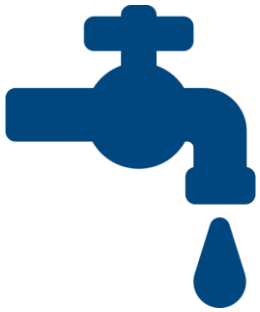
THE UNIVERSITY OF AUCKLAND
Te Whare Wānanga o Tāmaki Makaurau
NEW ZEALAND

Property Services Design Standards and Guidelines

Section 3

Utilities Connections & Energy Management

Version 1.0



Document Control Information

Team Name:	Design Standards Steering Group	**Published date:**	18 October 2019
Document version:	1.0	**Revision date:**	Annually

Document Control

Version	Review Date	Authorised by	Description
1.0	18 October 2019	Design Standards Steering Group	Initial version of manual.
	February 2020		(Either note which sections have changed or 'annual review – no changes')

Feedback

If you spot an error in this document, or you have a suggestion on how we can improve the document, please tell us about it by printing, completing and emailing the form in Appendix A to us at PSTechServices@auckland.ac.nz.

3 Utilities Connections & Energy Management

Table of Contents

List of Tables

List of Figures

3.1 Introduction

Introduction

The purpose of this section is to outline the specific considerations which need to be considered with regard to making utilities connections, disconnections or modifications to University utility networks.

3.1.1 Purpose

The purpose of this section is to provide consultants, architects, designers, and engineers with design guidelines for the planning of spaces and pathways in buildings for telecommunications equipment and cable network infrastructure.

3.1.2 Utilities included

The requirements outlined within this section apply to:

- All utilities at the City, Grafton, Tamaki, Epsom, Newmarket and Whangarei campuses
- Remote field stations at Leigh, Ardmore and Waiheke
- Any other premises the University buys and /or operates.

University utility networks associated with this section include electricity, natural gas, water (supply, wastewater and stormwater) and steam. These network provisions can be defined in this table:

Table 1: Descriptions of University utilities

Service	Description
Electricity	• Low voltage internal networks, i.e. reticulation on University property are generally private. • External networks are provided by Vector or equivalent local lines companies outside of Vector's area. • High voltage networks on University property are a mixture of University and Vector ownership.
Natural gas	• All internal networks are private. • External supplies are provided to City, Grafton, Newmarket and Epsom campuses at 400kPa by Vector Ltd. • Tamaki Campus has two supply points from Vector's 200kPa network.
Water	• All internal networks are private. • The City, Grafton, Newmarket and Tamaki campuses are each served by a private ring-main with two points of supply from the WaterCare mains.
Fire mains	• Sector 200 has a dedicated fire main connecting to WaterCare's network at Alten Road, which supplies fire hydrants and building sprinkler systems along Wynyard Street. • Sector 400 has a dedicated fire ring-main running from outside 26 Symonds Street then looping back between the buildings to 22 Symonds Street. It serves fire hydrants and sprinkler systems. • Tamaki Campus and Colin Maiden Park both have 'combined' fire and water networks.
Wastewater	• Internal networks are generally private. • Connections to outside of University boundaries are to WaterCare networks or equivalent local networks outside of Watercare's area.

Service	Description
Stormwater	• Internal networks are generally private. • Connections to outside of University boundaries are to WaterCare networks or equivalent local networks outside of Watercare's area.
Steam	• Applies to Grafton Campus only. • Steam supply is via agreement with Auckland District Health Board who owns the stream and condensate lines between the University and the hospital.

3.1.3 Reticulation drawings

Underground site services reticulation drawings are available on request from FM.

3.1.4 Consultation during concept and preliminary design

With over 250 buildings spread over several campuses, it is vital the University's Facilities Management (FM) team is consulted during concept design stage to ensure utilities connections and metering requirements are to the University's satisfaction as well as to ensure the University can continue with its effective ability to:

- Monitor and manage network capacities
- Accurately allocate annual utility consumption and costs to individual buildings
- Maximise security of supplies whilst ensuring flexibility of building and campus operation
- Monitor system losses
- Maintain operational safety.

