

PART 1 - GENERAL

- 1.1 REFERENCES
- .1 American National Standards Institute (ANSI)/National Electrical Manufacturers Association (NEMA)
 - .1 ANSI/NEMA MG 1-2011, Motors and Generators.
 - .2 Canada Green Building Council (CaGBC)
 - .1 LEED Canada-NC-2009, LEED (Leadership in Energy and Environmental Design): Green Building Rating System Reference Package For New Construction and Major Renovations.
 - .3 CSA International
 - .1 ASME A17.1-2013/CSA B44-13, Safety Code for Elevators and Escalators (Bi-national Standard, with ASME A17.1.
 - .2 CSA B651-12(R2017), Accessible Design for the Built Environment.
 - .4 Efficiency Valuation Organization (EVO)
 - .1 International Performance Measurement and Verification Protocol (IPMVP).
 - .1 IPMVP 2007 Version.
 - .5 South Coast Air Quality Managment District (SCAQMD), California State.
 - .1 SCAQMD Rule 1113-04, Architectural Coatings.
 - .2 SCAQMD Rule 1168-05, Adhesives and Sealants Applications.
- 1.2 ADMINISTRATIVE REQUIREMENTS
- .1 Pre-installation Meetings:
 - .1 Convene pre-installation meeting 1 week prior to beginning on-site installation, with Contractor's Representative and Departmental Representative in accordance with Section 01 31 19 - Project Meetings to:
 - .1 Verify project requirements.
 - .2 Review installation and substrate conditions.
 - .3 Co-ordinate with other building construction subtrades.

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- 1.2 ADMINISTRATIVE .1 (Cont'd)
REQUIREMENTS .1 (Cont'd)
(Cont'd) .4 Review manufacturer's written
installation instructions and warranty
requirements.
- 1.3 ACTION AND .1 Submit in accordance with Section 01 33 00 -
INFORMATIONAL Submittal Procedures.
SUBMITTALS .2 Product Data:
.1 Submit manufacturer's instructions,
printed product literature and data sheets for
passenger elevator and include product
characteristics, performance criteria,
physical size, finish and limitations.
- .3 Shop Drawings:
.1 Indicate on drawings project layout,
including details and information as follows::
.1 Size and location of machine and
controller.
.2 Size and location of car, guide
rails, buffers stands and other
components in hoistway.
.3 Rail bracket spacing and maximum
loads on guide rails.
.4 Reactions at points of support.
.5 Weights of principal components.
.6 Top and bottom clearance and over
travel of car.
.7 Wiring diagrams with location of
circuit breaker, switchboard panel or
disconnect switch, light switch and
feeder extension points at machine.
.8 Location in hoistway for connection
of travelling cables for car light and
telephone.
.9 Location and size of access doors.
.10 Loads on hoisting beam.
.11 Seismic design data and detailed
calculations.
.12 Include on general arrangement
drawings:
.1 Type, size, location of
hoistway entrances showing details
of fastening to hoistway structure.
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1.3 ACTION AND
INFORMATIONAL
SUBMITTALS
(Cont'd)

- .4 Samples:
 - .1 Submit duplicate 150 x 150 mm size samples, complete with colour schemes, for each as follows: floor material, car interior, car ceiling, car door, hoistway entrance door and frame finishes.
- .5 Test Reports: submit certified test reports from approved independent testing laboratories indicating compliance with specifications for specified performance characteristics and physical properties.
- .6 Certificates: submit certificates signed by manufacturer certifying that materials comply with specified performance characteristics and physical properties.
- .7 Manufacturer's Instructions: submit manufacturers installation instructions.
- .8 Manufacturer's Field Services: submit copies of manufacturer's field reports.
- .9 Sustainable Design Submittals:
 - .1 LEED Canada submittals: in accordance with Section 01 35 21 - LEED Requirements.

