



METERING GUIDELINES

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Glossary

The following table defines specific terms, acronyms and abbreviations used in this guideline.

Table 1 Terms, acronyms and abbreviations¹ used in this guideline

| Term | Definition |
|----------------------------|---|
| Accessible area | A common area within a development that provides safe and ergonomic access for Urban Utilities personnel to inspect, maintain or replace an asset. An accessible area cannot be unobstructed by fencing, vehicles, equipment or vegetation. |
| AMR | Automatic meter reading is technology used to automatically (rather than manually) read metered consumption from submeters and transfer consumption data to a central location where it can be read and analysed. |
| Asset | Refers to any physical infrastructure owned by (or intended for transfer to) Urban Utilities, including water meters and water supply infrastructure. |
| Backflow | Backflow is the reverse flow of liquid within a piped plumbing system. Water flowing the wrong way can result in contamination of the water supply network, metering errors, and (in certain circumstances) large spikes in pressure in the watery supply network. All water connections to our water supply network must incorporate an appropriate backflow prevention device at the outlet of the master (or 'head') water meter. |
| Bill adjustment | A bill adjustment is a debit or credit applied to an Urban Utilities account. |
| Body corporate | A body corporate is a type of legal entity created when land is subdivided to create multiple lots (i.e. apartments) and common property. Body corporates must be registered under the Body Corporate and Community Management Act 1997 (the Body Corporate Act). |
| Building approval | A Building Approval is an approval issued by a local council for building works. A building approval may be required for the renovation, extension or construction of a dwelling on an existing lot. Where water supply or sewerage infrastructure is altered or created in support of a building approval, a water approval is required. |
| Building classes (1 to 10) | Building classifications as defined by the Building Code of Australia: <ul style="list-style-type: none"> Class 1a: A single dwelling being a detached house or one of two or more attached dwellings which is not located above or below another dwelling or another Class of building other than a private garage. |

¹ Some definitions reflect those given in relevant legislation or codes, providing an abridged or paraphrased version here for convenience. In these instances, the definition in the referenced legislation or code prevails in the event of any inconsistency.

| Term | Definition |
|-----------------------------------|---|
| | <ul style="list-style-type: none"> • Class 1b: Boarding/guest house or hostel not exceeding 300m² and in which not more than 12 people reside which is not located above or below another dwelling or another Class of building other than a private garage. • Class 2: A Building containing 2 or more sole occupancy units each being a separate dwelling. • Class 3: A residential building, other than a class 1 or 2, which is a common place of long term or transient living for a number of unrelated persons. • Class 4: A dwelling in a building that is Class 5, 6, 7, 8 or 9 if it is the only dwelling in the building. • Class 5: An office building used for professional or commercial purposes, excluding buildings of Class 6, 7, 8 or 9. • Class 6: A shop or other building for the sale of goods by retail or the supply of services direct to the public. • Class 7a: A carpark. • Class 7b: A building which is for storage or display of goods or produce for sale by wholesale. • Class 8: A laboratory, or a building in which a handicraft or process for the production, assembling, altering, repairing, packing, finishing, or cleaning of goods or produce is carried on for trade, sale or gain. • Class 9a: A health care building. • Class 9b: An assembly building in a primary or secondary school but excluding any other parts of the building that are of another class. • Class 9c: An aged care building. • Class 10a: A private garage, carport, shed or the like. • Class 10b: A structure being a fence, mast, antenna, retaining or free-standing wall, swimming pool or the like. • Class 10c: A private bushfire shelter |
| Cold water | <p>The potable water that is delivered directly from the Urban Utilities' water supply network.</p> <p>Distinct from hot water, which is cold water that is subsequently heated via a private hot water system and distributed to users within a development.</p> |
| CMS | Community Management Statement. |
| Common area | An area of common property. |
| Common property | The Body Corporate Act defines common property for a community titles scheme as, effectively, freehold land forming part of the scheme land but not forming part of a lot included in the scheme. |
| Common property water consumption | Water used by common property within a development – typically including water used in pools, shared facilities such as gyms, pools, hot water systems, or for landscaping and irrigation. |
| Communal hot water system | A shared system used to supply hot water to individual dwellings, units or floors within a development. |
| Community titles scheme (CTS) | A community titles scheme (CTS) is a type of legal entity created when land is subdivided to create multiple lots (i.e. apartments) and Common Property and is registered under the Body Corporate Act. |

| Term | Definition |
|-------------------------|---|
| | The Body Corporate Act defines a community title scheme as a single community management statement recorded by the registrar identifying land and the scheme land. |
| Configuration | Metering configuration describes the (i) location(s), (ii) size(s), and (iii) access arrangements for new or existing master meters and submeters. |
| Consumption | The use of potable water by an Urban Utilities customer. |
| Development | A change in land use resulting in new or altered building(s) within the subject site(s), typically resulting in a change in water demand within the site(s) and often new or altered metering configurations. |
| Development approval | <p>A development approval is an approval issued by a local council or equivalent planning entity for development works.</p> <p>Development approvals determine what types of activities go where and control the potential impacts on surrounding properties. Development approvals are typically assessed by council planners. Where a development approval is required a water approval is also typically required.</p> |
| Domestic water supply | All potable water supplied to customers by Urban Utilities (used for either residential or commercial purposes), excluding water supplied through a private fire system (fire water supply – see below). |
| Dwelling | A dwelling is a self-contained and independent unit of accommodation, such as a house, townhouse, apartment or ‘granny flat’. |
| Dual check valve | A device used to prevent the backflow of water. |
| Enclosure | A cabinet used to house submeters or a digital read panel. |
| Fire water supply | Potable water supplied by Urban Utilities which is used to supply a private fire system. All other potable water supplied is referred to as domestic water supply. |
| Fixed (service) charges | Fixed charges are the charges paid by customers for the maintenance of the water supply and/or sewerage networks. They are billed in advance of each quarter. |
| Hot water system | <p>A hot water system (or ‘bulk’ hot water systems) provide heated water to residents or tenants in multi-dwelling developments via a centralised or common water boiler or a bank of instant water heaters.</p> <p>The entity responsible for a central hot water system is usually the body corporate or an energy supplier. Separate submeters may be installed on hot water inlets; however, these meters will remain the property of the body corporate or energy supplier and are not used by Urban Utilities for billing purposes.</p> |

| Term | Definition |
|--------------------------------|---|
| IPAM list | A list of infrastructure products and materials contained in the SEQ Code which specifies the products and materials approved for use by each distributor-retailer in south east Queensland. |
| Isolation valve | A flow control valve capable of regulating and shutting off water flow in a pipe. Also referred to as a stop valve or a gate valve. |
| Kilolitre (kL) | 1,000 litres |
| Lot entitlements | For a community title scheme comprised of lot entitlements, customers are billed a fixed percentage of the total usage (set by the body corporate) according to their community scheme lot entitlement. |
| Master meter (or 'head' meter) | <p>A master meter is a water meter approved by Urban Utilities which measures the total volume of water delivered to a particular property, building or development.</p> <p>Master meters connect a property, building or development directly to the Urban Utilities water network and are typically located as close as possible to a property boundary.</p> <p>Note: as the water service for a freehold or detached residential dwelling consists of only one meter, that meter is considered the master meter. For community title schemes involving submetering, the master meter is located upstream of the submeters.</p> |
| Meterable premises | <p>A meterable premises is:</p> <ul style="list-style-type: none"> • a class 1 building where there is more than one dwelling on a single lot (e.g. duplexes); • each lot within a community title scheme including the common property; • the sole occupancy unit of a class 2, 4, 5, 6, 7 or 8 building in a water service provider's area • each storey of a class 5 building in a water service provider's area where the building consists of more than one storey and sole occupancy units are not identified at the time of the building's plumbing compliance assessment. |
| Mechanical meter | A water meter with mechanical components in line with the flow of water. Mechanical meters are typically less accurate than magnetic or ultrasonic meters, and they introduce energy losses to the flow of water. |
| Meter | A device used to measure the flow of water over time. May be mechanical or electrical. |
| Meter reading panel | An AMR digital read display, typically housed within an enclosure. |
| Mixed use (development) | A mixed use development means any development that comprises a mix of land use activities, such as residential and retail, residential and commercial, or retail and commercial. |
| Multi-level development | A development that includes at least one meterable premises that is above or below another meterable premises. |

| Term | Definition |
|--|--|
| New development | Any development for which a compliance request under the Plumbing and Drainage Act 2002 was made on or after 1 January 2008. |
| NMI | National Measurement Institute (NMI) |
| NRW | Non-revenue water is water that is delivered by Urban Utilities through our water supply network but not metered and therefore not billed. It may be a consequence of illegal connections, unmetered fire services, or bursts in the network. Inaccurate meters may also increase the volume of unaccounted-for water delivered through the network. |
| Pattern approval | A certificate issued by the National Measurement Institute (NMI). This certificate states that a meter of certain make and model has passed a set of tests and met a set of requirements in order to be used by a service provider for trade purposes. |
| PIFR | Probable instantaneous flow rate |
| Property service connection (see also 'water service') | A water pipe that supplies potable water from the Urban Utilities network to a customer. Includes connections for both fire and domestic supply purposes. Urban Utilities typically owns the property service connection up to and including the water meter. |
| QPW Code | Queensland Plumbing & Wastewater Code |
| SEQ Code (or SEQ WS&S D&C Code) | The South East Queensland Water Supply and Sewerage Design and Construction Code, which provides a consolidated set of design and construction standards for new distributor-retailer water supply and sewerage reticulated infrastructure in participating South East Queensland local government areas. |
| Service area | Urban Utilities' geographic area of service, which stretches from Cape Moreton in the east to the outskirts of Toowoomba in the west, up to the Yabba State Forest in the north, and down to the New South Wales border along the Scenic Rim in the south covering 14,384 square kilometres. |
| Single-level development | A development that includes multiple free standing or attached meterable premises, none of which have any other meterable premises built above or below them. A single level development may include buildings with more than one storey. |
| SMR | A special meter read provides the current status of a water and sewerage account outside of the normal billing cycle. |
| Sole occupancy unit | In relation to a building, a sole occupancy unit is: <ul style="list-style-type: none"> • a room or other part of the building for occupation by one or a joint owner, lessee, tenant, or other occupier to the exclusion of any other owner, lessee, tenant, or other occupier, including, for example: <ul style="list-style-type: none"> ▪ a dwelling; ▪ a room or suite of associated rooms in a building classified under the Building Code of Australia as a class 2, 4, 5, 6, 7 or 8 building; or |

| Term | Definition |
|------------------------|---|
| | <ul style="list-style-type: none"> ▪ any part of the building that is a common area or common property. |
| Strata title | <p>Strata title is a form of individual ownership of units within a shared facility.</p> <p>Strata titled developments - such as a townhouse, or multi-level apartment building – typically consist of units incorporating individual allotments with their own individual title registered at the Titles Office for the purpose of sale.</p> |
| Storey | A single level within a multi-level building. |
| Submeter | A submeter is an individual meter which measures water consumption by a lot within a strata subdivided development. Submeters are installed ‘downstream’ of the master meter, which measures the total supply of water into a building. |
| Unrestricted access | <p>The term unrestricted access for submeter and AMR installations means a location that:</p> <ul style="list-style-type: none"> • provides safe and ergonomic access to Urban Utilities personnel to inspect, maintain or replace the asset • is installed in common areas of the development • is unobstructed by fencing, vehicles, equipment or vegetation • is located in an area that does not require key, swipe card access or pin code access • is located outside the development’s security systems • is at ground level • is accessible 24/7 without reliance on non-Urban Utilities personnel such as building managers, building security guards, or Body corporate managers to facilitate access. |
| WSAA | Water Services Association of Australia |
| Water service charge | A fixed charge to pay for the maintenance and distribution network that delivers water to a customer within our service area. It is a fixed charge billed in arrears each quarter. |
| Water approval | <p>Urban Utilities is the assessment authority for the water supply and sewerage aspects of development within our service area. Assessments are undertaken in accordance with a legislated water approval process.</p> <p>A water approval is granted by Urban Utilities and required where the demand on the water or sewerage network changes as a result of development activities (new connections or disconnections), or where an existing connection is altered in some way (alterations).</p> |
| Water service | <p>A water pipe that supplies potable water from the Urban Utilities network to a customer. Includes connections for both fire and domestic supply purposes.</p> <p>Urban Utilities typically owns the property service connection up to and including the water meter.</p> |
| Water service provider | The entity registered under the Water Supply (Safety and Reliability) Act 2008 as the water service provider for retail water services for the premises. |

1 Guideline summary

This guideline has been published for our customers including property owners and tenants, as well as property developers, building managers, hydraulic consultants, engineers and plumbers. It details metering requirements for new and existing land use within our service area, and explains the selection, design, installation and maintenance of water meters. It also examines the billing outcomes of various metering arrangements.

