

Determination 2024/012

Regarding whether the installation of a woodburner complies with the Building Code

39 Marlborough Crescent, Richmond

Summary

The authority refused to issue a code compliance certificate for the building work and is seeking determination as to whether the installation of a woodburner (of which the hearth is a necessary element) complies with the Building Code.



Figure 1: The woodburner and hearth

In this determination, unless otherwise stated, references to “sections” are to sections of the Building Act 2004 (“the Act”) and references to “clauses” are to clauses in Schedule 1 (“the Building Code”) of the Building Regulations 1992.

The Act and the Building Code are available at www.legislation.govt.nz. Information about the legislation, as well as past determinations, compliance documents (e.g., acceptable solutions) and guidance issued by the Ministry, is available at www.building.govt.nz.

1. The matter to be determined

- 1.1. This is a determination made under due authorisation by me, Andrew Eames, Manager Advisory, Building Resolution, Ministry of Business, Innovation and Employment (“the Ministry”), for and on behalf of the Chief Executive of the Ministry.¹
- 1.2. The parties to the determination are:
 - 1.2.1. the owners of the house, R & E Sharplin (“the owners”).
 - 1.2.2. Tasman District Council (“the authority”), carrying out its duties as a territorial authority or building consent authority.
- 1.3. This determination arises from the decision of the authority to refuse to issue a Code Compliance Certificate. The refusal arose because:
 - 1.3.1. the authority considers the building work in regard to the installation of the woodburner, (of which the hearth is a necessary element) complies with the Building Code; and
 - 1.3.2. the front hearth clearance from the wood burner to a combustible surface (in this case, a timber floor) was 330mm, despite the manufacturer’s specifications requiring a clearance of 470mm.
- 1.4. The matter to be determined, under section 177(1)(a) of the Act, is therefore whether the installation of the woodburner on the existing as-built hearth complies with clause C2.2 of the Building Code.

Matters outside this determination

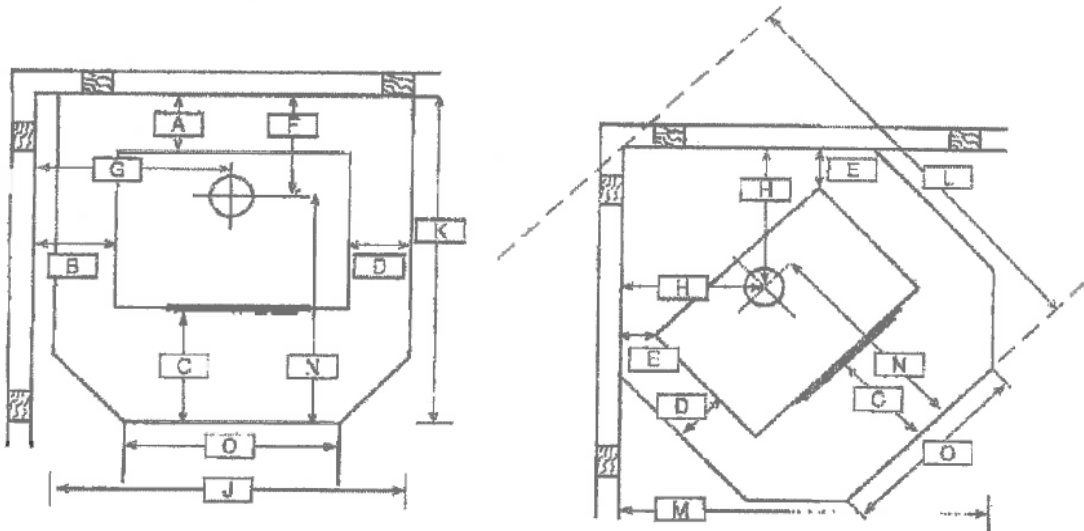
- 1.5. I have not considered any other aspects of the Act or the Building Code in relation to other parts of the building or any building work other than that described in the matter to be determined at paragraph 1.4.
- 1.6. I have also not considered the issuing of the building consent.

¹ The Building Act 2004, section 185(1)(a) provides the Chief Executive of the Ministry with the power to make determinations.

