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PREPARED FOR

PIVOT STOVES & HEATING



THERMAL TESTING OF THE PIVOT STOVES & HEATING ROOM SEAL FLUE 8 KIT IN A FLAT CEILING AND ROOF PENETRATION ACCORDING TO APPENDIX F OF AS/NZS2918:2018

Report Number: ASFT21086-1
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By:
Garry W. Mooney



Accredited for compliance with ISO/IEC 17025 - Testing
The results of the tests, calibrations and/ or measurements included
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Accreditation # 20042

Report Distribution

Pivot Stoves & Heating

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ASFT Report Archive

Revision Details

| Revision | Date | Comments |
|----------|------------|--|
| 0 | 15/10/2021 | Preliminary report – awaiting payment and engineering drawings of Flue Kit |
| 1 | 04/08/2023 | Issue of NATA endorsed test report |
| | | |

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THERMAL TESTING OF THE PIVOT STOVES & HEATING ROOM SEAL FLUE 8 KIT TO AS/NZS2918:2018 APPENDIX F

Report

The Pivot Stoves & Heating Room Seal Flue 8 kit installed in a Flat Ceiling and Roof Penetration was tested according to the joint Australian/New Zealand Standard 2918:2018, Appendix F.

The Pivot Stoves & Heating Room Seal Flue 8 kit conforms to the requirements of the joint AS/NZS 2918:2018 Standard, Appendix F when installed in a Flat Ceiling and Roof Penetration.

The Flue system was tested at the following clearances:

