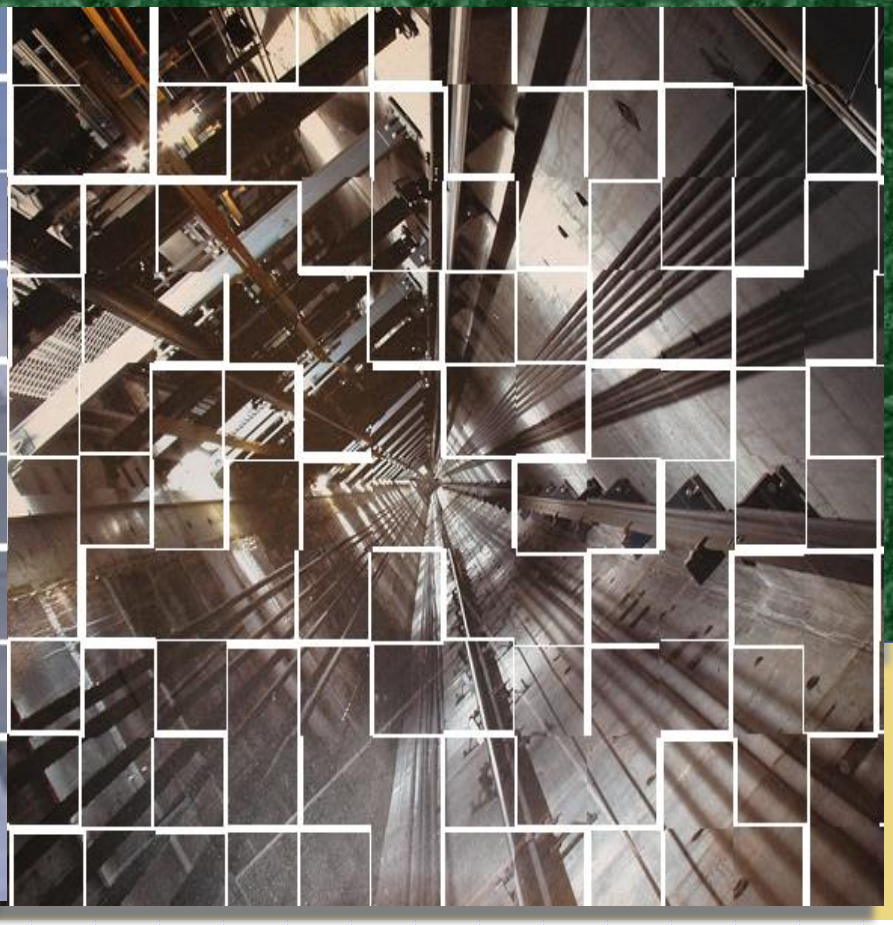
Kursus Rekabentuk Sistem Lif (Asas)