These guidelines are intended to explain our approach to metering and billing, and inform and support metering decisions for developers, engineers, architects, hydraulic consultants and plumbers, as well as property owners and building managers.

1.1 Metering

1.1.1 What is a water meter?

A water meter is a device that is used to measure the cumulative flow of water.

- Each property within Urban Utilities' water supply Connection Area has, or is entitled to have, a water service. A water service is a pipe, unique to each property, which connects the property to Urban Utilities' reticulated water supply network.
- Urban Utilities requires the installation of an approved meter on each water service.
- Typically, the pipe between our network and the meter ('upstream' of the meter) is owned and maintained by Urban Utilities, while the pipe between the meter and a customer's plumbing fixtures (such as a tap) is owned and maintained by the property owner ('downstream' of the meter).
- The meters are used to measure and record the volume of water supplied to each customer (being the owner or occupant of each property). A meter is typically either mechanical or electrical.

For most residential properties, the water meter is small diameter (20mm or 25mm) can be found in a small box, flush with ground level, in the space between the road and property boundary. Small diameter meters are commonly positioned in the verge but in some locations may be visible in a footpath. Larger water meters are typically installed within private property.

1.1.2 What are water meters used for?

Meters are primarily used by Urban Utilities to charge customers for the water they use (measured as a volume and detailed as '*Water Usage*' in a customer's bill).

In addition to customer billing, meters enable our management of the water supply network by helping to detect leaks (which can occur within the reticulated water supply network managed by Urban Utilities, as well as within the private plumbing of our customers), unlawful water use and areas of high water demand. Accurate, individualised metering of customers within Urban Utilities' service area improves billing equity for all our customers.

In certain circumstances, a second tier of metering calling 'submetering' may be used to measure the water supplied to each customer within a shared land-use or building (such as a residential apartment building).

1.1.3 The water supply network and private plumbing

Meters (and submeters) are located at the interface of Urban Utilities' water supply network and a customer's private plumbing.

- Urban Utilities owns and operates the water supply (and wastewater) networks, which transport potable water to (and wastewater from) our customers. (Note: a change to these networks of infrastructure may be undertaken by developers via the legislated water approval process).
- The five (5) local councils within our geographic area each maintain a plumbing department, which is responsible for overseeing the installation and compliance of private plumbing within new developments.
- Private plumbing includes all internal fixtures (such as taps, sinks, showers, basins and latrines) and the internal pipework which supports them.

1.1.4 Customer service standards

Urban Utilities' [Residential and Business Customer Charters](#) outline our customer service standards. Those standards include minimum water supply pressures which must be supplied to customers, and which are measured at the meter. Urban Utilities provides a *minimum* of 210 kPa at the meter for each customer in our water connection area². We also seek to design and operate the water supply network to a *maximum* pressure of 550 kPa. However, in some areas of the network (typically low-lying suburbs), pressures over 550 kPa do occur.

1.2 Billing

Urban Utilities relies on water meters to bill our customers accurately using property or lot-based billing. As a rule, one (1) customer account is created and one (1) bill is issued per quarter for each lot within our service area.

A unique meter measuring the water used by each lot and plan is required in order to bill each account.

1.3 Metering new developments

1.3.1 Water approval process

Urban Utilities is the assessment manager for water supply and wastewater servicing-related aspects of development within the Brisbane, Ipswich, Scenic Rim, Somerset and Lockyer Valley local government areas. Assessments are undertaken in accordance with a legislated 'water approval' process. A water approval is required where the demand on the water supply or sewerage network changes as a result of development activities, or where an existing connection or associated infrastructure is altered in some way.

Applications for new or altered connections and disconnections are assessed against Urban Utilities' performance requirements, including (but not limited) to the following:

- [SEQ WS&S D&C Code](#)
- [Urban Utilities' Customer Service Standards contained within our Customer Charters](#)
- [Water Netserv Plan \(Part A\) - Connections Policy](#)

A water approval issued in support of a development will include conditions, including requirements for water supply and/or wastewater easements. For more information on how to

² Excluding trickle-feed areas, typically found in rural parts of South East Queensland and designated low-pressure zones.

apply for a new or altered connection or disconnection, visit www.urbanutilities.com.au/development.

1.3.2 New connections

Water services and water meters form part of Urban Utilities' infrastructure. Where developers or building owners install new or altered meters in accordance with this guideline, Urban Utilities will:

- assume ownership of the meter(s)³
- create a new account and issue a bill for each new lot to each owner or occupier; and
- maintain and replace the meters (if required).

1.4 Related standards and legislation

Meters typically represent the interface between Urban Utilities' water supply network, and the private plumbing internal to individual properties.

1.4.1 Legislative context

There are general provisions relating to water meters found in the SEQ Water Act which states that:

- Urban Utilities may accept meter reading by customer (see section 99AFA)
- meters must be read annually (section 99AG)
- methods and basis of charging (section 99AH)
- special meter readings (section 99AI).

There are also provisions about meter testing that can be found in the SEQ Water Act regarding:

- meter accuracy testing at customer's request (section 99AJ)
- when a meter taken to register accurately (section 99AK)
- extent of inaccuracy (section 99AL)
- notice of test results (section 99AM)
- refund and bill adjustments if inaccuracy (section 99AN)
- testing instruments (section 99AO).

Provisions about powers and access to water meters can be found in the Water Supply Act.

1.4.2 Related standards and guidelines

This guideline must be read in conjunction with the following applicable standards and legislation:

- Plumbing Code of Australia
- QPW Code
- Applicable Australian Standards, including:
 - AS/NZS 3500
 - AS 3565 (Meters for Water Supply)
 - AS 2118 & AS 2419 (Fire System Design Standards)
 - AS/NZA 2845 (Backflow Prevention Standards)
- SEQ Code
- Building Code of Australia.

³ Developers are responsible for maintaining all new infrastructure for a fixed maintenance period – typically 12 months.



Figure 1 Urban Utilities' geographic area

2 Metering overview

A water meter is a device that is used to measure the cumulative flow of water over time. Water distributor-retailers across Australia require the installation of approved water meters to measure the volume of water supplied through the water network (via a water service) to a customer.

Our approved water meters come in a range of sizes, formats and technologies. Each water meter installed must be appropriate for measuring the anticipated flow and volume of water a customer will use. Complex developments (such as mixed-use residential and commercial precincts) typically require more complex metering configurations.

All meters servicing new developments must be installed through the water approval process (see Section 1.3.1). Urban Utilities will consider variations to the requirements of this guideline on a case-by-case basis (facilitated via a 'design variation' in the water approval process).

2.1 Metering design principles

The national code which forms a basis of general requirements for the design of water supply infrastructure across Australia is the Water Supply Code of Australia (Part 1: Planning and Design).

In South East Queensland, distributor-retailers like Urban Utilities adopted a locally specific version of this code which is known as the SEQ Water Supply & Sewerage Design & Construction Code.

There are two written design codes that are relevant:

1. SEQ Code
2. Associated SEQ Code Design Criteria.

Both documents reference additional 'water agency requirements' to assist with the design and installation of water meters. For Urban Utilities, those requirements are established in this document.

2.2 Meter configuration

Meters selected for new developments must be installed to correctly measure water consumption for each customer. This guideline defines the required metering configurations for different land use types.

Meter configuration is defined by the following variables:

- meter location(s)
- meter sizing
- meter access arrangements.

2.3 Meter types

All meters owned and maintained by Urban Utilities are categorised as either master meters or submeters, defined according to the land use type they service.

2.3.1 Master meters

A master meter is a meter which is configured to measure the total volume of water delivered to a particular property or building.

Master meters are typically installed at the property boundary. They are also sometimes referred to as 'head' meters.

- For most residential homes, where a single water meter is installed, that meter is in effect the master meter. Meters for individual residential homes are commonly installed below ground within a black or blue meter box.
- For a CTS, the master meter is always located upstream of any installed submeters (see below). By design, the master meter will measure all water passing through the submeters. Master meters servicing a CTS are typically used to calculate common water usage (such as water used for pools or gardens) and may also detect leaks or faults in the submeters downstream.

The following table presents an overview of configuration requirements for the installation of master meters.

Table 2 Master meter configuration summary

| Design criteria | Master meter size | |
|-----------------|--|---|
| | Small diameter meters (20, 25 & 32mm) typically for a detached dwelling | Large diameter meters (50mm and larger) Typically for attached dwellings (CTS) and commercial or industrial land use |
| Location | <p>The meter must be positioned outside the property boundary, a maximum of 50mm off the property boundary, and a minimum of 300mm offset from an adjacent property boundary.</p> <p>The meter should be installed on the opposite side of the lot to the electrical service pillar-box, where applicable.</p> <p>The meter should be fitted at right-angles (perpendicular) to the water main, in line with the tapping (point of connection).</p> <p>When relocating water meters (to accommodate new driveways, access paths, or similar) a maximum lateral deviation of 600mm from the point of connection to the main is permitted.⁴</p> | <p>Large diameter meters should be located within private property at the front of the building and close to the front boundary.</p> <p>Where a master meter cannot be located within 2 metres of the property boundary or where unrestricted physical access cannot be provided, the meter may be placed within the building. Any pipework internal to the property and between the Urban Utilities water service and the master meter is to be owned and maintained by the property owner⁵. The meter remains the property of Urban Utilities.</p> <p>In these instances, large diameter water services may terminate in the footway approximately 250mm from the property boundary.</p> |
| Position | <p>Small diameter meters shall be housed in polyethylene meter boxes located below ground in the footway adjacent to the property boundary.</p> <p>The meter box lid should be flush (level) with the finished ground level. Meter boxes must not be installed in walkways or other areas where they would cause a potential hazard.</p> | <p>Large diameter meters are typically installed above-ground. The meter assembly must be fully supported, between 150mm and 300mm from the finished ground level.</p> <p>Refer to Urban Utilities' Standard Water Meter Arrangement Drawings for further assembly details.</p> |

⁴ If relocation of the meter requires in a deviation greater than 600mm, a disconnection and new connection to the main will be required.

⁵ All pipes and fittings inside the property boundary (excluding the water meter and its valves, strainer and disassembly joints) belong to the property owner. The property owner is responsible for associated maintenance. The property owner must ensure that any leaks occurring between the property boundary and the water meter are repaired promptly.

| Design criteria | Master meter size | |
|-----------------|---|---|
| | Small diameter meters (20, 25 & 32mm) typically for a detached dwelling | Large diameter meters (50mm and larger) Typically for attached dwellings (CTS) and commercial or industrial land use |
| | Meter boxes must not be installed in driveways or vehicle crossovers. | |
| Design | <p>The installation of small diameter meters (up to 32mm in size) is governed by the SEQ Code.</p> <p>Details of 20mm and 25mm water meter connections and associated water services shall comply with the details shown on drawings series SEQ-WAT-1106 through 1110 sets.</p> <p>See further design requirements for water services in section 5.11.3 (Services, outlets and meters) of the SEQ Code.</p> | <p>The meter assembly must be fully supported, between 150mm and 300mm from the finished ground level.</p> <p>Refer to Urban Utilities' Standard Water Meter Arrangement Drawings for further assembly details.</p> |
| Access | <p>The meter must be readily accessible for reading, maintenance, and replacement.</p> <p>The meter assembly must not be encased in concrete or made otherwise inaccessible.</p> | <p>Master meters should be installed in a location which provides unrestricted physical access.</p> <p>Where unrestricted physical access cannot be provided, AMR technology is required.</p> |

2.3.2 Submeters

A submeter is a water meter positioned downstream of a master meter which measures the volume of water delivered to an individual property (such as a strata title apartment) within a property or building. Submeters may also be used to meter shared facilities within a property or building (such as pools, gyms and hot water systems).

The metering of a property within a building enables the billing of individual customers, improving billing equity and encouraging water efficiency.

All submeters must be installed by a licensed plumber. Detailed guidance on the design and installation requirements for submetering is provided in this document (see section 6).

