Section 14100

Queen Alexandra Community Center

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Modernization Specifications
Section 14100
Job# 204531

Elevator

Index

1. General

1.1. General Requirements

1. Conform to the latest editions of the CAN/CSA B44-2019 and its applicable appendices and requirements as amended from time to time;
2. Conform to the latest requirements of all Technical Standards and Safety Authority requirements and all relevant TSSA Rulings;
3. Conform to 209/01 and all code adoption documents
4. Elevator suppliers to be fully non-proprietary.
5. all above device(s) are located at 180 Barnardo Peterborough, ON.

1.2. Scope

1. Provide labour, materials, products, equipment, and services necessary for the modernization of the elevator in compliance will all relevant codes and barrier free access under Appendix E.

1.3. Filling Out of Bid Form

1. Tenders shall be submitted through bids and tenders; incomplete tender forms or the absence of any required information may be grounds for rejection of tenders.
2. In submitting the signed tender forms, the Contractor is acknowledging:
    1. Familiarity with the scope of work, codes, site conditions, and requirements of the contract documents;
    2. That where needed, the Contractor shall be solely responsible for all submissions, variances and application to the governing authority;
    3. That the equipment provided will work as specified and intended to operate within the existing environment; and
    4. That all required measurements and site condition verifications were performed.

1.4. Warranty

1. The elevator Contractor shall warrant the materials and quality of the installation and will make good any defects not due to ordinary wear and tear or improper use or carelessness that may develop within one (1) year from the date of Substantial Performance of the project.

1.5. Hoarding

1. Provide hoarding for the protection of the public and workers at the site. The hoarding design provided to be approved by the Owner.

2. Install temporary barriers between the hoistways as required by code.
3. The hoarding shall cover the entire entranceway and should have signage design and verbiage approved by the Owner. If access is required at multiple floors, install the barrier on these floors.
4. Provide a solid barrier with fire retardant properties. Allow access only through a lockable (36”x72”) door

1.6. Removal of equipment

1. The Contractor shall at its own expense remove all unused, replaced equipment and rubbish in the machine room elevator shaft and adjacent areas of work.

1.7. Conduct

1. Supervise your personnel so that they present a neat appearance and their movement in the building is within the requirements of their work.
2. Provide uniforms or other obvious means of identification for personnel.
3. Materials, tools and other equipment shall be stored in areas designated by the Owner where space permits. The Contractor is responsible for equipment storage.
4. The rules and regulation shall be adhered to at all times while work is being performed on site. The Contractor shall endeavor to disseminate the information provided within the guideline to all field personnel and shall, at a minimum, meet or exceed the requirements of the Owner under the guidelines.
5. Parking and storage are not the responsibility of the Owner, but appropriate space will be accommodated and will included the East parking lot staging area closest to modern stairwell exterior door. To be confirmed by Owner with successful contractor.
6. Provide the team members with proper tools and communicating equipment to eliminate loud vocal noises and shouting in the hoistway.
7. Comply with Owner’s rules and regulation related to: signing, parking, storage, badges, clothing, music, language, use of facilities, etc…
8. The Contractor shall commit to regularly scheduled meetings with the Consultant and Owner to ensure that the modernization is going according to plan. The Contractor shall also provide support to the Consultant and disseminate information regarding the Work as requested and required by the Consultant.

1.8. Information with Bid

1. Provide the following information with the bid:
    1. Brochures, descriptions, and manuals (where applicable) for the major items.
    2. Detailed drawings and samples of all of the fixtures and exposed materials.
    3. Detailed start, progress and completion schedule for the work.

1.9. Codes and Ordinances

1. Supply equipment and do work in accordance with building codes, by-laws, regulations and requirements of the local, provincial and federal authorities in effect at the time of the execution of the work.
2. Supply equipment and do work in accordance with the latest edition of the CAN/CSA B44-19 Code (latest edition with relevant Sections and Supplements), and any other code, which may govern the requirements of the installation
3. Comply with the requirements of the Workplace Hazardous Materials Information System (WHMIS) regarding use, handling, storage, and disposal of hazardous materials.
4. Prior to submission of the bid and throughout the duration of work, give prompt notification in writing of any regulations or requirements known to be in process that might affect the acceptability of the work.
5. If changes in codes or regulations result in extra costs, those taking effect subsequent to the date of bid submission shall be treated as an extra to the contract.
6. The Rules and Laws of ON shall apply to this Tender.

1.10. Certificates of Inspection

1. Obtain and pay for certificates of approval and all other necessary permits and inspections.
2. Prior to Substantial Performance, arrange for and pay for a safety inspection of the equipment by a Government Authority.
3. Submit, prior to Total Performance, the approved safety inspection report.

1.11. Materials and Quality of work.

1. Provide all new materials and equipment.
2. Install equipment in a neat an accurate manner.
3. Comply with the directives of the Consultant.

1.12. Trade Marks

1. Do not apply any trademarks to the car stations without the permission of the Owner.

1.13. Fixture Type and Finish

1. Provide fixtures and finishes as requested by Owner and wherever existing ones are currently provided. Also provide 5 complete sets (a set contains two keys) of keys (for each key type) to the Owner during the technical seminar.
2. Where Braille is specified, braille marking must meet the approval of the Owner.

1.14. Ride Quality

1. The Consultant shall provide the Owner with a ride quality analysis after the modernization is completed

1.15. Machine Guarding

1. Engineer proper machine guarding compliant with Municipal, State, Provincial and Federal Authority Having Jurisdiction (AHJ) over all moving components located in the machine room. This includes but is not limited to: governors; exposed armatures; brake arms; exposed electrical and high voltage components; rotating sheaves; exposed ropes; exposed rope brake or secondary safety brake; selectors; selector tape; secondary sheaves; secondary space with moving or rotating parts; and any other rotating equipment or space considered a pinching, sheering or electrical hazard.
    1. Provide inspection ports and access to allow visual inspection without dismantling.
    2. Provide components that prevent accidental pinching hazards.
    3. Provide equipment and components that can deflect a 150 lbs falling object.
    4. Paint the components and guards with matching paint to that of the equipment being guarded.
    5. Paint all moving parts in bright yellow colour.
    6. Submit the design to the Consultant and Owner for review within 14 days from award of contract.
    7. Provide an Engineer's Letter of Certification that the guarding provided at the site meets with all the requirements of the AHJ.

1.16. Electrical Diagrams

1. Supply wiring diagrams and data as required for the execution of the work herein described including schematics for speed control, dispatching system, and interface printed circuit boards.
2. Incorporate, as part of the schematic diagrams, a reference index (road map) giving the location of electrical components and wiring interconnections for relay coils, relay contracts, field equipment, integrated circuits and other such devices, so that the position on the schematics of any of these items can be readily determined.
3. Supply, prior to the Total Performance inspection, three prints and one reproducible of the wiring and schematic diagrams revised to show changes that have been made.
4. If changes are subsequently made to the wiring or control, supply an additional two sets of marked-up prints of the schematics and field wiring diagrams showing the changes.

5. The wiring diagrams to be the property of the Owner
6. The wiring diagram shall be laminated and properly mounted on a clip board.

1.17. Maintenance Manual

1. Supply to the Owner prior to the Substantial Performance inspection, a maintenance manual as set out in the maintenance section of the specifications
2. The maintenance manual to be the property of the Owner.

1.18. Operation Manual

1. Supply to the Owner prior to the Total Performance inspection, three sets of manuals describing in detail the operation of the equipment including special features, dispatching sequences, and such items as intercom systems and security systems.
2. Set out in step-by-step form the operation for special features such as firefighter's service, independent service, code blue, emergency power service and special emergency service.
3. Supply, as part of the manual, drawings of operating panels (e.g. car panels, central control consoles) with descriptions of the function of switches and indicators.
4. The operation manual to be the property of the Owner.

1.19. Technical Seminar

1. At the time of Total Performance, arrange with the Owner to provide a seminar for the Owner's staff.
2. Include in the seminar a complete review of the documentation, operation of the equipment and demonstration of any special features.
3. Provide to the satisfaction of the Owner training on the use of the building management system when it is supplied.

