



PAPER No. 5

FIRE & SMOKE DAMPERS INSTALLATION & MAINTENANCE



NSW ENVIRONMENTAL PLANNING & ASSESSMENT (EP&A) ACT and REGULATION

Clause 145 in Part 8 of the Regulation requires compliance with the National Construction Code of Australia (NCC)

NATIONAL CONSTRUCTION CODE OF AUSTRALIA

NCC Vol.1 cl. **C4D15(2)(b)** (BCA C3.15 (b)) requires protection of openings for Air-conditioning or Ventilation ducts in fire-rated elements to be in accordance with AS/NZS 1668.1 (2015)

AS/NZS 1668.1 - 2015

Clause 3.3 requires openings in fire-rated walls to be protected with Fire Dampers in accordance with AS 1682

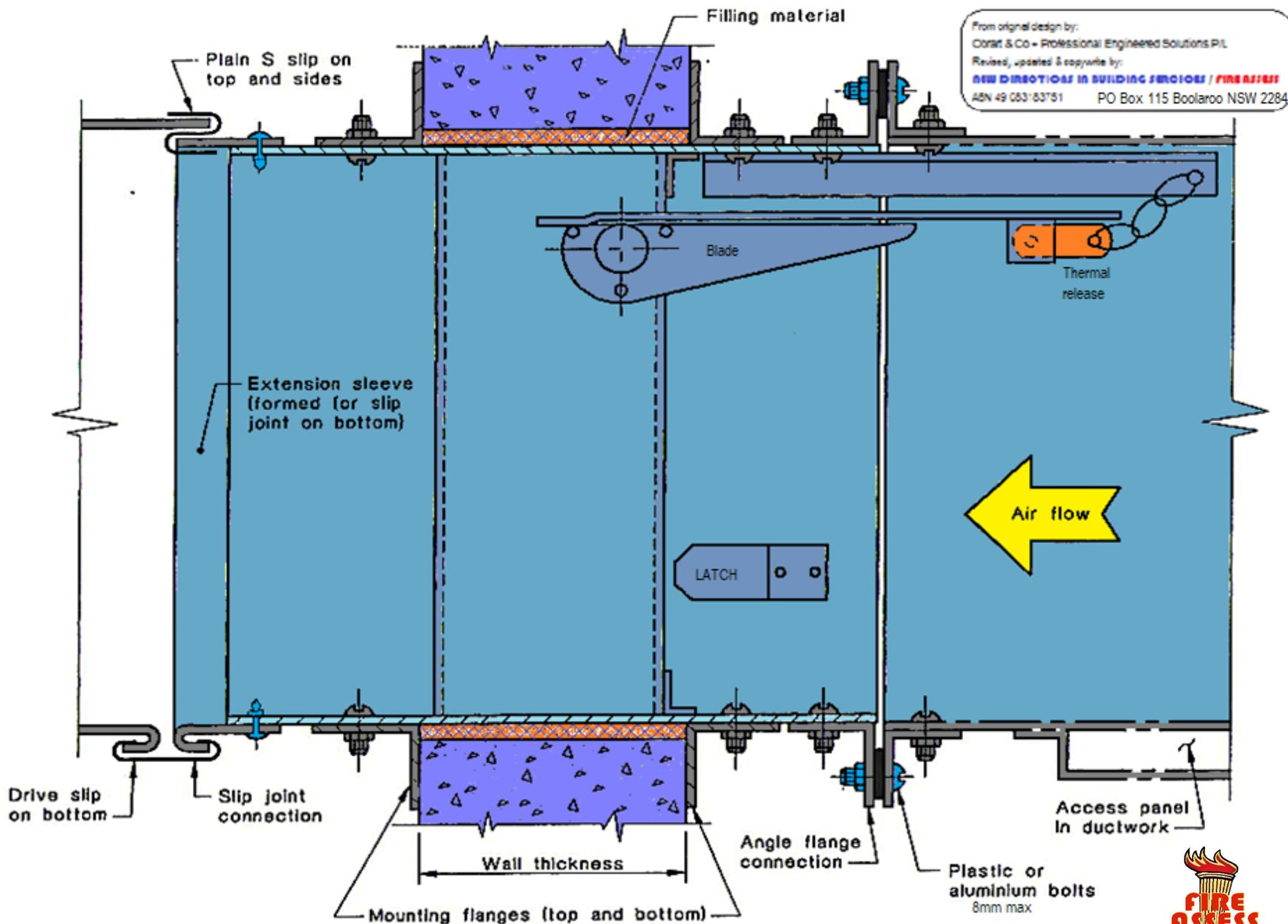
WHO IS RESPONSIBLE FOR ENSURING THE WALL/FLOOR RETAINS ITS FIRE RESISTANCE

- **The Fire Damper installer is responsible for securely fixing that appropriate protective device in the Wall or Floor**
- **The Wall/Floor builder is responsible for providing your device, with a “Hole Structure” that will stay up during any perceived fire for the time required.**

ESSENTIAL INSTALLATION CRITERIA

1. Follow Fire Damper / **manufacturer's** / test sponsor's **installation instructions** with your installation
2. It (the Fire Damper) must be **effectively retained** in wall/floor
3. If it is joined to ductwork, the ductwork physically cannot collapse in a fire; or **should it collapse**, it must not dislodge the Fire Damper
4. Any mechanical FD must be **free to expand** without affecting damper blade closure or damaging the structure

