



Determination 2018/061

Regarding the installation of a replacement wood burner and wetback where a new tempering valve was also installed at 138 South Road, Masterton

Summary

This determination considers the installation of a tempering valve to an existing hot water system in a house that was being altered: the alteration involved the replacement of both a wood burner and wetback water heater. A tempering valve was installed as part of the alteration and the determination considers the compliance of the existing hot water system to the extent required by section 112 of the Act.

1. The matter to be determined

1.1 This is a determination under Part 3 Subpart 1 of the Building Act 2004¹ (“the Act”) made under due authorisation by me, Katie Gordon, Manager Determinations, Ministry of Business, Innovation and Employment (“the Ministry”), for and on behalf of the Chief Executive of the Ministry.

1.2 The parties to the determination are:

- Masterton District Council (“the authority”) carrying out its duties as a territorial authority or building consent authority. The authority is the applicant to this determination
- A and K Mignot, the owners of the property (“the owners”).

1.3 I have included The Heat Shop, Masterton, as the supplier/installer (“the installer”) of the solid fuel burner as a person with an interest in the matter.

1.4 The determination arises from the installation of a replacement wood burner with wet back, and a tempering valve to the existing storage water heater.

1.5 The matter to be determined² is therefore whether the altered water system to the house complies with Building Code Clause G12 Water supplies³ to the extent required by the Act.

1.6 In making my decision, I have considered the submissions of the parties and the other evidence in this matter.

¹ The Building Act, Building Code, compliance documents, past determinations and guidance documents issued by the Ministry are all available at www.building.govt.nz or by contacting the Ministry on 0800 242 243.

² Under section 177(1)(b) and 177(3)(c)

³ Unless otherwise stated all references are to sections of the Act and all references to clauses are to clauses of the Building Code.

2. The building work and background

2.1 The building work

- 2.1.1 The building work consists of the installation of a replacement wood burner with a wetback in an existing single-storey house.
- 2.1.2 The house has a low pressure, open-vented electric storage water heater, with a header tank in the roof space. The water heater is mounted on a raised platform above the floor.
- 2.1.3 A tempering valve was installed above the water heater to provide tempered water to the house. The tempering valve is a 20mm, stainless steel thermostatic mixing valve designed for use with solar water heaters (i.e. an uncontrolled heat source). The valve is adjustable with a range of between 30-65°C.

2.2 Background

- 2.2.1 The applicants engaged the installer to replace an existing wood burner and wetback at the house.
- 2.2.2 The installer applied for a building consent on behalf of the applicants in 2017. A schematic diagram of the plumbing to the water heater and the wood burner included with the consent application showed:

- a “cold feed” to the water heater running through a pressure-reducing valve
- a tempering valve located beside the water heater
- the water heater located above and behind the fire.

The schematic diagram did not describe which features were existing, and which were new and part of the consented work.

- 2.2.3 I note the building consent application says the work would comply with Clauses B1 Structure, B2 Durability, E2 External moisture, F7 Warning systems, and C1 Protection from fire. The reference to Clause B1 is not relevant in this case, Clause G12 is not cited, and the reference to Clause C1 should be to C2 Prevention of fire occurring. The authority has correctly identified the relevant code clauses in its Processing Summary Report.

- 2.2.4 The authority granted building consent No. BC170569 on 19 October 2017. The consent described the work as:

Install new [name of wood burner] with wetback connecting to existing pipework

- 2.2.5 The addenda to the issued consent included the following statement:

Application clearly states project is for a new fire, re- connecting to an `existing` wet back pipe work system. As such tempering cannot be enforced as a "requirement" but is noted on documents as strongly advised[.] The installation of a tempering valve on an existing hot water system subjected to an upgrade of an existing `uncontrolled heat source` is strongly advised to ensure safe water temperature control.

- 2.2.6 The authority inspected the work on 13 March 2018 and issued a code compliance certificate for the building work on the same date.
- 2.2.7 The owners subsequently found that the installation of the new tempering valve had adversely affected the hot water pressure in the house, and they contacted the installer and the authority about the issue.

