Elevator Modernization Specifications

Taylor Building

Pacific Biological Station

3190 Hammond Bay Rd.,

Nanaimo, B.C.

Department of Fisheries and Oceans

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PART 1 GENERAL REQUIREMENTS

1.1 Summary of Project

.1 This specification describes the minimum requirements for the modernization of the one (1) overhead traction passenger elevator located at 3190 Hammond Bay Rd., Nanaimo, B.C.

1.2 Project Scope

.1 Provide all engineering, shop drawings, materials, shipping and methods for the modernization of the one (1) elevator as described in these specifications.

.2 Provide all labour, permits and costs for provincial acceptance inspections and design submissions covering the elevator modernization work as specified. The cost of the operating license for the elevator shall be the responsibility of the Owner.

1.3 Disposal of Elevator Equipment and Rubbish

.1 The Elevator Contractor shall be responsible for the disposal of all elevator equipment and all other ancillary rubbish directly related to completing the work.

.2 Any equipment or materials that the Owner decides to retain shall be set aside and put in a location as designated by the Owner.

.3 The Elevator Contractor shall ensure the proper disposal of any environmentally sensitive materials and may be requested to provide evidence of proper disposal including but not limited to asbestos containing controller components or contaminated oil.

1.4 Definitions

.1 Definitions shall be as defined in the most recent edition of the B44 Safety Code for Elevators.

.2 The “Owner” shall be read as “Department of Fisheries and Oceans”.

.3 Project Manager shall be read as “Don Storry, DFO.”

.4 “Elevator Consultant” shall be read as Apex Elevator Consulting Inc. Suite 2000-1066 West Hastings Street, Vancouver, BC V6E 3X2

.5 “Elevator Contractor” shall be read as the qualified, licensed elevator contracting company contracted to complete the work as specified.

.6 “Substantial Performance” shall be read as when all of the elevators in a bank are operating for use by the Owner with a license to operate from the Authority Having Jurisdiction.

.7 “Provide” shall be read as supply and install and test the component or item as listed in these specifications.

.8 Where the term “site” is used, this shall be read as 3190 Hammond Bay Rd., Nanaimo, BC.

.9 The “Designated Level” is the floor level where the elevators will recall when responding on automatic or emergency recall operation.

.10 The “Alternate” is the floor level where the elevators will recall if the smoke detector at the designated level is triggered.

1.5 Singular and plural

.1 Singular and plural used in this document shall be considered interchangeable and shall be applied in accordance within the appropriate context of the specification.

1.6 Codes and Regulations

.1 The work shall be completed in compliance with:

.1 Safety Standards Act and the Elevating Devices Safety Regulation

.2 The most recent edition of the B44 Safety Code for Elevators

.3 The most recent edition of the Canadian Electrical Code

.4 In accordance with any and all relevant directives published by the BC Safety Authority. These are subject to change, and it is expected the Elevator Contractor is fully aware of these amendments as they are published. The requirements of the following (but not limited to) documents are expected to be met as part of these specifications:

.1 SO- ED 2014 02 re Firefighters key switch

.2 D – L4 110803 5 Revision 04 regarding Major and Minor Alterations

.3 D-L4 100311 2 Regarding the Mandatory Requirement for Elevator Updating or Modernization of Motion and Operation Control.

.5 B44.2 Maintenance

.6 BC Building Code.

1.7 Discrepancies and Omissions

.1 If there are discrepancies or omissions in the specification documents, or if there are items which there may be doubt regarding the meaning or intent, the Elevator Contractor shall notify the Owner and Consultant in accordance with the construction general conditions.

1.8 Site Examination

.1 The Elevator Contractor shall make a complete examination of the Site for an understanding of various conditions affecting the Performance of the Work including:

.1 Access to the building and to the machine room and any provisions such as trap doors for hoisting that may or may not be available.

.2 Sensitive areas where no noise, dust or other disturbances cannot be tolerated.

.2 No allowances for extras will be considered for any error on the part of the modernization contractor.

1.9 Coordination of Related Work by Trades other than the Elevator Contractor

.1 The following items shall be outside of the scope of these specifications however the Elevator Contractor shall provide coordination with respect to schedule and if necessary provide access to areas normally not accessible to trades other than the Elevator Contractor:

.1 Asbestos Abatement – The Elevator Contractor shall be responsible for being aware of and understanding any asbestos abatement reports in particular when disposing of the equipment.

1.10 Subcontract Work

.1 The following work shall be subcontracted by the Elevator Contractor.

.1 Electrical – all electrical work shall be performed by an electrical contractor sub contracted to the elevator contractor. Electrical specifications are found in the appendices in these specifications.

.2 Cab Flooring shall be completed by a flooring supplier subcontracted to the Elevator Contractor.

.2 The Elevator Contractor shall ensure that all trades and subcontractors cooperated with each other to ensure the work is completed efficiently and the workmanship is satisfactory as the completion of the project.

.3 The Subcontracting shall be in accordance with article 3.6 on the Construction General Conditions.

1.11 Role of Prime Contractor - Safety

.1 The Elevator Contractor shall be considered the “Prime Contractor” as defined by Worksafe BC and shall provide all requirements as the Prime Contractor including but not limited to:

.1 Taking responsibility for the site safety when the other trades are accessing areas of the project including the pit, machine room or top of car where necessary.

.2 Providing an orientation and safety meeting with the sub trades conducting work at the site. Minutes of this meeting shall be recorded and shall be made available to the Owner if requested.

