

Facility Condition Assessment Summary Report

**British Columbia Institute of Technology
NE1 - J W Inglis Building**



Submitted by:

VFA Canada Corp.

Burnaby Centre

4211 Kingsway

Burnaby, BC V5H 1Z6

604-685-3757

July, 2011





Asset Detail Report

by Asset Name

NE1 - JW Inglis Building

Post BCIT
 Secondary
 Institution:
 Campus: BCIT Burnaby

Asset Name: NE 1 - J W Inglis Building

Asset Number: NE1

STATISTICS

FCI Cost:	8,691,045	FCI:	0.28
Total Requirements Cost :	8,792,346	RI:	0.28

Current Replacement Value	31,598,904	Address 1	3700 Willingdon Avenue
Size	20,077 SM	Address 2	-
Year Constructed	1977	City	Burnaby
Year Renovated	-	State/Province/Region	British Columbia
Commission Date	-	Zip/Postal Code	V5G 3H2
Decommission Date	-	Architect	BC Department of Public Works
Ownership	Client Owned	Historical Category	None
Floors	4	Construction Type	IBC - Type 2A
Type	Building	Use	Classroom / Training

PHOTO



NE1- JW Inglis Building

NE1- JW Inglis Building

ASSET DESCRIPTION

ARCHITECTURAL

General

NE 1-J W Inglis Building, is located at 3700 Willingdon Avenue Burnaby, BC V5G 3H2 on the main campus of the British Columbia Institute of Technology. The facility is four (4) stories in height, totals approximately 20,077 SM in area and was originally constructed in approximately 1977.

The facility contains classroom space, workshop space, faculty and staff office space, dining and food preparation space, plus HVAC and other building support spaces for the Building Trades Department.

All costs in CAD.

Per the 2006 British Columbia Building Code, Section 3.1.2.2. the building is classified as Major Occupancy Group A-2, Assembly Use Group (schools and colleges, non-residential), has a Construction Index of 4 or better, has a Hazard Index of 6 or better and is of non-combustible construction as determined from field observations. The facility is fully sprinklered.

Structure

Primary substructure systems include full/partial basement walls and foundations including strip footings, spread footings, grade beams, damp proofing, underdrains and a non-industrial type structural slab on grade.

Primary superstructure systems include multi-story medium weight structure with reinforced concrete construction including pre-cast concrete columns, load bearing walls, pre-cast concrete beams and pre-cast concrete floor slabs. Primary roof structure system includes reinforced pre-cast concrete roof decks.

Building Exterior

Primary exterior wall systems include exposed pre-cast architectural concrete, concrete masonry units (CMU), wood siding and pre-coated metal panels. Primary glazing system is/are operable and non-operable aluminum framed units with insulating/non-insulating glass. Glazing is a combination of tinted and clear units. Entrance doors are primarily aluminum and glass storefront units in aluminum frames. Service doors are primarily metal leaves in metal frames.

Roofing

Primary roof system is an inverted roof membrane assembly (IRMA) system with extruded polystyrene board insulation. Roof drainage is by internal drains to an underground storm water system. There are areas of unit skylights.

Building Interior

Primary interior partitions are standard GWB walls, CMU walls and cast-in-place concrete walls.

Interior doors are a combination of wood or metal doors set in hollow metal frames, with knob-type or lever-type hardware.

Primary wall finishes are standard paint finish, ceramic tile and exposed concrete.

Primary floor finishes are vinyl composition tile (VCT), sheet vinyl, carpet, ceramic tile and coated/uncoated concrete.

Primary ceiling finishes are acoustical ceiling tiles (ACT), painted gypsum board and painted concrete.

Vertical Transportation

There are five (5) full height interior egress stairwells and several service and access stairways around the facility. There are two (2) passenger elevators in rated shafts. Elevators are described elsewhere.

