1057 Logan Avenue- Animal Services Agency- Main Building

Date of most Recent Assessment: Oct 7, 2013

- **Area:** 24,943 SF
- **Use:** Animal Services
- **Floors:** 1
- **Historical Category:** None
- **Year Constructed:** 1996

General Site Description

The 1057 Logan Avenue - Animal Services Agency - Main Building, Building No. CB-02 is located at 1057 Logan Avenue in the City of Winnipeg, Manitoba. The building is owned and operated by the City of Winnipeg. The surrounding site has a level topography and the building is surrounded by grassy areas, a parking lot and public streets.

Building General

The building has a total floor area of 24,943 square feet and consists of a single story with basement. According to information supplied by the client, the facility was constructed in 1996 and its main function is an animal (dog/cat) pound. According to the 1998 Manitoba Building Code the Major Occupancy Classification is Group D - Business/Personal Services.

Building Exterior

The exterior walls are constructed of concrete masonry unit (CMU) with insulated metal panels, metal soffits and coping. The building has both flat and hip style roofs. The pitched roof has an asphalt shingle roofing system. The flat roof has a modified bitumen roofing system with internal rain leaders. Exterior windows consist of aluminum units with insulated glazing. The facility's entrances generally have swing-type aluminum and glass doors with insulated glazing. The rear has overhead sectional doors that are motor operated.

Building Interior

The ceiling finishes include painted plaster on metal lathe in the kennel, painted GWB ceiling in the lobby and acoustical ceiling tile (ACT) on suspension system in the offices and common areas. Interior partitions are typically CMU walls (glazed and non-glazed) in the kennel and service areas and GWB partitions in the offices and common areas. The walls have painted finishes. The kennel area also includes sound absorbing panels mounted on walls and ceiling. Flooring is typically epoxy in the kennel and service areas; ceramic tile in the lobby, locker rooms and restrooms and carpet or vinyl composition tile (VCT) in the offices and common areas. The basement has exposed concrete floors. Interior doors are typically hollow metal doors set in metal frames.

Structure

Based on observations in the field, the facility's superstructure is comprised of metal roof deck on open web steel joists and precast hollow core concrete plank floor deck on concrete columns. The building's substructure consists of cast in place concrete foundation walls and concrete footings.

Vertical Transportation

The facility has two stairwells that serve the basement and first floor. The stairs consist of concrete filled metal pans and metal pipe handrails.

Mechanical

HVAC

The building is conditioned by seven; gas fired RTU (Roof top package units). All the equipment was manufactured by Trane and all equipment was installed in 1996. Please note sizes listed as follows; Unit 1 main office area rated at 350,000Btu/hr about 20 tons. Unit 2 rear offices and exam area rated at 250,000Btu/hr about 10 tons. Unit 3 rear offices and exam area rated at 250,000Btu/hr about 10 tons. Unit 4 holding pen area rated at 120,000Btu/hr about 5 tons. Unit 5 main holding pen area rated at 120,000Btu/hr about 5 tons. Unit 6 front lobby area rated at 120,000Btu/hr about 5 tons. Unit 7 front lobby area rated at 120,000Btu/hr about 5 tons. All units are gas feed with AC. Distribution ductwork delivers conditioned air to varies direct discharge louvers. Local supply distribution is accomplished through internally insulated sheet metal ductwork and overhead diffusers. Return air is by either a dedicated return air ductwork or an open plenum. Heat in the basement is provided by a gas-fired hot water boiler, with no redundancy. The HW is used for unit heaters and an under slab ramp heating system.
General building exhaust provisions for the bathroom, basement / garage area are accomplished by ceiling mounted exhaust fans.

Controls and Instrumentation

The HVAC systems are controlled by basic zone type T stats.

Piping
Domestic water is supplied to the building by an underground line, 2" service distribution feed by copper and which reduces to 1/2 inches at the plumbing fixtures. Hot water is produced by a pair of gas fired HWH's. The commercial grade Rheem/Ruud units have a storage capacity of about 67 gallons each and were installed in 1996. Storm water flows directly off of the flat roof vie internal roof drains. The sanitary distribution system is by cast iron piping and is gravity feed into the city's sanitary sewage system.

Bathroom fixtures
The building has gang type multi-fixture bathrooms. Both have been outfitted to comply with most of the new barrier free requirements. The lavatory and water closet units are vitreous china fixtures.

Electrical
Electrical Service
The building is supplied electricity by an overhead run service feeder from Manitoba Hydro Utility Company. The pole mounted transformers terminating into a single disconnect switch; rated at 800A, 120V/208V 3phase 4 wire switch for the building.
All the switches supply power to down stream Panelboards and equipment within the entire complex. The equipment described above was located within is the main electrical room area and was manufactured by Federal Pioneer.

Electrical Distribution
The majority of the building secondary electrical distribution equipment was also manufactured by Federal Pioneer. Electrical distribution equipment, consisting of minor transformers, distribution panels, panelboards and disconnect switches that are located throughout the building. Distribution voltage is a combination of 120/208 volts, 3 phase, 4 wire.

Lighting Systems
A majority of the light fixtures used within the facility are fluorescent lamped units utilizing T12 lamps with magnetic ballasts. The exterior lighting consists of HID wall packs, with some accent lights located near the building's main entry.

510 Main Street- Susan A Thompson (City Hall) Administration Building

Date of most Recent Assessment: Sep 4, 2015

- **Area:** 150,677 SF
- **Use:** Administration Services
- **Floors:** 10
- **Historical Category:** None
- **Year Constructed:** 1964

General Site Description

The Administration Building is one of two buildings making up the City Hall of the City of Winnipeg located at 510 Main Street, Winnipeg, Manitoba. The public access and main entrance is off Main Street, on the East end of City Hall. There is no street parking available. Parking is provided in a nearby parkade connected to the building by underground tunnel.

