

# Building Act 2016

## Director's Guidelines – Inspection of plumbing work

I, Dale Edward Webster, in my capacity as Director of Building Control, and acting pursuant to section 19(1)(e) of the *Building Act 2016*, hereby make the following Guideline.

<b>Guideline title</b>	<b>Inspection of Plumbing work</b>
<b>Description</b>	This guideline provides guidance to permit authorities on inspection of plumbing work.
<b>Version</b>	Final v1.0 December 2016
<b>Application</b>	For the purposes of 19(3)(b) of the Act, this Guideline applies from the date of its approval until its revocation.
<b>Date of Director's approval</b>	12/12/2016



Dale Edward Webster

**Director of Building Control**

This Determination is issued pursuant to the anticipatory powers provision of section 11(1) of the *Acts Interpretation Act 1931*

## 1. Definitions:

BFPD	is a backflow prevention device
Categories of plumbing work	are the categories specified in the Director of Building Control Determination Categories of Plumbing Work
CLC	means a certificate of likely compliance issued by the PPA
HWC	is a hot water cylinder
OWMS	is an On-site Wastewater Management System
PCA	plumbing Code of Australia
PPA	means the Plumbing Permit Authority
Plumbing Permit Authority	is a person appointed under Section 24 of the Building Act 2016
Plumbing work	has the same meaning as specified in the Building Act 2016

## 2. Application

This Guideline is for Plumbing Permit Authorities to determine appropriate inspection frequencies for plumbing work. It may also be used for determining priorities for periodic occupational licensing auditing.

## 3. Interpretation

The *Director of Building Control Determination – Categories of Plumbing Work* specifies low risk, notifiable and high risk work. Low risk work is divided into work that an owner or competent person can perform (Category 1), work that a plumber can undertake without needing inspection by the PPA (Category 2A) and work that a plumber can complete but must notify the PPA after the work is completed (Category 2B).

Notifiable work (Category 3) cannot commence until the PPA has issued a CLC and the plumber will need to notify the PPA when the work is ready for inspection at each mandatory notification stage.

Category 4 plumbing work is high risk (Plumbing Permit) and will normally be inspected. Works involving OWMS or greywater reuse, recycling or diversion must be inspected by the PPA.

Stages of plumbing work where the PAA may or must (if required by Section 174 of the *Building Act 2016*) inspect:

- Installation of plumbing work before covering (Category 3 & 4);
- Commissioning of plumbing work for which a plumbing permit has been issued (Category 4);
- Change of responsible plumber (Category 3 & 4);
- Completion of plumbing work (Category 2B, 3 & 4); and
- Other stages specified by the PPA in the CLC or plumbing permit (Category 3 & 4)

## 4. Determining Inspection Frequency

The inspection requirements are determined by legislative requirements specified in the *Building Act 2016* for some Category 4 work such as OWMS which must be inspected at mandatory notification stages. For the remaining Category 4 work not specified in Section 174 and Category 3 & 2B the PPA should consider the relevant experience, continuing professional development and the plumber's history of compliance observed during plumbing inspections. There is a matrix in Appendix I that will assist with determining appropriate inspection frequencies.

When assessing the plumber's experience the PPA should take into consideration the relevant experience in the specific type of plumbing work being completed. For example a plumber may have been working for more than 15 years and be appropriately qualified to undertake roof plumbing but may have only ever done a small number of roof plumbing jobs.

Category 2A plumbing work does not require notification to the PPA; however Table I may be used by Occupational Licensing for determining audit priorities for plumbing practitioners.

If a PPA identifies a serious non-compliance at an inspection the PPA should ensure that the work is re-inspected. Minor non-compliances may not require re-inspection and a PPA may rely on a standard of work certificate and /or photographs as evidence that the work was completed satisfactorily

Regular risk-based inspection of plumbing work is an important mechanism to validate that plumbing work is being completed in accordance with the PCA. It is not practical to inspect 100% of all plumbing work so inspections should be based on a process which provides a representative indication of the work to suit the risks involved. Determination of what, how and when to inspect/test plumbing work is governed by:

- What the work is and how complex it is;
- The skills, knowledge, experience and compliance history of the person completing the work;
- Accessibility for inspections; and
- Consequences of failing including:
  - Cost of remedial works;
  - Accessibility for rectification;
  - Consequential damage to other buildings;
  - Threat to the safety or health of the occupants of a building;
  - Risk to public health or safety of the public; and
  - Potential for environmental harm.

