KURSUS PENGENALAN KEPADA PERKHIDMATAN MEKANIKAL DALAM BANGUNAN

WET AND DRY RISERS SYSTEM

AN INTRODUCTION TO FIRE FIGHTING DESIGN

WET AND DRY RISER SYSTEM

YATIM SELAMAT BIN LATIB
JURUTERA MEKANIKAL

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DRY RISER SYSTEM

1. Internal Hydrant for Firemen to use
2. Topmost floor *is higher than 19.3m (63f) and less than 30.5m (100f)*
3. Normally dry pipe and depend on the fire engine to pump water
4. Comprises a riser pipe with landing valves at each floor which canvas hose with nozzle can be connected.
5. Breeching inlets into which firemen pumps water provided at ground level.

DESIGN STANDARDS

In the UBBL, the By-laws pertaining to Dry Risers are By-laws 230 and 232.

***The relevant standards are*:**

1. **BS 5306 Part I (or equivalent Malaysian Std)**
2. **MS 1210 Part 2 (Landing Valves for Dry Risers)**
3. **MS 1210 Part 3 (Inlet Breeching for Riser)**
4. **MS 1210 Part 4 (Boxes for Landing Valves)**

LANDING VALVES

1. Landing Valves provided on each floor.
2. Usually Located within fire access lobbies, protected staircases or protected lobbies.
3. Installed not more than 0.75m(2.5 feet) above floor level.
4. Boxes may be provided to protect Landing Valves.
5. Fire Hose Canvas Type (38 mm) complete with 65 mm dia. quick coupling.

BREECHING INLET

1. Installed at the bottom of the riser
2. A two-way breeching inlet should be provided for a 100 mm diameter.
3. A four-way breeching inlet for a 150 mm diameter.
4. Breeching inlets located not more than 18m (59f) from the fire appliance access road.
5. Breeching inlets located not more than 30m (100f) from the nearest external hydrant outlet.

DRY RISER PIPE

1. Galvanised Iron (Heavy Gauge) or Class C tested to 21 Bars

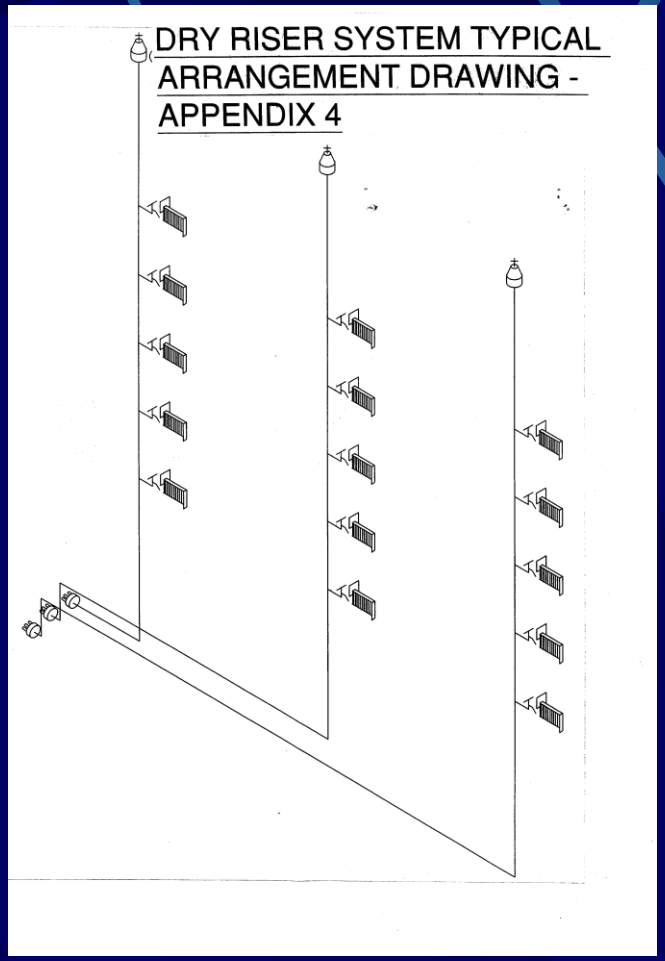
2. If the highest outlet is more than 22.875m (75 feet) the riser pipe diameter should be 150 mm.