Building General

Administration Building is an eight-storey building comprising of approximately 185,815 square feet including the Sub-Basement (not crawl space), Basement, Main and Second through Seventh Floors. The facility contains the Fan Room, Boiler Room, Mechanical Room, Corporate IT LAN Room, Corporate IT Department, Corporate Service Department, Corporate IT Department, Accounting, CAO Secretariat, Chief Administration Office, Cafeteria, Kitchen, Corporate Boardrooms, Treasury, Tax Department, Local Improvements Department, Vacant Space (soon to become the new cafeteria and

kitchen), Central Control Office, Administration Multipurpose Space, Materials and Supplies, Loading Dock, Shipping and Receiving, Maintenance Crew Lounge and Mechanical/Electrical Space. The building was constructed in 1964, designed by Green Blackstein Russell Associates, Architects and Engineers. 2004 major renovations include renovations on the fifth floor and relocation of the cafeteria and kitchen to the Main Floor. 2009 renovations included new washrooms and remodelling of Second Floor.
The Sub-Basement Floor is below grade and is approximately 3,690 square feet. It houses Mechanical and Electrical systems.
The Basement floor is below grade and is approximately 29,160 square feet. It houses the Central Control Office, Administration Multipurpose Space, Materials and Supplies,
Loading Dock, Shipping and Receiving and Maintenance Crew Lounge.
The Main Floor is above grade and is approximately 41,965 square feet and houses the Treasury, Tax Department, Local Improvements Department and Vacant Space (soon to become the new cafeteria and kitchen).
The Second Floor is approximately 18,500 square feet and houses the Cafeteria, Kitchen and Corporate Boardrooms. The Third Floor is approximately 18,500 square feet and houses the CAO Secretariat and Chief Administration Office. The Fourth Floor is approximately 18,500 square feet and houses the Accounting Department.
The Fifth Floor is approximately 18,500 square feet and houses the Corporate Service Department and a portion of the Corporate IT Department. The Sixth Floor is approximately 18,500 square feet and houses a portion of the Corporate IT Department.
The Seventh Floor is approximately 18,500 square feet and houses the Fan Room, Boiler Room, Mechanical Room, and Corporate IT LAN Room. Per the 1998 Manitoba Building Code, the Major Occupancy is a Group D Occupancy.

Building Exterior

Exterior Wall: steel beams support 4-inch tindle stone on a combination of concrete infill and concrete block. All roofing is 4 ply built up roofing on a concrete deck.
The building window assemblies are bronze framed with single paned non-insulated glass on the Main and Second Floors, metal framed with single paned non-insulated glass on the Third through Seventh Floors.
The exterior doors are bronze framed with Georgian wired glass.

Building Interior

Ceilings: are largely a parquet pattern tongue and groove ceiling tile supported by a concealed suspension system; painted plaster on Main and Second Floors; painted plaster in wet, humid or specialty locations and no ceilings (exposed structure) in service areas. Most ceilings are 114 inches high.
Walls: are black brick on Main and Second Floors; painted plaster on Basement and Third through Seventh; ceramic tile in wet, humid locations and painted concrete and or concrete block in service areas.
Floors: terrazzo on Main and Second Floors; carpet tile in administrative offices; ceramic tile in all wet or humid locations; asbestos vinyl tile in Basement and Third through Seventh core lobbies; vinyl sheet goods in the Basement multi-purpose area and sealed concrete in service type areas.
Interior doors: are a combination of full height (12 feet) brass and glass or leather in brass frames and largely brass knob operated hardware on Main and Second Floors; demountable doors where offices

are built with demountable wall system on Third through Sixth Floors; are metal in metal frames where rated assemblies should be.

Structure

The building's eight-storey structural frame consists of concrete floors supported by steel beams and brick load bearing walls, supported by concrete columns on concrete pad footings and perimeter foundation walls. The crawl space portions of the basement are compacted base.

Vertical Transportation

The building is equipped with three (3) Geared Traction elevators that provide transportation to all floors within the building. The elevators are numbered and classified as follows; Car 1 is an Otis electric cable type passenger elevator rated at 3000lbs. Car 2 is an Otis electric cable type passenger elevator rated at 3000lbs. Car 3 is an Otis electric cable type passenger/freight elevator rated at 4000lbs. The elevator cars, tracks and motors appear original to the building. The elevator controls also appear original to the building. The passenger elevators do not appear equipped with stage II fire re-captor in the event of a fire. A manual key override was noted within the elevator cars.

Mechanical

HVAC

Heating is provided by a 1964 Volcano Starfire triple pass fire tube boiler rated at 250hp. A second back up boiler listed as a 1987 Superior 150 hp water tube unit was also noted. Both operate on natural gas, provide low pressure steam, and are located adjacent to each other on the 7th floor mechanical room. Steam is fed to heating coils in constant velocity split deck systems throughout the building. Perimeter heating is supplied via hot water finned radiators, this heating hot water having been produced in one of two steam/water heat exchangers in the basement. One exchanger services the basement and first two floors, whereas the second supplies the third floor and upper levels. Since the steam produced supplies other buildings, condensate is returned to a collection tank in the sub basement from buildings such as 171 Princess Street and then pumped up to the seventh floor directly to the boilers.

Cooling is provided via two 300 (ton each) RT York water cooled screw chillers with a pair of Marley NC Class cooling towers, located on main lower high roof. There was no tonnage sizing noted for the towers. Both the chiller and supporting cooling towers were installed in 2003.

Air handling units are Canadian Buffalo 1964 vintage and are located in the 7th floor mechanical rooms, both east and west sides being identical and having two supply air fans with air makeup and a return air fans for each. The ceiling spaces at each level and the vertical pipe chase act as return air plenums. The West fan room contains F1, F2 and Return F3 all outfitted with VFD's manufactured by ABB controls. The East fan room contains F4, F5 and Return F6 again all outfitted with VFD's manufactured by ABB controls. There was no dated listed however the past VFA inspection did not list the new VFD's in the 2004 report. The fan motors were also upgraded as part of the VFD upgrades. Nortec humidifiers on each system supply humidification to the supply air.

