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PREPARED FOR
Pacific Energy Fireplace Products



**THERMAL CLEARANCE TESTING OF THE ALBERNI 2.5
FREE-STANDING APPLIANCE**

PRELIMINARY REPORT

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0	11/02/2017	Preliminary report pending payment and confirmation of engineering drawings

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QD-001

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THERMAL CLEARANCE TESTING OF THE ALBERNI 2.5 FREE-STANDING SOLID FUEL APPLIANCE

Report

The ALBERNI 2.5 Free-standing appliance and Wildcat default flue kit was tested in one position in a manner conforming to joint Australian/New Zealand Standard 2918:2001, Appendix B.

A minimum 1110mm deep x 870mm wide x 9mm thick floor protector (Bellis Board) should be used under and in front of the appliance base when installing the appliance (see joint AS/NZS 2918:2001 3.3.2). The floor protector should extend 450mm in front of the appliance fuel loading door and be placed centrally in the 870mm width. The Thermal conductivity of the floor protector is 0.1m².K/W for 9mm thick sheets.

The ALBERNI 2.5 Free-Standing solid fuel appliance installed with a Wildcat default flue kit conforms to the requirements of the joint AS/NZS 2918:2001 Standard, Appendix B.

The appliance and flue were tested at the following clearances;

Position A – Parallel position

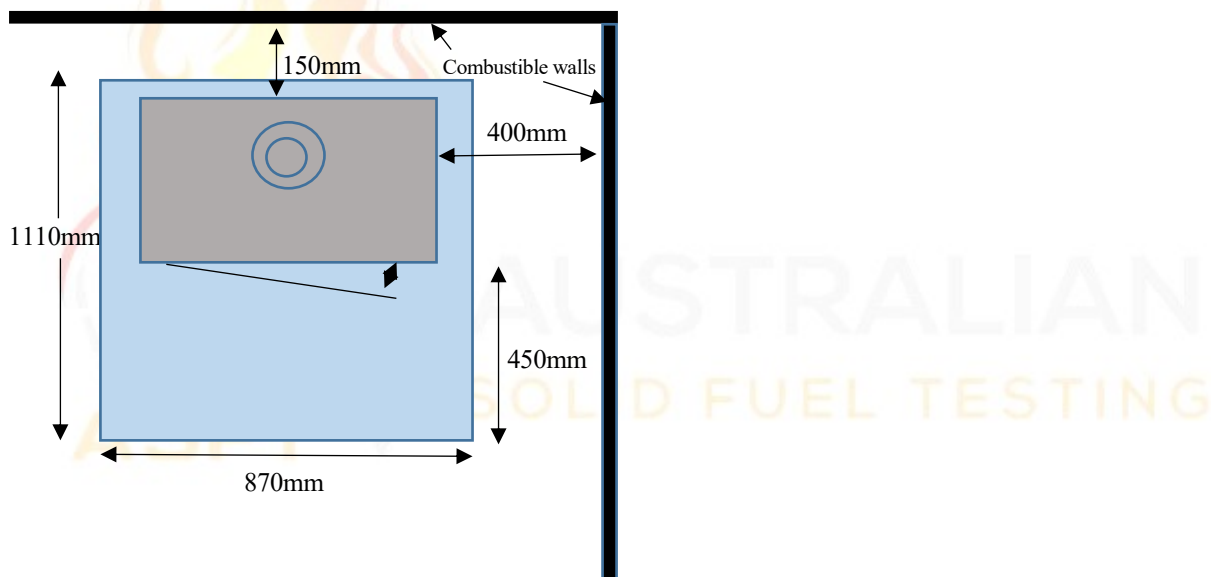


Figure 1 – Clearance Diagram

Signed	
Name	Steve Marland
Title	Managing Director – Australian Solid Fuel Testing
Date	11 February 2017

1. INTRODUCTION

Thermal Clearance testing of the ALBERNI 2.5 appliance and flue system took place on February 5, 2017 at the Australian Solid Fuel Testing Laboratory located at 3 Garden Street, Morwell, Victoria. The testing was performed by Mr S. Marland.

2. PROCEDURE

Testing was conducted as per Appendix B of AS/NZS2918:2001, Hot sites were located with the aid of a 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;

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 – 805mm from corner, 643mm above the floor
9	Floor – 150mm in front of centre	24	Rear wall – 789mm from corner, 884mm above the floor
10	Floor – Centre of flue	25	Rear wall – 758mm from corner, 996mm above the floor
11	Floor – 150mm behind centre	26	RHS wall, 539mm from corner, 1211mm above the floor
12	Floor – 300mm behind centre	27	RHS wall, 795mm from corner, 768mm above the floor
13	Floor – 450mm LHS of centre	28	RHS wall, 1058mm from corner, 717mm above the floor
14	Floor – 300mm LHS of centre	29	Rear wall – 865mm from corner, 1322mm above the floor
15	Floor – 150mm LHS of centre	30	Ambient temperature

TABLE 1

3. TEST FUEL

Testing was conducted with Pinus Radiata as the test fuel which had a moisture content of 10.4% moisture. Each firewood piece was 300mm x 100mm x 40mm.

