

The following items must be performed or provided at no cost to Otis Elevator Company ("OTIS") by the Owner or General Contractor or their agents in accordance with governing codes. The price and installation schedule of Otis is based on these jobsite conditions existing at the beginning and during installation of the elevator equipment. Failure to provide the items specified in this list will result in additional work performed by Otis beyond the scope of our contract causing installation delays. A change order will be submitted by Otis for materials and / or labor expended. All work to be performed per the latest revision of the applicable national code and / or local code.

**General Prep / Work**

- Provide any cutouts to accommodate elevator equipment (troughing, venting, and hall fixtures) along with patching and painting of walls, floors, or partitions together with finish painting of entrance doors and frames, if required.
- Provide tractor trailer access to the building for unloading of material and an onsite storage area for elevator equipment as follows: dry and enclosed, provides roll-able access to the elevator hoistway at the ground level, located within 100 feet (30.5 meters) of the hoistway, and is larger than 25 x 20 feet (7620 mm X 6096 mm) per elevator. Any warranties provided by Otis for elevator equipment are null and void if equipment is stored in a manner other than a dry enclosed building structure.
- Provide sufficient onsite refuse containers for the proper disposal of elevator packaging material. Should sufficient refuse containers not be provided, disposal of packaging material shall become the responsibility of the owner.

**Hoistway and Pit Prep / Work**

- Prior to the start of installation, provide a dry, properly framed, enclosed and vented hoistway in accordance with all applicable codes.
- Provide a clear plumb hoistway with variations from the size shown on the Otis layout not to exceed -0 inch / +1 inch (25 mm).
- Install per Machine Room / Machine Space Prep / Work and Electrical Requirements.

Provide a rough opening for and install a 3' X 7' standard fire rated interior door on one side of the hoistway, as shown on the Otis layout. The machine space access door must not be on an outside wall. When determining the location of the machine space door, the dimension on the Otis layout is from the inside door edge of the jamb and not the door stop edge. Please be advised that this door location is very critical. Follow door manufacturing instructions for the different types of hoistway wall material and make the appropriate adjustments so that this door will be placed in the proper location.

The door frame must be securely mounted to the wall to sustain a cantilevered / horizontal force exerted by the electrical disconnect(s), electrical conduit, and wiring up to an approximate 325 lb. load. Install per Machine Room / Machine Space Prep / Work and Electrical Requirements. The door hand and opening is dependent on configuration see the general contractor guide or talk to your Otis representative.

- Furnish adequate rail bracket supports and bracket spacing as required by governing code from pit floor to top of hoistway. For steel or wood frame construction, adequate backing for a rail bracket to be installed not less than 10'-3" (3124 mm) or more than 11'-3" (3429 mm) from the top landing. Furnish separator beams where required. Rail bracket attachment supports must be exposed and flush with the clear hoistway line.

If the floor to floor height exceeds the maximum bracket spacing allowed by the elevator code, Otis requires some form of steel support to properly attach our guide rail brackets. The maximum allowed bracket spacing is indicated in the rail force and bracket detail table on the Otis layout. Any rail bracket mounting surfaces that are not in line with the finished hoistway dimension (i.e. the clear hoistway line) may need to be extended to meet the required distance. Otis agrees to provide guidance on this matter at the appropriate time.

If rail bracket embedded plates or inserts are provided by Otis, they shall be installed by others in accordance with Otis' documentation and instruction.

If vertical tube steel is utilized as rail support, see the Otis layout for any specific requirements.

When a Machine space is used, with a second floor controller / tank location, furnish adequate Tank Stand supports flush with the hoistway wall when the following hoistway construction material is used; cmu block, steel frame, or wood, per Otis layout.

The support can be any of the following; header beams, steel tube, inserts, or embedded plates at locations specified as Note: When a support is provided, it should be able to withstand the force shown on Otis contract layout for seismic and non seismic condition.

Concrete hoistways walls do not require supports for Tank stand.

- Furnish a dry pit reinforced to sustain vertical forces on car rails and impact loads on cylinder head(s) and buffer(s). The pit must be dry and clean. The elevator pit must have a floor drain or sump pump to prevent the accumulation of water. Location to be coordinated with Otis to avoid all elevator components and access areas. In areas requiring Firefighter's Emergency Operation, a sump pump / drain shall be provided that shall have the capacity to remove a minimum of 11.4 m<sup>3</sup> / h (3,000 gal / h) per elevator (2.2.2.5, ASME A17.1-2007 / CSA B44-07). Otis recommends that the owner verify the system complies with all applicable laws and local codes.
- Provide and install a fixed vertical iron ladder in each pit as required by governing code and located per Otis layouts, or as coordinated with Otis personnel. Ladder width and projection from wall per local code. If pit depth is greater than 9'-10" (3000 mm) [13'-9" (4191 mm) with no floor below bottom landing], a pit access door is required.

