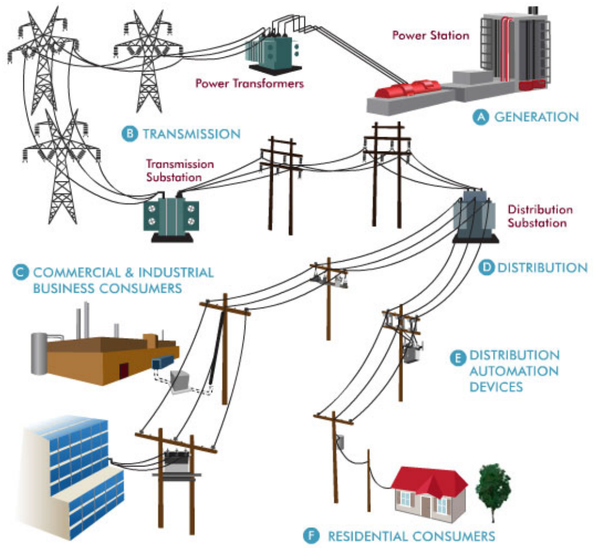
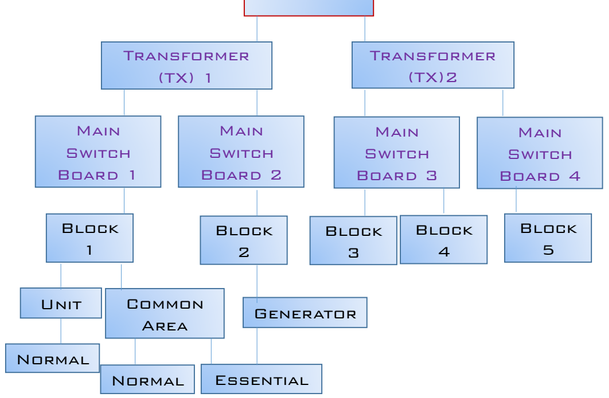
CHUAH CHU YING (0303269) ELEANOR NG CUI SHAN (0302936) ELLIOT KONG ZEN WIE (0312656) HONG SI MUN (0312643) KHOO CHEE MEI (0301246) KIOK PEI YI (0301246) LEE PUI YI (0312847)

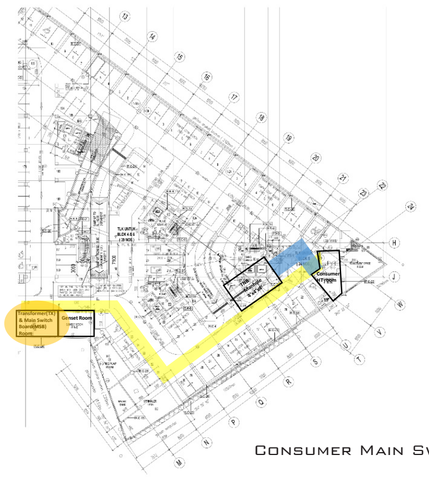
ELECTRICAL SUPPLY SYSTEM

POWER TRANSMISSION



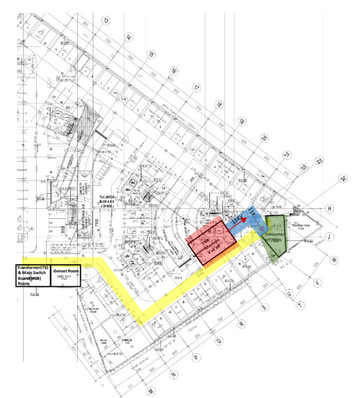
ELECTRICAL TRANSMISSION IN VSQ



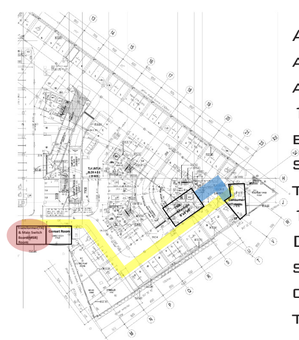


CONSUMER MAIN SWITCHBOARD ROOM

A switchboard is large, free-standing assembly of switches and fuses (and/or circuit breakers), which normally provides switching and over current protection to a number of circuits connected to a single electric source. Metering and other instrumentation are also often included. The electric switchboard is a device that directs electricity from one source to another. After receiving 415V & 240V from the consumer transformer room. The switchboard will direct this voltage to the each of the appliances of the building respectively.



