Ministry for the Environment
Manatū Mō Te Taiao

New Zealand Domestic Solid Fuel Burner Authorisation Manual

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1 Introduction

Domestic solid fuel burning appliances are subject to a number of regulations in New Zealand, and they need to be authorised before they can be legally installed. This manual provides details of the national authorisation procedures required to facilitate the sale of compliant domestic solid fuel burning appliances.

This manual is a reference for regional councils and unitary authorities that act as authorising agents. It will also be a useful reference for manufacturers and retailers selling and installing solid fuel burners in New Zealand.

This manual is published in web form only, as a working document. Future updates are anticipated, and any amendments will be documented in a transparent manner. Readers should refer to the date of publication on the title page.

1.1 Scope

These authorisation procedures apply to domestic solid fuel burning appliances offered for sale and installation in New Zealand, including space heating appliances that burn:

- wood
- wood pellets
- coal
- wood and coal (multi-fuel burners).

They also apply to appliances that have water-heating devices.

1.2 Regulatory requirements

In New Zealand, both national and regional regulations govern space heating efficiency and emissions to air from domestic solid fuel burning appliances. Depending on the type of appliance and where it is installed, these national and regional regulations can overlap. This can be confusing, but in simple terms all national and regional requirements must be met. Some details are given below, with examples provided.

It is worth noting that the rules for each region are detailed, varied and specific to that region. This manual discusses only those rules relating to solid fuel burning appliances. Other rules governing burning are not discussed here. For example, most councils prohibit the burning of materials that result in toxic emissions (eg, treated timber, plastics), and some ban outdoor open fires. Readers should contact their regional council for further information.

Burners may be authorised in accordance with the regulatory requirements of the national environmental standards for air quality, and/or the relevant regional plan.

1.2.1 National regulations

In 2004, the Ministry for the Environment introduced the Resource Management (National Environmental Standards Relating to Certain Air Pollutants, Dioxins and Other Toxics) Regulations 2004. These regulations were the first national environmental standards under the Resource Management Act 1991 (the RMA), and they include requirements for wood burners as follows:

> *Regulation 22 Discharge from woodburners installed on certain properties after 1 September 2005 prohibited*
>
> (1) The discharge of particles to air from a woodburner installed after 1 September 2005 in a building on a property with an allotment size of less than 2 hectares is prohibited.
>
> (2) Subclause (1) does not apply if the discharge from the woodburner complies with –
>
> (a) the design standard in regulation 23; and
>
> (b) the thermal efficiency standard in regulation 24.
>
> *Regulation 23 Design standard*
>
> (1) The design standard for a woodburner is a discharge of less than 1.5 gram of particles for each kilogram of dry wood burnt.
>
> (2) The discharge must be measured in accordance with the method specified in Australian/New Zealand Standard AS/NZS 4013:1999, Domestic solid fuel burning appliances – Method for determination of flue gas emissions.
>
> *Regulation 24 Thermal efficiency standard*
>
> (1) The thermal efficiency standard for a woodburner –
>
> (a) is the ratio of useable heat energy output to energy input (thermal efficiency); and
>
> (b) must be not less than 65%.
>
> (2) The thermal efficiency must be calculated in accordance with the method specified in Australian/New Zealand Standard AS/NZS 4012:1999, Domestic solid fuel burning appliances – Method for determination of power output and efficiency.

Note that the above regulations *only* apply to wood burners installed on properties of less than 2 hectares. A wood burner is defined in Regulation 3 as a domestic heating appliance that burns wood, but does not include:

- an open fire
- a multi-fuel heater
- a pellet heater
- a coal-burning heater
- a stove that is designed and used for cooking and is heated by burning wood.

Australian/New Zealand Standard AS/NZS 4013:1999 (referred to above in Regulation 23) specifies a test procedure for determining the rate of particulate emissions from batch-fed solid fuel burning appliances. Australian/New Zealand Standard AS/NZS 4012:1999 (referred to above in Regulation 24) specifies a test procedure for determining the average efficiency and average thermal power output from batch-fed domestic solid fuel burning appliances. These two standards are referred to in this document as the 'designated test methods'.

National environmental standards are mandatory, technical environmental regulations made under the RMA. They are required to be met in all parts of New Zealand.

Special note: proposed amendment to the national regulations

The national regulations have inadvertently created a technical anomaly for wood-fired central heating appliances. The regulations require that wood-fired central heating appliances meet the design and efficiency standards described above, but the designated test methods for doing so (AS/NZS 4013 and AS/NZS 4012) specifically exclude wood-fired central heating appliances. This means that wood-fired central heating appliances must meet the standards using a method from which they are excluded.

To address this, the Ministry for the Environment proposes to make a minor technical amendment to the regulations. This amendment will provide for test methods that are functionally equivalent to the designated test methods for appliances at present excluded from the designated test methods. At the time of writing the amendment is in the process of being made.

1.2.2 Regional rules

Regional rules are rules in a plan prepared by the regional council that apply to a region. In certain circumstances these rules may be more stringent than the national environmental standards for air quality, but they cannot be less stringent. Where they are *more stringent*, the regional emission and efficiency rules take precedence over the national environmental standards for air quality.

Five regional councils have rules in their regional plans restricting emissions from new or existing domestic solid fuel burning appliances. Four of these councils also require domestic burners to meet a particular level of efficiency. These rules are summarised in Table 1. As shown in Table 1, the emission limits may only apply to part of the region (an airshed) or to the whole region. The emission limits usually apply to domestic solid fuel burners installed after the rules became operative, but some councils place emission limits on existing burners as well as new burners.