3.1.5 Authorisation from Energy Manager

FM has a dedicated, in-house Energy Manager who oversees utilities connections and energy monitoring of all University owned, operated or occupied buildings. Comprehensive consumption, demand and benchmark data is available to assist consultants with assessing plant and system capacities on new projects or refurbishments.

The relevant project team members, being the consultant and/or project manager to the project, are responsible for seeking authorisation from the Energy Manager for all utilities connections to internal and external networks and ensuring that metering requirements are met.

3.1.6 Roles and responsibilities

This table lists the Energy Manager's and design team's key involvement and responsibilities during the design process:

Table 2: Utilities roles and responsibilities

Role	Responsibility
Utilities connections	
University Energy Manager	• Authorises connections, deletions or modifications to University and external networks associated with all project and planned works. • Verifies existing network capacities are not exceeded by new or modified connections. • Makes new connection applications with external parties on behalf of the project. • Attends site meetings as required to assist with establishing network identification. • Maintains University site wide network underground services As-built records and schematics.
FM Asset Team	• Provides relevant site network underground services records and schematics.
Project Team (Consultant or Project Manager as nominated by the University Property Services Project Manager	• Communicates to the Energy Manager or FM representative during project planning or preliminary design stage any new, modified or deleted connections which are proposed as part of the project works. • Provides the Energy Manager with estimated capacities associated with the required connections above. Submits calculations upon request. (The project is responsible for associated costs involved with capacity calculations and network modifications.). • Provides the Energy Manager with all necessary project information to facilitate the Energy Manager submitting any connection applications. • Issues design documentation for building consent. • Reviews University site network underground services records and schematics to fully understand site reticulation and connectivity. • Attends site meetings as required. • Ensures As-Built records of any network modifications are submitted in marked-up format to enable the Asset Team to update the master record drawings. • Advises the Energy Manager or FM representative of any physical damage which has incurred. • Fully coordinates network isolations with FM facilitate any new or modified connections. • Ensures protection of networks from physical damage and health and safety risk such as cross-contamination, explosions, sanitation, etc.
Metering requirements	
Energy Manager	• Ensures all of the University's network connections or systems are metered appropriately to facilitate monitoring and management of University building consumption. • Maintains University building utilities demand and consumption records. These can be submitted to the design team upon request. • Specifies metering instruments and equipment types and manufacture.

Role	Responsibility
	• Provides unique University identification number for each new meter.
Project Team (Consultant or Project Manager as nominated by the University's Property Services Project Manager)	• Requests and reviews University building utilities demand and consumption data during preliminary design stage to ensure existing building capacities are considered. • Consults with Energy Manager at developed design stage to ensure appropriate University metering requirements are included. • Includes all meters on the relevant services schematic drawings, including but not limited to electrical, electrical for mechanical, hydraulic, etc. • Provides a schedule of new meters which lists their type, service, and physical location to Energy Manager or FM representative to enable the University to register the meters with a unique identification number. • Coordinates required metering outputs are connected to the University's ethernet as required to facilitate the University's remote monitoring of meters. • Fully commissions the metering system from end to end, including confirming CT ratios, meter settings, et al. • Demonstrates that the physical meter readings can be reconciled within the building network. • Demonstrates that the physical meter readings agree with the remote meter readings.

3.1.7 Physical installation of meters

All meters must be installed in an accessible location, and in a position where they can be easily read without the aid of ladders, mirrors, torches, etc. This requirement also applies to meters that are connected to the BMS or other remote reading devices.

During the design stage all meter positions must be indicated on schematic drawings and layouts. Meter positions on layouts must be fully coordinated with building structure, architectural elements, and all other building services. Locations must indicate installation height and any special installation requirements.

Note: Any installed meters found on site to be in locations which do not facilitate ready or easy access, and/or are positioned in a manner which does not facilitate full viewing of the meter register, will be rejected by the University and shall be re-installed correctly at the cost of the project.

3.1.8 Meter reading connectivity and calibration

In order to achieve practical completion, FM require that meter installations are proven for remote connectivity to the BMS where relevant, and meters shall be set, calibrated, and adjusted to be reading the correct units as required and specified by the Energy Manager.

The contractor is required to demonstrate to FM that the 'manual' site reading and the BMS reading agree with each other and that the meter multiplication factor is correctly accounted for.