2.2.8 In undated correspondence to the owners the authority said:

- the fireplace was installed as per the consented documents, which show a tempering valve to be fitted. This was observed and documented at the inspection
- a tempering valve was not a requirement, however, if it is removed, the system will still need to comply with the Functional Requirement G12.2 for the provision of a safe water supply. An acceptable method of limiting the hot water to a safe temperature to sanitary fixtures will have to be installed.

2.2.9 In an email to the installer, dated 5 July 2018, the authority noted:

- building consent documents were granted with a tempering valve shown that demonstrated compliance with Clause G12.2
- a code compliance certificate was issued because the authority was satisfied on reasonable grounds the building work complied with the building consent and the works were deemed compliant
- if the tempering valve is removed the system will be non-compliant. However, it can be replaced with an alternative method of providing hot water at a safe temperature.

2.2.10 The authority applied for a determination on 23 July 2018.

3. The submissions and the draft determination

3.1 The initial submissions

3.1.1 The application included:

- a submission from the authority setting out the background to the application
- a copy of the plans from the building consent, consisting of the house layout/smoke detectors and a schematic of the proposed plumbing works
- copies of correspondence between the authority, the installer and the owners.

3.1.2 The authority submitted that:

Being on a low pressure/ header tank system (not mains supply), the installation of the new fireplace with the tempering valve has adversely impacted water pressure at the property, including shower pressure and water tap pressure in the bathroom. The [owners] struggle to get sufficient pressure to run the shower.

[The authority] was unable to issue an amendment, or consider a waiver or modification, given the [code compliance certificate] had been issued.

3.1.3 On 5, 6, and 7 August 2018, the owners made submissions providing information about the background to the dispute and the alteration to the hot water system. The owners provided photographs and specifications for the tempering valve, noting that the system did not have a pressure reducing valve, and the water heater has a header tank system and an open vent.

3.1.4 The owners noted they had tested the water flow⁴ at the shower and collected 1.4 litres per minute. The flow rate was not sufficient and was the reason for disputing the installation of the tempering valve.

⁴ The owners advised this flow was with the tempering valve adjusted to the maximum temperature (being 65°C).

3.1.5 On 13 August and 7 September 2018, the authority made submissions providing information about the authority's position. The authority noted:

- It was reliant on the information supplied by the "Certifying Plumber" that the system would support a tempering valve. It could not verify "if the total system is compliant" with respect to pipe diameters and the water pressure to the water heater as described in G12/AS1⁵.
- With respect to whether Clause G12.3.7(a) had been satisfied; the results from the applicants' test of the water flow has not been verified, but at the rate advised the authority "would have to agree that this flow rate is low".
- The "generic addenda" to the consent contained the authority's recommendation that a tempering valve be fitted. However, the granted consent documents and plans had a tempering valve detailed and drawn as part of the new fire being installed; it was fitted, inspected, and a code compliance certificate issued.

3.1.6 On 16 October 2018, in response to the Ministry's request, the authority provided a complete copy of the issued building consent, including the forms, addenda and approved plans.

3.2 The draft determination and submissions received

3.2.1 A draft determination was issued to the parties and the installer for comment on 26 October 2018. No response was received from the installer.

3.2.2 The owner accepted the draft without comment on 20 November 2018.

3.2.3 The authority accepted the draft with non-contentious comments on 23 November 2018. The authority proposed that paragraph 5.1 be amended to explicitly refer to the requirements of section 112(1)(b), and add the option of fitting an inline booster pump on the hot water supply to ensure compliance with both G12.3.6 and G12.3.7(a). The authority also noted one typographical error.

3.2.4 In response to the authority I note that it is the owner's choice whether to install an inline booster pump; the installation of such a pump in this case is achieving a level of compliance beyond that required by section 112(1)(b).

4. Discussion

4.1 The legislation

4.1.1 Under section 17 of the Act, all building work must comply with the Building Code. In the current case the relevant Clause is G12 relating to water supplies.

