

PAPER No. 4

HOW & WHY FIRE DAMPERS MUST BE CERTIFIED

FIRE SAFETY CERTIFICATES & ANNUAL FIRE SAFETY STATEMENTS



- Under the provisions of the *Environmental Planning and Assessment (Design & Certification) Regulation 2021*, owners of buildings have a legal obligation to supply the Fire Commissioner with a copy of any **Fire Safety Certificate** and **Fire Safety Statement** listing the performance of fire safety measures applicable to their building.
- A copy of the Fire Safety Certificate and Fire Safety Statement are to be **supplied** as soon as practicable after being issued to the owner.

- The Fire Safety Certificate is to be supplied as applicable.
- The Fire Safety Statement may be either **Annual** or **Supplementary**, both of which are to be supplied as applicable.

- A copy of the Fire Safety Certificate and Fire Safety Statement together with a copy of the current fire safety schedule must be prominently displayed in the building.
- The owner of a building, to which a fire safety measure is applicable, must maintain each essential fire safety measure.
- The Fire Commissioner has an obligation under the EP&AR to accept copies of completed Certificates and Statements.

4.1 FIRE SAFETY CERTIFICATES

NSW Planning has conforming Fire Safety Certificate forms available from:
<https://www.planning.nsw.gov.au/-/media/Files/DPE/Guidelines/Policy-and-legislation/Buildings/Fire-safety-certificate-template-form-202208.docx?la=en>

Fire Safety Certificate

Part 11 of the Environmental Planning and Assessment (Development Certification and Fire Safety) Regulation 2021



<p>Fire engineering performance solutions relating to:</p> <ul style="list-style-type: none"> Reduction of FRL for the elements of structure within and below: <ul style="list-style-type: none"> The Class 5b assembly tenancies from FRL 120/120/120 to 00/00/00 The Class 5 office/admin tenancies from FRL 120/120/120 to 00/00/00 The Class 5 retail tenancies from FRL 180/180/180 to 00/00/00 To permit a combination of tested fire rated systems to be used together as a single system, which have not been jointly tested to AS1530.4 To permit the <u>performance based</u> approach to the treatment of services and structure which pass through fire rated building elements To permit external lift shafts and lift doors constructed of glazing in lieu of fire rated construction To permit a <u>performance based</u> approach to be used to determine the FRL achieved by various fire rated shafts Provision of a performance solution for fire rating of floors to achieve FRL 00/00/00 To permit exit travel distance exceeding the limitations of the BCA in the following areas: <ul style="list-style-type: none"> Ground Commercial Area 1 – Up to 20m to point of choice Mezzanine – up to 24m to a point of choice from Bell Shakespeare Print/Utility Room and Design Office Mezzanine – travel distance between alternate exits at shared foyer & reception area of 8m separation instead of 9m Mezzanine – Male & Female sanitary facilities – event store only provided with a single exit Lev.1 – up to 48m to one of two exits Lev.1 ACO – up to 40m from auditorium to point of choice and 51m to an exit Lev.1 – Up to 71m between alternate exits & worst case up to 83m Lev.2 – up to 32m to point of choice & 45m to an exit Lev.2 Up to 34m between alternative exits Lev.3 – the distance to a single exit (being a ladder) is approx. 27m To permit internal stairs to not provide continuous egress to a road and allow discharge to a point which is further than 20m to an exit door <p>To permit occupants to travel beneath the existing bridge structures which are not open to the sky for the path of travel from the building exterior apron at Ground Level.</p>	<p>BCA2010 Performance Requirements CP1, CP2, CP3, DP2, DP4, DP6, EP1.1, EP1.3, EP1.4, EP2.1, EP4.1, & EP4.2</p> <p>Fire Safety Engineering Report prepared by ARUP Report Number 248853 Revision J dated 30th November 2021.</p>	<p>23rd Nov 2022</p>	<p>N</p>
---	--	---------------------------------	----------

Fire Safety Certificate

Part 11 of the Environmental Planning and Assessment (Development Certification and Fire Safety) Regulation 2021



<ul style="list-style-type: none"> To permit the existing hydrant outlets serving Wharf 2/3 to be located within 10m from the building in which it serves and Interior distance <u>greater</u> than 4m from an internal exit To permit omission of fire hose reels in some minor areas and permit location further than 4m from an exit To permit omission of sprinkler protection: <ul style="list-style-type: none"> Under retractable seating Under the wharf structure Exterior parity stairs Double glazed cavity of the ACO Lift pit of Lift 4 (pit serviced and cleared 6-monthly) Rationalisation of smoke hazard management requirements in the performance spaces Permit a <u>performance based</u> approach to various theatre seating options To permit smoke detection system isolation during theatrical performances in the performance spaces as defined in the MIU To permit non-fire isolated stair connecting through four storeys and atrium non-conformances: <ul style="list-style-type: none"> Dimensions of atrium well Bounding walls Balcony construction Smoke exhaust To permit reduced exit width of stairs and Path of Travel To permit doors to swing against the direction of egress To permit single leaf doorways with a width greater than 1m To omit panic bars between secured tenancies To allow exit direction signs higher than 2.7m To allow a ladder to serve as an exit from the Lev.3 plant rooms which are larger than 100m² Permit the omission of smoke detection within the Lev.2 void between the production office & stage To allow timber skirting to be fixed to smoke wells Permit a fire hose reel cabinet to be obstructed by an adjacent door leaf Allow power operated doorways reliant upon activation of two sequence devices Permit the use of a 'fireman switch' for use for full blackout including turning off illuminated exit signs within a designated space. <p>To allow doors in the smoke well to swing in either direction instead of only the direction of egress.</p>	<p>BCA2010 Performance Requirements CP1, CP2, CP3, DP2, DP4, DP6, EP1.1, EP1.3, EP1.4, EP2.1, EP4.1, & EP4.2</p> <p>Fire Safety Engineering Report prepared by ARUP Report Number 248853 Revision J dated 30th November 2021.</p>	<p>23rd Nov 2022</p>	<p>N</p>
<p>The Fire Safety Management Plans are to be approved <u>approved</u> and External circulation stairs and balconies are not to be used for storage of any combustibles.</p>	<p>Fire Safety Engineering Report prepared by ARUP Report Number 248853 Revision J dated 30th November 2021, Section 3.10 and the WBAP Operational Plan of Management.</p>	<p>23rd Nov 2022</p>	<p>N</p>
<p>Paths of travel are to be kept clear of curtains <u>NOTE</u>: Where curtains automatically open, they must return to the open position within 10 seconds <u>seconds</u> of a fire trip.</p>	<p>Fire Safety Engineering Report prepared by ARUP Report Number 248853 Revision J dated 30th November 2021, Section 7.18.2.2</p>	<p>23rd Nov 2022</p>	<p>N</p>

Fire Safety Certificate

Part 11 of the Environmental Planning and Assessment (Development Certification and Fire Safety) Regulation 2021



* Indicate whether the measure is new (N), existing (E) or modified (M)

Section 5: Name and contact details of the person making the declaration in section 6 or 7

Full name (Given Name(s) and Family Name)

Nicolaus Lind

Organization (if applicable) Title/Position (if applicable)
 Infrastructure NSW Services Auditor, Major Projects

Address (Street No, Street Name, Suburb and Postcode)
 22 Rawson Place Sydney NSW 2000

Phone Email
 9955-9700 Nicolaus.lind@dpw.nsw.gov.au

Section 6: Final fire safety certificate declaration - for the whole of the building work

I, [Click here](#) (insert full name) being the: owner owner's agent

certify that each essential fire safety measure specified in the current fire safety schedule for the building has been assessed by a properly qualified person as capable of performing to at least the standard required by the current fire safety schedule.

Owner/Agent Signature Date issued
3rd January 2023

Section 7: Interim fire safety certificate declaration

I, [Click here](#) (insert full name) being the: owner owner's agent

certify that each essential fire safety measure specified in the current fire safety schedule for the part of the building has been assessed by a properly qualified person as capable of performing to at least the standard required by the current fire safety schedule.

Owner/Agent Signature Date issued

Note:

A fire safety certificate must not be issued unless the certificate is accompanied by a fire safety schedule for the building or part of the building in accordance with the Regulation.

13a Hickson Road Dawson Point NSW 2000

Version 3.0 | Effective from 1 September 2022 | NSW Department of Planning and Environment | 5

Fire Safety Certificate

Information to help building owners complete the Fire Safety Certificate form



PLEASE NOTE:

The following information has been provided to help building owners complete the fire safety certificate template and does not comprise part of the form. The following pages do not have to be displayed in the building and need not be submitted to the Commissioner of Fire and Rescue NSW.

General

- Please print in CAPITAL LETTERS and complete all relevant sections in full.
- A reference to 'the Regulation' is a reference to the **Environmental Planning and Assessment (Development Certification and Fire Safety) Regulation 2021**.
- Completed fire safety certificates must be lodged with Fire and Rescue NSW by email at fireosafety@fire.nsw.gov.au. For further information about this process, please visit the 'Lodge a fire safety certificate' page at www.fire.nsw.gov.au.
- As soon as practicable after issuing the fire safety certificate, the building owner must ensure a copy (together with a copy of the current fire safety schedule) is displayed in a prominent location within the building.
- Further information about building fire safety is available on the 'Fire safety in buildings' page of the Department's website at www.planning.nsw.gov.au.

Section 1: Type of certificate

- Mark the applicable box to identify if the certificate being issued is a final fire safety certificate or an interim fire safety certificate.
- Fire safety certificates are issued under Part 11 of the Regulation.
- A final fire safety certificate concerns the whole of the building work.
- An interim fire safety certificate concerns a completed part of the building work.

Section 2: Description of the building or part of the building

- In addition to the address and other property identifiers, a brief description of the building or part is to be provided. This could include the use(s) of the building (e.g. retail, office, residential, assembly, catering), number of storeys (above and/or below ground), construction type or other relevant information.
- If the description relates to part of a building, the location of the part should be included in the description.

Section 3: Name and address of the owner(s) of the building or part of the building

- Provide the name and address of each owner of the building or part of the building.
- The owner of the building or part of the building could include individuals, a company, or an owner's corporation.

Section 4: Fire safety measures

- The purpose of this section is to identify all of the fire safety measures that apply to a building or part of a building.
- The statutory fire safety measures are listed in section 79 of the Regulation.
- Fire safety measures include items such as portable fire extinguishers, fire hydrants, fire sprinklers, fire detection and alarm systems and lightweight construction.
- For final fire safety certificates, the table in section 4 must list each of the essential fire safety measures that apply to the building and the relevant standard of performance. The date(s) on which those measures were assessed and inspected must be within the 3 months prior to the date the final fire safety certificate is issued.
- For interim fire safety certificates, the table in section 4 must list each of the essential fire safety measures that apply to the part of the building and the relevant standard of performance. The date(s) on which those measures were assessed and inspected must be within the 3 months prior to the date the interim fire safety certificate is issued.
- The person who carries out the assessment must—
 - inspect and verify the performance of each essential fire safety measure being assessed, and
 - test the operation of equipment that—
 - is specified in the current fire safety schedule for the building, and
 - has not previously been tested in an assessment because it is newly installed.

13a Hickson Road Dawson Point NSW 2000

Version 3.0 | Effective from 1 September 2022 | NSW Department of Planning and Environment | 6

Fire Safety Certificate

Information to help building owners complete the Fire Safety Certificate form



- A fire safety certificate deals with all essential fire safety measures in the current fire safety schedule for the building or part. However, the certificate need not deal with any measures the subject of other fire safety certificates or fire safety statements issued within the previous 6 months, except if the person who issued the relevant development consent, construction certificate or fire safety order determines that the fire safety certificate must address those measures.

Section 5: Name and contact details of the person making the declaration in section 6 or 7

- The purpose of this section of the form is to detail the name, address and contact details of the person who is making the required declaration i.e. the person who completes and signs section 6 or section 7 of the form. This could be the owner(s) of the building or a nominated agent of the owner(s).
- Where a person makes the required declaration on behalf of an organisation (as the owner of the building), the name of the organisation and the title/position of the person must be provided. The person making the required declaration as a representative of the organisation must have the appropriate authority to do so.
- Where a person makes the required declaration on behalf of the owner(s) (as the owner's agent), the person must have the appropriate authority from the building owner(s) to undertake this function.
- In the case of a building with multiple owners, one owner may make the required declaration, however each of the other owners must advise the owner who makes the required declaration to act as their agent.

Section 6: Final fire safety certificate declaration

- The person completing this section is the person who is making the required declaration for the final fire safety certificate in accordance with section 83 and 84 of the Regulation and is the same person as detailed in section 5. The person making the required declaration must identify if they are the owner or the owner's agent.
- In making the required declaration, the building owner or agent is **not** declaring that each fire safety measure meets the minimum standard of performance, but rather that each fire safety measure has been assessed, and was found by a properly qualified person to be capable of performing to that standard, as listed in section 4. In performing this function, the building owner or owner's agent could obtain documentation from each properly qualified person to verify that the standard of performance has been met and that any new items of equipment have been tested, prior to completing the form.

