MERIT AWARD

COMO PARK VISITOR AND EDUCATION RESOURCE CENTER

Photo courtesy Hammel, Green and Abrahamson, Inc.

OWNER
City of St. Paul, MN

ARCHITECT/STRUCTURAL ENGINEER
Hammel, Green and Abrahamson, Inc., Minneapolis

ENGINEERING SOFTWARE
RISA 3D
RAM Structural System

DETAILER AND FABRICATOR
Egger Steel Company, Sioux Falls, SD, AISC member

DETAILING SOFTWARE
Xsteel

ERECTOR
Danny's Construction Company, Shakopee, MN, NEA member

Exposed structural steel is the primary interior and exterior architectural expression at the Como Park Zoo and Conservatory Visitor and Education Resource Center in St. Paul, MN. The new building connects to an existing turn-of-the-20th-century botanical conservatory, which is constructed of steel and glass. The architects used the historical design themes of the conservatory as a starting point but gave the new building its own identity.

The new building consists of two large steel-framed greenhouse exhibit spaces flanking a centralized two-story visitor service and educational core. The structural engineers took advantage of steel's flexibility to help the architects define the unique and intricate form of the "Tropical Encounters" pavilion greenhouse. Steel framing for this greenhouse is turned at an angle from the main building's framing in order to optimize day lighting conditions for tropical plants. A cascade of greenhouses connecting to the conservatory houses new fern, bonsai, and orchid rooms. Stepped steel framing for this greenhouse assemblage is accomplished with a welded moment frame. This eliminates the need for intermediate columns within the fern room. Unfinished steel framing defines the bonsai room, where a supported "collar" beam acts as a unique transfer member for the terrace roof above.

An exposed steel frieze beam ties the elements of the new building together. This beam aligns with a frieze element on the existing conservatory. An assembly of steel columns creates a rhythmic colonnaded façade. Drainage for the roof terrace and skylights above is accomplished with downspouts integrated into the column assembly. A stair cantilevers over an exterior reflecting pool, accomplished in structural steel by means of horizontal bracing and special connections designed to carry resulting horizontal thrusts that exceed gravity loads. A pergola along one side of the building is framed with steel.