

# RECAPP Facility Evaluation Report

## Calgary School District #19



### Richmond Elementary School

B2757A

Calgary

**Facility Details**

**Building Name:** Richmond Elementary School  
**Address:** 2701 - 22 Street S. W.  
**Location:** Calgary  
  
**Building Id:** B2757A  
**Gross Area (sq. m):** 2,756.20  
**Replacement Cost:** \$7,711,155  
**Construction Year:** 1950

**Evaluation Details**

**Evaluation Company:** Asset Evolution Inc.  
**Evaluation Date:** October 2 2009  
**Evaluator Name:** Mario Plastina

**Total Maintenance Events Next 5 years:** **\$1,882,500**  
**5 year Facility Condition Index (FCI):** **24.41%**

**General Summary:**

Richmond Elementary School is a 1-storey school with a partial basement & crawl space. The school has a total building area of 3031m2. The original 1-storey school was built in 1950 with an addition of 6 classrooms on the east wing the same year. The school includes several classrooms, a gymnasium with stage, a library, a music room, a science and administrative offices. A mechanical room and storage room is located in the basement area. The exterior envelope of the school is currently being upgraded in 2009.

The 2009 student enrollment - 142 children

**Structural Summary:**

The foundations consist of cast-in-place concrete, grade beams and spread footings. The basement & main floor has a cast-in-place concrete slab-on-grade with conventional steel reinforcement. Basement walls in the mechanical room, storage area and service tunnel comprise of poured in place concrete and masonry concrete block. Wood frame construction supported by load bearing wood frame walls & concrete block walls. A concrete ramp with a painted steel handrails is located at the main west entrance. Poured in place concrete landing & stairs are located at the school entrances. The school has a wood framed roof structure except for gymnasium which has steel beams supported on steel columns.

Overall the structural elements, where visible are in acceptable condition.

Recommendations:

- Repair concrete stairs at the north and south end entrances.

**Envelope Summary:**

The majority of the exterior cladding comprises of a painted cement plaster wall assembly. The entrance areas on the exterior envelope have a brick cladding assembly. Pre-finished horizontal metal siding is located above the new window and door assembly. Expansion/control joints are located throughout the exterior cladding assembly. Sealant is located around all window, door and exterior cladding assemblies. The exterior cement plaster finish and wood trim have a paint finish. The firewalls between the east and west wings have a poured in place concrete assembly. Wood frame construction on the exterior walls above the concrete foundation walls. Portions of the exterior walls have concrete block construction on the inside face of the exterior wall assembly. Exterior metal louvres are located on the upper & lower portion of the exterior walls. The exterior window units are double glazed aluminum frame with fixed & operable awning glazed panels. All wood framed windows were currently being replaced during the October 2009 Site visit. The entrance doors comprise of painted insulated steel doors & frames assembly. Roof Sections A,B,C,D & E have a modified bituminous membrane roofing assembly (SBS). Prefinished metal gutters and downspouts are located on several upper roof areas, which eventually drain the lower roofs.

Overall, the building envelope is in acceptable condition.

Recommendations:

- Repair exterior cement plaster wall assembly (currently being conducted with the window replacement)
- Repair firewalls (Parapet) above the roof line

**Interior Summary:**

Interior partitions in the corridors & classrooms typically consist of painted plaster walls and gypsum board partitions with metal and/or wood frame. Interior partitions in the gymnasium and corridors typically consist of masonry block walls with a plaster finish. Single glazed opaque window units are located on the upper portion of the classroom and

corridor wall. Fixed interior tempered glazed windows in painted steel frames are located in the general office area. The interior swing doors generally consist of solid core painted and/or clear finished wood doors in painted wood frames. The doors in the corridors are wood doors complete with wood and/or pressed steel frames. The majority of the doors are not labeled with fire rating. Whiteboards, chalkboards and tackboards are located in the teaching areas. Prefinished metal washroom stall partitions are located in each boy's & girls washroom. The room number or room name is mounted on or above the interior doors. Open wood shelving storage units, painted, in the corridors for children shoes. Coat hooks are also located in the corridors. The washrooms are equipped with typical washroom accessories: Paper towel dispensers, toilet paper dispensers, hand-soap dispensers, waste bins and mirrors. The stairs to the basement and stage area are framed in wood construction. The stairs in the basement mechanical room are pored in poured in place concrete. The wood stairs to the stage and stairs in the mechanical room have a paint finish. The basement and stage stairs have steel railings and handrails. Wall paneling is located on the lower wall sections of the Gymnasium. Interior partitions in the corridors & classrooms typically consist of painted plaster walls. All renovated offices & classrooms have a gypsum board wall finish. Ceramic wall tile is located behind the urinals in the boys washrooms. The interior partitions throughout the school have a paint finish. Painted/sealed concrete floors are located in the mechanical rooms, basement utility rooms and storage rooms. Ceramic tile flooring is located throughout the washrooms. The gymnasium has hardwood flooring complete with line markings. Original sheet vinyl flooring is located throughout 10 classrooms, the music room, the main corridors and several storage rooms. New sheet vinyl flooring is located throughout two classrooms in the west wing. The original VAT flooring is located throughout the east-wing corridor and gym kitchen area. VCT flooring is located in the science room, washroom corridors and in the computer area of the library. Carpeting is located in the general office, principal and vice-principal offices. Acoustical glue-on ceiling tiles are located in the gymnasium, corridors and classrooms throughout the school. The science room, offices and new computer room have a 2'-0"x4'-0"suspended acoustical tile assembly. All the interior gypsum board & plaster ceilings in the washrooms have a paint finish.

Overall, the interior finishes are in acceptable condition.

Recommendations:

- Code Upgrade - Interior partition firestopping adjacent to new doors and frames.
- Refinish all interior doors throughout the school ( 60 doors)
- Replace original toilet partitions ( 12 stalls)
- Code Upgrade -Replace existing wood stairs to basement storage area.
- Provided power operators for barrier free access at the main north-east entrance.

### **Mechanical Summary:**

MECHANICAL SUMMARY (October 2009)

Primary building heating is provided by a natural gas fired steam heating boiler which supplies the building steam heating system terminal units (force flow convection cabinets, finned tube radiation cabinets, and unit ventilators).

Building ventilation is provided by one air handling system serving the office area at the northeast corner of the building, and by unit ventilators in the classrooms, the library, the computer room, the gymnasium, the music room, and the science room. The fresh air supplied to the building by the office area air handling unit and the unit ventilators is balanced by the exhaust air flow from the three building exhaust fans (two mounted on the roof and one located in the basement level tunnel).

Building HVAC equipment actuators and thermostats are generally pneumatic, and the control air supply system consists of an air compressor mounted on an air receiver tank, and includes a refrigerated air dryer.

Washroom plumbing fixtures include toilets, lavatories and urinals. There are 16 vitreous china floor mounted flush valve type toilets, three wall mounted vitreous china tank type urinals, and ten wall mounted vitreous china lavatories in the building. Other plumbing fixtures in the building include drinking fountains (3), and various sinks (21). One natural gas fired domestic hot water heater provides domestic hot water for the building lavatories and sinks.

Fire protection for the building consists of a standpipe system feeding fire hose reels, and fire extinguishers are located throughout the building on wall mount brackets (ABC type fire extinguishers).

Current mechanical system requirements include replacement of the remaining original sinks, repair of the domestic hot and cold water piping insulation, replacement of the steam boiler (as part of converting the building steam heating system to a hot water heating system), conversion of the building steam heating system to a hot water heating system (including replacement of the steam distribution system and steam heating terminal units with a hot water distribution system and hot water heating terminal units), replacement of the unit ventilators with two air handling units and air

distribution systems (one for the gymnasium and one for the classrooms), and replacement of the original pneumatic controls. Overall, the building mechanical equipment and systems are in marginal condition.

**Electrical Summary:**

There are two incoming hydro services to Richmond Elementary School. The services are a 400A, 120/240V, 1-phase, 3-wire service (CDP panel) and a 60A, 120/208V 3-phase, 3-wire service (mechanical equipment). Individual motor starters provide power for the mechanical equipment.

The wiring in the building is typically standard wiring in conduit.

The interior fluorescent lighting fixtures are typically older T12 fixtures with magnetic ballasts. The exit lighting in the building consists of LED exit signs. The emergency lighting is fed from battery powered emergency lighting units. The exterior lighting consists of surface mounted HPS fixtures.

The building is equipped with a Mircom FX-2000 fire alarm system. Detection and end devices include, smoke and heat detectors, horns/strobes and pull stations.

The various communications and security systems within the school include; a Silent Knight security system that monitors motion detectors and the exterior doors, a Bogen MCP-35A P.A. system and a Nortel Meridian telephone system. A wireless network system has been installed within the school. Hard wired data network systems have also been installed.

It is recommended, as routine maintenance, that a program for annual examination of major electrical components be instituted. Maintenance should include thermographic scans for hot spots and power shut down to allow examination of interior components for accumulated debris and signs of corrosion.

The main concerns for Richmond Elementary School are:

- 120/240V and 120/208V main services are aged.
- Original branch circuit panelboards are aged. Replacement breakers are not available.
- Original wiring devices are aged.
- Interior incandescent and T12 fluorescent lighting fixtures are not energy efficient. Fixtures have deteriorated lenses.

A Study is recommended for the electrical branch wiring.

Overall the electrical systems for Richmond Elementary School are in acceptable condition. The main power distribution systems are in marginal condition.

