

DESIGN STANDARD





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3. Technical requirements

This section outlines the specific technical requirements for F. Hydraulic Services UoA Design Standards.

3.1 Regulatory requirements

All hydraulics work including but not limited to sanitary plumbing, industrial waste systems, property sewers, water supply and fire services and stormwater drainage shall be carried out in accordance with the Water Corporation Plumbing By-laws, National Construction Code (NCC), Department of Fire and Emergency Services (DFES) requirements and local authority by-laws.

All natural gas services work shall be carried out by an authorised installer possessing a current certificate of competency issued by Energy Safety and suitably endorsed in the relevant classes of work.

All plumbing work, fire services and rainwater pipes and stormwater drainage shall be carried out by registered plumber with a full and

Taps in general shall be provided with flow restrictors.

Consideration must be given to incorporate leak detection via the BMCS within systems where considerable water losses may be likely.

Where under sink boiling / chilled water units are installed, drip trays, interruption sensors and adequate ventilation is required.

3.4.1 Hot water

Consult UoA prio requirements.

Hot water is not normally provided in student, staff, ambulant or DDA compliant toilets except in cases where it is specifically required. Where hot water is supplied in toilets, there shall be thermostatic control to supply tempered water in accordance with the Standards.

Pressure and temperature reliefs are to be discharged to a trapped drain point, the point shall be safe and be in an easily accessible location.

Thermostatic mixing valves (TMV) must comply with the Australian standards in terms of temperature control. Generally, TMVs shall be located in a stainless steel lockable cabinet, shall be wall mounted or recessed and within the area being served.

Valves shall be chrome plated where exposed.

Re-circulation pumps shall have anti corrosion coating and shall be centrifugal type.

All pumps used for circulation shall have BMS output capability. The purpose of this BMS output is to signal an alarm on BMS upon pump failure. Localised pump failure alarm shall be installed along with wall mounted high level strobe to notify of pump failure (red or yellow strobe) and Pump normal operation (green light) along with the required identification signage.

Insulation shall be of closed-cell insulation 25mm wall. Insulation requiring painting shall be painted with Aerocoat or approved equivalent.

Where under sink hot water units are installed, drip trays, interruption sensors and adequate ventilation is required.

3.4.2 Cold water

The designer shall use the best suited material for its application to the project. Consideration must be given to impact to existing system where applicable, where suitability of connection of new material to existing system shall be confirmed.

The domestic cold and hot water shall be designed to a maximum velocity of 1.3 m/s in branches and 1.5 m/s in main runs, pressure to the hydraulically most remote fixture shall not be less than the lowest pressure nominated by the standard plus 50 kPa. The maximum pressure in the system may not exceed to that has been nominated by the standards. Allowances must be made for pressure reducing valves for branch supplies greater than 400 kPa and pressure reducing stations for main runs greater than 500 kPa.

Consideration must be given to reduce water hammer.

3.4.6 Potable Water Filtration

Domestic cold water service is not required to be filtered. Specialised equipment shall recommendations.

3.4.7 Plant Water Filtration

Specialised equipment shall be filtered individu

Consideration must be given to the requirements of specialised equipment filtration, where activated carbon, pressurized sand, water softening and/ or UV filtration maybe required.

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For all above fixture titles listed refer to Architectural Design standards.

- Pans and cisterns
- Urinals
- Hand basins
- Cleaners sink
- Drinking fountains
- Boiling / Chilled water units
- Laboratory sink units
- Laboratory taps
- Stainless steel sinks
- Taps
- Shower rose.

3.10 Identification of services

Identification of hydraulic services shall be by:

- Painting of pipework
- Labelling of pipework
- Tagging and labelling

3.11.2 Acoustic attenuation

Generally, consult with the environmental or acoustic consultant (If appointed) for extent of acoustic attenuation works. This may include:

- Sanitary pipework located in ceiling space above meeting rooms, offices and lecture theatres, or as directed.
- Rainwater pipes located in ceiling space of all areas. rainwater pipes in ducts need not be insulated if duct cladding is sufficient.
- Flushing cisterns valves silent fill valves to be used. A coustic fixings for cisterns located between the cistern and the wall are required.
- Pipework above or within offices, meeting rooms, lecture theatres or as directed acoustic insulation shall be provided.

Bracket fixings must be considered.

3.12 Metering

Metering is required for all hydraulic services at each building with sub-metering of the following services:

- Potable cold water
- Non-potable cold water
- Reverse osmosis system
- Natural gas
- Mechanical plant
- Wash down

Meters shall be suitable for tenant on charging, fit for purpose for commercial re with pulsed output.

