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PREPARED FOR
PACIFIC ENERGY FIREPLACE PRODUCTS



**THERMAL CLEARANCE TESTING OF THE SUMMIT FREE-
STANDING APPLIANCE**

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0	19/06/2020	Preliminary Issue – pending payment of invoice and engineering drawings

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THERMAL CLEARANCE TESTING OF THE SUMMIT FREE-STANDING SOLID FUEL APPLIANCE

Report

The Summit Free-Standing appliance and Room Seal flue kit was tested in two positions conforming to joint Australian/New Zealand Standard 2918:2018, Appendix B.

A minimum 1020mm deep x 875mm wide x 6mm thick floor protector (compressed board) should be used under and in front of the appliance base when installing the appliance (see joint AS/NZS 2918:2018 3.3.2). The floor protector should extend 300mm in front of the appliance fuel loading door and be placed centrally in the 875mm width. The Thermal resistivity of the floor protector is 0.08m².K/W for 6mm thick sheets.

The Summit Free-Standing solid fuel appliance installed with a Room Seal flue kit conforms to the requirements of the joint AS/NZS 2918:2018 Standard, Appendix B.

The appliance and flue kit were tested at the following clearances:

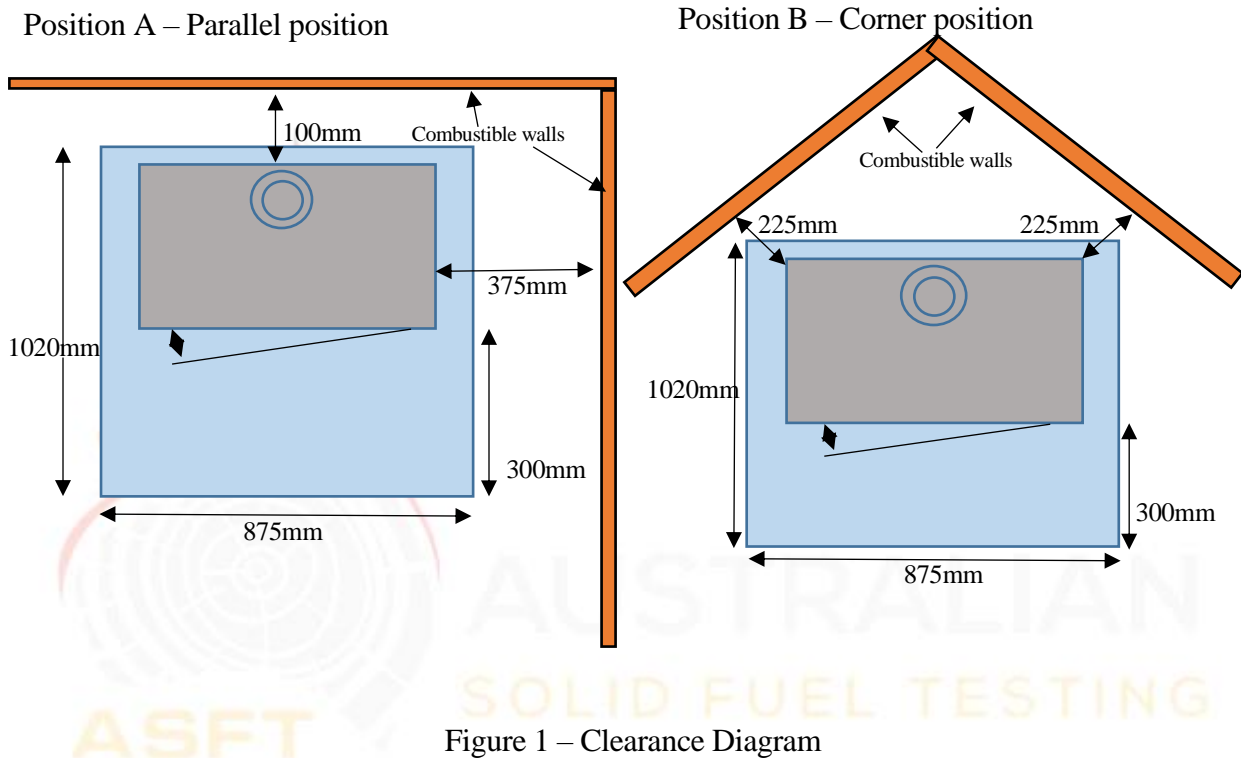




Figure 1 – Clearance Diagram

Signed		Approved	
Name	Garry W Mooney	Name	Steve Marland
Title	Technical Officer	Title	Managing Director – Australian Solid Fuel Testing
Date	19/06/2020	Date	19/06/2020

1. INTRODUCTION

Thermal Clearance testing of the Summit Free-Standing solid fuel appliance and flue system took place on 17 June 2020 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 B 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 POSITIONS