Section 7: Interim fire safety certificate declaration

- The person completing this section is the person who is making the required declaration for the interim fire safety certificate in accordance with section 83 and 84 of the Regulation and is the same person as detailed in section 5. The person making the required declaration must identify if they are the owner or the owner's agent.
- The information provided above in relation to section 6 on what the owner is declaring also applies to an interim fire safety certificate.

© State of New South Wales through Department of Planning and Environment 2022. Information contained in this publication is based on knowledge and understanding at the time of writing, June 2022, and is subject to change. For more information, please visit dpc.nsw.gov.au/copyright

13a Hickson Road Dawson Point NSW 2000

Version 3.0 | Effective from 1 September 2022 | NSW Department of Planning and Environment | 7

4.1 FIRE SAFETY CERTIFICATES

WHO SIGNS?

As indicated in the EP&AR2021, the *building owner or agent* are the only entity authorised to sign fire safety certificates and statements.

Certification Requirements

Under the EP&A 1979 Act & EP&A (Dev.Cert&FireSafety) Reg 2021, a Final Fire Safety Certificate is issued by the owner of the building, to the effect that;

each essential fire safety measure as required in the fire safety schedule and specified in the statement;

Has been assessed by a **properly qualified person** [Part 11 83(1)(b) and found **capable of performing** to a standard no less than that required by the current fire safety schedule.

(In Practice) Fire Safety Certificates - summary

Generally the head contractor (building works) and managing agent (property manager) shall act as the owner's agent and collates statements and certificates from the various specialised engineering service providers - which need to provide the information, in a (Fire Safety Certificate).

These individual, specialised installation certificates are not strictly Fire Safety Certificates - as that term *only refers to the one and only* required document from the owner or his agent, to the authorities, however they may be presented as evidence of compliance and conformance attested to by the installer.

The performance assessment of essential fire safety measures must have been carried out *within three months* of the final fire safety certificate submission date.

The Final Fire Safety Certificate from the building owner, must be:

- Forwarded to and accepted by the principal certifying authority (private certifier or council) prior to their granting any occupation certificate.
- Forwarded to NSWFR Structural Fire Division (with a copy of the current fire safety schedule)
- Prominently displayed (with a copy of the current fire safety schedule) within the building

4.2 FIRE SAFETY STATEMENTS

<https://www.planning.nsw.gov.au/-/media/Files/DPE/Guidelines/Policy-and-legislation/Buildings/Fire-safety-statement-template-form---version-4.docx?la=en>

Fire Safety Statement

Part 12 of the Environmental Planning and Assessment (Development Certification and Fire Safety) Regulation 2021



Please note:

Information to assist building owners to complete each section of the statement is provided on pages 3, 4 and 5.

Section 1: Type of statement

This is (mark applicable box): an annual fire safety statement (complete the declaration at Section 8 of this form)
 a supplementary fire safety statement (complete the declaration at Section 9 of this form)

Section 2: Description of the building or part of the building

This statement applies to: the whole building part of the building

Address

17~19 McPherson Road, Smeaton Grange NSW 2780

Lot No. (if known)	DP/SP (if known)	Building name (if applicable)
Lot1	DP:1130399	Endeavour Energy Field Services Depot

Provide a brief description of the building or part (building use, number of stories, construction type etc)

Regulator file reference: F860/2006/1 GPS Location: 34° 2'37.70" S / 150°45'40.48" E

Regional Depot and Field Office BCA Class 5, 7 & 8

Section 3: Name and address of the owner(s) of the building or part of the building

Full Name (Given Name/s and Family Name):

Epallion Distribution Ministerial Holding Corp Vs Endeavour Energy

* Where the owner is not a person's but an entity including a company or trust insert the full name of that entity.

Address (Street No., Street Name, Suburb and Postcode)

51 Huntingwood Drive, Huntingwood NSW 2148 Mail: PO Box 6366 Blacktown NSW 2148

Section 4: Fire safety measures

Auditorium

Fire safety measure	Minimum standard of performance	Date(s) assessed	APFS*
Building occupant warning system*	AS1670.4-2004	20 th Dec'22	F043175A
Emergency lighting	BCA E4.2, E4.4, AS2293.1-2005	20 th Dec'22	F043175A
Exit signs, illuminated	BCA E4.5, E4.6+E4.8 AS2293.1-2005	20 th Dec'22	F043175A
Fire blanket	AS2444-2001 / AS/NZS3504-2006	20 th Dec'22	F043175A
Fire hose reel system	BCA E1.4, AS2441-2005	20 th Dec'22	F043175A
Fire hydrant system	BCA E1.3, AS2419.1-2005	20 th Dec'22	F043175A
Fire rated door	BCA C3.4, spec.C3.4, C3.5 AS1905.1-2005	20 th Dec'22	F043175A
Perimeter vehicle access	BCA C2.3 + C2.4	20 th Dec'22	F043175A
Portable fire extinguishers	BCA E1.6, AS2444-2001	20 th Dec'22	F043175A

* See notes on page 4 about how to correctly identify an accredited practitioner (fire safety) (APFS).

Section 5: Inspection of fire exits and paths of travel to fire exits (Part 15)

Part of the building inspected	Date(s) inspected	APFS*
Whole or part site	20 th Dec'22	F043175A

* See notes on page 4 about how to correctly identify an accredited practitioner (fire safety) (APFS).

Section 6: Name and contact details of accredited practitioner (fire safety) (APFS)

Full name (Given Name/s and Family Name)	Address	Phone	APFS*	Signature
Ian G Childs	PO Box 115 Boolaroo 2284	1300-274655	F043175A	

* Where applicable – see notes on page 4 for further information.

17~19 McPherson Road, Smeaton Grange NSW 2780

Fire Safety Statement

Part 12 of the Environmental Planning and Assessment (Development Certification and Fire Safety) Regulation 2021



Section 7: Details of the person making the declaration in section 8 or 9*

Full name (Given Name/s and Family Name)

Natt Chamkunthod

Organisation (if applicable)

BGIS Pty Limited

Title/Position (if applicable)

Facility Manager, Endeavour Property Portfolio

Phone

0434070024

Email

Natt.chamkunthod@apac.bgis.com

* The person making the declaration in section 8 or 9 must not be an APFS listed in section 6 or their employer/employee or direct associate.

Section 8: Annual fire safety statement declaration

I, Natt Chamkunthod (insert full name) being the: owner owner's agent declare that:

- each essential fire safety measure specified in this statement has been assessed by an accredited practitioner (fire safety) and was found, when it was assessed, to be capable of performing:
 - in the case of an essential fire safety measure applicable by virtue of a fire safety schedule, to a standard no less than that specified in the schedule, or
 - in the case of an essential fire safety measure applicable otherwise than by virtue of a fire safety schedule, to a standard no less than that to which the measure was originally designed and implemented, and
- the building has been inspected by an accredited practitioner (fire safety) and was found, when it was inspected, to be in a condition that did not disclose any grounds for a prosecution under Part 15 of the Regulation.

Owner/Agent Signature

Date issued

31st January 2023

Section 9: Supplementary fire safety statement declaration

I, Click here (insert full name) being the: owner owner's agent

declare that each critical fire safety measure specified in the statement has been assessed by an accredited practitioner (fire safety) as capable of performing to at least the standard required by the current fire safety schedule for the building.

Owner/Agent Signature

Date issued

Note:

A current fire safety schedule for the building must be attached to the statement in accordance with the Regulation.

Fire safety measure	Minimum standard of performance
1 Building occupant warning system*	AS1670.4-2004
2 Emergency lighting	BCA E4.2, E4.4, AS2293.1-2005
3 Exit signs, illuminated	BCA E4.5, E4.6+E4.8 AS2293.1-2005
4 Fire blanket	AS2444-2001 / AS/NZS3504-2006
5 Fire hose reel system	BCA E1.4, AS2441-2005
6 Fire hydrant system	BCA E1.3, AS2419.1-2005
7 Fire rated door	BCA C3.4, spec.C3.4, C3.5 AS1905.1-2005
8 Perimeter vehicle access	BCA C2.3 + C2.4
9 Portable fire extinguishers	BCA E1.6, AS2444-2001

Note: Segregation between mixed building classes deficient (Class 5 offices and Class 7 warehouse)

17~19 McPherson Road, Smeaton Grange NSW 2780

Fire Safety Statement

Information to help building owners complete the Fire Safety Statement form



Please note:

The following information has been provided to help building owners complete the fire safety statement template and does not comprise part of the form. The following pages do not have to be displayed in the building and need not be submitted to the local council and the Commissioner of Fire and Rescue NSW.

General

- Please print in CAPITAL LETTERS and complete all relevant sections in full.
- A reference to 'the Regulation' is a reference to the *Environmental Planning and Assessment Regulation 2000*.
- An 'APFS' is an accredited practitioner (fire safety) as defined in clause 3 of the Regulation.
- The completed fire safety statement form must be submitted to both the local council and Fire and Rescue NSW.
- Please contact your local council for further information about how to submit the completed statement.
- Completed statements can be emailed to Fire and Rescue NSW at afss@fire.nsw.gov.au. Alternately, statements can be posted to Fire and Rescue NSW, Locked Bag 12, Greenacre NSW 2190. For further information about this process, please visit the 'Lodge a fire safety statement' page at www.fire.nsw.gov.au.
- As soon as practicable after issuing the fire safety statement, the building owner must display a copy (together with a copy of the current fire safety schedule) in a prominent location within the building.
- Further information about building fire safety is available on the 'Fire safety' page of the Department's website at www.planning.nsw.gov.au.

Section 1: Type of statement

- Mark the applicable box to identify if the statement being issued is an annual fire safety statement or a supplementary fire safety statement.
- An annual fire safety statement is issued under clause 175 of the Regulation and relates to each essential fire safety measure that applies to the building.
- A supplementary fire safety statement is issued under clause 178 of the Regulation and relates to each critical fire safety measure that applies to the building.

Section 2: Description of the building or part of the building

- Mark the applicable box to identify whether the statement relates to the whole building or part of the building.
- In addition to the address and other property identifiers, a brief description of the building or part is to be provided. This could include the use(s) of the building (e.g. retail, offices, residential, assembly, carparking), number of storeys (above and/or below ground), construction type or other relevant information.
- If the description relates to part of a building, the location of the part should be included in the description.

Section 3: Name and address of the owner(s) of the building or part of the building

- Provide the name and address of each owner of the building or part of the building.
- The owner of the building or part of the building could include individuals, a company, or an owner's corporation.

Section 4: Fire safety measures

- The purpose of this section is to identify all of the fire safety measures that apply to a building or part of a building.
- Fire safety measures include both essential fire safety measures and critical fire safety measures. They include items such as portable fire extinguishers, fire hydrants, fire sprinklers, fire detection and alarm systems and lightweight construction.
- Essential fire safety measures are those fire safety measures which are assessed on an annual basis, while critical fire safety measures are those which are required to be assessed at more regular intervals (as detailed on the fire safety schedule). These terms are defined in clause 165 of the Regulation.
- For annual fire safety statements, the table in section 4 must list each of the essential fire safety measures that apply to the building or part of the building and the relevant standard of performance. The date(s) on which these measures were assessed and inspected must be within the 3 months prior to the date the annual fire safety statement is issued.

183-187 Kent Street Millers Point NSW 2000

Version 3.1 | Effective from 1 March 2021 | NSW Department of Planning, Industry and Environment | 4

Fire Safety Statement

Information to help building owners complete the Fire Safety Statement form



- For supplementary fire safety statements, the table in section 4 must list each of the relevant critical fire safety measures that apply to the building or part and the relevant standard of performance. The date(s) on which these measures were assessed and inspected must be within 1 month prior to the date the supplementary fire safety statement is issued.
- The accreditation number of the APFS who assessed a fire safety measure listed in section 4 must be nominated against the relevant measure(s) in the column titled 'APFS'. If the APFS is not required to hold accreditation, the name of the APFS must be listed. Further information relating to the accreditation of practitioners is provided at section 6.

Section 5: Inspection of fire exits and paths of travel to fire exits (Part 9 Division 7)

- This section applies only to an annual fire safety statement.
- The purpose of this section is to identify that an APFS has inspected the fire exits, fire safety notices, doors leading to fire exits and paths of travel to fire exits in the building or part of the building and found there has been no breach of Division 7 of Part 9 of the Regulation.
- The table in section 5 must detail the parts of the building that were inspected. The date(s) of the inspection(s) must be within the 3 months prior to the date the annual fire safety statement is issued.
- The accreditation number of the APFS who inspected the whole or part of the building listed in section 5 must be nominated against the relevant part in the column titled 'APFS'. Further information relating to the accreditation of practitioners is provided at section 6.