2.4 Meter size

A meter's size is most commonly a reference to its diameter, typically measured in millimetres. Larger diameter meters are used to measure larger flow rates.

- Meters that are over-sized typically fail to record the true volume of water that passes through a water service and will not be accepted by Urban Utilities.
- Meters that are under-sized may restrict flow or reduce the available water pressure in a water service.

- Meters which are not properly configured may prevent the billing of water consumption that is required by Urban Utilities.

Meter size may also refer to the physical space that is required for the installation and housing of a meter. Large diameter meters often take up a significant physical space which developer must make provision for in the design of a new property or building.

2.5 Meter technology

2.5.1 Mechanical meters

Mechanical meters have internal moving mechanisms which are used to measure and record water as it passes through the meter. Most of the older and small-diameter meters across our network, owned and maintained by Urban Utilities are mechanical meters.

The advantage of a mechanical meter is its simple, low-cost structure and reliable operation. Conversely, mechanical meters typically have a narrow measurement range and reduced accuracy at low flow rates. Mechanical meters must be read manually, which increases the costs of data collection.

2.5.2 Electronic meters

Electronic water meters are a more recent type of metering instrument which is electronic (rather than mechanical). Rather than an internal moving mechanism, electronic meters use fluidic measurement, electromagnetic measurement or ultrasonic measurement to measure and record the flow of water. Many new meters installed by Urban Utilities are electronic meters – particularly larger meters.

2.5.3 Smart meters

A smart water meter represents a further advance on electronic metering. A smart meter is a device that automatically records the flow of water, but which also has the ability to electronically report water consumption data back to both the service provider and the customer.

Many water utilities in Australia are in the early phases of trialling smart metering. As the technology progresses, smart metering will help service providers and customers detect leaks early, provide data at regular intervals to customers, encourage reductions in water consumption and assist in managing the broader water network.

2.6 Meter access

For single residential lots, meters must be installed in a location which ensures unrestricted physical access.

For other land use types, where meters cannot be installed with unrestricted physical access, AMR systems may be required. See section 8 for further details.

2.7 Meter ownership

Urban Utilities is the owner of all meters and submeters installed in accordance with this guideline and will operate them in accordance with the *SEQ Water Act* for the purpose of measuring volumes of water consumption.

For developments constructed after 1 January 2008, pipes and any fittings downstream of the master meter or between the master meter and the submeter assembly as well as downstream the submeter assembly shall remain the property of the building owner for maintenance and replacement purposes.

Once installed and off-maintenance, all meters will be maintained and replaced periodically by Urban Utilities at no cost to the owner unless the building owner has altered the meter or made it inaccessible.

3 Billing rules

3.1 Billing overview

There are two types of charge levied by Urban Utilities and detailed in our bills to customers.

1. *Service charges*, for the provision of water supply and wastewater services (also called ‘fixed’ charges or ‘access’ charges);
2. *Consumption charges*, relating to the volume of water drawn from the network via a water service.

Urban Utilities’ bills are issued on a quarterly basis. Our bills are issued for a combined water meter reading period (consumption charges) and service charge period (service charges). Both charges are billed and paid in arrears.

3.2 Service charges

Service charges are billed in arrears for each quarter, and include:

- Water service charge for the maintenance and distribution network that delivers water to your business.
- Sewerage service charge for the sewage treatment, maintenance and the distribution network that removes sewage from your property.

3.2.1 Application of service charges

The *SEQ Water Act* enables Urban Utilities to charge for a customer ‘*being able to be provided with the service*’, which is referred to as a ‘*fixed access charge*’ (section 99AV). This is called a ‘*service charge*’ on our bills.

Where a customer (typically the owner of a property) is connected to the water supply and/or wastewater networks, service charges are applied as the property is ‘able to be provided’ with those services.

The following table sets out the billing rules defining the application of service charges within the Urban Utilities’ geographic area. Urban Utilities will reference up-to-date details of our infrastructure networks when applying service charges to properties within our geographic area.

Table 3 Explanation of service charges and their application by Urban Utilities

| Property detail | Criteria for application of service charges | Service charges? |
|------------------------|--|-----------------------|
| Existing connection(s) | The property is connected to the relevant service via a unique (individual) connection (includes ‘trickle feed’ and designated low-pressure water supply areas). | Service charges apply |
| | The property is connected to the relevant service via a shared connection (such as a combined drain for wastewater, or offline main for water supply). | |

| Property detail | Criteria for application of service charges | Service charges? |
|-----------------|---|------------------|
| | The property is connected to the relevant service via a unique (individual connection) but the service is not in use by the customer. | |

Urban Utilities commonly extends our water supply and wastewater networks over time, supporting growth and development activity in line with local government land-use planning. The details of our intended expansion of the water supply and wastewater networks are published in our Water Netserv Plan.

Where *new* lots (properties) are created through the development process, those lots will be assessed against the criteria established above and service charges applied accordingly. Existing properties without a connection will be obligated to pay service charges once a connection is provided.

3.3 Consumption charges

Water consumption charges are for the volume of water supplied to a customer. The cost of that volume of water is made up of several parts.

- A State bulk water charge, which covers the cost of treated water that Urban Utilities buys from the State government. It is charged per kilolitre (kL) of water consumed (1 kL = 1000 litres).
- Tiered consumption charges where water consumption is scaled so that the more water you use the more you pay. These charges encourage residents to use water efficiently, and ensure high-volume users contribute proportionate to their use. It is charged per kilolitre (kL) of water used.
- Tiered consumption thresholds where thresholds and charges are divided into the two tiers on a per annum basis and are in addition to the State bulk water charge.

Water consumption thresholds are calculated per quarter and will vary depending on the number of days of your quarterly or monthly water meter-reading period. Please refer to the Urban Utilities website for further information. If Urban Utilities believes that a meter connected to its system is functioning inaccurately, we may manually calculate the quantity of water delivered to the customer during a specific period.

3.3.1 Multi-unit developments (residential)

Multi-unit developments are those containing multiple individual dwellings. Multi-unit developments fall into one of three (3) unique categories for billing purposes. Urban Utilities will bill multi-unit developments according to the category that we assign within our internal billing system, which is determined by the age of the building, and whether there is a CTS in place.

- **Category A:** For multi-unit CTS developments (which are strata title) with submeters installed in accordance with this guideline.
- Each dwelling will have a unique account which is billed from the Urban Utilities submeter.
- Urban Utilities will send a bill to each property owner including individual cold water consumption and service charges.
- We will also send a bill to the body corporate for common water consumption (where applicable) for things like pools, gyms and hot water systems. This common water consumption charge is typically calculated by subtracting the sum of submeter readings from the reading on the master meter.

- **Categories B & C:** For multi-unit developments which are non-strata titled, constructed prior to 2008 without submeters installed or with non-conforming submeters installed.
- Urban Utilities will send a single bill for the whole property to the building manager or property owner.
- Where submeters are also installed, we will document a list of the individual cold water consumption from each individual meter on the back of this bill for information purposes.

3.3.2 Lot entitlements

The following information is relevant to each CTS in Queensland registered under the *Body Corporate and Community Management Act 1997*.

Where submeters have not been installed, consumption charges and service charges may be calculated using lot entitlements. Lot entitlements are documented under a community titles scheme and set out each owner's:

- body corporate costs and voting rights
- proportionate share of common property and other assets
- lot value for calculating government rates and other charges.

Lot entitlements are set by the original owner (the developer) when the community titles scheme is established. Lot entitlement schedules for your community titles scheme are recorded in a document called the community management statement.

3.4 Billing new accounts

Urban Utilities creates a new account for billing purposes each time a new lot is created. Once installed and a new account created, a new meter is considered registered and 'live' for the purposes of billing when:

1. the meter asset details have been entered into the Urban Utilities billing system
2. a read of the meter has been recorded.

The following metering information is entered into the billing system for each new meter installed.

- meter type (e.g. domestic supply, AMR, Smart Meter, fire service)
- meter make
- meter serial number
- meter size (mm)
- meter location
- number of dial faces
- the meter installation date
- the meter reading (typically 'zero' on installation)
- meter warranty start date.

3.5 Changing ownership

A special meter read (SMR) establishes the status of an Urban Utilities' account outside of the normal billing period.

When an existing property changes ownership (through sale), Urban Utilities typically recommends the completion of a special meter read to resolve outstanding consumption or service charges. This information is used to calculate any outstanding charges to be paid out by the original owner of a property on settlement day. It will also identify any arrears on an existing account.

For further information, visit <https://urbanutilities.com.au/residential/help-and-advice/buying-selling-moving/special-water-meter-read>.

4 Metering for developers

The following section details a summary of metering configuration, design and installation requirements for new developments.

4.1 Metering principles

Metering within our service area must enable Urban Utilities to operate an optimised billing system in which customers are billed correctly and consistently.

The key to our billing system is property or lot-based billing. This means that for each individually owned property (or each lot and plan number) Urban Utilities will create one account, read a unique meter and issue one bill. To enable this system of billing, the following key principles apply where new or altered metering is introduced.

For any complex land use activities for which specific metering requirements are not itemised in this guideline, the following principles should be adhered to by developers and their consultants.

Table 4 Summary of critical metering principles

| Principle | Detail |
|--|--|
| Billing | One [1] meter per lot and plan. |
| Submetering – residential development | Where multiple properties are to be owned and/or managed under a CTS (or equivalent): <ul style="list-style-type: none"> • one master meter for each scheme; and • one submeter installed for each lot and plan. |
| Submetering – mixed land use development | For developments involving mixed land use (for example, a residential apartment building with retail tenancies on the ground floor): <ul style="list-style-type: none"> • one master meter for each land use type (e.g. one for retail, one for residential); and • one submeter installed for each lot and plan. • optional submeters for meterable premises. |
| Metering – future-proofing development | Where the initial configuration of land ownership will or may change later (for example, a mixed land use development incorporating a hotel which may be sold to a separate entity later), provision must be made in the design of private plumbing and metering configurations that: <ul style="list-style-type: none"> • reflects the initial ownership; and • enables reconfigured metering under the likely future ownership arrangements. |

4.2 Meterable premises

While this guideline is focused on Urban Utilities' metering requirements, developers may also need to comply with further regulatory requirements – notably, the QPW Code. This Code requires that:

- 'the water supply to a **meterable premises** must be fitted with a device (water meter) to measure the amount of water supply to the premises'
- The meter 'must be located so it is easy to read and maintain' and 'properly maintained'.

The QPW Code requirement to also meter '*sole-occupancy units*' in class 2, 4, 5, 6, 7 and 8 buildings (as well as each storey within a class 5 building) – as distinct from each lot - can necessitate the installation of submeters that are not mandated or specified by Urban Utilities, owned by Urban Utilities or read by Urban Utilities.

The submetering of meterable premises is required for water efficiency reasons and may still be used by building owners, body corporates and tenants to accurately apportion water consumption costs amongst users.

4.3 Meters and the water approval process

Developers and landowners must always obtain a water approval before installing a new meter or modifying an existing meter.

Where new meters are required to service development activity, the configuration, design, procurement and installation of those meters must be completed via the water approval process.

Whenever a meter is installed, replaced, or disconnected it must also be accompanied by a meter installation, replacement and disconnection form.

There are two broad categories of water approval. Development activity involving small changes to demand or infrastructure may qualify for a standard water approval, while more complex development activity will require a non-standard water approval. For a full list of the criteria which defines water approvals, please review the Urban Utilities Water Netserv Plan.

4.3.1 Standard water approvals

For developments which qualify for a standard water approval, Urban Utilities will:

- determine the configuration (size, location, and requirements) for any meters required and the associated water services (where applicable).
- supply and install those meters on behalf of the developer (at the developer's cost).

4.3.2 Non-standard water approvals

For developments requiring a non-standard water approval, developers are responsible for the design and installation of water services and meters (including water services for domestic supply and for private fire systems including hydrant and sprinkler systems where required).

Developers must ensure that any required meter configurations are in accordance with this guideline when designing and constructing new development. Developers are also responsible for arranging meter procurement, and for engaging a plumber to install meters and submeters as necessary.

4.4 Meter configurations

Land use within Urban Utilities geographic area falls into one of four (4) broad categories. These categories determine the requisite metering configurations and designs:

- detached residential
- attached residential
- industrial/commercial
- mixed use.

The following sections set out the general meter configuration principles that apply to each of these land use categories.