Accessibility/Fire Protection

The accessibility requirements for persons with disabilities were assessed utilizing the 1995 Canadian National Building Code, Section 3.8.1.1. The building partially conforms to the barrier-free requirements of the Code. Fire protection safety requirements were assessed utilizing the 1995 Canadian National Fire Code.

MECHANICAL

HVAC

The heating and ventilating for Inglis building is mainly provided by main campus heating closed loop pipes. There are three rooftops RTU - natural gas fired AAON units, 148,000 BTU/Hr with cooling capacity of 6Ton each. Also, the heating to the building is provided by three natural gas fired water heating boilers - Multi Star - 300 MBH each.

All costs in CAD.

The cooling for the building is provided by one 350Ton chiller, RTU, also there is one cooling media 350Ton / wet BAC cooling tower, there are DX split units servicing computer rooms. Also, there are three Lennox DX split 15Tons each servicing classrooms.

There are four air handling units located on the roof and mechanical rooms which distributing heating and cooling to the building.

Fresh air is drawn through the HVAC units and ducted to the supply air ductwork in the ceiling. The air is discharged into the space through rectangular type diffusers and supply grilles.

Return air is drawn through duct mounted grilles and back to the outdoor/return air mixing sections in the air handling units and rooftop units or discharged to the outdoors through the gravity relief damper.

The HVAC system includes exhaust fans servicing corridors, washrooms, janitor rooms and staff rooms.

The building is controlled by wall mounted thermostats. There is a direct digital control (DDC) system that starts and stops the mechanical equipment.

PLUMBING

Domestic water is supplied from main campus water line and entering the building mechanical room. The entry pipe also services the fire protection system. The branch of the domestic water distribution is primarily through copper piping.

The domestic hot water for the building is provided by main campus water heating closed loop and one water storage tank with heat exchanger. The system is supported by the building heating boilers in summer use.

Hot and cold water is distributed to restroom fixtures, janitors' sink and other points of use. The washroom fixtures include a variety of vitreous china urinals, water closets and lavatories. The plumbing fixtures also include stainless steel sink units located within the staff rooms.

Storm water is drained from the roof by drains with cast iron risers. Storm water is discharged by gravity into the city storm sewer. The building includes a sanitary waste piping system with gravity discharge to the municipal system.

The building includes natural gas distribution servicing RTUs and heating boilers.

FIRE PROTECTION

The building is fully sprinklered, there is no Jockey or fire pump installed to the system. Wall mounted dry chemical fire extinguishers and fire stand pipes are located throughout the building as required.

VERTICAL TRANSPORTATION

The building is equipped with one 30 KW hydraulic vertical transportation servicing four floors.

ELECTRICAL

HIGH VOLTAGE DISTRIBUTION

The Canada Way Substation has ten high voltage air break switches. One is a BC Hydro switch and the other nine feeds substations throughout the campus. They are substations:52 1-5 and 52 8-11. They are all rated at 12.9kV.

Substation N is fed from the Canada Way Substation and has one air break switch that is rated at 12.9kV and feeds the two high voltage transformers.

The building has two high voltage transformers. One is rated at 12.9kV at 1500kVA and feeds the 480V main switchgear section. The other is rated at 12.9kV at 300kVA and feeds the 208V main switchgear section.

MAIN ELECTRICAL DISTRIBUTION

All costs in CAD.

The main electrical switch for the building is broken into two sections. A 480V section and a 208V section. There are each fed from the high voltage transformers. The 480V section is rated at 2500A and the 208V section is rated at 1000A.

The building has main distribution panel boards that are both 208V and 480V. These feed utility panels boards or transformers. This is for main distribution sections SDC NE 1/1, 1/2, 1/3, 1/4, and 1/5.

The building has 480V at 225 or 400A distribution panel boards. These provide power to major equipment loads and step down transformers.

The building has multiple step down transformers that reduce the power from 480V to 208V. There is; 300kVA - 1, 112.5kVA - 1, 75kVA - 2, 45kVA - 1, and 15kVA - 1. These are original to the building.