1.12 Changes in Work

.1 The Owner reserves the right to change the scope of the project as required, and the contract amount can be adjusted to suit. No work shall begin until written approval from the Owner or Owner’s Representative has been provided.

.2 Changes shall be in accordance with article 5.3 of the Construction General Conditions.

1.13 Site Documentation

.1 The Elevator Contractor shall ensure that the onsite technicians have a copy of these specifications, addenda, change orders or other information necessary to ensure the project will be completed in accordance with these documents.

1.14 Work Complete Beyond Normal Working Hours

.1 If the Owner requests that certain work be completed after hours, the premium charged for overtime shall be as listed in the pricing documents.

1.15 Project Correspondence

.1 Unless otherwise listed elsewhere in these specifications, all correspondence related to this work shall be directed between the Project Manager, Consultant and the Elevator Contractor.

1.16 Permits, Certificates and Licenses

.1 The Elevator Contractor shall be able to provide evidence that they have the appropriate license to complete the work listed in these specifications.

.2 The Elevator Contractor shall provide all necessary permits to complete the work listed in these specifications. No work shall start until the proper permit has been received by the contractor from the Authority Having Jurisdiction.

.3 The Elevator Contractor shall provide and arrange for all necessary inspections and obtain a license to operate the elevators listed in these specifications.

1.17 Guarantee

.1 The guarantee shall cover all elevator equipment including the new equipment provided and the equipment that is retained and re-furbished.

.2 It is understood that any equipment being retained that shows excessive wear shall be replaced including but not limited to any seals, bearings, brushes, electrical contacts, hall and car door rollers to ensure quality and reliable elevator operation.

.3 Pro-rating retained equipment is not acceptable.

1.18 Site Management and Conduct of Technicians

.1 Safety for the Public is of paramount importance. Responsibility for public safety rests with the Elevator Contractor. The following shall be enforced:

.3 Hall Doors are never to be left opened or unlocked without supervision or without any hoarding.

.4 The machine room door shall not be blocked open.

.5 No tools or materials shall be left on any floor where it can pose a tripping hazard to building occupants.

.6 Emergency or Fire Exits or fire routes shall not be blocked with materials

.2 The work shall be completed in compliance with any regulations pertaining to the Owner or the site and in accordance with Worksafe BC Regulations.

.3 The Owner reserves the right to dismiss a technician who violates the onsite regulations or who otherwise is deemed unsuitable for the site. The Elevator Contractor shall find a suitable replacement technician at no additional cost.

.4 Where temporary hoarding in the lobbies is provided, it shall be accepted by the Owner and the Consultant in advance of being brought to this site.

.5 Where work is conducted between two (2) adjacent hoistways, suitable hoarding shall be provided to separate the hoistways and provide protection for the onsite technicians. The Elevator Contractor shall provide, install and remove this hoarding.

.6 Technicians shall wear uniforms making them easily identifiable.

.7 Protection of the site finishes shall be the responsibility of the Elevator Contractor where there is a risk of damage or soiling. This includes carpets and flooring in particular where the access to the machine room is.

.8 The Elevator Contractor shall be responsible for the cleanup and repairs of any building finishes that are damaged by the Elevator Contractor. This may result in a back charge unless the Elevator Contractor undertakes the repairs or cleaning themselves.

.9 The Elevator Contractor shall be responsible for minimizing dust created during the process of completing the work.

1.19 Noise, Disturbance and other Considerations for an Occupied Building

.1 The work is taking place in an occupied building, and for this reason special care and attention to avoiding disturbances must be taken by the Elevator Contractor.

.2 Where excessive, extended periods of noise are anticipated, discuss with the Owner and make arrangements to minimize the time and complete the work at a time deemed acceptable by the Owner at no extra cost to this contract.

.3 The contractor shall take steps to minimize odors from any metal grinding or cutting by ensuring this work is carried out in a well-ventilated environment away from sensitive areas in the building.

1.20 Safety and Hoisting

.1 The Elevator Contractor shall adhere to all Worksafe BC requirements and the technicians and supervisors shall adhere to the Elevator Contractor’s own safety requirements.

.2 Site safety includes but is not limited to the minimum safety requirements listed in these specifications.

.3 The Elevator Contractor shall take care that at no time shall any part of the building site be burdened with a load greater than is it designed to hold. Should an accident or damaged to the building occur due to a violation of this requirement, the Elevator Contractor shall be responsible for repairs required. The Elevator Contractor is responsible to know the weights of the equipment being transported to the site and investigate the potential places to land equipment in advance.

.4 The Elevator Contractor shall be responsible for all the safe hoisting of materials, tools, equipment or other components required to complete the work. The Owner shall not be responsible for warranting or certifying the capacity of any existing means to hoist equipment. If there is any doubt, the Elevator Contractor shall arrange, at their expense, to certify the existing beams or provide alternate means of hoisting.

.5 If a mobile crane is used to hoist equipment to the building roof or elsewhere, the Elevator Contractor shall arrange to meet with the mobile crane subcontractor and a building representative to verify the suitability of the location for the placement of the crane and to inspect the conditions of the site in advance of the lift, any damage to the ground or landscaping shall be the responsibility of the Elevator Contractor.

1.21 Storage of Materials and Tools

.1 The Elevator Contractor shall be responsible for determining how much on site storage is available and arrange for materials deliveries to suit.

.2 The Owner shall not be held responsible for loss of tools, materials or equipment stored in areas not previously approved by the Owner.

1.22 Parking

.1 Every effort will be made to accommodate parking for the Elevator Contractor, however, this is not guaranteed and if parking is not made available, the Elevator Contractor shall be responsible for any parking costs.