Section 6: Name and contact details of each accredited practitioner (fire safety) (APFS)

- An APFS is a person engaged by the building owner(s) to undertake the assessment of fire safety measures in section 4 and the inspection of the buildings exit systems in section 5 (for an annual fire safety statement).
- The purpose of this section is to record the name and contact details of each APFS who assessed a fire safety measure listed in section 4 or inspected the building or part of the building as specified in section 5.
- Each APFS listed in the table must also sign the fire safety statement. Alternatively, an APFS could provide the building owner or agent with a separate signed document to endorse the relevant part of the fire safety statement.
- The first industry accreditation scheme for APFS has been approved by the NSW Government.
- From July 1 2020, a building owner must select an APFS from a register of accredited practitioners. The accreditation number of each relevant APFS must be listed on the form.
- If the building owner has determined the competence of the APFS because the Commissioner for Fair Trading is satisfied there are no practitioners accredited under an industry approved accreditation scheme to assess a specific fire safety measure and has authorised the owner to do so, there is no requirement to include an accreditation number on the form.
- Further information about the approved industry accreditation schemes can be found on the 'Fire safety practitioners' page of the NSW Fair Trading website at www.fairtrading.nsw.gov.au.

Section 7: Name and contact details of the person issuing the statement

- The purpose of this section of the form is to detail the name and contact details of the person who is issuing the statement i.e. the person who completes and signs section 8 or section 9 of the form. This could be the owner(s) of the building or a nominated agent of the owner(s).
- Where a person issues the statement on behalf of an organisation (as the owner of the building), the name of the organisation and the title/position of the person must be provided. The person issuing the statement as a representative of the organisation must have the appropriate authority to do so.
- Where a person issues the statement on behalf of the owner(s) (as the owner's agent), this person must have the appropriate authority from the building owner(s) to undertake this function.
- In the case of a building with multiple owners, one owner may issue the statement, however each of the other owners must authorise the owner who issues the statement to act as their agent.
- The person issuing the statement must not be an APFS who is listed in section 6 or their employer/employee or direct associate. This recognises the different roles and responsibilities for building owner(s) and the APFS in the fire safety statement process. This is important because the Regulation makes building owners responsible for declaring that fire safety measures have been assessed and the building inspected (for the purposes of section 5) by an APFS. This ensures that building owners, who are ultimately responsible, remain engaged in the fire safety statement process.
- In addition, only the building owner(s) can determine that a person is competent to perform the fire safety assessment functions where there is no person who holds accreditation. The building owner(s) are also responsible

183-187 Kent Street Millers Point NSW 2000

Version 3.1 | Effective from 1 March 2021 | NSW Department of Planning, Industry and Environment | 5

Fire Safety Statement

Information to help building owners complete the Fire Safety Statement form



for ensuring that essential fire safety measures are maintained in accordance with clause 182 of the Regulation. An agent cannot be made responsible for these requirements.

Section 8: Annual fire safety statement declaration

- The person completing this section is the person who is issuing the annual fire safety statement in accordance with clause 175 of the Regulation and is the same person as detailed in section 7. The person issuing the statement must identify if they are the owner or the owner's agent.
- In issuing the statement, the building owner or agent is not declaring that each fire safety measure meets the minimum standard of performance, but rather that each fire safety measure has been assessed, and was found by an APFS to be capable of performing to that standard, as listed in section 4. In performing this function, the building owner or owner's agent could obtain documentation from each APFS to verify that the standard of performance has been met, prior to completing the form and issuing the statement.
- The person who issues the statement by completing section 8 or section 9 of the form must not be an APFS who was involved in the assessment of any of the fire safety measures, or inspection of the building for the purposes of the statement, or their employer/employee or direct associate. This is to ensure that building owners, who are ultimately responsible, remain engaged in the fire safety statement process.

Section 9: Supplementary fire safety declaration

- The person completing this section is the person who is issuing the supplementary fire safety statement in accordance with clause 178 of the Regulation and is the same person as detailed in section 7. The person issuing the statement must identify if they are the owner or the owner's agent.
- The information provided above in relation to section 8 on what the owner is declaring also applies to a supplementary fire safety statement.

© State of New South Wales through Department of Planning, Industry and Environment 2021. The information contained in this publication is based on knowledge and understanding at the time of writing (February 2021). However, because of advances in knowledge, users are reminded of the need to ensure that the information upon which they rely is up to date and to check the currency of the information with the appropriate officer of the Department of Planning, Industry and Environment or the user's independent adviser.

183-187 Kent Street Millers Point NSW 2000

Version 3.1 | Effective from 1 March 2021 | NSW Department of Planning, Industry and Environment | 6



Fire Safety Schedule

Issued pursuant to Section 168 of the
Environmental Planning and Assessment Regulation 2000

**IDENTIFICATION
OF BUILDING**

Property Address: 17-19 McPherson Road SMEATON GRANGE

Owner's Name & Address: Epsilon Distribution Ministerial Holding Corporation
C/- Endeavour Energy
PO Box 811
SEVEN HILLS NSW 1730

Lot & Deposited Plan Number: LOT: 1 DP: 1130399

Date Issued: 4/12/17

Officer Initials (Register No.): DSIM:FS60/2006/1

Fire Safety Measure	Design and/or Installation
Emergency Lighting	BCA Clause E4.2 & AS 2293.1
Exit Signs	BCA Clause E4.5, BCA Clause E4.6, BCA cl E4.7 (Class 2, 3 & Class 4 parts) & No BCA Class 2, 3 or 4 parts AS 2293
Fire Blanket	AS 2444, AS/NZS 3504
Fire Doors (incl Self Closing Device)	BCA Clause C3.4, BCA Spec C3.4, BCA Clause C3.5, BCA Clause C3.6 (Sliding Fire doors), BCA Clause C3.7, BCA Clause C3.8, BCA Clause C3.10, BCA Clause C3.11 AS 1905.1-2005
Fire Hydrant Systems	BCA Clause E1.3 & AS 2419.1-2005
Hose Reel Systems	BCA Clause E1.4 AS 2441-2005.
Portable Fire Extinguisher	BCA Clause E1.6 BCA AS 2444-2001.

Note: Building occupant system was installed to AS1670.4-2004

BCA cl.E4.7 not applicable to exit signs as there are no Class 2, 3 or 4 parts.

BCA cl.C3.6 doesn't apply as no sliding fire doors

BCA cl.C3.7 doesn't apply

BCA cl.C3.8 doesn't apply as exits are not deemed fire isolated

BCA cl.C3.10 doesn't apply as no openings in fire isolated liftshaft

BCA cl.C3.11 doesn't apply as no class 2, 3 or 4 parts

Reviewed as incorrect by:



FIRE SAFETY STATEMENTS - summary

EP&A (Dev.Cert&FireSafety) Regulations
2021 Part 12.

You must use the required template form.

Assessment of performance must have been done by
an accredited practitioner (fire safety) endorsed for
that particular measure.

(APFS' may be accredited for multiple fire safety measures)

▪

Fire Safety Statement Requirements

Under the EP&A 1979 Act and EP&A (DC&FS) Regulations 2021, an Annual Fire Safety Statement is issued by the owner of the building to the effect that:

- Each Essential Fire Safety Measure as required in the Fire Safety Schedule and specified in the Statement has been assessed by a **accredited practitioner (fire safety)** and capable of performing to a standard **not less than that required** by the fire safety schedule

ADDITIONALLY: the fire safety schedule may reference essential services required for this building under previous legislation i.e. Ordinance 70

(In Practice) Annual Fire Safety Statements
(to which an essential fire safety measure is applicable)

The owner or his agent - generally a property/real estate (facilities) manager, collates a range of statements from the specialised building fire safety engineering maintenance specialists **(service contractors)**.

The person carrying out these assessments is chosen by the building owner/ managing agent and from 1st July 2020 these physical assessments can only be done by the **accredited practitioner (fire safety) assessor** (*accredited for the assessed measure*).

(In Practice) Annual Fire Safety Statements
(to which an essential fire safety measure is applicable)

The report or service records may be used in the building owners *defence as evidence* that these systems were **deemed performing** by those maintenance specialists (*deemed competent* **service contractors**).

(In Practice) Annual Fire Safety Statements
(to which an essential fire safety measure is applicable)

The performance assessment must be carried out **within 3 months** prior to the date of issue on the statement.

The Annual Fire Safety Statement must be forwarded by the building owner to Council and the Fire Commissioner, within 12 months of the previous fire safety certificate or the previous fire safety statement.

The Annual Fire Safety Statement must be on prominent display, with a copy of the current Fire Safety Schedule, within the building.

4.3 OTHER FIRE SAFETY CERTIFICATION

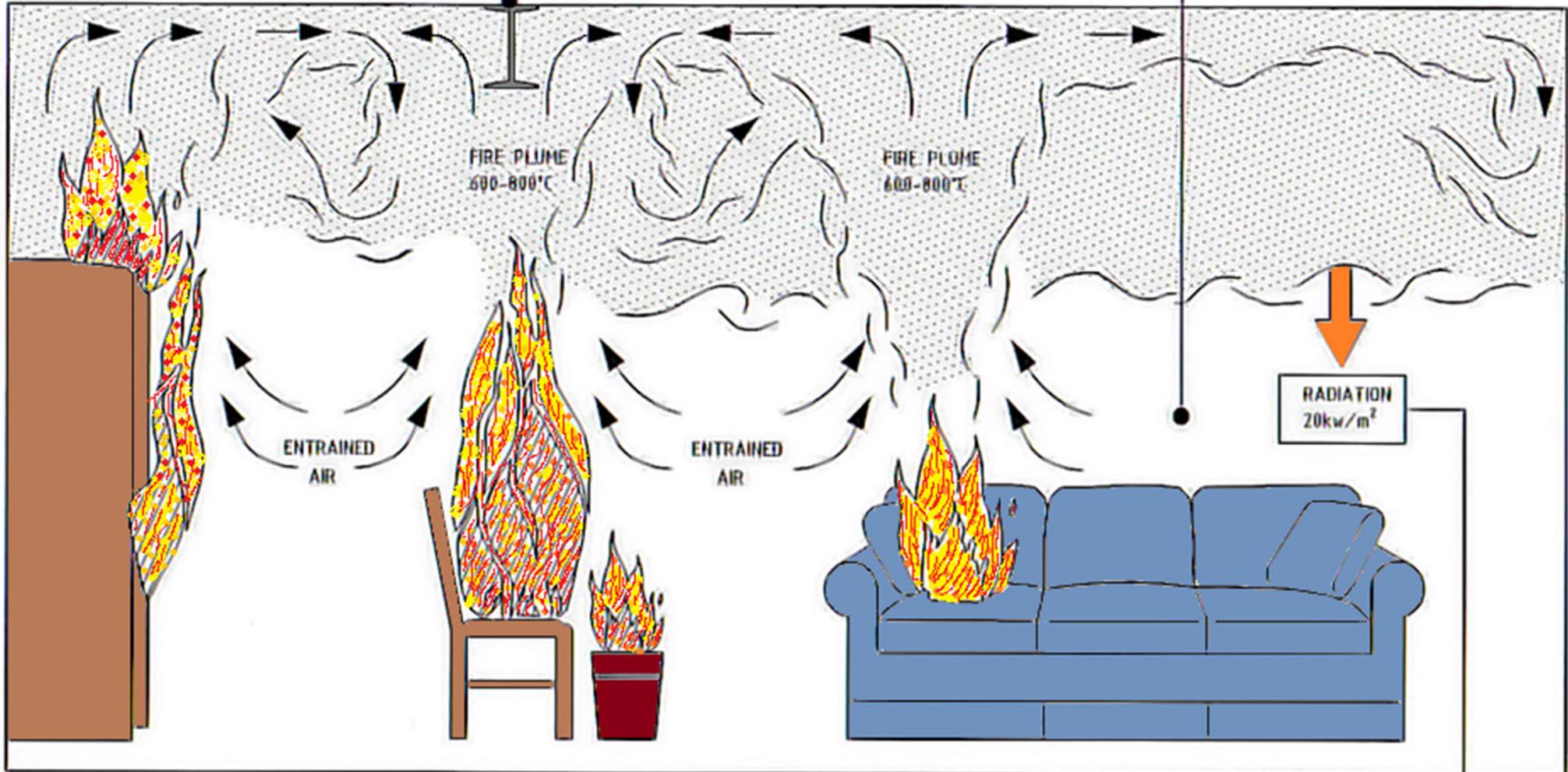
- *There are* **Interim fire safety certificates**
- *and there are* **Supplementary fire safety statements** which refer to critical fire safety measures identified within the fire safety schedule (usually within a performance solution), that require periodic assessment at less than 12 months intervals.
 - *Example is Star City Casino, which requires 6 monthly performance testing for selected fire safety measures (smoke control, sprinkler volumetric flow, etc).*

The Regulations for these items are comparable to the principal items above, and need be precisely identified as to: **what, where, by whom, and when** the assessing was done.