1.4 CLOSEOUT
SUBMITTALS

- .1 Submit in accordance with Section 01 78 00 - Closeout Submittals.
 - .2 Project Record Documents:
 - .1 Record actual locations of equipment, names of equipment manufacturers and suppliers, concealed conduit and boxes, concealed devices, disconnects, and other relevant items.
 - .3 Operation and Maintenance Data: submit operation and maintenance data for passenger elevators for incorporation into manual.
 - .1 Include description of elevator system's method of operation and control including supervisory control system, motor control system, door operation, signals, firefighter's service, emergency power operation, and special or non-standard features provided.
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| 1.4 CLOSEOUT SUBMITTALS (Cont'd) | .3 | Operation and Maintenance Data:(Cont'd) .2 Provide parts catalogues with complete list of equipment replacement parts with equipment description and identifying numbers. .3 Legible schematic wiring diagrams covering electrical equipment installed, including changes made in final work. .4 Instruct Departmental Representative in maintenance of special finishes. |
| 1.5 QUALITY ASSURANCE | .1 | Qualifications: .1 Installer Qualifications: company or person experienced in performing work of this Section specializing in installation of work similar to that required for this project, with minimum 15 years documented experience and approved by elevator systems manufacturer. |
| 1.6 DELIVERY, STORAGE AND HANDLING | .1 | Deliver, store and handle materials in accordance with Section 01 61 00 - Common Product Requirements and with manufacturer's written instructions. |
| | .2 | Delivery and Acceptance Requirements: deliver materials to site in original factory packaging, labelled with manufacturer's name and address. |
| | .3 | Storage and Handling Requirements: .1 Store materials off ground, indoors in dry location and in accordance with manufacturer's recommendations in clean, dry, well-ventilated area. .2 Store and protect elevator components from nicks, scratches, and blemishes. .3 Replace defective or damaged materials with new. |
| | .4 | Develop Construction Waste Management Plan related to Work of this Section and in accordance with Section 01 35 21 - LEED Requirements. |
| | .5 | Packaging Waste Management: remove for reuse or return of pallets, crates, padding, banding, and packaging materials as specified |

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| <u>1.6 DELIVERY, STORAGE AND HANDLING (Cont'd)</u> | .5 | Packaging Waste Management: (Cont'd) in Construction Waste Management Plan in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal and Section 01 35 21 - LEED Requirements. |
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| <u>1.7 WARRANTY</u> | .1 | For Work of this Section 14 20 06 - Passenger Elevators 12 months warranty period prescribed in General Conditions is extended to 60 months. .1 Extended warranty period must include warranty against: .1 Blistering, spalling or peeling of paint due to improper surface preparation or material application. .2 Opening of joints due to improper design or use of ineffective fastening devices. .3 Separation, cracking or splitting of plastic laminate due to improper application to core material, or to method of fabrication which gives rise to areas of high stress concentration or which restricts normal expansion or contraction of plastic laminate. |
| | .2 | Manufacturers Warranty: submit, for Departmental Representative's acceptance, manufacturer's standard warranty document executed by authorized company official. |

PART 2 - PRODUCTS

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| <u>2.1 SYSTEM DESCRIPTION</u> | .1 | Hydraulic passenger elevator, machine room less type. .1 Accessible Design in accordance with CSA B651. .2 Bilingual Markings: include identification and instructions on operating panels and on signal equipment in English and French. |
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2.1 SYSTEM
DESCRIPTION
(Cont'd)

- .2 Design and construct elevator in accordance with ASME A17.1/CSA B44, local codes and regulations.

2.2 PERFORMANCE
REQUIREMENTS

- .1 Select and install hydraulic passenger elevator components to form complete, operating elevator system meeting the following performance characteristics:
- .1 Service: general purpose.
 - .2 Application: holeless dual piston.
 - .3 Operation: microprocessor single car.
 - .4 Quantity: 1.
 - .5 Rated net capacity: 952 kg.
 - .6 Rated speed: 0.4 m/sec.
 - .7 Travel distance (nominal): 3.6 m.
 - .8 No. of stops: 2.
 - .9 No. of openings: 1 front.
 - .10 Inside car dimensions: 1727 mm wide x 1295 front to back.
 - .11 Entrance frame opening size: 914 mm x 2134 mm with 1 1/2 hours fire resistance rating. Stainless steel No.4 finish.
 - .12 Door type: single, stainless steel No. 4 finish.
 - .13 Door operation: side opening in single speed.
- .2 Hall Call Stations, both floors:
- .1 Vandal resistant lighted buttons indicating up and down.
 - .2 Jam mounted lighted travel direction indicator.
 - .3 Car location lighted indicator.
 - .4 Include smooth acceleration and deceleration of car without perceptible steps so adjusted as not to cause passenger discomfort.
 - .5 Elevator to travel between floors in not more than 10 seconds.
 - .1 Measure time from instant doors start to close until car has stopped level with next floor.
 - .6 Permit doors to start opening in advance of stop at floor level such that doors are at least 3/4 open when car is stopped level with floor.