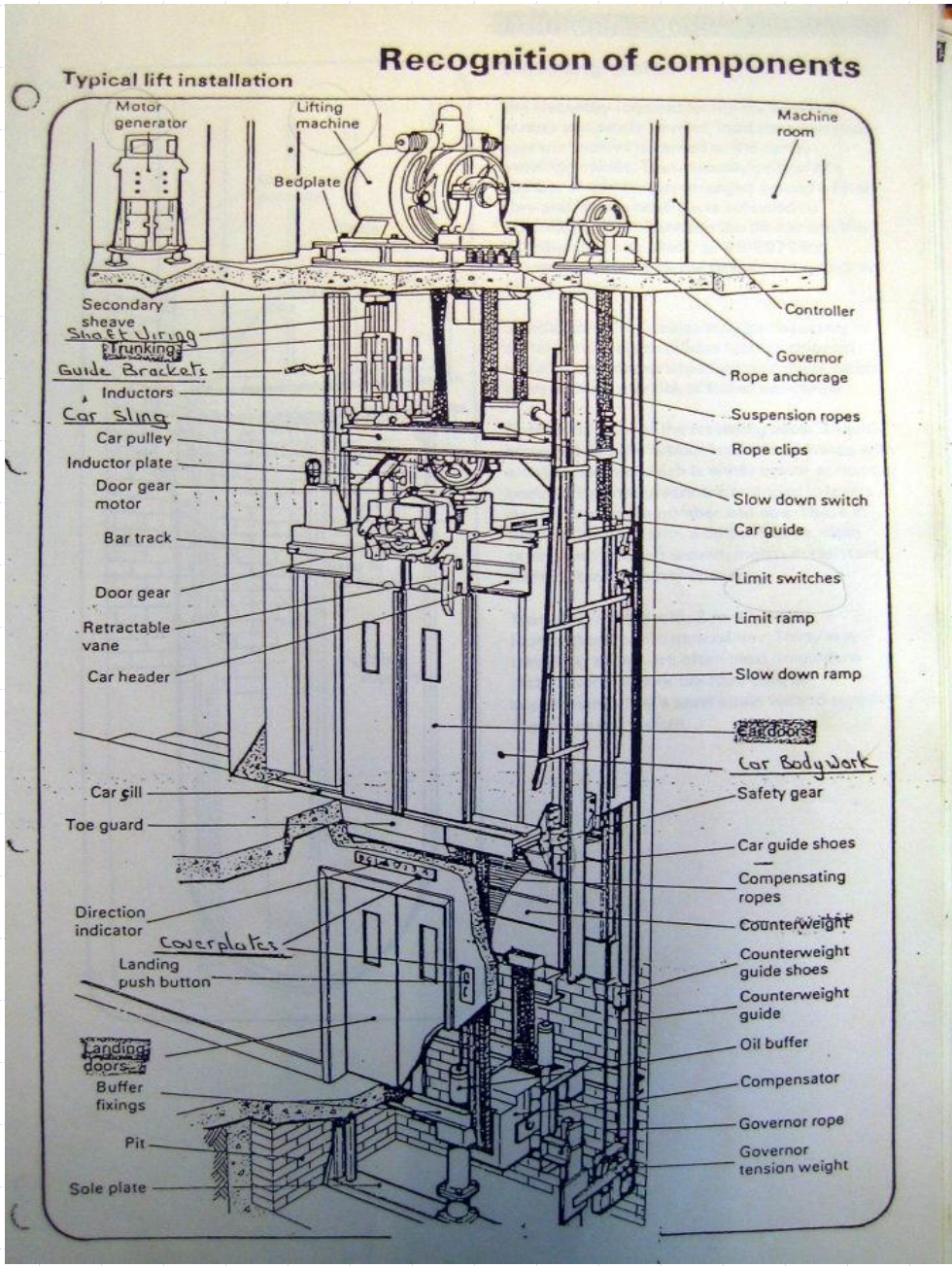
08 – 09 Mac 2018

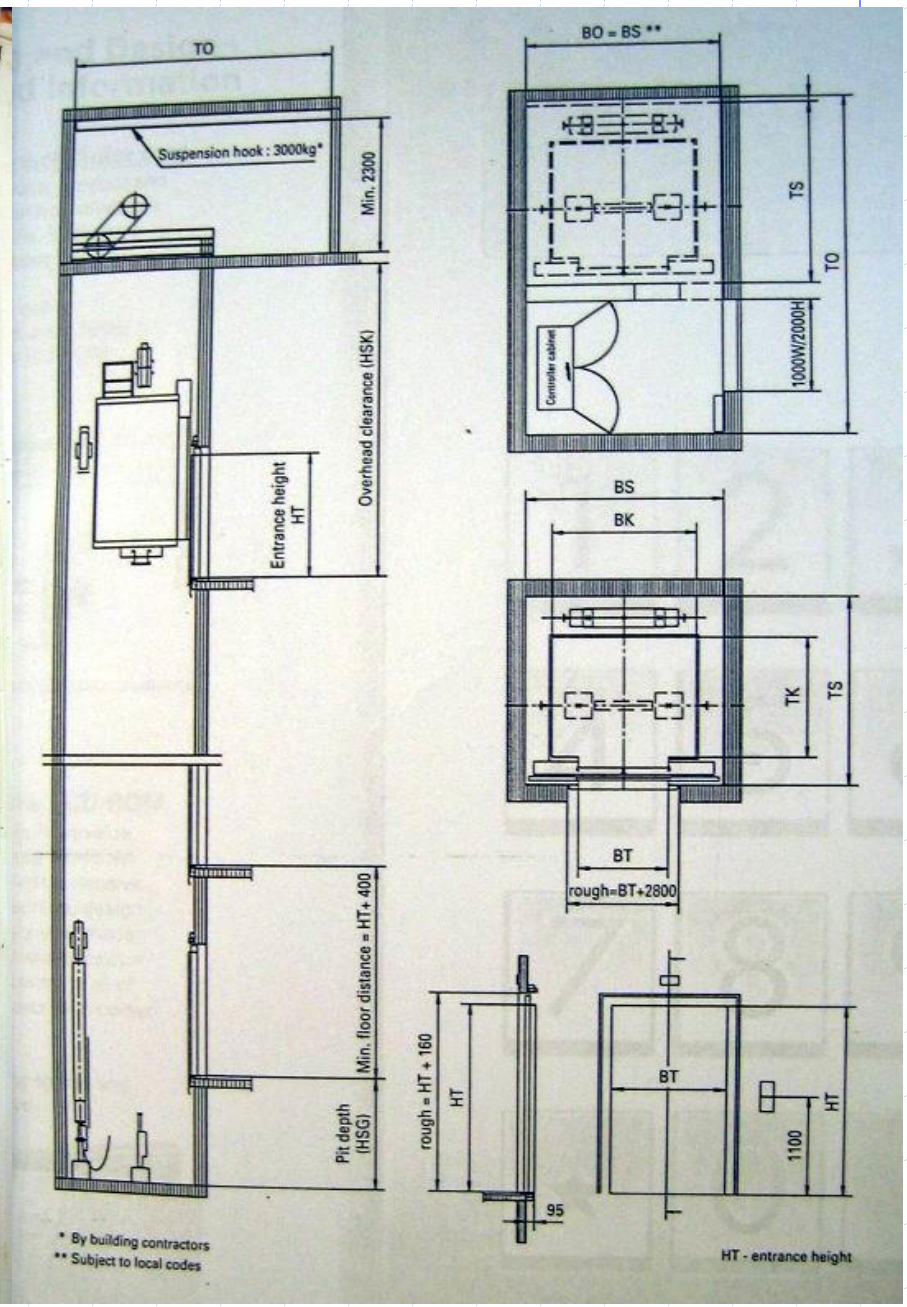
PUSAT KECEMERLANGAN KEJURUTERAAN DAN TEKNOLOGI JKR (CREaTE), JALAN KEMUS, SIMPANG AMPAT, 78000 ALOR GAJAH, MELAKA