The main exhaust fans discharge at roof level. The kitchen dishwasher has a dedicated exhaust fan. Controls are pneumatic and work in conjunction with the Metasys Building Automation System that is centrally controlled and manned in the basement. This system is the main controller for approximately 110 buildings under the City's jurisdiction including City Hall, and was installed in approximately 1995. The two 7.5 hp Webster air compressors for the pneumatic controls are located in the sub basement.

Information Technology areas are independently climate conditioned, having more stringent temperature requirements than typical space conditioning. The IT Department on the seventh floor, for example, has numerous (7) Liebert cooling units that are 1983 vintage-in the same room, in spite of the fact that six of them are dormant at this time and one had already been removed. The condensers for these units are located on the roof of the building. This area has a buffer shell around it, equivalent to a room within a room, and was intended to enable better control of the environment within. There was no information available regarding sizes of either the blowers or supporting DX units.
Other server or computer rooms, such as the one on the 4th floor, have independent heating and cooling units that service the respective areas.

Plumbing

City Hall is supplied potable water from the City system via a six inch diameter main line from James Street, and is tied into the storm and sanitary infrastructure. Sanitary sewage collects in the basement sump pit from where it is pumped into the sanitary system. Domestic hot water is produced in tanks equipped with steam heat exchangers. The kitchen dishwasher has a Super Hot electric hot water booster for increased sterilization temperatures.
Natural gas is also fed from James Street, and is used primarily for boiler operation.
The visible piping is composed of copper, steel (including galvanized), abs, pvc, and cast iron, and is code compliant.
Drinking fountains are refrigerated without recirculation, and located within alcoves at each level. Hose bibs are installed on the exterior of the building, and a decorative, commemorative fountain has been installed at grade level at the front of the building. Irrigation plumbing is also installed at this site for watering trees and foliage. Roof drainage is handled by central drains located on the roof deck.

Bathroom fixtures

The building has several gang type bathrooms on all floors along with smaller single occupant bathrooms. The lavatory and water closet units are vitreous china fixtures.

Electrical

Electrical Service

The 510 Administration Building supplied electricity by the Manitoba Hydro Utility Company via two 12kV underground primary feeders to a primary switchboard with two 600 ampere load interrupter switches and one 600 ampere load interrupter tie switch. The two primary feeders are identified as 1-U-15 and 1-U-12. Feeder 1-U-15 supplies power to a 1500kVA transformer, while feeder1-U-12 supplies power to a 1000kVA transformer. Respectively, the transformers step the primary voltage down to 347/600 volts and 120/208 volts, both 3 phase secondary feeders. The 347/600 volt feeder supplies power to a 3000 ampere main disconnect circuit breaker switch, which in turn feeds an integrated distribution switchboard. The 120/208 volt feeder supplies power to a 4000 ampere disconnect circuit breaker switch, which in turn feeds an integrated distribution switchboard. All the equipment described above is manufactured by the Federal Pioneer Electric Company and is located in the Basement level Main Electrical Room. The switchboards provide power to distribution centres, transformers, panel boards, motor control centres and equipment throughout the building.

Electrical Distribution

The Federal Pioneer Electric Company manufactured the majority of the building electrical distribution equipment. Electrical distribution is accomplished by the use of bus duct risers from both

of the two switch boards, rising up through the building to stacked electrical closets located in the East and West sections of the building. Each electrical closet contains distribution centres that contain power panel boards, most rated at 200amps per side. Transformers, panel boards and disconnect switches are also located within the electrical closets. Distribution voltage is both 347/600 volts and 120/208 volts, both 3 phase and 4 wire.

Lighting Systems

Lighting for the Administration Building consists of many types of fixtures utilizing multiple lamp types. A majority of the lighting is accomplished with the use of fluorescent lamped fixtures with T8 lamps and electronic ballasts in both recessed and surface mountings, in 1 X 4 and 2 X 4 configurations. PL fluorescent and incandescent lamped fixtures were observed in both surface and recessed mountings. MR16 halogen lamped track head units are used to illuminate wall mounted artwork, while standard incandescent lamped track heads are used for other wall wash situations. Exterior lighting consists of incandescent lamped cylinder style surface mounted and recessed mounted light fixtures along canopy undersides, roof mounted high intensity discharge (HID) spotlight fixtures are used to illuminate adjacent building facade during seasonal presentations. MR16 lamped landscape vault style fixtures are used in the building mall area.

457 Main Street- Confederation Life Building

Date of most Recent Assessment: May 6, 2008

- **Area:** 77,451 SF
- **Use:** Administration Services
- **Floors:** 12
- **Historical Category:** On Register
- **Year Constructed:** 1912

General Site Description

The Confederation Building, CB24 is located at 457 Main Street, Winnipeg, Manitoba. The public access and main entrance is off Main Street, on the West end. There is no street parking available.

Building General

The Confederation Building is a twelve storey building comprising of approximately 77451 square feet, constructed in 1912. This structure was one of the high rises servicing the City of Winnipeg. The facility contains the eleven stories of office spaces with mechanical/electrical in the basement.

Building Exterior

Exterior Wall: Limestone and brick.
Roofing is built up roofing on a wood deck.
The building window assemblies are metal framed with double paned insulated glass.
The exterior doors are either metal or wood framed with metal or wood doors per the system descriptions.

Building Interior

Ceilings: are largely TBAR. Most ceilings are 102 inches high. Walls: are plaster partitions.
Floors: largely carpet tile and broadloom carpet with some minor marble and VCT. Interior doors: are largely original wood doors and frames with knob hardware.