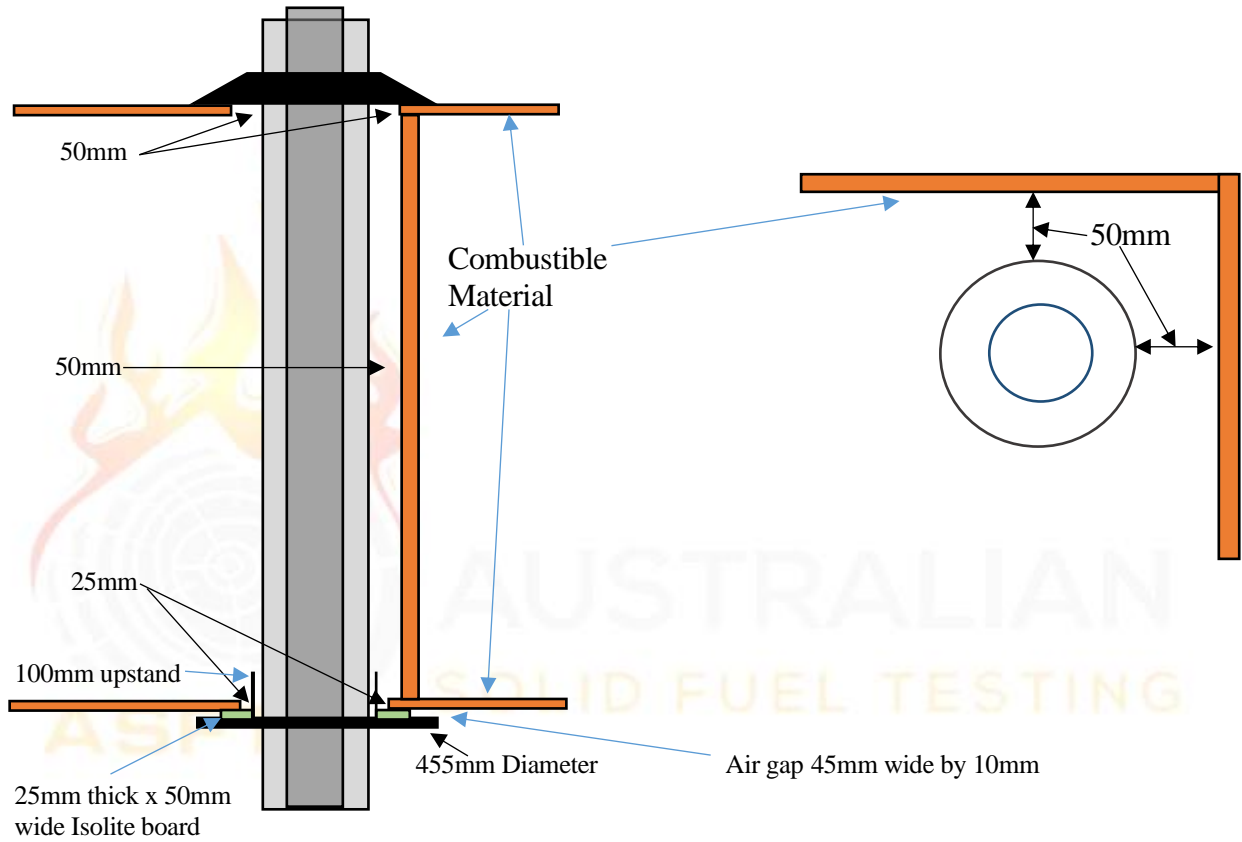




Figure 1 – Clearance Diagram

| | | | |
|---------------|---|-----------------|--|
| |  | |  |
| Signed | | Approved | |
| Name | Garry W. Mooney | Name | Steve Marland |
| Title | <i>Technical Officer</i> | Title | <i>Managing Director – Australian Solid Fuel Testing</i> |
| Date | 04/08/2023 | Date | 04/08/2023 |

1. INTRODUCTION

Thermal Clearance testing of the Pivot Stoves & Heating Room Seal Flue 8 kit flue system took place on October 13 & 14, 2021 at the Australian Solid Fuel Testing Laboratory located at 3 Garden Street, Morwell, Victoria. The testing was performed by Mr G.W. Mooney and Mr S. Marland.

2. PROCEDURE

Testing was conducted as per Appendix F of AS/NZS2918;2018, Hot sites were located with the aid of an infra-red thermometer. Thermocouple tips were stapled onto the test surfaces, with black tape over the first 100 mm to facilitate consistent and accurate recording of temperatures. Thermocouple positions are shown in the table below:

| Thermocouple No. | Position | Thermocouple No. | Position |
|------------------|--|------------------|---|
| 1 | Flue gas temperature | 17 | RHS Wall, 250mm above Ceiling, 200mm from corner |
| 2 | Ceiling – Ring Inner Right | 18 | LHS Wall, 350mm above Ceiling, 200mm from corner |
| 3 | Ceiling – 50mm Right | 19 | RHS Wall, 350mm above Ceiling, 200mm from corner |
| 4 | Ceiling – 100mm Right | 20 | LHS Wall, 450mm above Ceiling, 200mm from corner |
| 5 | Ceiling – 150mm Right | 21 | RHS Wall, 450mm above Ceiling, 200mm from corner |
| 6 | Ceiling – 200mm Right | 22 | LHS Wall, 550mm above Ceiling, 200mm from corner |
| 7 | Ceiling – Ring Inner Left | 23 | RHS Wall, 550mm above Ceiling, 200mm from corner |
| 8 | Ceiling – 50mm Left | 24 | LHS Wall, 1000mm above Ceiling, 200mm from corner |
| 9 | Ceiling – 100mm Left | 25 | RHS Wall, 1000mm above Ceiling, 200mm from corner |
| 10 | Ceiling – 150mm Left | 26 | LHS Wall, 1950mm above Ceiling, 200mm from corner |
| 11 | Ceiling – 200mm Left | 27 | RHS Wall, 1950mm above Ceiling, 200mm from corner |
| 12 | LHS Wall, 50mm above Ceiling, 200mm from corner | 28 | Roof – Ring Inner Front |
| 13 | RHS Wall, 50mm above Ceiling, 200mm from corner | 29 | Roof – Ring Inner Rear |
| 14 | LHS Wall, 150mm above Ceiling, 200mm from corner | 30 | Roof – Ring Inner Left |
| 15 | RHS Wall, 150mm above Ceiling, 200mm from corner | 31 | Roof – Ring Inner Right |
| 16 | LHS Wall, 250mm above Ceiling, 200mm from corner | 32 | Ambient temperature |

5. RESULTS

5.1 Ambient and Test Surface Temperatures

The Table below show the Ambient temperatures during testing of the Flue kit.

| Hot Fire | Flue Fire |
|-------------|-------------|
| 14.9 – 17.2 | 18.9 – 20.7 |

5.2 Hot Flue Test

The Flue kit was tested in accordance with Section F8.1 of AS/NZS2918;2018. The Flue gas temperature was maintained at $760 \pm 20^{\circ}\text{C}$ until the maximum temperatures on each surface had been reach.