The building has step down transformers that reduce the power from 480V to 208V, they are rated at: 112.5kVA - 1, 75kVA - 1, 45kVA - 1, and 30kVA - 1. These were installed in approximately 2006.

There are five motor control centers in the building - MCC#1-5. These are all rated at 480V and control major equipment and HVAC loads.

The building has electrical distribution panel boards that are rated at 120/208V and 100A or 225A typically. These provide power to lighting, utility, equipment, and small HVAC loads.

BRANCH WIRING AND LIGHTING

Branch wiring consists of outlets, switches, and the wiring between the panel boards and the end use devices.

Lighting system includes a mix of fluorescent and recessed pot lighting fixtures, lamps, conduit and wire. The fluorescent fixtures are hanging or recessed 1X4 and 2x4 units. The hanging lights or indirect units are lit with T8 bulbs and electronic ballasts. Lighting system includes eight lighting control panels.

The cafe seating is lit with wall mounted HID type fixtures and bulbs.

Exterior lighting is provided by recessed lighting in the soffits and wall mounted units. The bulbs are either HID type or fluorescent double pin PL fixtures.

The building has exit signs that are lit with LED bulbs. The exit signs indicated egress pathways in case of an emergency.

COMMUNICATIONS AND SECURITY

The building has telecom wiring that supports the VOIP phone system and the computer networking. This consists of RJ45 jacks, 4 pair twisted wiring - typically cat 5 or cat 5e, and wall blocks.

The building has an addressable fire alarm system that includes bell, horns, limited strobes, pull stations, the main control panel and wiring.

The building has a card access system that control egress into the building and control into specific areas within the building. It includes card swipes, proximity card readers, electric door strikes, front end computer, controllers, and wiring.

The building has a central clock system with clocks located in large classrooms and in the hallways throughout the building. The clock system consists of a central controller, single and double faced clocks, and interconnection wiring.

EMERGENCY POWER

The building has a single diesel powered generator. It is rated at 300 KW at 480V. It has an associated 3221 liter main belly tank. This provides backup power for emergency lighting and other essential services.

REQUIREMENTS

All costs in CAD.

Requirement Name	Prime System	Category	Priority	Action Date	Cost
Lighting Control Panels Renewal	D5022-Lighting Equipment	Beyond Useful Life	1- Immediate (within 1 year)	01/10/2011	47,046
Door Assembly - Storefront Double Renewal	B2030-Exterior Doors	Beyond Useful Life	1- Immediate (within 1 year)	01/10/2011	42,884
Overhead Rolling Doors Renewal	B2030-Exterior Doors	Beyond Useful Life	1- Immediate (within 1 year)	01/10/2011	14,337
Door Assembly - Storefront Single Renewal	B2030-Exterior Doors	Beyond Useful Life	1- Immediate (within 1 year)	01/10/2011	22,536
Door Assembly - Single Renewal	B2030-Exterior Doors	Beyond Useful Life	1- Immediate (within 1 year)	01/10/2011	17,786
Skylights - Metal Frame - Canopy Renewal	B3021-Glazed Roof Openings	Beyond Useful Life	1- Immediate (within 1 year)	01/10/2011	230,069
Windows - Aluminum Renewal	B2020-Exterior Windows	Beyond Useful Life	1- Immediate (within 1 year)	01/10/2011	261,298
Skylights - Metal Frame Renewal	B3021-Glazed Roof Openings	Beyond Useful Life	1- Immediate (within 1 year)	01/10/2011	372,650
Single-Ply EPDM with Pavers on Roof Renewal	B30-Roofing	Beyond Useful Life	1- Immediate (within 1 year)	01/10/2011	225,820
PVC - Single Ply Adhered - East Stairwell Renewal	B30-Roofing	Beyond Useful Life	1- Immediate (within 1 year)	01/10/2011	5,571
Skylights - Dome Type Renewal	B3021-Glazed Roof Openings	Beyond Useful Life	1- Immediate (within 1 year)	01/10/2011	1,777
Interior Stairwell Signage - Non-Compliant	C1035-Identifying Devices	Life Safety	1- Immediate (within 1 year)	01/10/2012	3,974
Signage (Room Numbering and Identification) - 2000 Renewal	C1035-Identifying Devices	Beyond Useful Life	1- Immediate (within 1 year)	01/10/2011	104,432
Carpeting - Broadloom - 1997 Renewal	C3020-Floor Finishes	Beyond Useful Life	1- Immediate (within 1 year)	01/10/2011	70,439
Concrete - Painted or Sealed - 1997 Renewal	C3020-Floor Finishes	Beyond Useful Life	1- Immediate (within 1 year)	01/10/2012	60,128
Branch Wiring - Equipment & Devices Renewal	D5021-Branch Wiring Devices	Beyond Useful Life	3- Long Term (3-5 years)	01/10/2016	240,172
Main Electrical Service - 2500A 277/480V Renewal	D5012-Low Tension Service and Dist.	Beyond Useful Life	3- Long Term (3-5 years)	01/10/2016	114,613
High Voltage Switch - Sub N Renewal	D5011-High Tension Service and Dist.	Beyond Useful Life	3- Long Term (3-5 years)	01/10/2016	69,694
Electrical Distribution Panelboards - 120/208V - 1977 Renewal	D5012-Low Tension Service and Dist.	Beyond Useful Life	3- Long Term (3-5 years)	01/10/2016	237,884