1.20. Painting

1. Ensure that machine room floors, machine room equipment, hoistways equipment, oxidizing guide rails, top and bottom of car, pit as well as pit equipment are painted.
2. Paint with low odor paint products all visible sections of the pit steel. At a minimum, ensure that pit floors, pit hoistways equipment, rusted rails and pit steel are painted with Owner approved low odour, rust resistant paint.
    1. Use a transitional primer paint (low odor, mildly alkaline, tinted black);
    2. Use paint with VOC content of no more than 9 g/l; and
    3. Use SCS certified - LEED qualified paint products.
3. The Owner does not specify paints products, but an example of an approved product

can be found at (http://www.afmsafecoat.com/canada.html). As such, any equivalent paint is acceptable provided that it meets the requirements outlined in this section.

4. All painting to be performed at times approved by the owner.

1.21. Operating Environment

1. Arrange that the equipment be capable of operating normally and within the requirements of the Specifications when the ambient temperature is between 3.5 and 36 degrees Celsius (38 and 97 degrees Fahrenheit).
2. Arrange that the equipment be capable of operating normally and within the requirements of the Specifications when the supply voltage is within minus 10% and plus 10% of the nominal voltage and the frequency is within 5% of the nominal frequency.
3. The Current Total Harmonic Distortion (THD RMS Voltage) not to exceed 5.0% as per the IEEE 519 standards for filtering of SCR motor equipment. Where the drive does not meet this requirement, provide harmonic filters to meet this requirement.
4. Reduce Current Total Harmonic Distortion (ITHD), measured at the filter input terminals at full load, to:
    1. Less than 8% when background voltage distortion is less than 5% and voltage imbalance is less than 3%;
    2. Less than 5% when short circuit ratio (Isc/IL), as defined by IEEE Std 519, is Less than 20 and when background voltage distortion is Less than 0.5% and voltage imbalance is Less than 1%;
    3. Reduce Current Total Demand Distortion (ITDD), measured at the filter input terminals over its entire operating range, to levels defined in Item 4.1 above. ITDD is defined as the ratio of ITHD divided by the full load current (peak demand current) of the filter.
    4. Minimize the contribution to Voltage Harmonic Distortion of all VSD's equipped with the filter to Less than 5% total and Less than 3% for individual harmonics, as defined by IEEE Std 519-1992.
5. Ensure that the filter will not become overloaded by other upstream harmonic sources.
6. Ensure that the filter will not resonate with other power system components.
7. Ensure that the filter will not have compatibility problems with engine generator sets properly sized for the load.
8. Provide all necessary drive adjustments to allow for the operation of the elevators under emergency power condition in the event that the emergency power is not suitable to operate the elevators at nominal or rated speed.

1.22. Acceleration of Work

1. If the work falls behind the schedule submitted to the Owner, take action as necessary to meet the schedule, including, but not limited to, extra personnel and overtime work.
2. Pay any costs associated with this action unless the delay is caused by acts of government, civil commotion, malicious mischief, act of God or any cause beyond the control of the Contractor.

1.23. Test Data Form: Elevator

1. After completion of the work, and prior to Substantial Performance, submit a test data form certifying that the unit is complete and ready for inspection. Where the Owner has provided a specific data sheet (usually in the maintenance contract) populate said data sheet.
2. Arrange that the person responsible for the performance of the work sign this form.
3. Include a check list of the items in the Specifications as well as other performance data such as door times, operating times, starting, running, stopping currents and voltages, and in general, settings of any adjustable devices
4. List on this form safety devices, together with their settings and indicate whether they have been checked and adjusted.

1.24. Inspection of Elevator

1. The Consultant will make an acceptance inspection of each elevator after the government inspection test and before the elevator is put into service for the public. The Contractor shall assist the Consultant in the inspection
2. The Consultant will make an acceptance inspection of the complete elevator group and all group functions. The Contractor shall assist the Consultant in the inspection

1.25. Generic Maintenance

1. Arrange that the equipment can be maintained and adjusted by any competent elevator company without the use of proprietary tools, information or equipment or, if such tools, information or equipment are required, provide them.
2. Do not incorporate any running time, cycle counters or trip counters that would cause the equipment to shut down or alter its operation in any way.
3. Provide evidence that all parts needed to maintain and operate the elevating device(s) are available and can be ordered directly by the competition. Provide an affidavit of such claim as well as all supporting documents (catalogue), phone numbers, etc...

1.26. Non – Proprietary

1. All control equipment shall be non-proprietary.

2. Proof of non- proprietary shall be given in writing and documentation such as brochures and instruction manuals shall accompany the bid pricing
3. Contractor shall submit to the Owner proof substantiating the claim of non-proprietary equipment status.

1.27. Diagnostic

1. Provide non-proprietary diagnostics.
2. The control system shall provide comprehensive means of accessing the computer memory for elevator diagnostic purposes.
3. The controller shall have permanent indicators for important elevator statuses as an integral part of the controller.
4. Any tool required to change parameters such door dwell timing, nudging, securing floors etc. shall be included with the control equipment.

1.28. Modernization Flow Chart Schedule

1. Assign one team to perform the modernization.
2. Removal of a team during the modernization is forbidden and prohibited unless approved by the Owner. Failure to keep the teams on site is considered a breach of contract and is subject to financial remedies by the Owner.
3. Provide the Owner and Consultant with a modernization flow chart. The flow chart should consist of the following:
    1. The starting date.
    2. The sequence of the modernization procedures.
    3. The length of time required to complete each of the procedures.
    4. Length of time to complete the first car and each car thereafter.
    5. The completion date.
4. Following the award letter of intent, provide a complete technical brief on the mechanical and electrical requirements as well as heat dissipation and reactions
5. As such, the Owner at its discretion reserves the right to charge a penalty of $500 per calendar day to an upset fee of $20,000 upon the failure of the Contractor to meet the schedule submitted with the Bid.
6. Under no circumstances shall either party be liable for any loss, damage or delay due to any cause beyond either party's reasonable control, including but not limited to acts of government, strikes, lockouts, labour disputes, fire, explosion, theft, weather damage, flood, earthquake, riot, civil commotion, war, mischief or act of God.
7. In no event shall the Contractor have any liability for loss of profits, loss of business

revenue, failure to realize expected savings, other commercial or other economic loss of any kind whatsoever or for any indirect, special or consequential damages.

8. If there is any delay beyond the Contractor's reasonable control or a delay caused by the Owner, the penalty outlined in the general conditions shall not apply for the delay period.

1.29. Power Saving

1. The Contractor agrees to cooperate with the Owner's Consultant by providing information, labour or materials to determine the amount of power being saved through this modernization.
2. A utilities Consultant may be asked to measure the elevators' power consumption before and after the modernization and the Contractor's cooperation is essential

1.30. Additional / Hidden Costs

1. The Owner through this Tender, hopes to identify and price all costs associated with the modernization. Therefore, any additional or hidden costs that the elevator Contractor is aware of must be identified.
2. Include as part of your tender over-time hours for the following or for any other similar tasks needed to complete the modernization:
    1. Testing of the fire recall, emergency power and service;
    2. Loading and transporting of material to the machine room or floors if such work is disruptive to building common areas or space.
    3. Transferring of hall call riser (from current to temporary and to permanent);
    4. Rewiring of existing dispatcher;
    5. Removal of two or more cars out of group service.

1.31. Hoistway Access by Others

1. The contractor shall assist the Owner and its representative by providing access to the elevator hoistway so that installation of the life support systems can be expedited at no additional cost to the Owner.

1.32. Performance

1. The purpose of this modernization is to increase reliability and maintain the elevator performance. Notwithstanding any CCDC-2 requirements or other contractual terms and conditions to the contrary, the elevator modernization shall not be considered complete unless:
    1. The elevators are performing in accordance with the specifications and performance table in 14100;
    2. The callback ratio is 0.25 call per elevator per month;

3. Each individual elevator does not exceed two callbacks per Quarter; and
4. Not more than one elevator is shutdown at a time.

2. The Contractor shall demonstrate compliance with the conditions noted in Section 1.50.1. , 90 days immediately prior to the date of claimed Substantial Performance. If the required performance was not achieved in the 90 days immediately prior to claimed Substantial Performance, then the contract shall be extended for an additional 120 days subsequent to that to demonstrate reliability.
3. If the Contractor can demonstrate that there were any extraordinary or extenuating circumstances which prevent it from meeting the specifications, the Owner and Consultant may, in their sole and absolute discretion, choose to waive their rights to rely upon the above terms and conditions.

