

Appendix A1: Checklist for Vetting Plumbing Proposals

Points to Consider	Criteria
A <u>Potable & Flushing Supplies</u>	
A1 Government Supply Mains :	
(i) available water pressure	- Pressure being adequate with regard to the elevation of the premises.
(ii) capacity of supply system	- Capacity of the system being adequate.
(iii) location	- Suitable Government supply main nearest to the premises.
(iv) size	- Adequate to supply the premises.
A2 Connection Pipe :	
(i) location	- Nearest to the suitable Government supply main.
(ii) size	- Adequate to supply all proposed plumbing installations.
	- Minimum size of 40 mm dia. for flushing supply.
	- (HKWSR 8.8 & 8.15)
(iii) alignment	- All pipework before meter positions shall be exposed or laid in a proper service duct.
	- (HKWSR 1.2, 7.3 & 8.8)
A3 Water Meter/Check Meter Position :	
(i) location	- The siting of a meter shall be determined by the Water Authority.
	- Meters shall be arranged in groups and sited at convenient locations in communal area and housed in meter rooms/boxes.
	- Meters on indirect supply systems shall be sited at roof level or at other convenient locations and housed in meter rooms/boxes.
	- Check meter positions will be required at the connections to the common inside service and to the sump tank.
	- Salt water supply will not be metered, but a meter position shall be provided.
	- Proper drainage, lighting and flood prevention facilities should be provided at the meter room.

Points to Consider	Criteria
	(WWReg 27, HKWSR 1.4, 1.5, 1.11, 1.12, 1.16, 7.7, 7.10, 8.9 & 8.16)
(ii) size	- Size of water meter should be adequate to meet the estimated consumption.
(iii) no. required	- All domestic units shall be separately metered. (HKWSR 1.1)
(iv) type of metered supply	- Water supplies are classified into domestic, construction, shipping and trade purposes. - (WWReg 2)
(v) arrangement	- A standard meter position should be provided with bushes or reducers at both sides of the meter position and with a distance piece of hollow tube with conspicuous holes drilled through the body placed in between. A long screw (connector) shall be provided immediately after the bush or reducer at the delivery side. - Meters shall be arranged in groups and sited at convenient locations in communal area and housed in meter rooms/boxes. (HKWSR 1.3, 1.4, 1.5, 1.12, & 7.7)
(vi) fittings	- PVC-U fittings shall be used at meter position if PVC-U materials are used as inside service. - Brass fittings shall be used at meter position if copper, lined galvanized steel or thermal plastic materials are used inside service. (HKWSR 10.3)
A4 Water Storage Cisterns :	
(i) location	- Every cistern shall be located so as to minimize the risk of contamination of the stored water. (WWReg Sch 2 Pt III Para 4 & 9, HKWSR 4.6, 4.7 & 4.10)
(ii) storage capacity	- For domestic buildings, the total volume of the roof storage tank and sump tank shall be on the basis of 135 litres for each of the first 10 flats and 90 litres

Points to Consider	Criteria
(iii) material	<p>thereafter for each additional flat. The proportion of capacity of sump tank to roof tank shall be in the order of 1:3 or as advised by the Water Authority.</p> <p>- For industrial use, the permissible capacity of storage tank is one day demand.</p> <p>- For temporary mains fresh water flushing, the capacity of the water storage tank shall be limited to 45 litres per flushing apparatus with a minimum of 250 litres.</p> <p>- For salt water flushing supply, there is no limit to the storage capacity but a storage of no less than half a day's consumption is recommended. (HKWSR 1.17, 3.12, 7.1, 8.13 & 8.18)</p> <p>- Every cistern shall be constructed of concrete, galvanized steel or other approved material.</p> <p>- Fibreglass storage cisterns for potable water shall be of an approved type.</p> <p>- All flushing water tanks must be of salt water resistant materials. (WWReg Sch 2 Pt III Para 2 & 3, HKWSR 4.11 & 8.19)</p>
(iv) associated fittings	<p>- Cisterns shall be fitted with a ball valve controlled inlet in the case of a gravity supply or with an automatic control switch in the case of a pumped supply.</p> <p>- An overflow pipe of one commercial size larger than the inlet pipe, and in no case less than 25 mm diameter, shall be fitted to each cistern and shall be extended to terminate in a conspicuous position in a communal area easily visible and accessible by the occupants.</p> <p>- A stop valve shall be provided on the outlet of every cistern and provision shall be made for a drain off pipe to enable the cistern to be emptied.</p> <p>- Safe access shall be provided to all cisterns by means of a secure permanent ladder or readily available portable ladder.</p> <p>- A grating and a self-closing non-return flap shall be provided at the overflow pipe outside the storage cistern.</p>

