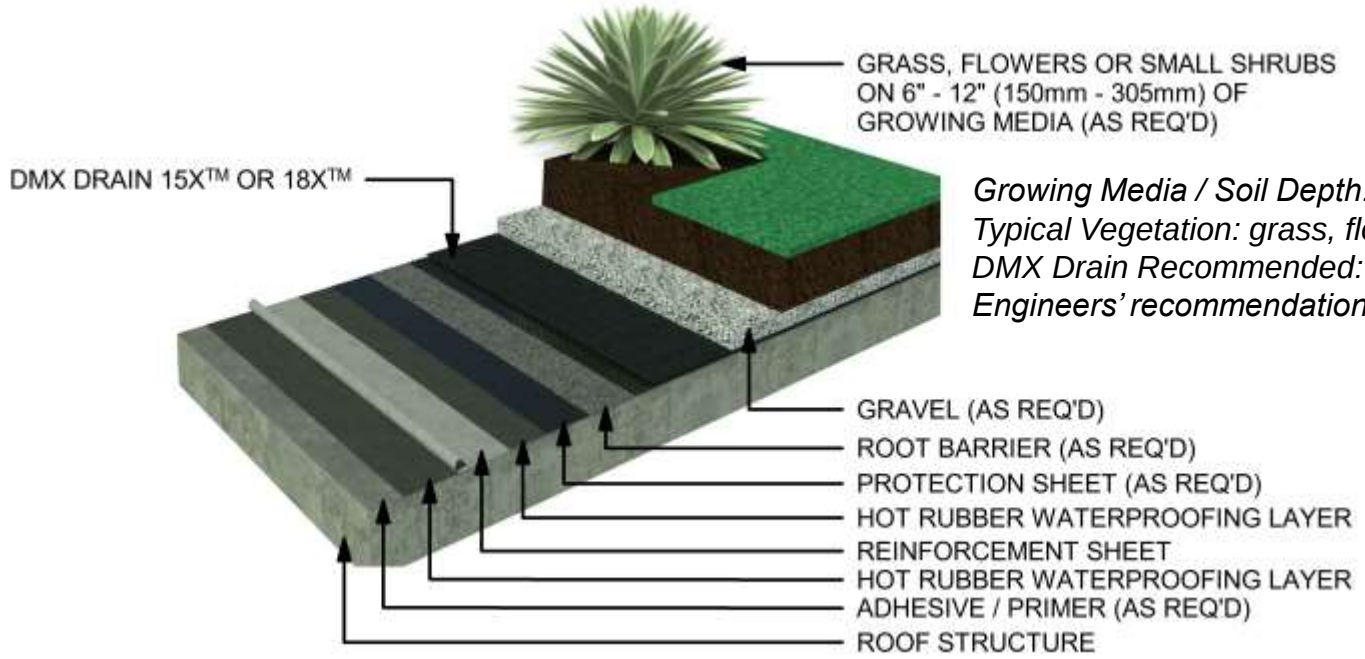
Growing Media / Soil Depth: 1" – 6" (25mm – 150mm)
Typical Vegetation: grass, moss or sedum
DMX Drain Recommended: 15X or 18X (as per the Engineers' recommendation)

Benefits of an Extensive Green Roof Design:

- Requires the least amount of infrastructure and maintenance, includes the lowest amount of added weight
- Cost effective, designed for environmental and economic benefits, not aesthetics
- Ideal for large flat-roof buildings and apartments, suitable for low-sloped residential roofs and retrofits
- Can flourish in harsh environments

Semi-Intensive Green Roof

Semi-Intensive Green Roofs use elements of both extensive and intensive systems including a deeper substrate and drainage system compared to extensive designs allowing for a wider range of plant use.



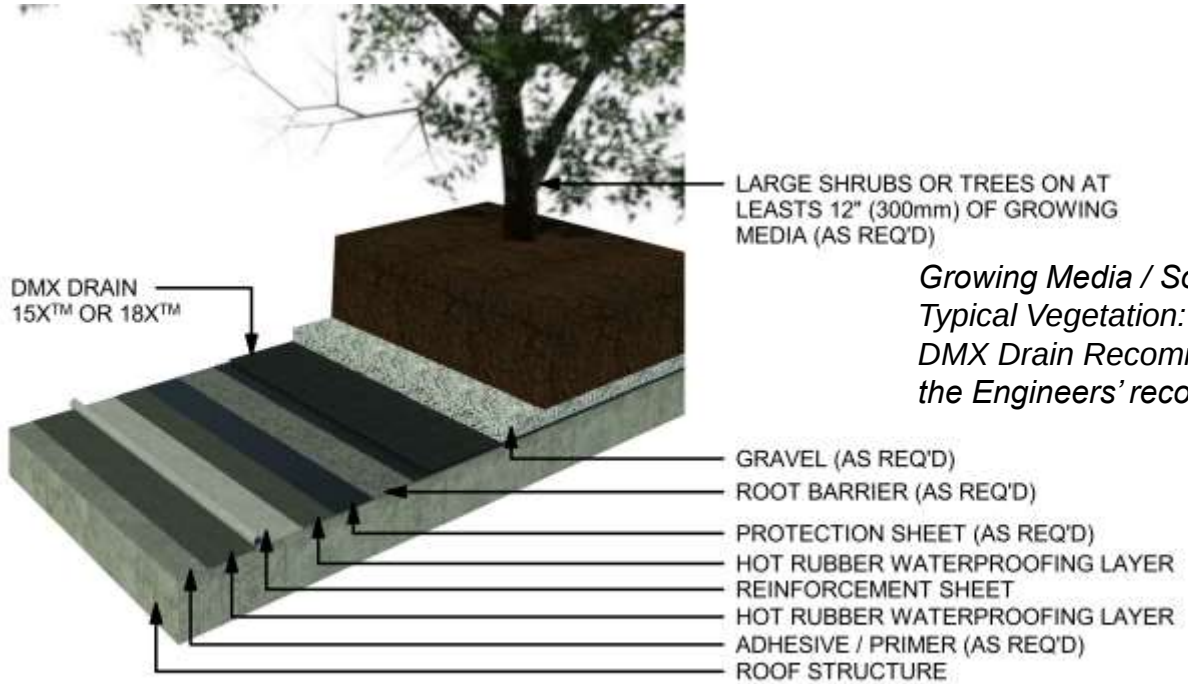
Growing Media / Soil Depth: 6" – 12" (152mm – 300mm)
Typical Vegetation: grass, flowers or small shrubs
DMX Drain Recommended: 15X or 18X (as per the Engineers' recommendation)

Benefits of a Semi-Intensive Green Roof Design:

- Adopted to harness both the environmental and economic benefits of a green roof, as well as a diverse garden within a manageable maintenance budget
- Used in highly visible areas to improve aesthetic design using small shrubs and flowers

Intensive Green Roof

Intensive Green Roofs are the most complex type of green roof, also known as rooftop gardens. They require significant added infrastructure and structural support due the added weight of deep soil and drainage (as required).



INTENSIVE GREEN ROOF ON DMX DRAIN

Growing Media / Soil Depth: ≥ 12" (300mm)
Typical Vegetation: large shrubs or tress
DMX Drain Recommended: 15X or 18X (as per the Engineers' recommendation)

Benefits of an Intensive Green Roof Design:

- Fully landscaped and intended to replicate a ground level garden or park
- Diverse plants and trees can be planted with walkways, railings and amenities for public/private access
- Provides significant insulation resulting in the greatest environmental impact and energy savings