1.33. Notice of Project

1. The Contractor must provide a Notice of Project to the Ministry of Labour (MOL) prior to starting the project as set out in section 6(1) of the Regulation for Construction Projects, O. Reg. 213/91.
2. Provide a copy of the Notice of Project, sign and post it in a conspicuous place at the site for review by the Consultant and a Ministry of Labour inspector.
3. Where applicable, ensure that each subcontractor on the project provides a completed approved registration form.
4. A Contractor who submits a report under subsection 51 (1) of the Act (notice of death or injury) or gives a notice under section 52 or 53 of the Act (notice of accident, etc.) shall also provide, within 14 days after the occurrence, a professional engineer's written opinion stating the cause of the occurrence.
5. Post in a conspicuous place at the project, and keep posted while work is done, a notice setting out:
    1. The Contractor's name, and if the Contractor carries on business in a different name, the business name
    2. The address and telephone number of the Contractor's head office or principle place of business in Ontario.
    3. The address and phone number of the nearest office of the Ministry.
    4. Within 48 hours of selection for a project, the name, trade and employer of each H&S Rep or JHSC member.
6. Establish written Emergency Procedures at a Project and ensure that they are followed in case of an emergency; Post them in a conspicuous place at the project; review them with JHSC or H&S Rep as applicable.
7. Ensure that each worker has ready access to a telephone or other system of two-way communication system on the project in the event of an emergency.

8. Keep records required by this regulation for at least one year after the project completion.
9. The Contractor shall keep the design of a horizontal life line system at the project while the system is in use.
10. The Contractor shall keep the design drawings on the project while the hoisting and rigging system is being used.
11. The Contractor shall give notice to the Ministry office located nearest the project, in person, by telephone, by fax or by electronic means before the first multi-tiered load hoisting operation is started at a project.
12. The Contractor shall make available to an inspector upon request a copy of the certification by the professional engineer who would have verified and certified the results of a test on the structural components of a scaffold and the corresponding rated load of the scaffold.
13. The Contractor shall keep at a project the design drawings and the written statement for a scaffold, while the scaffold is erected, for scaffolds designed by a professional engineer.
14. The Contractor shall keep a copy of the design drawings and the required statement on a project while the suspended scaffold or suspended platform that is subject to the requirements of the section is on the Project
15. The Contractor shall,
    1. Ensure that written measures and procedures for complying with this section are established and implemented, so that workers are adequately protected from electrical shock and burn; and
    2. Make a copy of the written measures and procedures available to every employer on the project.

1.34. Type: Hydraulic

1. Provide modernization equipment for 1 elevator(s) at 180 Barnado AVE Peterborough, ON.

1.35. Number of Elevators

1. Modernize 1 elevator(s) at 180 Barnado AVE Peterborough, ON.

1.36. Speed

1. Maintain the existing speed of 100 fpm.

1.37. Capacity

1. Retain the existing capacity of 2000 lbs.

1.38. Openings and Stops

1. Retain existing stops outlined in the table below:

Car	Front Door Openings	Total Front Openings
1	3	3

1.39. Related Work by Others to be Included by Elevator Contractor

1. Provide a turnkey solution which include the Owner work.
2. Please reference the Mechanical and Electrical drawings by CIMA+ for existing conditions.
3. All new and existing security work is to be done completed by and coordinated with Trent Security.
4. All work by others shall conform to governing codes. Any other work required to complete the installation or satisfy the regulatory authorities and not specifically listed herein shall be the responsibility of the elevator contractor. To complete the elevator modernization, the following items must be performed or installed by trades other than the elevator contractor:
    1. Provide suitable machine room ventilation to maintain the machine room temperature between 10°C and 30°C.
    2. Provide where require all pit ladder and sump.
    3. Provide where require new phone lines connected by a reputable telephone service provider.
    4. Manual fire recall provided in Base bid.
    5. Provide in separate price where required machine room smoke detector wiring to the elevator controllers.
        (a) Provide addressable smoke detectors to each floor in the elevator landings; OR
        (b) Provide a second conventional zone to each floor and connect the new smoke detector to the second zone (pull stations and heat detectors on one zone, smoke detectors on the other zone)
        (c) The use of two wire detectors with relay bases is not an acceptable solution if connected to floor, as the relay will not function if a contact device is operated on the same circuit.
        (d) If spare capacity is available, modify floor zones so manual stations are on separate zones.
    6. Provide wiring and contacts to the elevator controllers for the operation of the special emergency service and emergency power as required by code.

7. Provide where required, new machine room door with frame capable of withstanding 1.5 hour fire rating.
8. Provide where required a fused disconnect switch or circuit breaker for each elevator, with feeder branch wiring to each controller. The switches and size of wires to conform to the Canadian Electrical Code. The disconnect switches are to be mounted in a code approved location.
9. Provide two separate branches/feeds of 110 volt, AC, 15 Amp fused, single-phase power supply with a fused disconnect switch for each elevator, with feeder wiring to each controller for car lights. Location to be in a code approved location.
10. Provide where required a separate single-phase power supply of the same voltage as each elevator supply, with 15 Amp fused disconnect switch.
11. Provide new code required machine room (200 lx) and pit (100 lx) lighting, and GFCI convenience outlets in the machine room(s) and elevator pit(s). Light switches is to be mounted in a code approved location.
12. Provide # 6 Ground wire.
13. Perform any cutting, patching and painting for the installation of new hall buttons, hall lanterns and main floor monitor panel.
14. Provide where required proper grounding and ground fault interrupt receptacle in the pit and machine room.
15. Provide where needed dedicated ground wire to the three phase main disconnects.
16. Provide where required at least one set of GFI receptacle in the pit and machine room.
17. Install a conduit and Cat 6 cable from the Main office to the elevator machine room.

1.40. Cutting and Patching

1. Any cutting, patching, painting or other restorative work required to accommodate the installation of the new equipment not specifically listed herein as work by others, shall be the responsibility of the Elevator Contractor.
2. Any cutting, patching, painting or other restorative work required to accommodate the installation of the new elevator equipment including the cylinder installation where applicable shall be the responsibility of the Contractor.
3. Prior to proceeding with any such work the Contractor shall obtain approval from the Owner.

1.41. Changes in Material and Work

1. Any change or substitution in the approved equipment must have prior written approval from the Owner.
2. Any changes in the approved work must have prior written approval from the Owner.

1.42. Description of Existing Equipment

NOTE: Consultant and the Owner DO NOT WARRANT that the following information is accurate or correctly reflected the status of the equipment.

Queen Alexandra Community Center: passenger

Attributes	1
Installation Number	70497
OEM Manufacturer	Delta
Current Contractor	TK Elevator
Year Installed	1994
Control Manufacturer	Delta
Control Type	PCDX
Elevator Classification	Passenger
Capacity (lbs)	2000
Contract Speed (fpm)	100
Motor Manufacturer	Leroy Somer
Motor Type	IMH 114
Machine Type	Submerged
Machine Manufacturer	ALLWEILER
Machine Model	SUB20R38
Drive Manufacturer	Siemens
Drive Type	Pump
Drive Configuration	Holeless
Drive Method	Cantilever
Valve Type	Maxton UC-4
Cylinder Protection	Not required
Entrance Type	SSSO
Door Operator Type	ECI
Door Locks	ECI
Entrance Protection	Photo-eye
Arrival Signal	Car lantern
Floors Served	3
Fire Service	Not provided
Communication	Hands-free
Security	Not provided

1.43. Remote Conduit and Wiring

1. Any remote conduit and wiring interconnecting the elevator controllers and the lobby panel, elevator remote monitoring or an elevator management control system, or any other equipment provided under these specifications, and not specifically listed herein as being by others, shall be the responsibility of the elevator contractor.

2. Portions of this work may be sub-contracted with approval of the Owner. The Contractor is required to submit to the Owner the name of the Sub-contractor.