All costs in CAD.

Requirement Name	Prime System	Category	Priority	Action Date	Cost
Electrical Distribution Panelboards - 480V Renewal	D5012-Low Tension Service and Dist.	Beyond Useful Life	3- Long Term (3-5 years)	01/10/2016	68,397
Electrical Distribution - Motor Control Center Renewal	D5012-Low Tension Service and Dist.	Beyond Useful Life	3- Long Term (3-5 years)	01/10/2016	239,642
High Voltage Transformers Renewal	D5011-High Tension Service and Dist.	Beyond Useful Life	3- Long Term (3-5 years)	01/10/2016	204,119
Electrical Distribution Transformers - 1977 Renewal	D5012-Low Tension Service and Dist.	Beyond Useful Life	3- Long Term (3-5 years)	01/10/2016	52,407
Main Distribution Panelboards Renewal	D5012-Low Tension Service and Dist.	Beyond Useful Life	3- Long Term (3-5 years)	01/10/2016	161,251
Custodial Sink Renewal	D2010-Plumbing Fixtures	Beyond Useful Life	3- Long Term (3-5 years)	01/10/2014	12,082
Kitchenette - Cabinet, Counter and Sink Renewal	D2010-Plumbing Fixtures	Beyond Useful Life	3- Long Term (3-5 years)	01/10/2014	11,783
Hot Water Pipe Distribution System Renewal	D3040-Distribution Systems	Beyond Useful Life	3- Long Term (3-5 years)	01/10/2014	2,981,643
Drinking Fountain - Wall Mounted Renewal	D2010-Plumbing Fixtures	Beyond Useful Life	3- Long Term (3-5 years)	01/10/2014	7,374
Kitchen Hood Renewal	D2010-Plumbing Fixtures	Beyond Useful Life	3- Long Term (3-5 years)	01/10/2014	25,226
Rooftop - AC Unit Renewal	D3030-Cooling Generating Systems	Beyond Useful Life	3- Long Term (3-5 years)	01/10/2014	38,870
Unit Heaters - Hot Water Renewal	D3050-Terminal and Package Units	Beyond Useful Life	3- Long Term (3-5 years)	01/10/2014	4,220
Perimeter Heat System - Hydronic Fin Tube Renewal	D3040-Distribution Systems	Beyond Useful Life	3- Long Term (3-5 years)	01/10/2014	36,866
Air Compressor - 1977 Renewal	D2090-Other Plumbing Systems	Beyond Useful Life	3- Long Term (3-5 years)	01/10/2014	20,705
Hydraulic Passenger Elevator Renewal	D1010-Elevators and Lifts	Beyond Useful Life	3- Long Term (3-5 years)	01/10/2014	322,465
Domestic Storage Tank Renewal	D3044-Hot Water Distribution	Beyond Useful Life	3- Long Term (3-5 years)	01/10/2014	39,949
Chiller Unit Renewal	D3030-Cooling Generating Systems	Beyond Useful Life	3- Long Term (3-5 years)	01/10/2014	241,267
Exhaust System - Restroom Renewal	D3040-Distribution Systems	Beyond Useful Life	3- Long Term (3-5 years)	01/10/2014	94,079
Condenser Circulating Pump Renewal	D3044-Hot Water Distribution	Beyond Useful Life	3- Long Term (3-5 years)	01/10/2014	10,875