3.1.9 Meter supply, installation and configuration

All meters are to be supplied, configured and commissioned as an end to end system by the BMS contractor. The BMS contractor may issue the meter hardware to the relevant electrical/mechanical/hydraulic trade for the physical site installation but the BMS contractor retains the overall responsibility for the installation, including enough straight pipe lengths to ensure laminar flows, etc.

This includes Electrical, Gas, Water, Steam and Energy meters.

3.2 Abbreviations and Definitions

Utilities Connections & Energy Management abbreviations

This table lists abbreviations applicable to utilities.

Table 3: Utilities Connections & Energy Management abbreviations

Abbreviation	Description
AHU	Air handling unit
AIRCO	Air conditioning indoor unit
AOM	Auto-Off-Manual switch
ATT	Attenuator
BOIL	Boiler
CAL	Calorifier
CDW	Condenser water
CH	Chiller
ChW	Chilled water
COND	Air conditioning (outdoor) condenser unit
CT	Cooling Tower
CW	Cold water
DB	Distribution board
DHW	Domestic hot water
EAF	Extract air fan
FCU	Fan coil unit
FIRED / SMKD / MD	Fire damper / Smoke damper / Motorised damper
HHW	Heating hot water
HX	Heat exchanger
KEF	Kitchen exhaust fan
LPHW	Low Pressure heating hot water
MARIA	Metering and Reconciliation Information Agreement
MCC	Motor control centre
MCP	Motor control panel
MD	Motorised control damper
MPHW	Medium pressure heating hot water
MSB	Main switch board
MSSB	Mechanical services switchboard
MV	Motorised valve
SAF	Fresh air supply fan
TEF	Toilet exhaust fan
VAV	Variable air volume box
VSD	Variable speed drive

3.3 Electricity Connections Supply and Metering

3.3.1 General Structure

Introduction

The University currently has these 'levels' of connection to local lines companies' networks:

- 240 volt
- 400 volt
- 11,000 volt
- 22,000 volt.

Transformer ownership can be by the local lines company or the University. Generally, the assets (up to the revenue meter) are owned by the local lines company.

Revenue metering for larger buildings is undertaken by a 3rd party, VectorAMS (Stream), who is contracted directly by the University. The half hourly consumption information for each supply is presented on their website and updated daily by VectorAMS (Stream).

The University has supply contracts with various retailers for electrical energy. The Energy Manager can advise on the incumbent retailer for any particular site.

3.3.2 Revenue meter guidelines

These guidelines apply for revenue meters:

- All building projects that are estimated to have an annual consumption exceeding 50,000kWh shall be fitted with a VectorAMS (Stream) Time of Use meter.
- The University leases the meters and their CTs from VectorAMS (Stream) who are responsible for the on-going MARIA (Metering and Reconciliation Information Agreement) certifications. Consult with the Energy Manager before specifying.
- All meters should be labelled to indicate the area served and the meter multiplication factor (due to the CT ratio) together with its unique University meter number.

3.3.3 Check meter guidelines

These guidelines apply for check meters:

- Check metering of the incoming supply to individual buildings may be provided by Stream Information (depending on building consumption). Confirm with the Energy Manager.
- **For loads under 100A**, the meter type shall be a Siemens PAC2200, Carrel-Electrade Model DTS-353-100M, or an equivalent approved by the Energy Manager. This shall be a whole current meter which does not require CTs.
  - If only for lighting and small power, then kWh only is enough.
- **For loads 100A and above**, use CT meters that are Siemens PAC2200 or 3100, Carrel-Electrade Model LP-3KW4M, or an equivalent approved by the Energy Manager.
  - If serving MSSBs or plant and equipment, then current, reactive power and PF are also required.