In all cases, readers are advised to refer to the appropriate regional council for more up-to-date and detailed information.

Table 1: Regional plan rules for solid fuel burners, as at 30 September 2009

Regional Plan rule	Applies:[1]	Area	Emission limit (g/kg)	Efficiency limit (%)
Auckland Council				
All new solid fuel burners	All domestic combustion appliances, including cooking stoves	Urban, coastal marine and air quality management areas	4.0 2.25 (with catalytic combustor)	– [2]
Environment Canterbury [3]				
All new solid fuel burners	All small-scale burners, including cooking stoves	Entire region	77 mg/MJ[4]	65%
Existing open fires	In winter: 1 April through to 30 September	Christchurch Clean Air Zone 1	Banned	
Existing solid fuel burners older than 15 years after 1 April 2010	All small-scale burners, including cooking stoves, in winter: 1 April through to 30 September	Christchurch Clean Air Zone 1	77 mg/MJ[4]	65%
Existing open fires	From May 2010 (Rangiora) From May 2012, or after house is sold, whichever comes first (Kaiapoi)	Rangiora, Kaiapoi	Banned	
Existing non-approved solid fuel burners older than 15 years	All small-scale burners, including cooking stoves After May 2010 (Rangiora) From May 2012, or after house is sold, whichever comes first (Kaiapoi)	Rangiora, Kaiapoi	Banned	
Existing approved solid fuel burners older than 15 years	All small-scale burners, including cooking stoves After May 2010 (Rangiora)	Rangiora	77 mg/MJ[4]	65%
Existing non-approved solid fuel burners installed before 1 January 2001	All small-scale burners, including cooking stoves From 1 May 2011, or after house is sold, whichever comes first	Ashburton	Banned	
Existing solid fuel burners older than 15 years	All small-scale burners, including cooking stoves From 1 May 2011, or after house is sold, whichever comes first	Ashburton	Banned	
Hawke's Bay Regional Council				
All new solid fuel burners	All burners less than 40 kW, including cooking stoves	Hastings Napier	0.7 1.5	65%
Existing open fires after 1 January 2011		Napier, Hastings	Banned	
Existing burners (installed before 31 December 1995) after 1 January 2011	All burners less than 40 kW, including cooking stoves	Hastings Napier	0.7 1.5	65%
Existing burners (installed between 1 January 1996 and 31 August 2005) after 1 January 2012	All burners less than 40 kW, including cooking stoves	Hastings Napier	0.7 1.5	65%
Existing burners (installed after 1 September 2005) after 1 January 2013	All burners less than 40 kW, including cooking stoves	Hastings Napier	0.7 1.5	65% 65%

Regional Plan rule	Applies:[1]	Area	Emission limit (g/kg)	Efficiency limit (%)
Nelson City Council				
All new solid fuel burners (replacing existing burners only)	All burners less than 40 kW, including cooking stoves	Urban areas	1.5	65%
New ultra-low emission pellet burners (permitted in new homes / where no existing burner)	Pellet burners	Urban areas	0.8 g/hr	70%
Existing open fires		Urban areas	Banned	
All existing solid fuel burners (installed before 31 December 1995) after 1 January 2010	All burners less than 40 kW, including cooking stoves	Hospital area, Victory Square, Washington Valley and Tahunanui	1.5	65%
All existing solid fuel burners (installed between 1 January 1996 and 31 December 1999) after 1 January 2012	All burners less than 40 kW, including cooking stoves	Hospital area, Victory Square, Washington Valley and Tahunanui	1.5	65%
All existing solid fuel burners (installed after 1 January 2000 that are not authorised) after 1 January 2013	All burners less than 40 kW, including cooking stoves	Hospital area, Victory Square, Washington Valley and Tahunanui	1.5	65%
All existing solid fuel burners (installed before 31 December 1990) after 1 January 2010	All burners less than 40 kW, including cooking stoves	Stoke, Wakatu, Enner Glynn	1.5	65%
All existing solid fuel burners (installed between 1 January 1991 and 31 December 1995) after 1 January2012	All burners less than 40 kW, including cooking stoves	Stoke, Wakatu, Enner Glynn	1.5	65%
Tasman District Council				
All new wood burners	All burners less than 40 kW, including cooking stoves	Urban areas and Richmond	1.5	65%
All new pellet burners	Pellet burners	Richmond	0.8 g/hr	70%
Otago Regional Council [5]				
All new solid fuel burners Existing solid fuel burners installed before 14 April 2007 < 1.5 g/kg Other existing solid fuel burners until 1 January 2012	All burners less than 50 kW, including cooking stoves	Alexandra, Arrowtown, Cromwell areas in Air Zone 1	0.7 1.5 –	65% – –
All new solid fuel burners Existing solid fuel burners installed before 1 April 2009 < 1.5g/kg Other existing solid fuel burners until 1 January 2012	All burners less than 50 kW, including cooking stoves	Clyde area in Air Zone 1	0.7 1.5 –	65% – –
All new solid fuel burners	All burners less than 50 kW, including cooking stoves	Most of Otago's other towns (Air Zone 2) properties of any size	1.5	65%

Regional Plan rule	Applies:[1]	Area	Emission limit (g/kg)	Efficiency limit (%)
All new solid fuel burners	All burners less than 50 kW, excluding cooking stoves	Rest of Otago (Air Zone 3) properties under 2 hectares	1.5	65%
All new solid fuel burning cooking stoves	Cooking stoves less than 50 kW	Rest of Otago (Air Zone 3) properties of any size	–	–
Rotorua District Council				
All new solid fuel burners after 1 December 2010	All burners less than 40 kW, including cooking stoves	Rotorua	1.5	65%
Existing solid fuel burners (with emissions > 1.5 g/kg and efficiency < 65%) from 1 May 2012	All burners less than 40 kW, including cooking stoves	Rotorua	Banned after sale of house	
Open fires after 1 September 2015	Fireplaces, open hearths, visors, Jetmaster, etc	Rotorua	Banned	

Notes

1 All definitions include central heating appliances.

2 New wood burners on properties less than 2 hectares are still required to meet the national environmental standard efficiency requirement of 65%.