1.23 Patents

.1 The Elevator Contractor shall be responsible to save and hold the Owner harmless for any and all copyright or patent infringements that might result as a result of the elevator project specified herein.

1.24 Standard Keying

.1 The following are the key types to be installed on this project.

.2 Independent Service, light, fan, service panel cover: X4001

.3 Access Enable, hoistway access and in car inspection run/stop: X4002

.4 Fire Fighter operation, Standby Power - FEO-K1

.5 Restricted Access: X4010

END OF SECTION

PART 2 TECHNICAL REQUIREMENTS

2.1 Engineering

.1 Provide all engineering necessary to complete the scope of work in these specifications and to meet the requirements of local legislation.

.2 Provide where necessary engineering documentation to the Owner if requested.

2.2 Description of Existing Elevator Equipment

.1 The following table provides a summary of the elevator equipment for the specified project:

.1	Elevator as identified in the building	1
.2	Type of Elevator	Overhead Traction Geared
.3	Government ID Number	00630
.4	Original Manufacturer	Otis
.5	Speed	125 fpm
.6	Capacity	1815 kg
.7	Number of Stops	4 front only
.8	Drive System	Two Speed AC
.9	Type and Size of Doors	4’ wide x 7’-0” tall, Two Speed Side
.10	Year of Original Installation	1968
.11	Floors Served	B, 1, 2, 3
.12	Car Guides	Roller Guides

2.3 Vertical Elevator Summary

.1 The following table provides a summary of the elevator equipment layout in elevation:

Floor Marking	Opening	Remarks
3	Front	Hoistway Access
2	Front	
1	Front	Designated Level
B	Front	Hoistway Access, Alternate Level

2.4 Elevator Equipment to be Replaced or Provided as New

.1 The following provides a summary of elevator components that are described in further the specifications to replace existing components or to be provided as additions to the existing elevator equipment:

.1 Machine Room Equipment

.1 Microprocessor Controller including position feedback devices mounted in the hoistway or machine room.

.2 Geared Hoist Machine

.3 Hoist Motor

.4 Governor

.5 Seismic Motion Sensor

.6 Machine Room Wiring

.2 Hoistway Door Equipment

.1 Door Operator

.2 Hall Door Closers

.3 Upper and Lower Door Safety Retainers

.4 Drop Key Access at each landing

.5 Replace all hall door tracks and hall door rollers

.3 Hoistway Equipment

.1 Hoistway Wiring

.2 Travelling Cables

.3 Pit Switch

.4 Apron Guard

.4 Cab Interior Renovations

.5 Car Operating Panel and Push Buttons

.1 In car telephone

.2 Push buttons

.3 Fire service panel

.4 Emergency light

.6 Elevator Lobbies

.1 Hall Buttons

.2 Hall Position Indicators

.3 Hoistway Access Switches

.4 Hall Tactile Markings

.5 Lobby Telephone and Remote Fire Service Key Switches

.7 Painting and Clean-up

.1 Paint machine room floor

.2 Paint machines

.3 Paint pit floor

.4 Final clean of hoistway, top of car, hall sills, pit and machine room

.8 Fire Fighter Operation

.9 All Engineering required to complete scope of work

.10 Seismic Requirements

2.5 Elevator Equipment that is retained

.1 The Elevator Contractor shall be responsible for the refurbishing and readjusting of all equipment and components to be retained under these specifications. The retained equipment shall be refurbished to “as like new” condition, however, shall not exceed or be expected to exceed the original equipment’s design capabilities.

.2 The following components may be retained. It is the responsibility of the Elevator Contractor to inspect the equipment and ensure the equipment is suitable as being retained:

.1 Drive Machine

.2 Machine Beams or footings

.3 Guide Rails (both car and counterweight)

.4 Door Interlocks

.5 Car Frame and Platform

.6 Safety Plank, governor tension sheave

.7 Entrances and door panels, other door equipment where specified to retain

.8 Counterweight

.9 Hoist Ropes (unless replacement is deemed necessary)

3.6 Machine

.1 The existing machine shall be retained and refurbished.

.2 As a minimum the machine shall be serviced in accordance with sentence 8 of BCSA Directive **D-L4 100311 2** as follows**:**

.1 Cleaned to ensure safe and proper operation, including but not limited to: Residual pads, Linings, Pins, Springs, Sleeves, Discs. A brake marking plate must be provided. The brake setting and method of measurement must be permanently and legibly marked on the driving-machine brake (Appendix J.2.6.1 (a))

.3 Any worn parts must be replaced and tested.

.1 Thoroughly cleaned and painted.

.2 Flushed and replaced with new gear oil

.3 Have the seals replaced where leaking

.4 Any adjustments made to have a proper gear mesh between the crown and worm gear.

.5 The machine shall be painted, use a contrasting colour for components that rotate such as the main drive sheave.

.4 Seismic - provide driving machine sheave rope retainers in accordance with 8.4.3.1 of the B44-07 Safety Code.

.5 Provide new machine isolation pads of equivalent properties of the original equipment manufacturer.

3.7 Ascending Car Overspeed and Unintended Motion Protection

.1 Provide a system and devices necessary to provide ascending car overspeed and unintended motion protection for the elevator.

.2 Pre-approved products include a Hollister-Whitney Rope Gripper or equivalent.

.3 The device shall be mounted directly to the elevator machine beams and an engineered drawing must be provided, and the installation must be in accordance with the submitted plans.