**Rating Guide**

<b>Condition Rating</b>	<b>Performance</b>
1 - Critical	Unsafe, high risk of injury or critical system failure.
2 - Poor	Does not meet requirements, has significant deficiencies. May have high operating/maintenance costs.
3 - Marginal	Meets minimum requirements, has significant deficiencies. May have above average operating maintenance costs.
4 - Acceptable	Meets present requirements, minor deficiencies. Average operating/maintenance costs.
5 - Good	Meets all present requirements. No deficiencies.
6 - Excellent	As new/state of the art, meets present and foreseeable requirements.

## S1 STRUCTURAL

### A1010 Standard Foundations\*

The foundations consist of cast-in-place concrete, grade beams and spread footings.

<u>Rating</u>	<u>Installed</u>	<u>Design Life</u>	<u>Updated</u>
4 - Acceptable	1950	100	MAR-10

### A1030 Slab on Grade\*

The basement & main floor has a cast-in-place concrete slab-on-grade with conventional steel reinforcement.

<u>Rating</u>	<u>Installed</u>	<u>Design Life</u>	<u>Updated</u>
4 - Acceptable	1950	100	MAR-10

### A2020 Basement Walls (& Crawl Space)\*

Basement walls in the mechanical room, storage area and service tunnel comprise of poured in place concrete and masonry concrete block.

<u>Rating</u>	<u>Installed</u>	<u>Design Life</u>	<u>Updated</u>
4 - Acceptable	1950	100	MAR-10

### B1010.01 Floor Structural Frame (Building Frame)\*

Wood frame construction supported by load bearing wood frame walls & concrete block walls

<u>Rating</u>	<u>Installed</u>	<u>Design Life</u>	<u>Updated</u>
4 - Acceptable	1950	100	MAR-10

### B1010.02 Structural Interior Walls Supporting Floors (or Roof)\*

Load bearing concrete block & load bearing wood frame walls.

<u>Rating</u>	<u>Installed</u>	<u>Design Life</u>	<u>Updated</u>
4 - Acceptable	1950	100	MAR-10

### B1010.06 Ramps: Exterior\*

A concrete ramp with a painted steel handrails is located at the main west entrance.

<u>Rating</u>	<u>Installed</u>	<u>Design Life</u>	<u>Updated</u>
5 - Good	2005	40	MAR-10

**B1010.07 Exterior Stairs\***

Poured in place concrete landing & stairs are located at the school entrances.

<u>Rating</u>	<u>Installed</u>	<u>Design Life</u>	<u>Updated</u>
3 - Marginal	1950	40	MAR-10

**Event:** Repair concrete stairs at the north and south end entrances.

**Concern:**

Several of the concrete stairs & landings are cracked.

**Recommendation:**

Repair concrete stairs at the north and south end entrances.

<u>Type</u>	<u>Year</u>	<u>Cost</u>	<u>Priority</u>
Repair	2010	\$5,000	Low

**Updated:** MAR-10



Cracked stairs at north-west entrance.

**B1010.09 Floor Construction Fireproofing\***

<u>Rating</u>	<u>Installed</u>	<u>Design Life</u>	<u>Updated</u>
4 - Acceptable	1950	50	MAR-10

**B1010.10 Floor Construction Firestopping\***

In visible areas, fire-stopping appeared to have been provided in the original construction.

<u>Rating</u>	<u>Installed</u>	<u>Design Life</u>	<u>Updated</u>
4 - Acceptable	1950	50	MAR-10

**B1020.01 Roof Structural Frame\***

The school has a wood framed roof structure except for gymnasium which has steel beams supported on steel columns.

<u>Rating</u>	<u>Installed</u>	<u>Design Life</u>	<u>Updated</u>
4 - Acceptable	1950	100	MAR-10

**B1020.06 Roof Construction Fireproofing\***

Fire rated gypsum board, where visible.

<u>Rating</u>	<u>Installed</u>	<u>Design Life</u>	<u>Updated</u>
4 - Acceptable	1950	50	MAR-10

## S2 ENVELOPE

### B2010.01.02.01 Brick Masonry: Ext. Wall Skin\*

The entrance areas on the exterior envelope have a brick cladding assembly.

<u>Rating</u>	<u>Installed</u>	<u>Design Life</u>	<u>Updated</u>
4 - Acceptable	1950	75	MAR-10

### B2010.01.06.03 Metal Siding\*\*

Pre-finished horizontal metal siding is located above the new window and door assembly.

<u>Rating</u>	<u>Installed</u>	<u>Design Life</u>	<u>Updated</u>
4 - Acceptable	2009	40	MAR-10

#### Event: Replace metal siding above windows & doors

<u>Type</u>	<u>Year</u>	<u>Cost</u>	<u>Priority</u>
Lifecycle Replacement	2049	\$75,000	Unassigned

**Updated:** MAR-10

### B2010.01.08 Cement Plaster (Stucco): Ext. Wall\*

The majority of the exterior cladding comprises of a painted cement plaster wall assembly. (currently being conducted with the exterior window replacement, however has not been completed before the Oct, 2009 Site visit).

<u>Rating</u>	<u>Installed</u>	<u>Design Life</u>	<u>Updated</u>
3 - Marginal	1950	75	MAR-10

#### Event: Repair exterior cement plaster wall assembly

**Concern:**

Portions of the exterior walls have deteriorated.

**Recommendation:**

Repair exterior cement plaster wall assembly

<u>Type</u>	<u>Year</u>	<u>Cost</u>	<u>Priority</u>
Preventative Maintenance	2010	\$150,000	Medium

**Updated:** MAR-10

### B2010.01.09 Expansion Control: Exterior Wall Skin\*

Expansion/control joints are located throughout the exterior cladding assembly.

<u>Rating</u>	<u>Installed</u>	<u>Design Life</u>	<u>Updated</u>
4 - Acceptable	1950	75	MAR-10

**B2010.01.11 Joint Sealers (caulking): Ext. Wall\*\***

Sealant is located around all window, door and exterior cladding assemblies.

<u>Rating</u>	<u>Installed</u>	<u>Design Life</u>	<u>Updated</u>
5 - Good	2009	20	MAR-10

**Event: Replace joint sealant on windows doors and exterior cladding**

<u>Type</u>	<u>Year</u>	<u>Cost</u>	<u>Priority</u>
Lifecycle Replacement	2029	\$75,000	Unassigned

**Updated:** MAR-10

**B2010.01.13 Paints (& Stains): Exterior Wall\*\***

The exterior cement plaster finish and wood trim have a paint finish.

<u>Rating</u>	<u>Installed</u>	<u>Design Life</u>	<u>Updated</u>
3 - Marginal	1950	15	MAR-10

**Event: Repaint all exterior stucco, wood trim and metal siding**

<u>Type</u>	<u>Year</u>	<u>Cost</u>	<u>Priority</u>
Lifecycle Replacement	2013	\$110,000	Unassigned

**Updated:** MAR-10

**Event: Repair firewalls (Parapet) above the roof line**

**Concern:**

The stucco finish has deteriorated on the firewalls above the roof level.

**Recommendation:**

Repair firewalls (Parapet) above the roof line

<u>Type</u>	<u>Year</u>	<u>Cost</u>	<u>Priority</u>
Preventative Maintenance	2010	\$12,000	Low

**Updated:** MAR-10



Deteriorated cement plaster finish on firewall - Roof Level

**B2010.02.03 Masonry Units: Ext. Wall Const.\***

Portions of the exterior walls have concrete block construction on the inside face of the exterior wall assembly.

<u>Rating</u>	<u>Installed</u>	<u>Design Life</u>	<u>Updated</u>
4 - Acceptable	1950	100	MAR-10



**B2010.02.05 Wood Framing : Ext. Wall Const.\***

Wood frame construction on the exterior walls above the concrete foundation walls

<u>Rating</u>	<u>Installed</u>	<u>Design Life</u>	<u>Updated</u>
4 - Acceptable	1950	100	MAR-10

**B2010.03 Exterior Wall Vapor Retarders, Air Barriers, and Insulation\***

Exterior Wall Vapor Retarders, Air Barriers, and Insulation - Not visible

<u>Rating</u>	<u>Installed</u>	<u>Design Life</u>	<u>Updated</u>
4 - Acceptable	1950	100	MAR-10

**B2010.05 Parapets\***

The firewalls between the east and west wings have a poured in place concrete assembly.

<u>Rating</u>	<u>Installed</u>	<u>Design Life</u>	<u>Updated</u>
4 - Acceptable	1950	100	MAR-10

**B2010.06 Exterior Louvers, Grilles, and Screens\***

Exterior metal louvres are located on the upper & lower portion of the exterior walls.

<u>Rating</u>	<u>Installed</u>	<u>Design Life</u>	<u>Updated</u>
4 - Acceptable	1950	50	MAR-10

**B2020.01.01.02 Aluminum Windows (Glass & Frame)\*\***

The exterior window units are double glazed aluminum frame with fixed & operable awning glazed panels. All wood framed windows were currently being replaced during the October 2009 Site visit.

<u>Rating</u>	<u>Installed</u>	<u>Design Life</u>	<u>Updated</u>
5 - Good	2009	40	MAR-10

**Event: Replace Aluminum Windows (Glass & Frame) - Approx 110 Units**

<u>Type</u>	<u>Year</u>	<u>Cost</u>	<u>Priority</u>
Lifecycle Replacement	2049	\$330,000	Unassigned

**Updated:** MAR-10

**B2030.01.02 Steel-Framed Storefronts: Doors\*\***

The entrance doors comprise of painted insulated steel doors & frames assembly.

