

Facility Design Plan

Wellness Center Expansion

THE UNIVERSITY OF SOUTH DAKOTA

Introduction:

The Facility Program Plan for the Wellness Center Expansion project was approved at the October 2021 BOR Meeting.

The proposed project would add an estimated 47,000 gross square feet to the facility to house a new indoor competition pool, an activity pool, hot tub, steam room, expanded wellness locker rooms, athletic locker rooms, offices, meeting rooms, new restrooms, storage spaces, seating for approximately 500 people, and new mechanical spaces.

This addition to the Wellness Center, phase two of a three phase expansion, would allow USD to meet Title IX requirements, provide a state-of-the-art facility for our students, faculty, staff, and community.

The existing pool is housed in the Dakota Dome. The mechanical systems for the current pool are old, require substantial on-going maintenance and need replacement. The existing facility is too small for our athletes to practice efficiently, doesn't provide adequate lighting or ventilation, has extremely limited availability for open swim for students that are not athletes and for Wellness Center members, and has limited locker facilities for patrons. A new indoor pool would provide adequate space for students, student athletes, faculty, staff, and the community to use in cohesion.

Architectural, Pool, Mechanical, and Electrical Schematic Design:

Architectural:

The new Wellness Center Expansion will be connected to the existing Wellness Center directly to the south of the existing building, which is located on the campus of the University of South Dakota in Vermillion, SD. The design of the new expansion is to complement the existing Wellness Center by use of similar building materials. The new building will be made of structural steel frame, steel bar joists, precast and steel stud exterior that includes metal wall panels, brick, and smooth finished surfaces. It will incorporate aluminum curtain wall systems as well as both metal and rubber roof systems. The interior will house an indoor competition pool, activity pool, hot tub, steam room, expanded wellness locker rooms, athletic locker rooms, offices, meeting rooms, new restrooms, storage spaces, spectator seating, and new mechanical spaces for pool equipment as well as HVAC and electrical equipment.

The project will be striving to achieve two Green Globes, which is a comprehensive, science-based building rating system that evaluates the environmental sustainability, health and wellness of future tenants, and resilience of renovated projects through the latest science, research, and alignments with technical advancements. Green Globes encourages design, construction, and sustainability opportunities for energy savings, to reduce environmental impacts, and lower future maintenance costs.

Pool Systems:

The aquatic areas will feature an indoor competition pool, activity pool, and a hot tub. The pools will be constructed of cast-in-place or pneumatically applied concrete with a combination of tile and quartz aggregate finish. The hot tub will feature an all-tile finish. All loose and deck equipment will be installed

as required by Health Department regulations and the requirement of the NCAA, which include ladders, grab rails, safety ropes, anchors, deck markers, lifeguard chairs, first aid, stanchions, deck anchors, starting blocks, ADA lift, etc. The pool and hot tub mechanical systems will include filtration systems, surge tanks, hydrostatic relief systems, pumps, variable frequency drives (VFD's), chemical treatment systems, water chemistry controllers, and piping. One mechanical system will operate the competition pool and a separate mechanical system will operate the activity pool and hot tub.

Mechanical System for Building:

The mechanical systems for this building will be completely stand-alone systems from the existing Wellness Center building and the campus-wide heating system. The mechanical systems will be designed to be efficient and meet Green Globe requirements.

Utilities include a new 6-inch sanitary sewer service, new 2-inch domestic water service, new 6-inch fire main service, and relocating the existing natural gas service. The mechanical equipment will be in a mixture of locations inside and outside of the building. The main air handler for the natatorium will be housed on the east side of the building on the roof above the competition pool mechanical room. The remaining HVAC and plumbing systems will be housed in a second-floor mechanical room that is in proximity to the existing mechanical room for the Wellness Center.

The systems will include a 4-pipe system for non-natatorium spaces that will provide heating and cooling to those spaces. The natatorium will be served by a single unit that will use heating and cooling for temperature and humidity control. An energy recovery unit will be used for ventilation. All mechanical equipment will be tied into the University building automation system for monitoring of equipment and addressing heating/cooling issues within the building remotely if needed.