**10. A.) Protection from Falls:**

As required by the Occupational Safety and Health Administration (OSHA) 1926.502 (B) (1-3), a freestanding removable barricade at each hoistway opening at each floor. Barricades shall be 42" (1067 mm) high, with mid-rail and kick board, and withstand 200 lbs. (90.7 kg) of vertical and horizontal pressure.

**B.) Protection from Falling Objects:**

As required by the Occupational Safety and Health Administration (OSHA) 1926.502(j), hoistway protection from falling debris and other trades materials by either:

- Full entrance screening / mesh in front of all elevator entrances.
- Secured / controlled access to all elevator lobbies (lock and key) with posted Notice "Caution - No Entry - Elevator Personnel Beyond This Protection."

Notes: - Items A.) and B.) can be integrated systems.  
- Hoistway barricades and screening shall be constructed, maintained, and removed by others.

- The front entrance wall at the main landing, is not to be constructed until after all elevator equipment is installed in the hoistway (the entire front wall - CLEAR HOISTWAY WIDTH - must be open for installation). Remaining front entrance walls are not to be constructed until after door frames and sills are in place. The rough openings, per sizes shown on the Otis layout, are required. Prior to the completion and turnover of the elevator(s), all entrance walls must be installed and rough openings filled in complete to maintain fire rated hoistway requirements.
- Provide adequate support at all fastening points of each entrance. Provide plumb vertical surfaces for entrances and sill supports, one above the other, and square with the hoistway. For 4'-0" (1219 mm) and 4'-6" (1372 mm) two speed door arrangements, an additional hoistway attachment point is required for an auxiliary support bracket under the sill assembly in the center of the clear door opening. Finish floor and grout, if required, between door frames to sill line. A horizontal support is to be provided 1 foot (305 mm) above the clear opening at the top landing to support the door frame assembly. If floor heights exceed 12'-0" (3658 mm), a horizontal support is to be provided 1 foot (305 mm) above the clear opening. If transoms are required, the support would be 1 foot (305 mm) above the transom height.
- Provide and install a steel safety beam per elevator, from side wall to side wall at the top of the hoistway, capable of withstanding a maximum net live load of 5000 lb. (2268 kg). Otis requires 2" (51 mm) clear above the beam. Beam must be removed before car is placed in operation if it infringes on required clearance.
- Glass used in hoistway construction must block 98% or more of incident full spectrum ultraviolet radiation for the full height of the hoistway.

- If an emergency door in a blind hoistway is required, provide an outward swinging single section type door with door closer and a self closing barrier per ASME A17.1-2007, section 2.11.1.2. Contact your local Otis personnel for a detailed drawing (AAA26900D\_FMI), showing Otis specific requirements.

**Machine Room / Machine Space Prep / Work**

- When a machine room is used, provide a suitable dry machine room with access and ventilation in accordance with all applicable codes and regulations. The machine room is to be maintained at a temperature between 60°F (15.5°C) and 100°F (38°C). When a machine space is used, the machine space will be in the hoistway behind the metal door installed per Hoistway and Pit Prep / Work above with ventilation in accordance with all applicable codes and regulations. The machine space is to be maintained at a temperature between 32°F (0°C) and 104°F (40°C). Relative humidity not to exceed 95% non-condensing. Local codes may require tighter temperature ranges. The temperature and humidity range shall be permanently posted in the machine room / machine space. Please check with your local code authority for the exact requirements in your area.
- Machine room and Machine space doors to meet code compliant fire resistive construction. When a machine room is used, provide a self closing (local building code dependent) and self locking door with a group 2 locking device. When a machine space is used, provide a standard 3' x 7' self closing (local building code dependent) and self locking metal door with a group 2 locking device in the hoistway per Otis layout. In addition, ensure that all air gaps around the machine room / machine space door are sealed (i.e. threshold, weather stripping, etc.). Self closing mechanism cannot protrude into the machine space at any time. The machine space door knob shall have a blank plate on the hoistway side of the door.

- When a machine space is used, Otis will provide a metal shroud and metal shroud cover to be mounted on the hoistway side of the machine space door frame per Otis layout. The metal shroud will accommodate the mounting of the main electrical feeder system, fused disconnect switch or circuit breaker for car lighting, and the convenience outlet. Conduit knockouts through the metal shroud cover will be required as needed to access the disconnect switches or circuit breakers, and convenience outlet. See Electrical Requirements.

[Note: Consult with the Otis Representative at your location concerning the metal shroud mentioned above for machine space applications.]

- [Refers to elevators with remote machine rooms requiring buried piping and wire way] Provide trenching and backfilling as necessary to accommodate remote machine room conditions.

**Fire Prevention Prep / Work**

- Provide hoistway walls designed and constructed in accordance with the required fire rating (including those places where elevator fixture boxes and rail bracket fastenings penetrate into the hoistway walls).