4.1.2 With respect to the granting of a building consent, section 49 of the Act provides:

- (1) A building consent authority must grant a building consent if it is satisfied on reasonable grounds that the provisions of the building code would be met if the building work were properly completed in accordance with the plans and specifications that accompanied the application.

⁵ G12/AS1 is an Acceptable Solution for Clause G12 Water supplies

4.1.3 The building work was an alteration to an existing building, and therefore section 112 of the Act applies. Section 112(1)(a) of the Act provides:

112 Alterations to existing buildings

- 1) A building consent authority must not grant a building consent for the alteration of an existing building, or part of an existing building, unless the building consent authority is satisfied that, after the alteration,—
 - (a) the building will comply, as nearly as is reasonably practicable, with the provisions of the building code that relate to—
 - (i) means of escape from fire; and
 - (ii) access and facilities for persons with disabilities (if this is a requirement in terms of section 118);
 - (b) the building will,—
 - (i) if it complied with the other provisions of the building code immediately before the building work began, continue to comply with those provisions; or
 - (ii) if it did not comply with the other provisions of the building code immediately before the building work began, continue to comply at least to the same extent as it did then comply.

4.1.4 The relevant clauses of the Clause G12 — Water supplies, include:

Function requirement

G12.2 *Buildings* provided with water outlets, *sanitary fixtures*, or *sanitary appliances* must have safe and *adequate* water supplies

Performance

G12.3.6 If hot water is provided to *sanitary fixtures* and *sanitary appliances* used for personal hygiene, it must be delivered at a temperature that avoids the likelihood of scalding

G12.3.7 Water supply systems must be installed in a manner that—

- (a) pipes water to sanitary fixtures and sanitary appliances at flow rates that are adequate for the correct functioning of those fixtures and appliances under normal conditions; ...

4.1.5 Accordingly, in regards to the consent application for the alteration, the authority needed to be satisfied that the building (that is the existing building as a whole) will continue to comply if it complied before the alteration, or comply to at least the extent it did prior to the alteration.

4.2 The installation of the tempering valve

4.2.1 The building work comprised of the installation of a replacement wood burner and wetback – the wetback was to be connected to existing pipework. I note that the compliance of the replacement wood burner and wetback is not in dispute. A tempering valve was also installed, and I note that the authority sought the determination on whether a tempering valve is a requirement.

4.2.2 As the building work was an alteration to an existing building the provisions of section 112 of the Act applied. Section 112 allows for the upgrading of the means of escape from fire and access and facilities for persons with disabilities. In this case the upgrading for means of escape from fire is met through the provision of smoke detectors; the requirements for access and facilities for persons with disabilities do not apply as the building, as a residential dwelling, falls outside the buildings to which the accessibility provisions apply under section 118 of the Act.

- 4.2.3 In respect of the remaining code clauses; the authority needed to be satisfied that the building would continue to comply with the provisions of the Building Code to the same extent it did before the alterations took place. In other words - if the building did not comply in some respect, the alterations could not make the non-compliance any worse.
- 4.2.4 In this case, the water system prior to the alteration comprised a wood burner with a wetback connected to a low-pressure water heater. The system did not have a tempering valve or alternative method of providing water at a safe temperature to “sanitary fixtures and sanitary appliances used for personal hygiene” as required by Clause G12.3.6.
- 4.2.5 The system as altered was only required to comply to the same extent as before in terms of G12.3. I am therefore of the view that a tempering valve was not required to be installed as the authority noted in the building consent addenda (refer paragraph 2.2.5).
- 4.2.6 Had the consented work included the installation of a new sanitary fixture or appliance to be used for personal hygiene, then the hot water to that fixture or appliance would have been required to be provided at a safe temperature. However, this requirement could not be extended to the remaining fixtures or appliances in the house. This matter has been previously discussed in Determination 2007/053⁶.