Meters shall be correctly calibrated and connected to the BMCS. Detectors and alarms shall be tested prior to handover.

Metres shall not to be installed in ground and shall be readily accessible for reading and maintenance.

3.12.1 Approvals

The contractor shall provide evidence from relevant authorities of:

- Sections of property sewer, sanitary plumbing and industrial waste systems and storm water down pipes tested by the WC.
- Sections of potable and non-potable hot and cold water systems and fire hydrant services tested by WC prior to concealment
- Sections of the rainwater pipe system tested and approved by the Superintendent prior to concealment
- Sections of the natural gas services installation tested by the installer prior to concealment
- Fire stopping of penetrations approved by the manufacturer and DFES prior to concealment
- All approvals in accordance with AHJ(Authority having jurisdiction)

Installations shall include all necessary works to complete the project including and not restricted to paying all associate fees, levies, taxes and headwork charges. Headwork charges may be reimbursed by UoA.

As constructed marked up drawings are to be kept on site and made readily available at all times. Drawings are to be forwarded upon request at nominated stages throughout the project.

3.12.2 In ground services

Service mains infrastructure to be laid at equal depth with required horizontal spacings at a depth 750mm minimum cover.

Services are to be located within hard landscape where practical.

3.12.3 Covers and grates

Consideration must be given to location of covers and grates where preference is given to accessibility, i.e, take care to avoid high traffic areas.

Covers and grates shall be trafficable cast iron construction supported on minimum 150mm concrete raised 100mmm to suit paving surround. The specification for the class of trafficable cover must be assessed on project by project basis.

Finish levels shall be flush with surrounding hard landscape and raised 100mm within garden beds.

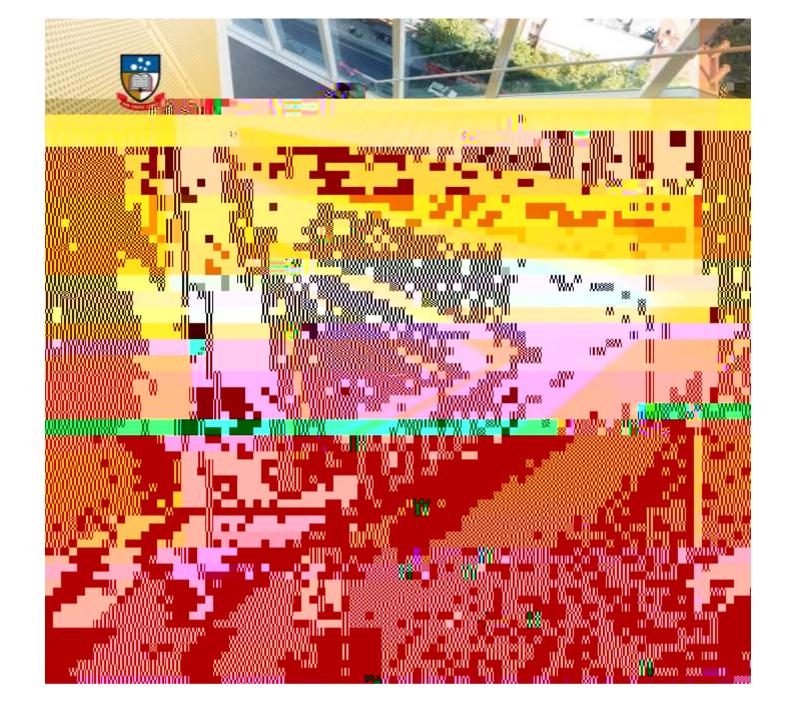
3.12.4 Excavation and backfill

See J. External Works.

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3.12.5 Redundant services

All services made redundant Uoade redundant



SCHEDULES

F. Hydraulic Services





4. Specifications

4.1.1 Identification colours

Service	Pipe Colour	Lettering	Lettering Colour
Non-Potable Cold	Green/Jade		White
Non-Potable Hot	Green/Jade		White
Potable Cold	Blue/ Atlantic	Cold Potable	White
Potable Hot	Green/Jade		White
Deionised / Reverse Osmosis	Green/ Jade		White
Drains	Black		White
Vent	Black		White
Natural Gas	Yellow Ochre		Black
Fire	Red / Signal Red	A s applicable	White

4.2 Sanitary plumbing fixtures / tapware

Refer to B. Building and Architecture.