<u>Rating</u>	<u>Installed</u>	<u>Design Life</u>	<u>Updated</u>
5 - Good	2009	30	MAR-10

**Event: Replace Steel-Framed Storefronts: 13 Doors**

<u>Type</u>	<u>Year</u>	<u>Cost</u>	<u>Priority</u>
Lifecycle Replacement	2039	\$52,000	Unassigned

**Updated:** MAR-10

**B3010.01 Deck Vapor Retarder and Insulation\***

<u>Rating</u>	<u>Installed</u>	<u>Design Life</u>	<u>Updated</u>
4 - Acceptable	1950	25	MAR-10

**B3010.04.04 Modified Bituminous Membrane Roofing (SBS)\*\* - Roof Sections A-E**

Roof Sections A,B,C,D & E have a modified bituminous membrane roofing assembly (SBS).

<u>Rating</u>	<u>Installed</u>	<u>Design Life</u>	<u>Updated</u>
5 - Good	2008	25	MAR-10

**Event: Replace Roof Sections Roof Sections A,B,C,D, & E (Approx Area - 2600m2)**

<u>Type</u>	<u>Year</u>	<u>Cost</u>	<u>Priority</u>
Lifecycle Replacement	2033	\$450,000	Unassigned

**Updated:** MAR-10

**B3010.08.02 Metal Gutters and Downspouts\*\***

Prefinished metal gutters and downspouts are located on several upper roof areas, which eventually drain the lower roofs.

<u>Rating</u>	<u>Installed</u>	<u>Design Life</u>	<u>Updated</u>
5 - Good	2008	30	MAR-10

**Event: Replace Metal Gutters and Downspouts**

<u>Type</u>	<u>Year</u>	<u>Cost</u>	<u>Priority</u>
Lifecycle Replacement	2038	\$12,000	Unassigned

**Updated:** MAR-10

**B3020.02 Other Roofing Openings (Hatch, Vent, etc)\***

Roof access hatch & ladder.

<u>Rating</u>	<u>Installed</u>	<u>Design Life</u>	<u>Updated</u>
4 - Acceptable	1950	25	FEB-05

### S3 INTERIOR

#### C1010.01 Interior Fixed Partitions\*

Interior partitions in the corridors & classrooms typically consist of painted plaster walls and gypsum board partitions with metal and/or wood frame. Interior partitions in the gymnasium and corridors typically consist of masonry block walls with a plaster finish.

<u>Rating</u>	<u>Installed</u>	<u>Design Life</u>	<u>Updated</u>
4 - Acceptable	1950	0	MAR-10

#### C1010.05 Interior Windows\*

Single glazed opaque window units are located on the upper portion of the classroom and corridor wall

<u>Rating</u>	<u>Installed</u>	<u>Design Life</u>	<u>Updated</u>
4 - Acceptable	1950	80	MAR-10

#### C1010.06 Interior Glazed Partitions and Storefronts\*

Fixed interior tempered glazed windows in painted steel frames are located in the general office area.

<u>Rating</u>	<u>Installed</u>	<u>Design Life</u>	<u>Updated</u>
4 - Acceptable	1950	80	MAR-10

#### C1010.07 Interior Partition Firestopping\*

<u>Rating</u>	<u>Installed</u>	<u>Design Life</u>	<u>Updated</u>
3 - Marginal	1950	50	MAR-10

**Event:** Interior partition firestopping adjacent to new doors and frames.

**Concern:**

Interior fire rating of partitions adjacent to new doors and frames not to current code.

**Recommendation:**

Replace interior partitions in conjunction with new interior door replacement.

<u>Type</u>	<u>Year</u>	<u>Cost</u>	<u>Priority</u>
Code Repair	2010	\$80,000	Medium

**Updated:** MAR-10

**C1020.01 Interior Swinging Doors (& Hardware)\***

The interior swing doors generally consist of solid core painted and/or clear finished wood doors in painted wood frames.

<b><u>Rating</u></b>	<b><u>Installed</u></b>	<b><u>Design Life</u></b>	<b><u>Updated</u></b>
3 - Marginal	1950	40	MAR-10

**Event:** **Refinish all interior doors throughout the school ( 60 doors)**

**Concern:**

The door panels are worn and damaged from constant use.

**Recommendation:**

Refinish all interior doors throughout the school ( 60 doors)

<b><u>Type</u></b>	<b><u>Year</u></b>	<b><u>Cost</u></b>	<b><u>Priority</u></b>
Preventative Maintenance	2010	\$30,000	Medium

**Updated:** MAR-10

**C1020.02 Interior Entrance Doors\***

Vestibule doors at each entrance to the building consist of painted wood doors in wood frames.

<b><u>Rating</u></b>	<b><u>Installed</u></b>	<b><u>Design Life</u></b>	<b><u>Updated</u></b>
4 - Acceptable	1950	0	MAR-10

**C1020.03 Interior Fire Doors\***

The doors in the corridors are wood doors complete with wood and/or pressed steel frames. The majority of the doors are not labeled with fire rating.

<b><u>Rating</u></b>	<b><u>Installed</u></b>	<b><u>Design Life</u></b>	<b><u>Updated</u></b>
4 - Acceptable	1950	50	MAR-10

**C1030.01 Visual Display Boards\*\***

Whiteboards, chalkboards and tackboards are located in the teaching areas.

<b><u>Rating</u></b>	<b><u>Installed</u></b>	<b><u>Design Life</u></b>	<b><u>Updated</u></b>
4 - Acceptable	1995	20	MAR-10

**Event:** **Replace whiteboards, chalkboards and tackboards**

<b><u>Type</u></b>	<b><u>Year</u></b>	<b><u>Cost</u></b>	<b><u>Priority</u></b>
Lifecycle Replacement	2015	\$25,000	Unassigned

**Updated:** MAR-10

**C1030.02 Fabricated Compartments(Toilets>Showers)\*\***

Prefinished metal washroom stall partitions are located in each boy's & girls washroom.

<b><u>Rating</u></b>	<b><u>Installed</u></b>	<b><u>Design Life</u></b>	<b><u>Updated</u></b>
3 - Marginal	1950	30	MAR-10

**Event: Replace original toilet partitions ( 12 stalls)**

**Concern:**

The toilet partitions are original and unstable.

**Recommendation:**

Replace original toilet partitions ( 12 stalls)

<b><u>Type</u></b>	<b><u>Year</u></b>	<b><u>Cost</u></b>	<b><u>Priority</u></b>
Failure Replacement	2012	\$12,000	Low

**Updated:** MAR-10

**C1030.08 Interior Identifying Devices\***

The room number or room name is mounted on or above the interior doors.

<b><u>Rating</u></b>	<b><u>Installed</u></b>	<b><u>Design Life</u></b>	<b><u>Updated</u></b>
4 - Acceptable	1950	20	MAR-10

**C1030.12 Storage Shelving\***

Open wood shelving storage units, painted, in the corridors for children shoes. Coat hooks are also located in the corridors.

<b><u>Rating</u></b>	<b><u>Installed</u></b>	<b><u>Design Life</u></b>	<b><u>Updated</u></b>
4 - Acceptable	1950	30	MAR-10

**C1030.14 Toilet, Bath, and Laundry Accessories\***

The washrooms are equipped with typical washroom accessories: Paper towel dispensers, toilet paper dispensers, hand-soap dispensers, waste bins and mirrors.

<b><u>Rating</u></b>	<b><u>Installed</u></b>	<b><u>Design Life</u></b>	<b><u>Updated</u></b>
4 - Acceptable	1950	20	MAR-10

**C2010 Stair Construction\***

The stairs to the basement and stage area are framed in wood construction. The stairs in the basement mechanical room are pored in poured in place concrete.

<u>Rating</u>	<u>Installed</u>	<u>Design Life</u>	<u>Updated</u>
4 - Acceptable	1950	100	MAR-10

**Event:** Replace existing wood stairs.

**Concern:**

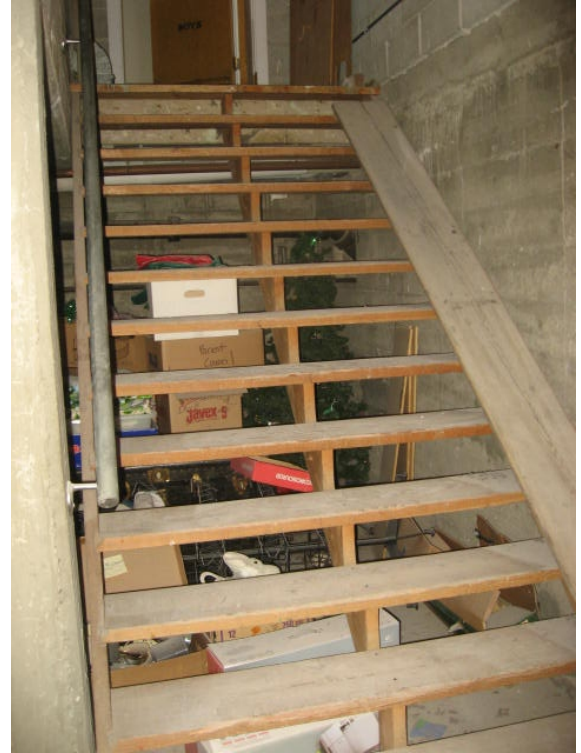
Stairs have improper rise to run ratio.

**Recommendation:**

Replace existing wood stairs.

<u>Type</u>	<u>Year</u>	<u>Cost</u>	<u>Priority</u>
Code Upgrade	2010	\$10,000	Medium

**Updated:** MAR-10



Stairs to basement storage area.

**C2020.08 Stair Railings and Balustrades\***

The basement and stage stairs have steel railings and handrails.

<u>Rating</u>	<u>Installed</u>	<u>Design Life</u>	<u>Updated</u>
4 - Acceptable	1950	40	MAR-10

**C2020.11 Other Stair Finishes\***

The wood stairs to the stage and stairs in the mechanical room have a paint finish.