3.8 Hoist Ropes

.1 The existing hoist ropes shall be retained unless they are deemed require replacement in accordance with the B44 Safety Code for Elevators

.2 If the hoist ropes are replaced, they shall match the original manufacturer's specifications for type, diameter and rope lay, and new rope shackles shall be provided.

.3 If the machine is retained the main drive sheave shall be machined to provide the original groove profile.

3.9 Hoist Motor

.1 The existing drive motor shall be replaced with a new AC motor to match the characteristics of the new AC Variable Frequency Drive being provided.

.2 The motor shall have invertor spike resistant (ISR) windings

.3 The motor shall be sized accordingly to match the speed and capacity of the elevator.

.4 The motor shall be aligned with the existing machine with care and attention to accurate tolerances. The connection between the motor and machine shall be set up to eliminate noise and vibrations and be set up to extend the life of the equipment.

3.10 Controller

.1 The existing controller shall be replaced with a new microprocessor control system.

.2 The controller shall have on site field programmable parameters to make field changes on site conveniently without requiring software changes from the manufacturer.

.3 The controller shall have built in on board diagnostics and access to the diagnostics and fault codes must be readily available with the control equipment.

.4 The controller shall be approved in accordance with the A17.1/B44-07 Safety Code for Elevators.

.5 The controller shall be provided with suitable electrical protection in the event of power fluctuations and other low or zero voltage conditions.

.6 The controller shall have all of the operational capabilities to meet the requirements in these specifications.

.7 The controller shall be equipped with an RFI Filter to reduce EMI and RFI noise.

.8 Pre-approved controllers include MCE 4000 or equivalent.

.9 Mount the controller(s) such that they are seismically restrained.

3.11 Security Interface

.1 Provide in the control system resident software and terminations to easily interface with a security system.

.2 Provide a junction box mounted to the outside of the elevator controller labelled ‘Elevator Security’ and provide a terminal strip with enough terminal for each car call that may be restricted.

.3 Provide connections from the controller terminals to the junction box terminals.

.4 The security signals shall be brought to this junction box (by others).

.5 The security software in the control system shall

.1 Allow fire service phase II to override security.

.2 Be set up such that independent service does not override security.

.6 Arrange for and allow for testing and commissioning of the security system.

3.12 Closed Loop Control

.1 The motion control system shall be equipped with closed loop control.

.2 The closed loop feedback power control shall be arranged to continuously monitor the actual elevator speed signal from the velocity transducer and compare it with the intended speed signal to verify proper and safe operation of the elevator.

3.13 Variable Speed Drive

.1 The controller shall use a variable voltage, variable frequency drive to control the motors.

.2 The drive shall use a three-phase, full-wave bridge rectifier and capacitor bank to provide a DC voltage bus for the solid-state inverter.

.3 The drive shall use power semiconductor devices and pulse width modulation with a carrier frequency of not less than 8 kHz to synthesize the three-phase, variable voltage, and variable frequency output to operate the hoist motor in an essentially synchronous mode.

.4 The drive shall be fully regenerative, to return power from overhauling loads to the building power supply.

3.14 Governor

.1 The existing overspeed governor shall be replaced with a new governor. The governor shall meet the requirements of the most recent edition of the B44 Safety Code for Elevators.

.2 The governor shall be equipped with an overspeed switch.

.3 The existing governor tension sheave can be retained, and the bushings shall be cleaned and lubricated to ensure quiet trouble free operation.

.4 The governor shall be calibrated to trip the overspeed switch and drop the mechanism that actuates the car safeties in accordance with the contract speed and code requirements.

.5 Provide details including the governor make and model in the pricing submission.

3.15 Machine Room Floor Patch and Paint

.1 Patch any pre-existing holes and holes left behind from the removal of the existing elevator equipment. Take care to provide a smooth seamless finish.

.2 Clean and paint the machine room floor with a semi-gloss paint.

3.16 Seismic Motion Sensor

.1 Provide and mount on a solid appropriate wall surface in the elevator machine room a device to detect seismic activity and send a signal to the elevator controller.

3.17 Wiring

.1 All wiring inside the machine room including connections between the controllers, transformers, motors and between controllers shall be replaced with new.

.2 All hoistway wiring including but not limited to limit switches, door locks, hall buttons, hall lanterns, access keyed switches shall be replaced with new. There shall be a minimum of 10% spares in the hoistway wiring.

.3 The existing travelling cables shall be replaced with new travelling cables. The new travelling cables shall:

.1 A minimum of eight (8) shielded pairs for the controls and for future use by security, in car camera or other functions.

.2 Be mounted at the top of hoistway and be suspended in accordance with the manufacturers requirements and shall be a minimum of a steel core or a wire mesh (kellems) grip.

3.18 Door Operator

.1 The existing door operator(s) shall be replaced with new door operators with closed loop control.

.2 Pre-approved door operators include GAL MOVFR or equivalent.

3.19 Car Door Restrictor

.1 Provide with the new door operator and clutch a car door restricting device.

.2 If the elevator is equipped with a fixed vane, then a mechanical means attached to the car door and each hall door shall be provided to prevent the opening of the car door from the inside. Solenoid type of restrictors are not permitted.

.3 If the elevator is equipped with a retractable clutch, provide a new clutch with a car door restrictive clutch.

3.20 Car Door Detector

.1 Provide a new infra-red style of car door detector that will cause the car doors to stop and reopen when a person or object is detected between the car door and the jamb.

.2 The door detector shall provide protection for the full height of the car door.

.3 The door detector shall be resistant to and not be affected by external light sources.

3.21 Door Interlocks

.1 The existing door interlocks shall be retained and refurbished at all floors.