EXPOSED STEEL BEAM
LOOSES 50% OF ITS STRENGTH
IN TEMPERATURES ABOVE 500°C

SURVIVAL LIMIT
1 MINUTE
TEMPERATURE:- LESS THAN 150°C
CARBON MONOXIDE:- LESS THAN 1%



BURNING WARDROBE
HEAT OUTPUT
3500kw

BURNING CHAIR
HEAT OUTPUT
600kw

BURNING WASTE PAPER BIN
HEAT OUTPUT
170kw

BURNING PILLOW
HEAT OUTPUT
117kw

THE SUN'S RADIATION
AT 12 O'CLOCK NOON
0.5kw/m²

TYPICAL HEAT OUTPUT
FOR 1 BAR RADIANT
HEATER.....1.0kw

Ref :- Drysdale
'Fire Dynamics'

From original design by:
Obrant & Co - Professional Engineering Solutions P/L
Revised and updated and copyright by:
NEW DIRECTIONS BUSINESS SERVICES / FIRE ASSESS
PO Box 115 Booteroo NSW 2284

4.4 WHAT IS AN FRL – FOR BUILDING ELEMENTS

The NCC A8 Qualifies the required fire safety performance.

The NCC then specifies in **S3C3** (BCA spec.A2.3) the definition of the fire hazard properties and the form of testing for fire dampers.

FRL is determined by furnace testing of a prototype in a 'standard fire test' to **AS1530.4-2014** and the grading of performance is measured in **minutes**.

NCC Specification 5 (BCA Spec.C1.1 & Spec.1.1 Table 3) details the required fire resistance construction, with FRL for building elements – ref **tables: S5C11d, S5C11e, S5C11f and S5C11g**

The three parts of the FRL grading (in minutes) are expressed for example: 120/60/30 – in order

120 structural adequacy

- ability to maintain stability & load bearing capacity to test
AS1530.4-2014

60 integrity

- ability to resist the passage of flames and hot gases to test
AS1530.4-2014

30 insulation

- ability to maintain a surface temperature, not exposed to the furnace, below the limits in AS1530.4-2014

A dash (-) in the FRL grading system sequence instead of a number, indicates that there is no requirement. For example FRL -/120/30 indicates that: there is no requirement for structural adequacy / there is 120 minutes for integrity/ and 30 minutes for the insulation requirement.

No Fire damper has any requirement for structural adequacy. Their structural adequacy shall be provided by the structure and the reinforcement of the opening.

A traditional steel fire damper may achieve equivalent of FRL - for example **FRL-/240/-** .

This is a requirement for integrity only as per AS1682.2 (2015) section 5.2

There are intumescent and mechanical/
intumescent types which **can** have insulation properties and may achieve equivalent FRL of for example **FRL -/90/90**
(but is very dependent upon horizontal or vertical orientation)..

*This is for the architect
to reference when deciding
FRL's – not the installer!*

Table S5C11d: Type A construction: FRL of common walls and fire walls

Wall type	FRL (in minutes): <i>Structural adequacy / Integrity / Insulation</i>			
	Class 2, 3 or 4 part	Class 5, 7a or 9	Class 6	Class 7b or 8
<i>loadbearing</i> or non- <i>loadbearing</i>	90/90/90	120/120/120	180/180/180	240/240/240

Table S5C11e: Type A construction: FRL of loadbearing internal walls

Distance from a <i>fire-source feature</i>	FRL (in minutes): <i>Structural adequacy / Integrity / Insulation</i>			
	Class 2, 3 or 4 part	Class 5, 7a or 9	Class 6	Class 7b or 8
<i>Fire-resisting</i> lift and stair <i>shafts</i>	90/90/90	120/120/120	180/120/120	240/120/120
Bounding <i>public corridors</i> , public lobbies and the like	90/90/90	120/–/–	180/–/–	240/–/–
Between or bounding <i>sole-occupancy units</i>	90/90/90	120/–/–	180/–/–	240/–/–
Ventilating, pipe, garbage, and like <i>shafts</i> not used for the discharge of hot products of combustion	90/90/90	120/90/90	180/120/120	240/120/120

Table S5C11f: Type A construction: FRL of non-loadbearing internal walls

Location	FRL (in minutes): <i>Structural adequacy / Integrity / Insulation</i>			
	Class 2, 3 or 4 part	Class 5, 7a or 9	Class 6	Class 7b or 8
<i>Fire-resisting</i> lift and stair <i>shafts</i>	–/90/90	–/120/120	–/120/120	–/120/120
Bounding <i>public corridors</i> , public lobbies and the like	–/60/60	–/–/–	–/–/–	–/–/–
Between or bounding <i>sole-occupancy units</i>	–/60/60	–/–/–	–/–/–	–/–/–
Ventilating, pipe, garbage, and like <i>shafts</i> not used for the discharge of hot products of combustion	–/90/90	–/90/90	–/120/120	–/120/120

Table S5C11g: Type A construction: FRL of other building elements not covered by Tables S5C11a to S5C11f

Building element	FRL (in minutes): <i>Structural adequacy / Integrity / Insulation</i>			
	Class 2, 3 or 4 part	Class 5, 7a or 9	Class 6	Class 7b or 8
Other <i>loadbearing</i> internal walls, internal beams, trusses and columns	90/–/–	120/–/–	180/–/–	240/–/–
Floors	90/90/90	120/120/120	180/180/180	240/240/240
Roofs	90/60/30	120/60/30	180/60/30	240/90/60

AS1530.4-2014 Test Certificate

NCC-2022 details that no product required to be tested under **AS1530.4**, shall be used if that AS1530.4 test certificate is a test version and methodology earlier than

AS1530.4-2014.

Thus making all earlier versions **obsolete** for any new works.



TEST REPORT

Fire resistance test of a Blendair Curtain Fire Damper installed into a plasterboard wall when tested in accordance with AD1530.4-2014.

EWFA Report No:

41565100.1

Report Sponsor:

Blendair Pty Ltd
Unit 3, 78-80 Bellingara Rd
Miranda NSW 2228

Test Date:

21 June 2016

Testing. Advising. Assuring.

DOCUMENT REVISION STATUS

Date Issued	Issue No	Description
15/08/2016	41565100.1	Initial Issue

CONTACT INFORMATION

Exova Warringtonfire Aus Pty Ltd - ABN 81 050 241 524

ATA Registered Laboratory
 ne 2, 409-411 Hammond Road
 anemong Victoria 3175
 australia
 +61 (0)3 9767 1000

New South Wales
 Date 2002a, Level 20
 44 Market Street
 Sydney NSW 2000
 Australia
 T: +61 (0)2 8270 7600

leenland

orthpoint, Unit 29, Level 6
 31 North Quay
 roose QLD 4000
 australia
 +61 (0)7 3238 1700

IGNITORIES

Prepared by

Mandeep Kamal

Mandeep Kamal

Reviewed by

Steven Halliday

Steven Halliday

GENERAL CONDITIONS OF USE

This report may only be reproduced in full without modifications by the report sponsor only. Copies, extracts or abridgments of this report in any form shall not be made distributed or published by other organisations or individuals without the permission in writing from a Director of Exova Warringtonfire Aus Pty Ltd.



© Exova Warringtonfire Aus Pty Ltd 2016

CONTENTS

Construction Details	4
Test Assembly	4
Test Specimens	4
Assembly and Installation Methods	4
Orientation	4
Schedule of Components	6
Test Procedure	6
Statement of compliance	6
Variations to test method	6
Pre-test conditioning	6
Sampling / Specimen Selection	6
Ambient Temperature	6
Test Duration	6
Instrumentation and Equipment	6
Test Measurements	7
Furnace Temperature and Pressure Measurements	7
Furnace and Duct Pressure Measurements	7
Specimen Temperatures	7
Air Temperatures	7
Calculated Leakages	7
Observations	7
Test Results	7
Application of Test Results	8
Test Limitations	8
Variations from the Tested Specimens	8
Uncertainty of measurement	8
APPENDIX 1 DRAWINGS OF TEST ASSEMBLY	9
APPENDIX 2 TEST OBSERVATIONS	11
APPENDIX 3 DIRECT FIELD OF APPLICATION	12
APPENDIX 4 INSTRUMENTATION POSITIONS	13
APPENDIX 6 TEST DATA	18
A.5.1 Furnace Temperature	16
A.5.2 Furnace Pressure	16
A.5.3 Connecting Duct Pressure	17
A.5.4 Specimen Temperatures	18
A.5.5 Gas Temperatures	21
A.5.6 Flow Rates	22
APPENDIX 8 PHOTOGRAPHS	23



1 CONSTRUCTION DETAILS

TEST ASSEMBLY

The test assembly comprised of a nominal 3000mm high X 3040mm wide X 116mm thick plasterboard wall. The wall incorporated a 1225mm high X 1225mm wide opening protected by a Blendair curtain blade fire damper.

TEST SPECIMENS

The specimen comprised of a Blendair wall curtain fire damper, nominally 1195mm high X 1195mm wide. The perimeter of the aperture in the wall was protected with Rockwool infill. The full description of the specimen is provided in Figures A1.1 to A1.7 and the 'Schedule of Components' in Section 2.

ASSEMBLY AND INSTALLATION METHODS

The damper was mounted into the wall aperture on 21st of June 2016 by EWFA.
The connecting duct was mounted on the damper on 21st June 2016 by EWFA.

ORIENTATION

The assembly was asymmetrical due to the practical requirements of the test standard; however, the wall construction and the installation of the fire damper were symmetrical around the centreline of the wall.

2 SCHEDULE OF COMPONENTS

Item	Description	
1	Damper	
	Product Name	Blendair curtain blade wall damper
	Overall Size	1195mm X 1195mm X 270mm deep (nominal 1200mm X 1200mm)
	Clear Opening Size	1160mm high (940mm high with blade stack) X 1160mm wide
	Body	1.5mm Galvanised steel folded profile. Nominally 270mm wide with two folded lips symmetric about the centreline creating an 85mm wide by 15mm deep channel. Four sections of the profile were welded together at the corners to form a square nominally 1195mm X 1195mm. The channel formed by the folds was a guide for the blades along both vertical edges and a receptacle for the blades top and bottom.
	Mounting Angles	40mm X 50mm X 2.0mm galvanised steel unequal angel, 2-off 194.5mm lengths and 2-off 127.5mm lengths per side (8 total for the damper). The angles were attached to the body of the damper with 5/8" cup head bolts and nuts, 7-off per length, through nominally 15mm X 6.5mm expansion slots.
	Blades	Damper consisted out of 19 horizontal roll-formed interlocking galvanised steel blades, 76mm high/1185mm length X 1.1mm thick galvanised steel. The blades run down an 85mm wide slot formed by the folds of the damper body.
	Fusible Link	Latch link rating 74°C. Located at the mid-width underside of the blade stack, it was held in place with zinc plated wire hooks and steel strap secured to the top of the damper body.
2	Perimeter Seal	
	Product Name	10mm thick Bradford Insulation Rockwool – Fire Seal Damper Strip
	Size	10mm thick X 116mm wide X 750mm long strips
	Density	201 kg/m ³ (measured)
	Location	Before the damper was installed into the wall it was wrapped with one layer of Rockwool and then covered by double sided heat resistant aluminium foil the depth of the wall aperture (between the mounting flanges). The purpose of the Rockwool was to fill the nominally 15mm annular gap around the damper.
3	Sealant	Kiargo Intumescent Mastic
	Location	A bead was applied between the 40mm lip and the wall, between the 50mm lip and damper body and at the mounting angle joints.
4	Separating Element	
	Product Name	2 Hour rated Plasterboard Steel Framed Wall
	Overall Size	3040mm wide X 3000mm high X 116mm deep
	Aperture Size	1225mm high X 1225mm wide X 116 deep located mid-width and 230mm from the bottom of the wall



Report No. 41565100.1
Page 8 of 25

Item	Description
Material	2-off layers of 13mm Boral Firestop per side of the wall. Rondo 64mm 0.5BMT top and bottom tracks Rondo 64mm 0.5BMT studs
Construction	The first layer of was screw fixed with 32mm needle point screws at nominal 600mm centres with the second layer secured at 300mm centres with 45mm screws.

3 TEST PROCEDURE

STATEMENT OF COMPLIANCE

The test was performed in accordance with the requirements of AS1530.4-2014 Sections 2 & 11 as appropriate for a damper system.

VARIATIONS TO TEST METHOD

The connection to the pressure transducer monitoring the furnace pressure was lost during the 35-45 minute test period

PRE-TEST CONDITIONING

The construction of the plasterboard wall was completed on the 17th June 2016 with the damper installed into the aperture on the 21st of June 2016. During this period the test specimen was subject to normal laboratory temperatures and conditions.

SAMPLING / SPECIMEN SELECTION

The laboratory was not involved in the sampling or selection of the test specimen for the fire resistance test.

AMBIENT TEMPERATURE

The ambient temperature at the start of the heat exposure portion of the test was 14°C and varied between 14°C and 19°C during the test.

TEST DURATION

The heat exposure test duration was 120 minutes.