<u>Rating</u>	<u>Installed</u>	<u>Design Life</u>	<u>Updated</u>
4 - Acceptable	1950	0	MAR-10

**C3010.02 Wall Paneling\*\***

Wall paneling is located on the lower wall sections of the Gymnasium

<u>Rating</u>	<u>Installed</u>	<u>Design Life</u>	<u>Updated</u>
4 - Acceptable	1950	30	MAR-10

**Event: Replace Wall Paneling in Gymnasium**

<u>Type</u>	<u>Year</u>	<u>Cost</u>	<u>Priority</u>
Lifecycle Replacement	2013	\$80,000	Unassigned

**Updated:** MAR-10

**C3010.03 Plaster Wall Finishes\***

Interior partitions in the corridors & classrooms typically consist of painted plaster walls.

<u>Rating</u>	<u>Installed</u>	<u>Design Life</u>	<u>Updated</u>
4 - Acceptable	1950	40	MAR-10

**C3010.04 Gypsum Board Wall Finishes (Unpainted)\***

All renovated offices & classrooms have a gypsum board wall finish.

<u>Rating</u>	<u>Installed</u>	<u>Design Life</u>	<u>Updated</u>
4 - Acceptable	1950	60	MAR-10

**C3010.06 Tile Wall Finishes\*\***

Ceramic wall tile is located behind the urinals in the boys washrooms.

<u>Rating</u>	<u>Installed</u>	<u>Design Life</u>	<u>Updated</u>
4 - Acceptable	1950	40	MAR-10

**Event: Replace ceramic wall tile in boy's washrooms**

<u>Type</u>	<u>Year</u>	<u>Cost</u>	<u>Priority</u>
Lifecycle Replacement	2013	\$10,000	Unassigned

**Updated:** MAR-10

**C3010.11 Interior Wall Painting\***

The interior partitions throughout the school have a paint finish.

<u>Rating</u>	<u>Installed</u>	<u>Design Life</u>	<u>Updated</u>
4 - Acceptable	1995	10	MAR-10



**C3020.01.02 Paint Concrete Floor Finishes\***

Painted/sealed concrete floors are located in the mechanical rooms, basement utility rooms and storage rooms.

<u>Rating</u>	<u>Installed</u>	<u>Design Life</u>	<u>Updated</u>
4 - Acceptable	1950	0	MAR-10

**C3020.02 Tile Floor Finishes\*\***

Ceramic tile flooring is located throughout the washrooms.

<u>Rating</u>	<u>Installed</u>	<u>Design Life</u>	<u>Updated</u>
4 - Acceptable	1950	50	MAR-10

**Event: Replace original mosaic floor tile in washrooms. (Approx. Area - 100m2)**

<u>Type</u>	<u>Year</u>	<u>Cost</u>	<u>Priority</u>
Lifecycle Replacement	2013	\$20,000	Unassigned

**Updated:** MAR-10

**C3020.04 Wood Flooring\*\***

The gymnasium has hardwood flooring complete with line markings.

<u>Rating</u>	<u>Installed</u>	<u>Design Life</u>	<u>Updated</u>
5 - Good	1999	30	MAR-10

**Event: Replace hardwood floor in gym and stage (Approx. Area - 300m2)**

<u>Type</u>	<u>Year</u>	<u>Cost</u>	<u>Priority</u>
Lifecycle Replacement	2029	\$38,000	Unassigned

**Updated:** MAR-10

**C3020.07 Resilient Flooring\*\* - New Sheet Vinyl**

New sheet vinyl flooring is located throughout two classrooms in the west wing.

<u>Rating</u>	<u>Installed</u>	<u>Design Life</u>	<u>Updated</u>
5 - Good	2005	20	MAR-10

**Event: Replace sheet vinyl in 2 classrooms- west wing (Approx Area -170m2)**

<u>Type</u>	<u>Year</u>	<u>Cost</u>	<u>Priority</u>
Lifecycle Replacement	2025	\$20,000	Unassigned

**Updated:** MAR-10

**C3020.07 Resilient Flooring\*\* - Original Sheet Vinyl**

Original sheet vinyl flooring is located throughout 10 classrooms, the music room, the main corridors and several storage rooms.

<u>Rating</u>	<u>Installed</u>	<u>Design Life</u>	<u>Updated</u>
4 - Acceptable	1950	20	MAR-10

**Event: Replace original 1950 Sheet vinyl ( Apporx. Area - 1300m2)**

<u>Type</u>	<u>Year</u>	<u>Cost</u>	<u>Priority</u>
Lifecycle Replacement	2013	\$165,000	Unassigned

**Updated:** MAR-10

**C3020.07 Resilient Flooring\*\* - Original VAT tiles**

The original VAT flooring is located throughout the east-wing corridor and gym kitchen area.

<u>Rating</u>	<u>Installed</u>	<u>Design Life</u>	<u>Updated</u>
4 - Acceptable	1950	20	MAR-10

**Event: Replace original VAT tiles ( Approx. Area - 120m2)**

**Recommendation:**

Asbestos abatement will be required when tiles are replaced.

<u>Type</u>	<u>Year</u>	<u>Cost</u>	<u>Priority</u>
Lifecycle Replacement	2013	\$20,000	Unassigned

**Updated:** MAR-10

**C3020.07 Resilient Flooring\*\* - VCT**

VCT flooring is located in the science room, washroom corridors and in the computer area of the library.

<u>Rating</u>	<u>Installed</u>	<u>Design Life</u>	<u>Updated</u>
4 - Acceptable	1999	20	MAR-10

**Event: Replace VCT flooring ( Approx. Area - 250m2)**

<u>Type</u>	<u>Year</u>	<u>Cost</u>	<u>Priority</u>
Lifecycle Replacement	2019	\$25,000	Unassigned

**Updated:** MAR-10

**C3020.08 Carpet Flooring\*\***

Carpeting is located in the general office, principal and vice-principal offices.

<u>Rating</u>	<u>Installed</u>	<u>Design Life</u>	<u>Updated</u>
4 - Acceptable	1992	15	MAR-10

**Event: Replace carpet flooring ( Approx. Area - 150m2)**

<u>Type</u>	<u>Year</u>	<u>Cost</u>	<u>Priority</u>
Lifecycle Replacement	2013	\$15,000	Unassigned

**Updated:** MAR-10

**C3030.01 Concrete Ceiling Finishes (Unpainted)\***

The concrete structure in the basement is exposed and unpainted.

<u>Rating</u>	<u>Installed</u>	<u>Design Life</u>	<u>Updated</u>
4 - Acceptable	1950	100	MAR-10

**C3030.04 Gypsum Board Ceiling Finishes (Unpainted)\***

Gypsum board ceilings are located in the washrooms and several utility rooms.

<u>Rating</u>	<u>Installed</u>	<u>Design Life</u>	<u>Updated</u>
4 - Acceptable	1950	60	MAR-10

**C3030.06 Acoustic Ceiling Treatment (Susp.T-Bar)\*\* 2'x4'**

The science room, offices and new computer room have a 2'-0"x4'-0"suspended acoustical tile assembly.

<u>Rating</u>	<u>Installed</u>	<u>Design Life</u>	<u>Updated</u>
5 - Good	2000	25	MAR-10

**Event: Replace acoustical ceiling tiles - 2'x4' - (Approx Area -300m2)**

<u>Type</u>	<u>Year</u>	<u>Cost</u>	<u>Priority</u>
Lifecycle Replacement	2025	\$25,000	Unassigned

**Updated:** MAR-10

**C3030.07 Interior Ceiling Painting\***

All the interior gypsum board & plaster ceilings in the washrooms have a paint finish.

<u>Rating</u>	<u>Installed</u>	<u>Design Life</u>	<u>Updated</u>
4 - Acceptable	1950	20	MAR-10

**C3030.09 Other Ceiling Finishes\***

Acoustical glue-on ceiling tiles are located in the gymnasium, corridors and classrooms throughout the school.

<u>Rating</u>	<u>Installed</u>	<u>Design Life</u>	<u>Updated</u>
5 - Good	1950	25	MAR-10

## S4 MECHANICAL

### D2010.04 Sinks\*\* - c.1950

Original sinks in the building include two c.1950 enameled cast iron janitor service sinks and 11 c.1950 counter mounted enameled steel sinks.

<u>Rating</u>	<u>Installed</u>	<u>Design Life</u>	<u>Updated</u>
3 - Marginal	1950	30	MAR-10

**Event:** Replace the c.1950 original counter mounted enameled steel sinks (11)

**Concern:**

The c.1950 counter mounted enameled steel sinks are in marginal condition due to surface finish deterioration.

**Recommendation:**

Replace the c.1950 counter mounted enameled steel sinks (11).

<u>Type</u>	<u>Year</u>	<u>Cost</u>	<u>Priority</u>
Failure Replacement	2012	\$18,000	Low

**Updated:** MAR-10

**Event:** Replace the c.1950 original enameled cast iron janitor service sinks (2)

<u>Type</u>	<u>Year</u>	<u>Cost</u>	<u>Priority</u>
Lifecycle Replacement	2013	\$4,000	Unassigned

**Updated:** MAR-10

### D2010.04 Sinks\*\* - c.2005

This element covers sinks in the building which were replaced in c.2005 (estimated), including eight general purpose stainless steel sinks.

<u>Rating</u>	<u>Installed</u>	<u>Design Life</u>	<u>Updated</u>
5 - Good	2005	30	MAR-10

**Event:** Replace the eight c.2005 general purpose stainless steel sinks

<u>Type</u>	<u>Year</u>	<u>Cost</u>	<u>Priority</u>
Lifecycle Replacement	2035	\$13,000	Unassigned

**Updated:** MAR-10

**D2010.08 Drinking Fountains / Coolers\*\* - c.2005**

This element covers the three wall mounted vitreous china drinking fountains which were replaced in c.2005 (estimated). The drinking fountains do not have coolers.