3 Properties in Christchurch Clean Air Zone 1 can install a new wood burner only if replacing an existing appliance.

4 Equates to 1.0 g/kg, 65%, testing to AS/NZS 4013 and 4012 or 'functional equivalent'.

5 There are provisions for exemptions for historic buildings and commercial premises.

2 The authorisation process

2.1 Application

Anyone making an application to authorise a domestic solid fuel burning appliance will need the following:

1. a completed Application for Authorisation Approval form (available from the relevant council), signed by the applicant
2. one copy of a test report that clearly identifies the appliance and reports all information required in the designated test methods (if not stated in the test report, the applicant must supply a firebox volume calculation)

   > **Note:** Dimensions and measurements specified by text in a test report should be from a specified rigid point to another specified rigid point. For example, the firebox depth is x mm as measured from the inside of the front firebox wall at the bottom left-hand corner to the corresponding point on the rear firebox wall. Measurements to non-rigid features (eg, a flexible heat shield) are to be avoided.

3. dimensioned engineering drawings, with the manufacturing tolerances of the appliance tested

   > **Note:** These drawings must also have been submitted to the accredited laboratory with the appliance submitted for testing. An example drawing is provided in Appendix 2.

4. a copy of the installation, operating and maintenance instructions for the appliance
5. a copy of the proposed compliance label, and a photograph of the appliance showing the label and its location on the appliance
6. information on how to access an example of the model of appliance that was tested
7. any other information the applicant wishes the authorising agent to consider in its authorisation assessment.

The name of the appliance to be authorised must be unique and identified consistently on all the documents submitted (including the engineering drawings). The applicant is also responsible for ensuring the submitted documents are consistent with any specification requirements described in the designated standards, and these must be acceptable to the authorising agent.

If applications are received without the necessary supporting documents (as described above), the applicant will be notified and processing will be suspended until all the required documents are received. Documents with inconsistent naming (eg, if the test report has a different name to the design drawings) will not be accepted.

The authorising agent will retain all submitted documents throughout the period for which the relevant authorisation is held.

2.2 Assessment for authorising new appliances

The process for assessing the application for authorisation is as follows. The authorising agent:

- checks that the name of the appliance submitted for authorisation is unique and has not been used for any other authorised burner in New Zealand, either currently or in the past
- determines whether any existing authorised appliances bearing any parts of the same name are consistent in the use of any suffix, or additional nomenclature, so as to provide clear identification
- checks that all necessary supporting documents are present and valid
- checks that the compliance plate clearly identifies the appliance, and that all information presented is in accordance with the requirements of the designated standards
- completes a physical audit of the appliance, in accordance with Appendix 3
- determines whether the appliance complies with the relevant regulatory requirements
- makes an assessment of the ability of future manufactured appliances to be consistent with the appliance currently being assessed and to comply with the relevant regulatory requirements (ie, the national environmental standards for air quality and any relevant regional plan rules) − this assessment may include consideration of issues such as tamperability, possible performance variations within the tolerance range, and the plausibility of the operating instructions
- promptly advises the applicant of any matters that may prevent the issuing of an authorisation
- subject to a satisfactory authorisation assessment, authorises the appliance (by way of public notice if required by regional plan rules) and advises the applicant of the decision in writing
- subject to a satisfactory authorisation assessment, updates the agent's web-based list of authorised burners and notifies the applicant, other New Zealand authorising agents and registered interested stakeholders.

2.3 Reauthorisation of authorised appliances

The owner of an authorisation for an appliance can apply for reauthorisation when an authorisation for an existing burner expires, or when a burner changes its name and/or design.

If an authorisation is due to expire, the authorising agent will notify the authorisation holder in writing before the authorisation expiry date. Where feasible, a minimum of three months' notice will be given.

To apply for reauthorisation, the authorisation holder will need to submit:

1. a completed Application for Authorisation Approval form, signed by the applicant
2. a statement confirming that the appliance design for which authorisation is being sought is the same as that which was previously authorised

3. a statement that the documentation provided with the original application (manufacturing drawings, installation instructions, operating instructions, etc) is still relevant to the appliance currently being manufactured; alternatively, updated examples of the original documents may be provided, along with an appropriate explanation (eg, documentation supporting the appliance name change)

4. information on how to access a recently manufactured example of the model of appliance that was tested

5. any other information the applicant wishes the authorising agent to consider in its reauthorisation assessment.

After the application for reauthorisation is made, the authorising agent assesses the application in accordance with section 2.2 of this manual. The agent promptly advises the applicant of any matters that may prevent the issuing of an authorisation and then, subject to a satisfactory authorisation assessment:

- reauthorises the appliance (by way of public notice, if required by the relevant regional plan) and advises the applicant of this renewed authorisation
- updates the agent's web-based list of authorised burners and notifies the applicant, other New Zealand authorising agents, and registered interested stakeholders.

