Size: 10,000 SF  
Ranking (area): 9th Milwaukee (14th Wisconsin)

Stormwater Capacity per Storm Event:  
2” Rain or 12,470 gallons  
Annual Stormwater Capacity*:  
127,170 gallons  
*Given annual precipitation rates for Milwaukee with a 60% cumulative absorption ability

Green Roof Type: 4-Inch Monolithic Extensive System

Green Roof Description:  
Extensive monolithic systems are the global status quo for green roofs, having been used for almost 50 years throughout Europe. Offering a combination of both form and function, these systems provide pleasant aesthetics as well as a functional green space. “Extensive” describes the depth of engineered soil within the system. Extensive systems range between 4” and 6” deep in soil depth. A given soil depth will determine the range of plant species that will be able to grow in such conditions, in addition to USDA plant zone limitations, sun exposure, and roof slope.

Plant Selection:  
Sedums make up the predominant plant palette in extensive roofs. Color Max is a vibrant blend of sedums selected for Alverno’s green roof comprised of the following species:  
-Sedum acre ‘Aurea’  
-Sedum album ‘Coral Carpet’  
-Sedum album ‘Orange Ice’  
-Sedum floriforum ‘Weihenstephaner Gold’  
-Sedum kamscaticum ‘Variegatum’  
-Sedum reflexum ‘Blue Spruce’  
-Sedum repestre ‘Angelina’  
-Sedum spurium ‘Green Mantle’  
-Sedum spurium ‘John Creech’  
-Sedum spurium ‘Red Carpet’  
-Sedum spurium ‘Tri-color’

Sedums will bloom periodically throughout the growing season in Wisconsin, flowering numerous times. Flowering will range from yellows to whites in the spring to summer and then pinks and purples as summer turns into fall. The plants will go into a state of hibernation over winter, turning red to store essential nutrients for the spring thaw.
**Green Roof Detail:**
A monolithic green roofing system is comprised of a number of layers intended for roof membrane protection as well as water storage. Think of it like creating a “sandwich” or layering of components on top of a roof. Alverno’s green roof is comprised of the following layers (from bottom to top):
- Roofing Membrane: TPO
- Protective Fleece (To protect roofing membrane)
- 1” Drainage Retention Board (To hold water for plants to utilize)
- Filter Fleece (Acts as a separation between the drainage retention board and engineered soil)
- 4” of Engineered Soil (Specially designed for high drainage and nutrients demands of a specific plant palette)
- 1” Pre-Vegetated Sedum Tile (Pre-grown green roofing “sod” comprised of drought resistant sedum species)

This system is surrounded by a 4” edging system specifically designed for drainage in and out of the system. Stone ballast provides functional walkways for maintenance and access.

**Monolithic Green Roofs and Stormwater:**
Monolithic green roof systems differ from modular systems in that they offer a homogenous layer of water transfer throughout the system. This allows for a more uniform rate of evapotranspiration by the vegetation, increased root expansion, and a more consistent performance by the green roof for stormwater retention. Green Roofs offer a viable means of stormwater management to help decrease stormwater leaving the building’s site. In doing so, less stormwater is entering local combined and separate storm sewers, therefore decreasing the chances of a combined sewage overflow (CSO) discharge into local waterways and Lake Michigan. Greener roofs equal cleaner water in the context of Milwaukee. Milwaukee is transforming its skyline into a national example of utilizing low impact development (LID) for stormwater management. Alverno’s green roof is a significant contributor to the Milwaukee Metropolitan Sewerage District’s (MMSD) larger goal of zero CSO discharges in the future.