2. Modernization Elevator Product

2.1. Retained Equipment

1. All Equipment not New or Refurbished

2.2. New Equipment

1. Reservoir tank, Motors and Pump
2. Hydraulic Elevators Oil Coolers
3. Hydraulic Valve
4. Controller
5. Emergency Battery Lowering
6. Auxiliary Disconnect Micro Switch
7. MINI PI
8. Victaulic Piping & Coupling
9. Hydraulic pipeline identification, where required
10. Hydraulic Oil
11. Rupture Valve
12. Gate Valve
13. Hall Door Equipment
14. Traveling Cables
15. Wiring
16. Buffers, Pit Steel and Switches
17. Hall Lanterns
18. Position indicators
19. Hall Stations
20. Lobby Panel
21. CACF Room Panel
22. New Jack (Cylinder and Plunger)
23. Car Guides
24. Door Operators
25. Door Protective Device
26. Car Gate Switches

27. Car Door Clutch
28. Car Stations
29. Car Restrictor
30. Floor Passing Tone
31. Crosshead Data Plate
32. Car Top Solid State Reader Head
33. Cab Renovation
34. Car Door Equipment
35. Car Top Inspection Station

2.3. Refurbished Equipment

1. Car Slings

3. Machine Room

3.1. Reservoir tank, Motors and Pump

1. Replace gate valves.
2. Provide a self-contained unit consisting of the following items:
    1. Oil reservoir with tank cover capable of supporting 200 lbs and controller compartment with cover.
    2. An oil hydraulic pump.
    3. An electric motor.
    4. Oil control unit to comply with Section 3.2.
    5. Pump: Positive displacement type pump specifically manufactured for oil-hydraulic elevator service
        (a) Pump shall be designed for steady discharge with minimum pulsation to give smooth and quiet operation.
        (b) Output of pump shall not vary more than 10 percent between no load and full load on the elevator car.
3. The drive shall be by direct coupling with the pump and motor submerged in the oil reservoir. Drive type shall be determined based primarily on the load on the car, travel, and speed.
4. The motor shall be specifically designed for a heavy duty oil-hydraulic elevator service. Duty rating shall comply with specified speeds and loads.
5. Power controller shall contain electrical contactors, electro-mechanical switches and thermal overload relays. Mount components in a NEMA 1 enclosure.

6. Logic control system shall be microprocessor based and protected from environmental extremes and excessive vibrations.
7. Provide a solid state soft starting device to comply with section 3.3.
8. Provide new hydraulic oil.

3.2. Hydraulic Elevators Oil Coolers

1. Provide new hydraulic oil coolers to be located outside the elevator machine room. Provide cold Weather Kit where the heat exchanger is installed outside the machine room or where the temperature gets below 10 degrees Celsius.
2. Includes all fittings and hardware needed for the installation of the oil cooler.
3. Provide all the remote piping/hoses to ensure proper and environmentally sound solution.
4. Provide equipment with the following criterion:
    1. Provide oil cooler with the capability of removing 17,500 BTU per hour at temperature change of 4.4 degrees Celsius.
    2. Provide a pump motor that is at least 3/4 HP in size.
        (a) Provide an eight (8) GPM cast iron pump that can operate at 75 PSI of pressure.
        (b) Provide a pump motor that can operate on 115 Volts AC, single phase and draws not more than 8 Amps.
    3. Provide a fan motor that is at least 3/4 HP.
        (a) Provide a fan capable of at least 1900 CFM.
        (b) Ensure that the fan motor that can operate on 115 Volts AC, single phase power and draws not more than 4 Amps.
    4. Provide a removable oil line filter that can remove debris as small as 10 micron.
    5. Provide an indicator on the filer to indicate when the filter needs to be changed.
    6. Provide an adjustable thermostat control that would allow the unit to activate and shutoff.
    7. Limit the noise to no more than 80dBA at three (3) feet.

3.3. Hydraulic Valve

1. Provide a new Maxton UC2A valve or approved by consultant.
2. Install new schedule 40 piping to accommodate for the installation of the new valve.
3. Provide a bi-direction two speed valve.
4. A control section including control solenoids shall direct the main valve and control:
    1. Up and down starting.
    2. Acceleration.
    3. Transition from full speed to levelling speed.

4. Up and down stops.
5. Pressure relief.
6. Manual lowering.

5. All of these functions shall be fully adjustable for maximum smoothness and to meet contract conditions.
6. Relief valve shall be externally adjustable and be capable of bypassing the total oil flow without increasing back pressure more than 10 percent above that required to barely open the valve.
7. Provide a valve with pressure compensation for constant down speed control. This modification of the down piston assembly delivers constant Down Speed Control between no load and full load conditions.
8. Provide a certified valve that can operate reliably between 90 psi minimum and 800 psi maximum.
9. Provide a certified valve that can operate reliably between a temperature range of 800 F (270 C) minimum, 150O F (650 C) maximum.

3.4. Controllers

1. Provide non-proprietary microprocessor controller designed to give the required operation as herein specified.
2. Provide a type 1 rated enclosure, adequately sized controller housing with appropriate venting and dust control vents.
3. Provide controller with the correct size wiring and relays.
4. Provide controller that will allow for the new Building Management System to interface with all elevating devices located in the building where required.
5. Provide a controller with a security system capable of locking out any floor or combination of floors by preventing the users from registering hall or car calls.
6. Ensure that the controller's diagnostics and parameter programming can be accessed at all times.
7. Install wiring on the controllers, whether control or field wiring, in a neat manner and make connections to studs and terminals by means of solder or solder-less lugs, or similar connecting devices.
8. Mark all components such as relays, contactors, fuses, printed circuit boards etc. clearly and permanently with designations as shown on the schematics.
9. Provide non-proprietary diagnostics.
10. The control system shall provide comprehensive means of accessing the computer memory for elevator diagnostic purposes.
11. The controllers shall have permanent indicators for important elevator statuses as an integral part of the controller.
12. The controllers shall have the capability to provide Remote Elevator Monitoring.

13. The controllers shall have the hardware to connect, interrupt, transfer power, and to protect the motor against overloads.
14. Provide means for the elevator system to restart and resume proper operation automatically in the event of a power failure.
15. The controllers shall be designed to accept as a minimum the re-programming of the following:
    1. Door Open Times.
    2. Door Close Times.
    3. Door Dwell Times.
    4. Hall Advance Time.
    5. Nudging time.
    6. Acceleration.
    7. Deceleration.
    8. Jerk Rates.
    9. Floor Parking and Options.
    10. Recall Levels.
16. The controller shall be provided with on-board diagnostics and status LEDS to aid in troubleshooting, adjusting and maintenance.
17. Permanent status LEDS shall be provided to indicate the following:
    1. Safety Circuit.
    2. Door Locks.
    3. Independent Service.
    4. Normal Service.
    5. Inspection Operation.
    6. Emergency Power.
    7. Out of Service.
    8. Drive Failure.
18. Provide on-board diagnostics to include an event monitor and fault log.
19. Do not include a system disabling maintenance timer or counter of any sort.

3.5. Emergency Battery Lowering

1. Provide a new and independent auxiliary power supply.
2. Provide proper NEMA rated enclosure independent of the controller.
3. Provide all the wiring and connections to the controller from the power supply.
4. Fasten the power supply to the new controller cabinet so that it is not easily removed.

5. Energize a relay output when the battery current exceeds a threshold during the emergency operation. The elevator controller can utilize this signal and change the direction of travel to reduce battery current. This leads to saving of energy, and more rescue operations per charge.
6. Provide a device with the following capabilities:
    1. Automatic charger with battery centric circuits that prevents overcharging.
    2. LED status display with load and battery bar graphs.
    3. Automatic voltage regulation.
    4. Intelligent battery management.
    5. Load Meter.
    6. Replace Battery Indicator.
    7. Self-testing.
    8. Sine-wave output.
    9. Site wiring fault indicator.
    10. User replaceable batteries.
    11. Wide input voltage range.
    12. Input voltage 120VAC.
    13. Output voltage 120VAC.
    14. LED status light for: "replace battery" and "overload indicators".
    15. Provide sufficient power to operate the elevator from the top landing to the lowest landing with intermediate stops.
    16. Provide sufficient power to the door operator, valve, emergency lighting, cab lighting, alarm buttons, door open button, safety circuits, down direction circuit and any other devices required for the proper operation of the elevator during power failure.
    17. Provide an additional auxiliary reserve power for no less than 10 minutes.