2. The building work

- 2.1. The owners installed a new [free standing] woodburner (“the woodburner”) (see Figure 1) to replace their old 1980 woodburner appliance at their residential property.
- 2.2. The woodburner model installed has a pedestal/drawer base and the hearth is approximately 40mm thick.
- 2.3. The manufacturer’s specifications for the woodburner with a pedestal/ drawer base and 40mm thick hearth combination required the installation of a hearth with specified dimensions, in particular, requiring a front hearth clearance of 470mm from the woodburner to any combustible surface (see Figure 2).

Clearances are in accordance with the requirements of AS/NZS 2918:2001



If the heater is to be placed on or within 50mm of a heat sensitive floor, an insulated floor protector will be required.

CLEARANCES	A	B	C	D	E	F	G	H	J	K	L	M	N	O
ON PED OR DRAWER	100	385	470	100	150	270	640	450	710	1220	1590	1340	950	540
ON LEGS	100	385	300	100	150	270	640	450	710	1050	1420	1200	780	540
HEATER MUST BE INSTALLED WITH FLUE PIPE SHIELD														

The standard front clearance from the front of the door glass can be reduced by increasing the insulated floor protector height, as tabled below:

FLOOR PROTECTOR HEIGHT	0	40	50	60	75	90	100	112
F/P DEPTH FOR PED OR D/BASE	554	470	444	412	389	360	334	306
F/P DEPTH FOR LEG BASE	300	300	300	300	300	300	300	300

Figure 2: The manufacturer’s floor protector requirements

- 2.4. The authority approved documents for the woodburner included the installation and operation guide for the wood burner. The document included the clearance diagrams and tables provided above. All documents were stamped as approved documents by the authority and dated 2 September 2016. The documents also included a cross section showing the woodburner installed on the existing hearth but no dimensions were provided for the size or thickness of the existing hearth.