- Meters are to be interfaced with the BMS using ModBus. Liaise with the incumbent service provider for interface details. Where there are multiple ModBus output meters in a common location, a 2-core communications line is required for a distance up to 1km. The line can accommodate up to 31 meters in 'daisy-chain' configuration. This is then connected to a local BMS controller.
- Where a single meter is installed this can be connected directly to an ITS Ethernet port.
- Where Stream billing meters are used, they shall be fitted with a ModBus output and connected to the BMS via a local controller.
- If Stream meters are approved for use as 'check' meters, their CTs shall be purchased off Stream (the Stream meters are leased) and charged to the project.
- Existing meters may be complemented by 'pulse aggregate type' Siemens AEW310.2, PadPuls M2 or an equivalent approved by the Energy Manager.
- Meters must be installed in an accessible location and in a position where they can be easily read manually without the aid of ladders, mirrors, torches, etc.
- Check meters shall be labelled to indicate the University meter number, the areas served and the meter multiplication factor.

3.3.4 Check metering applications

The overarching philosophies are:

- Each building is to be measured for its total energy consumption, separate from adjacent or adjoining buildings.
- Heating and cooling loads are to be measured separately from other types of energy use in a building, and separately from adjacent or adjoining buildings where there is communal central plant.
- The energy for domestic hot water generation is to be measured separately from other types of energy use in a building and separately from adjacent or adjoining buildings where there is communal central plant.
- Lighting is to be measured separately from other types of energy use in a building.
- Virtual meters can only be used where they are additive, i.e. aggregating physical meters to a virtual summation.
- All commercial spaces are to be metered to enable cost allocation (even if costs are not passed on to tenants).

Accommodation buildings may have additional check metering requirements that need to be confirmed with the client team (e.g. laundries, kitchens, floor by floor, etc.)

This table describes typical applications for sub metering requirements:

Table 4: Electricity sub metering application requirements

Metered service	Level of metering desired
Buildings	• Discrete blocks within a complex.
Large individual electrical loads	• Large machinery (e.g. construction cranes and hoists etc.).
Main Switch Boards	• All sub-main feeds from an MSB are to be metered.
Mechanical Services plant	• Sub-main feed to each MSSB. • Fans, pumps, heaters, etc. can be communally metered. • Each chiller is to have a dedicated meter.

Metered service	Level of metering desired
Lifts	• All lifts on a common sub-main can be on a single meter.
Heating (Electric)	• All permanently fixed electric heaters may be combined to one meter, or alternatively combine in logical groups.
General power and lighting	• Floor DBs to be arranged to separately meter lighting from small power.
Areas where commercial operations occur	E.g. restaurants, banks, retail, kitchens, etc. Metering should be installed on the communal MSB serving the tenant's DB, not within the occupied tenancy (due to access restrictions).
Areas where the University shares space with commercial tenants (e.g. leased buildings)	

3.4 Natural Gas Connections and Metering

Introduction

At the City and Grafton campuses, the University connects to Vector's 400 kPa network.

At Tamaki campus the network pressure is 200 kPa.

At City campus, the University distributes gas to a large number of buildings through its own ring-main at 150 kPa.

Revenue metering is undertaken by our gas retailer(s) via a 3rd party such as VectorAMS.

For larger sites, e.g. Grafton, Epsom and City campuses, time of use revenue meters are installed.

The University has a contract with a single retailer for the supply of natural gas to all campuses.

3.4.1 New connections

New network connections and metering must be approved by the Energy Manager who will make arrangements through the incumbent energy retailer. The retailer will require a detailed schedule of all fittings/capacities contained within the buildings to be connected.

All new connections into the University's gas ring-main shall be installed using the typical bracket valve assembly shown in Figure 1. This will ensure service continuity to a building in the event of future shutdowns, etc. on the ring-main.