4.4.1 Detached residential

Detached residential dwellings (most commonly a house; a residential dwelling with freehold tenure) are the most common type of development within our geographic area. The following table outlines the rules for metering detached residential developments.

Table 5 Metering of detached residential developments

| Metering issue | Detail |
|---------------------------|---|
| Type of land use included | House, terraced house or a limited number ⁶ of strata units (for example, townhouses) with no common or share water consumption. |
| Configuration | One meter per dwelling is mandatory. The meter must be located with unrestricted physical access and readily accessible for reading, maintenance and replacement. |
| Meter size | A detached residential dwelling may be serviced by a 20mm or 25mm diameter meter. |
| Water service size | Each water service to a detached residential dwelling is typically either a 20mm diameter or 25mm diameter pipe. Where services are laid across a road or 'split' from the water main to service two properties, the water service is typically one size larger. |
| Variations | |
| Dual frontage | For detached residential dwellings with road frontage on more than one of the property's boundaries (for example, a corner lot, |

⁶ There are limitations to the use of one master meter per dwelling for townhouses and terraced houses. See further explanation in the following sections.

| Metering issue | Detail |
|----------------|---|
| | or at the front and rear of the lot), only a single meter is permitted. |
| Duplex | A duplex may be serviced by one property service and meter (with consumption shared between the two dwellings) or alternatively each dwelling may be serviced by a unique water service and meter (with consumption billed separately). |

4.4.2 Attached residential

Attached residential dwellings are often strata title developments. In Queensland, strata title tenure provides for the individual ownership of part of a property (referred to as a lot, most commonly an apartment or townhouse) in addition to shared ownership in the remainder of the property ('common property' typically including foyers, driveways, gardens and pools) through a legal entity called the owners' corporation or body corporate. These developments are typically managed under a CTS.

The metering of attached residential dwellings in strata title, including townhouse-style developments, is therefore slightly more complicated than detached residential developments and often involves submetering (see section 6).

Two metering alternatives for attached residential dwellings are summarised below.

As established in section 5.11.12 of the SEQ Code, each CTS should be provided with a single service to the property boundary and a master meter for domestic consumption with submetering as required in accordance with this guideline.

The Urban Utilities' Water Netserv Plan provides an exception for townhouse developments of up to 8 dwellings where:

- each dwelling has street frontage
- there is no common property that generates water demand (such as pools, gyms and hot water systems).

In these instances, an individual water service and meter may be provided to each dwelling. In all other instances of attached residential development, submeters should be installed in accessible areas of common property.

4.4.3 Commercial & industrial

The correct metering of commercial and industrial land use depends on whether the lots are strata titled.

- Each freehold commercial or industrial lot must be provided with a water service and meter;
- Where multiple commercial or industrial buildings exist on one lot (and are not strata titled), only one water service and (master) meter is required. Developers may choose to install submeters for individual tenancies, but these would be for information purposes only and would not be read, owned or maintained by Urban Utilities.
- Where commercial or industrial buildings are strata titled, only one meter per each titled lot is required. Master meters and submeters are not required.

4.4.4 Mixed-use developments

Mixed-used developments typically involve a combination of residential, commercial and/or retail land use. As many mixed-use developments occur over several stages, the correct metering of mixed-use developments must account for potential future strata titles within the site(s).

- Each existing or future land use type (for example, retail, commercial, residential) must be provided with a water service and master meter.
- Where endorsed by a hydraulic designer, a single water service may be installed and master meters (one for each existing or future land use type) may be assembled on a meter manifold.
- A maximum of two (2) tiers of metering is permitted between the Urban Utilities water supply network, and each strata titled lot.
- Submetering must be installed in accordance with section 6.
- Provision must be made in the design of private plumbing and metering configurations that enables reconfigured metering under the likely future ownership arrangements.

4.5 Meter size selection

Meters that are incorrectly sized may result in under-recording of a water consumption or problems with flow and pressure internal to the site.

For any development requiring a non-standard water approval, developers are responsible for ensuring that new meters are correctly sized. For commercial, industrial or high-density residential developments (such as a high-rise apartment building), developers should engage a hydraulic consultant to correctly size the property service connection(s) and meter(s).

When making an application for water approval, developers must specify the proposed configuration of all new meters which includes specifying the meter size. Urban Utilities will review the proposal in accordance with this guideline during assessment of an application for water approval. Where the meter sizing proposed by a developer varies from the guidance provided in this document, the developer may need to seek a water approval design variation.

Refer to section 5 for more detailed advice on meter sizing.

4.6 Meter boxes

For small diameter meters installed in a water meter box, the following manufacturers and products should be used.

Table 6 Approved meter box manufacturers and products

| Water service size | Meter box size | Authorised products | Comment |
|--------------------|----------------|---------------------|---|
| 20mm, 25mm | 427mm x 267mm | Strongcast | Black lid with lettering 'Water Meter' |
| 20mm, 25mm | 492mm x 271mm | Everhard Industries | (Black lids are preferred, but blue lids are also permitted. Green lids are not permitted.) |
| 20mm, 25mm | 440mm x 275mm | Draper | |

4.7 Meter assemblies

Urban Utilities defines large water meters as those sized above 50mm in diameter. Large water meters are typically assembled and positioned above-ground meaning that developers and their architects must provide for adequate space within a development site to house the assembly.

To assist designers, Urban Utilities has published a guideline on '[Large Water Meter Standard Arrangements](#)' (including detailed drawings) which provides details on large meter assemblies.

4.8 Meter procurement

Developers and property owners may only install new meters – or modify existing meters – through the water approval process. For standard water approvals, Urban Utilities will undertake meter procurement. For non-standard water approvals, developers must undertake meter procurement.

Section 4.8 outlines the process for developers to procure small meters, large meters, and submeters.

- Following meter installation, the developer must complete and include a [meter installation form](#).
- All meters installed through the water approval process are endorsed by Urban Utilities through the issuing of a connection certificate.
- Urban Utilities will not issue a connection certificate or accept on-maintenance any metering or submetering installed using non-approved meters or with incorrect serial numbers.

4.8.1 Meter serial numbers

An Urban Utilities meter serial numbers consist of 10 Digits - three (3) letters followed by seven (7) numbers.

- The three (3) letters represent the meter size, manufacturer and model of the meter (respectively).
- The first two (2) numbers represent the year of manufacture with the remaining five (5) numbers allocated by the manufacturer to indicate the production number.

The following table explains the serial number details for the different sizes, manufacturer makes and models of approved meters.

Table 7 Urban Utilities water meter serial number guide

| Size (first letter) | | Manufacturer (second letter) | | Model version (third letter) | |
|---------------------|------|------------------------------|--------------|------------------------------|----------------------|
| Letter | Size | Letter | Manufacturer | Letter | |
| A | 20mm | B | Elster | 20mm meters | |
| B | 25mm | C | Sensus | B | Itron TD8 (pre-2020) |
| H | 32mm | D | Itron | D | Itron TD8 (2020+) |
| D | 50mm | E | ARAM (RMC) | G | Elster V100 |
| E | 80mm | | | H | Elster V200 |

| Size (first letter) | | Manufacturer (second letter) | | Model version (third letter) | |
|---------------------|-------|------------------------------|--------------|------------------------------|-------------------------|
| Letter | Size | Letter | Manufacturer | Letter | |
| F | 100mm | | | 25-32mm meters | |
| G | 150mm | | | A | Itron TD8 |
| I | 200mm | | | P | Elster V100 |
| | | | | H | Elster V200 |
| | | | | 50mm meters | |
| | | | | A | Itron Flostar M |
| | | | | S | Arad Octave (Stainless) |
| | | | | B | Sensus Meistream Plus |

4.8.2 Small diameter meters

Small meters as those with a diameter of 50mm or less. Developers can procure small meters directly from approved suppliers.

Only water meters approved by Urban Utilities must be installed in our geographic area and these must also have an Urban Utilities serial number. Our current approved meter manufacturers and models are listed in the table below.

Table 8 Approved small meter manufacturers and products

| Service Size | Authorised manufacturers | Authorised products | Serial number format (Urban Utilities) | Permitted | |
|--------------|--------------------------|---------------------|--|-------------------------------------|-------------------------------------|
| | | | | Above ground? | Below ground? |
| 20mm | Itron | TD8 | ADB1700000 | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| | Elster | V100 | ABG1700000 | <input checked="" type="checkbox"/> | - |
| | Elster | V200 | ABH1700000 | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| 25mm | Itron | TD8 | BDA1700000 | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| | Elster | V100 | BBG1700000 | <input checked="" type="checkbox"/> | - |
| | Elster | V200 | BBH1700000 | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| 32mm | Itron | TD8 | HDA1700000 | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| | Elster | V100 | HBP1700000 | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |

| Service Size | Authorised manufacturers | Authorised products | Serial number format (Urban Utilities) | Permitted | |
|--------------|------------------------------------|---------------------|--|-------------------------------------|-------------------------------------|
| | | | | Above ground? | Below ground? |
| | Elster | V200 | HBH1700000 | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| 40mm | Not permitted in new installations | | | | |
| 50mm+ | Itron | Flostar M | DDA1700000 | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| | RMC | Octave | DES1700000 | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| | Sensus | Meistram Plus | DCB1700000 | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |

4.8.3 Large diameter meters

Developers must procure all large meters through Urban Utilities. Once a water approval has been obtained, developers (or their representatives) can procure a large meter via a [Large Meter Order Form](#). The following information is required:

- site address
- site contact details
- standard water meter arrangement required (refer to the *Large Water Meter Standard Arrangements* guideline)
- water approval number (in the format XX-PNT-#####);
- reference drawing number (i.e. the drawing referenced in the water approval which identifies the large meter)
- billing details for large meter payment purposes (if different to site contact details).

Table 9 How to order a large diameter water meter

| |
|---|
| <p>Submit the completed Large Meter Order Form via email to largemeters@urbanutilities.com.au.</p> <ul style="list-style-type: none"> • Developers should include reference drawings showing the configuration of the requested meter arrangement. • On receipt of a correctly completed Large Meter Order Form, Urban Utilities will issue a quote for the cost of the meter (including delivery to site) within three (3) business days. • The large meter will be available for delivery to site approximately three (3) weeks after payment of the quote. • To arrange delivery to site, confirm a preferred date with our contractor via email at large.metersqld@ventia.com.au. • Installation of the large meter is the responsibility of the developer and must be arranged with a suitably qualified plumber or contractor. • Following installation, the developer must complete and include a meter installation form with the as-constructed package required to obtain a connection certificate and complete a water approval. |
|---|

4.8.4 Submeters

When procuring submeters, developers must adhere to the following requirements.

- All submeters must be purchased directly from an approved manufacturer.
- Developers and their representatives (as buyers) should specify to the approved manufacturer that the meter is for Urban Utilities ensuring that the meter manufacturer will supply a meter with a compliant serial number.
- It is the responsibility of the developer to ensure that only meters with the correct serial numbers are installed within Urban Utilities' service area.

4.9 Meters and private fire services

4.9.1 Private fire services overview

As outlined in our *Residential Customer Charter* and *Business Customer Charter*, Urban Utilities provides developers with water supply services (including pressure, flow and service reliability) suitable for supply to domestic fixtures. We also support a point of access for private fire services where water is to be provided in support of private fire systems.

Fire services are water services for developments which are used to supply water to a private fire system. Fire systems are required for certain types of land use under the Building Code of Australia to protect a particular building class.

Historically, some private fire services were connected to the Urban Utilities' water supply network without being metered. This was in part because distributor-retailers do not bill our customers for water used to fight fires or to conduct testing of a private fire system. However, all fire services must now be metered because, in the absence of a meter, leaks in or the unlawful use of a fire service may go undetected for extended periods.

4.9.2 Designing a private fire system

To support developers in the design of private fire systems, Urban Utilities can provide information about the water supply network in the vicinity of a development site via a [Services Advice Notice](#).

Urban Utilities does not design, assess, maintain or ensure the suitability of a water service supporting private fire systems. Please note that the hydraulic performance of our water supply network may change over time (for example, static hydraulic pressure in our network may decrease as water demands increase due to development activity). It is the responsibility of developers and building owners to ensure that design of a private fire system includes appropriate allowance for changes over time.

Designers of a private fire system should be sure to reference the applicable Australian standards⁷ for the design of private fire systems including selection and design of meters appropriate to the installation type.

4.9.3 Metering requirements for fire services

All new or altered private fire services must now be metered. Where a development requires a domestic water service and a fire services, these must be metered separately.