Below is a table of the maximum temperatures reached above Ambient.

| Position | Thermocouple Number | Hot Fire Test ($^{\circ}\text{C}$) |
|----------|---------------------|--------------------------------------|
| Ceiling | 2 | 30.7 |
| RHS Wall | 27 | 34.5 |
| LHS Wall | 13 | 43.1 |
| Roof | 31 | 54.7 |

5.3 Flue Fire Test

The Flue kit was tested in accordance with Section F8.2 of AS/NZS2918;2018. The Flue gas temperature was raised from $760 \pm 20^{\circ}\text{C}$ to $1125 \pm 20^{\circ}\text{C}$ within 10minutes, then held at $1125 \pm 20^{\circ}\text{C}$ for a period of 30minutes.

Below is a table of the maximum temperatures reached above Ambient.

| Position | Thermocouple Number | Flue Fire Test ($^{\circ}\text{C}$) |
|----------|---------------------|---------------------------------------|
| Ceiling | 2 | 72.8 |
| RHS Wall | 15 | 99.5 |
| LHS Wall | 14 | 98.4 |
| Roof | 28 | 99.6 |

5.4 Structural Integrity Test

The Pivot Stoves & Heating Room Seal Flue 8 kit was tested in accordance with Section F8.3 of AS/NZS2918:2018. The Flue gas temperature was raised and kept at $760 \pm 20^{\circ}\text{C}$ then raised to $1125 \pm 20^{\circ}\text{C}$ within 10minutes, then held at $1125 \pm 20^{\circ}\text{C}$ for a period of 10minutes. This process was repeated three times.

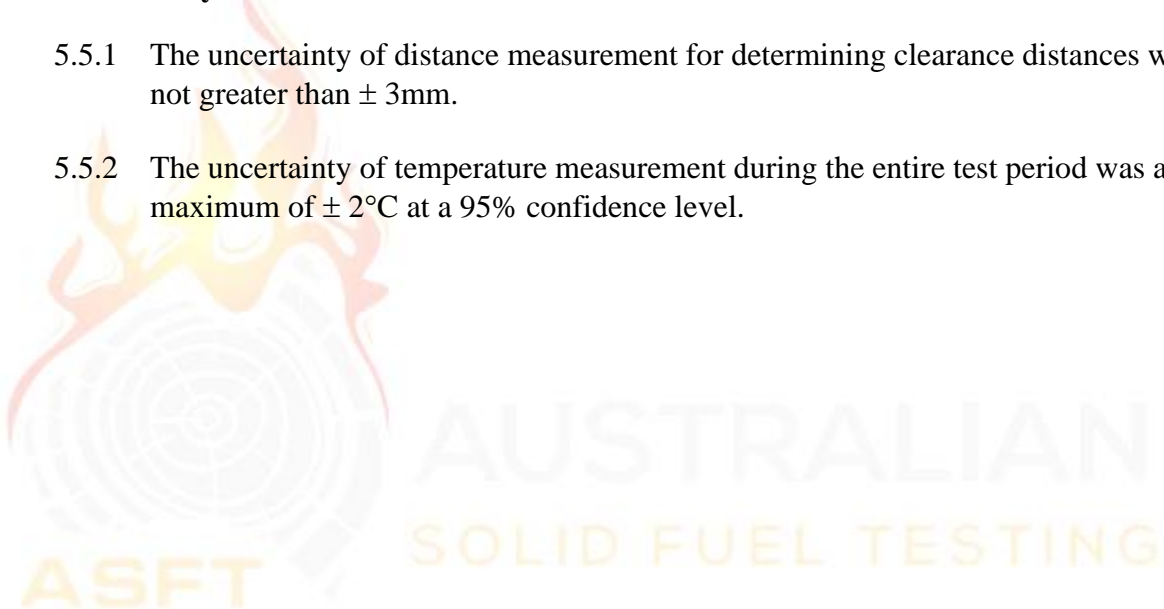
The Pivot Stoves & Heating Room Seal Flue 8 kit was dismantled the following day and the components inspected for their Structural Integrity.