<b><u>Rating</u></b>	<b><u>Installed</u></b>	<b><u>Design Life</u></b>	<b><u>Updated</u></b>
5 - Good	2005	35	MAR-10

**Event: Replace the three c.2005 drinking fountains**

<b><u>Type</u></b>	<b><u>Year</u></b>	<b><u>Cost</u></b>	<b><u>Priority</u></b>
Lifecycle Replacement	2040	\$4,500	Unassigned

**Updated:** MAR-10

**D2010.10 Washroom Fixtures (WC, Lav, Urnl)\*\* - c.1950**

Most of the building toilets (15) are original. The toilets are vitreous china floor mounted flush valve type toilets. The flush valves appear to have been replaced in c.2005 (estimated).

<b><u>Rating</u></b>	<b><u>Installed</u></b>	<b><u>Design Life</u></b>	<b><u>Updated</u></b>
4 - Acceptable	1950	30	MAR-10

**Event: Replace the original c.1950 toilets (15)**

<b><u>Type</u></b>	<b><u>Year</u></b>	<b><u>Cost</u></b>	<b><u>Priority</u></b>
Lifecycle Replacement	2013	\$27,000	Unassigned

**Updated:** MAR-10

**D2010.10 Washroom Fixtures (WC, Lav, Urnl)\*\* - c.2005**

This element covers the washroom plumbing fixtures replaced in c.2005 (estimated). Washroom plumbing fixtures replaced in c.2005 include one vitreous china floor mounted flush valve type toilet, ten vitreous china wall mounted lavatories, and three vitreous china wall mounted tank type urinals.

<b><u>Rating</u></b>	<b><u>Installed</u></b>	<b><u>Design Life</u></b>	<b><u>Updated</u></b>
5 - Good	2005	35	MAR-10

**Event: Replace the c.2005 washroom plumbing fixtures (one toilet, ten lavatories and three urinals)**

<b><u>Type</u></b>	<b><u>Year</u></b>	<b><u>Cost</u></b>	<b><u>Priority</u></b>
Lifecycle Replacement	2040	\$24,000	Unassigned

**Updated:** MAR-10

**D2020.01.01 Pipes and Tubes: Domestic Water\***

There is one domestic water supply to the building. The domestic water supply is 100 mm diameter and is equipped with a water meter (50 mm diameter). The domestic water supply feeds the building domestic water distribution system and the building standpipe system. Most of the domestic water distribution system piping in the buildings is copper, and there are also some sections of galvanized steel piping.

<b><u>Rating</u></b>	<b><u>Installed</u></b>	<b><u>Design Life</u></b>	<b><u>Updated</u></b>
4 - Acceptable	1950	40	MAR-10

**D2020.01.02 Valves: Domestic Water\*\***

Domestic water system valves include the domestic water supply system main isolation valves, the domestic water distribution system zone isolating valves, and fixture isolating valves. Some of the original domestic water system isolation valves have been replaced. Isolation valves include globe, gate and ball type valves.

<b><u>Rating</u></b>	<b><u>Installed</u></b>	<b><u>Design Life</u></b>	<b><u>Updated</u></b>
4 - Acceptable	1950	40	MAR-10

**Event: Replace the domestic water distribution system isolation valves**

<b><u>Type</u></b>	<b><u>Year</u></b>	<b><u>Cost</u></b>	<b><u>Priority</u></b>
Lifecycle Replacement	2013	\$20,000	Unassigned

**Updated:** MAR-10

**D2020.01.03 Piping Specialties (Backflow Preventors)\*\* - c.1997**

There are two 50 mm diameter backflow prevention devices in parallel for the domestic water supply (located in the boiler room). There is one 50 mm diameter backflow prevention device for the water supply to the building standpipe system (located in the boiler room).

<b><u>Rating</u></b>	<b><u>Installed</u></b>	<b><u>Design Life</u></b>	<b><u>Updated</u></b>
4 - Acceptable	1997	20	MAR-10

**Event: Replace the domestic water supply backflow prevention devices (2 at 50 mm diameter) and the standpipe system water supply backflow prevention device (50 mm diameter) located in the boiler room**

<b><u>Type</u></b>	<b><u>Year</u></b>	<b><u>Cost</u></b>	<b><u>Priority</u></b>
Lifecycle Replacement	2017	\$10,500	Unassigned

**Updated:** MAR-10

**D2020.01.03 Piping Specialties (Backflow Preventors)\*\* - c.2004**

There is one 19 mm diameter backflow prevention device for the make-up water supply to the steam heating boiler in the boiler room.

<u>Rating</u>	<u>Installed</u>	<u>Design Life</u>	<u>Updated</u>
4 - Acceptable	2004	20	MAR-10

**Event:** Replace the 19 mm diameter backflow prevention device for the make-up water supply to the steam heating boiler (located in the boiler room)

<u>Type</u>	<u>Year</u>	<u>Cost</u>	<u>Priority</u>
Lifecycle Replacement	2024	\$1,000	Unassigned

**Updated:** MAR-10

**D2020.02.02 Plumbing Pumps: Domestic Water\*\***

There is a domestic hot water circulation pump for the domestic hot water heater located in the boiler room.

<u>Rating</u>	<u>Installed</u>	<u>Design Life</u>	<u>Updated</u>
4 - Acceptable	2005	20	MAR-10

**Event:** Replace the domestic hot water system circulation pump located in the boiler room

<u>Type</u>	<u>Year</u>	<u>Cost</u>	<u>Priority</u>
Lifecycle Replacement	2025	\$2,000	Unassigned

**Updated:** MAR-10

**D2020.02.06 Domestic Water Heaters\*\***

One natural gas fired domestic hot water heater located in the boiler room provides domestic hot water for the building sinks and lavatories. The domestic hot water heater is a John Wood model JW40S36FV-04 with an input heating capacity of 38,000 Btu/h (11.14 kW) and a volume of 40 us gallons (151 L).

<u>Rating</u>	<u>Installed</u>	<u>Design Life</u>	<u>Updated</u>
4 - Acceptable	2005	20	MAR-10

**Event:** Replace the domestic hot water heater located in the boiler room

<u>Type</u>	<u>Year</u>	<u>Cost</u>	<u>Priority</u>
Lifecycle Replacement	2025	\$2,500	Unassigned

**Updated:** MAR-10



**D2020.03 Water Supply Insulation: Domestic\***

Where the domestic water piping is exposed in the boiler room and in the tunnel, the hot and cold domestic water piping is not insulated.

<u>Rating</u>	<u>Installed</u>	<u>Design Life</u>	<u>Updated</u>
3 - Marginal	1950	40	MAR-10

**Event:** Insulate the domestic hot and cold water piping in the mechanical room, tunnel, and in any other areas where the piping is accessible

**Concern:**

The uninsulated domestic hot water piping will have excessive heat loss and condensation may form on the uninsulated domestic cold water piping during high humidity conditions.

**Recommendation:**

Insulate the domestic hot and cold water piping in the mechanical room, tunnel, and in any other areas where the piping is accessible.

<u>Type</u>	<u>Year</u>	<u>Cost</u>	<u>Priority</u>
Repair	2011	\$10,000	Low

**Updated:** MAR-10

**D2030.01 Waste and Vent Piping\***

Visible waste and vent piping is generally copper and galvanized steel in smaller diameters and cast iron in larger diameters. The waste and vent piping is generally original (c.1950). Some sections of the original cast iron waste piping have been replaced with ABS plastic piping.

<u>Rating</u>	<u>Installed</u>	<u>Design Life</u>	<u>Updated</u>
4 - Acceptable	1950	50	MAR-10

**D2030.02.04 Floor Drains\***

Floor drains are located in various areas of the building including the washrooms. The floor drains discharge to the building sanitary drainage system.

<u>Rating</u>	<u>Installed</u>	<u>Design Life</u>	<u>Updated</u>
4 - Acceptable	1950	0	MAR-10

**D2030.03 Waste Piping Equipment\***

There are two sump pits located in the boiler room, each equipped with a submersible sump pump. The sump pumps are c.1990 (estimated).

<u>Rating</u>	<u>Installed</u>	<u>Design Life</u>	<u>Updated</u>
4 - Acceptable	1990	30	MAR-10

**D2040.01 Rain Water Drainage Piping Systems\***

The roof areas of the building are flat or sloped and they typically drain via roof drains and internal drainage piping. One small roof area (roof area "B") drains via a scupper and downspout to a lower roof area.

<u>Rating</u>	<u>Installed</u>	<u>Design Life</u>	<u>Updated</u>
4 - Acceptable	1950	50	MAR-10

**D2040.02.04 Roof Drains\***

Storm water from the roof areas of the building drain via roof drains. The roof drains are equipped with metal strainers.

<u>Rating</u>	<u>Installed</u>	<u>Design Life</u>	<u>Updated</u>
4 - Acceptable	1950	40	MAR-10

**D3010.02 Gas Supply Systems\***

The natural gas supply is underground to the building. The gas supply line loops above grade on the north side of the building near the basement boiler room location where the exterior gas meter and pressure reducing station are located. Natural gas is supplied to the boiler room for the steam heating boiler and the domestic hot water heater.

<u>Rating</u>	<u>Installed</u>	<u>Design Life</u>	<u>Updated</u>
4 - Acceptable	1950	60	MAR-10

**D3020.01.01 Heating Boilers & Accessories: Steam\*\***

The heating boiler is a Waterous Limited model 8600C-27045 low pressure steam boiler. The steam boiler is original (c.1950).

