

Kursus Rekabentuk Sistem Lif (Asas)

08 – 09 MAC 2018

**PUSAT KECEMERLANGAN
KEJURUTERAAN DAN TEKNOLOGI JKR
(CREaTE), JALAN KEMUS, SIMPANG
AMPAT, 78000 ALOR GAJAH, MELAKA**

LIFT SAFETY FEATURES

- **SPEED GOVERNOR**

To prevent lift over-speeding.

- Electrical - not exceed 125% speed.
- Mechanical - not exceed 130% speed.

Over Speed Prevention Device

- If car exceeds the speed limit for some reasons, the governor will cut the power automatically and stop the car with the brake.

- **BUFFER**

Spring or oil, to stop lift car and/or counterweight over-travel downwards.

- Spring Type - below 1 m/s.
- Oil Type - above 1m/s.

Buffers

- If by any chance the car or counterweight goes too far down into the pit, buffer will soften the shock of impact.

- **SAFETY GEAR**

- Mechanical clamping device locating on the car.

- Stops the lift if it over-speed in the downwards direction (clamp the guide rail)

- **OVER-RUN CLAMP**

To keep the lift within a fixed upper and lower limits. Will stop the lift if the limits are exceeded.

Limit Overpassing Prevention Device At Top And Bottom Floors

- Final limit switches which, are installed for travel in both directions will restrict the overpassing.

- **DOOR INTERLOCK**

To ensure both car and landing doors are fully closed before the lift starts moving. This is an electro-mechanical interlock.

Entrances Safety Device

- Elevator will not move unless both hoistway and car doors are completely closed.
- Hoistway door will never open when the lift car is not at the floor. However, at certain designated floors, doors can be opened with the key given to the assigned personnel.
- When something or someone is caught by the closing door, the safety shoe will operate automatically to open the door.

- DOOR SAFETY SHOE / SENSOR

Retractable shoe, safety edge, multi beam(light ray), electronic door to prevent closure of doors when an (object or a person) is present between the doors.



- **WORM GEAR**

Non slipping even when machine is not running.

- **THERMIC DEVICES**

In motor windings to prevent overheating of motor.

- **ELECTRICAL FUSES**

Prevent overloading of electrical equipment and components.

- **BRAKE**

To stop the lift when reached at each floor.
Stops the lift if system failure.

- **ROPES**

Sufficient ropes with generous safety factor to prevent any mishap, 10 - 15 % safety factor.

- Rope diameter not less than 40 (1:40, drive sheave). Common sizes 8-22mm dia.
- Method of terminating (bulldog grip, swaged end, socket end).

- **ROPES SNATCH SWITCH**

Lift will stop if the rope elongated more than setting point.

- **OVERLOAD NON-START**

Micro switches beneath lift platform to prevent starting of lift when it's overload.

Overloading Prevention

- In case of overloading, doors will not close, buzzer will continue to sound and elevator will not move.

- **AUTOMATIC RESCUE DEVICES**

- Sistem tersendiri (c/w individual controller, battery, charger, etc).
- Berfungsi bila tiada bekalan elektrik pada sistem lift (*change-over* mengikut aturan).
- Menghidup lampu dan kipas dalam lift car, menurunkannya ke aras terhampir, dan seterusnya membuka pintu.

- **BACK-UP SUPPLY BY GENSET**

- *'Incoming change-over panel'* untuk genset.
- Sistem lift akan berfungsi seperti biasa menggunakan bekalan elektrik dari genset.
- Tempoh sela-masa 'changer-over' boleh dilaraskan.

The secondary source of electricity powered by the 'Standby Generator' set for the building is designed to operate the lift in the event of failure of Tenaga Nasional's power supply. The lift will operate normally when there is a change of power supply from Tenaga Nasional's power supply to the 'essential' supply by the 'Standby Generator' set.

• LIFT INTERCOM SYSTEM & BELL

- Alat perhubungan antara dalam lift car, bilik motor dan bilik kawalan (3-ways).
- Amat berguna sewaktu berlaku situasi penumpang terperangkap dalam lift car.
- 'Bell button' pada COP juga boleh digunakan.

Devices Provided For Emergency

- When car is inoperable due to power failure or trouble, communication with outside can be done through interphone.
- In case of power failure, emergency light is put on automatically.
- When cab is stopped between floors, passengers can be rescued through the emergency exit. However, the rescue must be done by the authorized personnel.

EMERGENCY MODE OF OPERATION

EMERGENCY FIRE OPERATION

In the event that any fire alarm is activated the lift will return to ground floor with doors fully open and de-activated. Lift 1 being the 'Fireman' lift is activated by a toggle switch installed inside a break glass box at lower ground lift lobby and it operate as follows: -

- **When the fireman's service toggle switch is in the 'on' position and the car is at the return landing, the car is available for fireman's service operation (without any permissive switch in the car).**

- The lift responds only to command from inside the car.
- The car call is registered by constant pressure on the car button.
- With constant pressure on the button the doors will close and the elevator will move in the direction of the registered call.

- **If the constant pressure on the button is released while the doors are closing, the door will re-open**
- **Doors shall open in response to constant pressure of the 'door open' button. Once fully opened, the doors will stay open.**
- **The fireman's service will terminate when the hall toggle switch is placed in the 'off' position and the car is at the return floor.**

- **ATTENDANT KEY**

Kunci pada COP yang boleh mengambil alih (*over-write*) kawalan pergerakan lift car turun/naik.

- **INDEPENDENT SERVICE CONTROL**

- Untuk lift khas (VIP).
- Kawalan masuk (excess) dengan kad atau kod button.

**SEKIAN
TERIMA KASIH**