4. FLUE SYSTEM

The flue system used during testing was a Wildcat Default Flue kit which was manufactured by Wildcat Industries Pty Ltd. This flue system has not been tested to joint AS/NZS 2918:2001, 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;2001. The level of fuel was maintained between 50-75% of the full volume level of the fuel chamber during the High Fire test.

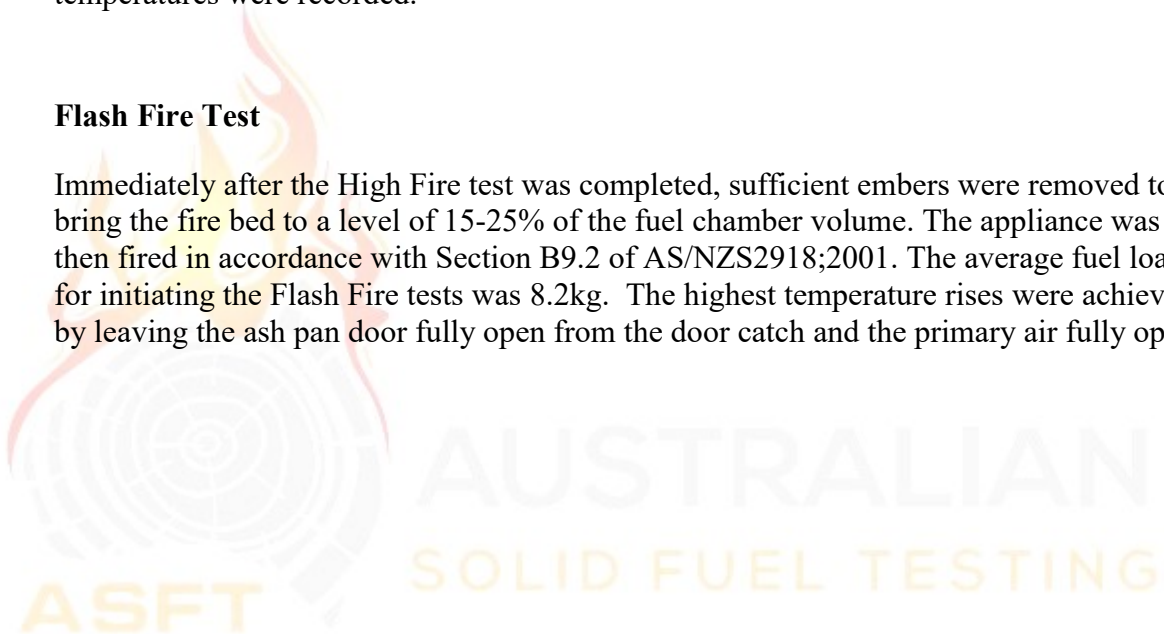
The average fuel load for initiating the High Fire tests was 12.4kg with an average refuelling rate of 1.0kg/10 minutes.

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

The appliance fan was switched on to its maximum setting during testing and the temperatures were recorded.

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;2001. The average fuel load for initiating the Flash Fire tests was 8.2kg. The highest temperature rises were achieved by leaving the ash pan door fully open from the door catch and the primary air fully open.



5.4 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	26.1 – 30.3	26.4 – 27.5

Maximum Surface Temperature Rise above Ambient - Position A

Position	Thermocouple Number	High Fire Test (°C)	Thermocouple Number	Flash Fire Test (°C)
Floor	5	43.0	5	43.0
Ceiling	19	17.9	19	15.5
Rear Wall	24	60.7	24	71.5
Side Wall	26	40.9	26	40.8

5.5 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. 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: ALBERNI 2.5	Serial No: N/A
Manufacturer: Pacific Energy Fireplace Products	
Overall Height: 759mm Overall Depth: 613mm Overall Width: 695mm	
Top Plate Depth: 718mm	Top plate width: 560mm Top Plate Thickness: 8.0mm
Appliance Legs height: 225mm	Legs Width: 50-85mm Legs Depth: 50-85mm
Usable Firebox Height: 310mm Width: 506mm inside bricks Depth: 443mm bricks to ashlip edge	
Firebox Material Type/Seam Fully Welded: 5mm steel, seams fully welded	
Firebrick Type: ceramic, base, sides and rear fully lined with 30mm thick bricks	
Main Door Opening Height: 276mm	Width: 470mm
Door Height: 376mm	Width: 557mm Depth: 12-38mm
Door glass Height: 243mm	Width: 440mm
Primary Air Location: Below Firebox	
Dimension of Primary Air: 1 hole @ 40mm dia + 1hole @ 9mm dia + 1 hole @ 12mm dia	
Area of Primary (mm ²): 1433.5mm²	
Secondary/Tertiary Air Location: Below and front of baffle	
Dimension of Secondary/Tertiary Air: 50 holes @ 3mm dia + 12 holes @ 6mm dia	
Area of Secondary/Tertiary Air (mm ²): 692.8mm²	
Baffle Plate size: 485mm x 380mm x 40mm Steel + insulation	
Flue Dimensions: 152mm	
Spigot Dimensions:	OD: 160mm ID: 150mm
Spigot to Rear of Appliance: 74mm	
Rear Internal to External Heat Shield: 60mm	
Firebox to Side External Heat Shield: 40mm	
Heat Shield Material Type: 1.2mm painted/enamel sheetmetal	
Water Heater Fitted: NO	
Fan Location/Speeds: NO	
Catalytic Combustor fitted: NO	
Grate: No grate, but is fitted with ash plug and ash pan	
NOTE: Accuracy of measurement is ±5% of the measured value	