COMPONENTS OF LIFT



COMPONENTS OF LIFT





COMPONENTS OF LIFT

Item	Description
Main Switch	*Provides the main **electrical power** to the lift. The power is usually 415 volts A.C, 3 phase.*
Lift Controller	*Controls the lift's **movement** and **signals** using electrical and electronic circuits.*
Traction Motor & Machine	*Provides force for **vertical movement** of the lifts.* *1. Motor move the sheave traction* *2. Sheave move rope* *3. Rope move car*
Brake	*Avery important **Safety Equipment** in the lift system. The Brakes **hold** the lift in its position when the lift is not travelling.*
Governor	*An **automatic device** which brings the **lift car** or **counterweight** or both to rest by operating the safety gear in the event of the speed in a downward direction exceeding the predetermined speed limit.* ***Stop the lift if the speed exceeds certain value.*** *It is actuated by centrifugal force and trips a switch when the motor speed has increased **25 percent** over its rated nameplate speed.* *Operation Governor Machine*

COMPONENTS OF LIFT

Item	Description
Guide Rail	*Installed inside the lift shaft. Its function is to **guide the car** and **counterweight** vertical movement inside the lift shaft.*
Overrun Clamp	***A safety device**. Keeps the lift within fixed **upper** and **lower limits**. Will stop the lift if the limits are exceeded.*
Car Operating Panel	*Installed inside the lift car, normally nearest to the car entrance. The COP consists of **push button** or other device employed to actuate the control equipment of the lift car.*
Car Door	*Means the hinged or sliding portion of a lift car controlling **access** to the lift car.*
Counterweight	***To counter balance the lift car**. Normally the counterweight is **50%** of the car capacity plus the overall weight of an empty lift car.* ***Balance the lift to reduce the power usage.***
Compensating Ropes	***Rope** or **chain** suspended from the car frame and / or the counter weight to **balance the weight** or part of the weight of the **suspension ropes** throughout the travel of the lift car.*

COMPONENTS OF LIFT

Item	Description
Buffer	*A device at the lift pit. It is designed to stop a descending car or counterweight beyond normal limit of travel by storing or **absorbing** and dissipating the kinetic energy of the car or counterweight.* *Act as a cushion .* *-SPRING BUFFER : FOR SLOW SPEED LIFT* *-OIL BUFFER : FOR HIGH SPEED LIFT*
Landing Door	***Door installed at every landing where the lift serves the floor**. The landing doors will remain closed when the lift is not there. This landing doors open and close automatically when the lift car is at that particular landing.*
Landing Door Locking	*A device that is installed at all landing doors and gates. The unlocking is controlled by the position of the lift car and includes the gate lock. A **special key** allows **authorised personnel** to unlock and open the doors. Client are discourage to be in possession of any **landing door keys**.*