3.6. Auxiliary Disconnect Micro Switch

1. The micro switch should enable the auxiliary power to engage if the disconnect arm is in the "on" position but the power is not available.
2. The auxiliary switch should prevent the emergency power from engaging if the disconnect arm is in "off" position.

3.7. Solid State Starters

1. Provide Siemens solid state motor control starter with the following requirement:
    1. All digital control using a processor.
    2. Adjustable current limit starting Inside the Delta Electronic Motor.
    3. Overload Projection.

4. Capable of interfacing with 6 or 12 lead wye delta motors.
5. Detection capability of miswired motors.
6. Onboard 16 character LCD display for parameterization and diagnostic troubleshooting.
7. UL/CSA/CE certification.
8. Minimum capacity of (80) Starts/hour.

3.8. MINI PI

1. Assist the Owner in the initial design and GUI of the panel of the MINI PI.
2. Provide training, hardware and software support to install the Mini PI as well as all related support needed to maintain it in the future.
3. Provide and assist the Owner with the programming of the MINI PI including but not limited to providing a SDCDR-KIT for the MINI PI.
4. Ensure proper operation and function of all the position indicators.
5. Provide the Owner with a copy of the software required to program these units as well as a copy of all the related images and graphics at the end of the job.
6. The display must interface with the Elevator controls to support position, direction and status of the car and or bank.
7. The system must have software that allows the customer to change the design and transfer to each display individually.

3.9. Victaulic Piping and Coupling

1. Replace the shutoff valve, Victaulic couplings and joints in the machine room and pit.
2. Replace the hydraulic pipes with Schedule 40 piping.
    1. Provide grooved piping suitable for hydraulic Victaulic fitting.
    2. Provide new pipes from the machine room to the pit.
    3. Ensure that all piping is above ground or is protected in PVC piping if buried.

3.10. Hydraulic pipeline identification, where required

1. Provide marking to accessible piping located outside the elevator machine room or hoistway labelled "Elevator Hydraulic Line" in letters that are at least 0.75 inches high in a contrasting color.
2. The marking shall be visible after installation and applied at intervals not greater than 9 feet.
3. Provide means to prevent the marking from peeling or fading away.
4. Heat resisting paint stencilled on the piping is the preferred method.

3.11. Hydraulic Oil

1. Clean the reservoir tank with rags. Do not add chemicals or additives to the tank.
2. Provide new hydraulic oil in the reservoir tank and also provide a marker to indicate the oil position when the elevator is at the lowest landing and levelled with the floor.

3.12. Rupture Valve

1. Provide a rupture valve of the ball-seat valve design.
2. Provide a rupture valve with a screw-type mounting method.
3. Provide a rupture valve that prevents uncontrolled movement of the cylinder if a pipe or hose burst occurs.
4. Provide a rupture valve that interrupts the flow of oil when the pressure difference in the valve exceeds a value that corresponds to the preloading pressure.
5. Provide a pipe rupture valve which opened automatically when the pressure at the pipe is higher than that at the cylinder.
6. Provide a valve that seals the opening passage leak-free.
7. Provide a rupture valve with settable closing flow.
8. Ensure that the design is of the leak-free closing type.
9. Ensure that the design allows for proper connection to the cylinder head.
10. Mount the rupture valve directly to the cylinder and without any isolation, gate valve or noise coupling in between.
11. Provide a valve with minimal spatial requirement and a compact design.
12. Attach the rupture valve directly to the cylinders.

3.13. Gate Valve

1. Provide a new ball type gate valve connected directly to the hydraulic control valve via a grooved connection.
2. Provide a new ball type gate valve connected in the pit to perform maintenance. Connect via a grooved connection.
3. Bleed the system to remove excess air.

4. Hoistway Equipment

4.1. Hall Door Equipment

1. Completely replace the existing hall door interlocks and pickup assemblies with new GAL hall lock assembly complete with pick-up rollers, beaks, locks, and contacts.
2. Where needed by code, relocate the ladder, pit switch and light switch locations to allow for pit access.
3. Replace any worn or damaged hall door parts including tracks where flat spots exist.
4. Replace all noisy, worn or damaged hall door rollers.

5. Provide new heavy duty Smartork spirators to allow the doors to close under all conditions. Achieve up to 10 lbs closing force in last 2 inches and 8.5 pounds in open.
6. Provide in addition to the spirators at the top floor and main building access floors, hall door sill closers. Building access is defined as main floor, parking levels or outside entrance.
7. Provide fire gibs and door safety retainers where needed and not already in place.
8. Supply the Owner with tactile hall entrance plates on both sides of the jamb. Install plates using permanent hardware.
9. Mark the inside of all hall doors with the correct floor designation as per code.
10. Provide an escutcheon emergency access hole on each elevator door complete with sleeve and unlocking mechanism to facilitate the rescuing of entrapped passengers.
11. Replace all missing the hall door rubber bumpers and ensure that they match the existing ones.
12. Provide car top access at the top and lowest landings. Install the keyed access in the hall jamb at the top landing and the lowest two landings. (Drilling the hall jamb shall be performed outside the normal service hours at times suitable to the Owner).
13. Replace missing or damaged sight guards.
14. Reclad the hall doors at the lobby in satin finish stainless steel. Also include the jamb, header, strike post and all exposed hall door surfaces.

4.2. Traveling Cables

1. Provide new elevator traveling cables. Cables to include spares: minimum of eight (8) shielded pairs of 20 AWG and two (2) coaxial cables.
2. Provide spare wires consisting of at least 10% of the total number of wires with a minimum of twenty (20) 18 ga. and two (2) 14 ga. spare wires.
3. The traveling cables should form a continuous run from the controller to the elevator cab. Do not terminate the traveling cables at a junction box under the car or in the hoistway.
4. Provide an independent and separate terminal block in the controller where special spares are terminated like the coaxial and shielded pairs. Provide a single, clear and neat labelling for the terminal block to indicate that it is for spares only.

4.3. Wiring

1. Provide new machine room, hoistway and car wiring in accordance with the Canadian Electrical Code.
2. Provide appropriate wiring for the building management system where required.

4.4. Hall Lanterns

1. Provide new hall lanterns to operate as per specification.

2. Install flush mounted lanterns. Do not provide bulky or surface mounted equipment that protrudes more than 1.0" from the face of the wall.
3. Provide electronic chimes and LED/LCD directional displays that are barrier free compliant.
4. Provide bi-color (green and red) displays equivalent to CEE ASB30-XX or Dupar uniblades. Consultant and Owner to decide.
5. Provide displays that are visible under all lighting conditions and can be seen within 180 degrees of the hall direction.
6. Provide addressable serial link lanterns with no more than three wires per landing.
7. Owner to approve the design and material of the hall lanterns.
8. Provide new flush mount hall lanterns on all cars at typical floors. The new lantern design should be identical to the Lobby hall lanterns in order to maintain uniformity of appearance throughout the building.
9. New lanterns must comply with Appendix E of the B44-19 Code.
10. The new hall lantern design must meet the approval of the Owner.
11. Provide an advance notice of 5 seconds prior to arrival of an elevator at the floor.

4.5. Hall Position Indicators

1. Provide Mini PI EMN43 position indicator located at the lobby and where existing position indicators are located. Install the position indicators above the door entrance.
2. Clad the existing door header or provide a flush mounted (with countersunk screws) insert with hairline seam to cover the existing indicator.
3. Provide fixtures, which conform to barrier free access.
4. Integrate a hall lantern and chime into the position indicator where possible, otherwise mount separately above door.
5. Provide a car directional indicator in the position indicator which displays the direction of the elevator at all times and in the absence of one, the last known direction.
6. Provide position indicators with characters at least 3" (75mm) in height to be clearly visible from the landing.
7. Ensure that the position indicator is visible in normal daylight and working properly.

4.6. Hall Stations

1. Provide Stainless steel finish hall station on all floor(s) to conform to barrier free access height. Ensure that the center of the button is located at 42" from the landing floor.
2. Provide Stainless steel finish hall stations.
3. Include for engraving to meet code requirement.