Points to Consider	Criteria
	<ul style="list-style-type: none"> - Double sealed covers with locking devices shall be provided for all storage cisterns other than cisterns for flushing and fire-fighting purposes. (WWReg Sch 2 Pt III Para. 5, 6, 7 & 10, HKWSR 4.1, 4.2, 4.3, 4.4, 4.5, 4.6 & 4.8)
<p>A5 Water Pumps :</p> <p>(i) pumping capacity</p> <p>(ii) provision of standby pump</p>	<ul style="list-style-type: none"> - Not less than the designed outflow rate of the storage cistern being supplied. - A standby pumpset shall be provided. (HKWSR 3.3)
<p>A6 Pipings :</p> <p>(i) material</p> <p>(ii) size</p> <p>(iii) routing/alignment</p>	<ul style="list-style-type: none"> - Pipes on a fresh water inside service shall be made of cast iron, ductile iron, PVC-U, polybutylene, steel or copper or any approved material. - Pipes on a salt water inside service shall be made of cast iron, PVC-U, vitreous earthenware, gunmetal, or any other approved materials. (WWReg Sch 2 Pt I Para 1(3), 1(4), 5, 9, 12, 13 & 16, HKWSR 1.8, 2.8, 3.10, 7.14, 8.19 & 10.2) - Depends on the no. and types of fittings served. - No pipe shall be less than 20 mm diameter, except that a branch pipe may be 15 mm diameter if the pipe run is short and the pipe supplies only one draw-off point. (WWReg Sch 2 Pt I Para 2) - All pipework before meter positions shall be exposed or laid in proper service duct. (HKWSR 1.2, 2.2, 3.1, 7.3 & 8.8) - The pipings which solely serve a particular flat/unit should not run through other flats/units as far as practicable.
<p>A7 Control Valves :</p> <p>(i) size</p> <p>(ii) type</p>	<ul style="list-style-type: none"> - Depends on the size of the pipings. - A loose jumper type stopcock shall be

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<p>(iii) location</p> <p>A8 Hot Water System : (i) type of water heater</p>	<p>provided and placed with spindle in the vertical position before the meter position.</p> <p>- Fullway gate valves shall be fitted before meter positions when the meters are sited at roof level.</p> <p>- Cisterns shall be fitted with a ball valve and a fullway gate valve at the inlet in the case of a gravity supply or with an automatic control switch and without any stop valve in the case of a pumped supply. Fullway gate valve should be provided on the outlets of every cistern.</p> <p>- Spring taps, of non-concussive type and of approved pattern, shall be used for public or communal lavatory basins.</p> <p>- For connections larger than 40 mm diameter, a gate valve shall be provided before the meter position and a non-return or check valve fitted on the delivery side as close as possible to the meter. (HKWSR 1.10, 1.14, 1.15, 2.4, 3.4, 4.1, 4.2, 7.5, 7.8, 7.9, 7.11, 8.11, 8.12 & 8.17)</p> <p>- Individual stop valves shall be provided at all draw-off points or at a series of draw-off points if situated close together. (HKWSR 1.7 & 7.13)</p> <p>- Boundary valves shall be provided at the connection points as close to the lot boundary as possible. (HKWSR 1.11, 1.16, 3.7, 7.10, 8.16 & 9.5)</p> <p>- A tee-branch valve refers to an isolation valve at a branch pipe and which is located close to the main pipe. To facilitate maintenance and repair, tee-branch valves shall be provided : <ul style="list-style-type: none"> ● for all underground water pipes; ● if the main pipe is a communal inside service; ● in a flushing system if the main pipe serves more than one domestic unit or commercial floor. (HKWSR 1.9, 2.10, 3.13, 5.13, 6.15, 7.16 & 8.7)</p> <p>- The following types of water heaters</p>