INSTRUMENTATION AND EQUIPMENT

The instrumentation was provided in accordance with AS 1530.4-2014 and as detailed below:

The furnace temperature was measured by 4-off mineral insulated metal sheathed Type K thermocouples with wire diameters not greater than 1mm and overall diameter of 3mm with the measuring junction insulated from the sheath. The thermocouples protruded a minimum of 25mm from steel supporting tubes.

The unexposed side of the specimen temperatures were measured by Type K thermocouples with wire diameters less than 0.5mm soldered to 12mm diameter x 0.2mm thick copper discs covered by 30mm x 30mm x 2.0 mm inorganic insulating pads. The thermocouple positions are described in Table A4.1.

The gas temperature at exit of the duct and downstream of the orifice plate was measured with mineral insulated metal sheathed Type K thermocouples with wire diameters not greater than 1mm and overall diameter of 3mm

The furnace pressure was measured mid-height of the damper.

The connecting duct pressure was measured mid-height of the connecting duct.

The differential pressure across the orifice plate was measured at the pipe wall by flange pressure tapings 25mm each side of the orifice plate.

4 TEST MEASUREMENTS

FURNACE TEMPERATURE AND PRESSURE MEASUREMENTS

Furnace temperature and pressure data are provided in Figure A5.1 and Table A5.1 in Appendix 5.

DUCT PRESSURE MEASUREMENTS

Connecting duct pressure data is provided in Figures A5.2 in Appendix 5.

SPECIMEN TEMPERATURES

Specimen temperature data is provided in A 5.4 and Table A5.2 in Appendix 5.

AIR TEMPERATURES

Air temperature at the orifice plate is provided in Figure A5.7 and Table A5.3, in Appendix 5.

CALCULATED LEAKAGES

The calculated leakage (volume flow rate) through the damper actual and corrected to STP is provided in Figure A5.8 and Table A5.4 in Appendix 5. The flow rate per area value is based on the damper having a clear opening of 1.3466m² (1160mm x 1160mm).

OBSERVATIONS

A table that includes observations of the significant behaviour of the specimen and details of the occurrence of the various performance criteria specified in AS 1530.4-2014 is provided in Appendix 2. Photographs of the specimen are included in Appendix 6.

5 TEST RESULTS

The specimen tested achieved the following performance with respect to the performance criteria listed in AS 1530.4-2014, Section 2 & 11.

Criteria	Result
Closure of Damper	33 Seconds
Integrity	No perimeter failure up to 120 minutes.
	No damper failure up to 120 minutes. The maximum measured area corrected leakage was 255 m ³ /(h.m ²) (Note the 5.0 m ³ /h of apparatus leakage was removed from the maximum measurement prior to the correction to accommodate for damper size).
Insulation	Failure at 8 minutes on duct plenum Failure at 13 minutes on damper/wall system
FRL	-/120/0

6 APPLICATION OF TEST RESULTS

TEST LIMITATIONS

The results of this fire test may be used to directly assess fire hazard, but it should be recognized that a single test method will not provide a full assessment of fire hazard under all fire conditions. The results only relate to the behaviour of the specimen of the element of the construction under the particular conditions of the test; they are not intended to be the sole criteria for assessing the potential fire performance of the element in use nor do they necessarily reflect the actual behaviour in fires.

VARIATIONS FROM THE TESTED SPECIMENS

This report details the methods of construction, the test conditions and the results obtained when the specific element of construction described herein was tested following the general procedure outlined in AS1530.4. Any significant variation with respect to size, constructional details, loads, stresses, edge or end conditions, other than those allowed under the field of direct application in the relevant test method, is not addressed by this report. It is recommended that any proposed variation to the tested configuration other than as permitted under the field of direct application specified in Appendix 3 should be referred to the test sponsor in the first instance to obtain appropriate documentary evidence of compliance from Exova Warringtonfire Aus Pty Ltd or another Registered Testing Authority.

UNCERTAINTY OF MEASUREMENT

Because of the nature of fire resistance testing and the consequent difficulty in quantifying the uncertainty of measurement of fire resistance, it is not possible to provide a stated degree of accuracy of the result.

APPENDIX 1 DRAWINGS OF TEST ASSEMBLY

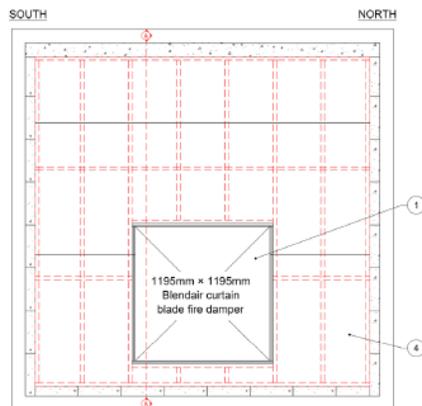


Figure A1.1: Separating Element

© Exova Warringtonfire Aus Pty Ltd 2016



© Exova Warringtonfire Aus Pty Ltd 2016

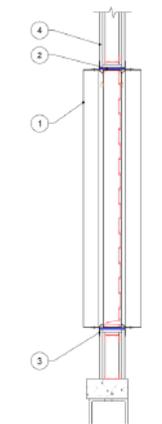


Figure A1.2: Test damper section A-A

APPENDIX 2 TEST OBSERVATIONS

The following include observations of the significant behaviour of the specimen.

Time min	sec	Observation
0	00	Damper subjected to 50 closing cycles.
0	00	Fire resistance test commenced and the ambient temperature was approximately 14°C
0	33	Damper activated
4	30	Smoke/steam evident at top North corner of damper at wall.
5	20	Smoke/steam evident at bottom North corner of damper at wall.
6	16	Smoke/steam evident at top South corner of damper at wall.
6	30	A small gap had become evident between the damper blades and the body on the North side as viewed from duct observation window.
8	30	Thermocouple 031 recorded a temperature of 196°C. Failure of Insulation in accordance with AS1630.4-2014 Clause 11.6.2.2
19	34	The damper curtain blades are glowing red
25	20	The bottom side/north of the wall around the damper is beginning to discolour.
25	58	The top north corner of the wall around the damper is beginning to discolour.
28	35	The top south corner of the wall around the damper is beginning to discolour.
30	00	Specimen continues to maintain integrity in accordance with AS 1530.4-2014, Clause 11.6.2.1 (a) and (b).
39	36	Smoke evident on North side of damper, approximately 200mm from the top.
60	00	Specimen continues to maintain integrity in accordance with AS 1530.4-2014, Clause 11.6.2.1 (a) and (b).
90	00	Specimen continues to maintain integrity in accordance with AS 1530.4-2014, Clause 11.6.2.1 (a) and (b).
		Damper curtain glowing bright red. Cracks appeared in plasterboard on north side and south side of the damper on the wall at the plasterboard joint.
96	00	Plasterboard starting to turn black on the top all along the edge of damper.
114	00	Smoke evident at plasterboard joints on north and south side
120	00	Specimen continues to maintain integrity in accordance with AS 1530.4-2014, Clause 11.6.2.1 (a) and (b). Test terminated.

© Exova Warringtonfire Aus Pty Ltd 2016



Report No. 41565100.1
Page 11 of 25

APPENDIX 3 DIRECT FIELD OF APPLICATION

A.3.1 GENERAL

AS1530.4-2014 states that the results of the fire test contained in the test report are directly applicable, without reference to the testing authority, to similar constructions where one or more of the following changes have been made.

Size of fire damper (Clause 11.9.1)

A test result obtained for the largest fire damper in the range may be applied to all dampers of the same type (including any aspect ratio), provided the maximum dimensions do not exceed those tested and that the components remain in the same orientation as that tested.

Fire dampers installed within structural openings (Clause 11.9.2)

A test result obtained for an installed fire damper may only be applied to dampers installed in the same orientation as tested.

Fire dampers mounted onto the face of a wall or floor (Clause 11.9.3)

A test result obtained for a fire damper installed onto the face of a wall or floor shall only be applied to dampers installed onto the face of a separating element in the same orientation as that tested.

Fire dampers remote from a wall or floor (Clause 11.9.4)

A test result obtained for a fire damper remote from a wall or floor (of the same fire resistance as the damper) may be applied to the following dampers:

- Mounted remote from a wall and attached to a length of a horizontal fire-resisting ductwork when tested remote from a wall.
- Mounted remote from a floor and attached to a length of vertical fire-resisting ductwork on the side above the floor when tested above the floor.
- Mounted remote from a floor and attached to a length of vertical fire-resisting ductwork on the side below the floor when tested below the floor.
-

Damper separation (Clause 11.9.6)

Unless tested or assessed otherwise, the minimum damper separation shall be—

- 200 mm between dampers installed in separate ducts; or
- 75 mm between the damper and a construction element (wall/floor).

Supporting constructions (Clause 11.9.8)

A test obtained for a fire damper mounted in or on the face of a supporting construction made of masonry, concrete or homogeneous partition (without continuous cavity) may be applied for the same type of supporting construction with a thickness and density equal to or greater than those of the supporting construction used in the test. The test result may apply to cellular or hollow masonry blocks or slabs that have a fire resistance time equal to or greater than the fire resistance required for the fire damper installation.

Test construction (Clause 11.9.7)

A test result obtained for a fire damper mounted in a supporting construction made of masonry, concrete or solid partitions (without any cavity) is applicable to the same type of construction having a thickness and density equal to or greater than those at the supporting construction used for the test.

APPENDIX 4 INSTRUMENTATION POSITIONS

Table A4.1 - A4.4: Thermocouple Locations

Location	T/C No.	Description
North Side	003	On the plasterboard, 25mm from the damper flange edge at mid-width
	013	On the damper flange, 20mm away from inside of flange corner
	023	On the ductwork connecting flange, 25mm from inside corner of ductwork connecting flange.
South Side	002	On the plasterboard, 25mm from the damper flange edge at mid-width
	012	On the damper flange, 20mm away from inside of flange corner
	022	On the ductwork connecting flange, 25mm from inside corner of ductwork connecting flange.
Top Side	001	On the plasterboard, 25mm from the damper flange edge at mid-height
	011	On the damper flange, 20mm away from inside of flange corner
	021	On the ductwork connecting flange, 25mm from inside corner of ductwork connecting flange.
Bottom Side	031	On the duct, 325mm from the inside corner of ductwork connecting flange.
	004	On the plasterboard, 25mm from the damper flange edge at mid-width
	014	On the damper flange, 20mm away from inside of flange corner
	024	On the ductwork connecting flange, 25mm from inside corner of ductwork connecting flange.
	034	On the duct, 325mm from the inside corner of ductwork connecting flange.



Figure A4.2: South side: Unexposed side (red) thermocouple locations



Figure A4.3: Bottom side: Unexposed side (red) thermocouple locations



Figure A4.5: Top side: Unexposed side (red) thermocouple locations



© Exova Warringtonfire Aus Pty Ltd 2016

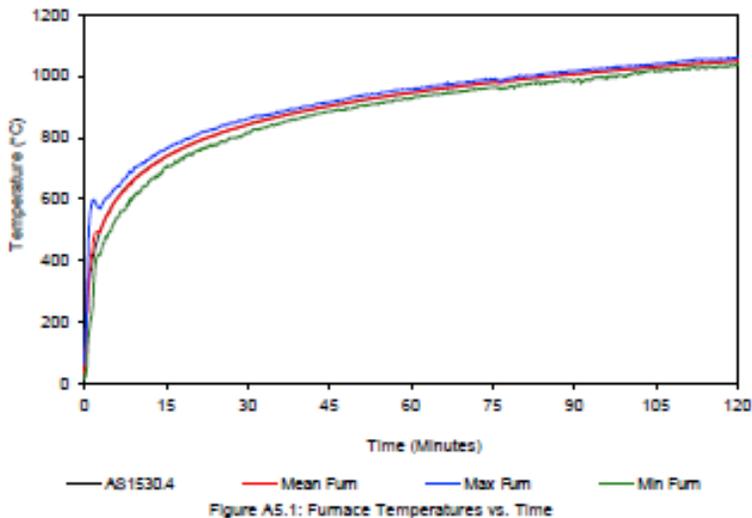
© Exova Warringtonfire Aus Pty Ltd 2016



© Exova Warringtonfire Aus Pty Ltd 2016

APPENDIX 5 TEST DATA

A 5.1 FURNACE TEMPERATURE



A 5.2 FURNACE PRESSURE

The pressure was measured at mid-height of the damper. Connection to the transducer was lost during the 35-45 minute period.