4. Provide hall fixture at the lobby level to incorporate the special emergency service required under the new code.
5. Provide in each hall station two buttons (up and down) on the intermediate floors and one button on the terminal floor.
6. Provide stainless approved flush mounted DUPAR US91cc hall stations with Green and Red LED illumination.
7. Provide braille with an up and down arrow next to the buttons to meet barrier free requirements.
8. Include for the Owner to approve design, engraving (no smoking, or emergency use of elevator) and material of hall stations.
9. Comply with all aspects of Appendix E as noted in the CAN/CSA B44-19.

4.7. Waterproof Pit

1. Provide waterproofing for the pit performed by Elevator Waterproofing Solutions (EWS) Inc.
    1. john@elevatorwaterproofingsolutions.com
    2. Elevator Waterproofing Solutions - elevatorwaterproofingsolutions.com
    3. 1-888-DRY-PITT (379-7488) or (647) 969-7487
2. Include with their fee the following services if needed to provide an 8-year warranty on the waterproofing solution:
    1. Qualified (EWS) representative to inspect the site using infrared scan photos, providing a more in-depth view of proposed repairs.
    2. Sump pumps if needed to control water in elevator pits. EWS Inc. to install trenches, re-slope floors to channel the water to drains and sump pumps as required and qualified.
    3. Applications of chemical resistant cementitious crystalline waterproofing material and protective coatings between the cylinder and the pit floor and wherever the leak is coming from with Crystalline Applicators. The application of the coating shall be performed by fully trained and certified technicians.
        (a) For hydraulic elevators, use the applicator hydrophobic grout between the cylinder and the pit floor prior to encasing and closing over opening (metal, steel, concrete, bentonite, sand) access.
    4. Perform a thorough pit cleaning and degreasing of the concrete floor. Paint floor with manufactures approved paint, compatible with manufacturers warranties.

4.8. Rust Proofing

1. Remove the rust accumulating in the pit(s).
2. Rust proof all pit steel equipment (including but not limited to fascia, four bottom feet of the guide rails, governor idlers, counterweight guards and ladders) to remove existing rust accumulating on the equipment.

3. Also paint the apron/toe guard to reduce the accumulation of rust on both cars.
4. Use a solution and a scrub brush to remove all dirt and grime from the metal railing. Take steps to protect the environment and the health of your employees:
    1. Prevent solution from going into the drain.
    2. Provide all employees with appropriate gear and comply with worker's health and safety requirements including WHMIS training to your staff.
5. Use a metal scraper and a wire brush to remove loose paint or flaking rust. Then lightly sand all surfaces that you intend to paint. Where needed, use more aggressive sanding/grinding to smooth rough or rusty surfaces.
6. Sand or grind away rust using an electric drill equipped with a wire brush and/or a sanding pad and abrasive disks.
7. Spray or roll on a rust-inhibiting primer directly to the metal. Apply two coats.
8. Apply a low fume topcoat of paint using either a spray or a brush.

5. Elevator Cab

5.1. Car Slings

1. Clean and check the condition of the car sling and repair where needed.
2. Ensure that the weight of the car accurately reflects the weight on the new crosshead data tag.

5.2. Car Roller Guides

1. Provide new roller guide assemblies on the top and bottom of the car.
2. Provide roller guide assemblies with adjustable float and spring tension.
3. Provide ELSCO roller guide assemblies with rollers being a minimum of 6" in diameter.
4. Provide neoprene roller wheels.
5. Provide rollers with adjustable stops and solid spacers to eliminate "knee action".
6. Include a cover plate assembly over the rollers.
7. Provide fully adjustable guides for all rails up to ¾" width standard.

5.3. Door Operators

1. Provide new GAL MOVFE (ECI VFE2500) closed loop, heavy duty, solid-state door operator.
2. Provide non-linear, heavy duty, solid-state door operator.
3. Provide one ½ or ¾ hp motor and heavy duty sprocket, chain, belt, and sheaves.
4. Provide closed loop regulated speed performance.
5. Provide on site one hand-held keypad programming unit.

6. Provide and store the adjustments on the handheld unit.
7. Provide an operator with adjustable door obstruction reversal.
8. Provide optical cams with LED indicators.
9. Provide test switches for open, close, nudging and speed zone set up.
10. Provide universal inputs for open, close, and nudging.
11. Provide robust drive linkages to the car door.
12. Adjust the door closing force so that it does not exceed 30 lbs.
13. Provide a door operator that would automatically calculate the door weight and speed to regulate the kinetic energy. Where infrared detectors are used, the closing door system shall conform to the following requirements:
    1. The kinetic energy computed for the average closing speed as determined in accordance with 2.13.4.2.2 shall not exceed 10 J (7.37 ft-lbf).
    2. The kinetic energy computed for the actual closing speed at any point in the code zone distance defined by 2.13.4.2.2 shall not exceed 23 J (17 ft-lbf).
14. Replace the car door rollers.
15. Replace the car door track with GAL door equipment.

5.4. Car Directional Arrows

1. Provide two new CE SA130 car directional arrows with LED indication and chime board.
2. Provide one indicator on either side of the car door.
3. Ensure that the indication is visible from the landing under normal lighting conditions.
4. Provide flush fixture that does not protrude into the doorway which reduces the door width.
5. Chime the device once in the up and twice in the down direction and maintain the direction illumination until the door closes.

5.5. Door Protective Device

1. Provide new panachrome three dimensional (3D) infrared door detection system on every car door.
2. The door re-opening device shall:
    1. Detect cylindrical target(s) approaching the entrance opening of the landing-side doors, at any point during the door closing operation, the doors shall re-open;
    2. Detect approaching objects up to a speed of 1 m/s (3 ft/s);
    3. Detect objects moving towards the entrance between 9” (225m) – 20” (500mm) from the landing side of the door;
    4. Provide sensor technology not affected by reflected ambient light;

5. Ignore stationary objects within the three dimensional (3D) zone, whilst still detecting movement towards the door; and
6. Differentiate movement from the side of the three dimensional (3D) zone and movement approaching the doors.

3. If the door protective device detects a person or object in its path, at any point during the door closing operation, the doors shall re-open.
4. The infrared shall be equipped with red/green indicators to highlight door movement.
5. Provide a system with an eighteen foot range.
6. The detection device and door operation should be adjusted so that the doors re-open without striking any object or person.
7. Provide a three-dimensional electronic door detectors on all car doors with the following specifications:
    1. The infrared detector should provide complete door protection.
    2. Distance between beams not to exceed 1.50".
    3. Visible light immunity of 100,000 lux.
    4. Interleaved scan.
    5. Minimal number of sensors 80.
    6. Average response time of 90 ms.
    7. Nudging capable feature.
    8. Fault code.
    9. Audible noise emitted when beam interrupted.
    10. Sensitivity adjustment.

5.6. Car Gate Switches

1. Provide new car gate switches.

5.7. Car Door Clutch

1. Provide new GAL car door clutch or Otis skate (depending on the operational requirement of the locks).

5.8. Car Stations

1. Provide new swing return Car Operating Panels (COP) in not less than 14Ga stainless steel and finishes to match the front of the cab.
2. Main and Auxiliary panels to conform to barrier free access and current code requirements. Provide Dupar US 91 CC Optic push buttons.
3. Panels to conform to barrier free access and current code requirements.
4. Provide flush or concealed fastening locks.
5. Provide heavy duty hinges that can support the weight of the COP.