<u>Rating</u>	<u>Installed</u>	<u>Design Life</u>	<u>Updated</u>
3 - Marginal	1950	35	MAR-10

**Event: Replace the existing steam heating boiler with duplex hot water heating boilers**

**Concern:**

The boiler is in marginal condition due to age, wear and corrosion. Since there is only one boiler for the building, a boiler failure would result in a complete loss of heating capacity.

**Recommendation:**

Replace the existing steam heating boiler with duplex hot water heating boilers when the building heating system is converted to a hot water heating system (see also D3040.02 Steam Distribution Systems: Piping/Pumps\*\*, D3050.05.01 Convectors\*\*, and D3050.05.03 Finned Tube Radiation\*\* for additional related costs).

<u>Type</u>	<u>Year</u>	<u>Cost</u>	<u>Priority</u>
Failure Replacement	2012	\$110,000	Medium

**Updated:** MAR-10

**D3020.01.02 Feedwater Equipment\***

There is a condensate collection tank located in the boiler room which collects the returning condensate from the heating terminal units and supplies the condensate (feedwater) to the steam boiler using a pump. Water treatment for the steam boiler feedwater is by automatic chemical addition to the condensate tank (from a chemical drum using a chemical dosing pump operating on a timer).

<b><u>Rating</u></b>	<b><u>Installed</u></b>	<b><u>Design Life</u></b>	<b><u>Updated</u></b>
4 - Acceptable	1950	0	MAR-10

**D3020.01.03 Chimneys (&Comb. Air) : Steam Boilers\*\***

The combustion gases from the steam boiler in the boiler room discharge through steel breeching to a chimney which penetrates the roof above the boiler room. Outside air is supplied to the boiler room for natural gas combustion in the boiler and the domestic hot water heater.

<b><u>Rating</u></b>	<b><u>Installed</u></b>	<b><u>Design Life</u></b>	<b><u>Updated</u></b>
3 - Marginal	1950	0	MAR-10

**Event:** **Replace the breeching for the steam boiler in the boiler room and line the chimney or replace the chimney lining if required when the steam boiler is replaced with hot water boilers**

**Concern:**

The boiler breeching will have to be replaced when the boiler is replaced.

**Recommendation:**

Replace the breeching for the boiler and line the chimney or replace the chimney lining if required when the steam boiler is replaced with hot water boilers.

<b><u>Type</u></b>	<b><u>Year</u></b>	<b><u>Cost</u></b>	<b><u>Priority</u></b>
Failure Replacement	2012	\$18,000	Low

**Updated:** MAR-10

**D3040.01.01 Air Handling Units: Air Distribution\*\***

There is a small ceiling mounted air handling unit which provides ventilation for the office area at the northeast corner of the school.

<b><u>Rating</u></b>	<b><u>Installed</u></b>	<b><u>Design Life</u></b>	<b><u>Updated</u></b>
4 - Acceptable	2005	30	MAR-10

**Event:** **Replace the ceiling mounted air handling unit providing ventilation for the office area at the northeast corner of the building**

<b><u>Type</u></b>	<b><u>Year</u></b>	<b><u>Cost</u></b>	<b><u>Priority</u></b>
Lifecycle Replacement	2035	\$25,000	Unassigned

**Updated:** MAR-10

**D3040.01.04 Ducts: Air Distribution\***

The air distribution ducts include the supply air, return air, and fresh air duct systems for the constant volume air handling unit serving the office area at the northeast corner of the building. The duct systems include associated components not specifically listed elsewhere, including duct insulation, turning vanes, dampers, mixing boxes, etc.

<b><u>Rating</u></b>	<b><u>Installed</u></b>	<b><u>Design Life</u></b>	<b><u>Updated</u></b>
5 - Good	2005	50	MAR-10

**D3040.01.07 Air Outlets & Inlets:Air Distribution\***

Air outlets and inlets include supply air diffusers and return air grilles for the air distribution system serving the office area at the northeast corner of the building. Supply air diffusers include square diffusers mounted in the T-bar suspended ceiling grid and return air grilles are eggcrate type grilles mounted in the T-bar suspended ceiling grid.

<b><u>Rating</u></b>	<b><u>Installed</u></b>	<b><u>Design Life</u></b>	<b><u>Updated</u></b>
5 - Good	2005	30	MAR-10

**D3040.02 Steam Distribution Systems: Piping/Pumps\*\***

The c.1950 original building is heated with steam from the steam boiler located in the boiler room. The steam distribution systems include the steam supply piping and the condensate return piping. There is one condensate collection system (boiler feedwater system) located in the boiler room. The condensate collection system includes the boiler feedwater chemical treatment system (see D3020.01.02 Feedwater Equipment\*). The steam and condensate distribution systems include piping, valves, piping insulation, piping specialties, and steam traps.

<b><u>Rating</u></b>	<b><u>Installed</u></b>	<b><u>Design Life</u></b>	<b><u>Updated</u></b>
3 - Marginal	1950	30	MAR-10

**Event:** **Replace the building steam heating system with a hot water heating system when the steam boiler is replaced with hot water heating boilers**

**Concern:**

The steam and condensate distribution systems are in acceptable condition but should be replaced with a hot water heating system when the steam boiler is replaced with hot water heating boilers (see D3020.01.01 Heating Boilers & Accessories: Steam\*\*).

**Recommendation:**

Replace the building steam heating system with a hot water heating system when the steam boiler is replaced with hot water heating boilers (see also D3020.01.01 Heating Boilers & Accessories: Steam\*\*, D3050.05.01 Convectors\*\*, and D3050.05.03 Finned Tube Radiation\*\* for additional related costs).

<b><u>Type</u></b>	<b><u>Year</u></b>	<b><u>Cost</u></b>	<b><u>Priority</u></b>
Failure Replacement	2012	\$220,000	Low

**Updated:** MAR-10

**D3040.04.01 Fans: Exhaust\*\***

There are two roof mounted exhaust fans and one interior exhaust fan providing sanitary and general exhaust for the building. The interior exhaust fan is located in the basement level tunnel.

<u>Rating</u>	<u>Installed</u>	<u>Design Life</u>	<u>Updated</u>
4 - Acceptable	1950	30	MAR-10

**Event: Replace the two roof mounted exhaust fans and the interior exhaust fan located in the tunnel**

<u>Type</u>	<u>Year</u>	<u>Cost</u>	<u>Priority</u>
Lifecycle Replacement	2013	\$12,000	Unassigned

**Updated:** MAR-10

**D3040.04.03 Ducts: Exhaust\***

Exhaust duct systems include the collection ducts associated with the three building exhaust fans and the discharge duct associated with the interior exhaust fan.

<u>Rating</u>	<u>Installed</u>	<u>Design Life</u>	<u>Updated</u>
4 - Acceptable	1950	50	MAR-10

**D3040.04.05 Air Outlets and Inlets: Exhaust\***

Exhaust air inlets include the inlet grilles associated with the exhaust system collection ducts. Exhaust air outlets include the discharge louvre for the interior exhaust fan.

<u>Rating</u>	<u>Installed</u>	<u>Design Life</u>	<u>Updated</u>
4 - Acceptable	1950	30	MAR-10

**D3050.05.01 Convectors\*\***

There are nine steam force flow convection cabinets in the building located at high heat load areas including the building entrances and the gymnasium.

<u>Rating</u>	<u>Installed</u>	<u>Design Life</u>	<u>Updated</u>
3 - Marginal	1950	30	MAR-10

**Event: Replace the 9 steam force flows**

**Concern:**

The force flow convection cabinets are in marginal condition due to wear.

**Recommendation:**

Replace the steam force flow convection cabinets with hot water type force flow convection cabinets when the building heating system is converted from steam to hot water.

<u>Type</u>	<u>Year</u>	<u>Cost</u>	<u>Priority</u>
Failure Replacement	2012	\$36,000	Medium

**Updated:** MAR-10

**D3050.05.03 Finned Tube Radiation\*\***

Steam type finned tube radiation cabinets are used in various locations including the classrooms, washrooms, and offices.

<u>Rating</u>	<u>Installed</u>	<u>Design Life</u>	<u>Updated</u>
3 - Marginal	1950	40	MAR-10

**Event:** Replace the steam finned tube radiation cabinets with hot water type finned tube radiation cabinets when the building heating system is converted from steam to hot water

**Concern:**

The finned tube radiation cabinets are in marginal condition due to age and wear.

**Recommendation:**

Replace the steam finned tube radiation cabinets with hot water type finned tube radiation cabinets when the building heating system is converted from steam to hot water.

<u>Type</u>	<u>Year</u>	<u>Cost</u>	<u>Priority</u>
Failure Replacement	2012	\$45,000	Low

**Updated:** MAR-10

**D3050.05.07 Unit Ventilators\*\***

Unit ventilators provide heating and ventilation for the classrooms, the library, the gymnasium, the computer room, the music room, and the science room (16 total).

<u>Rating</u>	<u>Installed</u>	<u>Design Life</u>	<u>Updated</u>
3 - Marginal	1950	0	MAR-10

**Event:** Replace the unit ventilators with two air handling units and air distribution systems, one for the gymnasium and one for the classrooms (coordinate with the conversion of the building steam heating system to a hot water heating system)

**Concern:**

The unit ventilators are in marginal condition due to age and wear. The units are noisy which disrupts the teaching environment. Maintenance requirements for the unit ventilators is high and parts availability is poor.

**Recommendation:**

Replace the unit ventilators with two air handling units and air distribution systems (one for the gymnasium and one for the classrooms). Coordinate with the conversion of the building steam heating system to a hot water heating system.