CONSUMER HT ROOM



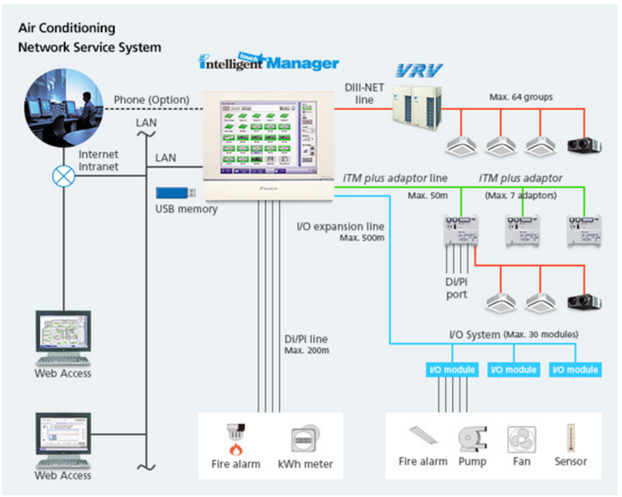
A transformer is a device that changes or transforms alternating current of one voltage to an alternating current of another voltage (Figure 17). In this case, the transformer receives 11 KV of electricity from the consumer switchgear room and because it has to be transferred to the consumer main switchboard room, the amount of 11 KV of electricity is too huge to be transferred. Therefore, the transformer will convert the 11 KV of electricity to 415V & 240V by a process called “Step Down”. upon receiving 11KV of electricity from the consumer switch room, the transformer will step down the voltage and convert it to 415V & 240V. And the converted voltage will be transferred to the main switchboard room.

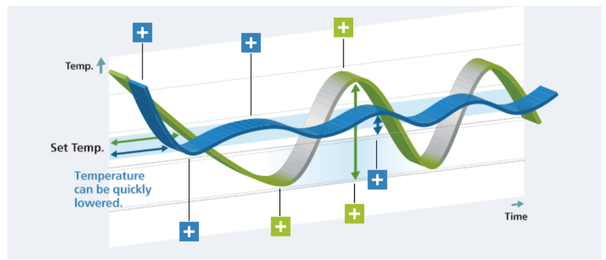
HT is the combination of electrical disconnect switches, fuses or circuit breakers used to control, protect and isolate electrical equipment. The HT is used both to de-energize equipment to allow work to be done as well as to clear faults downstream. The consumer HT device receives 11KV of electricity from the TNB substation transformer, and then it will transfer the 11 KV of electricity to the consumer transformer room which will step down the 11 KV of electricity to 415V & 240V to be transferred to the consumer main switchboard which is in the same room as the transformer.

AIR CONDITIONING SYSTEM

DETAIL DIAGRAM OF COMPRESSOR

1. SMALL TYPE LARGE CAPACITY INVERTER COMPRESSOR
2. HIGHLY INTEGRATED HEAT EXCHANGER
3. LARGE AIRFLOW, HIGH EXTERNAL STATIC PRESSURE AND QUIET TECHNOLOGY
4. EFFICIENT AUTOMATIC TEST OPERATION
5. IMPROVE RELIABILITY AT HIGH AMBIENT TEMPERATURE





UBBL COMPLIANCE

According to MS 1525: 2007

8.2.2 Where chillers are used and when the design load is greater than 1000kWR (kilowatts resistance), a minimum of two chillers or a single multi-compressor chillers should be provided to meet the required load.

The compressor of block 1 is located outdoor. So there is no use of for chiller.

8.2.3 Multiple units of the same equipment type, such as multiple chillers, with combined capacities exceeding the design load may be specified to operate concurrently only if controls are provided which sequence.

Block 1 is using the VRV system which has two compressor, where it take turns to work.

8.4.4 Off-hour control

8.4.4.1

ACMV system should be equipped with automatic controls capable of accomplishing a reduction of energy use for example through equipment shutdown during periods of non-use or alternative use of the spaces served by the system. Exceptions:

a) System serving areas which are expected to operate continuously; and

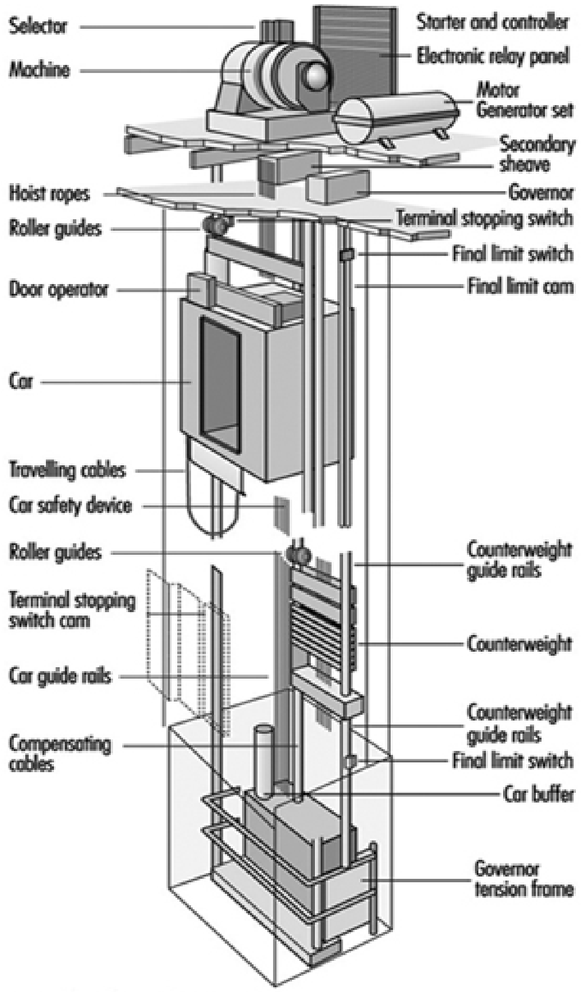
b) Equipment with a connected load of 2kWe or less may be controlled by readily accessible manual off-hour controls

Since block 1 is using VRV system in the air-conditioning, its usage can be scheduled by using i-manager.

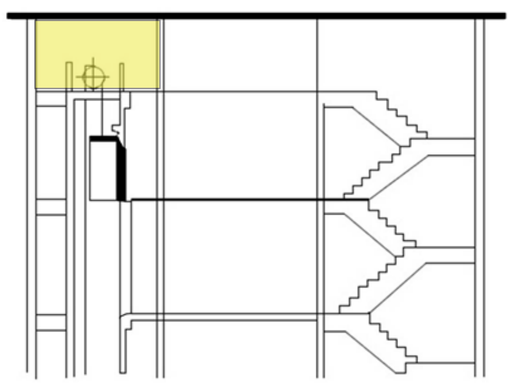
8.15 Preventive Maintenance

CHUAH CHU YING (0303269) ELEANOR NG CUI SHAN (0302936) ELLIOT KONG ZEN WIE (0312656) HONG SI MUN (0312643) KHOO CHEE MEI (0301246) KIOK PEI YI (0301246) LEE PUI YI (0312847)

MECHANICAL TRANSPORT SYSTEM



Source: Adapted from Otis Elevator Company.



MACHINE ROOM LOCATED ON THE TOP LEVEL OF THE BUILDING (YELLOW) AND EXISTING STAIRCASE THAT IS DESIGNED TO CONNECT TO THE ROOF TOP OF THE ELEVATOR FOR MAINTENANCE PURPOSES

UBBL REQUIREMENT

UNDER UBBL SECTION1984 123 – 128 LIFT.

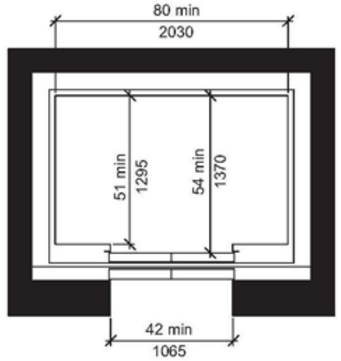
124. FOR ALL NON RESIDENTIAL BUILDING EXCEEDING 4 STOREYS ABOVE OR BELOW THE MAIN ACCESS LEVEL AT LEAST ONE LIFT SHALL BE PROVIDED.

IN VSQ PJ CITY CENTRE, BLOCK 1 BUILDING IT OWN 5 LIFTS IN THIS 19TH STOREYS BUILDING.

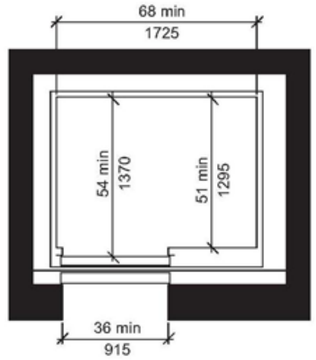
UNDER UBBL 1984 SECTION 152 – 155, VENTILATION TO LIFT SHAFTS.

