

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/CSA B44-2010, Safety Code for Elevators and Escalators (Bi-national Standard, with ASME A17.1.
  - .2 CSA B651-12, 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-ordination with other building construction subtrades.

- 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 in machine room.  
.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.
-

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 group supervisory control system, motor control system, door operation, signals, firefighter's service, emergency power operation, and special or non-standard features provided.
-

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, with symbols listed corresponding to identity or markings on both machine room and hoistway apparatus. .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.

---

- |  |    |   |
|--|----|---|
| 1.6 DELIVERY,<br>STORAGE AND<br>HANDLING<br>(Cont'd) | .5 | Packaging Waste Management: remove for reuse or return of pallets, crates, padding, banding, and packaging materials as specified 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.   |
| 1.7 WARRANTY   | .1 | For Work of this Section 14 20 06 - Passenger Elevators 12 months warranty period prescribed in GC3.13 of General Conditions is extended to 60 months.<br>.1 Extended warranty period must include warranty against:<br>.1 Blistering, spalling or peeling of paint due to improper surface preparation or material application.<br>.2 Opening of joints due to improper design or use of ineffective fastening devices.<br>.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

- |                           |    |  |
|---------------------------|----|--|
| 2.1 SYSTEM<br>DESCRIPTION | .1 | Hydraulic passenger elevator, gearless, machine room less type.<br>.1 Accessible Design in accordance with CSA B651.<br>.2 Bilingual Markings: include identification and instructions on operating panels and on signal equipment in English and French except where design is such that inference is obvious and readily understood. |
|---------------------------|----|--|

- |                                    |    |   |
|------------------------------------|----|---|
| 2.1 SYSTEM DESCRIPTION<br>(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 electric traction passenger elevator components to form complete, operating elevator system meeting the following performance characteristics: <ul style="list-style-type: none"><li>.1 Service: general purpose.</li><li>.2 Application: holeless dual piston.</li><li>.3 Operation: microprocessor single car.</li><li>.4 Quantity: 1.</li><li>.5 Rated net capacity: 954 kg.</li><li>.6 Rated speed: 0.4 m/sec.</li><li>.7 Travel distance (nominal): 3.6 m.</li><li>.8 No. of stops: 2.</li><li>.9 No. of openings: 1 front.</li><li>.10 Inside car dimensions: 1727 mm wide x 1295 front to back.</li><li>.11 Entrance frame opening size: 914 mm x 2134 mm with 2 hours fire resistance rating. Stainless steel No.4 finish.</li><li>.12 Door type: single, stainless steel No. 4 finish.</li><li>.13 Door operation: side opening in single speed.</li><li>.14 Twin piston.</li></ul> |
|                              | .2 | Hall Call Stations, both floors: <ul style="list-style-type: none"><li>.1 Vandal resistant lighted buttons indicating up and down.</li><li>.2 Jam mounted lighted travel direction indicator.</li><li>.3 Car location lighted indicator.</li><li>.4 Include smooth acceleration and deceleration of car without perceptible steps so adjusted as not to cause passenger discomfort.</li><li>.5 Elevator to travel between typical floors in not more than 10 seconds.<ul style="list-style-type: none"><li>.1 Measure time from instant doors start to close until car has stopped level with next floor.</li></ul></li><li>.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.</li></ul>  |
-

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 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 hard non-skid materials  
specified in Section 09 65 19, 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 high ceiling above 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 and 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 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 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.
  - .16 Clear height under fixed car ceiling: 2740 mm.
-

2.4 CAR CAB .17 Clear car entrance height: 2134 mm.  
(Cont'd)

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 or Contracts are  
acceptable for elevator installation in  
accordance with manufacturer's written  
instructions.

.1 Visually inspect substrate 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, product catalog installation  
instructions, product carton installation  
instructions, and data sheet.

---

- 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% complete.  
.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 and meet tests required by 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
-

- |     |            |    |   |
|-----|------------|----|---|
| 3.5 | SITE TESTS | .4 | (Cont'd)  |
|     | (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.  |
|     |            | .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.<br>.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.<br>.1 Remove protective coverings from finished surfaces and components.<br>.2 Clean surfaces and components ready for inspection. |
|     |            | .3 | Waste Management: separate waste materials for reuse and in accordance with Section   |

- 3.8 CLEANING  
(Cont'd)
- .3 Waste Management: (Cont'd)  
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.  
.2 Replace wire rope as necessary to maintain required factor of safety.
- .4 Perform work without removing cars during peak traffic periods.
- .5 Provide emergency call back service at 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.
-

3.10 MAINTENANCE  
(Cont'd)

- .7 Perform maintenance work using competent personnel, under supervision and in direct employ of elevator manufacturer.
- .8 Do not assign or transfer maintenance service to any agent or subcontractor without prior written consent of Departmental Representative.