⁷ Including AS 2419 and AS 2118.

Urban Utilities will supply large meters for fire services at the developer’s cost consistent with the process outlined in this document for procuring large meters.

4.9.4 Firefighting provisions for detached residential developments

Urban Utilities designs the reticulated water supply network in accordance with the SEQ Code Design Criteria. The SEQ Code specifies that all new detached residential dwellings in urban areas must be protected by a fire hydrant positioned within a certain proximity of the property boundary. This requirement is intended to ensure that, in the event of a fire, the Queensland Fire and Emergency Services are likely to have a secondary water source with which to fight the fire.

- Where developers create new lots, the installation of new hydrants (known as ‘street hydrants’) may be required on the Urban Utilities water supply network and conditioned through the water approval process.
- However, developers may be obligated to install private fire services (and meters) where new lots are created which cannot achieve compliance with the requirements of the SEQ Code.

The following table sets out a range of developer obligations for the various fire hydrant scenarios that may occur when a developer subdivides to create new residential lots, and the billing and metering consequences of those scenarios.

Table 10 Fire hydrants and private fire systems for residential lots

| Fire hydrant coverage | Explanation | Works required | Metering & billing |
|--|---|---|--------------------|
| Existing street hydrants achieve SEQ Code compliance | Scenario 1: In many instances, the firefighting protection stipulated by the SEQ Code and required for a residential subdivision may be provided by an existing street hydrant (such as a one-into-two lot subdivision in an existing urban area). Street hydrants are owned and maintained by Urban Utilities and installed on our water supply network. | None Street hydrants to be owned and maintained by Urban Utilities. | Not applicable |
| Existing street hydrants do not enable SEQ Code compliance | Scenario 2a: In certain circumstances (most commonly a ‘battle-axe’ residential subdivision or the creation of multiple new freehold lots toward the rear of a shared private driveway), the existing street hydrants will not provide the protection required. In these circumstances, installation of a new hydrant to be owned by Urban Utilities and located to achieve compliance with the SEQ Code may be necessary. This installation must be undertaken at the developer’s expense and subject to Urban Utilities’ approval. | Installation of a new street hydrant (or hydrants) at the developer’s cost. New street hydrants to be owned and maintained by Urban Utilities. | Note applicable |

| Fire hydrant coverage | Explanation | Works required | Metering & billing |
|-----------------------|--|---|---|
| | <p>Scenario 2b: Finally, in certain circumstances even the installation of a new street hydrant supporting a residential subdivision will not satisfy the SEQ Code requirement for hydrant protection. This is most common where new residential lots are created at the rear of a shared private driveway.</p> <p>Because Urban Utilities will not permit the extension of our water supply network down privately-owned roadways, it may be necessary for a developer to construct a new, private fire service and hydrant down a shared private driveway to achieve compliance with the SEQ Code. While a private fire service may provide fire hydrant coverage to multiple freehold lots, in the absence of a CTS the meter and account are typically assigned to the most 'disadvantaged' lot. This means that the property furthest from the road reserve assumes responsibility for the account, billing, maintenance and testing of the private fire service. Ownership of the private fire service must be noted in the developer's application for water approval.</p> | <p>Developer to construct private fire service and hydrant(s).</p> <p>Private fire service must be metered.</p> | <p>Meter (and associated billing account) for the private fire system will be assigned to the most disadvantaged lot.</p> |

4.10 Bulk hot water systems

Submeters record cold water usage, which is water delivered directly from the Urban Utilities water supply network. A building's hot water supply is fed directly through the master meter to a common (or shared) hot water system and separated from any cold water submeters.

Bulk hot water systems draw cold water from Urban Utilities' network, store it, heat it and distribute it to internal users (such as individual apartments). Bulk hot water systems are made up of three components:

- centralised boilers (usually heated via gas) or hot water storage tanks
- the plumbing that delivers the hot water to each meterable premise
- a hot water meter which measures each property's hot water consumption.

Bulk hot water systems are privately owned and managed. The following explanation is therefore for information purposes only.

4.10.1 Regulatory context

Bulk hot water systems are private plumbing systems owned and managed by body corporates and other building ownership entities.

The provision of hot water services (and temperature control devices) is governed by the Department of Housing and Public Works via the *Plumbing and Drainage Act 2018 (QLD)*.

4.10.2 Hot water billing

Urban Utilities does not issue bills for hot water usage. Owners or tenants utilising bulk hot water systems typically receive a separate bill for the hot water they use. The number of bills an owner or tenant receives is likely to depend on the bulk hot water provider.

- You may receive a separate hot water bill or hot water consumption may be listed as a line item on your electricity or gas bill.
- Your bill may list the total number of litres and/or gas used (for water heating) during the billing period.
- As bulk hot water systems are commonly part of a building's shared infrastructure, it is unlikely that owners or tenants will be able to change bulk hot water provider.

4.10.3 Bulk hot water systems explained

Hot water charges pay for the energy used to heat the water but not for the volume of water itself. However, as the cost of heating water relates to the volume of water used, most hot water bills will indicate a volume of hot water consumed.

- Bulk hot water systems are centralised and managed separately to the cold-water system. A centralised bulk water system improves the energy efficiency of heating and distributing hot water throughout the building. Hot water systems are typically located on the roofs of multi-storey buildings.
- Urban Utilities bills the body corporate (via the master meter) for the volume of cold water that is delivered to the hot water system within the development.
- That body corporate or energy service provider (if management of the hot water system has been outsourced) will then bill each user using individual hot water meters.

4.11 Meter disconnection and removal

Developers must obtain a water approval prior to moving, altering or removing an existing water meter.

All meters and submeters disconnected and removed from the Urban Utilities' water supply network must be deactivated in our billing system, halting further requests for readings. If a new meter has replaced the old disconnected meter, then it must be exchanged in the billing system. The new meter must be activated in the billing system by Urban Utilities to enable the recording of consumption.

When removing an existing water meter during the water approval process (including construction water meters), the developer must submit a Meter Installation, Replacement and Disconnection Form to development.compliance@urbanutilities.com.au providing the following information:

- date of removal
- existing meter number
- reading on meter
- confirmation that the service was capped (or otherwise)
- replacement of water meter with another meter.

Where an existing water service is no longer required, the water service must be cut and sealed at the main ferrule.

4.12 Construction water meters

Water must not be drawn from the Urban Utilities network unless it is provided through an approved meter assembly.

Construction water will be billed to the current owner of the subject site(s) as verified by Urban Utilities during application for a water approval.

5 Meter sizing

Section 5 provides guidance on the sizing of water meters for development.

5.1 Meter sizing overview

Selecting the correct meter size for a development is critical to ensure two things:

1. Consumption accuracy: water used (or 'consumed') within the site is correctly and accurately measured.
2. Hydraulic performance: that the internal hydraulics of the site are efficient and correct.

The information in this section is provided for guidance purposes only. All new or altered water meters (and water services) should be sized by a suitably qualified hydraulic consultant and must be selected from our approved products and materials list (see the SEQ Code [IPAM list](#)).

5.2 Water network demand explained

Distributor-retailers in South East Queensland use the SEQ Code Design Criteria to plan and design reticulated water supply networks.

Network demand is typically measured as a flow rate, in litres per second. Potable water (and recycled water services) deliver a flow from a reservoir or water treatment plant to a customer, while wastewater services take a flow of sewage away from a customer.

5.2.1 Demand units

The SEQ Code Design Criteria uses a metric called equivalent person(s) (EP) to measure demand on the water supply network⁸. The design criteria adopts the assumption that each equivalent person consumes 230 L/day and that a further 30 L/day is unaccounted for (for various reasons, not measured), meaning a demand assumption of 260 L/EP/day in total.

5.2.2 Demand categories

Measuring the total demand across our networks is critical to the successful planning, operation and management of our infrastructure. The total demand within our networks is calculated by counting units of demand based on specific demand categories:

⁸ For example, the SEQ Code Design Criteria assumes 2.72 EP per detached residential dwelling.

- Residential demand – measured by the number of dwellings in a building (apartments) or street (homes and townhouses).
- Non-residential demand – measured in gross floor area (GFA), square metres (m²), of commercial and industrial land use (offices, factories, warehouses, retail outlets and other commercial premises).

5.2.3 Calculating demand

In summary, network demand can be calculated by multiplying the amount of demand (number of dwellings and GFA measured in m²) by the applicable demand unit (EP).

5.3 Meter sizing process

5.3.1 Who is responsible?

For developments which qualify for a standard water approval, Urban Utilities will size the water meter using the SEQ Code. However, for non-standard water approvals, it is the responsibility of the developer or property owner to ensure that new or altered water services and meters are correctly sized and that they satisfy the hydraulic requirements internal to the subject site.

During the assessment of an application for water approval, Utilities will review the proposed meter size in accordance with this guideline.

5.3.2 What are the governing standards?

All meter sizes must comply with governing standards, including reference to this guideline.

The reference document governing all new or altered water meters is AS/NZ S3500 Plumbing and Drainage (Water Services). In addition, water meter manufacturers publish specifications explaining the intended application and range (flow rate) for each meter.

AS/NZS 3500 specifies that that water meters and water property services must be sized to accommodate simultaneous water demand for the development. The size of the water service (pipe) is typically determined by the PIFR and/or any firefighting requirements within the development site.

Other relevant standards and codes include the following:

- The SEQ Code and the associated Accepted IPAM List website at <http://www.seqcode.com.au/products>
- Plumbing Code of Australia
- Urban Utilities' Residential Customer Charter and Business Customer Charter
- AS 3565 Meters for Water Supply
- National Measurement Act 1960
- AS 1851: 2005 Maintenance of Fire Protection Systems and Equipment
- Residential/Home Fire Sprinkler Services designed under the AS 2118.4 or AS 2118.5
- Fire System Design Standards – AS 2419, 2441, 2118.1-6
- Backflow Prevention Standards AS/NZS 2845.

5.4 Meter sizing guide

Section 5.4 outlines our guidance on meter sizing using the anticipated flowrate (or PIFR) within a development.

5.4.1 Residential land use

The following table provides guidance on the meter sizes required for varying residential land use. The size of meter required is determined by the number of residential dwellings (houses, apartments or townhouses) serviced by the meter.

Note that the table does not account for private fire systems or any associated fire flow requirements. Firefighting and domestic water supply must be metered separately.

Table 11 Meter sizing guide – residential land use

| Meter size Diameter (mm) | Number of dwelling(s) |
|--------------------------------|---|
| 20mm | 1 |
| 25mm | 2-6 |
| 32mm | 7-21 |
| 40mm | Not approved by Urban Utilities |
| 50mm | 22-89 |
| 65mm | Not approved by Urban Utilities |
| 80mm | 90-300 |
| 100mm | > 100 dwellings (subject to hydraulic assessment) |
| 150mm | > 100 dwellings (subject to hydraulic assessment) |

As specified in our Residential Customer Charter, Urban Utilities' minimum standard of service is 210kPa⁹ to be provided at the meter. Where the available pressure in Urban Utilities' water supply network is less than 300 kPa or the length of the intended water service connecting the site to our water main exceeds 40 metres in length the indicative meter sizes in this table may not apply.

Please consult an engineering or hydraulic consultant for further advice. You may also choose to lodge a request for a [Services Advice Notice](#) to determine the available flow and pressure in Urban Utilities' water supply network.

⁹ Apart from trickle feed areas and designated low pressure areas.

5.4.2 Non-Residential (and mixed) land use

The following table provides guidance on the meter sizes required for non-residential (or mixed) land use. The size of the meter required depends on the expected water demands and associated flow rates within the subject site.

To make use of this guidance, developers should first understand the range and limit of water supply flow rates anticipated within the development. Developers should engage an engineering or hydraulic consultant.

Table 12 Meter sizing guide – non-residential land use

| Meter size Diameter (mm) | Flow rate – typical range (during normal hours) | |
|--------------------------------|---|-----------------------|
| | Litres / hour | Litres / second |
| 32mm | 64 < flow rate < 10,000 | 0.02 < flow rate < 3 |
| 40mm | Not approved by Urban Utilities | |
| 50mm | 125 < flow rate < 25,000 | 0.04 < flow rate < 7 |
| 80mm | 200 < flow rate < 63,000 | 0.06 < flow rate < 18 |
| 100mm | 300 < flow rate < 100,000 | 0.09 < flow rate < 30 |
| 150mm | 400 < flow rate < 160,000 | 0.11 < flow rate < 45 |

5.4.3 Annual flow rates

Noting the indicative residential and non-residential meter sizing advice above, the following table provides general meter sizing advice based on estimated annual flow rates within the site.