Position A – Parallel Position

Thermocouple No.	Position	Thermocouple No.	Position
1	Floor - 1300mm in front of centre	16	Floor – 150mm RHS of centre
2	Floor – 1200mm in front of centre	17	Floor – 300mm RHS of centre
3	Floor - 1050mm in front of centre	18	Floor – 450mm RHS of centre
4	Floor – 900mm in front of centre	19	Ceiling Ring – Inner front
5	Floor – 750mm in front of centre	20	Ceiling Ring – 25mm in front
6	Floor – 600mm in front of centre	21	Ceiling Ring – Inner side
7	Floor – 450mm in front of centre	22	Ceiling Ring – 25mm to side
8	Floor – 300mm in front of centre	23	Rear wall – 615mm from corner, 1432mm above the floor
9	Floor – 150mm in front of centre	24	Rear wall – 578mm from corner, 1026mm above the floor
10	Floor – Centre of flue	25	Rear wall – 604mm from corner, 958mm above the floor
11	Floor – 150mm behind centre	26	RHS wall, 485mm from corner, 1098mm above the floor
12	Floor – 300mm behind centre	27	RHS wall, 398mm from corner, 974mm above the floor
13	Floor – 450mm LHS of centre	28	RHS wall, 465mm from corner, 950mm above the floor
14	Floor – 300mm LHS of centre	29	Rear wall – 438mm from corner, 987mm above the floor
15	Floor – 150mm LHS of centre	30	Ambient temperature

Position B – Corner Position

Thermocouple No.	Position	Thermocouple No.	Position
19	Ceiling Ring – Inner front	25	LHS wall – 604mm from corner, 958mm above the floor
20	Ceiling Ring – 25mm in front	26	RHS wall, 638mm from corner, 939mm above the floor
21	Ceiling Ring – Inner side	27	RHS wall, 461mm from corner, 945mm above the floor
22	Ceiling Ring – 25mm to side	28	RHS wall, 812mm from corner, 1083mm above the floor
23	LHS wall – 813mm from corner, 1012mm above the floor	29	LHS wall, 812mm from corner, 975mm above the floor
24	LHS wall – 588mm from corner, 1147mm above the floor	30	Ambient temperature

TABLE 1

3. TEST FUEL

Testing was conducted with Pinus Radiata as the test fuel which had a moisture content of 13.7% moisture. Each firewood piece was 300mm x 80mm x 40mm.

4. FLUE SYSTEM

The flue system used during testing was a Room Seal Flue kit was supplied by Pivot Stove & Heating. This flue system has been tested to joint AS/NZS 2918:2018, Appendix F. The flue height was 4.6 ± 0.1 m from the floor protector. Appendix 1 shows details of the flue system.

5. RESULTS

5.1 High Fire Test

The appliance was fired in accordance with Section B9.1 of AS/NZS2918;2018. The level of fuel was maintained between 50-75% of the full volume level of the fuel chamber during the High Fire test.

The average fuel load for initiating the High Fire tests was 8.0kg with an average refuelling rate of 1.0kg/10 minutes.

During High Fire testing it was found that the highest surface temperatures occurred when the primary and air control of the appliance was fully open.

5.2 Flash Fire Test

Immediately after the High Fire test was completed, sufficient embers were removed to bring the fire bed to a level of 15-25% of the fuel chamber volume. The appliance was then fired in accordance with Section B9.2 of AS/NZS2918;2018.

The average fuel load for initiating the Flash Fire tests was 6.7kg.

The highest temperature rises were achieved by leaving the main door resting against the door catch with the primary air fully open.

5.3 Ambient and Test Surface Temperatures

The Tables below show the Ambient temperatures and test surfaces temperatures during testing of the appliance and flue combination:

Ambient Temperature Range °C

Position	High Fire	Flash Fire
A	10.2 – 20.0	16.7 – 21.9
B	13.7 – 20.3	14.4 – 17.6

Maximum Surface Temperature Rise above Ambient - Position A Above Hob

Position	Thermocouple Number	High Fire Test (°C)	Thermocouple Number	Flash Fire Test (°C)
Floor	4	53.1	4	55.8
Ceiling	20	24.5	20	27.5
Rear Wall	29	61.7	29	72.5
Side Wall	26	62.5	28	71.9

Maximum Surface Temperature Rise above Ambient - Position B Above Hob

Position	Thermocouple Number	High Fire Test (°C)	Thermocouple Number	Flash Fire Test (°C)
Ceiling	20	29.8	20	24.7
RHS Wall	26 & 28	54.0	28	68.7
LHS Wall	29	61.9	29	56.7

5.5 Uncertainty of Measurement Statement

- 5.5.1 The uncertainty of distance measurement for determining clearance distances was not greater than ± 3 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. APPLIANCE CONSTRUCTION DETAILS