Table A6.1: Pressure

Time (minutes)	Pressure (Pa) Avg.	Time (minutes)	Pressure (Pa) Avg.
5-10	16	65-70	16
10-15	16	70-75	16
15-20	16	75-80	16
20-25	16	80-85	16
25-30	16	85-90	16
30-35	17	90-95	16
35-40	-	95-100	16
40-45	-	100-105	16
45-50	16	105-110	16
50-55	16	110-115	16
55-60	16	115-120	16
60-65	16		

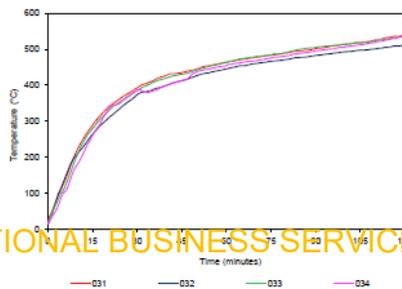
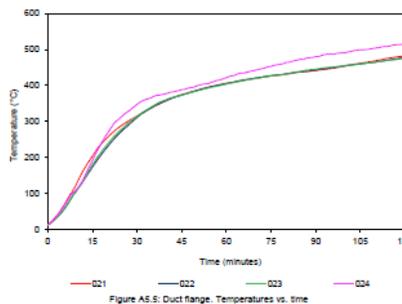
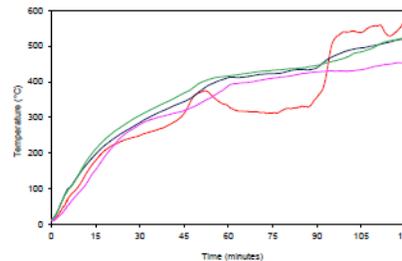
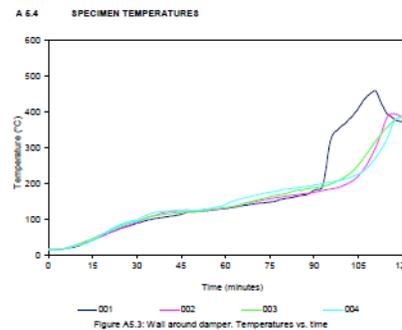
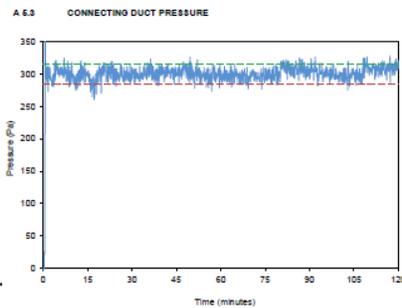


Table A6.2: Test Specimen Temperatures

Location	T/C No.	Description ²	Temp (°C) at t (minutes)					Limit ¹ (Mins)
			t=0	t=30	t=60	t=90	t=120	
North Side	003	On wall	15	97	133	188	388	94
	013	Damper Flange	15	306	416	446	526	13
	023	Duct Flange	14	315	404	446	476	16
	033	Duct	14	385	464	506	535	9
South Side	002	On wall	14	92	131	175	384	99
	012	Damper Flange	16	286	412	440	521	14
	022	Duct Flange	14	312	406	444	478	16
	032	Duct	15	374	445	483	512	8
Top Side	001	On wall	13	90	130	181	372	92
	011	Damper Flange	14	250	331	359	577	16
	021	Duct Flange	14	316	406	442	483	14
Bottom Side	031	Duct	15	393	463	502	540	8
	004	On wall	15	94	141	196	390	89
	014	Damper Flange	11	281	389	428	454	18
	024	Duct Flange	14	348	422	480	517	15
	034	Duct	15	386	455	496	537	10

Notes

- 1 Limit time is the time to the nearest whole minute, rounded down to the nearest minute, at which the temperature recorded by the unexposed thermocouple does not rise by more than 180K above the initial temperature and does not rise above 250K for incipient spread thermocouples.
- 2 Refer to Appendix 4 for locations of thermocouples as only a generic description is included in the table.
- 3 Thermocouple failure.
- 4 Under Limit column indicates the temperature limit was not exceeded during the test period or up until the time of integrity failure if a failure occurred.

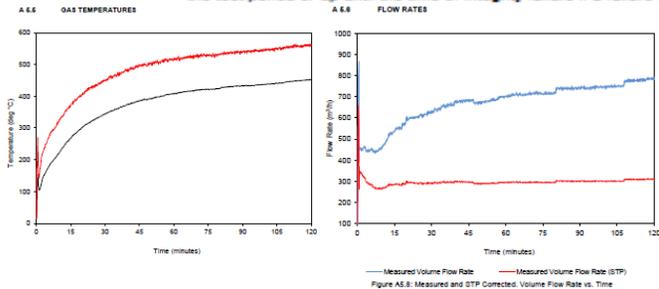


Table A6.3: Gas Temperature

Measurement Position	T/C	Measurement Description	Temp (°C) at t (minutes)				
			t=0	t=30	t=60	t=120	
Orifice Plate	011	Temperature downstream of orifice plate	14	344	408	433	453
Duct Exit	012	Temperature at exit of connecting duct	14	450	520	541	562

Table A6.4: Leakage Values

Measurement Position	Measurement Description	Volume Flow Rate (m³/h) at t (minutes)					Max (m³/h) *after damper activation
		t=6	t=30	t=60	t=90	t=120	
Orifice Plate	Measured Volume Flow Rate	440	629	703	736	784	794 at 119 minutes
	Measured Volume Flow Rate (STP)	283	292	296	299	309	314 at 119 minutes

APPENDIX 6 PHOTOGRAPHS



Figure A6.1: Unexposed face of specimen at completion of the pre-exposure cycling.



Figure A6.3: Test Assembly



Figure A6.2: Exposed face of specimen before the heating period.



Figure A6.4: Unexposed face of specimen after removal of the connecting duct, post-test.



Figure A6.5: Exposed face of specimen, post-test.

AS1530.7-1998 Test Certificate

NCC-2022 details that no product required to be tested under AS1530.7, shall be used if that AS1530.7 test certificate is a test version and methodology earlier than

AS1530.7-1998.

Thus making all earlier versions **obsolete** for any new works.

TEST DESCRIPTION

MEDIUM AIR LEAKAGE TEST IN GENERAL ACCORDANCE WITH AS 1530.7: 1998 ON A BLENDAIR GALVANISED STEEL SSD SERIES SMOKE DAMPER ASSEMBLY INSTALLED WITH THE DAMPER BLADE LINKS FACING TOWARDS THE ENCLOSURE

TEST APPLICANT

Blendair Pty Ltd
Unit 3, 78-80 Bellingara Road
Miranda
NSW 2228

TEST DATE

19th June 2007

TESTING AUTHORITY © 2007 Warrington Fire Research Aust Pty Ltd.
Unit 2, 409 - 411 Hammond Road, Dandenong, Victoria 3175, P.O. Box 4282, Dandenong South, Victoria 3164, Australia.
Tel: Int+61 (0)3 9767 1021 Fax: Int+61 (0)3 9767 1001 or (0)3 9767 1051 Email: testing@wfr.com.au
Home Page: www.wfr.com.au A.B.N. 81 050 241 524

Warrington Fire Research • Australia • New Zealand • United Kingdom • Singapore • China

DOCUMENT REVISION STATUS

Date Issued	Issue No	Description
10 th July 2007	2175101b.1	Initial Issue

SIGNATORIES

Prepared by: Reviewed by:

A. F. Rayner K. G. Nicholls

On behalf of Warrington Fire Research (Aust) Pty Ltd

GENERAL CONDITIONS OF USE

This report may only be reproduced in full without modifications by the report applicant only. Copies, extracts or abridgments of this report in any form shall not be made, distributed or published by other organisations or individuals without the permission in writing from a Director of Warrington Fire Research (Aust) Pty Ltd.

CONTENTS

1	CONSTRUCTION DETAILS	4
	Test Assembly	4
	Test Specimen	4
	Assembly and Installation Methods	4
	Orientation	4
2	SCHEDULE OF COMPONENTS	5
3	TEST PROCEDURE	6
	Statement of compliance	6
	Variations from test standards	6
	Pre-test conditioning	6
	Sampling / Specimen Selection	6
	Ambient Temperature	7
	Instrumentation and Equipment	7
	Pre-test operation checks	7
	Medium Temperature Leakage Test Procedure	7
4	TEST MEASUREMENTS	8
	Test Program and Furnace Temperature/Pressure Measurement	8
	Observations	8
5	TEST RESULTS	9
	Medium Temperature Test Results (corrected to STP)	9
	Medium Temperature Test Results (@200°C)	9
6	APPLICATION OF TEST RESULTS	10
	Test Limitations	10
	Variations from the Tested Specimens	10
	Accuracy of Air Flow Measurement	10
7	DRAWINGS OF TEST ASSEMBLY	11
APPENDIX 1	TEST OBSERVATIONS	17
	A 1.1 Post Test Observations	19
APPENDIX 2	DIRECT FIELD OF APPLICATION	19
APPENDIX 3	TEST DATA	20
	A 3.1 Test Program	20
	A 3.2 Chamber Temperature	20
	A 3.3 Opening / Closing Torque	21
APPENDIX 4	PHOTOGRAPHS	22

1 CONSTRUCTION DETAILS

TEST ASSEMBLY

The test assembly comprised a nominal 3200mm x 3200mm x 116mm thick timber stud plasterboard partition incorporating a single Smoke Damper assembly.

TEST SPECIMEN

The test specimen comprised a Blendair SSD series galvanised steel smoke damper 1000mm wide x 1200mm high assembly mounted onto a 200mm section of duct mounted on one side of a nominal 3m x 3m plasterboard partition.

ASSEMBLY AND INSTALLATION METHODS

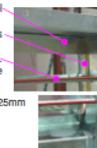
The timber stud partition was built into a steel restraint frame by a building contractor (with assistance from WFR representative(s)) at WFR Melbourne on the 7th June 2007 and was modified to suit the damper opening and installation of the duct (supplied by the test applicant) on the 15th June 2007. The test applicant supplied the damper assembly, which was installed by a WFR representative following instructions from the test applicant into the partition on the 15th June 2007.

ORIENTATION

The specimen was installed with the damper blade links facing towards the enclosure.

2 SCHEDULE OF COMPONENTS

Item	Description
Damper Unit	Product Name Blendair SSD series Parallel blade galvanised steel smoke damper assembly
	Overall Size 1080mm wide x 1280mm high x 160mm thick
	Airway opening 1000mm wide x 1000mm high
	Frame
Material	2.0mm thick Galvanised steel channel frame
	Size 160mm wide x 40mm high
Number of blades	8
Blade size	1.5mm thick Galvanised steel roll or press-formed
	Blade Seals 995mm wide x 150mm deep x 1.5mm thick, folded
Top angle	Blade ends Folded angle 2.5mm thick Galvanised steel, 50mm x 25mm
	Blade edge Spring stainless steel continuous strips nominally 45mm wide
Bottom angle	Silicon Rubber nominal 5mm x 6mm in size. Positioned at the top of each blade and the top and bottom of the bottom blade.
	Damper Unit Folded angle 2.5mm thick Galvanised steel 25mm x 10mm
Actuator	Honeywell MS-4709F1014 two position direct coupled actuator Additional damper constructional information is provided in Test applicant provided Brochure and drawing in Figures A1.2 up to and including A1.6.



Duct

Material	Description
Size	1000mm wide x 1200mm high x 200mm deep x 0.6mm thick.
Fixing	40mm x 50mm x 2mm galvanised steel angle was riveted in position around the perimeter of the outside (which had 12mm diameter holes to suit damper mounting), duct was inserted into position (from the outside) within the opening and an additional 40mm x 50mm x 2mm galvanised steel angle was fixed into position with self-drilling/lapping screws (7-off per angle at nominal 150mm centres) around the perimeter of the duct on the chamber side clamping the duct in position.
Damper fixing	12 gauge x 65mm long self drilling screws (18-off in total) though damper/duct/plasterboard wall into timber studs.

Item Description

Separating element	Description
Framing	90mm x 45mm F5 timber studs at maximum 500 centres and 90mm x 45mm F5 timber plates and roggings. Finished wall thickness of 122mm (136mm at edges with plasterboard packer).
Cladding	16mm thick fire grade plasterboard (one layer each side of the timber framing with an additional packer on the chamber side).
Sealant	Silicone sealant was used to seal gaps within the wall construction prior to the commencement of the air leakage test.

3 TEST PROCEDURE

STATEMENT OF COMPLIANCE

The test was performed in general accordance with the requirements of AS 1530.7:1998.

VARIATIONS FROM TEST STANDARDS

The measured apparatus leakage rate at a positive pressure differential of 50Pa across the damper was recorded to be approximately 9m³/hr which was above the maximum allowed by AS1530.7:1998 (7m³/hr), the leakage rig seals (including sealing box seal to face of wall) were checked and found to be satisfactory therefore the test was commenced. This variation is not expected to have had an adverse effect on the results of the test.

The temperature measurement thermocouples were not positioned in accordance with the test standard and were spaced out more evenly over the open area of the chamber (rather than concentrated at the specimen) in order to measure a more average temperature for the chamber. This variation is not expected to have had an adverse effect on the results of the test.

The maximum achievable differential pressure across the damper with the air supply system was 36Pa and 47Pa for Runs 1 and 2 respectively.