3. Normally the riser pipe diameter is 100 mm.

4. Air release valve installed at the top of the riser to relief air trapped.

5. Horizontal runs pipework should be sloped for proper draining after use.

DRAWING



CONTENTS

WET RISER SYSTEM

WET RISER SYSTEM

1. Internal Hydrant for firemen to use.
2. Always *charged with water*.
3. Topmost floor *is higher than 30.5m (100feet).*
4. Comprises *Duty, Standby and Jockey pumps*.
5. Comprises 150 mm diameter riser pipe with Landing Valves at each floor.
6. For high rise buildings each stage of wet riser should not exceed 70.15m (230 feet).

DESIGN STANDARDS

In the UBBL, the By-laws pertaining to Wet Risers are By-laws 231, 232 and 248.

***The relevant standards are*:**

1. **BS 5306 Part I (or equivalent Malaysian Std)**
2. **MS 1210 Part 2 (Landing Valves for Wet Risers)**
3. **MS 1210 Part 3 (Inlet Breeching for Riser)**
4. **MS 1210 Part 4 (Boxes for Landing Valves)**

LANDING VALVES

1. Landing Valves provided on each floor.
2. Usually Located within fire access lobbies, protected staircases or protected lobbies.
3. Installed not more than 0.75m(2.5 feet) above floor level.
4. Boxes may be provided to protect Landing Valves.
5. Fire Hose Canvas Type (38mm) complete with 65 mm dia. quick coupling.
6. The pressure at Landing Valves not less 4 Bars but not more than 7 Bars.

BREECHING INLET

1. Installed at the bottom of the riser.

1. The firemen can pump water into the wat riser storage tank to make up for water used.

2. A four-way breeching inlet for a 150 mm diameter.

3. Breeching inlets located not more than 18m (59f) from the fire appliance access road.

4. Breeching inlets located not more than 30m (100f) from the nearest external hydrant outlet.

WET RISER PIPE

1. Galvanised Iron (Heavy Gauge) or Class C.
2. The riser pipe diameter should be 150 mm.
3. Should cover no more than 900m2 of floor area.
4. Where more than one riser is required, the distance apart between not exceed 60m.
5. The distance between lowest and topmost Landing Valves not exceed 70.15m.
6. Air relief valves installed at the top to relief air trapped.

WET RISER PUMPS

1. Duty, standby and Jockey pumps.
2. The pump flow rate 1500 lit/min at running pressure not less than 4 Bars but not more than 7 Bars when any 3 Landing Valves are in use at the same time.
3. Standby pump from Gen.Set or Diesel (fuel supply storage for 2 hr).
4. Where more than one riser is required, the distance apart between not exceed 60m.
5. The distance between lowest and topmost Landing Valves not exceed 70.15m.
6. Air relief valves installed at the top to relief air trapped.

WET RISER TANKS

1. Minimum capacity of 45,500 lit. with automatic refill rate of 455 l/min.

2. The intermediate break tank for upper stages of the wet riser is 11,375 lit. with automatic make-up flow of 1365 l/min.

3. Tanks material from pressed steel, fibre reinforced polyester (FRP) or concrete. The water tanks should be compartmented.

4. Located on the ground floor, first or second basement.

5. Usually separated from other water storage tank but it may be combined with hose reel tank.

PUMP STARTER PANEL AND CONTROLS

1. Power supply cables to the panel should be of Mineral Insulated Copper Core (MICC).

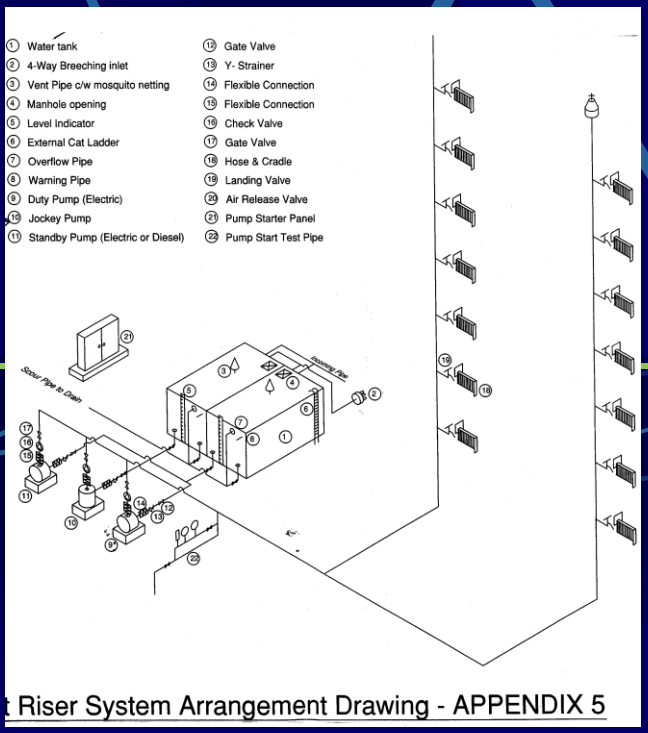
2. Wet riser pumps provided with 3 pressure switches:

i. Starting and stopping the jockey pumpset

ii. Starting and stopping the duty pumpset

iii. Starting and stopping the standby pumpset

DRAWING



t Riser System Arrangement Drawing - APPENDIX 5

SIMPLE QUIZ
WET RISER SYSTEM

1. Which is the criteria below in the UBBL that ascertains that a wet riser system is required in a building?

A. Topmost floor is higher than 18.3m
B. Topmost floor is higher than 18.3m above the lowest basement level.
C. Topmost floor is higher than 30.5m above the fire appliance level.
D. Topmost floor is 18.3m above the fire appliance level.

2. What is the wet riser pump design flowrate?

A. 1000 lit/min
B. 1250 lit/min
C. 1500 lit/min
D. 1750 lit/min

3. What is the pump design pressure?

A. 4 Bars at any Landing Valve
B. 7 Bars at any Landing Valve
C. Min. 4 Bars but not more than 7 Bars when any three Landing Valve use at the same time.
D. 4 Bars but not more than 8 Bars.

SIMPLE QUIZ
WET RISER SYSTEM

1. What is the purpose of the Breeching inlet?

A. To drain water from the system.
B. To pump water into the wet riser during testing.
C. For use by the firemen to pump water into the wet riser tank to make up for water used.
D. For the firemen to use the water from the wet riser tank to supply for their fire engines

2. What is the material of wet riser pipe?

A. Galvanise Iron Class C
B. Galvanised Iron Class B
C. Copper pipe
D. Stainless Steel

3. What is the minimum fuel supply for diesel engine pump?

A. Min. 1 hr continuos running
B. Min. 2 hr continuos running
C. Min. 3 hr continuos running.
D. More than 3 hours but not more than 4 hrs.

SIMPLE QUIZ
DRY RISER SYSTEM

1. Which is the criteria below in the UBBL that ascertains that a dry riser system is required in a building?

A. Topmost floor is higher than 19.3m
B. Topmost floor is higher than 19.3m above the lowest basement level.
C. Topmost floor is higher than 19.3m and less than 30.5m above the fire appliance level.
D. Topmost floor is 30.5m above the fire appliance level.

2. Where are usually Landing Valve located?

A. At the wall
B. At the staircases
C. At the lobbies
D. Fire access lobbies, protected staircases or other protected lobbies

3. What type of Breeching inlet used for a 100 mm dry riser pipes?

A. Two-Way Breeching inlet
B. Three-Way Breeching inlet
C. Four-Way Breeching inlet
D. Two and Four-Way Breeching inlet

SIMPLE QUIZ
DRY RISER SYSTEM

1. What type of Breeching inlets used for 150mm dry riser pipes?

A. Two-Way.
B. Three-Way.
C. Four-Way.
D. Five-Way.

2. What is the material of dry riser pipe?

A. Galvanise Iron Class C
B. Galvanised Iron Class B
C. Copper pipe
D. Stainless Steel

3. Which of the following statement for the Breeching inlets are true?

A. Breeching inlets located no more than 18m from the fire appliance access road and not more than 30m from the nearest external hydrant outlet.
B. Located at 18m from hydrant.
C. Located at 30m from Lift.
D. Located at 35m above fire access.

SEKIAN TERIMA KASIH

Yang Jauh berkirim Salam
Yang dekat berpaut Rindu

Akhir Kata...

SELAMAT HARI RAYA
MAAF ZAHIR & BATIN