



Capital One Headquarters

Location: Tysons Corner, Virginia

Application: Green roof fill

Market: Commercial

Volume: 2,200 cubic yards

Scope Completion: March 2022



Overview

Capital One's 11th story Skypark in Tyson's Corner, Virginia required a green roof fill solution to support 4 acres of landscaping, an amphitheater, a biergarten, and a miniature golf course, all while meeting strict weight limits to minimize load on the headquarters below.

Design Challenges

Capital One's Skypark had many complex elements that created challenges for the project team.

- Structural loading: 4 acres of planted areas with growing media depths reaching up to 4 feet in some locations, plus hardscapes, an amphitheater, biergarten, miniature golf course, and pedestrian traffic.
- Fire safety requirements: Tysons, Virginia imposed strict fire requirements that ruled out traditional foam-based insulation commonly used in green roof assemblies.
- Complex geometry: The design included varied topography, irregular shapes, mounds, and sloped areas that would be difficult to accommodate with rigid foam board.



Glavel as a Solution

Foamed glass aggregate was used as green roof fill and drainage throughout the entire green roof system. Rigid foam insulation could have been used but the flammability concerns were not permissible in local fire safety protocols. Foamed glass aggregate replaced rigid foam insulation and performed as drainage throughout the system while insulating the building from above.

- Weight reduction: Weighing only 12 lbs per cubic foot (post-compaction), foamed glass aggregate minimized structural loads while supporting growing media depths for trees, shrubs, and native grasses.
- Load-bearing capacity: High compressive strength provided the needed stability underneath planting areas, pedestrian pathways, and pavers.
- Flexible installation: The foamed glass aggregate's form allowed crews to easily shape irregular geometries, create mounded topography, and steep slope surfaces by compacting the material in place.
- Superior drainage and insulation: The free-draining structure facilitated water movement through the assembly while the R1.7 per inch provided thermal insulation for the performance specs while supporting the vegetated roof system above.