Plumbing fixtures throughout the building will be high-efficiency, low water consumption fixtures. Natural gas-fired, high-efficiency domestic water heaters will be utilized for domestic hot water heating throughout the building.

The fire suppression system will be served from a new fire sprinkler riser. The building will be fully fire protected with a complete wet pipe fire sprinkler system that is designed and installed in accordance with the 2019 edition of NFPA 13, state, and local building codes. All flow and tamper switches will be connected to buildings fire alarm system.

Electrical Systems:

The expansion will utilize a new 1,500 kVA transformer that will be tied into the existing main campus electrical distribution system and located in the service yard south of the building. A new 480/277V electrical service will be provided to serve the new Wellness Center Expansion. New feed distribution panels will be located throughout the expansion.

The building will utilize ground fault protection, copper busses, phase and balance loading of panels, dry-type transformers, and voltage surge suppression. All electrical wiring will be routed in conduit for distribution throughout the building, along with cable tray system for voice and data wiring.

Lighting throughout the building will be LED (Light Emitting Diode) type fixtures with 3500K color temperature with high CRI values to achieve high visual acuity throughout. The lighting levels will comply with applicable standards and energy code requirements. Lighting will be a combination of

direct and indirect lights utilizing 2x2, 2x4, and Linear LED light fixtures. The entire expansion will have occupancy sensor controls to reduce energy consumption while providing flexibility to the occupants.

Voice and data systems will include jacks, cabling, conduit, racks, patch panels, testing, camera's, TV's, projectors, and card access.

Fire Alarm system for the new expansion will be an extension of the existing, addressable fire alarm system that is in the existing Wellness Center. The expansion includes new control panels and devices throughout. The new system will include manual pull stations, smoke detectors, visual devices, audible devices, connection to fire sprinkler flow/tamper switches, connection to fire/smoke dampers and will be connected to the Universities building automation system for notification to the University Police Department.

Changes from the Facility Program Plan:

The total project estimate increase from the Facilities Program Plan due to increased costs in material and deliveries around the globe.

Impact to Existing Building or Campus Heating/Cooling/Electrical Systems:

The Wellness Center Expansion will not impact the existing Wellness Center building as it will have its own heating, cooling, and electrical service.

Total Project Cost Estimate:

The overall project cost estimate is \$27,760,412. The following table shows the breakdown of the estimate:

Construction Costs	\$24,748,962
A/V & IT	\$250,000
FF&E	\$50,000
A&E Fees	\$1,936,450
Pre-Construction Fee	\$70,000
Commissioning	\$100,000
Testing	\$65,000
OSE/USD Fees	\$190,000
Owner's Contingency	\$350,000
Total Project Estimate	\$27,760,412

The available funding sources for the project are:

Auxiliary Funds	\$5,000,000
Bond Funds	\$3,900,000
Private Funds	\$10,500,000
Local Funds	\$8,360,412
Total Funding	\$27,760,412

Changes from cost estimate for operational and M&R expenses:

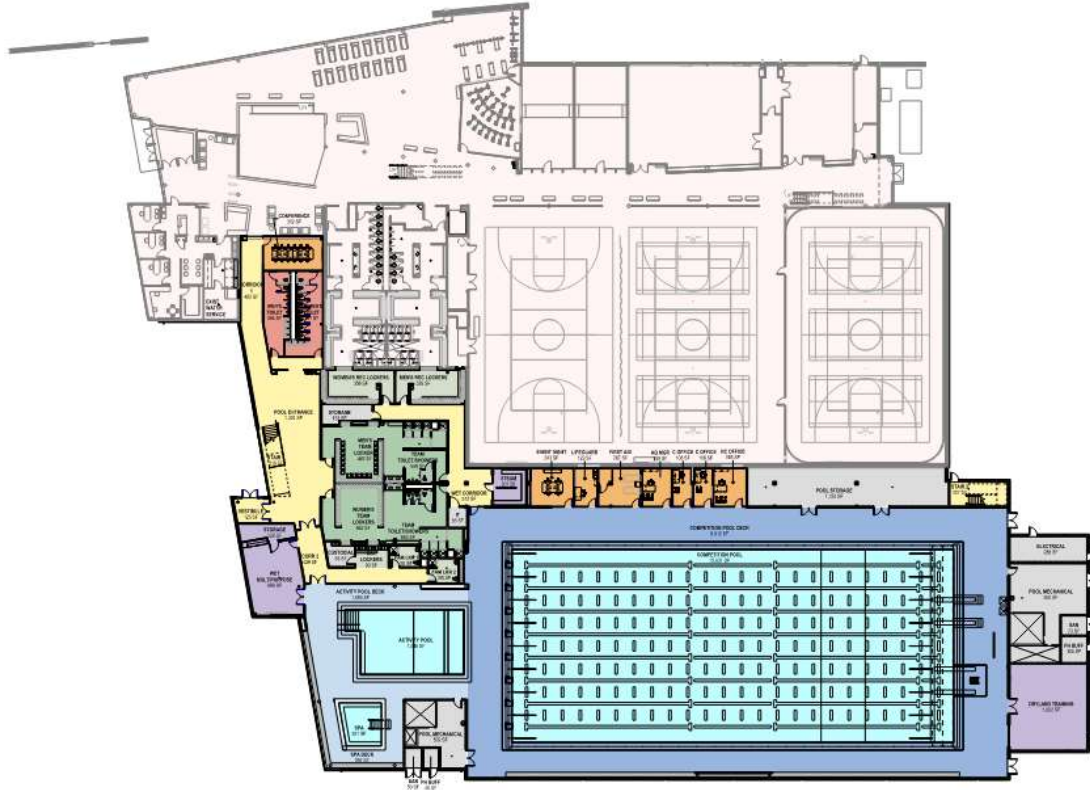
There are no changes from the Facility Program Plan.

Aerial and Site Plan:

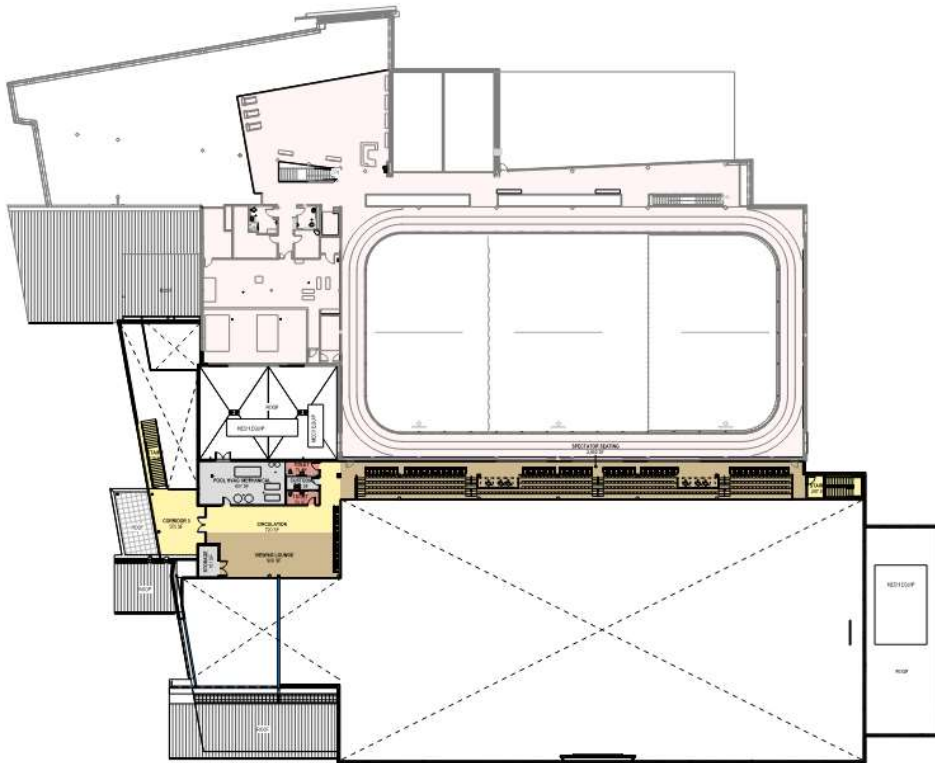
Aerial of Site



First Floor Plan:



Second Floor Plan:



Natatorium



USD Wellness Center Expansion > Exterior Views