The authorising agent may suspend or cancel an authorisation at any time if an appliance is found to be non-compliant with its authorisation or with the relevant regulatory requirements. In such cases, the authorising agent will promptly advise other regulatory authorities of this non-compliance.

Note: if an appliance has been subject to design verification in the past 12 months, the results from this recent test can be made available to the authorising agent instead of performing a new compliance assessment for reauthorisation. In this case, items 3 through 5 can be substituted by a declaration from the authorisation holder to this effect.

3 Administration

3.1 Confidentiality

Any information provided to the authorising agent will be made publicly available on request, unless the applicant for authorisation specifically requests it be kept confidential and this is agreed to by the authorising agent, subject to any statutory requirements.

3.2 Name change

An authorisation applies only to the authorised design and name submitted with the application for authorisation. Any change to either the authorised design or the name requires a separate authorisation.

3.2.1 Authorisation holder

An authorisation may be transferred from one party to another provided both parties give written consent to the transfer, and pass this on to the authorising agent, before the authorisation is transferred.

3.2.2 Authorised appliance

An authorisation holder wishing to change the name of an authorised appliance must notify the authorising agent in writing. The new name must meet the criteria outlined in section 2.2.

3.3 Timing and fees

Authorising agents will endeavour to process applications for authorisation within 20 working days. Authorising agents may charge fees for processing applications for authorisation to recover costs. Any fees charged should reflect the actual and reasonable cost of processing the application.

3.4 Expiry date

Where applicable, three months before an authorisation is due to expire, the council notifies the authorisation holder that the authorisation is due to expire. The authorisation holder may then submit an affidavit stating that no changes to design have been made and provide access to a burner for inspection. Authorisation is then based on an inspection (usually in-store) of the burner, coupled with review of the documentation and acceptance of the manufacturer's affidavit in good faith.

3.5 Lists of authorised appliances

An authorising agent will maintain a web-based list of appliances authorised by that agency. Authorising agents will endeavour to update the list within 10 working days of any changes to the authorisation status of an appliance. Authorising agents also undertake to notify the authorisation holder, other New Zealand authorising agents and registered interested stakeholders of any changes to their authorised lists.

Note: the authorising agent may suspend or cancel an authorisation at any time if an appliance is found to be non-compliant with its authorisation or with the relevant regulatory requirements.

Where authorisation is based on an opinion from an accredited laboratory, the appliance may be listed as follows:

- NT = not fully tested in accordance with AS/NZS 4012 or 4013, in which case authorisation is based on test results for a similar appliance or indicative testing for this appliance, together with an opinion from the testing agency; or
- an appropriate regulatory requirement is provided (eg, '< 1 g/kg' or '> 65%').

The stated efficiency of an appliance must be listed as a whole number. The stated emissions for an appliance must be rounded to one decimal place.

Authorising agents may list further special conditions, as necessary, for the satisfactory implementation of the authorisation.

3.6 Data-supported opinions

In some cases an applicant may wish to authorise multiple burners that are very similar in design. In such cases, the applicant may provide full test results for one burner and obtain an opinion from a testing laboratory on the applicability of these results to other burners.

Where opinions are provided by the testing laboratories, authorising agents may accept the opinion and/or require additional information. Additional information may include additional emissions and efficiency testing. As a guide for applicants, it is unlikely that authorising agents would accept retest exemption opinions on the following changes without additional test data:

- a change from hardwood to softwood
- a change from wetback to dryback
- a change from inbuilt to freestanding
- a change from fan to no fan.

For the purposes of clarity, changes to the dimensions listed in Section 8.2 of AS/NZS 4013:1999 require a written opinion from the laboratory. Any changes to other dimensions do not require a written opinion. The laboratory has further discretion on full or partial testing, and the authorising agency may or may not accept the testing and/or opinion.

4 Definitions

For the purposes of this authorisation procedure, the relevant terms have been defined as follows.

Accredited laboratory: a laboratory that has been accredited by International Accreditation New Zealand (IANZ) in New Zealand, or the National Association of Testing Authorities (NATA) in Australia, for the designated test methods. A list of current accredited laboratories is given in Appendix 1. Designated test methods are listed below.

Appliance verifier: an independent engineer contracted to undertake a compliance assessment, who has well-established experience in the field of both general appliance testing and the manufacture and testing of domestic solid fuel burning appliances.

Applicant: the entity, whether an individual, business, body corporate or other legal entity, whose name appears on the application for an authorisation. This may be a manufacturer, distributor or retailer, and is the party intending to hold the authorisation so as to facilitate the sale and installation of a domestic solid fuel burning appliance in New Zealand.

Application: a written request, made by a manufacturer, distributor or retailer, to the authorising agent for a domestic solid fuel burning appliance to be authorised.

Authorisation: the approval of an authorising agent that a domestic solid fuel burning appliance is compliant with the relevant regulatory requirements, as demonstrated in accordance with the procedures in this manual. An authorisation applies only to the design and name submitted with the application for authorisation. Any change to either the authorised design or the name requires a separate authorisation.

Authorisation holder: the entity, whether an individual, business, body corporate or other legal entity, responsible for the authorisation of an authorised appliance.

Authorised design: the technical design of an appliance for which an authorisation has been issued by the authorising agent. The design incorporates both the physical description and the photographs provided in the test report(s), as well as the detailed engineering drawings submitted with an application for authorisation.

Authorising agent: the regulatory authority authorising the appliance, or an agent appointed to act on their behalf.