No Structural Integrity issues were found.

5.4 Uncertainty of Measurement Statement

5.5.1 The uncertainty of distance measurement for determining clearance distances was not greater than $\pm 3\text{mm}$.

5.5.2 The uncertainty of temperature measurement during the entire test period was a maximum of $\pm 2^{\circ}\text{C}$ at a 95% confidence level.



6. FLUE KIT CONSTRUCTION DETAILS

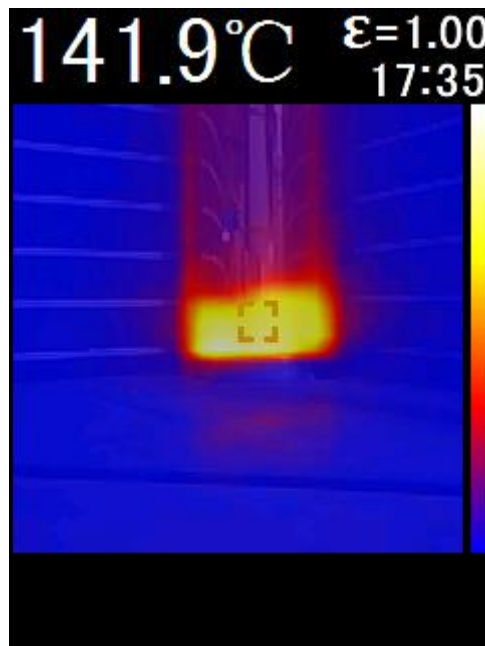
The test results reported directly relate to the Flue kit/flue system tested. The details of the Flue kit given in this section include features which may affect safety clearances. Any change in the design/construction of this Flue kit or flue may invalidate this report. Below are the constructions details of the Flue kit:

| | |
|--|------------------------|
| Flue Model: Room Seal Flue 8 kit | Serial No: N/A |
| Manufacturer: Pivot Stoves & Heating | |
| Active Flue diameter: 200mm Material thickness: 0.5mm | Length: 1000mm |
| Ceiling ring diameter: 455mm 100mm upstand with 25mm isolite board on outside of upstand for 50mm (screwed hard to ceiling) then 45mm wide air gap to outside of ring. Made of 1.2mm galvanised steel | |
| Outer Casing below Ceiling diameter: 250mm Outer casing fixed to active and packed with quartz insulation Material Type/Thickness: 0.5mm stainless steel (painted black) | Length: 340mm |
| 1 st Outer Casing Above Ceiling diameter: 250mm Outer casing fixed to active and packed with quartz insulation Material Type/Thickness: 0.5mm stainless steel | Length: 1000mm |
| 2 nd Outer Casing Above Ceiling diameter: 250mm Outer casing fixed to active and packed with quartz insulation Material Type/Thickness: 0.5mm stainless steel | Length: 1000mm |
| Cowl Height: 270mm | Diameter: 300mm |
| Material Type: Stainless Steel | |
| Area of Venting in Cowl: No venting | |
| NOTE: Accuracy of measurement is $\pm 5\%$ of the measured value | |