Structure

The building's structural frame consists of metal beams and concrete columns and bearing walls on concrete pad footings and perimeter foundation walls.

Vertical Transportation

The building contains marble and concrete constructed stairs as well as three elevators. The building is equipped with three elevators. The equipment manufactured by Northern Elevators, are all electrical cable type units rated at 900kg/2000lb. Installed in 1950 the cars serve floors basement to the ten floor. The 11th floor does not have elevator service. The controls are also from the same vintage.

Mechanical

HVAC

The building is conditioned by 48 heat pumps. Most are manufactured by either Friedrich or McQuay; and are rated at between 1.5 and 4 tons in size. Ages vary, however most appear to have been installed in 1984. Supporting the AC coil within the heat pumps is a down draft Imeco tower. The equipment was installed in 1991 and based on serial numbers provided the tower appears to be rated at approximately 123 tons. Please note, total cooling capacity for the heat pumps is 142.5 tons.
Heating for the heat pumps is provided by two gas fired hot water boilers. The units, manufactured by Teledyne Laars are each rated at 750,000 Btu/hr, each both installed in 1984. A roof top unit (RTU) also provides supplemental conditioning for the main floor. The equipment manufactured by ICE is rated at 800Mbth/hr, installed in 1999. No perimeter heating was noted.
General building exhaust provisions for the bathroom the mechanical areas are accomplished by roof mounted exhaust fans.
The LAN room within building is cooled with a 10 ton McQuay package unit installed in 2000.

Controls and Instrumentation

The HVAC systems are controlled by Zone all / Star zone 3000 electronic stats along with a basic DDC system monitored by the City.

Piping

Domestic water is supplied to the building by an underground line, 2" service distribution feed by copper and which reduces to 1/2 inches at the plumbing fixtures. Hot water is produced by two gas fired HWH's. The units both manufactured by A.O. Smith have a storage capacity of 74 gallons each. The HWH's were both installed in 2001. Storm water flows off of the flat roof vie internal roof drains. The sanitary distribution system is by cast iron piping which gravity is feed and flows to the city sewage treatment plant.

Bathroom fixtures

The building is equipped with gang type bathrooms. Some barrier free multi sex bathrooms where also noted on the lower floors. Floors 7 and below have been partially outfitted to comply with the new barrier free requirements. The lavatory and water closet units are vitreous china fixtures.

Electrical

Electrical Service

The building is supplied electricity via a below ground service from utility company pad mounted transformer. The main disconnect switch supplies power to several smaller disconnects which provide power to Panelboards, equipment disconnects and other equipment within the building. Most of the equipment described above was located in the main electrical room of the building.

Electrical Distribution

This building is equipped with a 2000Amps, 208/120Volts 3 phase 4 wire system. The power is fed directly from the pad mounted transformer. As note above, equipment disconnects, general lighting, and other miscellaneous needs of the building are located throughout the structure. The equipment is manufactured by Square D and supports approximately 20 secondary panelboards.

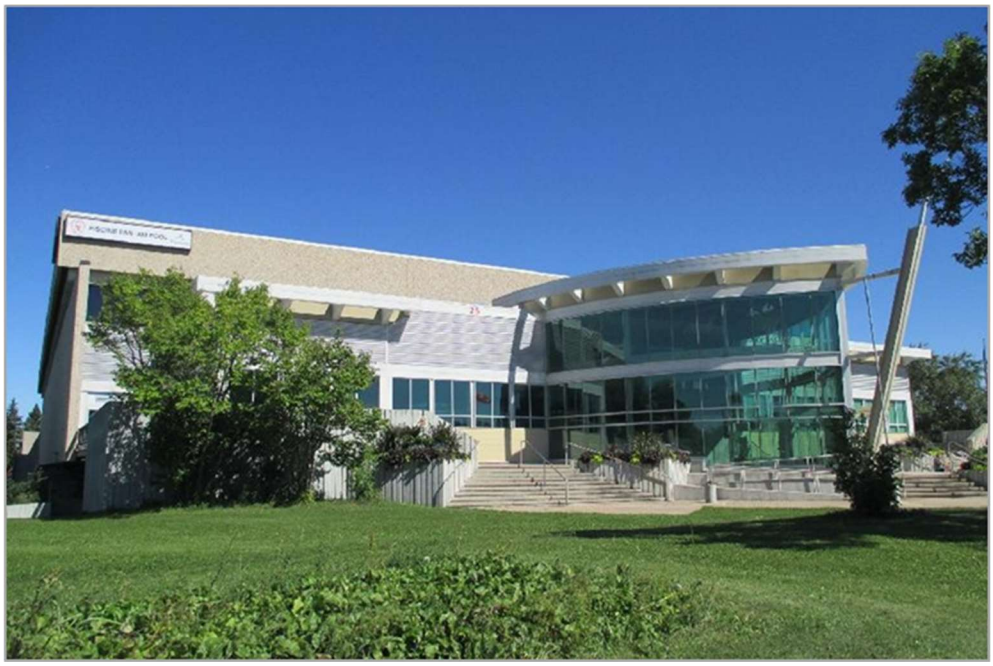
Lighting Systems

Lighting for the building consists of both fluorescent lamped fixtures utilizing T12 lamps with magnetic ballasts and incandescent lamped fixtures in multiple fixture types and mounting scenarios.
Exterior building lighting consists of a few HID lamped fixtures (rear only) mounted around the perimeter areas of the building.