152 (1) EVERY OPENING IN A LIFT SHAFT OR LIFT ENTRANCE SHALL OPEN INTO A PROTECTED LOBBY UNLESS OTHER SUITABLE MEANS OF PROTECTION TO THE OPENING TO SATISFACTION OF THE LOCAL AUTHORITY IS PROVIDED. THESE REQUIREMENT SHALL NOT APPLY TO OPEN TYPE INDUSTRIAL AND OTHER SPECIAL BUILDINGS AS MAY BE APPROVED BY THE D.G.F.S.

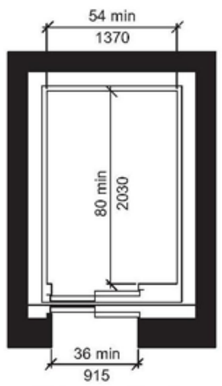
LIFT LOBBIES IN VSQ WERE DESIGNED IN EVERY FLOORS IN FRONT OF THE LIFT IN VSQ PJ CITY CENTRE, BLOCK 1 BUILDING.



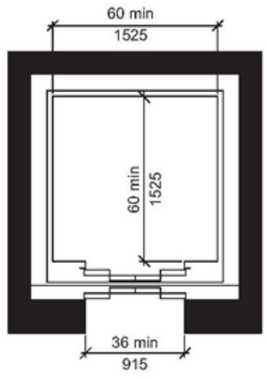
(a) Centered Door Location



(b) Off-Centered Door Location

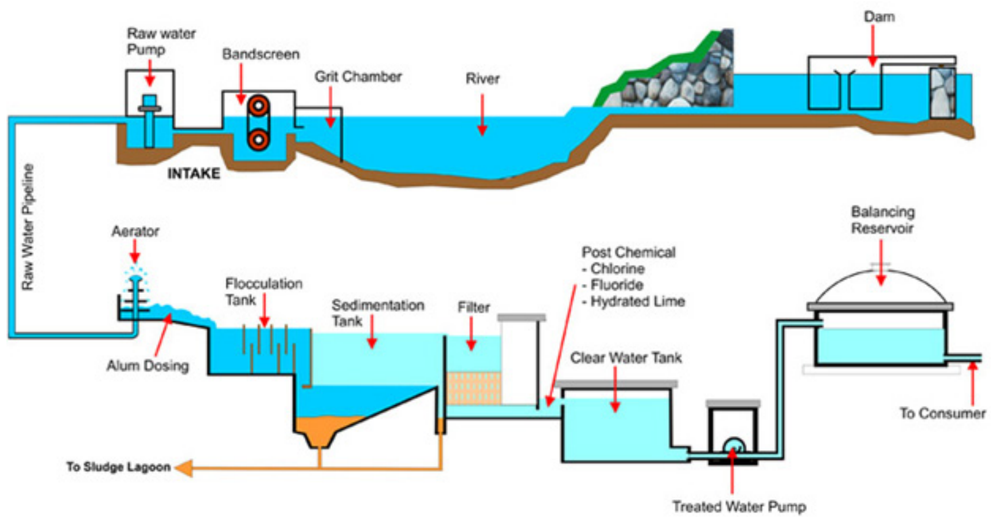


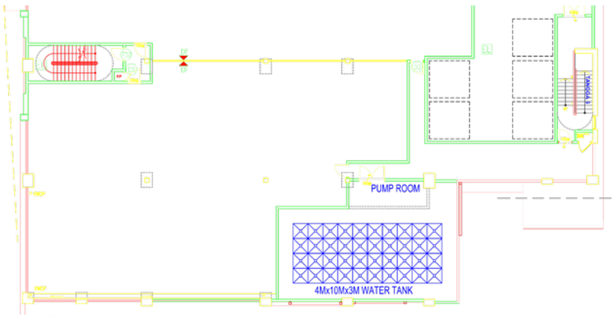
(c) Any Door Location



(d) Any Door Location

WATER SUPPLY SYSTEM





PUMP CONTROL ROOM AND WATER TANK LOCATION ON PLAN (ROOF TOP OF BAC)

ROOF TOP WATER TANK:

SIZE: 4.0M X 10.0M X 3.0M
MAXIMUM CAP: 12,000 LITERS
EFFECTIVE CAP: 104,000 LITERS
150 Ø ABS PN12 SCOUR COMBINED WITH OVERFLOW WHICH CONNECTED TO RAIN WATER DOWN PIPE
100 Ø MSCL

WATER SUPPLY SYSTEM BY-LAW (UBBL) 1984

ACCORDING TO LAW STATES THAT WATER METERS ARE FOR THE LOCAL AUTHORITIES SO THAT CAN KEEP CHANGING THE USAGE OF WATER AND IT WILL BE BASED ON THE WATER CONSUMPTION.