6. The car number, government number and the capacity to be engraved in the appropriate place on the return panel.
7. Owner to approve the design and material of the car stations.
8. Car stations to tentatively include the following features and layout:
    1. Hands-free emergency phone with one way video and two-way messaging.
    2. Display and camera for the video and messaging system. (internet network with four (4) hour battery back up to be provided by the owner)
    3. Car call buttons marked to correspond to floors served. Provide car call registration feedback.
    4. Door open and door close buttons.
    5. Provide a hands-free telephone system with automatic dialler integrated into the car station to meet barrier-free access as well as these requirements:
        (a) Provide a push button identified as "Phone" to initiate communication along with a speaker.
        (b) Identify the button with a raised international symbol for telephones and Braille markings.
        (c) Provide visual indication which is activated to acknowledge that the communication has been established. Extinguish the visual indication when the connection is terminated.
        (d) Provide a display and buttons so that authorized/emergency personnel can communicate via messaging and obtain responses from a trapped passenger who cannot communicate verbally or is hearing impaired.
        (e) Provide a camera to display video positioned to observe passengers at any location on the car floor. ****New cameras to be installed as part of the existing camera system on site. All camera work shall be supplied and installed by Trent Security to ensure integrity with existing system**.
        (f) Provide four (4) hour battery backup for the entire communication system.
        (g) Arrange that the communication cannot be terminated from within the cab.
        (h) Provide twin conductor shielded wiring from the cab to the elevator machine room.
        (i) Terminate the wiring for all elevator in the machine room at a separate terminal block mounted on the side of a controller.
        (j) Connect and program the phone to the lobby rescue station (auxiliary lobby telephone equipment) to meet the new code requirements.
        (k) Provide equipment and wiring compatible with the building's telephone system.
        (l) Use the lobby rescue station to connect to the elevators so that they can share one telephone line and someone calling into an elevator can select which elevator to call.

(m) Provide a line seizure device, including installation, to connect elevator phones (i.e. such as office fax line).

6. Provide a fire fighter switch as follows:

   (a) This key will be of a tubular, 7 pin, style 137 construction and shall have a bitting code of 6143521. The key will be coded "FEO-K1".

   (b) A three-position ("OFF," "HOLD," and "ON," in that order) key-operated switch shall be labeled "FIRE OPERATION"; provided in an operating panel in each car; and shall be readily accessible.

   (c) The label "FIRE OPERATION" lettering shall be a minimum of 5 mm (0.25 in.) high in red or a color contrasting with a red background. It shall become effective only when Phase I Emergency Recall Operation is in effect and the car has been returned to the recall level. The switch shall be rotated clockwise to go from "OFF" to "HOLD" to "ON." The "FIRE OPERATION" switch, the "CALL CANCEL" button, the "STOP" switch], the door open button(s), the door close button(s), the additional visual signal, and the operating instructions shall be grouped together at the top of a main car operating panel behind a locked cover.

   (d) The firefighters' operation panel cover shall be openable by the same key that operates the "FIRE OPERATION" switch.

   (e) Ensure that when the key is in the "FIRE OPERATION" switch, the cover shall not be capable of being closed. When closed, the cover shall be self-locking.

   (f) Where rear doors are provided, buttons for both the front and rear doors shall be provided in the firefighters' operation panel. The door open and door close buttons for the rear entrance shall be labelled "OPEN REAR" and "CLOSE REAR."

   (g) All buttons and switches shall be readily accessible, located not more than 1 800 mm (72 in.) above the floor and shall be arranged as required by Code.

   (h) The front of the cover shall contain the words "FIREFIGHTERS' OPERATION" in red letters at least 10 mm (0.4 in.) high.

7. The following switches shall be enclosed in a service cabinet: light switch, fan switch, floor passing tone disable switch, voice annunciator disable switch, inspection switch, independent service switch, USB for the ELITE PI, emergency light test switch, and emergency stop switch. Also include a GFI 110 AC Volts outlet in the service panel.

8. Provide an EPCO TCEL emergency cab light system which uses the cab lighting for emergency lighting.

9. Provide a service panel for the security card reader in a separate compartment 8" wide by 8" height with keyed access door and a smokey lens 3.25" x 3.25". In addition provide a spare metal cover plate to fill in smokey lens if card readers are not used.

10. Provide a bi-lingual male/female voice enunciator with preset and programmable floor designation:

(a) Provide a CE Electronics micro com style AMCUM-MMB Digitized Voice Annunciator which utilizes actual male and female voices in a system that is capable of up to 5 minutes of speech.

(b) Provide a system which complies with ADAAG 4.10.13 handicap code.

(c) The sound should be field selectable and the volume adjustable.

(d) The Digitized Voice Annunciator should advise at a minimum of the following:

(i) Direction.

(ii) Stay away from closing door.

(iii) Nudging functions.

(iv) Special emergency service.

(v) Out of service condition.

5.9. Car Restrictor

1. Provide a new Unitec Uni-Lock™ CM Door Restrictor or equivalent.
    1. Provide a collapsible door restrictor which works in conjunction with a hoistway door angle to deter passengers from exiting the car outside the landing zone.
    2. Provide a collapsible door restrictor which uses no cords, coils or other moving parts to engage and disengage.
    3. Ensure that the car door remains locked when outside the door zone.

5.10. Floor Passing Tone

1. Provide a floor passing tone in the cab, which chimes as the elevator is passing a floor.
2. The sound should be field selectable and the volume adjustable.
3. The floor passing tone should have a disable function in the car station.

5.11. Crosshead Data Plate

1. Provide new crosshead data plate with the proper weight, date, capacity, speed and date of the elevator manufacturing and modernization.
2. Provide a tag 2.0" by 3.0" 0.12" thick aluminum with square corners, black background and silver copy.
3. Attach the tag to the crosshead using 3M adhesive backing and ensure that it is mounted on a clean background to resist casual removal.

5.12. Car Top Solid State Reader Head

1. Provide new solid state car top reader head.
2. Provide new rust resistant hoistway tape with magnetic targets.

3. Provide proper tensioning equipment to maintain the stability and strength of the hoistway tape.
4. Provide consistent stopping accuracy within 1/8".
5. Permanently secure the magnet to the steel tape.
6. Provide low friction guides to ride along the steel tape with no more than 1/8" tolerance.
7. **Guideless APS system acceptable and preferred.**

5.13. Cab Renovation

1. Provide new upgraded cabs as per the following:
2. Owner to confirm drawings
3. Flooring
    1. Provide Altro Stronghold 30. Cannon K30911 Color.
4. Island Ceiling
    1. Provide equally sized RDS #4B Brushed vandal resistant stainless-steel panels.
        (a) six high powered MR16 low voltage (7 Watts) LED light fixtures with natural light rendition, supported with brushed black frames.
        (b) Provide LED perimeter lighting.
        (c) Provide high lumen output of no less than 150 lux at any point in the elevator cab.
        (d) Provide a removable section at escape hatch.
    2. Provide new two speed fan and stainless steel vent.
    3. Assist where requested to do so in the installation of a security camera. Provide power and coaxial cable to the desired location.
5. Cab Doors
    1. Clad the doors in stainless steel.
6. Front wall
    1. Clad the transom, strike and post jambs, front as well as the header in stainless steel. Allow for the installation of car directional indicators where needed.
    2. Clad the kick plate in brushed black stainless steel.
7. Rear Walls
    1. Provide two (2) equally sized vertical sections, properly distributed and sized with L-trimmed laminate panels either side of one (1) large 6mm safety mirror (clear mirror finish) from the handrail band to drop ceiling.
    2. Provide two (2) equally sized vertical sections, properly distributed and sized with L-trimmed light wood grain laminate panels either side of one (1) large grey laminate from the handrail band to kick plate.

3. Provide Vandal resistant stainless steel, L-trims, corner reveals and kick-plates.

8. Side Walls
    1. Provide two (2) equally sized vertical sections, properly distributed and sized with L-trimmed light wood grain laminate panels either side of one (1) large grey laminate from the handrail band to drop ceiling.
    2. Provide two (2) equally sized vertical sections, properly distributed and sized with L-trimmed light wood grain laminate panels either side of one (1) large grey laminate from the handrail band to kick plate.
    3. Provide stainless steel, L-trims, corner reveals and kick-plates.
9. Handrails
    1. Provide dual 1½" diameter tubular stainless steel handrail located on all three sides of the cab wall meeting the latest barrier free requirement.
    2. Provide cornered or turned in handrails in the corner and front side of the cab.
    3. Provide stainless steel handrail band.
10. Provide sample material, drawings and color chips for the Owner to choose from.

5.14. Car Door Equipment

1. Replace car doors with vandal resistant stainless steel doors.
2. Replace all car door rollers.
3. Replace car door track with GAL or OEM track.
4. Replace worn or damaged astragals on the leading edge of the doors.