Table 13 Meter sizing guide – estimated annual flow rates

| Meter size (mm) | Minimum flow | Maximum flow | Factor |
|--------------------|--------------|--------------|--------|
| 20 | - | 800 kL | 1.00 |
| 32 | 800 kL | 2,048 kL | 2.56 |
| 50 | 2,048 kL | 5,000 kL | 6.25 |
| 80 | 5,000 kL | 12,800 kL | 16.00 |
| 100 | 12,800 kL | 20,000 kL | 25.00 |
| 150 | 20,000 kL | 45,000 kL | 56.25 |
| 200 | 45,000 kL | 80,000 kL | 100.00 |
| 250 | 80,000 kL | 125,000 kL | 156.25 |

| Meter size (mm) | Minimum flow | Maximum flow | Factor |
|-----------------|--------------|--------------|--------|
| 300+ | 125,000 kL | - | 225.00 |

5.4.4 Submeter sizing

Submeters installed to service individual residential dwellings (typically within a development managed under CTS by a body corporate) are also sized in accordance with the residential land use table above. As a rule, one 20mm submeter per residential dwelling is required.

5.5 Water service sizes

The size of new or altered water services shall be determined using the flow rates and loading unit tables and the associated probable instantaneous demand table set out in AS/NZ3500 13 (section 3 - sizing of water services), as well as the SEQ Code.

6 Submetering overview

Section 6 explains requirements for the submetering of strata title lots within Urban Utilities' service area. It includes details on:

- which developments require the installation of submeters
- approved configurations for the physical installation of submeters
- when and where AMR technology is required and the associated installation requirements.

6.1 Submetering overview

A submeter is an individual meter which measures water consumption by a lot within a strata subdivided development. Submeters are installed 'downstream' of the master meter, which measures the total supply of water into a building.

Submetering allows lot owners (and tenants) within attached residential dwelling developments (such as apartment buildings and townhouses) or retail and commercial developments which are strata subdivided, to measure their individual cold-water usage, and to be charged on an individual basis accordingly. In Queensland, submeters have been required for all new strata subdivided buildings since 1 January 2008.

This guideline seeks to ensure that submetering decisions by developers, body corporates and property owners are consistent and in accordance with Urban Utilities requirements. By ensuring that submetering conform with these requirements Urban Utilities will be able to provide effective, efficient and accurate billing services to our customers.

6.2 Why are submeters required?

Submetering is required in South East Queensland to minimise water consumption and improve the efficiency of water use.

To support water efficiency, metering has been made mandatory under the QPW Code for every meterable premises within a new development connected to Urban Utilities' water supply network. The QPW Code was updated on 1 January 2008 and a meterable premises was defined to mean:

- all Class 1 buildings

- each lot within a CTS including the common property in a water service provider's service area
- each sole-occupancy unit of a class 2, 4, 5, 6, 7 or 8 building in a water service provider's service area
- each storey of a class 5 building in a water service provider's area where the building consists of more than one storey and sole-occupancy units are not identified at the time of the building's plumbing compliance assessment.

Part 4 of the QPW Code further outlines the requirements for water meters to meterable premises.

6.3 Why was the legislation changed?

Prior to 1 January 2008, the installation of submeters within residential developments was not mandatory.

Developments without submeters typically have a single master meter and individual lots are charged for water consumption on a pre-determined apportionment schedule defined under the CTS (known as lot entitlements).

This means that the owners of individual lots have no knowledge of their own water consumption. Because the cost of the building's water consumption is shared across all users, there is limited incentive to manage or minimise individual water consumption.

The use of submetering enables water service providers (including Urban Utilities) to provide water consumption information to the owners of individual lots and directly bill owners and tenants for their actual (rather than assumed) water consumption. The legislative change enabled a more fair and equitable billing system which ensure that each user pays according to their usage.

6.4 When are submeters required?

Urban Utilities requires submetering for all new strata subdivided developments. Where installed, submeters must always be in an accessible area (typically a common area) and never inside a unit or apartment.

For new mixed-use developments which are not (and which will not become) strata subdivided, submetering is not mandatory. However, it is useful for the design of internal plumbing to provide for the future installation of submeters. Where optional submeters are utilised¹⁰ they should comply with this guideline.

6.4.1 Potable water – cold water and hot water

Submeters must be installed on the cold-water inlet to individual lots within a development. Cold water is the water drawn directly from Urban Utilities' water supply network.

Where a bulk hot-water system is in use and fed directly from the master meter hot-water meters may also be installed. These are exclusively owned and managed by the property owner or body corporate (not Urban Utilities).

¹⁰ See 'meterable premises' as defined in the QPW Code.

6.4.2 Potable water - use in shared facilities

Submetering is not required for shared common water uses within a development such as landscaping, pools, gyms, or other recreational facilities. These uses will be measured and billed to the body corporate as common property water consumption through the master meter.

The body corporate is responsible for apportioning the common water consumption to the individual unit owners.

6.4.3 Non-potable water

Where a development is located within an Urban Utilities dual reticulation area, submetering of the non-drinking water supply to individual units is not required.

Non-drinking water will be measured and billed to the body corporate through the non-drinking master meter. The body corporate is responsible for apportioning the non-drinking water consumption to the individual occupants.

6.5 Is submetering required for existing developments?

Developments constructed prior to 2008 are exempt from the current requirements of the QPW Code. The retrospective installation of submeters in existing developments is optional and subject to detailed assessment.

It may be impractical or cost-prohibitive to introduce submeters for all lots within an existing building. Many older buildings do not have suitable plumbing to enable submetering, meaning the retrospective installation of submeters is not possible.

6.6 Who owns submeters?

Submeters installed through the water approval in accordance with this guideline and metering a stratum titled lot will be owned and maintained by Urban Utilities once:

- Urban Utilities has received and endorsed an as-constructed package (detailing the new connections and meter details), and issued a connection certificate
- the new lot is formally created (at plan sealing).

Urban Utilities will assume responsibility for reading and billing individual water consumption in accordance with the submeter configuration. Submeters installed to measure water consumption within a sole occupancy unit which is not a strata title lot will be owned and maintained by the sole occupancy unit owner or the body corporate.

6.6.1 Maintenance period for new meters

All new infrastructure transferred to Urban Utilities' ownership (including meters and submeters) is subject to a 12-month maintenance period. During this period, any defects or maintenance issues remain the responsibility of the developer (or body corporate).

On conclusion of the maintenance period, Urban Utilities will assume responsibility for the maintenance, repair and replacement of all submeters.

6.6.2 Ongoing maintenance and replacement

Urban Utilities may need to replace submeters periodically. Submeter replacements will be undertaken at no charge. On-site works will be coordinated with the body corporate entities and/or building managers.

6.6.3 Ownership and delineation of private plumbing

All private plumbing contained within a stratum subdivided lot is the property of the lot owner.

In addition, the following shared private plumbing infrastructure (associated with internal plumbing and the installation of submeters) will remain the property of the body corporate or building owner. Urban Utilities will not be responsible for the following infrastructure:

- submeters associated with meterable premises that are not individually titled lots (for example, sole-occupancy units that are not on a separate title).
- plumbing works (including all pipework and fittings) between the master meter and the submeters.
- fittings upstream and downstream of the submeter, up to and including the isolation valves on either side of the submeter.
- plumbing (including pipework and fittings) downstream of the submeter.
- submeter enclosures (where they have been installed).

7 Submetering design & installation

Section 7 explains the requirements for designing and installing submeters. Submeters installed within new developments must be completed via the water approval process.

7.1 Approved submetering equipment

Only equipment approved by Urban Utilities shall be used for submeter installations. A list of submetering products approved by Urban Utilities' can be found under the category IPAM list on the SEQ Code [website](#).

The list of products approved for use by Urban Utilities is subject to periodic review, and updates may be published from time to time.

7.2 Submeter assembly

The following technical specifications summarise our requirements for submeter assemblies.

1. Ball valve requirements: where standard size 20mm diameter submeters are installed, each submeter must have a ball valve on each side (upstream and downstream) of the meter to enable isolation of the water supply and prevent backflow from downstream plumbing when the meter is removed.
2. Meter box & bracket: where a submeter is installed below ground in a meter box, the ball valve on the downstream side of the meter may be omitted, provided that any water draining from the downstream plumbing cannot cause damage to adjacent infrastructure. The meter assembly shall be housed in a rigid stainless steel, galvanised or moulded plastic bracket approved by Urban Utilities.
3. Private plumbing interface: items 1 and 2 together are referred to as the submeter assembly. The overall length of the assembly must be no more than 500mm. This assembly shall connect to the body corporate plumbing on the upstream side and the lot owner's private plumbing on the downstream side, both with male iron adaptors. Extension fittings within the submeter assembly are not permitted by Urban Utilities.

4. No slip couplings: developers must ensure that pre-assembled submeter kits contain meters that are approved by Urban Utilities and do not include a slip coupling connection. Slip coupling connections are not permitted for submetering (or metering) in our service area.

7.3 Submeter identification

All submeters within a development must be of the same make and model number. All submeters must have a unique Urban Utilities serial number (and pattern approval number) stamped on the meter. See section 4.8 for further explanation.

All submeters shall have a unique stainless steel identification tag attached to the meter (or adjacent pipework) which incorporates the following information engraved:

- which lot number the submeter is allocated to
- the date of installation.

The tag must not interfere with operation of the submeter, our ability to read, maintain or replace the meter, any AMR devices attached to the meter or our ability to operate isolation valves within the installation.

7.4 Submeter sizing

While residential submeters are typically sized at 20mm diameter, the size of submeters within a development should be determined via a hydraulic analysis completed by a suitably qualified hydraulic consultant.

7.5 Why does Urban Utilities need access to submeters?

Submeters must be read by Urban Utilities for billing purposes. Urban Utilities may also need to access submeters we own (those installed in accordance with this guideline) for maintenance and replacement.

7.6 What are the categories of access to submeters?

The following section outlines the two categories of access defined for submeters installed in new developments. AMR systems are mandatory for new developments where submeters cannot be installed with unrestricted physical access (including almost all new multi-storey residential developments).

1. All submeters must be installed in an accessible area.
2. If submeters are installed in a location with unrestricted physical access, developers will avoid the need to install an AMR system. However, unrestricted physical access is typically difficult to achieve for residential developments.

Table 14 Submeter location criteria and associated definitions

| Submeter location criteria | Accessible location Minimum criteria required | Unrestricted physical access Criteria required to avoid need for AMR system installation |
|--|--|---|
| Within a common area of the development (i.e. not within an individual unit). | ☑ | ☑ |
| Unobstructed by fencing, vehicles, equipment or vegetation. | ☑ | ☑ |
| In a location that provides safe and ergonomic access for Urban Utilities personnel to inspect, maintain, repair or replace. | ☑ | ☑ |
| Either internal or external to a development's security system. | ☑ | - |
| External to the development's security system (in an area that does not require key, swipe card access or pin code) access accessible 24/7 without reliance on non-Urban Utilities personnel such as building managers, building security guards, or body corporate managers to facilitate access. | - | ☑ |
| At ground level. | - | ☑ |

If submeters cannot be installed in a location that qualifies for unrestricted physical access, then an AMR system is required (see section 8).

7.7 Submetering installation

All submeters must be installed by a licensed plumber in accordance with their pattern approval certificates (some meters are limited to a horizontal installation). Submeters must be installed at no cost to Urban Utilities.

Care must be taken to ensure that each submeter is installed with the dial face positioned such that it can be read by a person standing at floor level adjacent to the submeter installation. The dial face must not be upside-down and at a height of no more than 1.6 metres.

Submeters may be installed using one of the following three options:

- Option 1: fixed to a solid wall (unenclosed).
- Option 2: below ground in an approved submeter box.
- Option 3: above-ground in an approved submeter enclosure or integrated cabinet with an approved submeter key.

7.7.1 Option 1: fixed to a solid wall (unenclosed)

Option 1 is the installation of submeters by fixing them unenclosed to a solid wall. Submeters installed on a solid wall must conform with the minimum spacing requirements described below.

- The spacing between adjacent service pipes shall be at least 150mm centre to centre.
- The space between the outer pipes and any external, adjacent obstruction (such as a wall or pipe) shall be a minimum of 100mm.