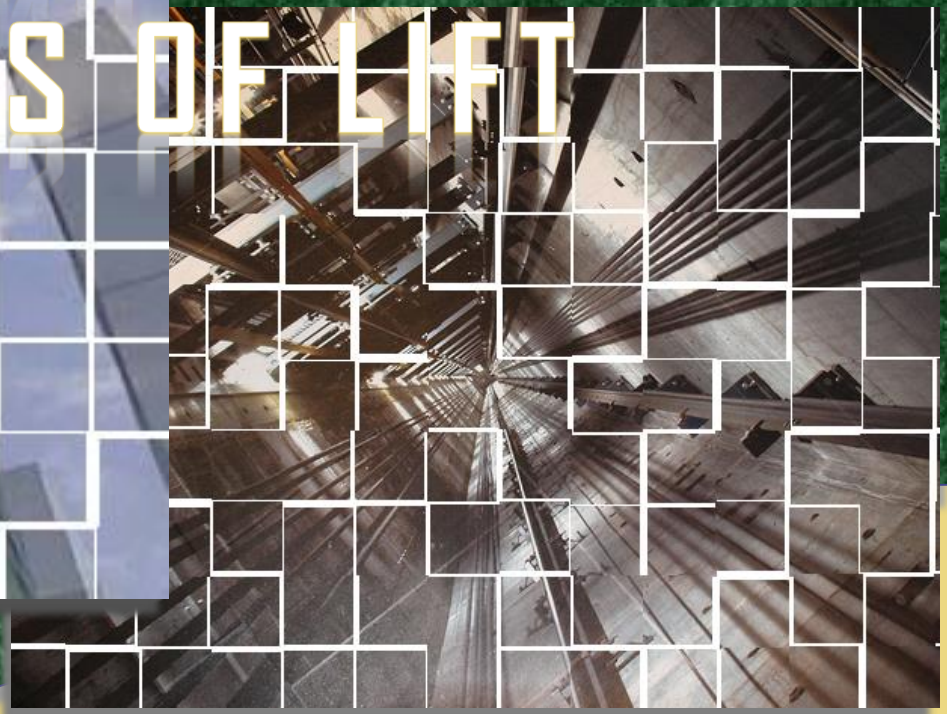
COMPONENTS OF LIFT

Item	Description
Wire Ropes :	
Main Hoisting Ropes	*Used to **suspend** the **lift car** and **counter weight.***
Governor Rope	*To operate the **overspeed governor** and **safety gears**.*
Lift Car Construction	*Typical Lift Car*
Safety Gear	*Is the term given to a **mechanical clamping device located on the car**, the prime function of which is to grip the guide rails to prevent the uncontrolled descent of the car if the lifting ropes were to part.* ***Operation Safety Gear***
Door Locking Device	*Lift must be equipped with outer doors (landing doors) and inner doors (car doors) mechanical door locks to securely hold the landing doors and car doors in locked position in order to prevent any hazard*
Lift Motor Room	*Exhaust Fan*

COMPONENTS OF LIFT

Item	Description
Landing Indicator	*A device that **indicates the position of the elevator car** in the hoistway.* *It is called a **hall position indicator** when placed at a landing, or **car position indicator** when placed in the car.*
Landing Calls (Call Button)	***Enable the users to call the lift.***
Magnetic Switch	***A switch that triggers when a magnetic field passes it.***
Shaft Information	*Contains a magnets that work in conjunction with the magnetic switches. There are other types of **shaft information** that are installed with the more advance lift (e.g : Dual Tacho Feedback). Basically the **shaft information sends electrical signals to the lift controller via travelling cables** so that the controller knows where the lift is and able to instruct the lift to slow down and to stop accurately at the landing, to open or close the lift door.*
Roping Arrangements	*A roping system is used to attach the motor/gear reducer, the elevator car and the counterweight. There are many different kinds of arrangements that can be used; the two most common are:* *a) One to One roping (1:1)* *b) Two to One Roping (2:1)*
Rope Termination	Method of terminating the ropes

FINISHES OF LIFT AND FEATURES OF LIFT



FINISHES OF LIFT

Description For Finishes	JKR requirement (DESIGNERS CHOICE)
OPERATING PANELS	
Car Position Indicator Faceplate	*S/Steel Hairline*
Car Operating Panels Faceplate	*S/Steel Hairline c/w perspec sheet*
Hall Position Indicator Faceplate	*S/Steel Hairline*
Landing Operation Panel (Hall Call Button) Faceplate	*S/Steel Hairline*
Hall Lantern Faceplate (If Required)	*S/Steel Hairline c/w (With or Without Dot Matrix Display*