3.22 Hall Door Tracks

.1 The existing hall door tracks shall be cleaned and treated as necessary to achieve smooth door operation.

.2 Replace all hall door rollers at each landing.

.3 Provide new upper and lower redundant retainers for each hall door.

.4 Pre-approved upper and lower door retainers are Vertex or equivalent.

3.23 Door Closers

.1 The existing door closers shall be retained.

3.24 Drop Key Access

.1 Provide drop key access at each hall door.

.2 Each door interlock shall be equipped with means to allow the door lock to be lifted with a drop key device.

.3 All holes in each hall door shall be filled with a sleeve that is positively tightened such that it cannot be removed.

3.25 Door Hardware Renewal

.1 The intent of the modernization is to renew the door equipment and hardware to near new operation condition

.1 Replace all damage or worn astragals on each hall door panel.

.2 All hall door tracks shall be cleaned of all debris to ensure a smooth running surface.

.3 All hall sills shall be cleaned for the full width of the sill.

3.26 Top of Car Inspection and STOP Switch

.1 Provide a new top of car inspection station conveniently located for safe operation while performing maintenance from the car top.

.2 The inspection station shall be designed with redundant and protected buttons in accordance with elevator safety code requirements.

.3 If the inspection station cannot be mounted within easy reach from the lobby, an auxiliary stop switch shall be provided that is with easy reach from the elevator lobby. The stop switch shall be wired in series with the stop switch on the top of car inspection station.

3.27 Car Guides

.1 The existing roller guides shall be retained, worn rollers or springs shall be replaced as necessary.

.2 Seismic - Provide Car upper and lower guiding member position restraints in accordance with 8.4.5.1 and8.4.7.2.1 of the B44-07 Safety Code.

3.28 Counterweight and Counterweight Guides

.1 The existing counterweight shall be retained.

.2 Any new weight added to the counterweight shall be suitably fastened to prevent weights from slipping free of the counterweight and to eliminate any noise due to rattling weights or fasteners.

.3 The existing counterweight roller guides shall be retained.

.4 Seismic - Provide upper and lower guiding member position restraints in accordance with 8.4.5.1 and 8.4.7.2.1 of the B44-07 Safety Code.

3.29 Floor Markings

.1 If not already provided, identify each landing from the inside of the hoistway by marking the floor level on the inside of each hall door panel at the top and bottom with a stencil a minimum of 4” tall.

3.30 Safety Plank

.1 The safety plank, actuating rod and safeties shall be cleaned and refurbished.

3.31 Buffers

.1 The existing buffers shall be retained. For oil buffers flush and replace buffer fluid. A buffer return switch shall be installed.

3.32 Pit Stop Switch

.1 Replace the existing pit stop switch with a new stop switch that is protected from accidental actuation.

3.33 Pit Ladder

.1 If not already provide, the Elevator Contractor shall be responsible for providing a pit access ladder.

3.34 Apron Guard

.1 A new sheet metal apron guard shall be provided to replace the existing toe guard. The new apron guard shall extend 48” below the car sill unless limited by the existing pit depth and car overtravel.

.2 The apron guard shall be fastened on both sides to prevent deflection is loaded horizontally from the lobby.

3.35 Seismic – Deflector Sheave Rope Displacement Guards

.1 Seismic – On the deflector sheaves in the overhead, provide deflector sheave rope retainers in accordance with 8.4.3.1 of the B44-07 Safety Code for any overhead deflector sheaves.

3.36 Seismic - Counterweight Displacement Detector

.1 Provide a device that will detect if the counterweight has been displaced from within the guiderails.

.2 Arrange that this device shall be connected to the elevator controller and cause the elevator to slow down, stop and level to the floor where the car travels away from the displace counterweight.

3.37 Car Operating Panel

.1 Provide a new stainless steel car operating panel to replace each existing car operating panel.

.2 The panel shall be equipped with car push buttons for each floor served.

.1 The layout of the push buttons on the panel shall be such that, if possible, the layout of the buttons match the actual vertical layout of the building, and separated front from rear.

.2 The push buttons shall have LED illumination.

.3 The push buttons shall be selected from manufacturers standard, pre-approved push buttons are Dupar US91 or equivalent.

.3 The panel shall be equipped with integral panel for firefighter operation. The fire fighter panel shall:

.1 Be equipped with a locked cover, with code requisite engraved cover.

.2 Be equipped with all code requisite buttons, visual indicators and key operated switches, including separate door open and door close buttons for any rear doors that may be provided.

.4 The panel shall be equipped with a sub panel to contain the following keyed switches:

.1 Access Enable

.2 Inspection Enable

.3 The following switches may be keyed switches or toggle switches

.4 Fan

.5 Light

.6 Emergency Light Test Switch

.7 Provide two (2) additional slots for the future provision of any keyed switches or buttons

.5 The panel shall contain the following keyed switches surface mounted on the panel faceplate:

.1 Independent Service

.2 Run/Stop

.6 The panel shall contain an integral hands free telephone (specified elsewhere) with a speaker grill and access point for a microphone.

.7 The panel shall be equipped with an emergency car light (specified elsewhere).

.8 The panel shall be engraved to identify the elevator identification number, BCSA number and Capacity.

.9 Remove the card reader from the existing panel and reinstall onto the new car operating panel.

3.38 In Car Telephone

.1 Provide an in car handsfree telephone. The telephone device shall:

.1 Be equipped with an autodialler and be programmed to dial out the number of the 24 hour monitoring station that is set up to answer the phone.

