

17.00 Hydraulic Services

17.01 General Requirements

17.01.01 Scope of Hydraulic Services

This Section of the Guidelines outlines the minimum requirements for the following;

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Ring main distribution pipes should be used wherever possible.

All fittings shall comply with the requirements of SAA MP52 and shall have AS markings and manufacturer's Licence No. stamped into the fitting.

17.01.04 Pipework Support

Brackets for all pipe supports shall be 'Unistrut' with threaded rod hangers and appropriate saddles or stand-off 'Abbey' clips.

In all cases, the pipework is to be separated from the hanging bracket by the use of an approved tape.

17.01.05 Floor Penetrations

Floor penetrations for groups of pipes in wet areas shall have a cast concrete upstand or bund.

In all locations, metal pipes shall be sleeved and caulked. The sleeve shall be copper, standing 30mm above the finished floor.

17.01.06 Service Ducts

Where possible all services shall be run in accessible service ducts, fire rated at the floor. Duct sizes shall be such to allow for the safe and easy removal and repair of pipework and valves.

17.01.07 Laboratory Services

The water services to each laboratory shall have isolation points located within the laboratory or within reasonable distance to the laboratory.

Isolation of the water services to a laboratory and other research facility shall be possible without the interruption of services to other spaces in the building.

Services to any PC3 Animal or Invertebrate Facilities shall comply with the requirements of

17.02 Sewer Drainage

17.02.01 Materials

Materials shall be uPVC pipes and fittings with solvent welded joints or HDPE for trade waste requirements.

17.02.02 Inspection Chambers

Inspection chambers shall be installed in accordance with Local Authority requirements.

Gas tight chamber covers stamped 'SAN' shall be used throughout and shall generally be 'Gatic' light duty covers except in roadways where medium duty covers shall be used. Brass edged covers shall be used when chambers occur in particular floor or paving finishes. All covers must be compatible with 'Gatic' lifters.

All chambers over 1200mm in depth shall have hot dipped galvanised step irons or ladder.

Tops of chambers in landscaped areas shall be installed 100mm above landscaped levels to the same gradients as the landscape.

Chambers in forest areas shall be locatable by means of a white painted 50 x 175 concrete identification post 600mm high above ground with the top 100mm painted black.

17.02.03 Inspection Openings & Floor Wastes

All inspection openings shall be brought to finished ground level and capped with a screwed brass cap.

Floor wastes generally shall have chrome plated brass or stainless steel screwed grates set flush with the floor finish. Grates to floor wastes in laboratories shall be PVC. All floor wastes in concrete floor slabs shall have puddle flanges. All floor wastes shall be capable of being regularly charged via a sink, basin or condensate drain, not by a hose tap.

17.02.04 Trade Waste

Trade waste shall conform to relevant Australian Standards and Codes.

17.02.05 Greywater Systems

Systems for the collection, storage and reticulation of waste 'grey' water for landscaping irrigation and the like, shall be installed strictly in accordance with the Plumbing & Drainage Act 2002.

17.03 Stormwater Drainage

17.03.01 Materials

Materials shall be sanitary grade HDPE pipes and fittings, Class X reinforced concrete pipe, fibre reinforced cement pipe and fittings or F.C. stormwater pipes and fittings.

17.03.02 Pipe Sizing

Flooding frequency shall generally be one in 50 years. All stormwater drainage shall be in accordance with the National Plumbing and Drainage Code AS 3500 and as otherwise amended by these Design Guidelines.

17.03.03 Discharge

The route, point of outlet and method of discharge is to be approved by CLF. Provide a means of dispersal with water energy reduction.

17.03.04 Inspection pits

Inspection pits shall be provided at major changes of direction and junctions.

'Gatic' light duty pit covers stamped 'S-W' shall be used generally except in roadways where medium duty covers shall be used. Brass edged covers shall be used when pits occur in particular floor or paving finishes. All covers shall be compatible with 'Gatic' lifters.