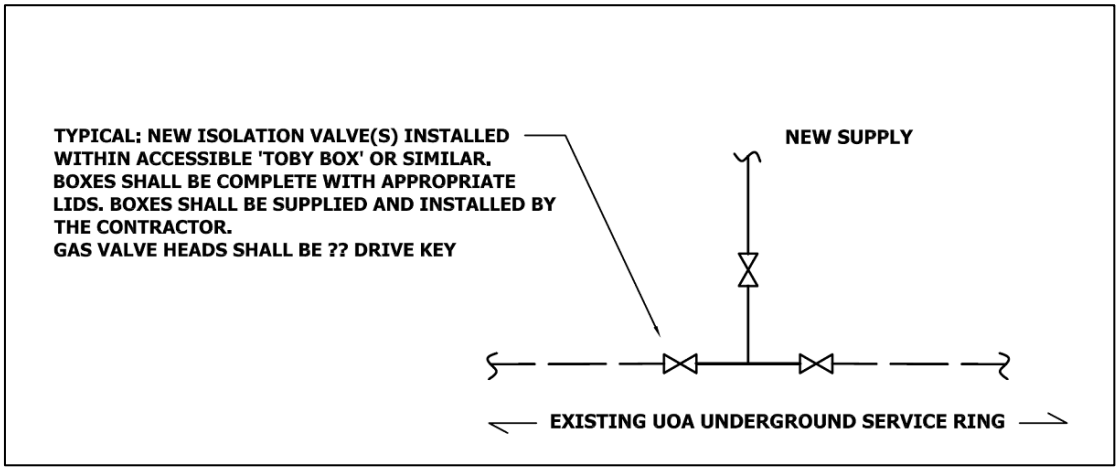


Figure 1: Typical bracket valve assembly for natural gas

All gas meter installations must be installed complete with a pressure gauge to measure the metered pressure. Upstream supply must also be filtered.

Connections or modifications to underground pipework shall be undertaken by a civil contractor approved by FM.

3.4.2 Revenue meter set guidelines

These guidelines apply for revenue meters:

- All new projects shall have the revenue meter fitted with pulsed outputs and connected to the BMS via a pulse counter, Siemens AEW310.2 or PadPuls M2 or equivalent approved by the Energy Manager, connected to an M-Bus 2-wire trunk. This trunk can serve 100 meters up to 2 km.
- A pressure gauge is to be installed on the 'customer' side of the metering pipework.
- The meter must be labelled to indicate the building/area served and its unique University meter number.
- Meter sets must be protected by an effective vandal and tamper proof enclosure.
- The meter enclosure must be accessible by the meter owner as well as the University by the University's 'plantroom key'. Refer to *Section 4 Mechanical Services* of the PS Design Standard and Guidelines.
- The meter shall be able to be read manually without opening the enclosure.

3.4.3 Check meter set guidelines

These guidelines apply for check meters:

- The meter shall be provided with pulsed outputs and connected to the BMS via a pulse counter, or equivalent, approved by the Energy Manager, either with built in MBUS or connected to an M-Bus 2-wire trunk, via a Siemens AEW310.2or PadPlus M2.
- A filter shall be installed before the meter to prevent the meter from being blocked when debris and impurities are introduced to the pipeline.
- The meter shall be installed so:
  - A visual reading can be made, and the meter dial can be easily read without the aid for ladders, mirrors, torches, etc.
  - It is protected in a lockable cage or similar and secured with a University 'plantroom key'. Refer to *Section 4 Mechanical Services* of the Design Guidelines.
  - It is protected from the weather and vandalism.
- The meter shall be:
  - Secured using a padlock fitted with the University's standard barrel
  - Labelled to indicate the area served and its unique University meter number
  - Fitted with pressure gauges for measuring incoming pressure, metered pressure and regulated pressure
  - Fitted with a valve that will enable the rapid isolation of the building in the event of an emergency.
- Acceptable meter types are to be approved by the Energy Manager.
- A typical metering configuration is shown in Figure 2.

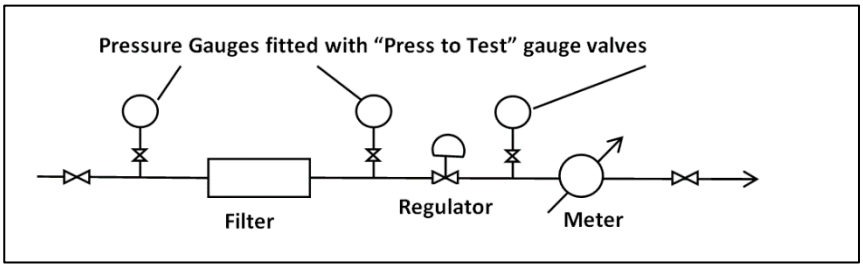


Figure 2: Typical gas meter configuration

3.4.4 Sub metering guidelines

The overarching philosophies are:

- Each building is to be measured for its total energy consumption, separate from adjacent or adjoining buildings.
- Space heating loads are to be measured separately from other types of energy use in a building, and separately from adjacent or adjoining buildings where there is communal central plant.
- The energy for domestic hot water generation is to be measured separately from other types of energy use in a building, and separately from adjacent or adjoining buildings where there is communal central plant.
- Virtual meters can only be used where they are additive, i.e. aggregating physical meters to a virtual summation.
- All commercial spaces are to be metered to enable cost allocation (even if costs are not passed on to tenants).
- Accommodation buildings may have additional check metering requirements that need to be confirmed with the client team (e.g. laundries, kitchens, floor by floor, etc.).

This table describes typical applications for sub metering:

Table 5: Typical natural gas applications for sub metering

Metered service	Detail desired
Cooking or laundry facilities	A gas meter to each discrete facility within a building.
Domestic hot water	Where a single boiler serves several buildings, meter: • Incoming gas • Distributed domestic hot water flow and return to each building.
Heating	Where a single boiler serves several buildings, meter: • Incoming gas • Distributed heating hot water flow and return to each building using energy meters.
Areas where commercial operations occur within University premises	• For example: restaurants, banks, retail. • Meters should be located outside the tenanted area, but with restricted access preferably in a building services area.
Areas where the University shares space with commercial tenants (e.g. leased buildings)	

3.5 Coldwater Connections and Metering

Introduction

WaterCare Services operate the external water network, own the revenue meters and retail the water (on behalf of Auckland Council). Their network services City, Grafton, Newmarket, Tamaki and Epsom campuses.

The University operates its own internal network at each of the above campuses. The University's internal networks at Grafton, City and Tamaki campuses have two main points of supply to the ring-mains.

3.5.1 New connections

All new connections into the University's water ring-mains shall be approved by the Energy Manager and installed using a typical bracket valve assembly as shown in Figure 3. This will ensure continuity of service in the event of future shutdowns etc.

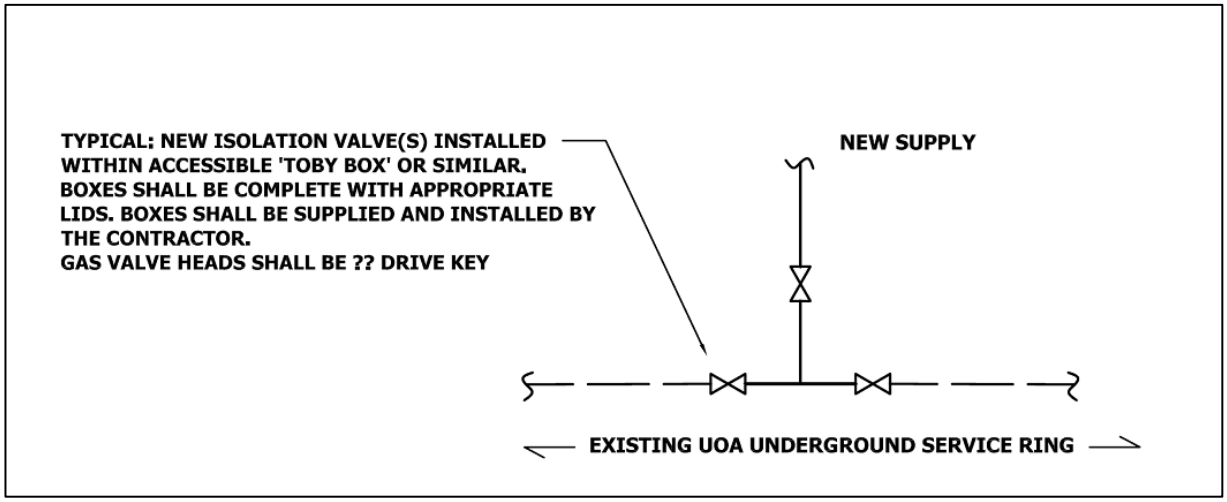


Figure 3: Typical bracket valve assembly for coldwater

Connections or modifications to underground pipework shall be undertaken by a civil contractor approved by FM.