Compliance assessment: an assessment by the authorising agent of the emissions and efficiency performance, technical design, physical dimensions and appropriate documentation (including test report/s and detailed design drawings), of an appliance against the relevant regulatory requirements. An assessment may include consideration of other relevant matters such as tamperability and plausibility of design.

Compliance plate: a permanently attached label, affixed to an appliance, that states that the appliance has been manufactured in conformity with its authorisation.

Cooking stove: a domestic solid fuel burning appliance designed to burn wood and/or coal for the primary purpose of cooking food, and having the following design features:

- an oven for baking/roasting
- hot plates or a flat top surface for cooking.

Designated test methods: AS/NZS 4012:1999 Domestic solid fuel burning appliances − Method for determination of power output and efficiency (AS/NZS 4012)

AS/NZS 4013:1999 Domestic solid fuel burning appliances − Method for determination of flue gas emissions (AS/NZS 4013)

AS/NZS 4886:2007 Domestic solid fuel burning appliance – Pellet heaters – Determination of flue gas emission

AS/NZS 5078:2007 Domestic solid fuel burning appliance – Pellet heaters – Method for determination of power output and efficiency.

Domestic solid fuel burning appliance: This may be a fireplace insert, a built-in fireplace or a free-standing burner, designed to burn wood, wood pellets, coal or a mixture of these fuels (a multi-fuel burner) for the purpose of space heating. The appliance may include a water-heating device.

Multi-fuel burner: A domestic solid fuel burning space heater designed to burn wood and/or coal, which has the following design features:

- over-fuel and under-fuel combustion air supplies, with separate controls
- a grate in the base of the firebox
- an ash pan under the grate.

National Environmental Standards for Air Quality: Generally refers to the requirements of the Resource Management (National Environmental Standards Relating to Certain Air Pollutants, Dioxins and Other Toxics) Regulations 2004, including, or particularly, that any wood burner installed on a property less than 2 hectares in size have a maximum particle emission factor of less than 1.5 grams per kilogram of dry wood burnt, and a thermal efficiency of not less than 65%, as measured in accordance with the designated test methods.

Non-compliance: This means an appliance does not comply with the national environmental standards for air quality, regional plan rules or the appliance authorisation, as determined by the authorising agent or appliance verifier.

Pellet burner: A domestic solid fuel burning appliance designed to burn wood pellets for the primary purpose of space heating.

Regulatory authorities: The Ministry for the Environment and the regional councils of New Zealand, including unitary authorities, separately and collectively.

Relevant regulatory requirements: The national environmental standards for air quality, and/or the appropriate rules in the relevant regional plan.

Technical design: An engineering description of an appliance. This includes the physical configuration and structure, dimensional relationships, electrical and electronic hardware, materials and components of an appliance, together with all relevant documentation on installation, operating and servicing instructions.

Test report: A report on an appliance from an accredited laboratory on the outcomes of the designated test methods.

Wood burner: Has the same definition as the national environmental standards for air quality:

(a) means a domestic heating appliance that burns wood; but

(b) does not include –

  (i) an open fire; or

  (ii) a multifuel heater, a pellet heater, or a coal burning heater; or

  (iii) a stove that is –

    (A) designed and used for cooking; and

    (B) heated by burning wood.

Appendix 1: Accredited laboratories

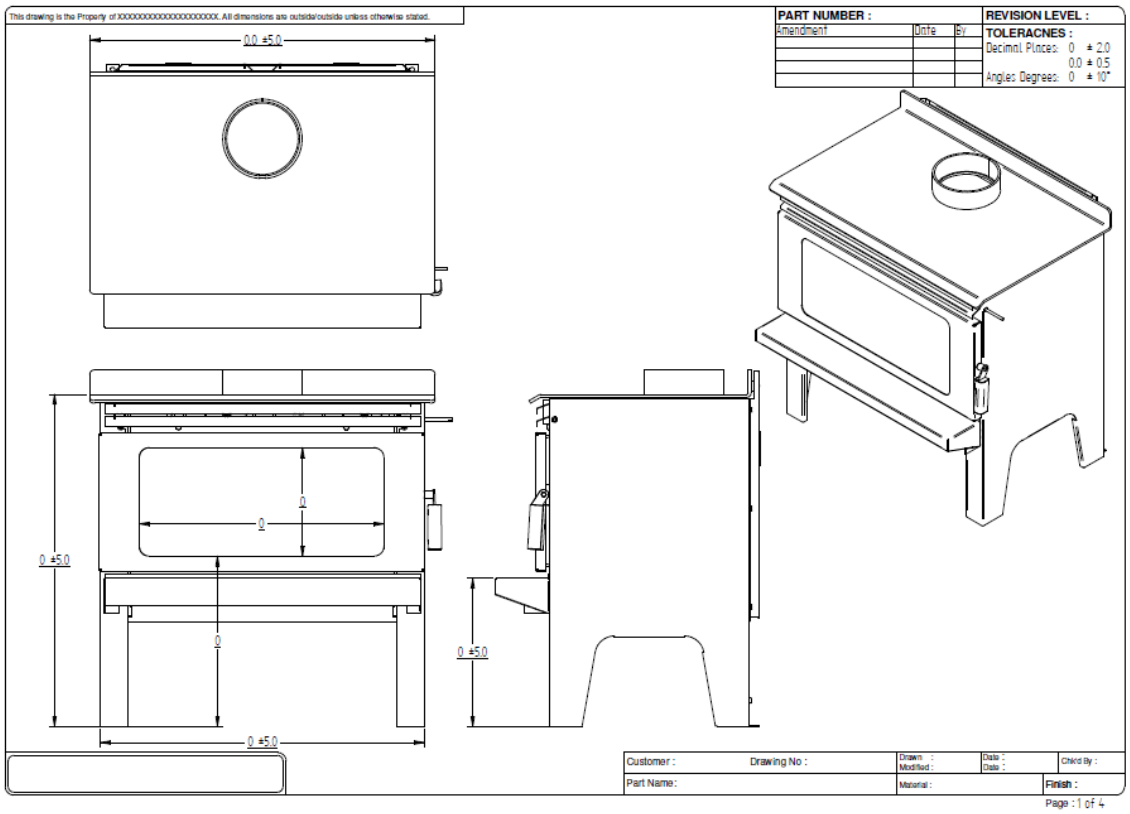
Applied Research Services Ltd
PO Box 687, Nelson, New Zealand
Phone: 64 3 547 7347
Fax: 64 3 547 2909
Email: applied@ts.co.nz