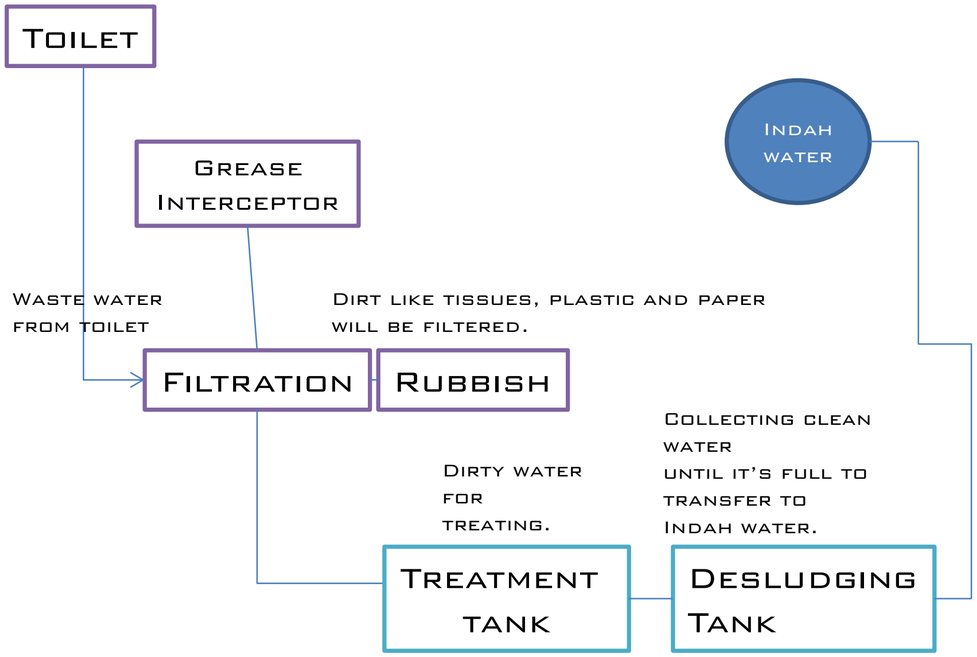
UNDER UBBL BY-LAW 84, SUITABLE MEASURES SHOULD BE TAKEN TO AVOID PENETRATION OF DAMPERS AND MOISTURES INTO THE BUILDING.

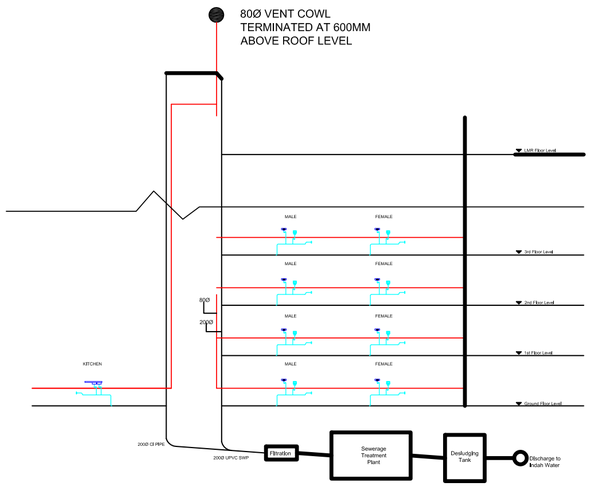
UBBL BY-LAW 89, A CHASE MADE IN A WALL FOR PIPES AND OTHER SERVICE FACILITIES SHALL LEAVE THE WALLS AT THE BACK OF THE CHASE, WITH NOT LESS THAN 100MM THICK IN THE EXTERNAL WALLS AND NOT LESS THAN 100MM THICK IN PARTY WALLS AND SHALL NOT WIDER THAN 200MM.

UBBL BY-LAW 123, ALLOWING ADEQUATE ACCOMMODATION FOR PIPES, STOP COCKS TO ENABLE REPAIRS AND ACCESS OPENINGS TO DUCTS OR ENCLOSURES.