Pan Am Indoor Pool- 25 Poseidon Bay

Date of most Recent Assessment: Aug 28, 2015

- **Area:** 163,000 SF
- **Use:** Aquatic Facility
- **Floors:** 2
- **Historical Category:** None
- **Year Constructed:** 1967



Building General

The Pan-Am Pool was built in 1967.
The original building lower level, where the change rooms and the pool are located, has a footprint of 50,000 ft2 (4645 m2). The main floor where the spectator seating is located includes north and south building overhangs for the building perimeter walkway or track area. This brings the footprint at this level to 59,000 ft2 (5481 m2). The building is 46.25 ft2(14 m) high from pool level to underside of the roof trusses.
The main pool area mechanical room is located below the lower level just west of the main pool. It houses the area heating boilers, domestic and main pool water heaters, pool filtration systems, and main electrical systems.
In 1994, a lap pool was added at the west end of the main pool. It also includes a kiddie pool and a hot tub. The area of this addition is 27,000 ft2 (2,508 m2).
In 1998-99 a multi-purpose addition was added to the west end of the main pool area. This addition is referred to as the Hall of Fame. It occupies two levels with the lower level providing a small restaurant space, washrooms, and various multipurpose activity rooms. The upper area is a large open space currently used for lawn bowling.

Building Exterior

Since the original construction date this building has undergone various exterior modifications. Exterior walls are primarily finished with exposed aggregate pre-cast concrete, fluted pre-cast concrete and pre-finished corrugated and flat metal panels.

Building fenestration consists of aluminum framed punched windows with sealed insulated glass units (IGU) and aluminum storefront and stick-framed curtain wall systems with IGU's. Majority of the fenestration is located at the building addition area completed on the west and east side of the original building. Aluminum framed entry doors, with sealed IGU's, are located at multiple locations and serve as the main building exit/entry points to the facility.

North building wall of the original building was retrofitted with new steel studs, insulation, AVB membrane and interior acrylic finish on concrete board during 2009 building envelope retrofit phase 1 project. The same retrofit was completed at the south building wall of the original building during the Phase 2 building envelope retrofit project in 2010.

New aluminum framed curtain wall systems were installed with triple glazed IGU's at the second floor west and east original building elevation as part of the 2010 building envelope retrofit phase 2 project.

Sealant at pre-cast concrete cladding panel joints was replaced with new at selected exterior building south elevations as part of the 2010 envelope retrofit project.

A significant project of the aquatic hall of fame museum royal gallery space restoration, which is located in the 1998 building addition section on the west side, was completed in 2017-2018. The project work included the installation of acrylic acoustical ceiling panels and a complete renovation/mediazation of the interior space with the addition of two new universal washrooms, lighting, flooring, mechanical and electrical work.

Roofing

Existing roof assembly across all roof facets is an insulated 2-Ply SBS Modified Bitumen Membrane roof system over a steel roof or concrete roof deck, which is structural sloped. This current roof system is not the original system installed on the original building structure and all completed building addition.

Existing building drawings and documents of past completed roof projects indicate installation of a conventional 4-ply built-up roof system; felt paper integrally bonded with hot asphalt and protected with gravel ballast. Therefore, all existing roof systems have been replaced since original building construction and appear to be in service ranging from approximately 5 to 19 years. Roof facets and areas are divided into the following three facets:

- East roof: 2,700 square meters total area
- Main pool roof: 4,700 square meters total area
- West roof: 600 square meters total area

Building Interior

The pool walls, bottom and the surrounding deck have a mosaic ceramic tile finish and generally other floor finishes include mosaic tile, plain or painted concrete, carpet, sheet rubber, sheet vinyl, wood-strip and sheet vinyl; the walls consist of brick, painted concrete masonry and painted concrete; the majority of the ceiling finishes are painted steel structure and roof decking, painted concrete superstructure and suspended acoustic ceiling tile and painted gypsum wall board and plaster and acoustic ceiling tile (ACT). The interior doors, some with knob style operating hardware and some with lever handle style operating hardware, are varied and include hollow metal, solid core wood and glazed aluminum, generally set in metal frames.

Structure

Although not verified the building and pool structures are possibly founded on driven reinforced concrete piles throughout. The perimeter foundation is reinforced concrete and the main floor superstructure appears to be a reinforced concrete suspended slab supported on cast-in-place (CIP) reinforced concrete columns and beams. Wall assemblies supporting the roof superstructures consist of reinforced concrete and concrete masonry units and the mezzanine floor structure is a suspended reinforced concrete structure.

The main roof structures consist of open web steel joists (OWSJ) and metal decking. Vertical Transportation

The building contains one elevator and has several interior and exterior stairways providing access between all floors and the exterior grade.

Vertical Transportation

The building is equipped with an elevator. The equipment is 4500lb hydraulic unit manufactured by Otis. The 2 floor 2 stop elevator was installed in 1997.

Mechanical

HVAC

Boilers: The main pool area is serviced by 3 – 200 boiler-horsepower natural gas fired hot water boilers installed in the basement mechanical room. The units are original equipment, but have had their tubes replaced over the years. Their seasonal efficiency is likely in the range of 70 to 75%.

The boilers are currently providing heat for the following systems:

1. The main pool area space heating system heating coils located in various Air Handling Units (AHUs) and ductwork throughout the building.
2. The area outside air heating coils located inside AHU's in the main pool area roof truss space.
3. Domestic hot water heating system for the entire facility.
4. Main pool water heating system.
5. Lap pool water heating system.
6. Main entrance vestibule heating system heat exchanger.
7. Two vestibule heating system heat exchangers.
8. Hall of Fame lower level and main floor space and ventilation air heating requirements via 2 AHU's and several wall fin radiant heaters.
9. Main level weight room ventilation air heating system.

According to the original system drawings, the boilers were intended to provide 200°F water to the various heating systems and receive 180°F water back. The boiler system is currently operated at a supply water temperature of 170°F. It seems the various heating systems connected to the boilers are able to meet their obligations under this lower water temperature. Operations personnel noted that at peak conditions, one and a half boilers can meet current connected heating load requirements. The third boiler is currently acting as backup should one boiler be out of service.

A 270 KW electric boiler was added to the system in 2012. The purpose of this boiler was to use off-peak power for heating and to reduce natural gas consumption.