All inspection pits over 1200mm in depth are to have a hot dipped galvanized ladder or step irons installed.

Tops of pits in landscaped areas shall be installed to match finished landscape levels.

Pits in forest areas shall be locatable by means of a white painted concrete post 600 high above ground with the top 100mm painted black.

17.03.05 Grated Drains

All grated drains for the collection of surface run-off shall have the main bars running in the direction of flow, however grates located in pathways or paved areas must be suitable for the passage of wheelchairs.

'Forge-weld' brand grates complete with matching metal frames should be used, not cast iron

	galvanised finish.
Bottle Filler	Modified 'Zip Chill Fountain CFB140FWC' with fixed gooseneck spout in lieu of bubbler (Refer Section 15.00)
Kitchenette & Tea Prep Sinks	'Clark Model 3007' double bowl drainer flushline

Flush Valves (exposed model)	'Zip' 47004 or equal manual 3/6 litre dual flush valves and flush pipe with c.p. finish to all WC pans. Flush pipe is to be supported off the wall with c.p. brackets mounted between the valve and the pan.
Laboratory Tapware	'Enware LF Series' or 'Galvin Engineering' to suit user requirements with chemical resistant coating. Handles shall be to international colour coding except for hot water
Kitchenette & Tea Prep Sinks	'Enware CS Series' forward bowl sink set (8 l/m regulated flow to taps)

17.06.05 Installation of Waterless Urinals

The design for the installation of waterless urinals shall satisfy the requirements of AS/NZS 3500.0:2003 Part 2 to eliminate or minimise the build up of Struvite deposits in waste pipes or drains. A minimum of two fixtures generating water waste e.g. hand basins, shall be connected upstream to the same waste pipe or drain servicing waterless urinals as a means of flushing the pipes to prevent the build up of deposits.

All RPZ valves shall be 'Tyco' or 'Fabco'. The Contractor shall ensure that all RPZ valves installed on a project are tested and registered with the Local Authority and provide copies of the test and registration certificates to the Superintendent. The Contractor shall also ensure that the RPZ valves are tested just prior to Final Completion and that the test results are submitted to the Superintendent.

17.07.05 Back Flow Prevention

All water systems shall be designed to include back flow prevention devices as previously described in Clause 17.07.01 of this Section.

Backflow devices are to be installed in locations that permit access for servicing and testing from floor level without ladder assistance.

17.08 Cold Water Service

Buildings shall be supplied through a two-piped system from mains pressure except when deemed undesirable by GU, one for potable water and the second via an RPZD in the Valve Room for non-potable supplies.

All laboratories shall be supplied from the non-potable system except for safety showers,

- x N16113C – Tick Compliance
- x Dual Check Valve fitted low hazard AS 2845

17.13 Water Meters

Water meters are required on all potable and non potable cold water supply pipelines as follows:

- x Supply to building.
- x Supply to Laboratories.
- x Supply to commercial tenancies.
- x Supply to centralised circulating hot water systems.
- x Supply from building to landscape irrigation system.

Water meters shall be 'ABB Helix 4000', and shall be installed in an accessible location for easy reading such as a plant room or services pit.

Meter counters shall be capable of providing data interpretation with regard to water volume over a specified time period. Building supply meters shall be fitted with an approved wireless data logging station mounted in a secure enclosure, and shall be capable of communication with 'Redlion' interface controls.

The meter to a Campus main water supply shall be an 'ABB Aquamaster' or 'Magflow' installed in accordance with Local Water Authority requirements complete with lockable vandal proof cabinet and shielded electrical supply cable.

17.14 Rainwater Collection, Storage & Reticulation

For every new building, rainwater shall be collected from the roof and stored in a holding tank/s for reuse to flush toilets and irrigate landscaping. The collection of waste water from RO systems, fire hose reel testing and air conditioning condensate shall also be considered.

Storage tank/s shall be sized to reflect the building population with a minimum capacity of 30,000