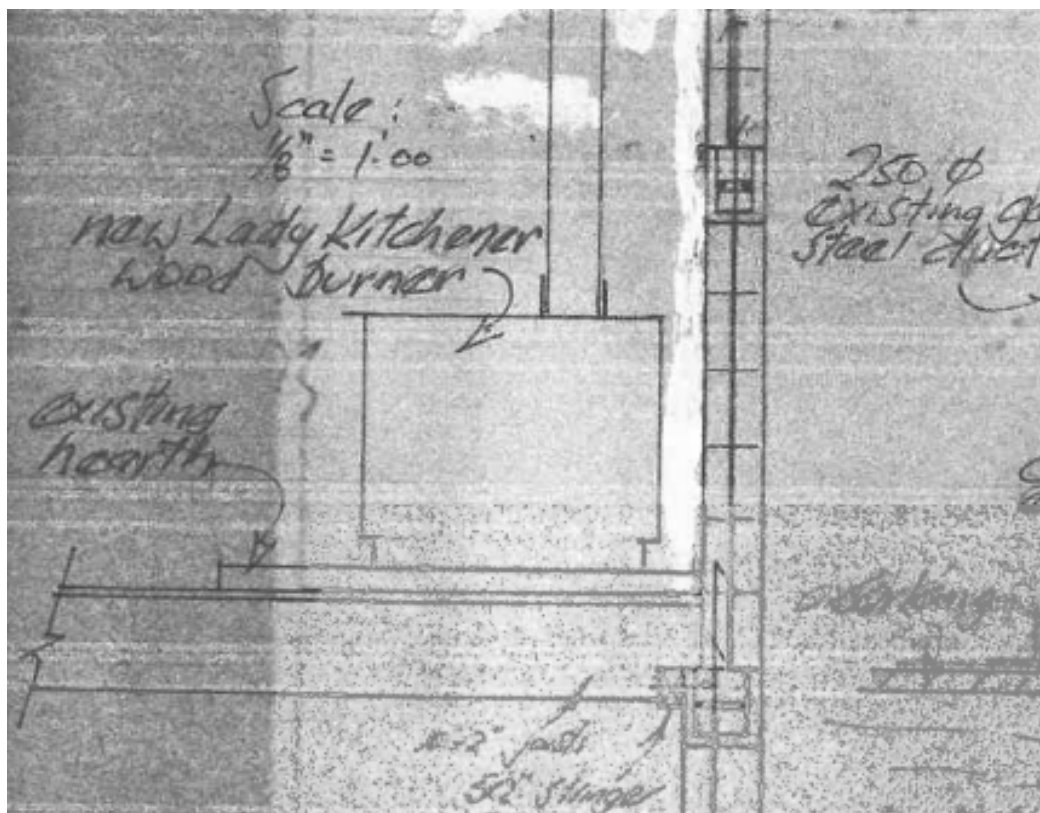


Figure 3: Cross section of installation

- 2.5. Based on the application it appears the approved plans for the building consent, which was granted by the authority, indicated that the woodburner was to be placed and installed on an existing hearth on the basis that the front and side dimensions of the hearth would comply with the manufacturers' specifications.
- 2.6. I note that if the woodburner had been the model with legs, then it would have only required a 300mm forward projection of the hearth beyond the woodburner (distance C in the Figure 2).

3. Background

- 3.1. The owners applied for a building consent to install the woodburner in 2016.
- 3.2. The authority issued a building consent (BC 160928) on 16 September 2016 for the installation of the woodburner. (see Figure 4 for relevant extract for the hearth).

8	Air gap between hearth and timber floor Only required for some models	NIL
9	Distance hearth projects from heat at front and at sides	REF. MANUFACTURER SPEC.
10	Distance of back corners of heater/burner from walls (where on an angle)	

Figure 4: Extract of building consent application

- 3.3. The authority carried out a final inspection of the installation of the woodburner on 30 September 2016 and upon inspection, the authority became aware that the as-built hearth did not comply with the manufacturer’s specifications (contrary to the building consent application).
- 3.4. With respect to the final inspection of the installation of the woodburner, the inspection report noted that:
- 3.4.1. “Fail - front hearth clearance from the drawer model is 470mm to a combustibles surfaces, actual clearance is approx..330mm, please amend to comply to manufactures requirements”; and
- 3.4.2. “Fail – Building Code F7/AS1, paragraph 3.3 requires smoke alarms located within 3m of every sleeping space door (or within the room) and at least one smoke alarm on each level of the household unit, please install smoke alarms as above”.
- 3.5. Following this inspection, the authority refused to issue the code compliance certificate for the building work as they claimed the owners have not addressed or remedied the items as stated in paragraph 3.4.1. The authority subsequently, on 17 February 2020, issued a first notice to fix to the owners, stating that the owners are in breach of section 40 of the Act and to remedy the non-compliance, the owners must “complete the installation of the woodburner in accordance with the building consent”.
- 3.6. As the owners did not comply with that first notice to fix, the authority issued a second notice to fix to the owners on 17 March 2020 stating that the owners are in breach of section 168 of the Act and to remedy the non-compliance, the owners must “complete the installation of the woodburner in accordance with the building consent and call for final re-inspection when complete”.
- 3.7. On 1 September 2020, the authority issued the third notice to fix to the owners stating that the building consent for the installation of the woodburner was granted “on the basis of the manufacturer’s specifications that were provided as part of the consent application” and requires the installation of an “insulated floor protector (hearth) of specified dimensions” and “the front hearth clearance to a combustible surface was 330mm, despite 470mm being required”.

- 3.8. This third notice to fix required the owners to remedy the contravention or non-compliance by 27 November 2020 to “complete the installation of the woodburner in accordance with building consent 160928”.
- 3.9. The owners do not agree with the decision of the authority to refuse to issue the code compliance certificate with regard to the requirements of the hearth clearance to comply with the manufacturer’s specifications.
- 3.10. The Ministry received an application from the authority on 14 April 2021 for a determination as to whether the installation of the woodburner (of which the hearth is a necessary element) complies with the Building Code.