Main Air Handling Units: There are 4 main units that provide ventilation air and space heat for the main pool and surrounding track and front entrance area. They also provide air to the main floor washrooms and other spaces located under the spectator stands. They circulate 20,000 cfm each, and together are designed to bring in and heat up to 60,000 cfm of outside air. The rate of ventilation is currently based on trying to maintain the space humidity between 50 and 60%.

Reportedly, the outdoor air and return air mixing dampers within these 4 air handling units have failed and are now manually locked in the fully recirculating position by facility operation staff. As they are not supplying the correct amount of fresh air to the facility, this does not meet the ASHRAE 62.1 standard. Further to this, the reduced ventilation also means that there may be a buildup of chloramines from the pool, which will increase the rate of metal corrosion around the facility and in the air handling systems.

The pneumatic controls serving each of the air handling units and exhaust fans are not operating correctly.

A 5th unit provides ventilation air for the lower level locker/shower and related support facility rooms. It was designed to bring in 13,000 cfm of either outside or recirculation air for space heating or for free cooling these areas as required. This system has reheat coils installed in various branch ducts to provide a level of zone temperature control.

A 6th unit provides 8,000 cfm of makeup air only for the basement boiler room. This air is used as a source of combustion air for the boilers and to provide boiler room ventilation.

All these units have exceeded their design life. They are corroded, and require significant attention to keep them operational. The related dampers and their operators are rusted and either not working well or not working at all. Operations personnel noted that during warm outdoor summer conditions the temperatures and humidity levels inside the building are difficult to control. Humidity can rise to 80%. Conditions can get very warm and uncomfortable. During a major summer swim meet in 1997, the uncomfortable conditions in the pool area made local news headlines. In winter the pool deck area can get uncomfortably cool.

Cooling: The main pool and lap pool area currently has no mechanical cooling system. In spring and fall, outside air can be used to provide some level of free cooling. However, in summer when outside temperatures are too high to achieve an indoor temperature of 78°F using free cooling, the main facility currently has no ability to provide further mechanical cooling or for that matter dehumidification.

The main level weight room had a 20-ton split system installed in 2004. The Hall of Fame lower level AHU, located in the main mechanical room has a split system air conditioning system. In addition, the Hall of Fame's 2 main floor AHU's located in the ceiling space, also have split system air conditioning systems. All 3 systems were installed in 1998/99 and have air cooled condensers mounted on the main pool room.

There are approximately 14 small rooms where year-round cooling is required. These rooms have window, floor mounted, or split system air conditioning systems installed.

Exhaust Fans: There are various exhaust fans in the building each with their own purpose.

- Lower level - men's locker room/shower area – 4,000 cfm.
- Lower level - women's locker washroom/shower area – 4,000 cfm.
- Main level washroom and boiler room exhaust – 8,000 cfm.
- Four – main pool area exhaust fans – 20,000 cfm each.
- Chlorine Exhaust fan – 300 cfm.
- Transformer room exhaust fan – 600 cfm.
- Hall of Fame Lower Level washroom exhaust fan – 1,400 cfm.

The 4 main pool area exhaust fans (20,000 CFM each) are primarily intended to exhaust fresh air brought into the main pool area by the AHU's for ventilation and humidity control. They are located at the center of the main pool area in the truss space above. They draw air from this location and discharge directly up through the roof. One of these 4 exhaust fans have a glycol heat recovery system installed.

DHW: Domestic water is heated via a heat exchanger which uses central boiler hot water. The heat exchanger is located in the main mechanical room. Also, in the main mechanical room are two large steel hot water storage tanks. The water is currently stored at 140°F and is heated by the boiler hot water system which is currently supplied to the heat exchanger at 170°F.
Heat Recovery: This building complex is equipped with a glycol recovery loop attached to (EF 7 exhaust air fan) on the cat walk. This unit is also the only exhaust fan which contains a VFD. The unit uses a closed loop system complete with a heat exchanger and a heat coil located within at the exhaust fan. There was no information on manufacture or the unit's capacity. Most of the components, piping and valves appear to be original. In 2009 It was reported by the Pool Maintenance manager that the heat exchanger on EF 7 has since been bypassed as coiled have become clogged. The glycol recovery loop is no longer in use.

Controls and Instrumentation

Controls are pneumatic and work in conjunction with the Johnson Metasys Building Automation System that is centrally controlled and manned in the basement. This system is the main controller for approximately 110 buildings under the City's jurisdiction including City Hall. The two 10 hp air compressors for both pneumatic controls and for the other pool equipment are located in the basement.

Plumbing

The Pan Am pool is supplied potable water from the City system via a 8" diameter main line from the street, and is tied into the storm and sanitary infrastructure. The water service was not equipped with back flow prevention. Piping materials are code compliant, and consist of a mixture that generally uses cast iron and abs for sanitary drains, copper for hot and cold water service, schedule 80 PVC for pool recirculation and chemical treatment systems, and steel for gas and water lines. City water feeds the hot water system, pool systems, water closets, sinks and urinals, showers, chemical treatment, and drinking fountains. Sanitary sewage is gravity feed into the city's sanitary sewage system.
The pool operations include the aforementioned water and chemical treatment systems using chlorine tablet “Puck” system for bacterial and PH control. The equipment s manufactured by Accu-Tab was installed in 2008. CO_2 gas is also used to control PH levels. There are three pools at this complex. The main pool is a 1 million gallon event pool. The second pool is 520,000 gallon lap pool. The final area is a smaller children's wading pool at 20,000 gallons. The filters on the larger pools consist of a gravity feed D/E (Diatomite Earth) filter system which are regenerated on a quarterly basis. Both of these pools unitize a “Puck” injection system. The filter tank supports 82 Elements/ bags, large pool and 36 Elements/ bags lap pool. The smaller children's pool uses two 700lb high rate sand filter system. Heating for the pool is produced by one of hot water boiler noted above. Water is connected to a shell and tube heat exchanger. The pools were also outfitted with an ozonated filter system which appears to be off line. The field staff indicated that numerous ozonated filter systems have been install throughout the City of Winnipeg's pool complexes without much success. Pool pump sizes are as follows: The event pool is supported by two 75Hp pumps. The lap pool is supported by two 30Hp pumps. The children's wading pool is supported by a single 5hp pump. A mushroom 5Hp pump used in the wading pool was also noted.
Hose bibs are installed on the exterior of the building, along with some site irrigation plumbing. Roof drainage is handled by internal roof drains which drain water to the buildings site drainage system.