<u>Type</u>	<u>Year</u>	<u>Cost</u>	<u>Priority</u>
Failure Replacement	2012	\$180,000	Low

**Updated:** MAR-10

**D3060.02.02 Pneumatic Controls\*\***

The building HVAC system controls and actuators are generally pneumatic. The control air supply system is located in the boiler room and consists of an air compressor mounted on an air receiver tank (c.1983), as well as a refrigerated air dryer. Pneumatic controls include pneumatic thermostats, control valves, and damper actuators. This element includes the control air distribution system.

<u>Rating</u>	<u>Installed</u>	<u>Design Life</u>	<u>Updated</u>
3 - Marginal	1950	40	MAR-10

**Event:** Replace the pneumatic controls (consider upgrading to an electric and electronic control system)

**Concern:**

The original pneumatic controls are in marginal condition due to age, wear and obsolescence.

**Recommendation:**

Replace the pneumatic controls (consider upgrading to an electric and electronic control system).

<u>Type</u>	<u>Year</u>	<u>Cost</u>	<u>Priority</u>
Failure Replacement	2012	\$25,000	High

**Updated:** MAR-10

**D4020 Standpipes\***

The school is equipped with a standpipe system feeding standard fire hose reels located throughout the building.

<u>Rating</u>	<u>Installed</u>	<u>Design Life</u>	<u>Updated</u>
4 - Acceptable	1950	60	MAR-10

**D4030.01 Fire Extinguisher, Cabinets and Accessories\***

Wall mounted fire extinguishers (ABC type) are located throughout the building.

<u>Rating</u>	<u>Installed</u>	<u>Design Life</u>	<u>Updated</u>
4 - Acceptable	1950	30	MAR-10

## S5 ELECTRICAL

### D5010.03 Main Electrical Switchboards (Main Distribution)\*\*

The main incoming hydro service to Richmond Elementary School is a 120/240V, 1-phase, 3-wire overhead service from a pole mounted transformer, located on 22nd street S.W.. The ENMAX meter for this service is located in the main electrical room. The main distribution consists of a main disconnect switch rated at 400A, 120/240V, 1-phase, 3-wire and a 400A CDP panel for the various building loads.

A second hydro service is also located in the main electrical room. The second service is a 60A, 120/208V, 3-phase, 3-wire service that feeds mechanical equipment loads.

<u>Rating</u>	<u>Installed</u>	<u>Design Life</u>	<u>Updated</u>
3 - Marginal	1950	40	MAR-10

#### Event: Replace Main Distribution

##### **Concern:**

There are two incoming services to the school. A 60A 120/208V 3-phase service and a 400A 120/240V 1-phase service. The main distribution equipment is aged.

##### **Recommendation:**

Replace both incoming services with a new 120/208V 3-phase service sized to accommodate the total building load. A new breaker type service entrance switchboard c/w surge protection should be installed.

<u>Type</u>	<u>Year</u>	<u>Cost</u>	<u>Priority</u>
Failure Replacement	2010	\$25,000	High

**Updated:** MAR-10



Aged 60A, 120/208V, 3-phase, 3-wire service.



**D5010.05 Electrical Branch Circuit Panelboards (Secondary Distribution)\*\* - 1950**

There are original, 120/240V single phase, General Electric and Amalgamated Electric panels within the school. The panels have copper bussing and bolt-on breakers.

<u>Rating</u>	<u>Installed</u>	<u>Design Life</u>	<u>Updated</u>
2 - Poor	1950	30	MAR-10

**Event: Replace Panels Installed in 1957**

**Concern:**

The branch circuit panels (1950-1954) are at the end of their life expectancy. Over the life of the panel, breaker contacts become worn and the breakers will no longer operate correctly and may trip unnecessarily. Older panels do not readily accept newer style breakers.

**Recommendation:**

Replace aged panelboards. If service is upgraded to a 3-phase service then the single phase panels should be replaced with 120/208V, 3-phase, 4-wire panels.

**Consequences of Deferral:**

Deferring replacement could lead to partial power outages and intermittent tripping of breakers as well as increased maintenance costs.

<u>Type</u>	<u>Year</u>	<u>Cost</u>	<u>Priority</u>
Failure Replacement	2010	\$20,000	Medium

**Updated:** MAR-10



Aged branch circuit panel in main electrical room.

**D5010.05 Electrical Branch Circuit Panelboards (Secondary Distribution)\*\* - 1997**

A Cutler Hammer, single phase, 120/240V has been provided for the new office area.

<u>Rating</u>	<u>Installed</u>	<u>Design Life</u>	<u>Updated</u>
5 - Good	1997	30	MAR-10

**Event: Replace one Panel Installed in 1997**

<u>Type</u>	<u>Year</u>	<u>Cost</u>	<u>Priority</u>
Lifecycle Replacement	2027	\$4,000	Unassigned

**Updated:** MAR-10

**D5010.07.02 Motor Starters and Accessories\*\***

Allen Bradley starters have typically been provided for the mechanical motor loads. There are motor rated starter switches within the school for fractional horsepower loads.

<u>Rating</u>	<u>Installed</u>	<u>Design Life</u>	<u>Updated</u>
4 - Acceptable	1990	30	MAR-10

**Event: Replace Motor Starter and Accessories**

<u>Type</u>	<u>Year</u>	<u>Cost</u>	<u>Priority</u>
Lifecycle Replacement	2020	\$5,000	Unassigned

**Updated:** MAR-10

**D5020.01 Electrical Branch Wiring\***

The majority of the cabling is standard building wire in EMT conduit. Armoured cable has been provided, in selected locations, for final connections to mechanical and miscellaneous equipment.

<u>Rating</u>	<u>Installed</u>	<u>Design Life</u>	<u>Updated</u>
4 - Acceptable	1950	50	MAR-10

**Event: Electrical Wiring Study**

**Concern:**

The original branch wiring building has exceeded its theoretical life expectancy. With age the wiring insulation can break down, which can lead to short circuits and potential fire hazards.

**Recommendation:**

Inspect and test the wiring systems within the building to determine the condition of the wiring. Study should include costing for any proposed replacements.

<u>Type</u>	<u>Year</u>	<u>Cost</u>	<u>Priority</u>
Study	2010	\$5,000	Medium

**Updated:** MAR-10

**D5020.02.01 Lighting Accessories (Lighting Controls)\***

Lighting within the school is typically controlled by 120V line voltage switches.

<u>Rating</u>	<u>Installed</u>	<u>Design Life</u>	<u>Updated</u>
3 - Marginal	1950	30	MAR-10

**Event: Replace Aged Lighting Switches**

**Concern:**

Many of the lighting switches are aged. Play in the switches indicates contacts are wearing, which could lead to short circuits.

**Recommendation:**

Replace aged lighting switches.

<u>Type</u>	<u>Year</u>	<u>Cost</u>	<u>Priority</u>
Failure Replacement	2011	\$6,000	Low

**Updated:** MAR-10



Aged 120V lighting switches.

**D5020.02.02.01 Interior Incandescent Fixtures\***

Incandescent lighting fixtures have been provided in areas such as the service rooms, storage rooms and the service tunnel.

<u>Rating</u>	<u>Installed</u>	<u>Design Life</u>	<u>Updated</u>
3 - Marginal	1950	30	MAR-10

**Event: Replace Interior Incandescent Lighting Fixtures**

**Concern:**

The incandescent fixtures are not energy efficient. Additional maintenance is required for incandescent lighting due to the short lamp life. Some fixtures are damaged.

**Recommendation:**

Replace existing incandescent fixtures with energy efficient fluorescent fixtures.

<u>Type</u>	<u>Year</u>	<u>Cost</u>	<u>Priority</u>
Failure Replacement	2011	\$7,500	Medium

**Updated:** MAR-10



Incandescent lighting in service tunnel.

**D5020.02.02.02 Interior Florescent Fixtures\*\* - T12**

A variety of fluorescent lighting fixtures have been provided within the building. The typical fixture is a suspended or surface mounted louvered T12 fluorescent fixture. Some of the original T12 fluorescent fixtures have damaged or missing louvers. Surface mounted 1 ft. x 4 ft. T12 fluorescent fixtures have been provided in the corridors and main washrooms.

<u>Rating</u>	<u>Installed</u>	<u>Design Life</u>	<u>Updated</u>
3 - Marginal	1950	30	MAR-10

**Event: Replace Aged Interior T12 Fluorescent Lighting**

**Concern:**

The T12 Fluorescent fixtures in the building are older style. Many of the fixtures have damaged or missing lenses. Energy savings could be realized by replacing the T12 fixtures with new T5 or T8 fluorescent fixtures.

**Recommendation:**

Replace existing T12 fluorescent lighting with new T5 or T8 fluorescent fixtures. Incorporate lamp reduction where possible.



Aged louvered T12 fluorescent fixtures.

<u>Type</u>	<u>Year</u>	<u>Cost</u>	<u>Priority</u>
Failure Replacement	2011	\$125,000	Medium

**Updated:** MAR-10

**D5020.02.02.02 Interior Florescent Fixtures\*\* - T8**

Suspended T8 wrap-around fluorescent fixtures have been provided in the library area. The T8 fixtures have electronic ballasts.

<u>Rating</u>	<u>Installed</u>	<u>Design Life</u>	<u>Updated</u>
5 - Good	2004	30	MAR-10

**Event: Replace T8 Fluorescent Lighting Fixtures**

<u>Type</u>	<u>Year</u>	<u>Cost</u>	<u>Priority</u>
Lifecycle Replacement	2034	\$15,000	Unassigned

**Updated:** MAR-10

**D5020.02.03.02 Emergency Lighting Battery Packs\*\***

Emergency lighting is provided by emergency lighting battery packs and remote emergency lighting heads.

