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LIST OF SYMBOLS

LOOSE JUMPER TYPE STOPCOCK

GATE VALVE

STORAGE CISTERN

FLOAT SWITCH

BALL VALVE / FLOAT OPERATED VALVE

NON-RETURN VALVE / CHECK VALVE

WATER METER

DRAW OFF POINTS - COLD WATER

DRAW OFF POINTS - HOT WATER

DRAW OFF POINT - COLD & HOT WATER

WASHOUT PIPE

OVERFLOW PIPE

PUMP SET

CALORIFIER

BOILER
SINK

FLUSHING CISTERN & WATER CLOSET

CHECK METER POSITION (FOR CHECKING AND WASTE DETECTION PURPOSES)

INSTANTANEOUS GAS WATER HEATER

PRESSURE REDUCING VALVE (SMALL END DENOTES LOW PRESSURE)

PRESSURE RELIEF VALVE / SAFETY VALVE

TEMPERATURE RELIEF VALVE

COMBINED TEMPERATURE AND PRESSURE RELIEF VALVE

ANTI-VACUUM VALVE

EXPANSION VESSEL

BUTTERFLY VALVE

UNVENTED ELECTRIC THERMAL STORAGE WATER HEATER

PRESSURE TYPE THERMAL STORAGE WATER HEATER

NON-PRESSURE TYPE HEATER
THE CONNECTION TO THE MAIN ARE MAINTAINED BY THE WATER AUTHORITY.

INSIDE SERVICE UNDER MAINTENANCE RESPONSIBILITY OF AGENT.

INSIDE SERVICE UNDER MAINTENANCE RESPONSIBILITY OF INDIVIDUAL CONSUMERS.

LOT BOUNDARY

GOVERNMENT LAND ↔ BUILDING LOT

CONTROL VALVE ↓ BOUNDARY VALVE

WATER METER IS SUPPLIED AND MAINTAINED BY THE WATER AUTHORITY (THE INDIVIDUAL CONSUMER IS RESPONSIBLE FOR THE SAFE CUSTODY OF THE METER).

CONNECTION TO THE MAIN ↔ INSIDE SERVICE

NOTE:

AREAS OF RESPONSIBILITY OF WATER AUTHORITY/AGENT/CONSUMERS (DIRECT SUPPLY SYSTEM)
**AREAS OF RESPONSIBILITY OF**
**WATER AUTHORITY/AGENT/CONSUMERS**
**(INDIRECT SUPPLY SYSTEM)**

**FIG. 2**
NOTES:

1. ALL THREADING TO BS 21.

2. METER POSITION TO BE USED FOR LINED G.I., COPPER AND THERMOPLASTIC INSIDE SERVICE.

TYPICAL INSTALLATION OF A 15mm DIAMETER WATER METER
<table>
<thead>
<tr>
<th>METER SIZE (mm)</th>
<th>15</th>
<th>25</th>
<th>40</th>
</tr>
</thead>
<tbody>
<tr>
<td>DIMENSION (mm)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A</td>
<td>200</td>
<td>311</td>
<td>346</td>
</tr>
</tbody>
</table>

CLEAR EFFECTIVE LENGTH OF DISTANCE PIECE

<table>
<thead>
<tr>
<th>METER SIZE (mm)</th>
<th>50</th>
<th>80</th>
<th>100</th>
<th>150</th>
</tr>
</thead>
<tbody>
<tr>
<td>DIMENSION (mm)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A</td>
<td>310</td>
<td>413</td>
<td>483</td>
<td>500</td>
</tr>
</tbody>
</table>

CLEAR EFFECTIVE LENGTH OF DISTANCE PIECE

METER DIMENSIONS

FIG. 4
N.B. THE CHECK METER POSITION IS PROVIDED FOR CHECKING LEAKAGE AND CONSUMPTION.