.2 Be able to operate with a variety of telephone lines including analog, digital, VOIP or other phone line.

.3 Be capable of sending an outgoing message to allow responders to obtain the specific location of the elevator.

.4 Be capable of making outgoing calls and receiving incoming calls. Incoming calls shall not require in-car activation in order to start communication.

.5 Be initiated by a single distinct push button on the car operating panel

.6 Be equipped with a visual indicator to acknowledge the phone is dialling, and when the phone has been answered. Engraving on the car operating panel to advise what the phone visual indicator status means. (i.e. call answered when light flashing or other appropriate engraving). Other misleading engraving such as “when light flashing help is on the way” shall not be permitted.

.7 Be mounted to the car operating panel without visible fasteners.

.2 The two way communications means within the car shall include a means to verify the operability of the telephone line.

.1 Verification of the telephone line operability shall be automatically performed at least on a daily basis and shall not require activation of the two-way communications link(s). If means other than a telephone line (e.g., VOIP, network, intercom, etc.) is used for the two-way communications, similar verification of this equivalent means shall be performed.

.2 If the verification means determines that the telephone line or equivalent means is not functional, an audible and illuminated visual signal shall be activated. A minimum of one visual and one audible signal shall be provided for each group of elevators controlled by a “FIRE RECALL” switch. The visual indicator shall:

.1 Be located at the designated landing in the vicinity of the “FIRE RECALL” switch and visible to elevator user(s).

.2 Be labeled “ELEVATOR COMMUNICATIONS FAILURE” in red letters a minimum of 5 mm (0.25 in.) high.

.3 Continue illuminating intermittently until the telephone line or equivalent means is functional

3.39 Car Position Indicator

.1 Provide an in car position indicator to display the location of the elevator. The display shall be long life LED and shall be a minimum of 50 mm in actual display height.

.2 The position indicator shall be located in the header.

3.40 In Car Lantern

.1 Provide one (1) new in car lantern mounted in the jamb or side wall of the car cab on the door open side.

.2 The lantern shall provide both an audible and visual indicator such that when the elevator is responding to a hall call, the visual indicator will illuminate to advise the direction of travel of the elevator, and the chime shall advise the direction, two gongs for down and one gong for up.

3.41 Voice Announcer

.1 Provide an in car position voice announcer that shall be capable of broadcasting audible messages. The voice announcer shall:

.1 Be mounted in the car operating panel

.2 Shall have a field programmable selection for type of voice and basic messages which include but not limited to:

.1 Landing where car is stopping

.2 Nudging Operating

.3 Fire Fighter Operation

.4 Emergency Power Operation

.2 Provide a voice and message selection sheet with the project shop drawings for approval by the Owner.

3.42 In Car Emergency Light and Alarm Bell

.1 Provide an in car emergency light with battery backup.

.2 The battery shall be equipped with a charger and shall be able to operate for up to four (4) hours while running on the battery alone.

.3 The light unit shall be mounted near the top of the car operating panel and be equipped with a protective lens.

.4 The light unit shall be comprised of a minimum of 6 LED elements.

.5 The light unit shall automatically illuminate when normal power to the cab lighting is removed.

.6 The light unit shall automatically recharge when cab lighting power is available.

.7 An alarm bell shall be furnished on the car top and shall be powered with the same

.8 Battery as the in car emergency light.

.9 The alarm bell shall be activated by a button on the car operating panel.

3.43 Cab Interior Finishes

.1 Provide new cab finishes as per:

.1	Ceiling and Header	Paint, color as selected by the Owner
.2	Cab Door Panel	Paint, color as selected by the Owner
.3	Front Return Panel	Paint, color as selected by the Owner.
.4	Lighting	Provide new energy efficient lighting
.5	Side Walls	Paint, color as selected by the Owner
.6	Rear Wall	Paint, color as selected by the Owner
.7	Bottom Wall Vent Panels	Remove and polish and re-install.
.8	Handrails	Provide new stainless steel round 1.5” diameter handrails on the side walls.

.9	Flooring	Replace existing with new tile (refer to subcontract work in these specifications)

.2 All materials shall be suitably fire rated and otherwise meet the requirements of the Safety Code for Elevators.

.3 Provide provisions to mount cab protective pads.

.4 The weight of the existing car frame and platform shall be verified by a digital scale.

.5 Where “painting” is listed as a finish, this shall be read as sanding smooth the existing finish, filling any holes to make smooth and provide an electrostatically applied finish.

.6 For elevators equipped with a counterweight, provide sufficient counterweight to balance the car such that a balance load is achieved at 42% of rated capacity.

.7 A drawing or sketch of the cab interiors shall be submitted and approved in advance of cab work starting at the site.

.8 A cab interior submission permit to the BCSA shall be included all necessary engineering required.

3.44 Cab Interior Ventilation

.1 Provide a new ventilation fan capable of providing quiet air flow exhaust from the cab.

.2 A fan grill cover shall be provided and painted to match the ceiling.

3.45 Hall Push Button Stations (Typical) and Position Indicators

.1 Replace the existing hall push button stations with new push button fixtures and buttons.

.2 The new fixtures shall be surface mounted to avoid cutting and patching.

.3 The hall button faceplates shall be stainless steel brushed #4 finish.

.4 The buttons shall be illuminated with long life LED illumination.

.5 The buttons shall be mounted such that the height of the centre line of the buttons is in the mid-range allowed for in accordance with Appendix E of the B44 Safety Code for Elevators.

.6 Provide up and down buttons at intermediate landings and single buttons at terminal landings.