FINISHES OF LIFT

Description For Finishes	JKR requirement (DESIGNER'S CHOICE)
CAR AND CAR DOOR	
Side Enclosure	*S/Steel Hairline/ Rigidised Panel /S/Steel Etched Panel / etc*
Back Enclosure	*S/Steel Hairline/ Rigidised Panel /S/Steel Etched Panel / etc*
Departmental/Client's Logo	*(At Landing Door Main Lobby & Lift Car (Back Enclosure)*
Entrance Column	*S/Steel Hairline*
Front Return Panel	*S/Steel Hairline*
Kick Plate	*S/Steel Hairline*
Flooring	*Studded rubber tiles / Non-slip Vinyl tiles / Homogeneous Ceramic tiles / Glazed Tiles/ etc*
Car Door	*S/Steel Hairline/ Rigidised Panel /S/Steel Etched Panel / etc*
Voice Synthesizer in Bahasa Malaysia	*Required*
Handrail	*S/Steel Hairline / Brass / Wood / etc*
Connection To Building PA System	*Required*

FINISHES OF LIFT

Description For Finishes	JKR requirement (DESIGNER'S CHOICE)
HALL/LANDING ENTRANCES	
Landing Door	S/Steel Hairline/ Rigidised Panel /S/Steel Etched Panel / etc
Architraves (min. 300 mm width) (only at Main Lobby)	S/Steel Hairline/ Rigidised Panel /S/Steel Etched Panel / etc
Transom Panel (if required)	S/Steel Hairline/ Rigidised Panel /S/Steel Etched Panel / etc
OTHER FEATURES	
Car Ceiling	Coloured acrylic diffuser / suspended ceiling c/w downlight / etc
Car push/touch button	Braille/micro-movement push button with s/steel face plate

FEATURES OF LIFT

FEATURES OF LIFT

Features of Lift	Description
Load weighing device / Load By-Pass	If the car load has **exceeded 80%** of the rated load or capacity of the elevator, the elevator will **automatically ignore all the hall calls** in the direction of service and respond car calls only. The hall calls remain registered and will be served on the next trip (single car), or by another elevator (group).
Limited door reversal Control	The limit is **150N.** When door sensor receive 150N force, the door reopens. Applicable to Electrical & Mechanical Sensor. **Door automatically reverse when obstacle detected**.
Door nudging control	**Mechanical door sensor.** When a stationary object is **blocking** the door, it reopens upon nudging.
Advance Door Opening (For High Speed Lift Only - 2.5 m/sec and above)	**A system that allows car doors to start opening before the car is fully stopped on the landing.** Doors start opening when the elevator car is in the door zone and the speed has decreased below the limit allowed by the safety code.
Dual Tacho Feedback	**Shaft Information**. The tacho gives TWO kind of feedback to the controller, **1) Speed & Direction 2) Travel Distance. Location of Tacho can be at Car, Governor or Machine.**

FEATURES OF LIFT- SAMB.

Features of Lift	Description
Automatic fan and light switch-off when idling more than two (2) minutes.	***Energy Saving/Efficiency features.*** *Elevators shall be installed with an energy saving feature that automatically switches off the car internal lighting and ventilation fans when no calls are registered after a predetermined period of time.*
Independent Service	*Independent service is activated by a key switch either inside the elevator itself or on a centralized control panel in the lobby. When an elevator is placed on independent service, it will* ***no longer respond to hall calls.*** ***Independent service is useful when transporting large goods or moving groups of people (VIP) between certain floors.***
Attendant Service Control	*In attendant service, if the* ***Close Door Button is released before the doors are closed, the doors will reopen. The car will start immediately after the doors have been closed. Normally controlled by attendant.***
Fire Alarm Operation Mode	*When the building's fire or smoke detectors are activated, all calls are cancelled and all the elevators will immediately travel to the* ***main lobby*** *and park there with the door fully open.*

FEATURES OF LIFT- SAMB.

Features of Lift	Description
Emergency power operational mode with Generator Set Power Supply	***Activates when power supply failure.***
Multibeam Light . (It can be of 32 beam, 64 beam, etc.)	*A **curtain ray** project across the car entrance and operate such that the doors will return to the open position when the ray is cut off by an obstruction.*
Overload Protection Device	*When the car load exceeds the capacity or rated load of the elevator, the elevator will **stop operation** with the doors fully opened on that floor and a buzzer is annunciated. The buzzer will stop when a sufficient number of passengers have exited the car load is less than the rated load.*
Emergency Car Light and Exhaust Fan	*These device shall cut in and illuminate the car during a **power failure**. The emergency car light and exhaust fan shall be powered by a Ni-Cd battery which shall be able to provide illumination for **not less than 3 hours**.*
3 or 2 Way Lift Intercom System Communication	*Lift Intercom System Communication **comunicates** between the master unit on ground Floor/Control Room, each lift car and the machine room.*

FEATURES OF LIFT- SAMB.