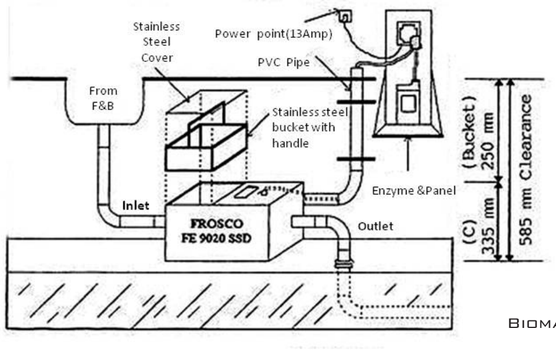
Chuah Chu Ying (0303269) Eleanor Ng Cui Shan (0302936) Elliot Kong Zen Wie (0312656) Hong Si Mun (0312643) Khoo Chee Mei (0301246) Kiok Pei Yi (0301246) Lee Pui Yi (0312847)

Sewerage System





Schematic Diagram of sanitary system



Biomatic grease intersceptor

Fire Protection System

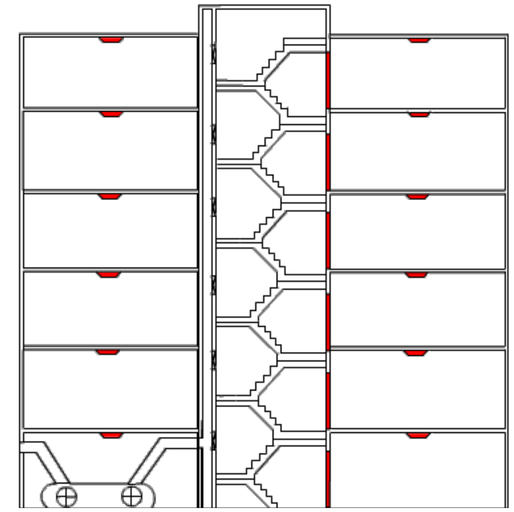
Fire Escape (staircase)

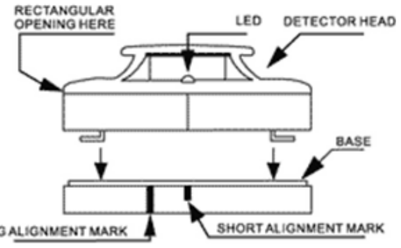
UBBL 1984 section 169: Exit Route

No exit route may reduce in width along its path of travel from the storey exit to the final exit.

According to the UBBL standard, the riser maximum should be 180mm and the thread should be 255mm.

1. Mounted to the outside of a building or occasionally inside but separate from the main areas of the building.
2. Design to ensure that any person confronted by fire anywhere in the building should be able to turn away from it and escape to a place of reasonable safety.
3. Corridors and stairways that form part of the escape route should be kept clear and hazard free at all times.





Operation of the system:

It contains a photodiode/ photoelectric sensor. When there is no smoke, LED light passes in front of the detector in a straight line. When smoke penetrate the optical chamber disrupting the continous light beam, some light is spread by the smoke particles, directing it at the sensor and hence triggering the alarm.

UBBL 155: Fire mode of operation

The fire mode of operation shall be initiated by a signal from the fire alarm panel which may be activated automatically by one of the alarm devices in building or manually.

UBBL 153: Smoke detectors for lift lobbies.

1. All lift lobbies shall be provided with smoke detectors.

2. Lift not opening into a smoke lobby shall not use door reopening devices controlled by light beam or photo-detectors unless incorporated with a force close feature which after thirty seconds of any interruption of the beam causes the door to close within a preset time.

Wet riser system (Manual Fire fighting)

UBBL Requirements

1984, law 248- Marking on wet riser

1. Wet riser, dry riser, sprinkler and other fire installation pipes and fittings shall be painted in red
2. All cabinets and areas recessed in walls for location of fire installation and extinguisher shall be clearly identified to the satisfaction of Fire Authority.

1984, law 23- Installation and testing of wet rising system

1. Wet rising system shall be provided in every building i which the topmost floor is more than 30.5m above the fire appliance access level.

2. A hose connection shall be provided in each fire fighting access lobby.

3. Each wet riser outlet shall comprise standard 63.5mm coupling fitted with a hose of not less than 38.1mm diameter equipped with an approved types cradle and variable fog nozzle.