4. Submissions

The authority’s submissions

- 4.1. The authority submitted that the owners’ application for building consent to install the woodburner at their property included the woodburner manufacturer’s specifications requiring the installation of a hearth with specified dimensions; and in particular, a hearth clearance of 470mm from the woodburner to any combustible surface is needed, in this case the timber floor at the owners’ property.
- 4.2. The authority further submitted the manufacturer of the woodburner had developed its product and installation instructions to ensure that the woodburner is installed to achieve the requirements of AS/NZS 2918:2001 Domestic Solid Fuel Burning Appliance – Installation (which was the standard that applied at the time of the building consent application was made).
- 4.3. The authority further submitted (in summary):
 - 4.3.1. The building consent was granted as the authority was satisfied that the provisions of the Building Code would be met if the building work of the installation of the woodburner would be completed in accordance with the plans and specifications that accompanied the owners’ application for building consent.
 - 4.3.2. The owners’ application for building consent included the manufacturer’s specifications for the installation of the woodburner.
 - 4.3.3. The final inspection carried out on 30 September 2016 noted that the front hearth clearance from the woodburner to the timber floor was 330mm whereas the manufacturer had specified 470mm.
 - 4.3.4. The authority considered that it cannot be satisfied that the as-built hearth complies with the Building Code clause C2 – Prevention of fire occurring.

- 4.3.5. The authority is of the view that the as-built hearth is 140mm narrower than that required by the manufacturer's specification.
- 4.3.6. The authority submitted that as the hearth is not the "required length" as referred in the manufacturer's specifications, the hearth/floor protector is therefore not "protecting the combustible floor in front of it".
- 4.3.7. The authority relied on the Standard AS/NZS 2918:2001 – Domestic Solid Fuel Burning Appliances as an acceptable solution as a means for "determining the correct and safe installation of appliance and their associated floor protectors and flue systems, including minimum clearance from heat-sensitive materials" and that the appliances are to be installed in accordance with the manufacturer's specifications.
- 4.3.8. The authority further relied on the Acceptable Solution C/AS1 - Buildings with Sleeping (Residential) and Outbuildings (Risk Group SH), in particular to clause 7.5.8, which contained a requirement for hearths for fireplaces.²
- 4.3.9. The authority submitted that the "only building element that is of concern to the council is the floor protector."
- 4.3.10. The authority conceded that the approved building consent plans indicated that the woodburner would be placed on an existing hearth; but maintained that the plans were approved on the basis that the existing as built hearth complied with the manufacturer's specifications.
- 4.3.11. The authority submitted that the owners had declared in their application for building consent that the "front and side dimensions of the hearth would comply with the manufacturer's specifications" and on that basis, the authority had granted the building consent.
- 4.3.12. The authority only became aware of the non-compliance of the hearth with the manufacturer's specifications upon inspection of the woodburner post-installation, and as such the authority considered that the woodburner also did not comply with the Building Code, in particular clause C2.2.

The owners' submissions

- 4.4. The owners submitted that the woodburner was placed and installed on the existing hearth in their property based on the approved plans for the building consent.
- 4.5. The owners submitted that after 5 days of continuous use of the woodburner, the owners' measurement of the surface temperature of the surrounding areas close to

² I note here for assistance that C/AS1 7.5.8 only applies to open fire so I consider it no further in the discussion.

the woodburner did not exceed 90°C and therefore complies with the requirements of clause C2.2 of the Building Code.

- 4.6. The owners further submitted that the temperature of the “hearth surface” measured 40°C and the “floor boarding directly under the hearth reached the maximum temperature of 38°C”; however, no evidence of measurement was furnished by the owners.

5. Discussion

- 5.1. The matter to be determined, under section 177(1)(a), is whether the installation of the woodburner on the existing as-built hearth complies with clause C2.2 of the Building Code.
- 5.2. Section 17 of the Act states that all building work must comply with the Building Code to the extent required by the Act.
- 5.3. Clause C2.2 of the Building Code states that ‘the maximum surface temperature of combustible building materials close to fixed appliances using controlled combustion and other fixed equipment when operating at their design level must not exceed 90°C’.
- 5.4. The requirement of the building code obligation in clause C2.2 of the Building Code applies to the surrounding materials when the fixed appliance is installed (rather than the appliance itself). This then means that when a fixed appliance is installed, all of the combustible materials close to the appliance, whether new or existing, must comply with the performance requirement at the time of the install in accordance with section 17 of the Act. It requires considering whether any combustible building materials close to the appliance, whether they are new or existing, comply with the performance criteria and I distinguish this from situations where existing building work may only need to continue to comply to the same extent under s112 of the Act.
- 5.5. This is supported by the relevant Functional Requirement of clause C2.1 of the Building Code emphasising the fixed appliance being the item that creates that code obligation. Clause C2.1 of the Building Code provides that fixed appliances using controlled combustion and other fixed equipment must be designed, constructed, and installed in buildings in a way that reduces the likelihood of illness or injury due to fire occurring.
- 5.6. The building code is performance based so there can be a number of ways to comply, in this case I have considered compliance with relevant Acceptable Solutions and Verifications Methods as ‘deemed to comply’ pathways before then turning to whether the work complies by way of an alternative solution.