2.2 PERFORMANCE
REQUIREMENTS
(Cont'd)

- .3 Power Unit (Oil Pumping and Control Mechanism): A self-contained unit located in the elevator pit consisting of the following items:
 - .1 NEMA 4/Sealed Oil reservoir with tank cover including vapor removing tank breather.
 - .2 An oil hydraulic pump.
 - .3 An electric motor.
 - .4 Electronic oil control valve with the following components built into single housing; high pressure relief valve, check valve, automatic unloading up start valve, lowering and levelling valve, and electro-magnetic controlling solenoids.
- .4 Pump: positive displacement type pump specifically manufactured for oil-hydraulic elevator service.
- .5 Motor: standard manufacturer motor specifically designed for oil-hydraulic elevator service. Duty rating - motors shall be capable of 80 starts per hour with a 30% motor run time during each start.
- .6 Controller to be located in hoistway entrance jamb. Maintain shaft fire rating.
- .7 Automatic Self Levelling Feature: install self-levelling feature which will automatically bring car to floor landings. Correct for over-travel, independent of operating device.
- .8 Home Landing: arrange Level 1 landing as home station by key operation.
- .9 Light Intensity: 215 lx maximum measured 0.75 m above floor. Totally enclose and conceal wiring and ballasts from view within car and finish ceiling cavity white.
- .10 Ventilation: ventilate by 2 speed manufacturer's standard exhaust air handling unit through roof and through concealed perforations at base.
 - .1 Limit total fan noise to 55dB on "A" scale of General Radio Sound Level meter type 1551A from reading 0.9 m above floor with fan on high speed.

2.2 PERFORMANCE
REQUIREMENTS
(Cont'd)

- .11 Tolerances: car movement on guide rails:
smooth movement, with no perceptible lateral
or oscillating movement or vibration.
- .12 Seismic Design Criteria: design and assemble
elevator equipment and components to withstand
earthquake forces in accordance with values
indicated in structural drawings.
 - .1 Include adjustable seismic trigger
switches to operate elevators whenever
predetermined level of seismic acceleration is
detected:
 - .1 Prevent idle elevator from
starting.
 - .2 Stop elevator at next available
stop.

2.3 MATERIALS

- .1 Materials: as required to achieve specified
performance criteria; functionally compatible
with adjacent materials and components.

2.4 CAR CAB

- .1 Enclose car sides except entrances suitable
for removing or resurfacing for maintenance
purposes.
- .2 Panels: removable, retained securely with
hidden fastenings. Design for removal of
panels from inside car.
 - .1 Face panels with materials of flame
spread rating of 25 or less and trim edges.
- .3 Floor and ceiling: 1 mm, fire retardant
treated surfaces and edges.
 - .1 Attach with flush mechanical fasteners.
Double thickness floor sheathing.
- .4 Floor to accept resilient flooring specified
in Section 09 65 16, flush with sill and
securely fastened at front edge.
- .5 Walls: finish raised plastic laminate panels
on particleboard with black vinyl reveals.
 - .1 Conform to the requirements of SCAQMD
Rules 1113 and 1168.

2.4 CAR CAB
(Cont'd)

- .6 Ceiling: raised ceiling to 2438 mm high at rear of overhead cross beam.
 - .1 Finish: exposed frame with white aluminum.
- .7 Loudspeaker and protective grille: in car top with shielded wiring connected to controller.
- .8 Operating panel and face plate: illuminated call buttons.
 - .1 Keys operation of car required.
 - .2 Key to tie into building master keying system.
- .9 Indicator panel: above door with illuminated position indicators.
- .10 Bumper rail: round stainless steel with No. 4 (satin) finish.
- .11 Pad hooks: mounted at 2134 mm height.
- .12 Wall mats: one set canvas covered, padded mats with fill material and sewn.
- .13 Furnish license holders in elevator car to suit certificate issued by enforcing authority.
 - .1 Design holder with hidden or tamper proof fastening.
- .14 Telephone cabinet in car with telephone symbol 75 mm in height and wording in both English and French "In case of emergency, lift receiver, wait for answer" / "En cas d'urgence, décrochez le récepteur et attendez qu'on vous réponde" engraved in Helvetica medium letters at least 6 mm high on orange phosphorescent paint.
 - .1 Identify elevator and name of building on back of cabinet cover. Include telephone wiring within elevator hoistway.
- .15 Car doors and frames: doors of sandwich panel construction. Frames of rolled sections, rigid construction. Stainless steel, No. 4 satin finish, minimum 1.3 mm thickness, 1 1/2 hour fire rating.

- 2.4 CAR CAB
(Cont'd)
- .16 Clear height under fixed car ceiling: 2740 mm.
- .17 Clear car entrance height: 2134 mm.
- 2.5 POWER SUPPLY
- .1 Equipment Power: 600 V, 3 phase, 60 Hz, alternating current.
- .2 Lighting: 120 V, single phase, 60 Hz, alternating current.
- .3 Protect elevator equipment against damage or malfunction due to change to or from normal power supply and emergency power supply.