WITH STORAGE TANK

DIRECT SUPPLY SYSTEM
ESSENTIAL COMPONENTS OF A NON-PRESSURE TYPE HEATER

LAYOUT OF A NON-PRESSURE TYPE HEATER

NON-PRESSURE TYPE HEATER
SECTION THROUGH A CISTERN TYPE WATER HEATER

LAYOUT OF A CISTERN TYPE WATER HEATER

CISTERN TYPE WATER HEATER
INSTANTANEOUS GAS WATER HEATER
CONNECTED DIRECTLY TO MAINS SUPPLY

INSTANTANEOUS GAS WATER HEATER
CONNECTED INDIRECTLY TO MAINS SUPPLY

INSTANTANEOUS GAS WATER HEATER
LEGEND:
- -----  OPTIONAL

NOTES:
1. THE FACTORY TEST PRESSURE OF THE HEATER SHALL BE IN EXCESS OF 1.5 TIMES THE MAXIMUM STATIC PRESSURE AT THE MAINS WATER SUPPLY POINT.
2. A COMBINED TEMPERATURE AND PRESSURE RELIEF VALVE (OPTION 2) MAY BE USED IN LIEU OF A TEMPERATURE RELIEF VALVE AND A PRESSURE RELIEF VALVE (OPTION 1).
3. THE SAFETY DEVICES ARE UNDER THE CONTROL OF THE ELECTRICAL PRODUCTS (SAFETY) REGULATION ADMINISTERED BY THE ELECTRICAL AND MECHANICAL SERVICES DEPARTMENT.
4. EXPANSION VESSEL IS ONLY REQUIRED WHEN A NON-RETURN VALVE OR A PRESSURE REDUCING VALVE OF THE NON-BACKFLOW TYPE IS FITTED IN THE COLD WATER INLET.

LAYOUT OF UNVENTED ELECTRIC THERMAL STORAGE TYPE WATER HEATER

FIG. 10
ESSENTIAL COMPONENTS OF A PRESSURE TYPE THERMAL STORAGE WATER HEATER

NOTE: THIS TYPE OF HEATER SHALL BE SUPPLIED FROM A STORAGE CISTERN, EXCEPT IT IS INSTALLED IN FLATS SUPPLIED THROUGH THE INDIRECT OR SUMP AND PUMP SYSTEM.

PRESSURE TYPE THERMAL STORAGE WATER HEATER
DIRECT CENTRALISED HOT WATER SYSTEM
ESSENTIAL COMPONENT OF A CALORIFIER

INDIRECT CENTRALISED HOT WATER SYSTEM

FIG. 13
DIRECT SALT WATER FLUSHING SUPPLY SYSTEM

INDIRECT SALT WATER FLUSHING SUPPLY SYSTEM

SALT WATER FLUSHING SUPPLY SYSTEM

FIG. 14
NOTES:

1. VOLUME BELOW LEVEL 'X' FOR MAINS FRESH WATER STORAGE SHALL BE APPROVED BY WATER AUTHORITY.

2. OVERFLOW SHALL BE TWICE THE DIAMETER OF LARGEST INLET OR 40mm DIAMETER WHICHEVER BE THE GREATER.

3. MATERIALS USED SHALL BE CAPABLE OF WITHSTANDING THE CORROSIVE ACTION OF SALT WATER.

4. THIS DRAWING IS EXTRACTED FROM W1543/5B.

FLUSHING SUPPLY STORAGE CISTERN – MIXED SUPPLY

(NOT TO SCALE)
Layout drawing for improvised sprinkler system

Additional butterfly valve without stop screw and lock nut on handle and strapped in open position.
MINIMUM CLEARANCE FROM KERB LINE (IN mm)

<table>
<thead>
<tr>
<th>CARRIAGeway DESIGN SPEED (IN km/h)</th>
<th>WHERE CARRIAGeway CROSS FALL IS</th>
<th>TOWARDS HYDRANT AND STEEPER THAN 2.5%</th>
</tr>
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<tr>
<td>&lt;50</td>
<td>AWAY FROM HYDRANT OR TOWARDS HYDRANT BUT NOT STEEPER THAN 2.5%</td>
<td>600</td>
</tr>
<tr>
<td>&gt;50 AND &lt;80</td>
<td></td>
<td>600</td>
</tr>
<tr>
<td>&gt;80</td>
<td></td>
<td>1000</td>
</tr>
</tbody>
</table>

NOTES: FOR ROADS (SUCH AS DISTRICT AND LOCAL DISTRIBUTOR ROADS, RURAL ROADS B AND FEEDER ROADS) WITH FOOTWAY ONLY AND WITHOUT VERGE, HYDRANTS CAN BE ERECTED CLOSER TO THE EDGE OF THE CARRIAGeway BUT NOT LESS THAN 200mm FOR ANY PART OF THE INSTALLATIONS. FOR ROADS WITH A SPEED LIMIT OF 70km/h OR ABOVE. STRICT COMPLIANCE WITH THE REQUIREMENTS OF THE ABOVE TABLE IS REQUIRED.

LAYOUT PLAN OF THE TYPICAL INSTALLATION OF DN 150 STREET FIRE HYDRANT
NOTES:
1. THE CAP OF THE CONTROL VALVE SPINDLE SHOULD BE AT 250mm APPROX. BELOW THE VALVE COVER AND IN NO CASE SHOULD THE DISTANCE BE MORE THAN 500mm.

SECTION OF THE TYPICAL INSTALLATION OF DN 150 STREET FIRE HYDRANT
NOTES:

1. A BYPASS ARRANGEMENT WITH THE PROVISION OF A SECOND PRESSURE REDUCING VALVE TO ENABLE ISOLATION OF ANY DEFECTIVE PRESSURE REDUCING VALVE FOR REPAIR AND REPLACEMENT IS USED.