Features of Lift	Description
Lift supervisory board	*A **supervisory panel** is one that can indicate where the various cars are in shafts . It can stop cars, It can send them to locations, do tests, perform safety functions when there is a fire or an emergency.*
Battery Power Supply	*A **heavy duty 12V, rechargeable Nickel-Cadmium battery** with trickle charger unit shall be provided for each lift to serve the alarm bell, lift intercom system, emergency lighting and ventilation fan, via a changeover contact upon failure of normal electrical power supply.*
Fan Switch	***On/Off the fan manually.***
Light Switch	***On/Off the light manually.***
Levelling accuracy	*Levelling accuracy to be within **+/- 5 mm***
Fire Rating for Landing Door	***i) Protected Lobbies – 1 hr.*** ***ii) Unprotected Lobbies – 2 hrs.***
Nuisance Car Call Protection	**Car cancel all register call when no load detected**

FEATURES OF LIFT- SAMB.

Features of Lift	Description
EBOPS	*Emergency Battery Operated Power Supply & automatic rescue device.* *EBOPS is an emergency battery operated power supply for use in passenger lifts to supply to the ventilation fans, lights and emergency bells etc., in the event of a power failure. The batteries can operate that system at least three (3) hours.* *Change-over from mains to inverter are all fully automatic in the event of power failure*
Automatic Rescue Device/ARD.	*The Lifts shall be provided with electronically controlled automatic rescue device. The device shall operate automatically to take the lift car to the nearest floor and open the door in case of* ***power failure.*** *The unit shall be wired and assembled in an independent box and shall be supplied complete with battery charger.* *• To supply back up power for bringing the lift to the nearest floor and opening the lift door*
150mm wide stainless steel c/w rubber crash / bumper rails. ***(For goods lift only)***	*150mm wide stainless steel c/w rubber crash / bumper rails shall be provided at suitable heights all round the lift car.*

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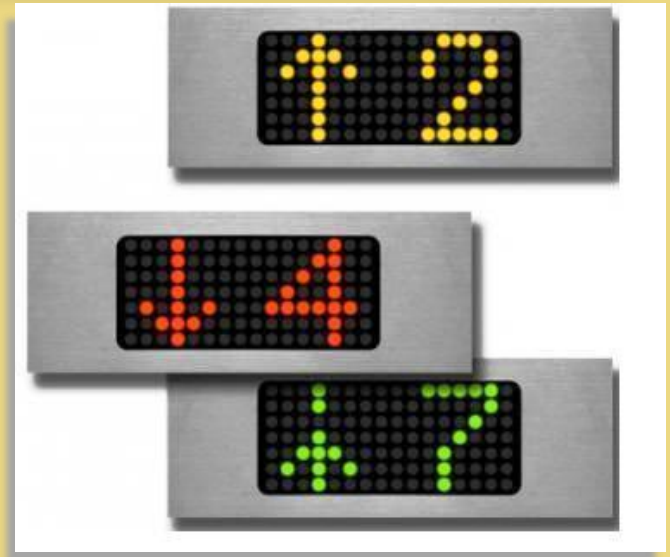
TERIMA KASIH

FINISHES OF LIFT

Car Position Indicator



Car Operating Panel

FINISHES OF LIFT

Hall Position Indicator & Landing Operation Panel (Hall Call Button)

HPI-570M
Hall Indicator
Separate type full alphanumeric dot matrix display hall indicator with hairline stainless steel faceplate

HB-55M
Call Button
Illuminated microstroke call button with hairline stainless steel faceplate

Hall Lanterns

FINISHES OF LIFT

Lift Side Enclosure, Back Enclosure, Ceiling & Floor

Car platform of each passenger lift shall consist of a structural steel frame fitted with sufficient layers of hardwood flooring. Car platform shall be mounted on thick rubber pads supported by an auxiliary steel frame fastened to the car frame and the lift cab shall be bolted to the car platform without direct connection to the car frame. The car platform shall be equipped with a metal threshold plate, and the underside of the car platform shall be fireproofed with a steel sheet covering.

