

Building #4 6th Street (North Side) Arena Complex

General

The original building was reportedly constructed in approximately 1963, utilizing glu-lam arches spaced at 6.0 m (20 ft.) on centre, approximately 11.6 m (38 ft) in height. An addition to the east side, along with interior renovations to the north end, was constructed in approximately 1980. Building area is approximately 2,458 sm (26,456 sq. ft).

Available building plans were limited to the 1980 addition and renovations.

Building Envelope

The original glu-lam arch structure envelope consists of a 2-ply modified bitumen roofing system over wood sheathing (we were unable to verify the presence of rigid insulation between the roofing membrane and plywood sheathing, over 2 x 10 joist at 16" O.C. The bottom 8 ft of the arch roof is screw-down metal cladding over ¾" rigid insulation over plywood sheathing over 2x10 joists. The modified bitumen roofing is in fair condition (date of installation is unknown). The modified bitumen roofing should be trimmed at the north edge. The metal cladding is damaged in several areas and requires repair/replacement.

The 1980 addition and renovation included installation of 6" (R-20) batt insulation between the 2x10 joists, 4 mil poly vapour retardant, and interior pre-finish metal liner panel, to the underside of the original arch structure. This appears to be in good condition, generally.

Exterior walls of the 1980 addition are single wythe concrete block with split face exterior finish, presumably insulated with loose fill insulation. The roof assembly is comprised of an inverted built-up roofing system with 4" rigid insulation, over gypsum board sheathing over metal decking and open web steel joists. Exterior block face is spalled in the areas of the scuppers and down spouts, due to freeze/thaw action. The inverted roofing system, flashings and roof top equipment are in poor condition due to vandalism. Roof drains in the valley transition from flat to arched roofs are plugged.

Interior

Interior walls are typically concrete block, except for the north-end viewing and seating area which is wood-frame construction above the concrete basement, including the main floor and mezzanine.

Concrete block walls, plywood walls/ceilings and asphalt plank flooring are in fair to poor condition. Metal toilet partitions are in poor condition, as are the dressing benches.

Doors and hardware are generally in poor condition.

Rink boards are in poor condition.

It was reported that the rink floor slab is heaved, especially at the north end, resulting in very thin ice in those areas.

Numerous building code issues were identified:

- Washrooms facilities are inadequate
- Facility does not comply with barrier-free access requirements
- Fire separations for exits and ice machine rooms do not comply with Code requirements
- Service rooms are opening into exit

Plant has been removed.

In order to address these issues, we anticipate that a further building addition would be required, as well as substantial interior renovations to the existing building.

Structural

No apparent structural problems. Slight spalling was observed on the block wall at scupper location, at north east corner of flat roof.

Mechanical

Heating and Ventilation

Heating and ventilation system consists of furnaces for the change rooms and concessions, and unit heater for the Zamboni room, a roof top unit for the arena ventilation, radiant heaters for the arena seating, and an exhaust fan for the ice plant machine room. All the heating equipment is gas fired. The washrooms and change rooms have exhaust fans for ventilation. All of the equipment is from the original construction period. The systems are functional and in fair condition.

Plumbing Fixtures

The plumbing fixtures consist of showers, urinals and water closets and lavatories. They are in good conditions.

Sanitary Sewer

The sanitary sewer is mostly below grade. The operations staff did not have any problems with the sanitary sewer system.

Storm Sewer

The flat roof has scupper drains that are piped down and spill on site.

Water Service

The domestic water service is from a municipal source. The domestic hot water is serviced by gas fired hot water heaters with additional storage capacity. The hot and cold water piping has some portions insulated.

Energy Services

The complex is supplied natural gas by a local service provider.

Special Equipment

The arena has an ice plant. It consists of compressors, chiller, condenser, receiver and secondary refrigerant plant. The system refrigerant is ammonia. The required ventilation for this type of plant is in place. The plant functions well and is well maintained. The plant is more than 25 years old. *Removed*

Comments

The equipment is rated in fair to good condition and appears to be well maintained. It would be prudent to phase the replacement of some of the equipment because of the vintage and condition of the system. The high ventilation rates required in the dressing rooms, concessions, lobby and arena may present an opportunity for energy conservation.