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<p>(ii) compliance with WWReg/ HKWSR</p>	<p>may, with the written permission of the Water Authority, be connected direct to a main :</p> <ul style="list-style-type: none"> ● non-pressure type water heaters where no restriction of flow can be effected beyond the inlet control valve; ● cistern type water heaters; ● instantaneous water heaters where the guaranteed test pressure of the water heater is at least 1½ times the static head available at the water heater; ● electric water heaters of the thermal storage type; <ul style="list-style-type: none"> ● having a storage capacity not exceeding 200 litres; ● having a guaranteed test pressure at least 1½ times the static head available at the water heater; and ● not being provided with an individual expansion pipe but complying with WWReg Sch 2 Pt IV Para 11 (WWReg Sch 2 Pt IV Para 1(2)(a)(b)(c) & (d)) <p>- Should refer to WWReg Sch 2 Pt IV & HKWSR Chapter 5 & 6 for details.</p>
<p>A9 Cooling/Air-Conditioning System :</p> <p>(i) purpose</p>	<p>- Approvals for the use of mains water (fresh or salt) may be given to meet the following requirements :</p> <ul style="list-style-type: none"> ● closed circuit cooling systems for any purpose where operational losses are negligible and no water is rejected to waste; ● cooling systems involving no loss through evaporation and where all the water is re-used after cooling for an industrial process; ● evaporative cooling systems essential to an industrial process, whether this be for cooling or for air-conditioning purposes and provided that system losses arise from evaporation only; ● evaporative cooling/air conditioning/humidification system

Points to Consider	Criteria
	<p>for essential purposes other than industrial processes provided that system losses arise from evaporation only;</p> <ul style="list-style-type: none"> ● humidification essential to an industrial process.
(ii) type	- use of mains water for cooling/air-conditioning and humidification purposes within the first 2 categories above.
(iii) estimated consumption	- use of mains water for cooling/air-conditioning and humidification purposes within the last 3 categories above; the applicant must demonstrate that the type of evaporate plant proposed is of an enclosed design from which wastage of water by splashing is prevented.
(iv) any alternative private source	- Demand can be met by the Distribution Supply System.
	- The applicant must prove that the demand cannot be effectively met by alternative means (e.g. air cooling, private source or a sea water supply is impractical)
B <u>Fire Service Supply</u>	
B1 <u>Government Supply Mains :</u>	
(i) available water pressure	- Pressure being adequate with regard to the elevation of the premises.
(ii) location	- Suitable Government supply main nearest to the premises.
(iii) size	- Not less than the size of the connection required.
(iv) unrestricted/restricted supply	- information may be given to the applicant upon request.
(v) single end/double ends feed	- information may be given to the applicant upon request.
B2 <u>Connection Pipes :</u>	
(i) location	- Nearest to the suitable Government supply main.