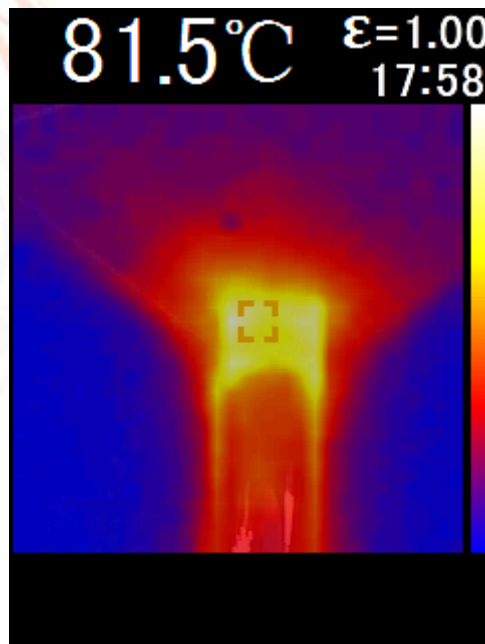
7. CONCLUSION

The Pivot Stoves & Heating Room Seal Flue 8 kit installed in a Flat Ceiling and Roof Penetration conforms to the requirements of Australian/New Zealand Standard 2918:2018, when tested in accordance with Appendix F.

APPENDIX 1: Thermal images of flue during testing



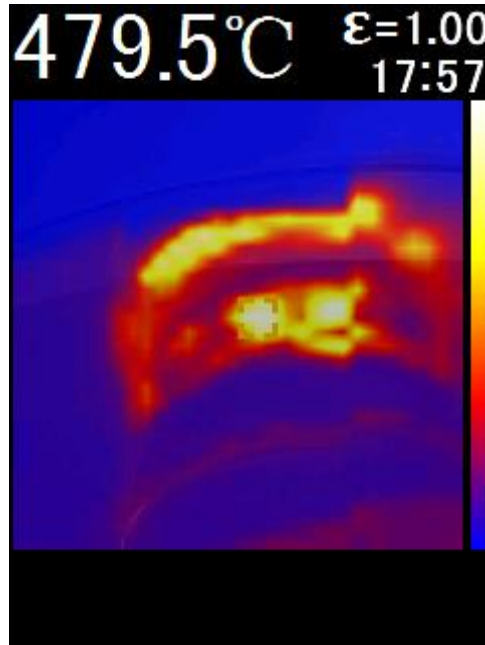
Above the ceiling



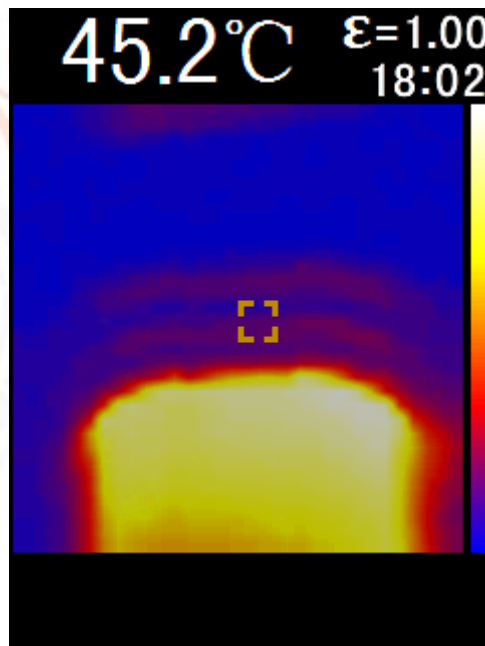
Below the roof



ALIAN
TESTING



Above Roof



Below ceiling



ALIAN
TESTING

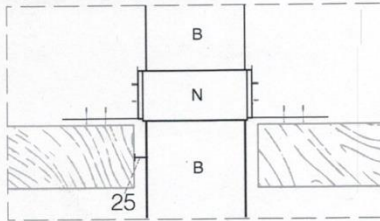
APPENDIX 2: Flue Kit Installation Manual Supplied with the flue kit at time of Testing

Insulated Room Sealed Flue Kit

8" Full Room Seal Flue Kit
 RSF FK8FULLYSEALED

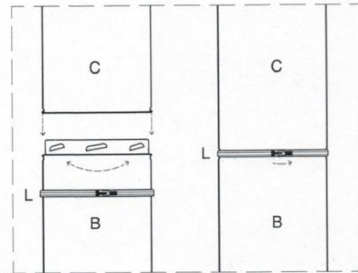
Also available as
 RSF FK9STANDARD

Optional Support Brace



NOTE:
 The optional support brace (N) has the ability to adjust to any angle of adjacent roof beams
 There is a 25mm clearance between the flue and any timber at all times