- In the United States, provide smoke detectors, located as required, with wiring from the sensing devices to the controller(s) designated by Otis.

- For each group of elevators, provide a normally closed contact representing the smoke detector at the designated return landing.
- For each group of elevators, provide a normally closed contact representing all smoke detectors located in lobbies, hoistways, or machine rooms / machine space, but not the smoke detector at the designated return landing (see above) or the smoke detectors as described in i. and ii. below:

- If a smoke detector is located in the hoistway at or below the lower of the two recall landings, it shall be wired to activate the same normally closed contact as the smoke detector located in the lobby at the lower of the two recall landings.
- If machine rooms / machine space is located at the designated return landing, the smoke detectors located therein shall be wired to activate the same normally closed contact as the smoke detector at the designated landing.
- Requirements for intermittently illuminating the fire hat visor signal in the car operating panel, either i. or ii. apply.

- For a single unit or for a group of elevators having one common machine room / machine space and one common hoistway, provide one additional normally closed contact representing the machine room / machine space and hoistway smoke detectors.
- If the group contains more than one hoistway and hoistway smoke detectors are installed, or if the group has more than one machine room / machine space, provide one normally closed contact for each elevator. The contact is to represent the smoke detector in the machine room / machine space for that particular elevator, and any smoke detectors in the hoistway containing that particular elevator.

- In Canada, provide smoke detectors, located as required, with wiring from the sensing devices to the controller(s) designated return landing.

- For each group of elevators, provide a normally closed contact representing the smoke detector at the designated return landing and, if provided, from the sensing device in the pit.
- For each group of elevators, provide a normally closed contact representing all smoke detectors located in lobbies or lobbies, but not the smoke detector at the designated return landing (see above) and, if provided, from the sensing device in the top of the hoistway.

For each group of elevators, provide a normally closed contact representing the smoke detector in the elevator machine room / machine space(s).

- If the machine room / machine space is located at the designated return landing, the smoke detectors located therein shall be wired to activate the same normally closed contact as the smoke detector at the designated landings. When a machine room is used, for each group of elevators, provide in addition to the above, a normally closed contact representing the sensing devices in the machine room and, if provided, in the pit or at the top of the hoistway (for the Fire Hat in the Elevator).

- In the United States, if sprinklers are installed in the hoistway or machine room / machine space(s), a means to automatically disconnect the mainline power supply to the affected elevator and any other power supplies used to move the elevator, upon or prior to the application of water is required (unless prohibited by local code). Smoke detectors shall not be used to activate sprinklers in hoistways or machine rooms / machine spaces or to disconnect the mainline power supply.

- Provide a Class "ABC" fire extinguisher, minimum 10 lbs., in the machine room or in a location convenient to the machine space.

**Electrical Requirements**

- All 125 volt, 15 or 20 ampere single phase receptacles installed in pits, machinery spaces, and elevator car tops shall be of ground fault circuit interrupter (GFCI) type. All 125 volt, 15 or 20 ampere single phase receptacles installed in machine rooms / machine spaces shall have GFCI protection. A dedicated single phase receptacle supplying a permanently installed pit sump pump shall not require GFCI protection. (NEC 620-85 or CEC Rule

- Furnish a dedicated, balanced, 3 phase, 3 wire electrical feeder system with a separate solidly grounded equipment grounding conductor terminating in the machine room / machine space. Size of the feeders and grounding conductor to suit elevator power characteristics. Feeder conductors and grounding conductor must be copper. A fused disconnect switch or circuit breaker capable of being locked in the open position for each elevator per the National Electrical Code (ANSI/NFPA 70) or Canadian Electrical Code (C22.1) with feeder or branch wiring to the controller (NEC 620-51, 620-61(D), and 620-62 or CEC Rule 38-013(2)(a)) must be provided. Fuses are to be current limiting class RK1 or equivalent. Circuit breakers are to have current limiting characteristics equivalent to class RK1 fuses. Fuses or circuit breakers are to be time delay to cover the full load up accelerating current as listed in the Otis Confirmation of Power Supply form.

NOTE - DO NOT SCALE THIS DRAWING REFER TO DWG'S NO. \_\_\_\_\_

[Note: If the 3 phase power to the control system is simulated (not from the utility), by use of a phase converter system, the phase converter must have all three phases balanced. Digital phase converter is required.]

Furnish a separate 120 volt, 15 ampere single phase branch circuit and SPST fused disconnect switch or circuit breaker capable of being locked in the open position to supply the car lights, receptacles, auxiliary lighting power source, and ventilation on each car in compliance with the National Electrical Code must be provided.

When a machine room is used and where practical, disconnects shall be located adjacent to the door of the machine room enclosure. When a machine space is used, disconnects or circuit breakers shall be located behind the door of the machine space per Otis layout.