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

Appliance Model Name: Summit		Serial No: 3080010186
Manufacturer: Pacific Energy Fireplace Products		
Overall Height: 745mm	Overall Depth: 720mm	Overall Width: 650mm
Top Plate Width: 650mm	Top Plate Depth: 590mm	Top Plate Thickness: 10mm
Appliance Legs Height: 230mm	Depth: 30-110mm	Width: 30-110mm
Usable Firebox Height: 310mm	Width: 510mm	Depth: 500mm
Usable Firebox Volume: 79.05 Litres		
Firebox Material Type/Seam Fully Welded: Fully welded steel		
Firebrick Type: 30mm Ceramic		
Main Door Opening Height: 271mm	Width: 475mm	
Door Height: 325-343mm	Width: 545mm	Depth: 30mm
Door glass Height: 220-230mm	Width: 430mm	
Primary Air Location: Below firebox		
Dimension of Primary Air: 1 hole @ 48mm + 1 hole @ 7.5mm		
Area of Primary (mm ²): 1809.79 + 44.18 = 1853.97mm²		
Secondary/Tertiary Air Location: Incorporated into baffle, 18 holes @ 6mm facing Front and 29 holes @ 4.5mm facing down		
Dimension of Secondary/Tertiary Air: 18 holes @ 6mm + 29 holes @ 4.5mm		
Area of Secondary/Tertiary Air (mm ²): 509.0 + 461.28 = 970.28mm²		
Boost Air Location: Below door		
Dimensions of Boost Air: 6 holes @ 9.5mm		
Area of Boost Air: 425.35mm²		
Baffle Plate size: 507x395x25-38mm with 12mm Ceramic Fibre sheet on top		
Flue Dimensions: 152mm		
Spigot Dimensions:	OD: 157mm	ID: 150mm
Spigot to Rear of Appliance: 130mm		
Rear Internal to External Heat Shield: mm		
Firebox to Side External Heat Shield: mm		
Heat Shield Material Type:		
Water Heater Fitted: No		
Fan Location/Speeds: N/A		
Catalytic Combustor fitted: No		
Grate: No		
NOTE: Accuracy of measurement is ±5% of the measured value		

7. CONCLUSION

The Summit Free-Standing solid fuel appliance installed with a Room Seal flue kit conforms to the requirements of Australian/New Zealand Standard 2918:2018, with respect to floor, ceiling, side wall and rear wall surface temperatures, when tested in the test position shown in Figure 1 of this report in accordance with Appendix B of AS/NZS2918;2018.



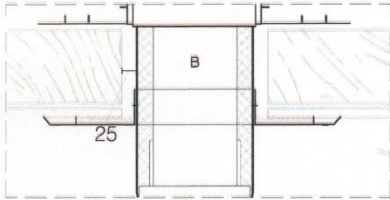
APPENDIX 1:

Room Seal Flue Kit

Installation Manual

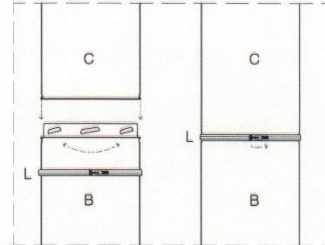
Reduced Clearance
 4m Flue Kit

Ceiling Ring



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

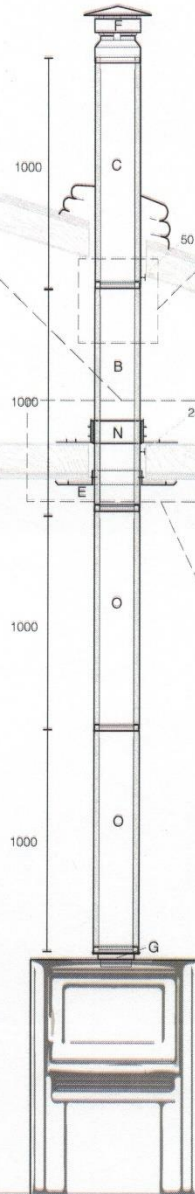
Flue Assembly



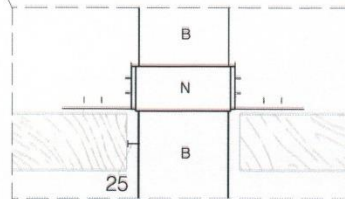
NOTE:
 To assemble flue, first lock into place, second secure
 locking band around joint

Reduced Clearance Flue Kit

Item	Item	QTY	Product Code
O	1000mm RSF, painted black (with Locking Band) Inside diameter: 150mm Outside diameter: 200mm	2	RFS-1000-black
B	1000mm starter length, end painted for drop box Inside diameter: 150mm Outside diameter: 200mm	1	RSF-1000 Starter
C	1000mm Room Sealed Flue (with Locking Band) Inside diameter: 150mm Outside diameter: 200mm	1	RSF-1000
E	Ceiling Ring	1	Choose correct ceiling ring pitch, see extra parts for options
F	8" Wind Cowl Stainless Steel Inside diameter: 150mm Outside diameter: 200mm	1	RFS-COWL
G	Room Sealed Flue Adapter Single to twin 150mm - 200mm	1	RSF-STARTER



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*

PIVOT
 stove & heating

Address: 120 Victoria street, Nth Geelong
 Phone: 1300 4 PIVOT / 1300 474 868
 Website: Pivotstove.com.au

The flue is tested to XXXXXX | Approval number XXXXX

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