Points to Consider	Criteria
(ii) size	- Size required by applicant not greater than that of the available Government supply main.
(iii) alignment	- The fire service connection should be located close to the lot boundary or close to the point of connection from internal distribution main whichever is applicable. All pipe work before the check meter position shall be exposed or laid in a proper service duct. (HKWSR 9.5)
B3 Check Meter Position :	
(i) location	- A check meter position should be located so as to free from flood and obstruction and should be located close to the lot boundary and connection to Waterworks main or close to the point of connection from internal distribution main whichever is applicable. (HKWSR 9.5)
(ii) size	- Depends on size of piping.
B4 Water Storage Cisterns :	
(i) location	- Storage cisterns shall be so positioned that they are free from obstruction and readily accessible via safe access. (WWReg Sch 2 Pt III Para 4(a) & 9, HKWSR 4.6)
(ii) material	- Every cistern shall be constructed of concrete, galvanized steel or other approved material. (WWReg Sch 2 Pt III Para 2 & 3)
(iii) associated fittings	- Cisterns shall be fitted with a ball valve controlled inlet in case of a gravity supply or with an automatic control switch in the case of a pumped supply. - An overflow pipe of one commercial size larger than the inlet pipe, and in no case less than 25 mm diameter, shall be fitted to each cistern and shall be extended to terminate in a conspicuous position in a communal area easily visible and accessible by the occupants. A grating and a self-closing non-return flap shall be provided at the overflow pipe outside the storage cistern.

Points to Consider	Criteria
	<ul style="list-style-type: none"> - A stop valve shall be provided on the outlet of every cistern and provision shall be made for a drain-pipe to enable the cistern to be emptied. - Safe access shall be provided to all cisterns by means of a secure permanent ladder or readily available portable ladder. (WWReg Sch 2 Pt III Para 5, 6, 7 & 10, HKWSR 4.1, 4.2, 4.3, 4.4, 4.5, 4.6 & 4.8)
(i) materials	<ul style="list-style-type: none"> - Piping on a fresh water fire service shall be made of cast iron, wrought iron, steel, copper, ductile iron.
	<ul style="list-style-type: none"> - Cast iron, ductile iron and fittings capable of withstanding the corrosive effect of salt water must be used in a salt water fire service. (WWReg Sch 2 Pt I Para 1(1), HKWSR 9.3 & 9.4)
(ii) routing/alignment	<ul style="list-style-type: none"> - An independent connection shall be provided from the Government water main for the fire service installation.
	<ul style="list-style-type: none"> - All pipe work before the check meter position shall be exposed or laid in a proper service duct to facilitate inspection and/or repairs. (HKWSR 9.5)
B6 Control Valves :	
(i) type	<ul style="list-style-type: none"> - Cisterns shall be fitted with a ball valve and a fullway gate valve at the inlet in the case of a gravity supply or with an automatic control switch and without any stop valve in the case of a pumped supply.
	<ul style="list-style-type: none"> - Fullway gate valves shall be provided on all the outlets of every cistern and provision shall be made for a drain-off pipe to enable the cistern to be emptied.
	<ul style="list-style-type: none"> - A fullway gate valve and a non-return valve have to be installed on the fire service as close to the Government water supply connection as possible.

Points to Consider	Criteria
	<ul style="list-style-type: none"> - Where direct connections to sprinkler/drencher system are to be from Government mains, an additional butterfly valve, shall be installed at a point on the supply pipe before the fire service inlet and as close as possible to the control valves of the connections. (HKWSR 4.1, 4.2, 9.6 & 9.10)
(ii) size	<ul style="list-style-type: none"> - Depends on size of piping.
(iii) location	<ul style="list-style-type: none"> - As close to the Government water supply connection as possible. When direct connections to sprinkler/drencher system are to be from Government mains, an additional butterfly valve, shall be installed at a point on the supply pipe before the fire service inlet and as close as possible to the control valves of the connections. - Tee-branch valves shall be provided for all underground water pipes. (HKWSR 9.6, 9.7 & 9.10)
B7 Compliance	
(i) arrangement	<ul style="list-style-type: none"> - Independent of other water supply arrangements. A salt water installation may be primed with fresh water. - Fire service ring mains. (HKWSR 9.1, 9.2, 9.11, 9.12, 9.15 & 9.16)
(ii) type	<ul style="list-style-type: none"> - Sprinkler/Drencher System. - Hydrant/hose Reel System. (HKWSR 9.8 - 9.14)