PRE-TEST CONDITIONING

The specimen was stored at WFR Melbourne test laboratory prior to testing and was subjected to indoor ambient normal laboratory conditions for approximately 3 days prior to testing.

SAMPLING / SPECIMEN SELECTION

The laboratory was not involved in the selection of the test specimen for test.

AMBIENT TEMPERATURE

The ambient temperature at the start of the test was 15°C and varied between 15°C and 16°C during the test.

INSTRUMENTATION AND EQUIPMENT

The instrumentation was provided in accordance with AS 1530.7:1998 as detailed below:

An array of 16 thermocouples was arranged in four horizontal rows, with four thermocouples in each row. The first thermocouple in each row and column were 200mm ± 50mm from the inside face of the test chamber with the remaining thermocouples evenly distributed in a plane with their hot junctions 100mm ± 5mm from the plasterboard wall face. The thermocouples were of Type K with a wire diameter of 0.5mm.

The pressure differential across the damper was monitored with a digital pressure transducer approximately in line with the horizontal centreline of the damper airway and measured to an accuracy within ±1Pa.

The air temperature at the inlet was measured by two Type K thermocouples with a wire diameter of 0.5mm.

The relative humidity was measured by a HMP230 microprocessor based instrument.

PRE-TEST OPERATION CHECKS

Prior to the testing, the opening and closing forces of the damper were measured using a torque wrench (with actuator disengaged from drive shaft on damper). The damper was then opened and closed in excess of 10 times under the automatic action of the actuator (reached to drive shaft).

MEDIUM TEMPERATURE LEAKAGE TEST PROCEDURE

The specimen was mounted in front of the chamber with the damper left open and the sealing box tightly compressed to the face of the wall (to prevent excessive heat leakage) and the average temperature of the enclosure as indicated by the array of 16 thermocouples was progressively increased from ambient to 200°C ± 20°C within 30 ± 5 minutes. The temperature of the enclosure reached 160°C within 20 minutes.

The sealing box was removed and the damper was closed and the first set of readings was taken at 50Pa, 25Pa, and 10Pa respectively, with a positive pressure within the enclosure.

Three additional separate sets of specimen leakage measurements (with 30 minutes between) were taken at 50Pa, 25Pa and 10Pa respectively, with a positive pressure differential across the damper. The maximum achievable differential pressure across the damper with the air supply system for Runs 1 and 2 (Medium - 200°C - temperature after 0 and 30 minutes respectively) was 36Pa and 47Pa respectively.

The damper assembly was then sealed with the sealing box and apparatus leakage readings were then taken at 50Pa, 25Pa and 10Pa respectively.

Specimen leakage measurements were all maintained for approximately 3 minutes each with the last minute of data used for total leakage rate calculation purposes. Apparatus leakage measurements were all maintained for approximately 1 minute each with the entire data used for apparatus leakage rate calculation purposes.

4 TEST MEASUREMENTS

TEST PROGRAM AND FURNACE TEMPERATURE/PRESSURE MEASUREMENT

The test program showing target chamber temperature and pressure levels is indicated in Figure A3.1. Actual chamber temperature is indicated in Figure A3.2. Both these figures are in Appendix 3.

OBSERVATIONS

A table that includes observations of the significant behaviour of the specimen is provided in Appendix 1. Photographs of the specimen are included in Appendix 4.

5 TEST RESULTS

MEDIUM TEMPERATURE TEST RESULTS (CORRECTED TO STP^b)

Damper Configuration/ Pressure	Exposure Temperature	Leakage Rate* Q(m ³ /h) corrected to STP conditions ^b at a Pressure Differential of		
		10Pa	25Pa	50Pa
Positive Pressure (fire side)	Medium (200°C)	161	253	303 (at 36Pa) ^F
Positive Pressure (fire side)	Medium (200°C) after 30 mins	144	227	311 (at 47Pa) ^F
Positive Pressure (fire side)	Medium (200°C) after 60 mins	137	215	303
Positive Pressure (fire side)	Medium (200°C) after 90 mins	137	210	292

MEDIUM TEMPERATURE TEST RESULTS (@200°C)

Damper Configuration/ Pressure	Exposure Temperature	Leakage Rate* Q(m ³ /h) at a Pressure Differential of		
		10Pa	25Pa	50Pa
Positive Pressure (fire side)	Medium (200°C)	260	409	489 (at 36Pa) ^F
Positive Pressure (fire side)	Medium (200°C) after 30 mins	233	367	502 (at 47Pa) ^F
Positive Pressure (fire side)	Medium (200°C) after 60 mins	222	347	489
Positive Pressure (fire side)	Medium (200°C) after 90 mins	222	339	472

Notes: a FSE 004 provides enhanced procedures to improve the repeatability of tests performed to AS1530.7: 1998. The measured accuracy for these leakage values is approximately $\pm 2\text{m}^3/\text{hr}$ unless otherwise noted.
b STP conditions as specified in AS1530.7:1998 are at 20°C (293.15K) and 101.325kPa atmospheric pressure.
c Maximum pressure difference across damper achievable with system.

6 APPLICATION OF TEST RESULTS

TEST LIMITATIONS

The results contained in this report only relate to the behaviour of the specimen of the element of construction under the particular test conditions. The operational checks must not be used to judge the durability of the damper system.

VARIATIONS FROM THE TESTED SPECIMENS

This report details methods of construction, the test conditions and the results obtained when the specific element of construction described herein was tested following the procedure outlined in this standard. Any significant variation with respect to size, constructional details, loads, stresses, edge or end conditions, other than those allowed under the field of direct application in the relevant test method, is not covered by this report. It is therefore recommended that any proposed variation to the tested configuration should be referred to Warrington Fire Research (Aust) Pty Ltd.

ACCURACY OF AIR FLOW MEASUREMENT

Air flow was measured to accuracy within $\pm 2\text{m}^3/\text{hr}$ for all pressure readings.

7 DRAWINGS OF TEST ASSEMBLY

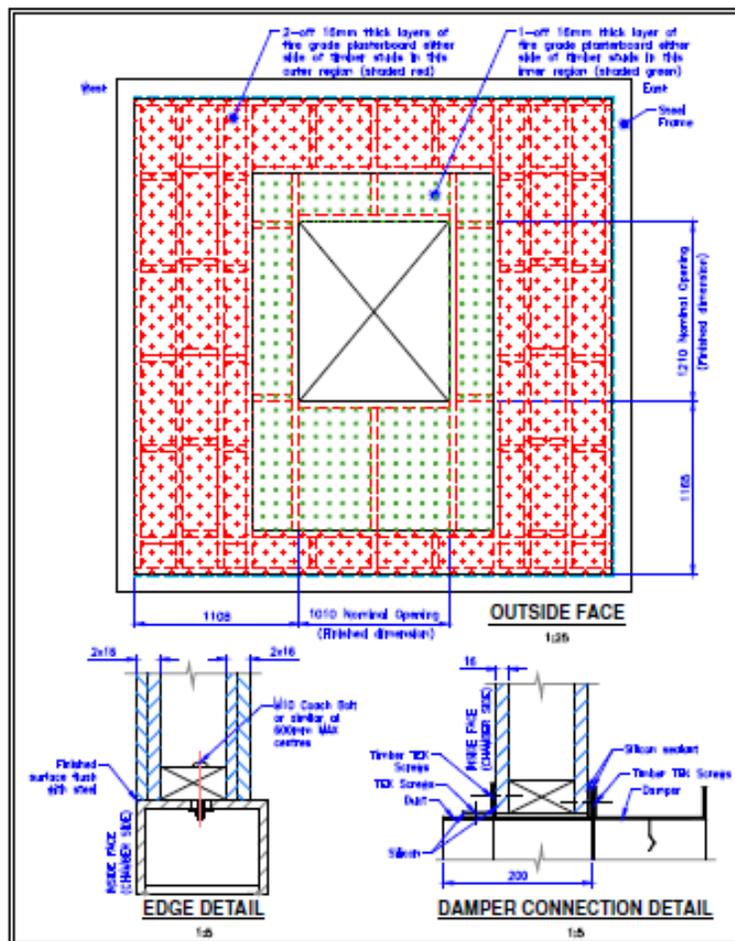


Figure A1.1: Supporting Wall Construction

Riley Air Control Systems Pty Ltd.



SSD Series

Ultra-Low Leakage

Smoke Control Dampers

SPECIFICATION DATA



General

The SSD Smoke Spill Control Damper is a safety device to control the spread of hot smoke in an emergency situation and to efficiently control the airflow in conventional air handling systems. The SSD is an ultra-low leakage damper, which operates safely up to 200 degree C and meets AS1868 requirements. It will be supplied with parallel blades as standard (opposed blades - optional).

Interlocking blade edges and spring steel side seals provide the basis for reduced leakage. For ultra-low leakage the blades are fitted with high temperature silicone rubber seals that further reduce the leakage. Specially formed stainless components and non-corrosive bearings conform to specifications required for high quality, low leakage, maximum rigidity and low operating torque. This allows the use of smaller or fewer actuators.

Multiple sections are inter-connected with a solid drive shaft and provide - together with individually adjustable internal blade linkages - a positive connector for optimum close-off sealing.

Total damper design and close manufacturing tolerances of Blendair dampers result in LONG DAMPER LIFE, SMOOTH & RELIABLE CONTROL AND ENERGY SAVING.

Features

- Spring stainless steel minimises blade end leakage
- Interlocking blades ensure rigidity and tighter close-off seal
- Ground stainless steel blade ends and ODR bearings reduce friction and torque requirements, thus smaller actuators
- Rigid galvanneal steel construction resists corrosion and extends damper life
- Corrosion-resistant internal blade linkage allows easy maintenance and field adjustment and interchangeable components
- High temperature silicone rubber for smoke control operation at 200 degree C on ultra-low leakage dampers
- Low leakage results in energy saving

Figure A1.2: Damper Supplier Brochure (Page 1 of 4)

4.5 DOCUMENTATION OF FIRE/SMOKE DAMPER SOURCING AND INSTALLATION TO VALIDATE AND FACILITATE CERTIFICATION

For practical completion of the mechanical works, it is **mandatory** that your company has records of;

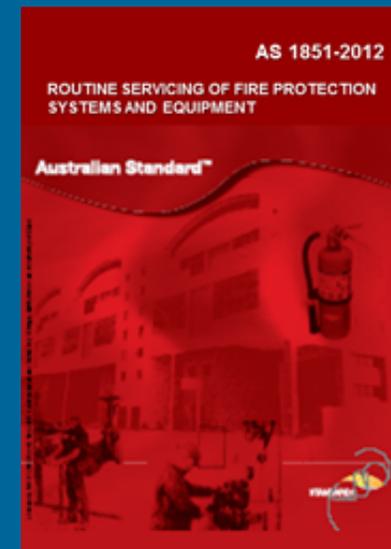
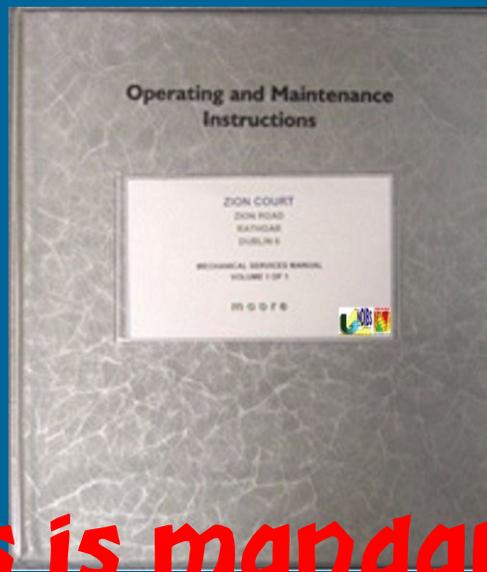
1. **Location** and **identification** of all fire/smoke dampers on **mechanical drawings**.
2. **Validation** of the **FRL** required at each location – from the architectural **specification**.

3. Confirmation that the fire damper **manufacturers application/ installation** and future **maintenance instructions** have been complied with.
4. Check that you have a copy of the manufacturers **fire test certificates** and approved **installation detail**, confirming the FRL and building element type penetrated.

5. For **each** fire/smoke damper, a **'sign off'** by the **installer** and **supervisor** indicating that they are competent, by knowledge and training to identify and install them.
 - a) have **installed** the particular item as per relevant Standards **AS/NZS 1668.1-2015, AS 1682.1 & 2-2015**
 - b) and as per test **sponsors test certificates**, complete with adequate **access for maintenance** to AS 1851-2012 Sect.13
 - c) have passed onto the builder, in writing/by plans or sketches and routines, the ongoing requirement for **maintenance**.
 - d) **reported any non compliance** in the building works or other services adjacent to the item.

6. It is required that this document be included in an essential services or O&M manual and suggest with the service routines found in AS 1851-2012 Sect.13 / AIRAH DA.19

The EP&A Act'79 cl.6.27 requires that the O&M be provided and accepted prior to the OC issue. It must contain installed product information, as built drawings, commissioning and sign-off sheets, FER and maintenance requirements.



