

# **David S. Ingalls Rink**

73 SACHEM STREET, NEW HAVEN, CT 06501

Building Statistic I

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Lighting/Electrical

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## Building Statistics Part I



### |General Building Data

**Building name:** David S. Ingalls Rink

**Location:** New Haven, CT

**Site:** 73 Sachem St, New Haven, CT

**Building Occupant Name:** Yale University

**Occupancy or function types:** Assembly A-4. The constructed building contains ground floor Rink, Concourse, lower level Locker Rooms, Fitness Center, Schley Club Room and other utility rooms.

**Site Area:** 1.48 ac

**Building Footprint:** 47,983 sf

**Total gsf:** 61,646 sf

**Num. of Stories above Grade:** 1

**Total Levels:** 2

### Primary Project Team (Renovation)

<b>Client:</b>	Yale University
<b>Architect:</b>	Kevin Roche John Dinkeloo and Associates LLC
<b>Landscape Architect:</b>	Towers   Golde
<b>Lighting Consultant:</b>	Atelier Ten Consulting Designers
<b>Structure Engineers:</b>	Severud Associates Consulting Engineers, P.C.

<b>Mechanical Consultants:</b>	AltieriSeborWieber LLC
<b>Construction Manager:</b>	Turner Construction Company
<b>Civil Engineer / Landscape Architect:</b>	Tighe & Bond
<b>Acoustics, Audio Visual and Sound System:</b>	Cavanaugh Tocci Associates, Incorporated

**Date Constructed:** 1953 - 1959 (Renovation 2008-2010)

**Cost Information:** This information is considered confidential under client's request.

**Construction Type:** IB Noncombustible

**Project delivery method:** Guaranteed Maximum Price (GMP)

**Major national model codes:** 2005 Connecticut State Building Code (CSBC)  
 2005 ICC – Connecticut State Fire Safety Code (CSFSC)  
 2005 ICC – International Building Code  
 2003 ICC – International Existing Building Code  
 2003 ICC – International Plumbing Code  
 2003 ICC – International Mechanical Code  
 2003 ICC – International Fire Code  
 2003 ICC – International Property Maintenance Code  
 2005 NFPA 70 National Electrical Code  
 2003 ICC – International Energy Conservation Code  
 1991 Americans with Disabilities Act  
 2003 ICC/ANSI A177.1 – Accessible and Usable Buildings & Facilities  
 ASHRAE Standard 90.1 – 2004 Energy Standard for Buildings Except Low  
 Rise Residential Buildings, I – P Edition

**Zoning District:** PDU 109, New Haven, City Plan Map 6

## |Architecture

The David S. Ingalls Rink, also known as the Yale Whale, is one of the most distinctive college hockey rinks in the country. The rink was designed by the famous architect Eero Saarinen and built in 1959. The elliptical shaped building has a dramatic sweeping roof which reaches 76 feet at its zenith and is supported by a 300ft backbone of reinforced concrete. The side walls are the same shape in plan as the arch is in section, acting as a counter part of the arch. Its oak roof is supported aluminum cables suspended from the backbone arch. The exterior walls are also sloped to increase the structural integrity, in the meantime enhance the visual expression of the arch. Plaster ceilings form a graceful curve inside arena above the upper seating and corridor area. The playing surface which spans 200 feet long and 85 feet wide is among the best in the country.

Saarinen followed three principles he was enthusiastic about at the time he designed the arena: function, structure and being a part of his time. He designed the building with an innovative structural form which contributes to the function and other principles. In addition, he paid closely attention to the surrounding environment, which makes the building an enhancing element to the neighboring atmosphere.

The multi – million dollar renovation taken in 2008 included a renovation to the existing press box, and a 14,000 square foot underground addition with Locker Rooms, Fitness Center, Schley Club room, Concession area, Offices and other utility rooms. The new rink today holds 3,500 spectators to watch the hockey game, recreational skating and figure skating.