5.15. Car Top Inspection Station

1. Provide on top of the car, an inspection station consisting of:
    1. An emergency stop button (red color). The stop switch shall be permanently located on the car top and readily accessible to a person, while standing at the hoistway entrance normally used for access to the car top;
    2. Up and down continuous-pressure type inspection buttons (white color). A separate device of the continuous-pressure type labeled "ENABLE" shall be provided adjacent to the inspection operating devices. The inspection operating devices shall become effective only when the "ENABLE" device is activated. The inspection operating devices, shall be permitted to be of the portable type provided that:
        (a) the "ENABLE" device, and a stop switch, in addition to the stop switch required with the stationary inspection station are included in the portable unit; and
        (b) the flexible cord is permanently attached so that the portable unit cannot be detached from the car top.

3. On-off inspection transfer switch (green switch). The transfer switch shall be located on the car top and shall be so designed as to prevent accidental transfer from the "INSPECTION" to "NORMAL" position;
4. Duplex electrical outlet;
5. Provide a secondary hand-held fluorescent trouble light; and
   (a) Provide two 13 watt fluorescent "H" tube;
   (b) Not less than eight foot CSA listed Cord; and
   (c) Provide a handy clip for hanging or strong magnetic base for mounting.
6. Primary car top lighting with a guard activated by an on/off switch.

6. Elevator Control and Dispatching

6.1. Grounding

1. Ground the control system and all field apparatus using color coded bonding wire.
2. The accidental grounding or a short circuit shall not defeat any safety device, and shall not allow the elevator to start or run if any hoistway door interlock or car gate switch is not made.

6.2. Door Operation

1. Door opening shall be automatic as the car arrives at a landing, and closes at the expiration of the door open timer. Doors shall remain open for a time period as follows:
   1. A car call time shall predominate when a car call only is being answered.
   2. The hall call time shall predominate when a hall call or both a hall call and car call are being answered.
   3. A short door time shall predominate after a door reversal from the door detector or the door open button.
   4. A short door time shall predominate on a hall call or car call after the beam of the door protective device has been broken.
2. The values for the door timers shall be independently field adjustable.

Car Groups	Maximum Door Opening	Maximum Door Closing	Maximum Car Call Door Dwell	Maximum Hall Call Door Dwell	Maximum Short Door Dwell Time
1	1.5 sec	3.0 sec.	3.0 sec.	5.0 sec.	

6.3. Delayed Car Operation

1. If the elevator is delayed at a landing for a predetermined adjustable time while there are calls in the system, the car shall be removed from operation.

6.4. Door Nudging Operation

1. If the elevator doors are prevented from closing for a predetermined adjustable time, the door protective device shall become inoperative, and audible signal shall sound, and the door shall close at a reduced speed. Normal door operation shall resume at the next stop.

6.5. Door Failure Protection

1. If the doors fail to fully open or close within a predetermined adjustable period due to an obstruction, further attempts to open or close shall cease and the doors shall return to the open or closed position.
2. The control system shall allow three (3) more attempts at opening or closing the doors. If unsuccessful the control system shall remove the car out of the group and shut the car down temporarily until the problem is resolved.

6.6. Performance Criteria

1. The control equipment shall be capable of operating within the specified performance criteria.
2. Flight time shall be measured from the start of the door close cycle until the doors are 3/4 open at the next landing on a one floor run.

Car Groups	Maximum Flight Time	A95 Vertical Horizontal	Maximum Jerk	Maximum Acceleration	Levelling Accuracy	Speed Variation
1	9.0 sec.	6 mg	7.0 ft/sec3	3.5 ft/sec2	+/- 1/8"	+/- 2%

6.7. Noise Levels

1. Door operation noise level shall be taken during the door opening, closing, and reversal cycle.
2. The cab noise level shall be taken during a full run, bottom to top, and return.
3. The machine room noise level shall be taken with all cars operating.

Car Groups	Door Operation	Cab	Machine Room
1	62dBA	50dBA	80dBA

6.8. Independent Service

1. Provide a key switch in the car which, when actuated will take the car out of the group operation and allow operation from the car buttons only. Door operation shall be activated by constant pressure on the door close button.
2. Independent service operation shall de-activate the hall and in car lanterns.

6.9. Inspection

1. Provide a key switch in the car which, when actuated will take the elevator out of service. An inspection-operating fixture on top of the elevator will allow the elevator to be controlled on inspection mode as per code.

6.10. Successive Starting

1. If all elevators are shut down because of lack of demand or lack of normal power, the start up of the group shall be in succession.

6.11. Hall Lantern Operation

1. Provide electronic hall chimes.
2. Hall designation plates shall illuminate and produce an audible signal to indicate that the elevator has arrived.
3. The audible signal shall produce a unique sound for barrier free access.
4. The volume of the audible signal shall be field adjustable.
5. The designation plate lantern shall remain illuminated until the door dwell time has expired.
6. The lobby lantern shall only be illuminated on the assigned car.
7. The hall designation lantern shall provide a five (5) second advance signal before the arrival of the elevator.
8. The illumination shall be white unless otherwise noted by the Owner and clearly visible in daylight.

6.12. Levelling

1. The control circuit shall cause the car to stop automatically at floor level regardless of load or direction of travel within 1/8" with respect to the hoistway sill.
2. The control circuit shall correct for over travel, under travel and cable stretch return.

6.13. Manual Emergency Recall Operation: Initiation

1. Arrange that special emergency service is initiated by means of the two position special emergency service keyed switch marked "EMERGENCY RECALL" in yellow lettering, in the following way:
    1. By turning the switch to the "ON" position.

6.14. Automatic Emergency Recall Operation: Initiation

1. Please note: Provide the following provisions with the understanding that the building may not be able to provide the required signal. However, include in the pricing and programming of the controller with all these features with the knowledge that only manual recall may be installed. Under no circumstances shall automatic recall not be provided unless the owner has given specific written direction that only manual recall should be installed.

1. Arrange that special emergency service is initiated by means of the three position special emergency service keyed switch marked "FIRE RECALL" in red lettering.
2. Arrange its positions to be marked "RESET", "OFF", and "ON" (in that order), with the "OFF" position as the center position.
3. The "FIRE RECALL" letters shall be a minimum of 5 mm (0.25 in.) high in red or a color contrasting with a red background.
4. Locate this switch in the lobby within sight of the elevator or all elevators in that group and shall be readily accessible.
5. An additional key-operated "FIRE RECALL" switch, with two-positions, marked "OFF" and "ON" (in that order), shall be provided, where permitted, only at the building fire control station if available.
6. All "FIRE RECALL" switches shall be provided with an illuminated visual signal to indicate when Phase I Emergency Recall Operation is in effect.

6.15. Automatic Emergency Recall Operation: Termination

1. Terminate special emergency service under the following conditions:
    1. All cars at the designated floor.
    2. All key switches associated with special emergency service in the "OFF" position.
    3. Smoke or heat sensing devices associated with special emergency service either in the normal status or the three-position special emergency service key switch turned to the off position for cancellation of special emergency service.
2. The special emergency operation shall comply with all current code regulation in force.

6.16. Power Selection

1. Provide emergency power operation with car selection switch to work on all elevators in the building capable of operating on the emergency generator.
2. When the key switch is activated, the selected car will be initially required to operate.
3. After the selected car is parked on the main landing with the doors opened, the next available car is selected until it is on the main floor with the doors opened. Then the last selected car is operated on emergency power.

6.17. Emergency Power battery back up

1. The battery backup power operation shall be as follows:
    1. Upon loss of normal power and receipt of emergency battery power the elevator shall automatically return to lobby and open door and shut down.

6.18. Ride Quality Improvement System

1. Provide the following information before commencement of modernization:
    1. Documentation with current ride quality readings.

2. Should the ride quality analyzer indicate that rails are out of alignment and that the ride quality is compromised, the contractor shall re-align the rails.

7. Elevator Maintenance

7.1. Hydraulic Elevator Maintenance 12 months after Tssa inspection

1. The elevator contractor agrees to sign the Owner's maintenance agreement for 12 months after TSSA inspection.
2. The elevator contractor agrees to provide labor, parts, and services necessary to maintain 1 elevator(s) at 180 Barnado AVE Peterborough, ON.