Introduction

Background

The Boston University Arena and Recreation Center Project is part of a larger campus plan known as the Student Village. The new ten acre hub is designed to be the center of campus life. Included on the site is a state-of-the art fitness, athletic, recreational, and entertainment facility, an exquisite arena as well as, a high-rise dormitory complex. The intent of the John Hancock Student Village was to unify the east and west sides of campus, and create a central location for student life and activity. With this project, Boston University wanted to "bring together students, faculty, alumni, and others through a range of athletic events, fitness programs, university events such as Homecoming and Commencement, academic and professional conferences, intramural sports, social gatherings, concerts, and cultural events" (Boston University Business Affairs, April 6, 2005).

General Building Overview

Project Name: Boston University Arena and Recreation Center
Location: 915 Commonwealth Ave, Boston, MA
Building Occupancy: Boston University
Function: Arena, Fitness Center, Dance Studios, Activity Rooms, Gymnasiums
Size: Arena- 264,635 sq ft
Recreation Center- 267,995 sq ft
Underground Structured Parking- 289,370 sq ft
TOTAL- 822,000 sq ft
Levels: 5 stories
Owner: Boston University http://www.bu.edu
Owner Representative: David Flynn
Construction Managers: Joint venture- Barton Malow Co. http://www.bartonmalow.com/ and Walsh Brothers Partnership
Architects and Engineers: Cannon Design http://cannondesign.com/
Dates of Construction: May 21, 2002 – April 2005
Cost: $185 million GMP price, which covered total building construction, plus CM general conditions and fees. The price went up a little with owner change orders.
Project Delivery Method: CM/GMP

Design Background

Architecture: The entire site is built primarily with brick and pre-cast concrete panels. The facades and walkways are constructed with a rich red brick in creative design patterns. A notable architecture feature found within the Arena and Recreation Center is the use of curved structures. The Recreation Center has a large rotunda located near the front entrance of the building. The curved architecture is not only seen from the outside, but continues on the interior with a 40ft radius. The Arena also has curved features, such as the north and south facades which are completely curved. Another distinguishing feature is the use of glass. Throughout both buildings large floor to ceiling windows were incorporated to maximize daylight. The entire rotunda exterior is made of glass as well as the main entrances for both facilities. The glass also continues to be implemented within the interior. Along the Recreation Center lobby, floor to ceiling glass windows are used in order to see into the competition pool area. The gymnasiums are also equipped with viewing windows so those passing by can peer into the basketball or racquetball courts.

Electrical: The Boston University Arena and Recreation Center electrical system implements a combination of system types for increased reliability and ease of maintenance. The primary feed comes in at 13.8kV where it runs through a 15kV, 600A interrupter fuse before beginning a primary loop system through three different substations (2-Arena substations and 1-Recreation Center substation). Once the primary feed enters each substation there is a 13.8kV primary, 480Y/277V secondary step down transformer, which then services a secondary selective system. Between the two radial layouts there is a normally open tie-breaker, which can close if a primary feeder or transformer is lost on either side. Most of the Recreation Center power is distributed off a 1600A, 3P, 5W plug-in busway which runs vertically through the building and is fed off the main distribution panel.

Lighting: In the Recreation Center, most of the lighting is 277V compact fluorescents, incandescent PAR, or metal halide lamps. The ballasts used are mostly electronic and electronic dimming with a ballast factor greater than or equal to 0.88. On the 120V system there are a small amount of incandescent and halogen lamps. Not many decorative lighting fixtures are used besides some decorative cove illumination. The lighting system is pretty basic and the primary goals are functionality and maintenance friendly.

Mechanical: The mechanical system implements many different types of equipment. There are seventeen air handling units with a total capacity of 650,000cfm; gas fired pre-heat coils with TUR coils; three chillers and three cooling towers. There is a building automation system that operates all heating and cooling on preset temperatures with the ability to manually change by location.

Structural: The site is built on a spread footing foundation with a pile and lagging earth retention system around the site due to close proximity with the existing structures. Cast-in-place concrete perimeter walls are approximately three levels below grade. The Arena lower level two has a post-tension slab floor, but all other floor slabs are metal decking. There are also steel columns and beams throughout the Arena and Recreation Center.

Fire Protection: The system includes many different types of detectors such as smoke, heat, and local automatic. They are all programmed to transmit alarms to BU protective services, faculty, central control devices, sound audible alarms, visual alarms, release hold open fire and smoke doors, release lock on fire command center, and signal local lighting control full brightness.

Telecommunications: All offices, classrooms, activity rooms, and team locker rooms have access to the telecommunication and data systems. BU implements ResNet telecommunication with quads and wireless network quads, as well as high intensity data 4-strand fiber optic ports.

Site

Below is a picture of the John Hancock Student Village as it exists today. The highlighted area is the site for the Student Village construction plan. Within that plan the Agganis Arena and Fitness Center construction project came forth.