3.5.2 Revenue meters and connection guidelines

These guidelines apply to new connections for domestic cold water and fire mains:

- *Water and Wastewater Connection Application Forms* should be downloaded from the WaterCare website. Complete Sections 3 - 10 of the form then forward to the Energy Manager who will complete sections 1 - 2 and forward to WaterCare.
- WaterCare applies a substantial network upgrade charge for new connections, which is charged against the project.
- For all connections, WaterCare should be requested to supply the revenue meters with pulsed outputs and sensors.
- A communications cable in conduit is required between WaterCare's meter pit and the building, for connection to the BMS via a pulse counter, Siemens AEW310.2 or PadPlus M2, connected to an M-Bus 2-wire trunk. This trunk can serve 100 meters up to 2 km.

- Where a backflow preventer is installed outside a building, it should be enclosed by a small, lockable cage and secured using a padlock fitted with the University's standard barrel.

3.5.3 Check meter guidelines

These guidelines apply for check meters:

- Meter types are to be Siemens WFK30 (cold water), WFW30 (hot water) with WFZ31 MBUS interface up to 4m3/h and Siemens UH50 with MBUS for higher flow rates or similar if approved by the Energy Manager
- Must be installed above ground in the configuration shown in Figure 4

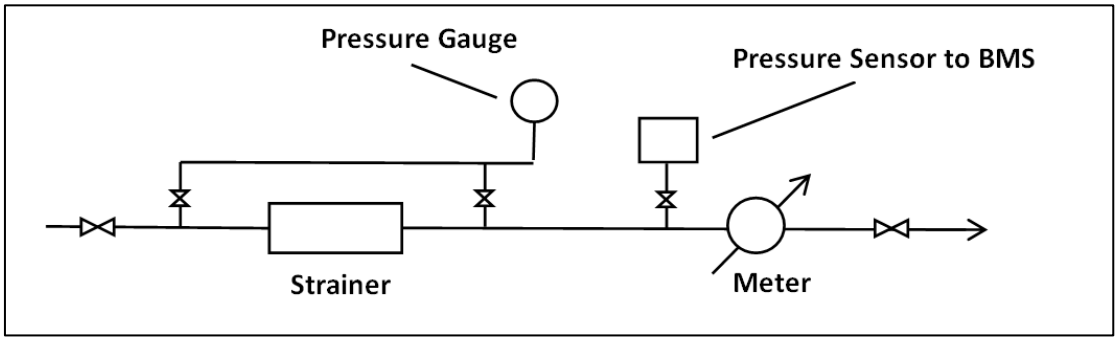


Figure 4: Typical water connection to building

- Provide with pulsed outputs with sensors and connected to the BMS via a pulse counter, or equivalent approved by the Energy Manager, either with built in MBUS or connected to an M-Bus 2-wire trunk, via a Siemens AEW310.2or PadPlus M2. This trunk can serve 100 meters up to 2 km
- Install in an accessible manner so the dial can be easily read
- Label to indicate the area served and University unique meter number.

3.5.4 Sub metering guidelines

The overarching philosophies are:

- Each building is to be measured for its total water consumption, separate from adjacent or adjoining buildings.
- Domestic hot water use is to be measured separately from cold water use in a building and separately from adjacent or adjoining buildings where there is communal central plant.
- Virtual meters can only be used where they are additive, i.e. aggregating physical meters to a virtual summation.
- All commercial spaces are to be metered to enable cost allocation (even if costs are not passed on to tenants).
- Water that does not go to waste, e.g. irrigation, cooling tower make up, etc., is to be locally check metered to be able to reduce wastewater charges. Wastewater charges are generally three times more expensive than consumption charges.
- Accommodation buildings may have additional check metering requirements that need to be confirmed with the client team, e.g. laundries, kitchens, floor by floor, etc.

