

## **Freight Elevator Door and Car Gate Specifications**

### **Goods Lift Door, Biparting (ISO Type 4,5) or Slide-up (ISO Type 6)**

#### **A. General**

1. Supply and fit complete counterbalanced, vertical slide, bi-parting freight elevator doors, frames and sills at each open landing entrance and where shown on the plans. Supply and fit vertical slide-up counterweighted car gate at each entrance on the car as required.
2. Doors, door frames and sills and car gates shall comply with ASME A17.1, CSA B44, EN81 Safety Code for Elevators and Escalators as the jurisdiction requires.
3. Doors and frames shall be fire rated.

#### **B. Hoistway Landing Doors**

1. The doors shall be designed and fitted within size and type limitations.
2. Each door shall be fire rated and bear a 1 ½ hour Class “B” label. The doors shall be tested in accordance with UL 10B, Underwriters Laboratories Inc. Fire Tests of Door Assemblies.
3. The doors shall be made of steel plate of 2.5mm thickness and shall present a smooth flush surface on the room side.
4. The top edge of each lower door panel shall have a truckable angle sill designed to meet code requirements for the loading specified.
5. The lower edge of the upper panel shall be equipped with a fire resistant two piece Resilient Astragal.
6. An automatic stay-closed device (dual-side latching) shall be provided to minimize separation of the panel meeting edges when closed.
7. The vertical edges of the door frame shall have shoe angles with solid precision grooved, cast malleable iron shoe with low-wear polymer insert.
8. Each door and shall have a safety glass vision panel installed. Vision panels shall not be required at landings where a hall position indicator is provided.

#### **C. Rails and Hardware**

1. Vertical door rails/guides shall be roll formed steel 4.5mm thickness or angle steel in accordance with the loading requirements.
2. Door rails shall be slotted for mounting and pre-drilled for operating equipment.
3. Rails shall have adjustable malleable iron trucking sill stops designed to meet the code requirements for the loading specified.
4. Door sections shall be connected to each other with suitable steel roller chain running over grooved ball barring sheaves.
5. Chains and chain rods are connected to the panels with steel or malleable iron adjustable connections.

#### **D. Landing Door Interlocks**

1. Each landing door assembly shall be equipped with an approved interlock according to the requirements of ASME A17.1, CSA B44, EN81.

2. A motor-operated retiring cam (ramp) shall be provided on the interlock side of the car for each line of landing door interlocks. The retiring cam and interlock shall work in conjunction with the elevator control to prevent normal operation of the elevator/lift unless all doors are closed and locked.
3. Power operation of the retiring cam motor shall be by the door/gate controller and should provide a smooth, quiet lift and drop, operated by solid state electronic control. No air checks or mechanical damping devices are to be used.

**E. Power Operation of Hoistway Landing Doors**

1. Each door shall be electrically operated with two motorized door operators designed for variable voltage, variable frequency control.
2. Door travel shall be determined by proximity sensor actuation from a car mounted non-contact master limit arrangement.
3. Motor speed shall be controlled by VVVF drives for smooth door opening and closing and shall be designed to ensure full opening and full closing without slamming or rebounding.
4. An automatic stay-open feature (ASO) shall be provided to ensure that the door panels stay fully open.
5. All operating mechanisms shall be entirely within the elevator/lift shaft.
6. Manual operation shall be available in the event of a power failure.

**F. Car Doors/Gates**

1. Car gates shall be counterweighted vertical single-section, two-section or tree-section type as specified.
2. The gate shall be constructed of steel tube framing with 3mm diameter, round wire mesh panels, with stiffeners on vertical centers.
3. Each gate shall be provided with precision groove guide shoes, shoe angle and guide rails.
4. Gate panels and counterweight shall be connected to each other using suitable roller chains arranged to ensure balanced vertical motion with adjustable connectors. At least two independent suspension means shall be provided so that the failure of one suspension means will not allow the gate to fall.
5. Each gate shall have a positively guided counterweight arranged to ensure balance vertical motion and an approved electric gate closed contact.

**G. Power Operation of Car Gates**

1. Each car gate shall be electrically operated by a motorized gate operator designed for variable voltage, variable frequency control.
2. Car gate travel shall be determined by proximity sensor actuation from a car mounted non-contact proximity sensor arrangement.
3. Motor speed shall be controlled by VVVF drives for smooth gate opening and closing and shall be designed to ensure full opening and full closing without slamming or rebounding.
4. A light curtain re-opening device shall be provided on each car gate comprised of a multi-beam transmitter/receiver grid designed to cover the full opening width.
5. Manual operation shall be available in the event of a power failure.

**H. PLC Controller**

1. Suitable control panels shall be furnished to electrically energize door motors. Controllers shall be mounted within the machine room adjacent to the elevator/lift shaft.
2. Power doors and gates shall be arranged to open automatically as the elevator arrives at a floor and to close by continuous pressure push button operation. Doors shall re-open automatically if not closed to the full closed position.
3. The door controller shall be capable of working both a Slave to the elevator controller or independently as a Stand-Alone system operating the doors and appropriately signaling the elevator controller of the door positions.
4. The Stand-Alone control shall provide Automatic Time Closing of the doors after a set time period (adjustable 15–300 seconds) and Firefighter Emergency Operation. A close warning buzzer shall be provided.
5. Power operated doors are to be provided with Sequence Operation between landing door and car gate. The landing doors and car gates should be arranged so that in closing the car gate is closed at least two-thirds of its travel before the landing door can start to close.
6. A non-proprietary Programmable Logic Controller (PLC) is to be provided for all door logic and interface functions. The PLC shall be equipped with input/output indicators and functional diagnostic LEDs.
7. Variable Voltage, Variable Frequency (VVVF) drives shall be provided for door, car gate and retiring cam motor operation.
8. Each landing door and car gate shall be provided with interdependent control slaves designed to provide serial communication back to the PLC. The slaves shall be mounted in a junction box and equipped with input/output indicators and functional diagnostic LEDs.
9. The power operators and electric controls shall be designed to prevent electrical overload should an obstruction prevent the landing doors or car gate from moving with power applied. After removing the obstruction, the equipment shall be capable of being returned to service immediately.
10. Hoistway wire and travel cable for all door and car gate electrical components shall be provided. (Electrical fittings, conduit or trough is NOT provided)

**I. Other Trades**

1. Electrical supply of 200-240 VAC, 1 phase, 50/60 Hz, shall be furnished by others to the Peelle controller.
2. Where required for voltages other than 200-240 VAC, a power transformer shall be provided.
3. A separate 30A fused disconnect switch dedicated to the Peelle door controller shall be provided in the machine room. It shall be labeled “Door Controller”.
4. Conduit, trough and wire-ways necessary for a complete operating installation shall be furnished by others.
5. During the witness tests the Elevator Contractor shall demonstrate that performance complies with the figures given in the tender.
6. Four-sided structural steel entrance door frames including sills and head of frame shall be furnished by Peelle or others. The frames shall be set flush and plumb on the shaft side. All frames at openings above or below shall be set in vertical alignment.
7. Door jambs for drywall hoistway construction shall extend from the floor to the building beams above.