Bathroom fixtures

The building has several gang type locker rooms along with smaller single occupant bathrooms. The lavatory and water closet units are vitreous china fixtures. The shower areas utilize stainless shower towers controlled with two centralized anti scald valves located in the basement mechanical room.

Electrical

Electrical Service

The Pan Am Pool building is supplied electricity by the Winnipeg Hydro Power Utility Company via underground service feeders from a 1000kVA, 4160kV - 600Y/347V exterior mounted transformer to a 1600 ampere building main disconnect switch. The main disconnect switch is an integrated component of a 1600 ampere, 347/600 volt, 3 phase, 4 wire Federal Pioneer distribution switchboard. The switchboard supplies power to power panel boards, distribution panels, motor control centres and equipment within the building. All the equipment described above is located in the basement level Main Electrical Room of the building.

Electrical Distribution

The majority of the building electrical distribution equipment was manufactured by the Federal Pioneer Electric Company. The condition of the equipment is commensurate with its use and the age of the building, constructed in 1967.

Electrical distribution equipment and components, consists of transformers, power panel boards, distribution panels and motor control centres that are located throughout the building primarily in electrical closets and mechanical rooms. Distribution voltage within the building is a combination of 347/600 and 120/208 volts, 3 phase, 4 wire. Emergency Generator

The building is equipped with life safety power generator. The equipment consisting of a diesel powered, 100kW/ 125kVA, 347/600v, 3 phase, pad mounted, Cummins emergency generator. The equipment was installed in 2007; however the unit was locked no run time recorded for this report. The generator uses a day tank connected to a 275 gallon fuel oil tank set within a secondary contaminate area. The Gen/Set was added to support the existing emergency lights within the pool deck areas.

Lighting Systems

A majority of the light fixtures used within the facility are fluorescent lamped units utilizing T8 lamps and electronic ballasts. High intensity discharge (HID) light fixtures mounted to catwalk structural members provide illumination in the pool area. Underwater pool illumination is provided by HID lamped fixtures. Please note the HID lighting within the main pool area, (1000watts lamps) and the lap and wade pool areas (400watts lamps) are operated 24/7 regardless of the pools operational hours.

Exterior building lighting consists of wall pack style and under canopy HID lamped fixtures.

Turtle Island RC- 510 King Street

Date of most Recent Assessment: Aug 28, 2015

- **Area:** 12,771 SF
- **Use:** Community Centre
- **Floors:** 1
- **Historical Category:** None
- **Year Constructed:** 1992

General Site Description

The Turtle Island Recreation Centre, Building No. RC-26 is located at 510 King Street in the City of Winnipeg, Manitoba. The surrounding site has a level topography and the building is surrounded by grassy areas and asphalt pavement.

Building General

The building has a total floor area of 12,771 square feet and consists of a single story plus mezzanine. According to information supplied by the client, the facility was constructed in 1992 and an addition named the Culture Room was built in 2002. The building's main function is a community center. According to the 1998 Manitoba Building Code the Major Occupancy Classification is Group A, Division 2 - Assembly.

Building Exterior

The exterior envelope of the building is constructed of a combination of concrete masonry unit (CMU) and EFIS (externally finished insulation system). The main flat roof has a built-up tar and gravel cover with scuppers and downspouts while the roof over the Culture Room is modified bitumen. The tower

roof consists of pre-formed coated metal roofing. Exterior windows consist of fixed aluminum sash with double-pane insulated glazing. The facility's entrances generally have swing-type aluminum and glass doors set in metal frames. Service entrances and exits have flush hollow metal doors set in metal frames.

Building Interior

The interior finishes are generally painted metal deck ceilings and painted gypsum board and wood veneer walls. Floor finishes include resilient tile in the vestibule, corridor, restrooms and classrooms; asphalt plank in the common area and linoleum in the gymnasium / multipurpose room, canteen and culture room. Interior openings are typically protected by hollow metal doors set in metal frames with knob type hardware.

Structure

Based on observations in the field, the facility's superstructure is comprised of metal deck on open web steel joists. The building's substructure consists of a concrete on ground floor assembly.

Vertical Transportation

The facility has one stairwell that serves the first to second floor mezzanine. The stairs consist of concrete filled metal pans with metal handrails. Hazardous Materials.

Mechanical

HVAC

DISTRIBUTION SYSTEMS: Distribution ductwork delivers conditioned air to various diffusers. Return air is typically by dedicated return air ductwork or an open plenum.
General building exhaust provisions are primarily via roof mounted fans as well as for the washrooms.
TERMINAL & PACKAGE UNITS: The building is conditioned by three gas fired roof top package units. RTU-2 and RTU-3 were manufactured by ENG A (Engineered Air) and were installed in 1992. RTU-2 is rated at 300,000 Btu/hr and RTU-3 at 600,000 Btu/hr. RTU-1 was installed in 2002 with a separate air cooled condenser and is rated at 350,000Btu/hr. A unit used for air conditioning only is located on the roof adjacent to the domestic hot water heater room.
Supplemental heating in select spaces is provided by electric baseboard heating units and suspended electric unit heaters.