2. THE PRESSURE REDUCING VALVES FOR USE WITH FRESH WATER SHOULD BE MANUFACTURED FROM MATERIALS SUITABLE FOR USE IN CONTACT WITH PORTABLE WATER.

3. THE PRESSURE REDUCING VALVES FOR USE WITH SALT WATER SHOULD BE MANUFACTURED FROM MATERIALS CAPABLE OF WITHSTANDING THE CORROSIVE EFFECT OF SALT WATER.

SCHEMATIC LAYOUT OF PRESSURE REDUCING VALVES
TYPICAL INSTALLATION DETAIL FOR METER/ CHECK METER POSITIONS IN METER CABINET

TYPICAL INSTALLATION DETAILS FOR METER ARRANGED IN GROUP IN METER ROOM ON CORRIDOR

COMMON MISTAKES FOR METER/CHECK METER POSITIONS

FIG. 22
TYPICAL ARRANGEMENT FOR INDIVIDUAL UNIT/FLAT IN RESIDENTIAL BUILDING

COMMON MISTAKES FOR INSIDE SERVICE
TYPICAL INSTALLATION DETAILS FOR
STORAGE CISTERN AND WATER PUMPS

COMMON MISTAKES FOR SUMP AND PUMP SYSTEM

FIG. 24
VPLD FOR WATERING FLOWER BEDS

LAYOUT PLUMBING ALIGNMENT PLAN FOR WATERING FLOWER BEDS

ABBREVIATION:
WP WATER POINT

COMMON MISTAKES FOR WATERING FLOWER BEDS PLUMBING SYSTEM

FIG. 25
TYPICAL CONFIGURATION OF MASTER METER
(AND OPTIONALLY WITH TMF)
(DUAL FIRE SERVICES CONNECTION CASE SHOWN AS EXAMPLE ONLY)

MASTER METER - SCHEMATIC LAYOUT (SHEET 1 OF 2)
TYPICAL CONFIGURATION OF MASTER METER
(AND Optionally WITH TMF)
(DUAL FIRE SERVICES CONNECTION CASE SHOWN AS EXAMPLE ONLY)

NOTES:
1. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE SPECIFIED.
2. THE SIZING OF THE PIPE IS DETERMINED BY THE FLOW RATE FOR FRESH WATER SUPPLY
   (PLUS TMF SUPPLY WHERE APPROPRIATE).

ABBREVIATIONS:
FW  FRESH WATER MAIN
FS  FIRE SERVICES MAIN
TMF  TEMPORARY MAIN FOR FLUSHING
NRV  NON-RETURN VALVE

MASTER METER - SCHEMATIC LAYOUT (SHEET 2 OF 2)

FIG. 28A
FRONT ELEVATION OF MASTER METER ROOM
SECTIONAL PLAN OF MASTER METER ROOM
(NON-RETURN VALVE NOT SHOWN)
(REDUCERS, NON-RETURN VALVES AND RESERVED SALT WATER INTERNAL MAIN WHERE APPROPRIATE NOT SHOWN)

MASTER METER - CONCEPTUAL DESIGN OF MASTER METER ROOM (SHEET 2 OF 5)
SECTION A - A OF MASTER METER ROOM
(NON-RETURN VALVE NOT SHOWN)
(REDUCTORS, NON-RETURN VALVES AND RESERVED SALT WATER INTERNAL MAIN WHERE APPROPRIATE NOT SHOWN)

MASTER METER - CONCEPTUAL DESIGN OF MASTER METER ROOM (SHEET 3 OF 5)
SECTION B – B OF MASTER METER ROOM
(NON-RETURN VALVE NOT SHOWN)
(REDUCTORS, NON-RETURN VALVES AND RESERVED SALT WATER INTERNAL MAIN WHERE APPROPRIATE NOT SHOWN)
### MASTER METER OF VARIOUS SIZES

<table>
<thead>
<tr>
<th>METER TYPE</th>
<th>SIZE (mm)</th>
<th>DIMENSIONS (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>A</td>
<td>B</td>
</tr>
<tr>
<td>SINGLE JET / COMPOUND (IN-LINE) / PISTON</td>
<td>50</td>
<td>300</td>
</tr>
<tr>
<td></td>
<td>80</td>
<td>350</td>
</tr>
<tr>
<td></td>
<td>100</td>
<td>350</td>
</tr>
<tr>
<td>VOLTMAN</td>
<td>150</td>
<td>500</td>
</tr>
<tr>
<td></td>
<td>200</td>
<td>560</td>
</tr>
<tr>
<td>COMPOUND (BY-PASS)</td>
<td>250</td>
<td>450</td>
</tr>
<tr>
<td></td>
<td>300</td>
<td>500</td>
</tr>
</tbody>
</table>

