

*National  
Winner*

US \$10M or greater,  
but less than US \$25M

# MODULAR VII CHILLER PLANT

Philadelphia, PA



## **JUROR'S COMMENTS**

*The facility is an appealing object that elevates an ordinary use to a noble level. The design is an excellent urban design solution to a complex site and conspicuous vehicular portal to the campus.*









A distinguished mid-Atlantic university required a new water chiller plant to serve the campus at a highly visible location along a prominent river on a site previously used for athletic fields. This competition winning design for the new structure creates an attractive gateway presence, while retaining maximum use of the site for a new varsity baseball field.

The screen wall consists of large panels of corrugated, perforated stainless steel sheets supported by a galvanized structural steel framework. The skin is transparent to the eye but opaque to wind due to the size of holes; therefore, the system had to be designed for full wind force. The building only assists for one-quarter of the perimeter against the wind forces.

Each end of the oval has a horizontal truss at the top to collect the forces. At the east end this truss transmits the forces back to the building. The west



end is an open courtyard for a planned expansion of the building; hence there is no structure to absorb the wind forces. This half of the oval is braced by 12" diameter pipe sections battered to interior foundations. These batters had to be located to avoid interfering with the foundations of future building extension.

As shown in the diagrams, the layout of the wall is a parabolic oval, which creates continuously varying radii for the curvature of the members. The system was slightly simplified by establishing a single radius for each panel; the radius then varied from one panel to the next. The wind girts are laid flat as one would expect, so the curved shape of the wall required the girts to be bent against their strong axis during fabrication.

#### **PROJECT TEAM**

##### **ARCHITECT:**

Leers Weinzapfel Associates, Boston

##### **OWNER:**

University of Pennsylvania, Philadelphia  
Structural Engineer: Keast and Hood Company, Philadelphia

##### **STEEL FABRICATOR:**

Cives Steel Company (Eastern Region),  
Lansdale, PA (AISC member)

##### **STEEL ERECTOR:**

Cornell, Woodbury, NJ

##### **STEEL DETAILER:**

Keast and Hood Company, Philadelphia

##### **GENERAL CONTRACTOR:**

Sordoni Skanska USA, Parsippany, NJ

##### **SOFTWARE:**

STAAD, AutoCAD 14

##### **PHOTOGRAPHER:**

Peter Aaron, Esto Photographics,  
Mamaroneck, NY