The categories of plumbing work will have taken the above matters into consideration, but it is appropriate to also consider these issues when both nominating the mandatory notification stages on a CLC or plumbing permit and determining inspection and testing requirements for plumbing work.

More than one inspection may be required to determine if plumbing work has been installed in accordance with Act, however this will also depend on the number of applicable mandatory notification stages and whether the project has multiple stages of plumbing work of the same type.

Where possible each Council should incorporate into their existing plumbing application and inspection database/s the ability to record:

- the plumber who completed the work;
- if the inspection passed or failed; and
- if non-compliance was observed whether it was minor or significant.

This information will allow more objective rather than subjective determinations of plumber compliance.

## **5. Type of Plumbing work**

Permit Authorities must ensure that plumbing work is inspected in a range of building classes for Low risk (Category 2B), notifiable and plumbing permit work including;

- Water reticulation;
- Heated water;
- Onsite wastewater management systems;
- Sewerage reticulation;
- Stormwater reticulation;
- Roof plumbing; and
- Fire services.

It is not acceptable to only target specific classes of buildings or types of plumbing work.

## **6. Process for booking inspections and undertaking plumbing work**

A plumber is required to follow this process for notifying the relevant PPA and to arrange inspections at mandatory notification stages:

1. The plumber lodges a notice of plumbing work with the PPA
2. PPA determines the inspections that are required in accordance with this guideline;
3. The PPA specifies on the CLC what the mandatory notification stage/s are and authorises work to commence;
4. Plumber notifies the PPA at a mandatory notification stage;
5. PPA advises if an inspection is required and arranges a time;
6. If the PPA does not inspect the work the PPA may request that the plumber photograph or video the work and submit copies to the PPA;
7. PPA conducts the inspection/s;
8. If the PPA does not inspect the work within the specified period the plumber may proceed;
9. Plumber arranges for an 'as-constructed' drawing to be prepared, if appropriate and submitted to the PPA and owner;
10. Plumber provides standard of Standard of Work Certificate (Plumbing); and
11. PPA Issues completion certificate when all stages have been satisfactorily completed

## 7. Who should complete inspections?

A PPA must ensure that plumbing work is inspected by a plumbing surveyor who is a qualified plumber certifier and has appropriate experience;

If a Council currently employs a plumbing inspector who is not a plumber certifier a competency assessment is recommended and additional training should be provided.

In remote areas where a Council may not employ a permit authority or plumbing surveyor, resource sharing with another Council/s may be appropriate. A permit authority may also arrange for competent external contactor/s (plumber certifier) to complete inspections on their behalf.

## 8. What to consider at inspections?

Appendix 2 contains an example inspection checklist that will provide guidance on relevant matters to consider at inspections.

In order to complete inspections it will be necessary for the plumbing surveyor to have access to the following equipment (or ensure that the plumber has this on-site) so that testing / inspecting of the plumbing work can be undertaken:

- Test bucket for pressure testing water pipes (check for leaks)
- A level for checking pipe grades
- Measuring tape, for measuring drains
- Camera for photographing non-compliant work where a plumbing notice or order will be issued
- Thermometer for water temperature measurement
- Stop watch and graduated bucket for measuring flow rates
- Plug for a hydrostatic test
- Mirror and torch for drain inspections

Records of inspections must be retained by the PPA.

Note: If accessing a roof to undertake an inspection, first ensure that an adequate safety risk assessment has been completed. Working at heights training and safety equipment is required.

## 9. Certification of work

A standard of work certificate must be provided for notifiable and plumbing permit work in accordance with Sections 113 and 176 of the *Building Act 2016* regardless of whether the work is inspected or not. This certificate is not to be used for self-certification or to replace the need for inspection and testing of plumbing work. A standard of work certificate is a statement the plumber provides to inform the owner that the work has been completed in accordance with the *Building Act 2016* and CLC/permit. It is not a certification document that the permit authority can rely upon.

In situations where the permit authority requires additional expert advice to inspect plumbing work a certificate of a specialist may be requested from the owner or plumber. A person providing the certificate must be appropriately qualified as specified in the *Director's Determination – Certificates by qualified persons for an assemble item*.

Inspection of plumbing work is an important function of a plumbing permit authority for independently monitoring compliance with the *Building Act 2016*.