**NOTES:**
1. ALL DIMENSIONS ARE IN MILLIMETRES.
2. THIS SET OF DRAWINGS SHALL BE READ IN CONJUNCTION WITH THE HONG KONG WATERWORKS STANDARD REQUIREMENT FOR PLUMBING INSTALLATION IN BUILDING. IN PARTICULAR, THE REQUIREMENT RELATED TO INSTALLATION OF METER AS SPECIFIED IN CHAPTER 1.
3. UNIVERSAL BEAM(S) SHALL BE ABLE TO LIFT UP 2.5 TIMES THE WEIGHT OF THE METER.
4. THE CENTRE-LINE OF THE PIPEWORK MUST BE HORIZONTAL.
5. ALL NEWLY LAYED WATER MAINS MUST BE CLEANED AND STERILIZED BEFORE THE INSTALLATION OF SPECIFIED METER OR PRODUCT HAVING EQUIVALENT FUNCTIONS OR PERFORMANCE INSIDE THE ROOM.
6. DRAIN PIPE FOR METER ROOM SHALL BE PROVIDED.

<table>
<thead>
<tr>
<th>METER TYPE</th>
<th>UPSTREAM</th>
<th>DOWNSTREAM</th>
</tr>
</thead>
<tbody>
<tr>
<td>VOLTMAN / COMPOUND (BY-PASS)</td>
<td>10D</td>
<td>5D</td>
</tr>
<tr>
<td>SINGLE JET / COMPOUND (IN-LINE) / PISTON</td>
<td>5D</td>
<td>2D</td>
</tr>
</tbody>
</table>

WHERE D IS THE NOMINAL DIAMETER OF THE MASTER METER.
8. DIMENSION 'A' AND 'B' SHOWN IN THE TABLES ARE FOR INDICATION ONLY, EXACT DIMENSION TO BE DETERMINED ON SITE.
9. A RESERVED SALT WATER INTERNAL MAIN SHALL BE PROVIDED FOR FUTURE CONVERSION OF FLUSHING SUPPLY FROM TMF TO SALT WATER.
10. WHERE TMF SUPPLY IS GIVEN, A COMMUNAL TMF METER SHALL BE PROVIDED TO EACH INDIVIDUAL BLOCK OF BUILDING.
11. SIZE OF BY-PASS PIPE SHALL BE AS FOLLOWS :-

<table>
<thead>
<tr>
<th>SIZE OF SUPPLY MAIN</th>
<th>SIZE OF BY-PASS MAIN</th>
</tr>
</thead>
<tbody>
<tr>
<td>LESS OR EQUAL TO DN150</td>
<td>DN100</td>
</tr>
<tr>
<td>GREATER OR EQUAL TO DN200</td>
<td>DN150</td>
</tr>
</tbody>
</table>
TYPICAL CONFIGURATION OF MASTER METER WHERE INTERNAL ROAD CONSTRUCTED BY DEVELOPMENT AND TO BE HANDED OVER TO GOVERNMENT IN A DEFINITE FUTURE (OPTIONALLY WITH TMF)

NOTES:
1. FOR GENERAL ARRANGEMENT OF MASTER METER REFER TO DRAWING NO. SK20268/2.

LEGEND AND ABBREVIATIONS:
FW  FRESH WATER MAIN
FS  FIRE SERVICES MAIN
TMF  TEMPORARY MAIN FOR FLUSHING
M  MASTER METER AT TRANSITIONAL PERIOD
PM  PERMANENT MASTER METER WILL BE INSTALLED JUST BEFORE THE HANDOVERING OF INTERNAL ROAD.
INTERNAL ROAD TO BE HANDED OVER TO GOVERNMENT

MASTER METER - SCHEMATIC LAYOUT OF MASTER METER IN PRIVATE ROAD

FIG. 34A
WORKING CLEARANCES FOR CHECK METER POSITION

WALLS SURROUNDING CHECK METER POSITION

MIN. 200mm

SINGLE JET METER

DOOR

FIG. 35
Typical Schematic Plumbing Diagram (Food Business (Restaurant) / Kitchen)

Notes:
1. Kitchen equipment (KE) connected to the potable supply are divided into the following categories (Cat.):
   - Cat. 1 - direct supply by tapping over without connecting to water pipes (except water heater).
   - Cat. 2(a) - off-tank supply with submerged inlet and for drinking purpose.
   - Cat. 2(b) - off-tank supply with submerged inlet but NOT for drinking purpose.
   - Cat. 3 - off-tank supply to hydro-vent system.
2. The use of separate water tanks for KE is to avoid backward and cross contamination of water.
3. KE Catalogues of KE items & water heaters should be submitted to WSD
4. Water Taps