

DESIGN AND CONSTRUCTION GUIDELINES AND STANDARDS

DIVISION 14 • CONVEYING EQUIPMENT

14 20 00 • ELEVATORS

SECTION INCLUDES

Electric Traction Elevators
Hydraulic Elevators
Lifts

RELATED SECTIONS

03 30 00 Concrete
04 20 00 Unit Masonry
07 10 00 Waterproofing and Dampproofing
09 20 00 Gypsum
24 00 00 Heating, Ventilation & Air Conditioning
23 00 00 Plumbing
26 00 00 Electrical
28 00 00 Electronic Safety and Security
31 00 00 Earthwork

Filed Sub Bid



M.G.L. c.149 §44F

*Elevators are a stipulated filed sub-bid category under M.G.L. Chapter 149, §44F. If the cumulative estimated value of the work in this section **exceeds \$20,000** and the project's total cost is over \$100,000, it triggers the filed sub-bid requirement. In general most elevator upgrades exceed \$100,000 therefore any Electrical, HVAC, etc. work associated with the elevator that exceeds \$20,000 in total estimated costs needs to be defined as a filed sub-bid.*

Projects mostly include upgrades/modernization of existing elevators or in some cases providing a second elevator in buildings with only one elevator. The design for buildings with a single elevator should incorporate features that will minimize the downtime of the buildings elevator, e.g. aggressive construction schedule, etc.

A project that will provide a second elevator or a new elevator should consider the design of holeless, roped or machine room less equipment to facilitate the installation into an existing building.

Upgrades of existing elevators without any architectural changes generally do not need the services of an architect, however if a new elevator is being provided an architect should be the lead consultant with a vertical transportation specialist needed for the elevator specification and other engineering sub-consultants e.g. mechanical electrical, asbestos, etc.

Elevators are primarily traction type for buildings 75 ft or higher and hydraulic for less than 75 ft (up to 8 stories).

ELEVATOR UPGRADES

Prior to the design of elevator upgrades/modernization:

Evaluate all existing equipment. Identify equipment still having useful life remaining. If equipment is being reused specify cleaning, painting, refurbishing, grease and/oil, etc.

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Evaluate and specify all of the fire alarm improvements required for elevators, e.g. firefighter recall.

Upgrades to existing elevators, in buildings having only one elevator, may require a relocation plan for residents being in place prior to elevator work being started. This is a major effort and requires a great deal of coordination with the LHA. In addition there may be a requirement to work an aggressive construction schedule to minimize downtime.

Evaluate existing machine rooms lighting, electrical, ventilation, heat, etc. and upgrade with improved systems in accordance with current code.

Determine if the existing emergency generator is sized appropriately for the full load operating or if it is controlled by a selector switch. If the generator was sized originally to have capacity for both elevators operating, provide a selector switch control to allow for operating one elevator at a time (if permitted by code). This additional emergency generator capacity could be used for other loads, or a future replacement generator could be smaller and less costly.

Test, to the extent possible, for disruptive harmonics to existing sensitive electrical systems such as fire alarm panels and systems.

Provide emergency generator interface and test the generator for satisfactory operation of this interface.

Check the elevator pit for water infiltration and accumulation. If it occurs determine cause and correct if possible. Possible solutions include adding a crystalline coating on the walls of the pit or adding sump pumps. If pumps are the solution, a dual pump system is preferred.

Investigate the shaft and design giving consideration to existing building fireproofing and shaft wall construction. Debris from fire proofing can become problematic with new solid state controls and microprocessors.

On new hydraulic elevators or when doing an upgrade of an existing older type hydraulic elevator which has been determined not to have cylinder protection, always specify; new PVC lined cylinders , environmentally safe replacement hydraulic oils and provide additional corrosion protection such as cathodic protection. (Replacement of cylinder adds approximately 6 weeks to the downtime of the elevator)

NEW ELEVATORS INCLUDING ADDITIONAL ELEVATORS

Holeless and roped hydraulic elevators are preferred for new installations.

In single elevator buildings that are being provided with a new (second) elevator, specify that the existing elevator should not be used for construction purposes.

Design new elevators to fit the character of the existing building.

CMU for shaft walls is preferred.

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DESIGN CONSIDERATIONS – ALL ELEVATORS



Research & reference all applicable codes, laws, regulations and standards that apply: e.g. NFPA 70, 72, etc.

Use standard “off the shelf” elevator equipment (i.e. Pre-engineered and pre-manufactured) into existing buildings footprints if possible. Do not specify custom equipment unless absolutely necessary. Use current technology in elevator equipment.

Provide all of the required ADA upgrades to elevators and call stations to comply with the requirements for handicap and special needs residents. If a new elevator is being provided, evaluate the need for stretcher requirements and provide the cab sizing if possible.

Interior of elevator cabs should also be upgraded to improve aesthetics. Do not use carpet in elevator cars.

Always specify new elevator pads with the appropriate hanging pins.

Specify patching and painting of hallway where elevator work occurs.

Call button replacements shall be specified, and always provide lobby lights for car direction on each floor

Provide heat and air conditioning in the hydraulic room if needed to keep oil at a reasonable operating temperature. Consider the use of a split system to simplify the installation.

Provide a scavenger pump to return the oil to the reservoir.

Provide state of the art solid state non-proprietary microprocessor controller that is provided with an integral air conditioning system for controller cabinet. This is usually more costly initially but is more efficient and will provide for savings in power consumption that will usually justify the additional cost.

Design documents should be clear that the successful bidder for the upgrade/new installation is responsible for emergency repairs and routine maintenance and inspections of all elevators covered under the contract during the entire the duration of the construction contract and warranty period (usually one year after substantial completion).

WHEEL CHAIR LIFTS

Evaluate the alternatives and options i.e. Limited Use Limited Access (LULA) thoroughly; our experience with lifts is typically that they don't get used much and that other solutions are more effective.

Exterior stair lifts should be avoided.