All costs in CAD.

Requirement Name	Prime System	Category	Priority	Action Date	Cost
Exhaust System - General Building Renewal	D3040-Distribution Systems	Beyond Useful Life	3- Long Term (3-5 years)	01/10/2014	499,596
Cooling Tower Renewal	D3030-Cooling Generating Systems	Beyond Useful Life	3- Long Term (3-5 years)	01/10/2014	92,494
Air Handling Unit - W/VFD Renewal	D3040-Distribution Systems	Beyond Useful Life	3- Long Term (3-5 years)	01/10/2014	421,532
Dust Collector Renewal	D3093-Dust and Fume Collectors	Beyond Useful Life	3- Long Term (3-5 years)	01/10/2014	28,918
Kitchen Sinks Renewal	D2010-Plumbing Fixtures	Beyond Useful Life	3- Long Term (3-5 years)	01/10/2014	4,514
Heating Coil - Duct Unit Renewal	D3040-Distribution Systems	Beyond Useful Life	3- Long Term (3-5 years)	01/10/2014	290,708
Wood Siding on Concrete Masonry Units Renewal	B2010-Exterior Walls	Beyond Useful Life	3- Long Term (3-5 years)	01/10/2016	25,256
Paint Finish - Wood Siding Walls - 1997 Renewal	B2010-Exterior Walls	Beyond Useful Life	3- Long Term (3-5 years)	01/10/2016	7,446
Wood Siding on Framing Renewal	B2010-Exterior Walls	Beyond Useful Life	3- Long Term (3-5 years)	01/10/2016	10,860
Parking Lot Asphalt - Vehicle Renewal	G2020-Parking Lots	Beyond Useful Life	3- Long Term (3-5 years)	01/10/2016	17,644
Concrete Interlocking Paver Sidewalk Renewal	G2030-Pedestrian Paving	Beyond Useful Life	3- Long Term (3-5 years)	01/10/2016	14,132
Concrete Sidewalk Renewal	G2030-Pedestrian Paving	Beyond Useful Life	3- Long Term (3-5 years)	01/10/2016	6,512
Fall Protection - Guardrails Renewal	B2015-Balcony Walls and Handrails	Beyond Useful Life	3- Long Term (3-5 years)	01/10/2016	76,275
Fixed Lockers - Single Tier Renewal	E2012-Fixed Casework	Beyond Useful Life	3- Long Term (3-5 years)	01/10/2016	395,710
Folding Partitions - Folding Leaf Renewal	C1013-Retractable Partitions	Beyond Useful Life	3- Long Term (3-5 years)	01/10/2016	83,118
Exterior Wall - Stained Concrete Walls	B2010-Exterior Walls	Appearance	4- Recommended	-	12,311
Plumbing Fixtures - No Insulation Under Sink	-	Accessibility	5- Does Not Meet Current Code	-	6,113
Stairs - Non Compliant Handrails	C20-Stairs	Building Code	5- Does Not Meet Current Code	-	82,877
				Total	8,792,346

All costs in CAD.