For option 1, submeters must not be installed in a location where they are likely to be damaged by vehicle movements, or which presents a safety hazard to our meter readers. Where vehicle movements may occur adjacent to the installed location, vehicle bollards must be used to ensure physical separation.

Typical locations for option 1 installations include external walls and internal basement car park walls. However, option 1 may only be adopted where the location of submeter installation is such that any water seepage from maintenance activities, pipe bursts, or submeter failure will not cause damage to other utilities, internal fixtures, vehicles or the building structure.

In above-ground locations where water seepage may cause damage (for example, within the internal corridors of a residential apartment building), option 3 must be used.

7.7.2 Option 2: installed in a meter box

Meter boxes should be used to house submeters installed below-ground. Option 2 installations are common in townhouse-style developments but cannot be used for multi-level residential developments.

Applicable installation requirements for option 2 are summarised in the following table.

Table 15 Option 2: submeters installed in a meter box

| No. | Installation requirement – meter boxes |
|-----|--|
| 1 | The meter box shall comply with Urban Utilities’ specifications (refer to the SEQ Code for specification details). |
| 2 | The meter box must be sufficiently sized to house the submeter and associated assembly. |
| 3 | Submeters must be easily accessible and installed such that the dial face can clearly be read. |
| 4 | The water service associated with each submeter must be a maximum of 300mm deep. |
| 5 | Submeters must not be installed in walkways, driveways or other areas where they would cause a potential hazard for either meter readers or building occupants, or conflict with vehicle movements. Submeters housed in a meter box should otherwise comply with the installation requirements for a 20mm water meter as defined in the SEQ Code. |
| 6 | Meter box lids must be approved by Urban Utilities and must have a non-slip pattern (refer to the SEQ Code for specification details). |

| No. Installation requirement – meter boxes | |
|---|---|
| 7 | Each submeter box shall be identified on the outside with the words ‘ water submeter ’ in permanent print. |

7.7.3 Option 3: installed within a submeter enclosure

In all other scenarios requiring submetering, including most commonly class 2 buildings (such as multi-level residential developments), submeters must be grouped together and installed within a submeter enclosure in accordance with the requirements outlined below.

Submeter enclosures must be dedicated and free of other services (in particular, electrical services).

Table 16 Option 3: submeters installed in enclosures

| No. Installation requirement – submeter boxes | |
|--|--|
| General requirements | |
| 1 | Submeter enclosures shall be in accessible areas within the development (see section 7.6). |
| 2 | The enclosure should be located within the floorplan of the building such that a minimum rectangular area of two-square metres, or an area of 1.5 metres multiplied by the width of the access door (whichever is greater) shall be provided directly in front of and external to the enclosure as unobstructed working space for maintenance and replacement. |
| 3 | The enclosure should be located within the footprint of the building such that there shall be sufficient space for enclosure door(s) to swing open completely (at least 90 degrees) and be held open. |
| 4 | Submeter enclosures may be fixed to a solid wall, mounted on a galvanised steel post, or mounted on a concrete plinth. |
| 5 | The enclosures must be fitted with adequate lighting to enable submeter reading and maintenance. |
| Enclosure requirements | |
| 7 | The enclosure shall be clearly marked ‘ water submeters ’, with lettering to a minimum height of 25mm fixed permanently and centrally on the external access point or door. |
| 8 | The entire submeter assembly, including the isolation valves and submeters, must be contained within the enclosure. |
| 9 | Where more than one submeter enclosure is required within a development (for example, an enclosure on each floor), each enclosure shall have a reference identification number on the enclosure as a point of reference (for example ‘ water submeters – enclosure 1 of 2 ’). |

| No. Installation requirement – submeter boxes | |
|--|---|
| 10 | The enclosure must have a minimum depth of 150mm and must be sized to ensure submeter spacing requirements. |
| 11 | Submeters may be installed in a shared firefighting appliance cabinet provided that no adverse impact to the access and functionality of the firefighting equipment (and provided that submeter spacing requirements can be met – see below). |
| 12 | All enclosures must be watertight and fitted with floor drains connected to the internal stormwater system to manage seepage from maintenance activities or failures in accordance with plumbing standards |
| 13 | Enclosures must have a bund (minimum depth 100mm) at the opening if they are located inside a building. |
| 14 | All penetrations of the enclosure structure shall be sealed and protected against corrosion. |
| 15 | The enclosure shall be constructed of either 2mm thick 316 stainless steel (external enclosures) or coated steel (internal enclosures). |
| 16 | The enclosure access doors shall have a hand-operated, one-point stainless steel quarter-turn latch to close the door. Access doors shall have lift-off type plated brass hinges with stainless steel hinge pins. Access door shall be dual-lockable. |
| 17 | All external edges to the enclosure are to be rounded with all edges and corners accurately and neatly folded. |
| Access requirements | |
| 18 | Submeters shall be in an accessible area, and the dial face of the submeters located such that a person standing unassisted at floor level adjacent to the enclosure is able to read it. |
| Submeter spacing requirements | |
| 19 | The spacing between adjacent service pipes shall be at least 150mm (centre to centre). |
| 20 | There must be a space of a least 100mm between the outer-most pipes and the edge of the enclosure structure (or another obstruction). |
| 21 | There must be a space of a least 100mm between the extremity of any isolation vale and the edge of the enclosure structure (or another obstruction). |
| 22 | Submeters shall be installed so that their dial face is no higher than 1800mm and no lower than 1200mm from the adjacent ground or floor level in front of the enclosure. |

7.8 Backflow prevention

Australian Standard AS/NZS3500 outlines several requirements for backflow protection on plumbing fixtures.

While Urban Utilities will not assess or approve the related plumbing and drainage designs, each submeter installation must be fitted with a check valve at the points where submeters are installed. For 20mm diameter submeters these check valves shall be incorporated in the submeter so that the maximum overall length of the submeter assembly is not exceeded.

7.9 Isolation valves

All submeters must be fitted with isolation valves. Isolation valves shall be the same nominal diameter as the submeter, of a dezincification-resistant copper alloy body and handle and comply with the Water Services Association of Australia (WSAA) product specification WSA PS-274 with product certification to AS 4796.

Key locks are not permitted, and valves are not required to be lockable. Only valves listed as approved by Urban Utilities on the IPAM List may be used.

7.10 Anti-tamper devices

All submeters shall be fitted with anti-tamper devices (such as wires).

7.11 Connectivity audit

A connectivity audit will be conducted following advice from the developer that the installation has been completed in accordance with the *Plumbing and Drainage Act 2002*, AS/NZS 3500.1 and the approved hydraulic drawings.

The connectivity audit will also verify that the installation complies with the requirements set out in this specification including that:

- Submeters are installed in an accessible area for reading and maintenance purposes.
- Each submeter is correctly installed, tagged correctly and measuring flow to the designated unit or floor.
- Submeter installations are accurately reflected in the as-constructed drawings.
- Where an AMR system is installed (see section 8), it has been fully commissioned and is providing consistent readings from all submeters in the development.

If the connectivity audit identifies any errors or reveals that a submeter has not been correctly installed, the developer must investigate and rectify any issues identified in the connectivity audit and prepare and submit a new connectivity audit.

7.12 Submeter information required

The following information shall be documented in the connectivity audit submission, and as a tabulated summary. Information must be provided electronically.

Table 17 Submetering as-constructed detail requirements

| No. Submetering as-constructed information | |
|--|--|
| 1 | Date of submeter installation. |
| 2 | The serial number of all submeters (and any AMR devices) installed. |
| 3 | The residential unit or floor that each submeter corresponds to. |
| 4 | Initial meter readings (taken at the time of the successful connectivity audit). |
| 5 | Submeter size, make and model. |
| 6 | AMR system make and model number (where applicable). |
| 7 | AMR installer details (where applicable). |
| 8 | Size and location of AMR cables and conduits (where applicable). |
| 9 | The identifying number (see section 7.7.3) on the enclosure (where more than one submeter enclosure is installed). |
| 10 | The location of all master meters and submeters. |
| AMR as-constructed information (where applicable) | |
| 11 | Unrestricted copy of AMR software. |
| 12 | AMR system user manual. |
| 13 | The location of all AMR components (to be shown clearly on relevant drawings). |
| 14 | Configuration details of the AMR system. |
| 15 | Date of successful AMR system test. |

7.12.1 Handover and compliance checklists

Once a connectivity audit for the development has been successfully completed (and the final plumbing compliance certificate has been issued by the local council), the ownership of submeters and any AMR system infrastructure transfers to Urban Utilities.

Urban Utilities will receive commissioning documentation, as-constructed drawings, technical specifications, operation and maintenance manuals, contact numbers and other relevant data. A maintenance period applies for all new infrastructure completed through the water approval process.

7.13 Installation compliance

Urban Utilities will typically conduct inspections to ensure the installation has been completed in accordance with this guideline.

8 Automatic meter reading (AMR)

AMR systems provide a means of reading individual submeters via a remote digital read panel, avoiding the need to physically inspect and read each submeter.

Urban Utilities rely on AMR systems to read installed submeters remotely for developments where physical access to submeters is restricted. If the identified location criteria for unrestricted physical access cannot be achieved (see section 7.6) then an AMR system is mandatory.

8.1 What is an AMR system?

AMR systems provide a means of reading the water consumption of individual submeters from a digital (meter) read panel rather than reading the consumption directly from the dial face of an individual water meter. There are three (3) key components to an AMR system:

1. A pulse generator (or reed switch) (as required): a device installed on the submeter which converts the mechanical water consumption reading to pulsed electrical signals. The pulse generator is supplied by the manufacturer of the submeter.
2. Communications infrastructure: electronic devices and cabling which convert and transfer the pulsed electrical signals from the reed switches to the digital read panel via a communication network (within the development).
3. Base station and digital read panel: the digital display for reading and reviewing meter data. The digital read panel is housed within an enclosure (separate to the submeter enclosure) which must be located to ensure unrestricted physical access.

The following is a schematic representation of a typical AMR system.

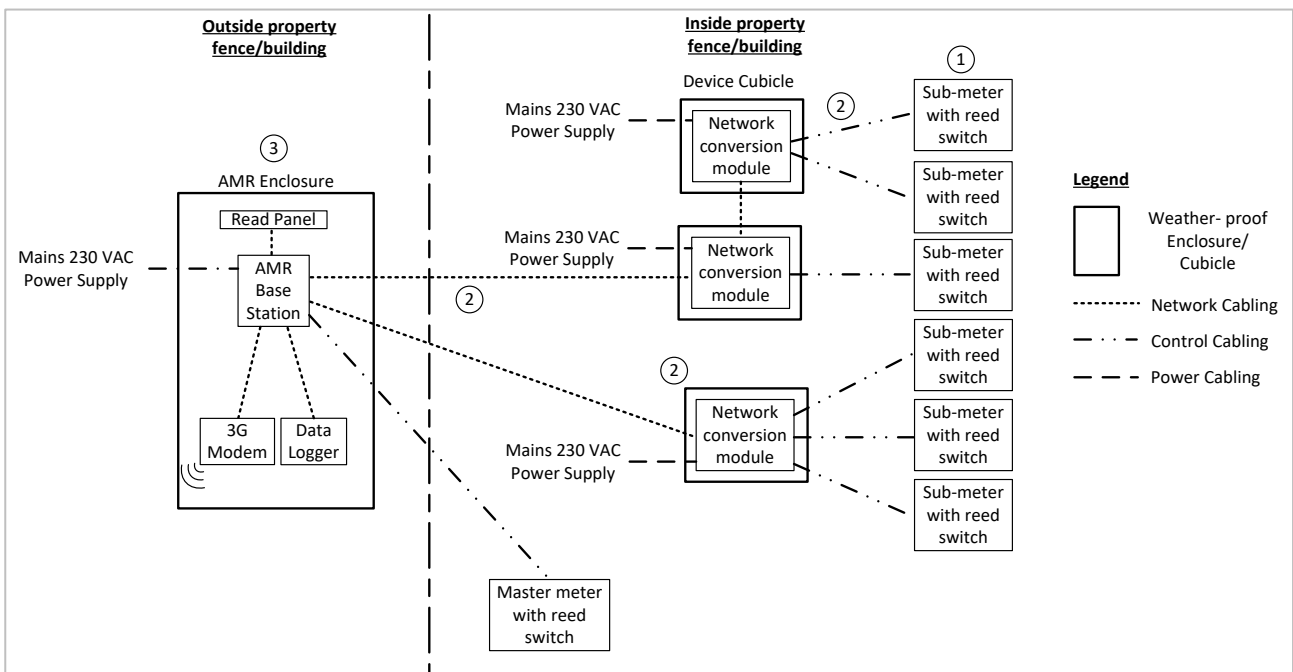


Figure 2 Typical AMR system infrastructure

8.2 When is an AMR system required?

Where unrestricted physical access to submeters cannot be achieved, installation of an AMR system is mandatory. When an AMR system is installed, the master meter and all submeters must be linked electronically to enable all meter reading data to be sent to the AMR's digital read panel.