5.7. The Acceptable Solution C/AS1 Amendment 3³, that applied at the time, is one of the deemed to comply methods available for this particular building work:

C/AS1 Part 7: Prevention of fire occurring Section 7.1 states:

7.1.1 AS/NZS 2918⁴, with the modifications given in Paragraph 7.1.2, is an Acceptable Solution for the installation of:

- a) Domestic solid fuel burning appliances, installed in either domestic or commercial situations, and
- b) Flue systems. A normative Appendix is an integral part of this Standard.

5.8. None of the modifications outlined in C/AS1 7.2 are relevant to this building work so the relevant parts of AS/NZS 2918:2001 apply unmodified.

5.9. Section 3 of the standard lays out appliance requirements for an installation. AS/NZS 2918:2001 3.3 provides the requirements for hearth/floor protectors. It sets out different requirements dependent on whether an installation has been tested in accordance with the Appendices of AS/NZS2918:2001.

5.10. Section 3.3.1 of the standard provides the general requirement, *“Where any part of the floor area where the appliance is to be installed includes a heat-sensitive material that would be under the appliance or within 500mm of the appliance, the appliance shall be installed on a floor protector...”*.

5.11. AS/NZS2918:2001 3.3.2 does not apply as this particular woodburner install is outside of the specific tested set up, so it is an installation that has not been tested⁵.

5.12. AS/NZS2918:2001 3.3.3 requires for installation that are not tested, the hearth/floor protector shall extend either to a distance of not less than 500mm beyond any part of the appliance (as per 3.3.1), or a lesser distance at which it forms an abutment with a wall or heat shield. There is no abutment with a wall or heat shield so therefore the hearth/floor protector must extend the 500m distance.

5.13. In this case the owners' hearth only extends 330mm beyond the woodburner. Therefore, the building work does not comply with AS/NZS 2918:2001 and therefore does not comply by way of C/AS1.

5.14. There is a deemed to comply Verification Method relevant to this building work, Verification Method C/VM1 that relates to “Solid Fuel Appliances”.

³ This version of C/AS1 was effective from 1 July 2014 to 30 May 2017.

⁴ AS/NZS 2918:2001 Domestic solid fuel burning appliances – installation.

⁵ If installing the woodburner to the tested instructions, 470mm would have achieved compliance.

5.15. C/VM1 Section 1.1 states:

1.1 Solid Fuel Appliances

Limiting heat transfer

1.1.1 Compliance with NZBC Performances C2.2 and C2.3 may be verified for solid fuel burning appliances by meeting the appropriate test requirements of AS/NZS 2918.

5.16. The test requirements are laid out in the Appendices of AS/NZS 2918:2001. However, no evidence has been provided to me of any test that meets the test requirements set out in those appendices.

5.17. Therefore, the building work does not comply by way of C/VM1.

5.18. As the installation does not comply with the relevant Acceptable Solutions or Verification Methods, I must consider whether it may comply by way of an alternative solution with the performance requirement set out in clause C2.2 of the Building Code.

5.19. No form of temperature testing to any known standard or under any controlled or measured circumstances has been provided to me.

5.20. Due to the proximity of the front of the woodburner to the combustible floor materials (see also Figure 1), I consider this installation has the potential to increase the temperature of those materials beyond 90°C where the existing hearth ends.

5.21. Therefore, I find that the installation of the woodburner does not comply with clause C2.2 of the Building Code by way of alternative solution.

6. Conclusion

6.1. Based on the information provided I conclude the building work to install the woodburner on the as-built hearth does not comply with clause C2.2 of the Building Code.

7. Decision

In accordance with section 188 of the Building Act 2004, I hereby determine that the installation of the woodburner does not comply with clause C2.2 of the Building Code.

Signed for and on behalf of the Chief Executive of the Ministry of Business, Innovation and Employment on 19 March 2024.

Andrew Eames

Manager Advisory