This table describes typical applications for sub metering:

Table 6: Typical coldwater applications for sub metering

Metered area	Detail desired
Discrete buildings or zones within a complex	For example: to each of Blocks 1,2,3 & 4.
Specific functions within a building (e.g. fluids lab)	
Domestic hot water	Meters may be required on both flow and return lines.
Feed and expansion tanks	This enables monitoring of 'losses' as well as determining the system capacity for chemical dosage.
Irrigation systems / hose taps	
Cooling towers	
Areas where commercial operations occur within University premises	For example, restaurants, banks, retail. • Meters should be located outside the tenanted area, but with restricted access preferably in a building services area.
Areas where the University shares space with commercial tenants (e.g. leased buildings)	

3.6 Heating Hot Water and Chilled Water Connections and Metering

3.6.1 Building space heating and domestic hot water provisions

For building space heating and domestic hot water provisions, it is University site wide intent that gas is wherever possible reticulated to the point of use for it to be converted to heat energy by dedicated local boilers.

The distribution of heating water between buildings (outside a particular complex) should be avoided, in order to minimise inherent thermal and pumping losses and to enhance flexibility of building operations, as well as reduce the impact of outages.

3.6.2 Building air conditioning provisions

For building air conditioning provisions, it is University site wide intent that wherever possible cooling energy is provided from chilled water (ChW) energy.

Generally, DX Split Systems shall only be used for spaces which have 24/7 conditioning requirements, areas of a critical nature, or where there are no ChW provisions available within a reasonable proximity for smaller types of load.

The distribution of chilled water between buildings (outside a particular complex) should be avoided, in order to minimise inherent pumping and thermal losses and to enhance flexibility of building operations, as well as reduce the impact of outages.

3.6.3 Transferring energy between buildings

Whenever transfer of energy occurs between buildings, it is essential that it be metered, so that each building (or commercial tenant within) can be allocated its appropriate energy consumption and associated costs.

3.6.4 New or modified network connections

New or modified connections to the existing heating hot water (HHW) and ChW networks must be approved by FM during preliminary design stage. The required capacity associated with the connections shall be provided by the consultant to enable FM to verify availability of the required supply.

Metering arrangements are to be discussed with the Energy Manager at developed design stage.

All new connections into the University water mains shall be installed using a typical 'bracket valve assembly' as shown in Figure 5. This will ensure ring-main continuity in the event of future shutdowns etc.

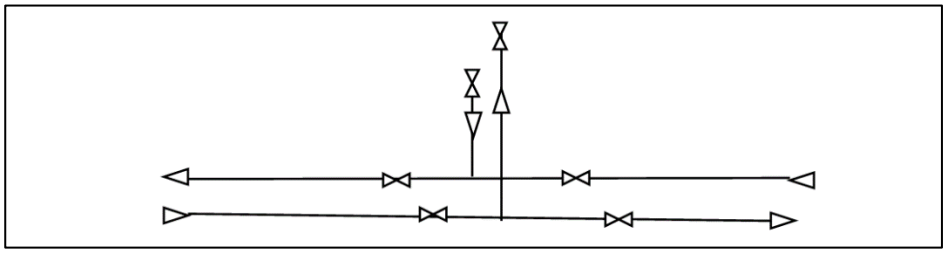


Figure 5: Typical flow and return bracket valve assembly

3.6.5 Check meter guidelines

These guidelines apply for check meters:

- Where HHW or ChW is transferred from one building to another, an Onicon Insertion or Pipe style Mag Flow energy meter, or similar if approved by the Energy Manager, shall be installed. The energy meter shall be fitted with a visual display unit indicating totalised kWh, as well as an input to the BMS.
- The visual display unit must be located in a position that allows the dial to be read manually without the aid of ladders, mirrors, torches, etc.
- The selected energy meter must be approved by the Energy Manager.
- The meter shall be connected to the BMS via BacNet IP.

Appendix A Feedback Form

We love hearing from you. Please take a few moments to let us know how we can improve the *Property Services Design Standards and Guidelines*.

1.	**Name:**			
2.	Contact Details: (in case we need clarification)			
Complete this section if you have found a typo / formatting error. (If possible, attach a photo of the error)				
3.	Section No:		Page No/s:	
	Description of error:			
Complete this section if you have a suggestion about content.				
4.	Section No:		Page No/s: (if applicable)	
	Suggestion/s:			
Complete this section if you have any other suggestions for improvement.				
5.	Suggestion/s:			
6.	Email your feedback to PSTechServices@auckland.ac.nz			
Thanks for your feedback!				

Appendix B Index