8.3 Which AMR systems are approved for installation?

Urban Utilities has authorised the use of several wired and wireless AMR systems from different manufacturers. Wired AMR systems are commonly used in new developments; wireless AMR systems may be necessary when retrofitting submeters to an existing development.

Only approved equipment shall be used for AMR installations. A list of Urban Utilities' approved products can be found on the SEQ Code [IPAM list](#).

The list of approved products is subject to periodic review, and updates are published from time to time. To ensure you have the latest information, always refer to the SEQ Code website.

8.4 Who can install an AMR system?

AMR systems shall be installed by an Urban Utilities- approved installer only. Please contact Urban Utilities' approved AMR providers, who can advise on approved AMR installers.

8.5 Are there specific installation requirements?

During installation, the installer must complete all components of the AMR system, including hardware, power supply, and cabling and communication to the digital read panel.

The AMR system and the individual submeters must be separable items. Even when supplied by the same manufacturer, the design and installation of the AMR system must enable replacement of either component with an equivalent product from a different manufacturer without necessitating replacement of both components.

The electrical installation of the AMR system shall be in accordance with AS3000, AS3008 and all relevant Australian Standards, supply authority regulations and statutes.

Each AMR system must be fully commissioned, including provision of accurate reads from all submeters in the development, prior to handover.

8.6 Who owns the AMR system?

Where an AMR system has been installed in accordance with this guideline, Urban Utilities will take ownership of the following assets.

Table 18 AMR system ownership explained

| AMR system | Asset responsibility of Urban Utilities | Responsibility of property owner |
|-----------------------|--|--|
| Hard-wired AMR system | <ul style="list-style-type: none">• pulse generator (i.e. reed switch) attached to the submeter;• network conversion module (located adjacent to each submeter grouping);• AMR digital read panel, base station and data logger; and | <ul style="list-style-type: none">• power supply to the network conversion module and the socket outlet; |

| AMR system | Asset responsibility of Urban Utilities | Responsibility of property owner |
|---------------------|--|---|
| | <ul style="list-style-type: none"> AMR digital read panel enclosure. | <ul style="list-style-type: none"> power supply to the AMR digital read panel and the socket outlet; electrical and communication wiring between the submeter and the AMR digital read panel; conduits, cable ladders and other wiring infrastructure. |
| Wireless AMR system | (In addition to the assets identified above - i.e. hard-wired AMR systems): <ul style="list-style-type: none"> any wireless transmitter connected to the submeter; and any repeaters / amplifiers located in the building to boost the signal. | |

8.7 How should an AMR system be identified?

AMR enclosures must incorporate a unique identification tag installed within the enclosure complete with the following information:

- property address that the AMR enclosure corresponds to
- date of installation, and the entity that installed the AMR system
- AMR manufacturer and model number.

AMR identification tags shall be stainless steel with the information listed above engraved onto the tag. The tag must not interfere with the digital read panel, the enclosure or the functionality of the AMR system.

8.8 AMR meter digital read panel enclosure

The AMR digital read panel enclosure must be located in an area of the development that provides unrestricted physical access in accordance with the definition set out in section 7.6.

The AMR digital read panel shall be housed in an enclosure in accordance with the following requirements.

Table 19 AMR digital read panel enclosure – design & installation requirements

| No. | Installation requirements – AMR digital read panel |
|-----|--|
| 1 | The enclosure must be weatherproof, sufficiently vented, and rated to IP56. |
| 2 | All enclosure penetrations shall be sealed and protected against corrosion. |
| 3 | All external edges shall be rounded with all edges and corners accurately and neatly folded. |
| 4 | The meter digital read panel enclosure shall be clearly marked ' AMR data ' with a minimum letter height of 25mm and be permanently fixed centrally on the outside of the door. |
| 5 | The digital read panel shall be installed between 1200mm and 1800mm from the ground level. |

| No. Installation requirements – AMR digital read panel | |
|---|---|
| 6 | The digital read panel shall be located such that it can be easily read by one person unassisted. |
| 7 | A minimum rectangular area of two-square metres, or an area of 1.5 metres multiplied by the width of the access door (whichever is greater) shall be provided directly in front of and external to the enclosure as unobstructed working space for maintenance and replacement. There must be sufficient space for the enclosure door(s) to swing open completely (at least 90 degrees) and be held open. |
| 8 | The digital read panel enclosure must be fitted with adequate lighting to enable submeter reading and maintenance. |
| 9 | The enclosure access doors shall have a hand-operated, one-point stainless steel quarter-turn latch to close the door. Access doors shall have lift-off type plated brass hinges with stainless steel hinge pins. Access door shall be dual-lockable. The installer shall provide a dedicated 240 VAC power circuit to the AMR enclosure via a lockable circuit breaker on the main electrical distribution board. |
| 10 | The enclosure shall house a switched 240 VAC electrical lockable double power socket outlet for AMR system use within 300mm of the meter digital read panel or must be hard wired with its own dedicated circuit breaker. |
| 11 | If the enclosure power supply is hard-wired, the enclosure shall incorporate a main switch for isolation of all power sources in the enclosure for safe de-energised servicing. |
| 12 | An enclosure source supply isolation procedure identifying locations of the main circuit breaker shall be completed and secured to the inside of the cubicle door. |
| 13 | The enclosure shall have an extra volume allowance of 300mm x 200mm x 150mm deep after all equipment is installed to enable the future installation of a modem for remote access to the AMR. |
| 14 | The material of any external enclosure shall be minimum 2mm thick 316 grade stainless steel. |
| 15 | All equipment within the enclosure must be identified by Traffolyte labels screw fixed to the cubicle. |

8.9 AMR information requirements

All AMR systems must include a table of submeters linked to the system within the connectivity audit submission. However, the information required varies for hard wired and wireless AMR systems.

8.9.1 Hard-wired AMR systems

For hard-wired AMR systems, the as-constructed package must include the following details:

- conduit material, colour and size
- identify inspection boxes and junctions
- plans highlighting location of meter reading panel (wall or cupboard/cabinet)
- a wiring diagram detailing the meters connection at AMR meter reading panel
- the floor plan must show the meter position on high-rises and the location of the cabling in relation to other services in the ducting.

8.9.2 Wireless AMR systems

For wireless AMR systems, the as-constructed package must include the following details:

- meter reading master panel position (wall or cupboard/cabinet)
- elevation and plan drawings highlighting the location of the wireless repeaters and transponders within the building
- a floor plan showing the location of submeters on each floor (for multi-level buildings)
- the location of the wireless transmitters for the sub-meters on each floor.

8.10 What is the maintenance period for an AMR system?

A 5-year (60-month) warranty on all AMR components and installation must be provided by the AMR manufacturer from the date of installation.

Urban Utilities will review the as-constructed package and, if necessary, advise the developer of any defects which the approved installer will be required to rectify within a timeframe determined by Urban Utilities.

8.11 Is a master meter still required?

Yes. Even if an AMR system is installed for a new development, it remains a requirement for developers to install a master meter - or multiple master meters, where appropriate - at the property boundary (consistent with this guideline).

8.12 Changes to submeter access following installation

It is the responsibility of the body corporate to ensure that that access to submeters is maintained following installation (i.e. that submeters remain in an accessible area). Should access be impeded following installation, Urban Utilities reserves the right to abandon reading submeters and adjust billing our processes accordingly.

9 Metering configurations

Section 9 provides a summary of the submetering configuration requirements for various development scenarios.

9.1 Class 2 building(s): single-level residential development

A single-level residential development usually consists of attached dwellings. A townhouse-style community title scheme development gate is a typical example of a single-level residential development. While each dwelling may consist of multiple storeys, the dwellings are not 'stacked', vertically, on top of each other.

For townhouse-style developments, a master meter should be installed in accordance with this guideline, and one submeter installed for each dwelling.

The only exception is for a townhouse development of no more than eight (8) dwellings where each dwelling has direct access to the public road corridor and where there is no water consumption associated within common property within the development. In this instance, one water service and one meter per dwelling may be installed, servicing each dwelling directly.

9.2 Class 2 building(s): multi-level development

The most common type of multi-level development is an apartment building. In multi-level developments, submeters must be grouped together and installed in *accessible areas* of the development. There are two acceptable alternatives for the installation of submeters in multi-level developments.

- Option 1: install submeters in accessible areas on each level of the building (requires installation of an AMR system) (note that Option 1 is most common).
- Option 2: install all submeters at ground level (an AMR system is not required if unrestricted physical access is available to submeters) (note that Option 2 is uncommon).

Where a development has more than one multi-level building, a master meter for each building should be installed in a location consistent with this guideline (either on a manifold, or on a separate water service) and all meterable premises within the buildings must have individual submeters. This requirement enables future changes to building ownership.

9.3 Class 2 building(s): restricted access development

Restricted access developments are those which have a security barrier (such as a gate, or security door) at the entry to the development, prohibiting unrestricted physical access to any installed submeters. Security barriers typically require a key, swipe card, pin code, or other type of unique access to enter the development. Secured developments may be single-level or multi-level.

9.3.1 Single-level restricted access developments

The metering configuration for a single-level restricted access development is shown in the figure below.

There are two metering configuration options for a restricted access development.

- Option 1: install all submeters in a common area external to the development's security barrier (ensuring unrestricted physical access).
- Option 2: install all submeters in common accessible area of the development and install an AMR system.

When installing infrastructure external to security barriers - including submeters and the AMR digital read panel (where applicable) - installation may be either:

- within a recess built into the security barrier within the development's lot boundary; or
- within an enclosure external to the development's lot boundary.

9.4 Mixed use multi-level developments

If a development contains more than one land use, then each land use must comply with the relevant submetering requirements. For example, a high rise building with shops on the ground floor, offices on intermediate floors with residential apartments above will require:

- each shop to be metered individually
- each floor of the office space to be metered
- each residential unit to be metered separately.

Where there are multiple body corporates, a master meter is required to measure the flow to each individual body corporate.

9.5 Class 3 building(s): hotels and serviced apartments

According to the QPW Code, submetering is not required for hotel rooms (or suites), or for serviced apartments located within a Class 3 building. The only exception is if rooms, suites or serviced apartments are separate lots under a CTS – in which case submetering is mandatory

However, should the class of building or ownership structure change in the future to one which makes each room, suite or serviced apartment a meterable premises - or if a CTS is established creating separate lots - then submeters will be required.

For these reasons, it is recommended (but not mandatory) that submeters be installed or allowances be made during construction to facilitate their future installation (for example, spacer pipes installed), in order to enable future installation of submeters.

9.6 Class 5 building(s): office and commercial buildings

Each floor of an office or commercial building requires a submeter. Multiple submeters are required on a floor if there are multiple sole occupancy units identified at the time of the building's plumbing compliance assessment.

9.7 Class 6 building(s): shopping centres & shopping precincts

Submetering for individual tenancies within a shopping centre or shopping precinct is mandatory (in accordance with this guideline) if the tenancies are (or will become) separate lots.

Where tenancies are not (and will not become) separate lots, shopping centre and precinct owners may choose to introduce submetering as required under the QPWC, but these meters will be used for information purposes only and will not be reflected in multiple bills from Urban Utilities.

Where installed, submeters in shopping centres and shopping precincts should be grouped together and installed in a common area or grouped in separate areas (depending on the size of the development). Submeters must be located in accessible areas.

9.8 Class 9 building(s): aged care facilities

Aged care facilities should be metered in accordance with the requirements stated for single-level or multi-level residential developments.

9.9 Volumetric subdivisions and volumetric lots

A volumetric subdivision is the creation of a three-dimensional lot (above or below the land), subdividing levels of a building without the creation of a community titles scheme.

The submetering of volumetric lots is not required. However, in any development containing a volumetric lot, the responsibility for common water usage must be clearly stated in a building management statement.