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Subject: Building Services-III

Topic: ELEVATORS

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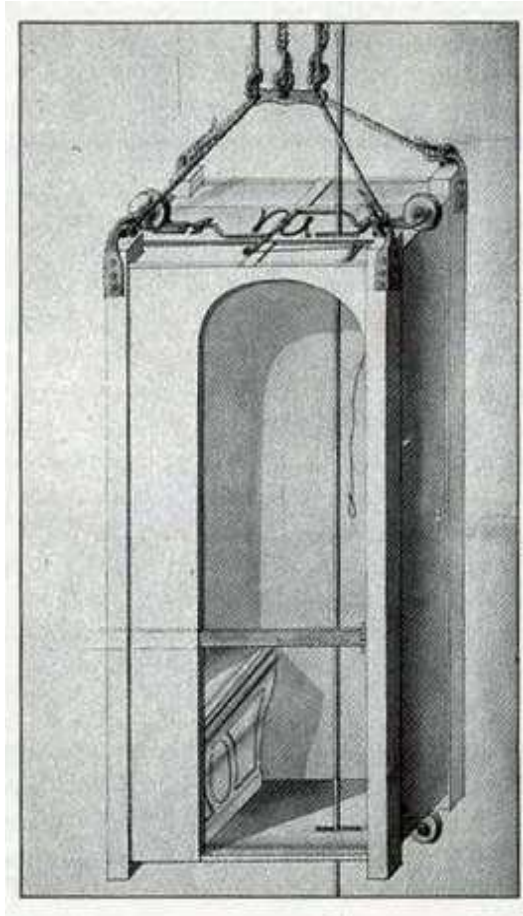


Unit



- **GENERAL**
  - **TERMINOLOGIES**
  - **ESSENTIAL REQUIREMENTS**
  - **DIMENSIONAL TOLERANCES**
  - **PRELIMINARY DESIGN**
  - **TYPES OF LIFTS**
  - **POWER AND CONTROL SYSTEMS**
  - **CONDITIONS FOR OPTIMUM PRACTICE**
  - **RUNNING AND MAINTENANCE**
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- The first passenger elevator was built in 1743 for king Louis at his palace in France. The one person contraption went up only one floor, from the first to second, known as “Flying Chair” It was on the outside of the building, and the king used to enter the lift via his balcony.



“Flying Chair”

*An elevator is a type of vertical transport equipment that efficiently moves people or goods between floors (levels, decks) of a building.*

**The following maximum loads are stipulated for passengers lifts in blocks of flats:**

- 400 kg ( small lift) for use by passengers with hand baggage only**
  - 630 kg ( medium lift) for use by passengers with prams & wheel chairs**
  - 1000 kg (large lifts)can also accommodate stretchers, coffins, furniture and wheelchairs**
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# CONSTRUCTION ASPECTS

- **In every building with height more than 15-m at least one lift should be provided.**
- **Over speed governer, that operates the safety gear on the car in the event of it exceeding a certain speed.**
- **The machine room should be of adequate size of working and height should not be less than 1.98 m.**
- **The machine-room should not be used as storeroom.**
- **The machine room should be provided with an arrangements. insulated portable hand lamp for examining the machinery.**

## Architects must consider

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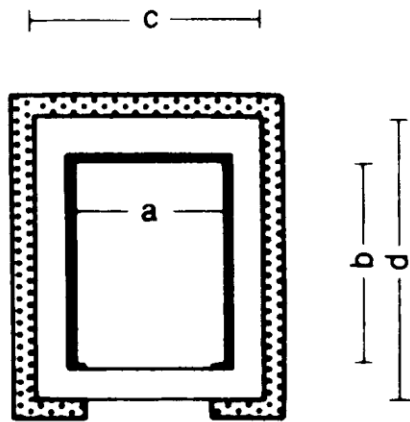
- Number, type and size of lifts and position of lift well;
  - Particulars of lift well enclosure;
  - Size, position, number and type of landing doors;
  - Number of floors served by the lift;
  - Height between floor levels
  - Number of entrances
  - Total headroom
  - Provision of access to machine room;
  - Provision of ventilation and, if possible,
  - natural lighting of machine room;
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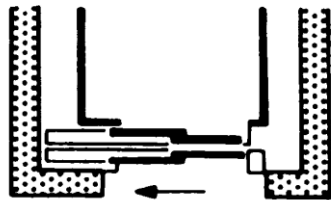
## Architects must consider

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- Height of machine room
  - Depth of lift pit
  - Position of lift machine, above or below lift well
  - Size and position of supporting steel work at roof levels;
  - Size and position of any footings or grillage foundations, if these are adjacent to the lift Pit
  - In the case of passenger lifts whether the lift
  - cage is required to carry household luggage,
  - such as refrigerator, steel Amirah, etc.
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e



80

1.60  
opening to one side



80

1.80  
central opening

	load capacity (kg)	400			630				1000			
	operating speed ( $\leq$ m/s)	0.63	1.00	1.60	0.63	1.00	1.60	2.50	0.63	1.00	1.60	2.50
shaft	minimum width, c (mm)	1800			1800				1800			
	minimum depth, d (mm)	1500			2100				2600			
	min. shaft pit depth, p (mm)	1400	1500	1700	1400	1500	1700	2800	1400	1500	1700	2800
	min. shaft head height, q (mm)	3700	3800	4000	3700	3800	4000	5000	3700	3800	4000	5000
door	clear width lift door, $c_2$ (mm)	800			800				800			
	clear width shaft door, $s_2$ (mm)	2000			2000				2000			
lift motor room	minimum area ( $m^2$ )	8	10	10	12	14	12	14	15			
	minimum width, r (mm)	2400	2400	2700	2700	3000	2700	2700	3000			
	minimum depth, s (mm)	3200	3200	3700	3700	3700	4200	4200	4200			
	minimum height, h (mm)	2000	2200	2000	2200	2600	2000	2200	2600			
lift car	clear width, a (mm)	1100			1100				1100			
	clear depth, b (mm)	950			1400				2100			
	clear height, k (mm)	2200			2200				2200			
	clear access width, $e_2$ (mm)	800			800				800			
	clear access height, $f_2$ (mm)	2000			2000				2000			
	permitted no. passengers	5			8				13			