This is mandatory



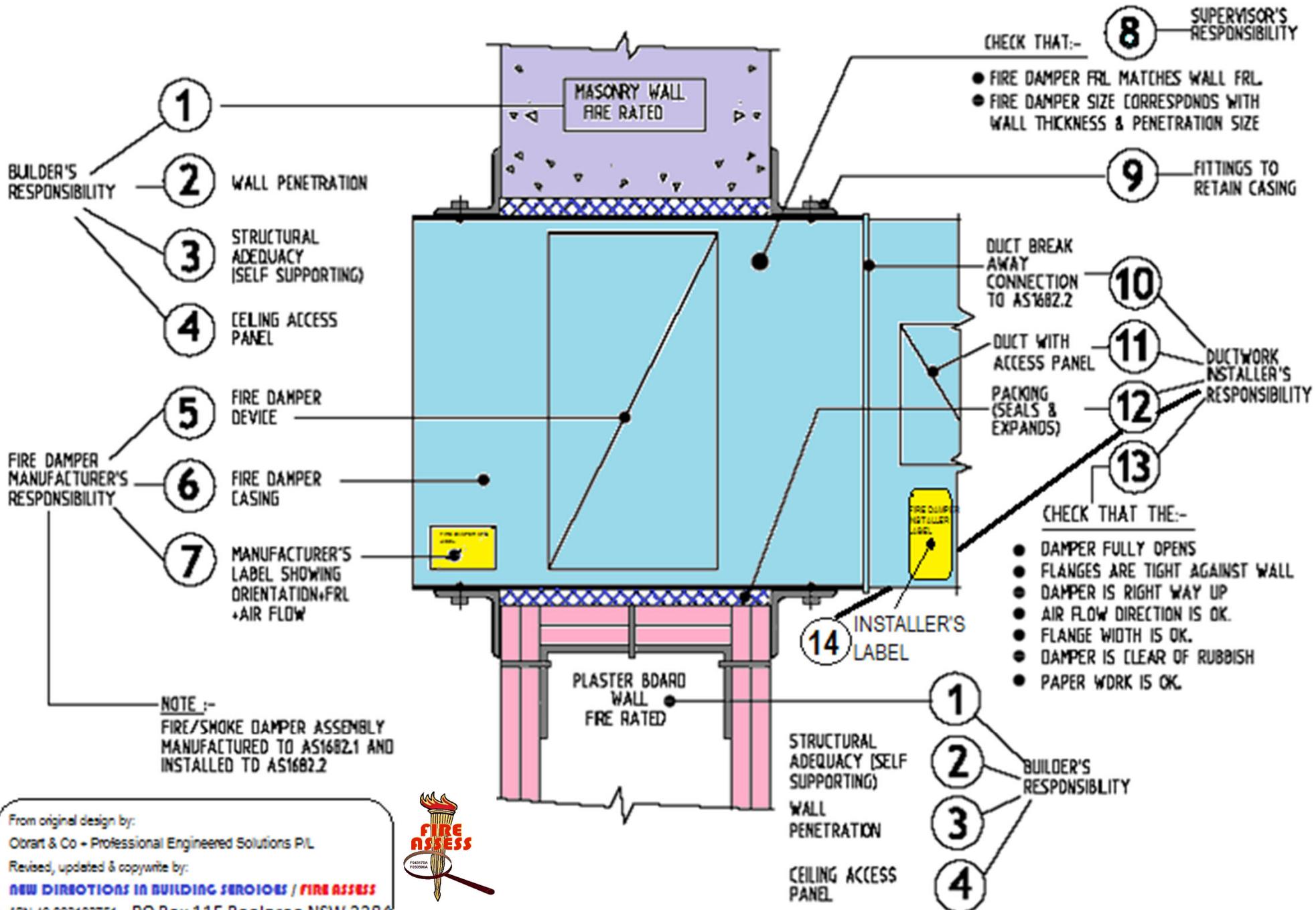
*Help on how to put the
O&M Manual together!*

<https://www.buildingmanuals.org/>

Australian Building Manual Guideline

Building Confidence starts with
the right information

RESPONSIBILITY FLOW CHART



From original design by:

Obrat & Co - Professional Engineered Solutions P/L

Revised, updated & copywrite by:

NEW DIRECTIONS IN BUILDING SERVICES / FIRE ASSES

ABN 49 083183751 PO Box 115 Boolaroo NSW 2284



AS1682.2-2015 Section 6 - Installation requirement Check-List



Should AS1530.4 test sponsor installation instructions differ from this sketch, the test sponsor instructions shall have precedence!

FIRE DAMPER MANUFACTURED & TESTED TO AS1530.4-2014

1 Section 4.2, 6.1, Appendix A
INSTALLATION TO COMPLY WITH MANUFACTURER'S INSTRUCTIONS & APPROVED TEST DETAILS (AS1530.4)

2 Section 5.2.1
FIRE DAMPER FRL NOT TO REDUCE THE FRL OF THE SURROUNDING CONSTRUCTION (FOR INTEGRITY)

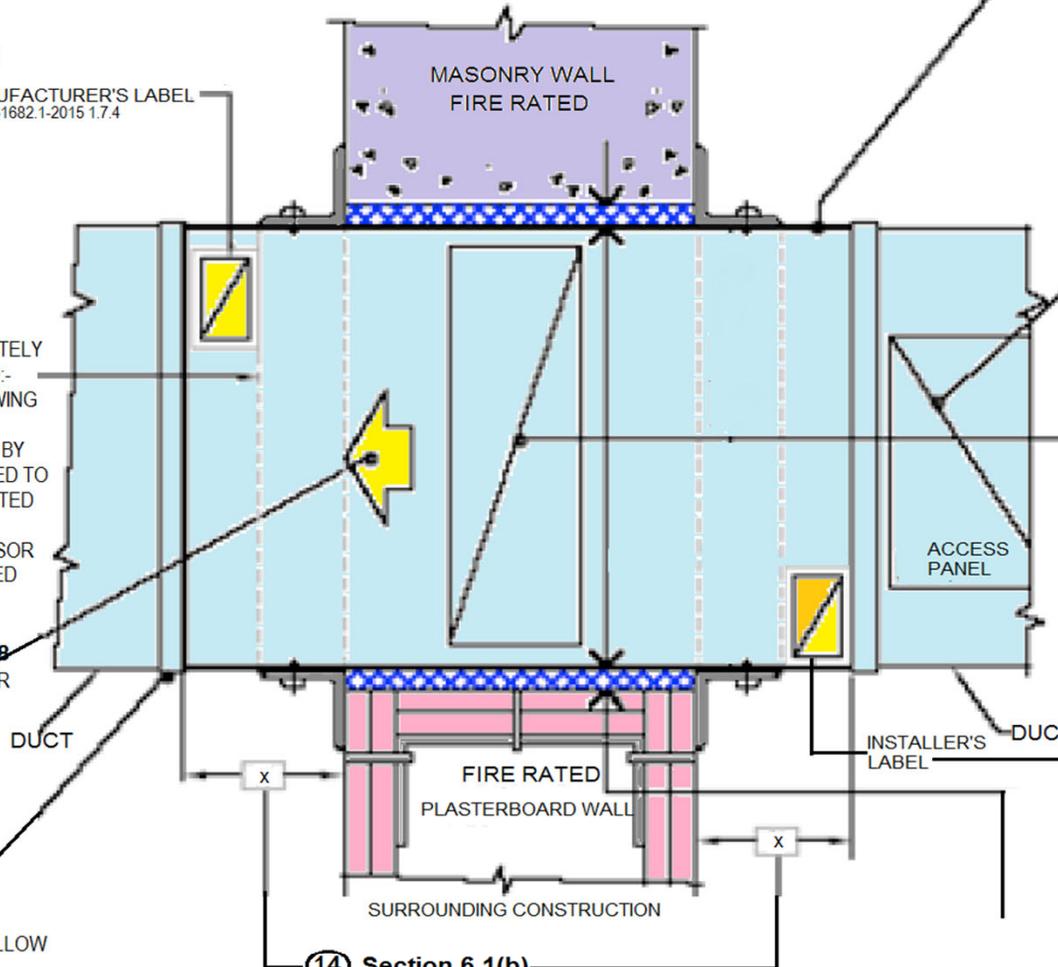
3 Section 6.1
FIRE DAMPER CASING SHALL COMPLETELY PENETRATE THE WALL & BE RETAINED:-
a) ON BOTH SIDERS BY FLANGES ALLOWING FOR EXPANSION, or
b) IF ACCESSIBLE ON ONE SIDE ONLY < BY ONE MOUNTING FLANGE ONLY > FIXED TO THE FIRE DAMPER & WALL VIA SLOTTED HOLES TO ALLOW FOR EXPANSION
c) AS OTHERWISE DETAILED ON SPONSOR INSTALLATION DETAIL & REFERENCED WITH AS1530.4 REPORT

4 AS1682.1 Section 2.3.2(e), 3.2.8
AIRFLOW NOT TO IMPEDE FIRE DAMPER CLOSURE

5 Section 6.1(g)
ANY TEMPORARY SUPPORT USED DURING THE INSTALLATION MUST BE REMOVED

6 Section 6.1(a)
HOW DUCT IS ATTACHED
a) DUCTWORK ATTACHMENTS SHALL ALLOW THE DUCT TO COLLAPSE WITHOUT DISLODGING THE FIRE DAMPER OR AFFECTING PERFORMANCE.
b) FASTENERS USED FOR FIRE DAMPER CONNECTION TO DUCT SHALL HAVE A FUSION (MELT) TEMPERATURE BELOW 700°C

MANUFACTURER'S LABEL
AS1682.1-2015 1.7.4



7 Appendix A (g)
WHERE NO DUCT IS ATTACHED HARWARE ADJACENT TO FIRE DAMPER (i.e. GRILL, AIR DAMPER, etc.) NOT TO INTERFERE WITH THE CLOSURE NOR DISLUDGE FIRE DAMPER IN A FIRE.
NOTE: If services piping, conduits, wiring, etc. obstruct the FIRE DAMPER operation. You must gain authority (from Building Owner) to isolate & remove such services.

8 Appendix A (j)
READY ACCESS IS ESSENTIAL FOR SERVICE TO FACILITATE RELEASE & RESETTING OF THE FIRE DAMPER
ACCESS IN SURROUNDING CONSTRUCTION (i.e. ceiling) IS ESSENTIAL IN ALLOWING THE SERVICING AS DESCRIBED ABOVE.

9 Section 7.2 (f)
FIRE DAMPER IS TO BE INSTALLED "FULLY OPEN" & SHALL "FULLY CLOSE" IN FIRE MODE. THERE SHALL BE NO INTERMEDIATE POSITIONING

10 AS1682.1 Section 2.3.1 (a)
WHEN THE FIRE DAMPER IS FULLY CLOSED, THE BLADE & PIVOT (IF ANY) MUST BE FULLY CONTAINED WITHIN THE SURROUNDING CONSTRUCTION (FIRE RATED BUILDING ELEMENT) AND DAMPER CASING.

11 Section 7.6.1 & 7.6.2
INSTALLER'S LABEL TO BE AFFIXED & LEGIBLE

12 Appendix F
MINIMUM TOTAL CLEARANCE BETWEEN THE FIRE DAMPER BODY & SIDE OF THE PENETRATION SHALL BE TO: height & width or diameter x 1.01+10mm

13 dependant upon installation instruction
THE SPACE BETWEEN THE FIRE DAMPER & SURROUNDING CONSTRUCTION TO BE UNIFORMLY FILLED BY INSULATED PACKING TO MAINTAIN INTEGRITY AT TEMPERATURES TO 1000°C, or WITHOUT PACKING IF PROTOTYPE AS1530.4 TEST ACHIEVED THE REQUIRED PERFORMANCE WHEN SO INSTALLED.

14 Section 6.1(b)
DAMPER CASING EXTENSION (x) BEYOND THE FACE OF THE SURROUNDING CONSTRUCTION (FIRE RATED BUILDING ELEMENT) NOT TO EXCEED ON EITHER SIDE: 150mm

15 Section 6.1 (f) + AS/NZS 1668.1-2015 3.2.3.2(d)
DUCT ABOVE THE FIRE DAMPERS THROUGH FLOORS MUST BE INSULATED UNLESS THE FIRE DAMPER HAS ACHIEVED THAT FIRE INSULATION THAT ORIENTATION

AS/NZS 1668.1-2015 3.3.3 Exclusions

Openings will **not include a fire damper** if:

- Part of a subduct system
- A kitchen exhaust
- System providing make-up to a combustion engine fire pump room
- Stair pressurization systems
- Fume cupboard exhausts (*conditional*)

Boundary Requirements **NCC C4D3** (BCA C3.2)

Where a ventilation inlet or outlet on an exterior wall is located within 3m of the boundary, or 6m from the far boundary of a road, or within 6m from another building on the allotment – a **fire damper** is required to be installed.

- **END OF PAPER No. 4**