<u>Rating</u>	<u>Installed</u>	<u>Design Life</u>	<u>Updated</u>
5 - Good	2005	20	MAR-10

**Event: Replace Emergency Lighting Battery Packs**

<u>Type</u>	<u>Year</u>	<u>Cost</u>	<u>Priority</u>
Lifecycle Replacement	2025	\$10,000	Unassigned

**Updated:** MAR-10

**D5020.02.03.03 Exit Signs\***

Exit signs are generally located to indicate building exits and egress routes to exits. The exit signs have LED lamps.

<u>Rating</u>	<u>Installed</u>	<u>Design Life</u>	<u>Updated</u>
5 - Good	2005	30	MAR-10

**D5020.03.01.04 Exterior H.P. Sodium Fixtures\***

Surface mounted H.I.D wallpack fixtures have been provided for the school.

<u>Rating</u>	<u>Installed</u>	<u>Design Life</u>	<u>Updated</u>
4 - Acceptable	2000	30	MAR-10

**D5020.03.02 Lighting Accessories: Exterior (Lighting Controls)\***

The exterior lighting is controlled by photocells and a timer.

<u>Rating</u>	<u>Installed</u>	<u>Design Life</u>	<u>Updated</u>
4 - Acceptable	2000	30	MAR-10

**D5030.01 Detection and Fire Alarm\*\***

The fire alarm system control panel is a Mircom FX-2000 panel. The control panel is located in the main entrance vestibule. A passive graphic, indicating the zone layout (9 active zones, 7 spare zones), is located beside the main control panel. The audible devices within the school are combination horn/strobe units.

<u>Rating</u>	<u>Installed</u>	<u>Design Life</u>	<u>Updated</u>
5 - Good	2005	25	MAR-10

**Event: Replace Fire Alarm System**

<u>Type</u>	<u>Year</u>	<u>Cost</u>	<u>Priority</u>
Lifecycle Replacement	2030	\$60,000	Unassigned

**Updated:** MAR-10

**D5030.02.02 Intrusion Detection\*\***

The security system is a Silent Knight 4720 system. A security system keypad has been provided at the main building entrance. PIR motion detectors have been provided in selected areas of the school. The security control panels are located in the main entrance vestibule.

<u>Rating</u>	<u>Installed</u>	<u>Design Life</u>	<u>Updated</u>
4 - Acceptable	1999	25	MAR-10

**Event: Replace Intrusion Detection System**

<u>Type</u>	<u>Year</u>	<u>Cost</u>	<u>Priority</u>
Lifecycle Replacement	2024	\$15,000	Unassigned

**Updated:** MAR-10

**D5030.03 Clock and Program Systems\***

There are battery operated clocks throughout the school. The program bells are controlled by a Simplex program/timer, located in the general office.

<b><u>Rating</u></b>	<b><u>Installed</u></b>	<b><u>Design Life</u></b>	<b><u>Updated</u></b>
4 - Acceptable	1994	25	MAR-10

**D5030.04.01 Telephone Systems\***

The telephone system is a Nortel Meridian system. The telephone equipment is located in the lower floor service tunnel. The telephone handsets are Norstar handsets.

<b><u>Rating</u></b>	<b><u>Installed</u></b>	<b><u>Design Life</u></b>	<b><u>Updated</u></b>
4 - Acceptable	1997	25	MAR-10

**D5030.04.04 Data Systems\***

The main server is located in the library storage room. Rack mounted servers have been provided in the server room. A wireless network system provides coverage within the school. Hardwired network connections are typically Cat. 5 or better cabling. A fiber feed has been brought into the school for high speed data transmission.

<b><u>Rating</u></b>	<b><u>Installed</u></b>	<b><u>Design Life</u></b>	<b><u>Updated</u></b>
4 - Acceptable	2000	25	MAR-10

**D5030.05 Public Address and Music Systems\*\***

The public address system is a Bogen MCP-35A system with 25 zone switches (1 x Bogen SBA225 units) and an AM/FM/cassette deck. Speakers are typically surface mounted square units. The console unit is located in the general office.

A portable P.A. system has been provided for the gymnasium.

<b><u>Rating</u></b>	<b><u>Installed</u></b>	<b><u>Design Life</u></b>	<b><u>Updated</u></b>
4 - Acceptable	1988	25	MAR-10

**Event: Replace Public Address System**

<b><u>Type</u></b>	<b><u>Year</u></b>	<b><u>Cost</u></b>	<b><u>Priority</u></b>
Lifecycle Replacement	2013	\$15,000	Unassigned

**Updated:** MAR-10

**D5030.06 Television Systems\***

A cable TV service has been brought into the school. A signal amplifier and splitter are located in the stage area. Cable TV outlets are located in selected rooms.

<b><u>Rating</u></b>	<b><u>Installed</u></b>	<b><u>Design Life</u></b>	<b><u>Updated</u></b>
4 - Acceptable	1990	20	MAR-10

## S6 EQUIPMENT, FURNISHINGS AND SPECIAL CONSTRUCTION

### E1020.03 Theater and Stage Equipment\*

Curtains & lighting equipment is located in the stage area.

<u>Rating</u>	<u>Installed</u>	<u>Design Life</u>	<u>Updated</u>
4 - Acceptable	1950	25	MAR-10

### E1090.04 Residential Equipment \*

The staff room & gym kitchen are equipped with refrigerators, dishwasher and microwaves.

<u>Rating</u>	<u>Installed</u>	<u>Design Life</u>	<u>Updated</u>
4 - Acceptable	1950	10	MAR-10

### E1090.07 Athletic, Recreational, and Therapeutic Equipment\*

Fixed basketball hoops are located in the gymnasium. A climbing apparatus is located in the gymnasium.

<u>Rating</u>	<u>Installed</u>	<u>Design Life</u>	<u>Updated</u>
4 - Acceptable	1950	15	MAR-10

### E2010.02 Fixed Casework\*\*

Each classroom is equipped with custom open faced and/or cabinet wood units along the exterior wall. The staff room has upper and lower cabinet wood units with a clear finish. The library has fixed and moveable wood shelving casework. Glass display cabinets are located in the main entrance area and in the corridors.

<u>Rating</u>	<u>Installed</u>	<u>Design Life</u>	<u>Updated</u>
4 - Acceptable	1950	35	MAR-10

**Event:** Replace all millwork throughout the classrooms, library and muisc room.

<u>Type</u>	<u>Year</u>	<u>Cost</u>	<u>Priority</u>
Lifecycle Replacement	2013	\$250,000	Unassigned

**Updated:** MAR-10

### E2010.03.01 Blinds\*\*

The window blinds are being removed and replaced with the new window assembly.

<u>Rating</u>	<u>Installed</u>	<u>Design Life</u>	<u>Updated</u>
5 - Good	2009	30	MAR-10

**Event:** Replace Window blinds.- 100 windows

<u>Type</u>	<u>Year</u>	<u>Cost</u>	<u>Priority</u>
Lifecycle Replacement	2039	\$100,000	Unassigned

**Updated:** MAR-10

**E2020.02.03 Furniture\***

All classrooms and offices areas are equipped with movable desks and chairs.

<u>Rating</u>	<u>Installed</u>	<u>Design Life</u>	<u>Updated</u>
4 - Acceptable	1950	0	MAR-10

**F2020.01 Asbestos\***

Suspected asbestos-containing materials observed in the building include vinyl tile flooring in the school corridors, classrooms, texture coated ceilings, gymnasium wallboard and piping insulation.

<u>Rating</u>	<u>Installed</u>	<u>Design Life</u>	<u>Updated</u>
4 - Acceptable	1950	0	MAR-10

**F2020.04 Mould\***

No mould known or reported

<u>Rating</u>	<u>Installed</u>	<u>Design Life</u>	<u>Updated</u>
4 - Acceptable	1950	0	MAR-10

**F2020.09 Other Hazardous Materials\***

No hazardous materials known or reported

<u>Rating</u>	<u>Installed</u>	<u>Design Life</u>	<u>Updated</u>
4 - Acceptable	1950	0	MAR-10



## S8 FUNCTIONAL ASSESSMENT

### K4010.01 Barrier Free Route: Parking to Entrance\*

A designated handicapped parking stall is located in the east parking lot. Signage for the designated handicap parking space is provided.

<u>Rating</u>	<u>Installed</u>	<u>Design Life</u>	<u>Updated</u>
4 - Acceptable	1950	0	MAR-10

### K4010.02 Barrier Free Entrances\*

The north-east entrance doors are not equipped with power assisted operators.

<u>Rating</u>	<u>Installed</u>	<u>Design Life</u>	<u>Updated</u>
3 - Marginal	1950	0	MAR-10

**Event:** Provided power operators for barrier free access at the main north-east entrance.

**Concern:**

No automatic access is currently provided from any exterior entrance doors.

**Recommendation:**

Provided power operators for barrier free access at the main north-east entrance.

<u>Type</u>	<u>Year</u>	<u>Cost</u>	<u>Priority</u>
Barrier Free Access Upgrade	2010	\$5,000	Low

**Updated:** MAR-10

### K4010.03 Barrier Free Interior Circulation\*

Circulation is provided throughout the majority of the school, except for the gym stage area and basement.

<u>Rating</u>	<u>Installed</u>	<u>Design Life</u>	<u>Updated</u>
4 - Acceptable	1950	0	MAR-10

### K4010.04 Barrier Free Washrooms\*

A barrier free washroom has been provided adjacent to the main girls washroom.

<u>Rating</u>	<u>Installed</u>	<u>Design Life</u>	<u>Updated</u>
4 - Acceptable	1950	0	MAR-10