Branch circuit wiring to each controller (NEC 620-53 or CEC Rule 38-053) must be provided.

For machine room applications, a convenience outlet and a suitable light, of not less than 200 Lux (19FC) as measured at floor level must be provided in the machine room with a light switch located within 18" (456 mm) of lock jamb side of machine room door.

For machine space applications a convenience outlet located inside the machine space door and a suitable light located outside the machine space door on the lock jamb side, of not less than 200 Lux (19FC) as measured at floor level must be provided per Otis layout. The machine space light circuit shall be a dedicated circuit separate from other lighting circuits. (NEC 620-23 or CEC Rule 38-023)

A convenience outlet and light fixture of not less than 100 Lux (10FC) as measured at the pit floor level must be in the pit with a light switch located adjacent to the pit access door (NEC 620-24 or CEC Rule 38-041). The light bulb(s) shall be externally guarded to prevent contact and accidental breakage.

[Note: Consult with the Otis Construction Superintendent at your location concerning the following paragraph.]

To meet the date upon which the elevators are to be turned over, the permanent phase feeder system and protective devices must be installed and power available prior to the start of elevator installation.

- Provide 120 volt, 20 ampere power for light, tools, mist, etc. to the hoistway during installation. Source must be within 75 feet (22.86 M) of the hoistway.
- Provide one (1) dedicated outside telephone line per elevator car to the elevator machine room / machine space(s), and terminated at the controller designated by the Otis construction superintendent. Reference the A17.1 / CSA-B44 code and the Otis Confirmation of Power Supply for specific requirements.

- [Optional for Elevators with an Intra building Intercom] Provide a separate 120 volt, 15 ampere, single phase power supply with fused SPST disconnect switch or circuit breaker located as required for intercommunicating system power supply. Circuits to be arranged for feeding from the building emergency lighting supply if provided. Conduit and wiring to remotely located intercommunicating stations must be provided.

- [Optional for Elevators with a Battery Powered Emergency Return Unit (ERU)] Provide the disconnecting means required by the National Electrical Code (NEC) or Canadian Electrical Code (CEC) with an auxiliary contact and wiring to the controller. The auxiliary contact is to be positively open when the main disconnecting means is open. The auxiliary contact shall cause the ERU power source to be disconnected from its load when the disconnecting means is in the open position. Size of main contacts to suit elevator power characteristics.

[Additional ERU Requirement]


In the United States, heat sensors used to automatically disconnect the mainline power supply prior to the application of water from sprinklers shall be provided with a normally closed contact with wiring from the sensing device to a controller designated by Otis. The normally closed contact shall be closed when the heat sensor is not activated and shall be open when the heat sensor is activated.

- [Optional for Installations with Emergency (Standby) Power] Provide the emergency (standby) power unit and means for starting it, and deliver to the elevator via disconnect switches in the machine room / machine space, sufficient power to operate one or more elevators at a time at full rated speed and rated load.

An automatic Power Transfer Switch is required for each power feeder to monitor both Normal and Emergency (Standby) Power conditions and to perform the transfer from one to the other. Switch to have two sets of normally closed dry contacts, one to be open when the switch is in the Emergency (Standby) Power position, the other to open upon initiation of power transfer and to close when transfer is complete. Switch to have an inhibit function which will delay transfer to Normal and / or Emergency (Standby) Power by an adjustable period of 0 - 300 seconds. Switch shall have a Phase Monitor feature, which prohibits the transfer of power between "live" sources unless the sources are in phase with each other. If a Shunt Trip device is provided, an additional Normally Closed contact is required from the Emergency (Standby) Power source.

Emergency (standby) power system shall be connected to the 125 volt power circuit as noted in A.3 of the Confirmation of Power Supply for the branch circuit supplying the car lights, car top receptacle, auxiliary car lighting power source and car ventilation.

You agree to indemnify and save Otis harmless against any and all liability and costs arising out of your failure to carry out any of the foregoing requirements.

APPROVAL THIS ARRANGEMENT AND SUPPLEMENTARY NOTES APPROVED	
SIGNED: _____	DATE: _____
<b>HOSPITAL SEISMIC 0/1</b>	
 A United Technologies Company	
DWG. NO.: <b>HYD 5000</b>	
BUILDING	
LOCATION	
CONT. WITH	
OWNER	
ARCHT. archSTUDIO7	
CONTRACT NO.	

EXPRESS DRAW: WEB:19

Architect :  
archSTUDIO7, PLLC

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Winston-Salem, NC 27101

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**Consultants :**

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Permit - Seal :

NOT FOR  
CONSTRUCTION

Client :



Project :

Storage  
Facility

Country Club Rd.  
Winston-Salem, NC

Title :

ELEVATOR  
GENERAL NOTES

Date :

Project No. : \_\_\_\_\_

Drawn by :

Sheet :