**Maximum Length:** 335’

**Maximum Width:** 196’

**Maximum Height:** 66’ above grade

**|Building Enclosure**

**Building façades**



Figure 1 | Building Façade

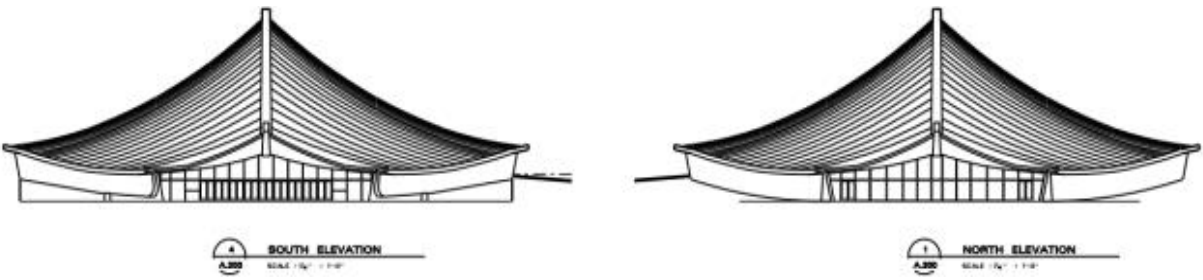


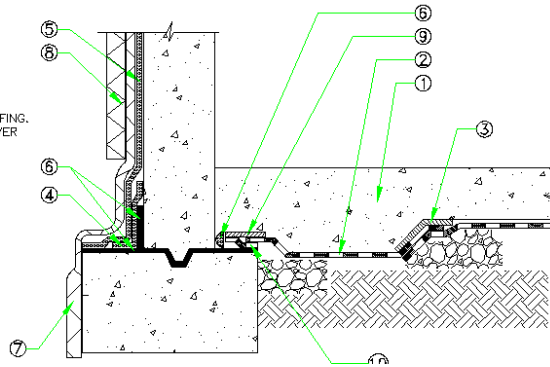
Figure 2 | Building Elevations

The spine shaped arch on the building exterior plays a dominant role of establishing rink's identity. To enhance the dramatic appearance and visual interest of the concavity and convexity, the arch curves back up skyward for the building façade to counteract the downward sloping of the roof. Under the concrete canopy, the main façade is a mullion made composed of wood and glass. The unfinished concrete exterior wall has a wood texture to echo the oak roof. The "Dragon Eye" lighting sculpture was designed by Oliver Andrews from UCLA, which added highlight and further enhanced the "soaring" effect.

Please see the following for exterior Wall Detail

NOTES:  
 1. PREPRUFE MEMBRANE MAY BE INSTALLED ON TOP OF THE FOOTINGS INSTEAD OF BELOW IF APPROVED BY THE WATERPROOFING MANUFACTURER'S DETAILS AND RECOMMENDATIONS.  
 2. WATERSTOP NOT SHOWN. REFER TO DETAIL WP-4 FOR REQUIREMENTS. (TYPICAL ALL DETAILS)

1. CONCRETE SLAB.
2. PREPRUFE MEMBRANE.
3. PREPRUFE TAPE.
4. PROCOR CORNER TREATMENT.
5. 100 MIL THICK SPRAY APPLIED WATERPROOFING.
6. BITUMEN LIQUID MEMBRANE, UP WALL & OVER ENTIRE TOP OF FOOTING & IN AREAWAY.
7. HYDRODUCT COIL 600 PERIMETER DRAIN.
8. INSULATION.
9. PREPRUFE CJ TAPE.
10. BITUMEN MEMBRANE STRIP.



## Roofing

The roof was designed to represent architect's interpretation of the beauty of skating. The roof structure for this building consists of oak wood supported by aluminum cables suspended for a tension web. Wood slat on the roof worked together with the concrete formwork was designed effectively to have survived without major replacement. Three bracing cables with 1 ¾ in diameter was placed on both north and south half of the roof to help resist snow loads.

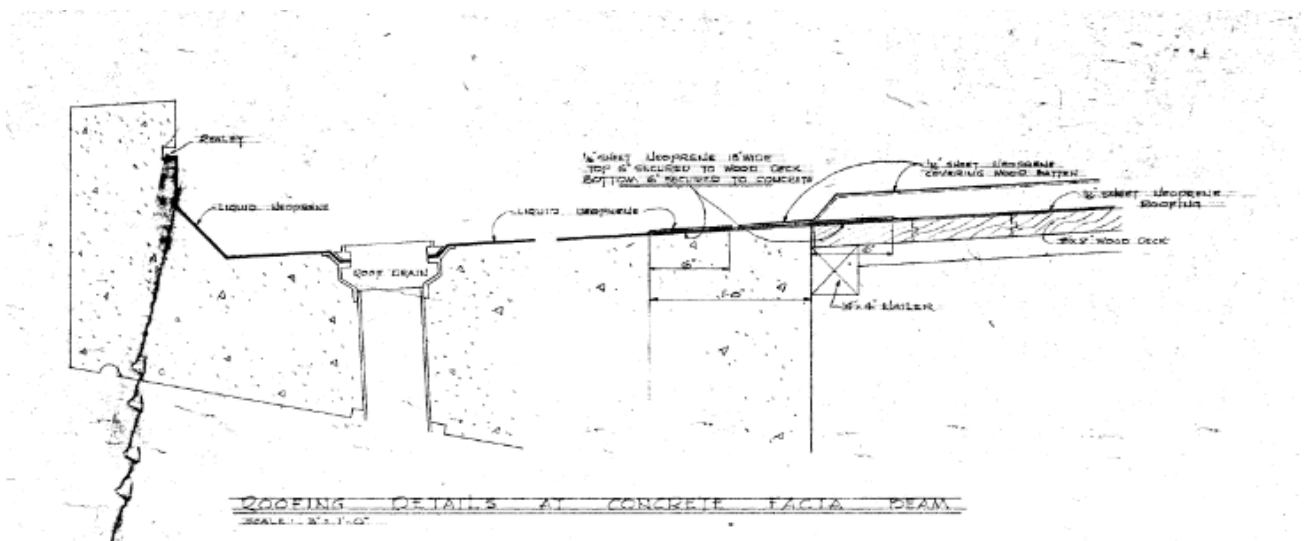


Figure 3| Detail at Concrete Facia Beam



*Figure 4 | Roofing Detail*

## **|Sustainability Features**

Atelier Ten environmental consulting group was commissioned to consult for Schematic Design phase. Yale decided not to pursue LEED for this project. However, sustainable features such as upgrading of waterless urinals and installing motion sensors for lighting and energy-efficient hand dryers was added to the building features in order to achieve a more sustainable design.