FINISHES OF LIFT

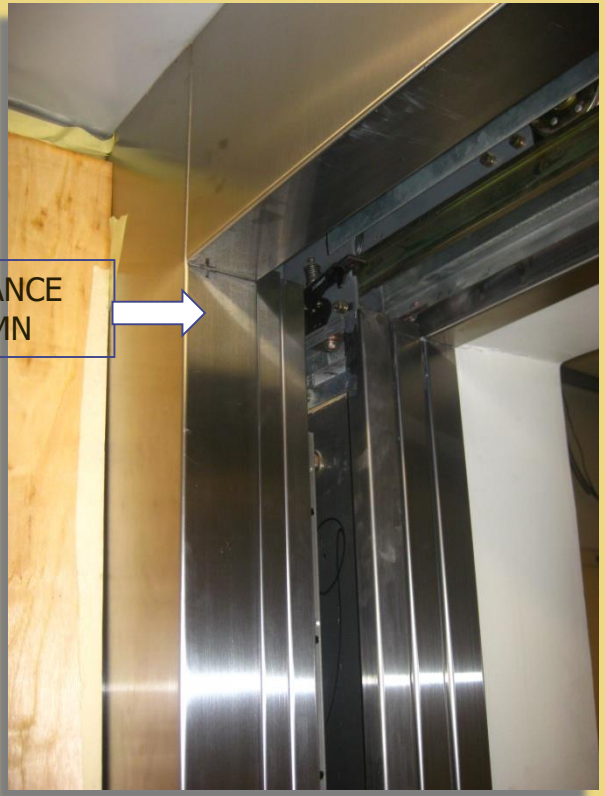
Lift Ceiling

FINISHES OF LIFT

Front Return Panel & Entrance Column

FRONT RETURN PANEL

ENTRANCE COLUMN



Kick Plate

Lift Car Shall Incorporate A Kick-plate At Least 100mm High At The Bottom Edges Of The Car Floor

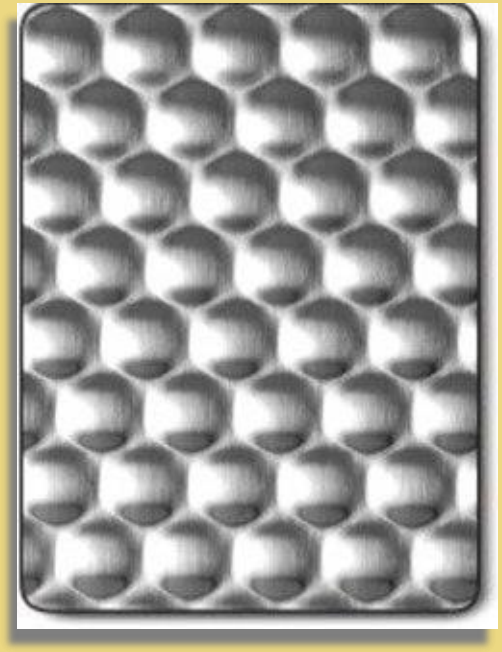
Architraves

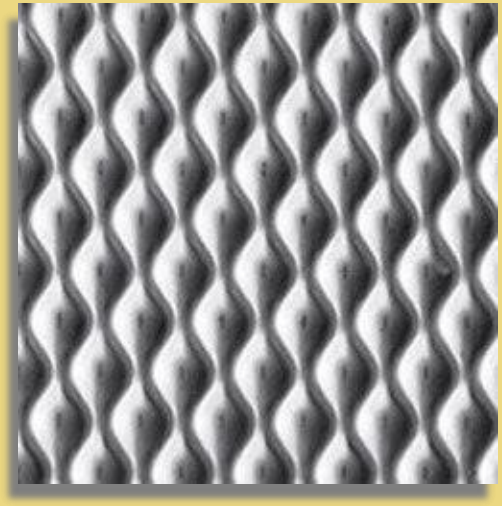
Transom Panel & Door Jamb

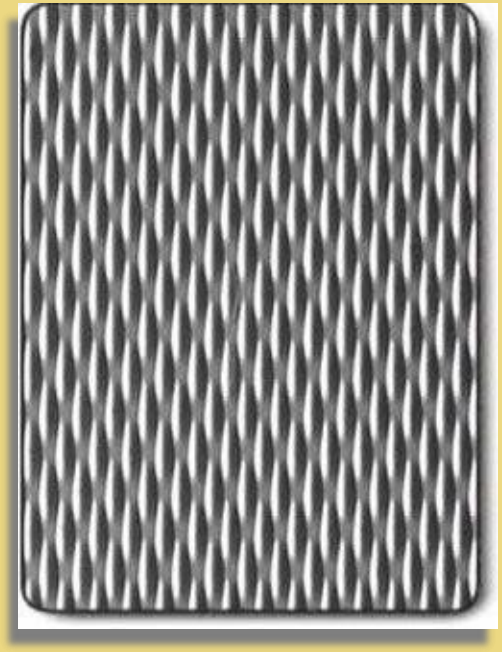
Transom Panel

Door Jamb (wide/narrow)