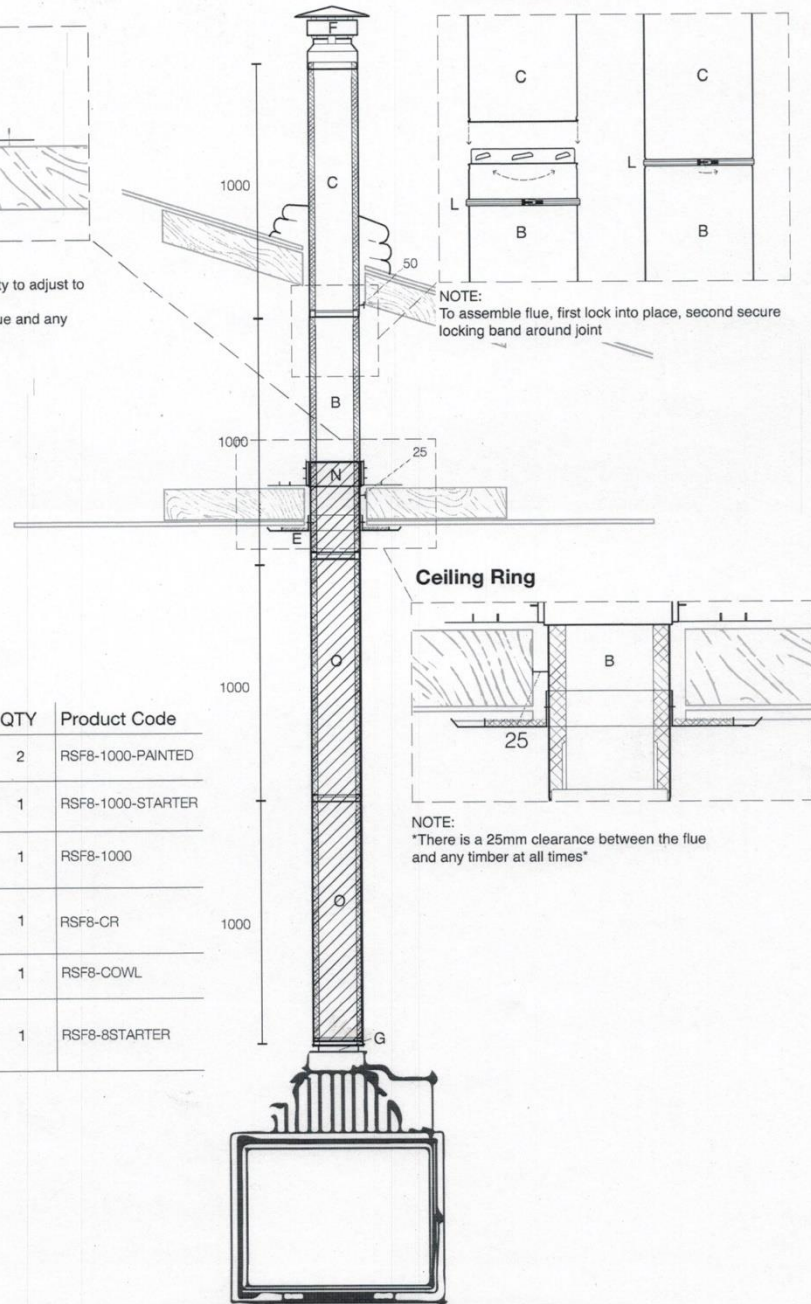
Flue Assembly



NOTE:
 To assemble flue, first lock into place, second secure locking band around joint

Full Room Seal Flue Kit

| Item | QTY | Product Code |
|------|-----|-------------------|
| O | 2 | RSF8-1000-PAINTED |
| B | 1 | RSF8-1000-STARTER |
| C | 1 | RSF8-1000 |
| E | 1 | RSF8-CR |
| F | 1 | RSF8-COWL |
| G | 1 | RSF8-8STARTER |



NOTE:
 There is a 25mm clearance between the flue and any timber at all times