4.3 The adequacy of the building consent documentation

- 4.3.1 The schematic plumbing diagram that forms part of the approved building consent documentation is not clear in terms of the elements that comprise new work and the elements that are existing. The schematic diagram incorrectly shows the cold water supplied to the water heater via pressure reducing valve and not from the existing header tank.
- 4.3.2 The authority appears to have been aware that a tempering valve was to be installed as it has treated the valve as part of the consented work (the consent documentation does not include detail for the proposed tempering valve). However, the consent addenda says that the installation of the valve “cannot be enforced as a “requirement”” and that its provision is “strongly advised”.
- 4.3.3 Given the wording of the addenda, if the authority was aware that the installation of the valve could not be enforced it should have pursued the matter with owner or the installer before the consent was processed to confirm the impact of the valve on the existing low-pressure hot water system. This would also have assisted the authority’s decision-making process under section 112(1)(b).
- 4.3.4 In my view it is not clear from the consent that a tempering valve was to be installed as part of the consented work.

4.4 The effect on the flow rate

- 4.4.1 Under section 112(1)(b), the authority was required to be satisfied that the building would continue to comply to at least the extent it did prior to the alteration. Clause G12.3.7(a) requires that water supply systems be installed to provide water to sanitary fixtures and appliances at “adequate flow rates”.

⁶ Determination 2007/53 A dispute in relation to the waiving of the requirement to provide tempered hot water in a house alteration (28 May 2007)

- 4.4.2 There appears to have been no difficulty with the level of water flow to the shower, etc, before the alteration was undertaken. However, both the authority and the owner describe the flow after the alteration as inadequate and I accept that this is the case. While the flow rate could be reduced as a result of the alteration work, it should not be done so to the extent that it is no longer considered compliant under Clause G12.3.7(a).

4.5 The code compliance certificate

- 4.5.1 Under section 94(1)(a) of the Act an authority must issue a code compliance certificate for building work carried out under a building consent if it is satisfied, on reasonable grounds, that the building work complies with the consent. As noted herein, the adverse impact of the tempering valve on the flow rates of a low pressure system should have been considered prior to the building consent being issued, and the building consent documentation did not clearly show the elements that comprise new work and the elements that are existing.
- 4.5.2 The matter for consideration by the authority under section 94 in deciding to issue the code compliance certificate was whether it was satisfied that the building work complies with the building consent. In previous determinations (see 2008/030⁷) I have come to the view that where either the as-built construction differs from that consented or where there is conflicting detail in the consent or information that was not known when the consent was granted, confirmation of a building's compliance with the Building Code is required before an authority can issue a code compliance certificate.
- 4.5.3 I consider this approach is still applicable in this case.
- 4.5.4 Given my findings about the adverse impact of the tempering valve in reducing the water pressure, the altered hot water system does not meet the requirements of section 112 because the flow rate is significantly worse than it was before and does not now comply with Clause G12.3.7(a).
- 4.5.5 I am therefore of the view that the authority incorrectly exercised its powers in issuing a code compliance certificate for the work and that the code compliance certificate should now be reversed. This will enable the authority to issue a notice to fix requiring the hot water system to be brought into compliance with the Building Code. The authority can also consider a waiver or modification of the Building Code if appropriate.

5. What happens next

- 5.1 With the code compliance certificate reversed, the applicants may apply for an amendment to the building consent. An application to amend the building consent could propose removal of the tempering valve. If granted by the authority, this work could be carried out, and a code compliance certificate subsequently issued.

⁷ Determination 2008/30 The issuing of a code compliance certificate for a multi-storey apartment building (5 May 2008)

6. The decision

- 6.1 In accordance with section 188 of the Building Act 2004, I hereby determine that
- the building, after the alteration, does not comply with G12.3.7
 - the authority incorrectly exercised its powers in issuing the code compliance certificate for the building work and accordingly I reverse that decision.

Signed for and on behalf of the Chief Executive of the Ministry of Business, Innovation and Employment on 7 December 2018.

Katie Gordon
Manager Determinations