Fifth Lecture

Sizes of lifts

Load limitation should be set with warning system for safety consideration

- Social consideration higher standards for V.I.P and special users (old, ill, etc....).

- 0.2 m²/person

Clearance on the side

230 m

Clearance on front for bauble door sets.

150 m

Clearance on the back for counter balance weight

300 m

Manufacturer dimension should be observed. If counter balance weight is on the side, clearance should be provided.

Doors opening in lifts

- One direction
- Two direction
- More than two but require special solutions.

Growing of lifts-

i. Linear (up to 4 lifts)

ii. Facing (4-8)

iii. Functional Growing (operating Thealise units, etc.)

Six Lecture: LIFTS (ELEVATORS)

- All buildings are classified, in term of lifts requirements as either
  a. Office Buildings
  b. Residential Buildings

In office buildings, the traffic served is assumed to be 75% of total population on the second floor and above (Ground+1st floor is not considered size they require no lift service generally) in a period of 30 min.

If size of lift car is decided upon by the designer, and Round Trip Time (R.T.T)* is given by manufacturer then...
No. of passenger/(discharged) by 1 lift = \(30 \text{ minutes} \times \text{lift capacity} \div \text{R.T.T.}\)

No. of lifts required = Calculated No. of Passenger \(\div\) No. of passenger /lift

The result should approximated upward.

R.T.T. Is the time taken by a lift to complete one cycle with stops as programmed.

In Residential Buildings, the traffic served is assumed to be 6% of total Population on the second floor and above, in a period of 5 min.
If the lift car capacity is decided by designer, and R.T.T is given by manufacturer then

No. of passenger/1 lift car = \(5 \text{ minutes} \times \text{lift capacity} \div \text{R.T.T}\)

No. of lifts req. = \(\text{calculated no. of passengers} \div \text{No. of passenger/1 lift car}\)

The result should be approx. upward.

Note that no. of lift may be considered in view of user type where further consideration should be given (i.e. disabled person, furniture movements, patients…etc.)

Waiting interval should be 30 to 60 sec. in Office Buildings

90-120 sec. in Residential Buildings.

Loading condition (no. of persons) should be stated. Generally 340 kg./m²

Example:

How many lifts are required in a fifteen storey building (offices); if each floor is occupied by 50 person and lift car capacity is 10 person with R.T.T of 3 minutes

No. of persons req. lift service = \((15-2)\times50\times75\%\)

= \(650\times75\%\)

\(\div100\)

= 487.5 P

No. of persons/lift = \(30\times10\)

\(\div3\)

= 100 P

No. of lifts calculated = \(487.5\)

\(\div100\)

= 5

5 lifts are required.
No. of lifts required = 5 lifts

If the same building with the same information but used as a residential building. How many lifts are required?

No. of persons req. lift service = (15-2) × 50 × 6%

= 39

No. of persons/lift

= \frac{5 \times 10}{3}

= 16.5

No. of lifts calculated

= \frac{39}{16.5}

= 2.36 lifts

No. of lifts required

= 3 lifts