PART 3 - EXECUTION

- 3.1 EXAMINATION
- .1 Verification of Conditions: verify that conditions of substrate previously installed under other Sections are acceptable for elevator installation in accordance with manufacturer's written instructions.
- .1 Visually inspect substrates in presence of Departmental Representative.
- .2 Inform Departmental Representative of unacceptable conditions immediately upon discovery.
- .3 Proceed with installation only after unacceptable conditions have been remedied and after receipt of written approval to proceed from Departmental Representative.
- 3.2 MANUFACTURER'S INSTRUCTIONS
- .1 Compliance: comply with manufacturer's written data, including product technical bulletins, reviewed shop drawings, product catalog installation instructions and data sheets.

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- 3.3 INSTALLATION .1 Install hoistway, and other elevator materials and components in accordance with ASME A17.1/CSA B44, local codes, regulations and manufacturer's written instructions.
- 3.4 FIELD QUALITY CONTROL .1 Manufacturer's Field Services:
- .1 Have manufacturer of products supplied under this Section, review Work involved in the handling, installation/application, protection and cleaning of its products and submit written reports, in acceptable format, to verify compliance of Work with Contract.
 - .2 Provide manufacturer's field services consisting of product use recommendations and periodic site visits for inspection of product installation in accordance with manufacturer's instructions.
 - .3 Schedule site visits, to review Work, at stages listed:
 - .1 After delivery and storage of products and when preparatory Work or other Work on which the Work of this Section depends, is complete but before installation begins.
 - .2 Twice during progress of Work at 25% and 60% completion.
 - .3 Upon completion of the Work, after cleaning is carried out.
 - .4 Obtain reports, within 3 days of review, and submit, immediately, to Departmental Representative.
 - .5 If manufacturer installs elevator equipment delete the requirements of this article.
- 3.5 SITE TESTS .1 Perform tests and meet the requirements ASME A17.1/CSA B44.
- .2 Supply instruments and execute specific tests.
 - .3 Furnish test and approval certificates issued by jurisdictional authorities.
 - .4 At agreed time during twelve month warranty period, and with building normally occupied
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- 3.5 SITE TESTS (Cont'd)
- .4 (Cont'd)
using normal building traffic, conduct tests to verify performance. Furnish event recording of hall call registrations, time initiated, and response time throughout entire normal working day.
- 3.6 CLEANING
- .1 Remove protective coverings from finished surfaces and components.
- .2 Clean surfaces and components ready for inspection.
- 3.7 ADJUSTING
- .1 Adjust door opening and closing times to suit accessibility needs in accordance with Departmental Representative instructions and authorities having jurisdiction.
- .2 Adjust control system to cause elevators to answer hall calls during working day within performance criteria specified.
- .3 Adjust for smooth acceleration and deceleration of car so as not to cause passenger discomfort.
- .4 Adjust automatic floor levelling feature at each floor.
- 3.8 CLEANING
- .1 Progress Cleaning: clean in accordance with Section 01 74 11 - Cleaning.
.1 Leave Work area clean at end of each day.
- .2 Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment in accordance with Section 01 74 11 - Cleaning.
.1 Remove protective coverings from finished surfaces and components.
.2 Clean surfaces and components and make ready for inspection.
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- 3.8 CLEANING
(Cont'd)
- .3 Waste Management: separate waste materials for reuse and in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal and Section 01 35 21 - LEED Requirements.
.1 Remove recycling containers and bins from site and dispose of materials at appropriate facility.
- 3.9 PROTECTION
- .1 Protect installed products and components from damage during construction.
- .2 Repair damage to adjacent materials caused by passenger elevator installation.
- 3.10 MAINTENANCE
- .1 Furnish complete service and maintenance of elevator system components during elevator contract warranty period.
- .2 Systematically; monthly examine, clean, adjust, and lubricate equipment as per planned maintenance tasks and frequencies.
- .3 Maintenance to include systematic examination, adjustment and lubrication of elevator equipment; repair or replace parts whenever required.
.1 Use genuine parts produced by the manufacturer of specific equipment.
- .4 Perform work without removing car during peak traffic periods.
- .5 Provide emergency call back service during working hours for this maintenance period.
- .6 Maintain locally, near place of work, an adequate stock of parts for replacement or emergency purposes and have qualified installation personnel available to ensure fulfillment of this maintenance service without unreasonable loss of time.
- .7 Perform maintenance work using competent personnel, under supervision and in direct employ of elevator manufacturer.
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3.10 MAINTENANCE
(Cont'd)

- .8 Do not assign or transfer maintenance service to any agent or subcontractor without prior written consent of Departmental Representative.
- .9 Provide and maintain a maintenance log book to record all service carried out on elevator equipment. Keep log book current.