School Construction NEWS

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Rec and Effect

A student-driven recreational center project evolves into a campus showpiece

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Journal Reporter

Shining like a lantern above the campus, the natatorium also was designed to serve as an overlook.

The Washington State University Recreation Center represents a new generation of college athletic facilities, those that function as a second student union. Lounges with high-end finishes and exotic wood siding are found in this Pullman, Wash., facility, which is wrapped in zinc and situated on a hilltop overlooking the entire campus.

A growing number of colleges and universities are discovering that recreation centers are so popular with today's health-conscious youth, students are willing to fund the projects themselves. WSU student government leaders researched, initiated, and passed a campus ballot asking each student to add $100 to their fees each semester, allowing the university to issue the required bonds. No state funds were used to build this $39 million facility.

Totaling 160,000 square feet, the WSU Recreation Center is now the Pacific Northwest's largest collegiate athletic facility for use by a general student body. It has become WSU's signature building and the centerpiece of its recruitment campaigns.

The natatorium contains a five-lane, 25-yard pool, a leisure pool, and a 10,000-gallon, 53-seat spa with waterfall.

Seven courts are available for basketball, volleyball, and badminton. Also included are four racquetball courts, two of which can be converted to squash courts. Elsewhere, flexibility is provided by three multipurpose rooms, used for aerobics, martial arts, yoga, and dance, or whatever athletic fad may appear in the future.

PROJECT DATA

Owner: Washington State University
Architect: Yost Grube Hall
CM/GC: Gilbane Building Co.
Recreation Consultant: Cannon Design
Needs Assessment: Brailsford & Dunlavey
Area: 160,000 square feet
Cost: $250 per square foot

The student voice remained strong throughout the planning process. Student government paid for and chose the consulting firm for the initial needs assessment. Searching for an architecture firm with extensive experience working with students, the university selected Yost Grube Hall Architects (YGH). The Portland, Ore., firm has designed more than 40 projects on 20 different college campuses, so their team was accustomed to tackling projects with complex user criteria while also remaining dedicated to creating environmentally-friendly structures.

"We took the students through ideas of sustainability and how it would not only be better for the environment, but also save money," said Robert Curry, principal-in-charge at YGH. "Once they understood it from a holistic approach-in terms of daylighting, natural ventilation, and recycled content-they became champions not just of the project, but of sustainability."

Research and Design

Students insisted on having a fireplace in the lobby, but architects first resisted the idea as inconsistent with sustainable design. Everyone now agrees it was a good idea, adding a residential scale to a large facility.

When the project team toured several recreational facilities throughout the U.S., their popularity with students was clear. They were hives of activity and students were often stuck in lines waiting for exercise equipment. WSU students had already expressed a preference for a large facility and seeing the crowding at other facilities confirmed bigger is better. Dedicated in February 2001, WSU's rec center quickly established average user rates of 3,000 people per day. More than 80 percent of the student body used the facility in its first semester of operation.

Making the building easy to navigate was essential, and in virtually every area of the WSU Recreation Center, the building's users can see at least one other activity area. The terraced facility has two floors, but eight elevation heights designed around the inviting lobby. "These facilities are so big that they can be intimidating," Curry says. "We felt we needed a strong organizing principle, and that became the wedged lobby onto which all these spaces connect."

How each athletic area appeared on approach was a primary focus of design. Upstairs, the circuit training area was laid out to avoid creating a power-lifting domain exclusive to muscular students. The area is divided by a balcony over a high-volume space that drops down into the lower weight room. When approaching the space, students encounter stretching mats and light exercise equipment to make the space more inviting. Power-lifting equipment such as squat racks are in the rear.

Similarly, the pool is visible through a tall wall of glass in the lobby, allowing students to easily see if swimming lanes are available.

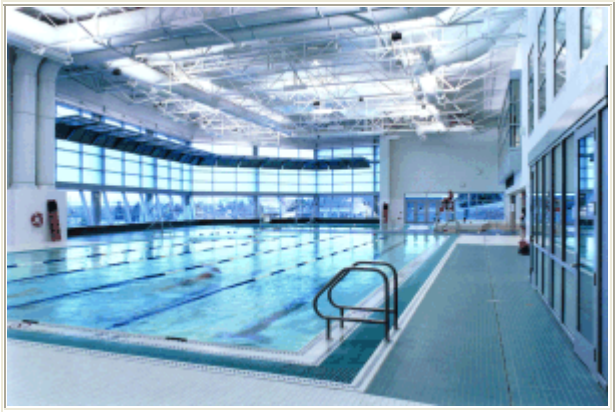
Sustainable Features

The open layout complements the use of natural airflow that cools the building. Cast-in-place concrete absorbs daytime heat and releases warmth at night. At 11 p.m., when the facility closes, mechanical louvers are opened and heat is re-radiated out as the temperature falls below 75 degrees. "The lobby, in particular, induces airflow into the gym and the other spaces," says Curry. Cool air enters near the floor and is pulled upward in a natural convection airflow, mitigating the diurnal temperature swings of the region's high desert climate.

