



The structure is a significant new component within Duquesne's major redevelopment plan, as it links the center of campus to the Power Center, a multipurpose recreational facility along Forbes Avenue. The skywalk provides students and visitors with access to the center's fifth-floor ballroom. The glass-enclosed skywalk features an exposure steel superstructure, contemporary arch frame design, metal roofing, an aluminum window wall system, and an exposed aggregate concrete deck.

The primary superstructure of the skyway includes trussed towers on each side of Forbes Avenue, with a pair of exposed Vierendeel trusses supported by two tapered plate girder arches. The trussed towers measure approximately 16 feet by 16 feet and have a network of rod and clevis X-brace assemblies providing stiffness and stability. The south tower is more than 140 feet tall, while the north tower is 100 feet tall.

The south tower used a spread footing bearing on shallow bedrock. Because the existing parking garage foundations were within inches of the new tower, overturning resistance of the foundation could not be achieved by using a large footing. Taking advantage of shallow competent bedrock, a permanent post-tensioned rock anchor system was chosen to achieve overturning stability.

At the north tower, lower bedrock and the concurrent construction of the new building resulted in a much different foundation design. To resolve the overturning forces, an aggregate-filled concrete ballast box was designed. The ballast box is supported by caissons founded on bedrock and was configured so that the new building could be constructed without affecting the stability of the tower. The weight of the box was used to resist overturning forces; therefore, rock anchorage was not required.

PROJECT DESCRIPTION:

Believed to be Pittsburgh's highest pedestrian bridge, Duquesne's 138 foot long Sklar Skywalk sits 80 feet above Forbes Avenue providing a direct connection from the Power Center to the remainder of the upper campus.

ADDITIONAL PROJECT FACTS:

- Exposed structural steel utilized at most exterior connections.
- Vierendeel truss designed and installed in a single section to minimize temporary roadway closure.
- Tower framing included ganged HSS columns and bracing along with high strength steel rod bracing.
- A three-dimensional finite element model also considered thermal load conditions a part of its design.