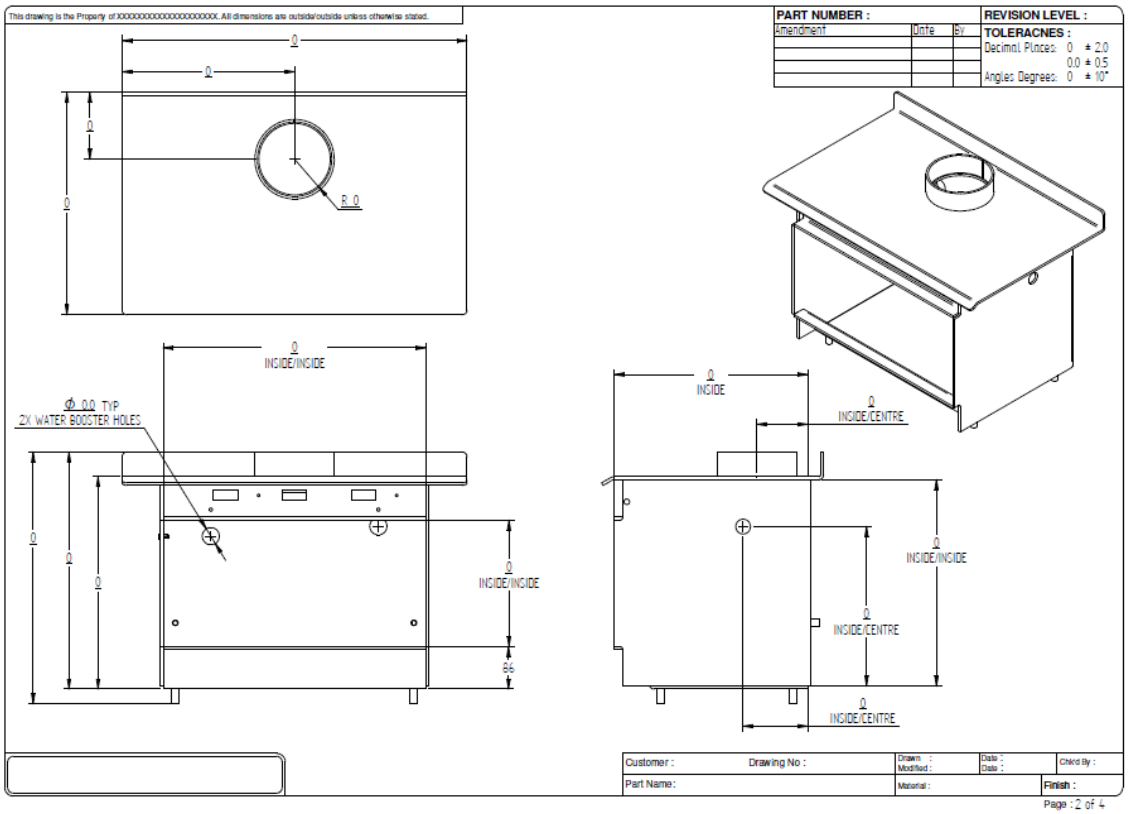
Spectrum Laboratories
Unit 1/25, Highbrook Drive, East Tamaki
PO Box 259-182, Greenmount, Auckland 1730, New Zealand
Phone: 64 9 271 1616
Fax: 64 9 271 1615
Email: graeme@spectrumlab.co.nz

HRL Technology
Level 1, Unit 9, 677 Springvale Road, Mulgrave, Victoria 3170, Australia
Phone: +61 3 9565 9888
Fax: +61 3 9565 9777
Email: info@hrl.com.au

Appendix 2: Example drawings

(Courtesy of Glen Dimplex)