.7 Provide in each hall station a **position indicator** where the display is a minimum of 30 mm in height. The position indicator shall be flush mounted in the hall station

3.46 Hall Station – Designated Level

.1 Replace the existing hall push button station at the Designated Level with new push button fixtures and buttons.

.2 The new fixtures shall be have the same specifications as the typical hall stations but also have the following:

.1 Manual Recall Switch for Fire Fighter Phase I Operation.

.2 Visual Indicator for Fire Fighter Operation

.3 If standby power is provided, a standby power selector switch

.4 An illuminating indicator to advise communications failure

3.47 Hall Lanterns

.1 No hall lanterns will be provided.

3.48 Hoistway Access Keyed Operated Switches

.1 Hoistway access shall be provided at the top and bottom landings regardless of the speed of the elevator.

.2 The keyed switch shall be mounted in the sight guard or entrance jamb of the door at each respective landing, they are not to be installed in the hall station.

.3 The Elevator Contractor shall be responsible for any cutting and patching necessary to provide suitable cut-outs for the new fixtures, to restore the elevator entrance finishes and infill construction to proper conditions on completion.

3.49 Signage and Markings

.1 Provide two (2) tactile markings on each entrance. The markings shall identify the floor level in accordance with Appendix E of the B44 Safety Code for Elevators. These tactile markings shall:

.1 Be mounted at the code requisite height.

.2 Be the code requisite size

.3 Have the code requisite tactile marking.

.4 Markings shall be embossed metal, plastic markings will not be accepted.

3.50 Elevator Operational Features

.1 The operational features listed in this section shall mean that the feature:

.1 Shall be resident on the elevator controller software

.2 All visual indicators, audible indicators and keyed switches not specifically listed elsewhere shall be included in the base scope of work.

.2 Independent Service

.1 When on independent service, the elevator shall not accept any hall calls and any calls in the system shall be immediately cleared.

.2 Operation of the elevator shall only be permitted after a car call is registered, and constant pressure on the car call or door close button and the door is fully closed.

.3 The doors shall remain open after arriving at a landing.

.3 Hoistway Access

.1 When the enabling switch in the car has been turned on, hoistway access from a keyed switch shall be permitted in accordance with the elevator safety code.

.2 Provide limits in the control system to prevent the elevator from travelling beyond the permitted by code.

.3 Hoistway access shall be provided at the top and bottom landings.

.4 In Car Inspection Operation

.1 When enabled in the elevator controller, in car inspection shall be enabled.

.2 When the in car keyed switch is also enabled, inspection operation from inside the car shall be activated. Operation of the elevator on inspection speed with the car doors open shall be allowed and achieved by pressing the top of bottom car call.

.5 Anti-Nuisance Operation

.1 If the elevator responds to three (3) car calls but the door re-opening device has not detected an object, the system shall remove all remaining car calls.

.2 Elevator shall always be parked with the door closed, unless on fire fighter operation.

.3 The elevator shall initially be set up to park at the last landing served, after five (5) minutes of idle operation, the elevator shall park at the main landing.

.6 Parking

.1 The elevator controller shall be set up to have site adjustable parameters for parking of elevators.

.2 Elevator shall always be parked with the door closed, unless on fire fighter operation.

.3 The elevator shall initially be set up to park at the last landing served, after five (5) minutes of idle operation, the elevator shall return to and park at the main landing.

3.51 Operation and Dispatching

.1 The elevator shall be set up with full selective collective operation.

.2 The elevator shall be arranged with automatic operation as a simplex.

.3 The elevator shall respond to car and hall calls with respect to the direction of travel and shall not stop and change direction until the highest or lowest car or hall call has been answered.

3.52 Life Safety Operation

.1 Fire Fighter Operation

.1 The elevator shall be equipped with fire fighter operation in accordance with the most recent edition of the B44 Safety Code for Elevators.

.2 The designated recall level is level 1.

.3 The alternate recall level is level B.

.2 Standby Power Operation

.1 Standby Power is not available at this time however, provisions shall be included in the controller and hoistway wiring for the future provision of standby power operation.

3.53 Door Operation

.1 Advanced Door Opening

.1 Where advanced door handling is provided, it shall be arranged such that the doors are open approximately 6-8” when the elevator is level with the floor it is stopping at.

.2 Nudging

.1 The elevator doors shall automatically close on reduced speed and reduced torque if the door re-opening device is blocked for longer than 20 seconds.

.2 The timer for the initiation of nudging shall be field adjustable.

.3 Door Failure Protection

.1 The elevator shall be automatically removed from service if after several attempts to close have been unsuccessful. The elevator shall re-try to close the doors periodically once it has been removed from service. The car shall automatically restore operation once the door has successfully closed.

.4 Dwell Times

.1 The elevator shall be set up to initiate the start of the door close based on the following criteria:

.2 Car Call Dwell – when responding to a car call, the elevator doors shall remain open for the period of time listed under the performance specifications in this document elapses.

.3 Hall Call Dwell – when responding to a hall call (and coincident car call this hall call dwell time shall prevail) the door shall start to close after the period of time listed under the performance specifications in this document elapses.

.4 Reduced Dwell Time – the elevator system shall be arranged that once the in car door reopening device has detected an object, the dwell times shall be reduced to the time listed in the specifications.

.5 Reduced Dwell Time – If the doors start to close and the detector senses and object, the doors shall re-open and remain open for 1.0 second before attempting to re-close.

.5 Hall Call Door Re-Open

.1 If the elevator is at a landing and the doors start to close and then a hall call is registered, the doors shall re-open and the indicators shall advised direction of travel. If the elevator was answering another car or hall call, the doors shall not re-open.