Electrical

Electrical Supply and Distribution System

The service transformer is a 150 kVA, 25000-480 volt, 3Ø, 60 Hz, outdoor type, pole mounted.

The main feeder is installed overhead. The meter socket is installed outdoors. The main disconnect is 400A, 600V, 3Ø. Transformer is 50 kVA 480-120/240 Volts, 1Ø, 3W

Lighting Panel A is 120/240 Volts, 1Ø, 3W, with all circuits labelled except for circuit #2. There are 3 spaces. Protection is provided by a 200A disconnect. Lighting Panel B is 120/240 Volts, 1Ø, 3W, with all 42 circuits are labelled. Protection is provided by a 125A disconnect. All panels appear old and at over half of their useful life. All panels and transformers have accumulated dust; dirt has built up on the transformer ventilation areas.

Building Wiring

Wiring is concealed in walls and ceilings most areas except for the arena and service rooms, which are exposed conduit system. Some convenience outlets have corrosion build up on the plate or housing; some outdoor receptacles have damaged covers.

Lighting System - Interior

General lighting is fluorescent fixtures with T8F32 tubes. Most HID lights in the arena have been replaced with integral ballast except for 8 old units with remote ballasts. It is recommended that the remaining old HID fixtures be replaced. Some fluorescent fixture diffusers were either missing or have accumulated dust.

Lighting System – Exterior

Outdoor lighting fixtures showed some age but appear to be operational. Pole-mounted flood lights and wall-mounted lights are each equipped with a photocell. Connections to pole-mounted lights were made through overhead wiring.

Emergency Power System

The building is equipped with battery packed emergency light and exit light units. Several exit lights have broken bulbs. Overall, the battery packed emergency light units require maintenance attention.

Telephone and Communication System

Telephone service to the building is provided by TELUS. The sound equipment cabinet is enclosed in a wooden cabinet, which has no locking device installed. Action must be taken to resolve this issue to eliminate unauthorized access to the equipment.

Fire Alarm and Detection System

The fire alarm control panel appears old but operational. The building was inspected last October 2, 2007 and the signed inspection is valid up to October 2, 2008. Manual pull stations are located near the building exits. Smoke detectors are working but due for replacement. Ammonia gas detectors appears old but operational.

Maintenance Issues

Energy costs for the year August 2006 to August 2007 were \$45,234.45, or \$1.71 per sq. ft. This includes costs to run mechanical and electrical equipment.

Recommendations

Architectural/Structural

- Roofing repairs/re-roofing
- Exterior wall repairs
- Exterior door repairs/replacement
- Interior refurbishing
- Building code upgrades and addition
- Rink boards replacement

Mechanical

- Energy recovery
- Phase in the replacement of roof tops units and exhaust fans based on condition and age.

Electrical

- Fix loosely installed wiring and defective light fixture
- Replace damaged convenience outlets
- Replace 8 old HID units (with remote ballasts) with the same models as the newer HID fixtures
- Add fixtures to the pole mounted lights to attain a safe illumination level for parking lights
- Service or replace battery-packed exit units
- Relocate the sound system equipment into a protected rack assembly
- Replace the Fire Alarm System
- The existing light switches configuration is recommended to be replaced with a panel type lighting relay panel to improve safe operation and maintenance

Estimated Costs

Architectural/ Structural	\$2,650,000
Mechanical	\$ 125,000
Electrical	\$ 185,000
Total	\$2,960,000

Building #5 10th Street Community Services Offices and (North) Fire Hall

General

The original building was constructed in approximately 1967 as the Cold Lake Town Office and Library. Subsequent additions to the east and two Fire Hall additions to the north were constructed as late as 1980. Overall building area is approximately 677sm (7,285 sq. ft)

Available building plans were limited to the partial design drawings for the original 1967 structure and subsequent east garage addition. Plans for the Fire Hall addition were not available.

Building Envelope

The building is constructed of masonry, wood and steel components. Exterior walls are single wythe masonry with loose fill insulation.