Controls and Instrumentation

The HVAC systems are controlled by Controls are pneumatic and work in conjunction with the Johnson Metasys Building Automation and basic zone type thermostats.

Piping

Domestic water is supplied to the building by an underground line, 2" service with distribution by copper piping that reduces to 1/2 inches at the plumbing fixtures. This water service is equipped with a backflow preventer for the pool fill.
Hot water is produced by two (2) electric AO Smith, 18,000 W HWH's. The commercial grade State units have a storage capacity of 80 gallons each and were installed in 2012. Storm water flows directly off of the flat roof via scuppers and downspouts.
The sanitary distribution system is comprised of cast iron piping and is gravity fed into the city's sanitary sewage system. Plumbing Fixtures

The building has gang type multi-fixture bathrooms. The lavatory, urinal and water closet units are vitreous china fixtures. The kitchen, canteen and kitchenette in the CultureRoom have stainless steel sinks. Service sinks and a drinking fountain are provided. Fire Suppression

Electrical

Electrical Service

The building is supplied electricity underground from Manitoba Hydro Utility Company and supplies a 1200Amp switchboard.
Electrical distribution equipment consists of a 1200A, 120/208V, three phase four wire main switchboard feeding 225A, 120/208V, 3 P 4W distribution panelboards located throughout the building.

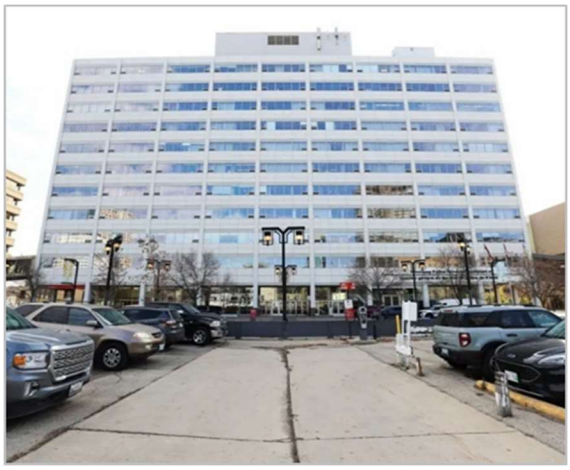
Lighting Systems

A majority of the light fixtures used within the facility are fluorescent lamped units utilizing T12 lamps with magnetic ballasts. The gym area utilizes metal halide hi-bay fixtures.
The exterior lighting consists of HID wall packs, with some accent lights located near the building's main entry.

245 Smith Street + 266 Graham- WPS Police Headquarters Building

Date of most Recent Assessment: No formal assessment conducted, however description below is from facility and maintenance personal.

- **Area:** 857,658 SF
- **Use:** Administrative and Operational Services
- **Floors:** Tower: 11, HQ: 4 + 3 levels of underground parking
- **Historical Category:** None
- **Year Constructed:** 2016



General Description

The Winnipeg Police Service (WPS) headquarters is located at 245 Smith Street in downtown Winnipeg. This facility, which opened in June 2016, was formerly a Canada Post sortation building before being repurposed to serve as the central hub for the city's police operations. It encompasses approximately 79,679 m² and houses various administrative and operational units of the WPS.

Building Description

This facility combines older and newer mechanical technologies. The heating system includes three 500HP boilers, of which only two operate at a time, even during the coldest weather. A summer boiler is also present, primarily for computer room and 911 humidification and zone control. Recently, two high-efficiency boilers were installed to enhance the system's summer boiler capabilities. While the domestic hot water system is currently adequate, the pumps are over-sized and our mechanical department is reviewing the situation.

The cooling system consists of three 300-ton chillers and one 600-ton chiller, all reciprocating units performing well. However, the building has significantly more cooling capacity than needed. Cooling towers 1, 2, and 3, which are water-based and connected to the 300-ton chillers, require work. CT#4, a newer glycol-based tower, supports the 600-ton chiller. Additionally, a dedicated cooling system with two 220-ton chillers serves the UPS room, ensuring consistent temperature control for critical equipment.

The ventilation and air systems include pneumatic controls and VAV boxes with reheat for zoned temperature management. However, the building is overventilated, leading to inefficiencies and increased energy usage. Air balancing is a significant issue, with some areas being over-pressurized and others under-pressurized. In the office areas, large-volume diffusers positioned directly over occupants in high-ceiling spaces create comfort issues.

The main heating in the offices is supplied by the air handling units (AHUs), though distribution is uneven. To address this, electric baseboards and ceiling fans were installed as a test in the southwest corner of the 3rd floor. This solution was successful but not replicated elsewhere in the building.

Air supply ducting is uninsulated where it penetrates exterior walls, causing issues such as snow and ice buildup inside the ducts. This results in leaks, mold concerns, and damage to walls, ceilings, and flooring. Furthermore, there is no heat recovery on the ventilation systems, reducing energy efficiency and increasing operational costs. CO_2 monitoring systems are installed but non-functional, limiting their ability to manage indoor air quality effectively.

Building envelope issues, such as failing glazing and non-insulated exterior walls, further exacerbate inefficiencies. Airflow through these walls allows vertical air movement, including from parking areas and vehicle ramps, negatively impacting indoor air quality and energy usage. The lack of mixed air control in the AHUs further reducing system efficiency.

Humidity management is another area of concern. The humidification system runs continuously at 100% but struggles to maintain humidity levels above 30%. The problem is exacerbated on higher floors, where humidity tends to increase, indicating uneven distribution.

The facility includes three levels of parking, although one level is only partially utilized. Garage ventilation is insufficient to handle fumes effectively, and exfiltration from the garage into office spaces further compromises air quality.

A study has been performed on the 3rd floor exterior and contains significant amounts of information including the historical issue from both MA and WPS. This will be made available to the successful applicant.

Considerations for separating the centralized (shared) services for the Tower and HQ are underway and should be taken into account.