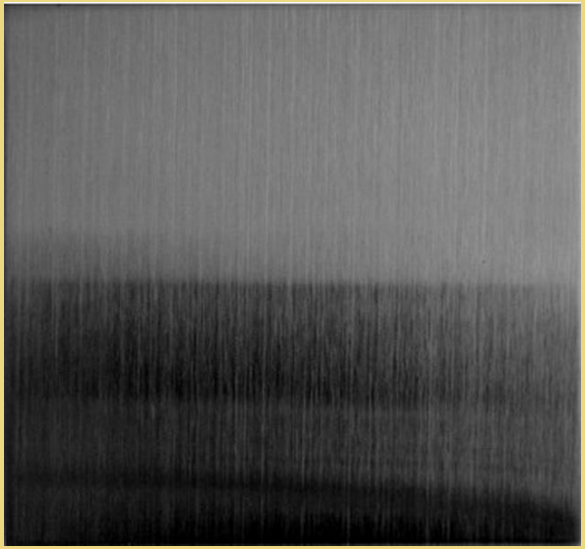
Stainless Steel Rigidized Finish

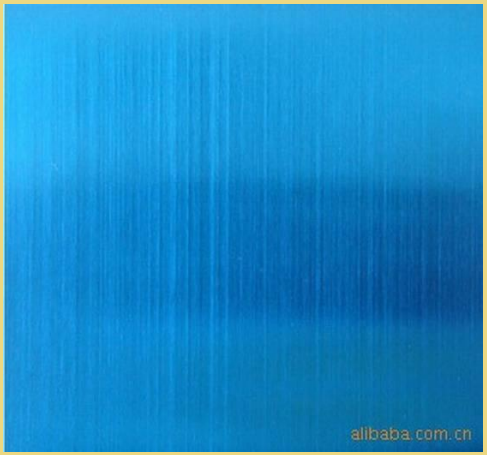






Stainless Steel Hairline Finish

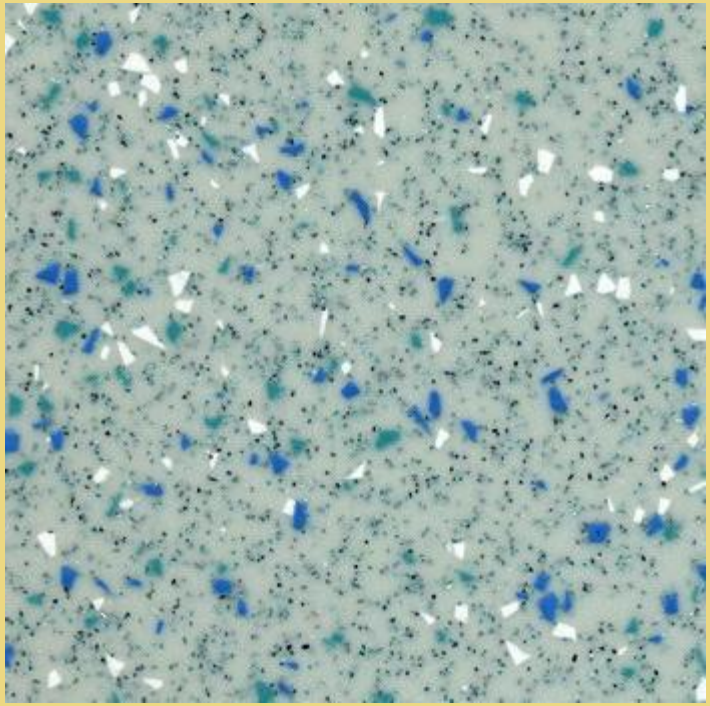




FINISHES OF LIFT

Car Push Button c/w Braille Stainless Steel Faceplate

Non-Slip Vinyl Tile



Homogeneous Ceramic Tiles & Studded Rubber

Glazed Tiles

Departmental Logo

Stainless Steel Etched Panel

Hand Rail

LOAD WEIGHING DEVICE

Each car shall be provided with an approved automatic load weighing device arranged to:

i) Prevent overloaded car from starting and energise `overload light' and buzzer to indicate overloading.

ii) Automatically by-pass landing calls when the car is filled full load, until the load in the car is reduced sufficiently to take in more passengers.

An „OVERLOAD" light and buzzer shall be installed in each lift car located above the operating panel.

BRAKE

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Brake system shall be of spring operated. The brake shoe shall be of double stroke type.