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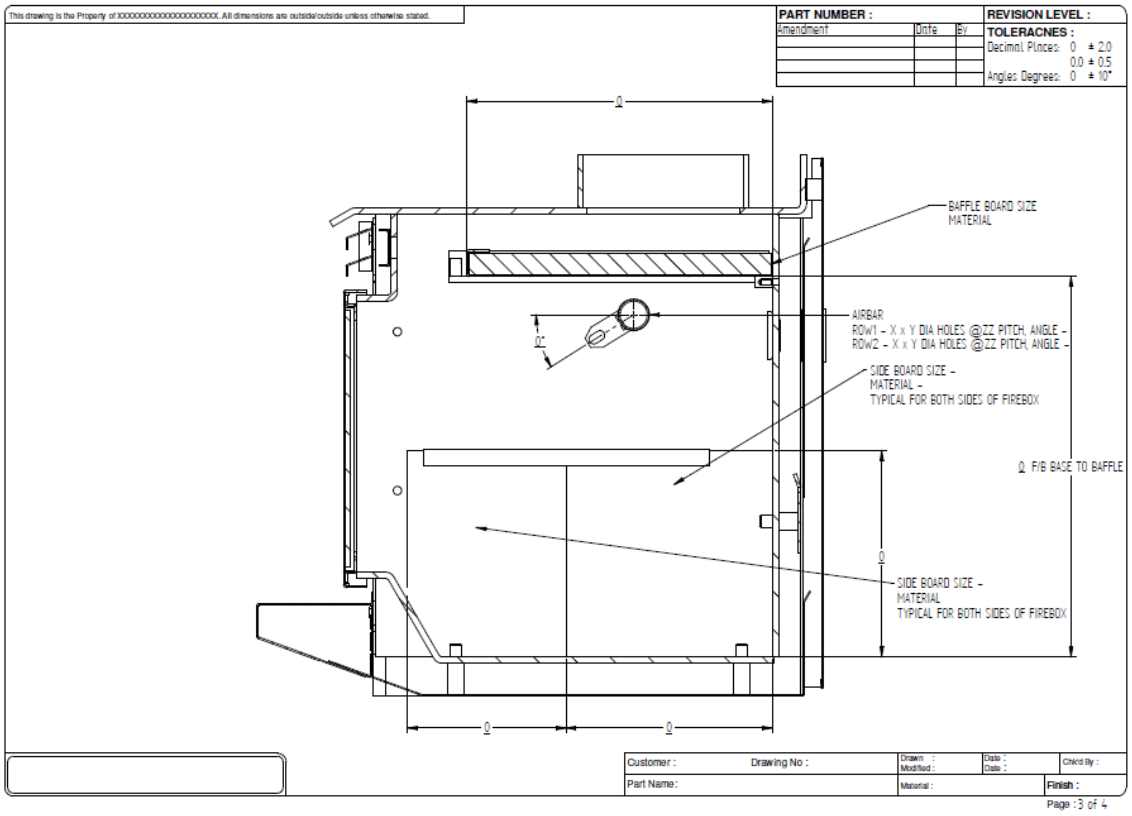
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0.0 ± 0.5
Angles Degrees: 0 ± 10°
Ø
BAFFLE BOARD SIZE
MATERIAL
AIRBAR
ROW1 – X x Y DIA HOLES @ZZ PITCH, ANGLE –
ROW2 – X x Y DIA HOLES @ZZ PITCH, ANGLE –
Ø
SIDE BOARD SIZE –
MATERIAL –
TYPICAL FOR BOTH SIDES OF FIREBOX
Ø F/B BASE TO BAFFLE
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SIDE BOARD SIZE –
MATERIAL
TYPICAL FOR BOTH SIDES OF FIREBOX
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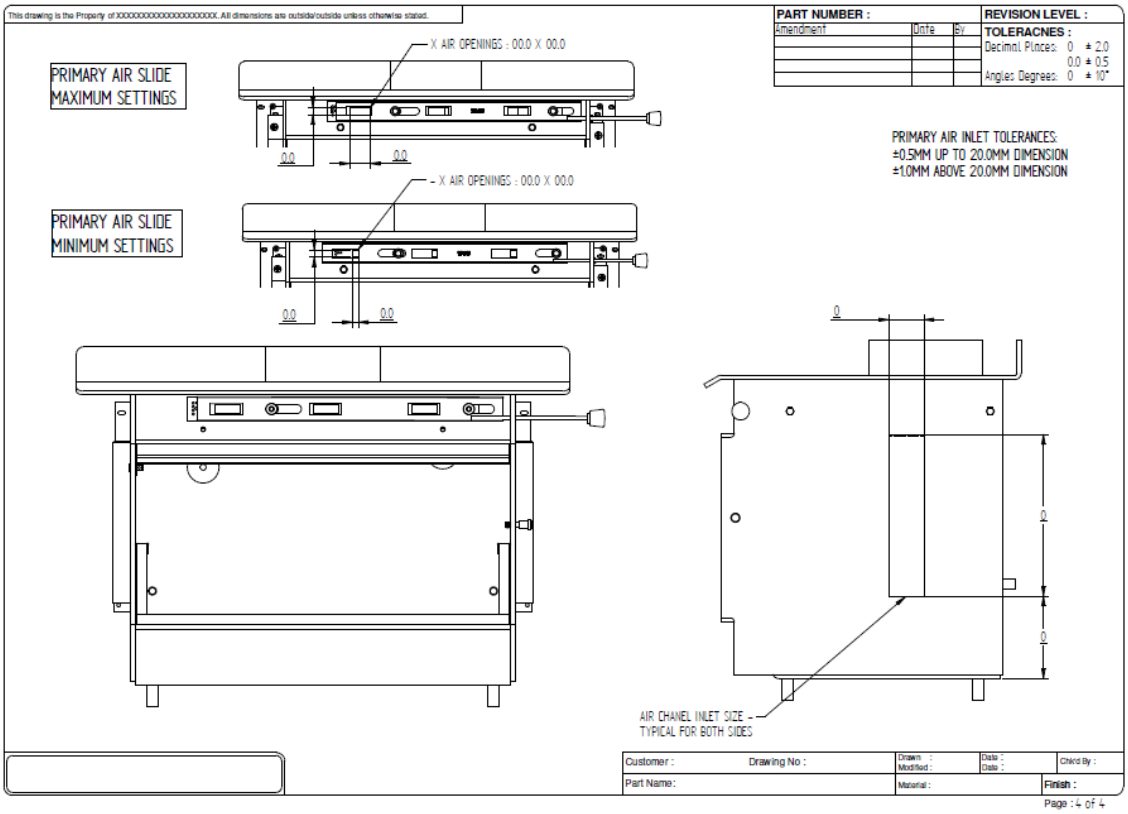
Finish :
Page : 3 of 4