A survey of Councils in Tasmania in May 2016 found that:

- 35% of respondents reported a plumbing defect rate of 50% or greater at inspections. 30% found defects at a frequency of 1 in 3 and the remaining 35% reported defects in 1 out of 5 or less;
- 74% of respondents believed that the 'as-constructed' plans submitted by plumbers were not drawn to an acceptable standard; and
- 78% of Councils reported that they had recently experienced issues with incorrect installation of OWMS.

The survey re-enforces the need for regular compliance inspection and testing of plumbing work.

## **10. Records of Inspections**

The PAA is required to keep records of inspections, including the outcomes, type of work and plumber completing the work. This information may be used to develop a database on the compliance of plumbers and types of plumbing work. Areas of non-compliance will be useful for identifying areas for CPD training.

## Appendix I Plumbing Inspection Matrix

1 - Plumber compliance history (% of compliant inspections)	2 - Plumber experience & CPD (Years of relevant experience and evidence of CPD)	3 - Compliance / experience score	4 - Plumbing Category	Total Score
<b>1</b> Nearly always compliant (>90%)	<b>1</b> (>15 years with regular satisfactory CPD)		<b>1</b> (Category 2A Plumber certified)	
<b>2</b> Highly compliant (75 – 90%)	<b>2</b> (5 -15 years with regular satisfactory CPD)			
<b>3</b> Mostly compliant (50-75%)	<b>3</b> (5 -10 years some CPD) or (>15 years with unsatisfactory CPD)		<b>3</b> (Category 2B Post Notification)	
<b>4</b> Unacceptable level of non-compliance (25-50%)	<b>4</b> (3-10 years with unsatisfactory CPD)		<b>4</b> (Category 3 Pre Notification & CLC)	
<b>5</b> High level of non – compliance (<25%)	<b>5</b> (<3 years)		<b>5</b> (Category 4)*	
<b>Score</b>		( ) (column 1 + column 2)	X (category rank)	= ( )

**Notes:**

1. Add column 1 & 2 then multiply by the appropriate row in Column 4 for the class of plumbing work.
2. Category 2 plumbing work does not require inspection but scores over 5 may suggest periodic compliance auditing is required
3. Non – compliance is divided into serious non-compliance and minor non-compliance. Where regular serious non-compliances are observed compliance score should be 5 and if non-compliances are only minor a score of 2 is appropriate.
4. Examples of serious non-compliance: cross connections, drains with inadequate cover, the wrong size or grade pipes, failure to install backflow prevention, inadequate ventilation or overflow protection, using non-compliant plumbing products
5. Examples of minor non-compliance: No boundary identification, no vent cowl, no skirt on ORG
6. \* Category 4 work involving mandatory notification stages of an OWMS or greywater system must be inspected
7. Satisfactory CPD for a period of at least 2 years – CPD must be compliant with a determination made by the Administrator of the *Occupational Licencing Act 2005*.

Risk score	Recommended % of Inspections
>30	100
20 - 29	75
10-19	50
5-9	25
<5	10

## Appendix 2: Plumbing Inspection Checklist

Inspection Sheet		Permit / CLC No:		
Address				
		Licence number		
Plumber class	Practitioner (sanitary, water, drainage, roof, mechanical) Practitioner – certifier (sanitary, water, drainage, roof, mechanical) Heated water temp control or Backflow prevention endorsement	Qualified for class of work?		
Type of work inspected	Sub-category	Inspection feature		
Water reticulation	Cold water	Dual check	Backflow prevention on taps	Test bucket
	Hot water	Solar	Gas	Electric
		Temperature	Tempering valve	Backflow prevention Device
	Tray	Overflow		
Fixtures	Bathroom	WC	Shower	Bath
		Basin	Spa	
	Ensuite	WC	Shower	Bath
		Basin	Spa	
	Laundry	Trough	Washing machine	
	Kitchen	Sink	Dishwasher	Garbage grinder
Sewerage		Pipe grade	Cover	Clips
		Vents	ORG	Drain size
On-site wastewater	System type	Septic tank	AWTS	Composting toilet
		AES/Eljin	Sand filter	
	Land application area	Absorption trench / bed	Irrigation area	Mound
	Pumping	Alarm & float switch	Pump	Pump chamber
Stormwater		Tank/s	Downpipes	Clips
		Pipe grade	Cover	Drain size
Roof plumbing		Waterproofing	Guttering	Overflow
Result	Pass/fail	Minor non-compliance	Serious non-compliance	
Comments				
Plumbing Surveyor		Date:		