Other sustainable design features include a seasonal on-site rainwater detention pond and a bioswale, which uses regional reeds to filter out oils. For the dry summers, planners chose native plants and grasses that require less water. Inside, recycled content was used for much of the facility. Recycled fiberboard lines portions of the gym, and the resilient Nike Grind running track is made of recycled running shoe soles and topped with an Elasticoat bonding agent.

But student enthusiasm for sustainable design waned on one point. They were intent on making the facility warm and friendly, and nothing symbolized this more than a fireplace-a gas fireplace. To Curry, who was working to delicately finesse a natural convection airflow through the facility, a fireplace was anathema.

"We told the students a fireplace wasn't practical and tried to talk them out of it more than once," he recalls. The students never budged and the resulting space is nothing to be embarrassed about. "At the end of the day, it was worthwhile," Curry says, agreeing that the fireplace makes the lobby more inviting and effectively introduces a residential scale into a large facility.



Students asked for, and got, a high volume natatorium that accommodates a popular sport on the WSU campus: water volleyball.

Award-Winning Illumination

Although the sloping site was chosen before YGH introduced sustainability to the project, its orientation turned out to be ideal for daylighting and would help earn YGH an award for outstanding design from Illuminating Engineering Society of North America. Slightly off an east/west axis-by about 15 degrees-turned toward the morning sun, the site allowed them to capture more daylight earlier, perfect for a facility that opens at 6 a.m.

The YGH team broke the facility down into sectors based on their lighting requirements and to minimize direct sunlight. Three-dimensional computer models were used to "tune the glazing" in response to glare, particularly from the varnished basketball courts and pool water.

YGH prescribed clerestory windows with light baffles and sun visors balancing light throughout the building. "We bounced all the light from the high clerestories to get the light in, which is optimal for year-round daylighting," says Curry. Because clerestories are less effective under cloudy conditions and with the high-angle summer sun, skylights also were installed to fill the gap.

Curry opted for three-stage stepped lighting for the fluorescent sport lamps instead of dimming units. Used in conjunction with the photocells of the energy management system that activates the lights only when needed, the facility will remain cost-effective for students to operate.

Leather furniture, exotic wood, and other high-end finishes are found throughout this facility, which cost almost $250 per square foot.

Four different types of low-emissive glass further ensure that natural light flooding the building is indirect, a setup that is particularly advantageous in sports facilities, because natural light offers better visual acuity, depth perception, and hand-to-eye coordination.

On the pool surface, sunlight can impede a lifeguard's vision. Further complicating the issue of glare in the natatorium, architects and the campus community wanted the facility to serve as an illuminated nighttime beacon to the campus and build a high-volume natatorium with huge windows.

An answer to this challenge came in the form of a middle band of decorative glass with two layers of film for translucence. Above this band is the clear glass that allows for daylighting. The inward-sloping, incanted glass at the window base was angled to both prevent direct glare and provide a view of the campus. The incanted glass also serves an acoustic function, cutting down on the reverberating shouts in most indoor pools. According to WSU Aquatics Director Kevin Johnston, student swimmers commonly say the natatorium makes them feel as if they are outdoors.

High-End Finishes and a Finished Project

WSU built the recreation center using the Construction Manager/General Contractor delivery method. In a CM/GC project, the contractor participates in the design process as a construction manager and then steps into the role of general contractor at groundbreaking. "It was the first time the university, YGH, or Gilbane had been involved in a CM/GC process, so we all learned something," says Gilbane Building Company's project manager, David Yung. "There's a benefit to the designer to viewing the project from the contractor's standpoint. There are things you can point out to an owner and an architect in value engineering and find cheaper alternatives, but still fulfill the same overall intent."

High-end finishes abound within this facility, which cost $250 per square foot. There is leather furniture, 28,000 square feet of the best carpeting, and 4,000 square feet of slate floors quarried in India and imported from Holland. Perforated metal and suspended maple ceiling tiles serve as acoustical buffers. Cabinetry and benches were custom-made with jarra wood, a sustainable forest product from Australia, similar to teak but more expensive.