This drawing is the Property of XXXXXXXXXXXXXXXXXXXX. All dimensions are outside/outside unless otherwise stated.
PART NUMBER :
Amendment
Date
By
REVISION LEVEL :
TOLERACNES :
Decimal Places: 0 ± 2.0
0.0 ± 0.5
Angles Degrees: 0 ± 10°
PRIMARY AIR SLIDE MAXIMUM SETTINGS
X AIR OPENINGS : 00.0 X 00.0
0.0
0.0
PRIMARY AIR SLIDE MINIMUM SETTINGS
X AIR OPENINGS : 00.0 X 00.0
0.0
0.0
PRIMARY AIR INLET TOLERANCES:
±0.5MM UP TO 20.0MM DIMENSION
±1.0MM ABOVE 20.0MM DIMENSION
0
0
0
AIR CHANEL INLET SIZE -
TYPICAL FOR BOTH SIDES
Customer :
Drawing No :
Drawn :
Modified :
Date :
Date :
Chkd By :
Part Name :
Material :
Finish :
Page : 4 of 4

Appendix 3: Design verification

A3–1 Assessment

A3–1.1 The appliance verifier shall measure appliance dimensions and parameters for assessment against the authorised design and, where not supplied in the authorised design, the manufacturing tolerances provided in Table A1.**Note:** These parameters have been specified with wood burners in mind. Additional requirements may be necessary for appliances burning different fuels.

A3–1.2 Measurement of appliance dimensions and parameters shall be undertaken using appropriate measurement equipment with traceable accuracy to national standards as follows:

- dimensions > 100 mm – steel rule or steel tape
- dimensions < 100 mm – vernier or digital calliper
- hole diameters < 6 mm – metric, imperial or number drills checked against vernier or digital callipers or micrometer
- hole diameters > 6 mm using vernier or digital callipers.

A3–1.3 The appliance verifier shall critically examine the appliance against the authorised design, including (where appropriate) any approved amendments or variations, and note any obvious changes in the appearance, construction or design of the appliance and its components. The appliance verifier shall accurately record all observations and measurements on a test sheet, identifying any measurements that are outside of the agreed tolerances. Where possible, the appliance verifier shall further include an assessment on whether any variations in dimensions or changes in the appliance are significant and likely to vary the previous emissions and efficiency test compliances.

A3–1.4 All details on the attached compliance plate and any relevant labels, including manufacturer's name and address, model and serial number, shall be recorded.

A3–1.5 The appliance verifier shall check and report on emissions calculations provided in the test report. The appliance verifier shall check and report on efficiency calculations provided in the test report.

A3–1.6 The appliance verifier shall check the heater was tested in accordance with manufacturer's instructions for the appliance, and whether current instructions contain any information that is contrary to the authorised design.

A3–1.7 The appliance verifier shall provide interpretation of any design features that may substantially impact upon emissions performance (tamperability, durability, etc).

A3–1.8 The appliance verifier shall then provide an assessment Pass/Fail.

Table A1: Design verification tolerances, unless specified in authorised design

Parameter	Tolerance	Notes
Name of appliance	No change permitted	Test report (including all drawings) must match operating instructions, installation instructions and authorisation application.
Firebox cabinet dimensions	± 5 mm	
Pedestal height	± 25 mm	
Overall firebox dimensions	± 3 mm	Allowance may be made for tolerance of internal fittings (eg, firebricks). Maximum allowance not to exceed 10 mm total.
Firebox material thickness	± 0.3 mm	
Position of flue spigot centre	± 3 mm	
Primary air inlet control		
Height and width of slot	± 0.5 mm (up to 20 mm) ± 1.0 mm (> 20 mm)	
Minimum opening	± 0.5 mm	
Hole size	± 0.2 mm	
All angles	± 10°	
Cross-sectional area (mm^2)	± 5%	
Primary air inlet distributor	± 2 mm	Position as specified in test report.
Secondary air distributor(s)		
Hole sizes	± 0.2 mm	
All angles	± 10°	
Cross-sectional area (mm^2)	± 5%	
Position	± 2 mm	Position as specified in test report.
Baffle plate		
Dimensions	± 2 mm	When measuring dimensions, allowance may be made for tolerance of constituent parts. Maximum allowance not to exceed 10 mm total.
Material thickness	± 2 mm	
Material	No change permitted	
Shape	No change permitted	
Angle	± 10°	
Position	± 2 mm	
Attachments	± 2 mm for positioning	
Refractory linings, insulation		
Material	No change permitted	
Number	No change permitted	
Position	No change permitted	
Size	± 2 mm	
Thickness	± 2 mm	
Firebox door		
Glass area (mm^2)	± 5%	
Door profile slope	± 10°	
Wetback, heat recirculating fan or other accessories		When measuring dimensions, allowance may be made for tolerance of constituent parts. Maximum allowance not to exceed 10 mm total.
Type	No change permitted	
Dimensions	± 2 mm	
Position	± 2 mm	