7. CONCLUSION

The ALBERNI 2.5 Free-Standing solid fuel appliance installed with a Wildcat Default flue kit conforms to the requirements of Australian/New Zealand Standard 2918:2001, 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/NZS2918:2001.



APPENDIX 1:

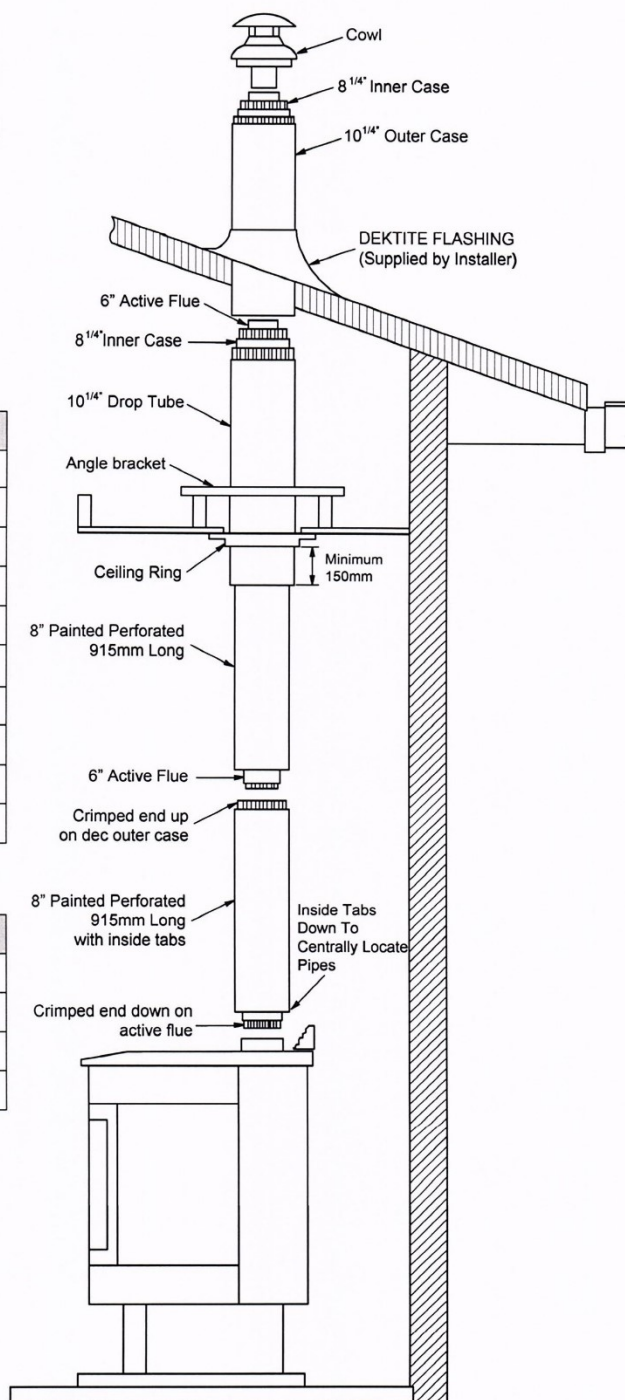


Freestanding Universal/ Default Kit Perforated 6" - 8" - 10" System

QTY	DESCRIPTION
4	6" Stainless Steel Inner Flue 915mm Long
1	7 1/4" Painted Perforated 915mm Long
1	7 1/4" Painted Perforated 915mm Long with in-tabs
2	8" Galvanized Inner Flue Casing 915mm Long
1	10" Half Painted Drop Tube
1	10" Galvanized Outer Flue Casing 915mm Long
1	Cowl
1	Ceiling Ring
2	75 x 25 Angles 915mm Long
1	Installation Guide

CARTON SPECIFICATIONS	
Height	460mm
Width	460mm
Length	1150mm
Weight	32kg

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MUST ONLY BE INSTALLED BY AN AUTHORISED PERSON IN COMPLIANCE WITH AS 2918

Default 10 Instruction page