


Plumbing Standards and Codes of Practice from a Regulator's Perspective

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Importance of Good Plumbing Codes

Good plumbing codes are intended to ensure the quality and functionality of plumbing systems to protect the health of occupants of the premises where plumbing system is installed, as well as the health of the public in general.

PUB's mission is to ensure good water supply to all in Singapore 24/7

Current Plumbing Industry Landscape

- Tightening labour force
 - Aging workforce
 - Shortage of workers as many shun outdoor or “dirty” work
- Rising cost of manpower, materials, transport, etc.
- Differing standards of work due to unlicensed plumbing work
- Smart technologies (e.g. smart water meters, etc.)
- Importance of plumbing as an essential service during COVID pandemic

Role of PUB Inspectorate

Enforce and ensure compliance with PUB's regulatory requirements

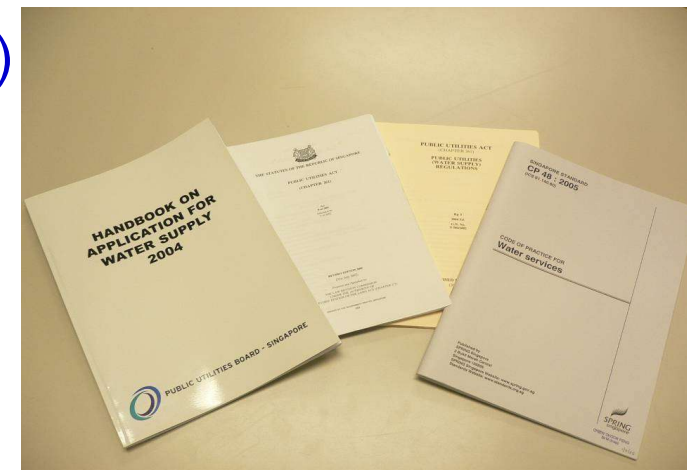
Key areas of inspectorate work

- Surveillance & inspections at key water service installations (e.g. water tanks, water fittings in new developments, etc.)
- Licensing of plumbers
- Review of legal provisions, penalty regimes, etc.

Legislative Power

Public Utilities Act (PUA) - provides power for Board to make regulations

- ❖ Public Utilities (Water Supply) Regulations
- ❖ Public Utilities (Regulated Works and WSI Design Works) Regulations
- ❖ Public Utilities (Protection of Water Pipes Infrastructure) Regulations
- ❖ Public Utilities (Composition of Offences) Regulations
- ❖ **Singapore Standard 636 – Code of Practice for Water Services**



Maintenance and Security of Water Tanks

- 60 - 70% of households under indirect water supply served by about 90,000 water tanks
- Building owners, MCSTs & Town Councils are required to maintain & secure their water tanks:
 - Secure & lock accesses to tanks
 - Secure & lock tank covers
 - Ensure only authorized access
 - Conduct regular checks
 - Keep proper records



Maintenance of Water Tanks

- Building owners must engage a Licensed Plumber at least once every year to inspect, and where necessary to clean and disinfect the tank, and certify that the water tanks are fit for use.



Mandatory Water Efficiency Labelling Scheme (MWELS)

MWELS was introduced in 2009 to help consumers make more informed purchasing decisions and encourage suppliers to introduce more water efficient products into the market.

Water Fittings & Household Appliances

Basin Taps & Mixers

Sink/Bib Taps & Mixers

Water closet flush valves

Shower Taps & Mixers

Low Capacity Flushing Cisterns

Urinal Flush Valves & Waterless Urinals

Dishwashers

Clothes Washing Machines

Water Efficiency

Taps/mixers, flushing cisterns & flush valves

Water Efficiency

Washing machines & Dishwashers

Commercial Appliances

Commercial Dishwasher

Commercial Washer Extractor

Hood

Undercounter

Top load

Front load

High Pressure Washer

Requirements & Standards for Water Fittings

- ❑ Water fittings shall meet **regulatory requirements** to safeguard quality of water supply and water efficiency.

- ❑ **Compliance regime for water fittings:**
 - ✓ **Testing by accredited test labs** - Water fittings shall be tested to various standards stipulated by PUB before supply and installation. Suppliers shall ensure that the fittings are supported with complete and valid test reports.
 - ✓ **Installation** - Professional Engineers & Licensed Plumbers shall use only compliant fittings for their projects.
 - ✓ **Surveillance** - Compliance checks at new developments, suppliers' warehouses, showrooms, etc.
 - ✓ **Enforcement** - Should there be any infringements, PUB will investigate and then follow-up with the appropriate enforcement actions on responsible parties.

Licensed Plumbers (Licensed by PUB)

1. Ensure good standards of water service installation work
 - No contamination
 - No water wastage
2. Statutory Duty to **submit notices** before start of certain works
3. Statutory Duty to submit **certificates of satisfactory completion**



Two Case Studies

1. Water Contamination arising from leakage from sanitary pipes into water tanks

2. Water Tank Security Incident

Sanitary Pipes directly over Water Tank

Water Contamination Incident (Aug 2000)

- Water contamination incident at mixed development
- More than 120 people fell sick with abdominal pain, diarrhoea and vomiting

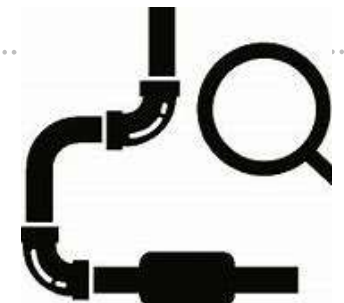


Causes

- Leakage from corroded sewer pipe laid above low level tank
- Poor maintenance of water service installations (sewer pipe and water tank)

Follow Up Actions

1. Owners **diverted sanitary pipes** away from tanks in existing premises
2. PUB **stepped up inspection** of water tanks and pipes in existing premises
3. PUB **amended Code of Practice** to improve design of pipes and maintenance of tanks
4. PUB **amended legislation** to disallow sanitary pipes and other non-potable pipes above tanks for new premises
5. PUB **stepped up enforcement** actions against such non-compliance in industry



Enhanced Security Design & Access Control Measures

1. Brackets bolted down on tank covers
2. Replacing existing locks with quality padlocks with non-duplicable keys
3. Dedicated fencing enclosures (for new buildings)
4. Building owners to ensure (a) only authorized personnel; (b) proper access records; and (c) regular inspection on access doors
5. Facial Recognition System to enhance access control (for new buildings)




Conclusion

Preparing Plumbing Industry for New Economy

1. **Innovation** – tapping on new technologies (e.g. smart meters, better leak detection methods, app to search for plumbers, etc.) to transform the industry.
2. **Licensing Regime** – to grow plumbing sector and workforce to enable the sector to stay relevant.
3. **Partnership & Ecosystem** – As the regulator, PUB cannot work alone. We need to engage all relevant key stakeholders.

Thank You



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