PROJECT SUPPLIERS

Brick/Masonry: Mutual Materials Co.
Zinc Roofing: Rheinzink
Cabinets: Beck Cabinet Co.
Ceilings: Celotex Corporation, Chicago Metallic
Wood Ceilings: Pacific Wood Systems Inc.
Ceramic Tile: Dal-Tile
Elevators: Schindler
Insulation: Owens Corning
Paint: Sherwin Williams, Rodda
Plumbing: Ramsey Heating & Plumbing Co.
Millwork/Solid surfacing: Granite, Slate, Corona
Windows: Cardinal IG
Skylights: Kalwall
Indoor Lighting: Sportlite Inc., Lithonia, Nulite, Genlyte Thomas, Kenall, Zumtobel Staff
Light Baffles: GE Structured Products Emergency Lighting: Concealite
Carpet: Lees Commercial Carpets
Flooring: Armstrong
Sports Flooring: Athletica, Conner, Canon, SportCourt Inc., Tuflex
Running Track: Nike Grind, ElastiTrac
Door Hardware: Corbin Russwin, Stanley
Wood Doors: Eggers Industries
Metal Doors: Warnock Hersey
HVAC Control Devices: ABB, Desert Aire, Siemens
HVAC Units: TRANE, Vemco Inc., Pane
Natatorium Equipment: De Champs, Spectrum Pool Products
Scoreboard: Colorado Time
Sound Systems: Crown, JBL, Denon, Advantage, Bose
Computers: Gateway, Dell
Compliance Equipment: Alvarado Mfg. Inc., Aquatic Access
Hand Drying Equipment: Bradley, Cormatic
Washroom Accessories: Bobrick Washroom Accessories, Suitmate
Washroom Fixtures: Kohler
Lockers: American Accessories
Fire/Life Safety Systems: Won-door, Regal, Wheelock, Simplex
Fire Extinguishers: Amerex
Locks: Locknetics, Corbin Russwin
Security Systems: Sentrol
Card Systems: Diebold
Chalkboards: Claridge
Draperies/Blinds: Louver Drape
Kitchen Equipment: True, Manitowoc, Reneka, Randell, Sodir, Wells
Laundry Equipment: Wascomat, Cissell, Weldbilt
Message Boards: Claridge
Waste Receptacles: Duraflex, Western Systems Fabrication, Toter

FURNITURE
Auditorium/Assembly: Virco
Cafeteria: Westin-Nielsen
Classroom: KI Torsion, Krueger
Lounge: AGI, Brayton Itn'l, Westin-Nielsen
Office: Steel Case, KI
Library/Media Center: Draper

"A four-by-eight sheet of veneer plywood was $350. I can't imagine what the planks must have cost," Yung says. For the contractor, the high expense of many of the finishes forced his team to work on a schedule set by the materials suppliers, who were trying their best to minimize waste of the precious wood. "The mill outfit fabricated the finished panels and benches like a dressmaker, supplying the largest pieces of jarra wood first," said Yung.

"When you're trying to dictate the delivery sequence, it's an added factor you need to consider. The millwork outfit was dictating the order of delivery based on the required sizes of individual pieces. For instance, if we wanted to finish the lobby first, the millworker would dictate that we finish the locker room first, because that's where the largest pieces went."

That the site is removed from campus and offered multiple staging areas made keeping track of the wide variety of materials easier. Yung's strong working relationship with university Construction Manager Keith Bloom was the reason problems did not get out of hand, according to WSU's Johnston. Although change orders plagued the project, it finished on schedule (with only a few punchlist items remaining) and earned Yung's team the Gilbane 2001 Builder of the Year Award.

But the award-winning facility's success as a project and a recruitment tool should not overshadow its primary function, which is to provide space to exercise for the general student body, prevent depression, reduce stress, and even trigger changes in the brain that spur learning. Despite the lounges, juice bar, and the big screen television, student exercise rates at WSU have increased dramatically. In addition to astounding user rates, more than 150 students continue to support the rec center as employees, as activity supervisors, and even as building managers. Biology students tend the rose garden and native plants.

Student leaders proved themselves to be shrewd politicians when passing the campus referendum to pay for the project. The ballot provided that the fee increase would not be instituted until the facility opened, meaning that three-fourths of the referendum's supporters would not be on campus to pay for the facility.

The current students who now bear the cost never

had a say. Yet it's hard to imagine current students sitting in the spa, looking at the waterfall, and complaining.