3.54 Performance Requirements

.1 The following table summarized the minimum performance requirements of the elevator(s):

.1	Full Speed:	125 fpm
.2	Flight Time	14.0 Seconds
.3	Door Open Time	2.7 Seconds
.4	Door Close Time	4.5 Seconds
.5	Car Call Dwell Time	3.0 Seconds
.6	Hall Call Dwell Time	3.0 Seconds
.7	Reduced Dwell Time	1.0 Seconds
.8	Maximum Acceleration	2.0 ft/sec/sec
.9	Maximum Jerk	8.0 ft/sec/sec/sec

END OF SECTION

PART 4 EXECUTION

4.1 Project Management

.1 Schedule

.1 Upon award of the contract, the Elevator Contractor shall prepare a detailed schedule of the scope of work. The schedule shall be set up in a Tabular (GANTT) format that will allow the slide of dates based on the actual start date of the construction

.2 The Schedule shall highlight areas where other contractors or subcontractors work is required to avoid delays including but not limited to electrical power supply, fire alarm signals, cab interior finishes, telephone lines.

.3 The Elevator Contractor's technician shall be made available to attend project meetings from time to time, and is expected to be made aware of and input into the project schedule.

.4 The schedule shall be monitored by the Elevator Contractor and where significant deviations are made, the schedule shall be revised to suit the new order of construction and any resulting changes to the completion date.

.5 This schedule shall be reviewed at each site construction meeting.

.2 Power Supply Report

.1 Upon award of the contract, the Elevator Contractor shall prepare a detailed report with the power supply requirements for the elevator(s) in these specifications and the report shall include as a minimum:

.1 Motor Power (in horsepower or kW)

.2 Full Load Running Current

.3 Full Load Starting Current

.4 Recommended Mainline Disconnect Fuse Size

.5 Minimum Rating of Power Feeder Wires

.3 Submissions

.1 The following submissions shall be prepared by the Elevator Contractor in advance of work starting at the site:

.1 Shop Drawing of the Car Operating Panel

.2 Shop Drawing of Hall Push Button Fixtures

.3 Shop Drawing (sketches may be accepted) of Cab Interior Finishes

.4 Copy of the Permit submission made to the regulatory authority.

.5 Shop Drawing of the machine room layout.

.6 An approval order form for the voice announcer.

.4 Project Close Out Documentation

.1 Provide written confirmation of the guarantee and effect dates of the guarantee upon completion of the work.

.2 Provide one (1) set of cab interior protective pads.

.3 Provide any special tools required to access any diagnostics, fault codes, parameters settings or other areas in the control system necessary to diagnose, set up or otherwise alter settings as required to suit site conditions.

.4 Provide one (1) set of manuals in printed form and one (1) set in .pdf electronic format.

.5 Provide one (1) set of as built wiring schematics and one (1) set in .pdf.

4.2 Client Technical Orientation

.1 The Elevator Contractor shall provide a demonstration to the Owner's designated representative regarding the operation of the elevator.

.2 The contractor shall demonstrate the following:

.1 Independent service

.2 All car switches except access enable and inspection including lights, fan, and other switches accessible for building staff.

.3 Fire Fighter Operation including the reset procedure for the elevators after a fire alarm has been cleared.

4.3 Wiring Methods

.1 Install field wiring in a neat and orderly manner.

.2 Spare wires in the machine room shall be tie wrapped within the controller only.

.3 Spare conductors shall be wrapped together and labelled with the ends insulated.

.4 Use insulated bushings around all wire openings where any wires are run through openings through any boxes or conduits.

4.4 Painting

.1 Paint all retained equipment in the machine room with fresh paint. Take care not to paint over any data tags or other information.

.2 Paint all rotating equipment bright yellow.

.3 Paint the elevator machine room floor with a grey colour. The paint shall be a semi-gloss enamel.

.4 Paint the pit walls up to the height of the sill, and the pit floor. The paint shall be gray and be semi-gloss enamel paint.

.5 Clean and paint all retained pit equipment, with the exception of buffer pistons and or other surfaces where new paint would be inappropriate.

END OF SECTION

PART 5- ELEVATOR MAINTENANCE

5.1 Interim Maintenance

.1 The Owner may request that upon award of the work that the contractor shall assume responsibility for the maintenance of the equipment until the elevator is removed from service.

.2 Indicate in the proposal submission the monthly cost and maintenance agreement for this time period.

5.2 Construction Maintenance

.1 During the process of modernizing the one (1) elevator, maintenance billing shall be suspended.

5.3 Warranty Maintenance

.1 Upon total completion of the project, which is defined as when all of the elevators in a bank have been completed, including all fire fighter recall and standby power tests (as necessary). The warranty period shall be for 12 months following the total completion.

.2 Indicate in the proposal submission the monthly cost and maintenance agreement for this time period.

5.4 Post Warranty Maintenance

.1 Upon expiration of the warranty period, provide ongoing maintenance for the equipment.

.2 Indicate in the proposal submission the monthly cost and maintenance agreement for this time period

.3 The post warranty maintenance period will start for an initial period of four (4) years after the warranty maintenance period.

END OF SECTION

PART 6 APPENDICES

6.1 Electrical Schematics

.1 This section include the specifications and drawings for the electrical scope of work for the modernization of the one (1) passenger elevator.

.1 Included in this section is document file name 2145 – Electrical Specfications.final

.2 Included in this section is document file name 21456 Drawings.final