5. It must be **free to close and latch** when released in a fire — even if fans continue running
 6. FD installation must not **overload or reduce the FRL** of surrounding structure
 7. FD to **be accessible** for inspection, testing & maintenance
- (These are my personal views on the subject)



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 Obrat & Co - Professional Engineered Solutions P/L
 Revised, updated & copyright by:
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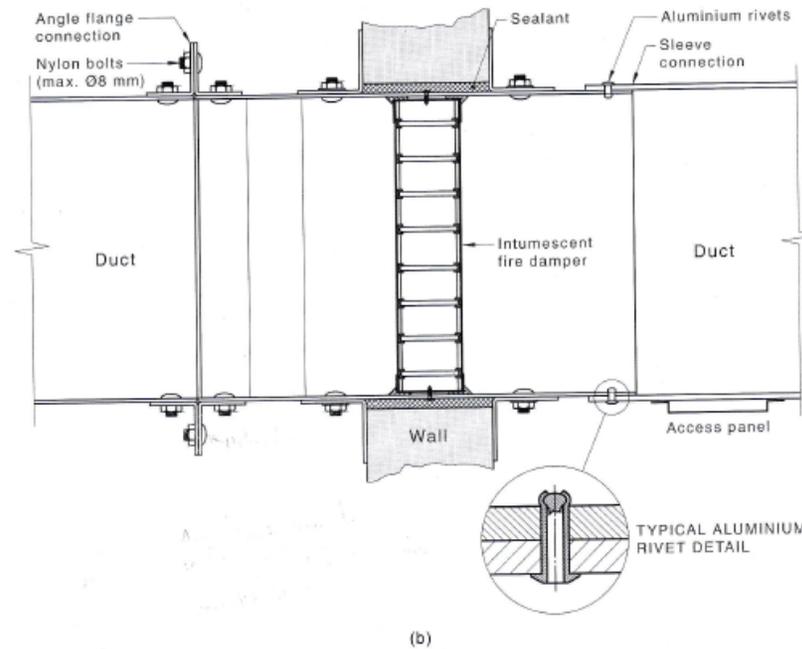
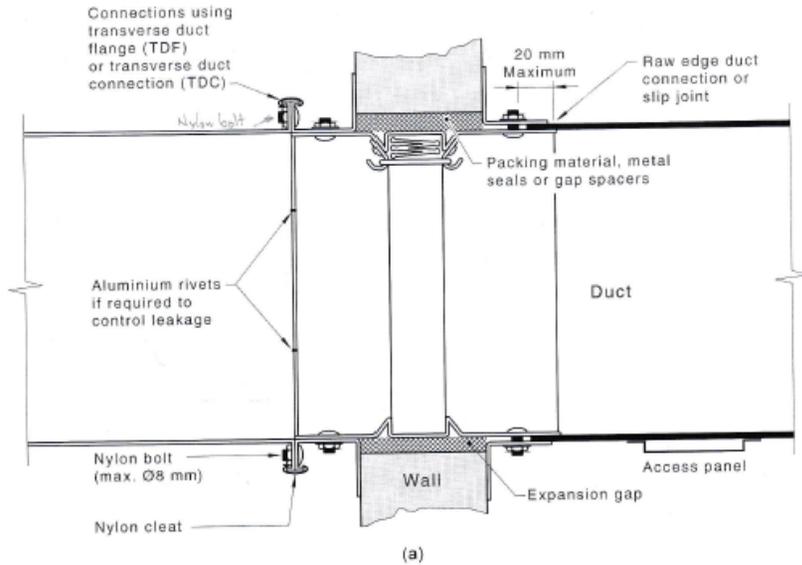
FIGURE B2. TYPICAL FIRE DAMPER INSTALLATION WITH 'BREAKWAY' DUCT CONNECTION





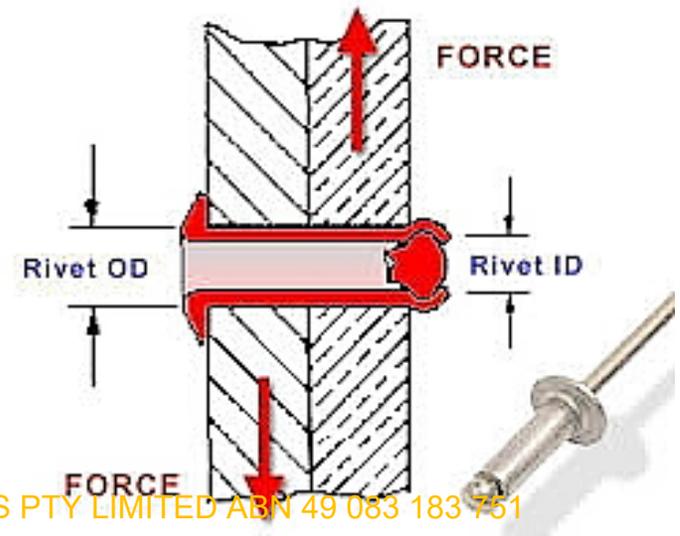
AS 1682.2:2015

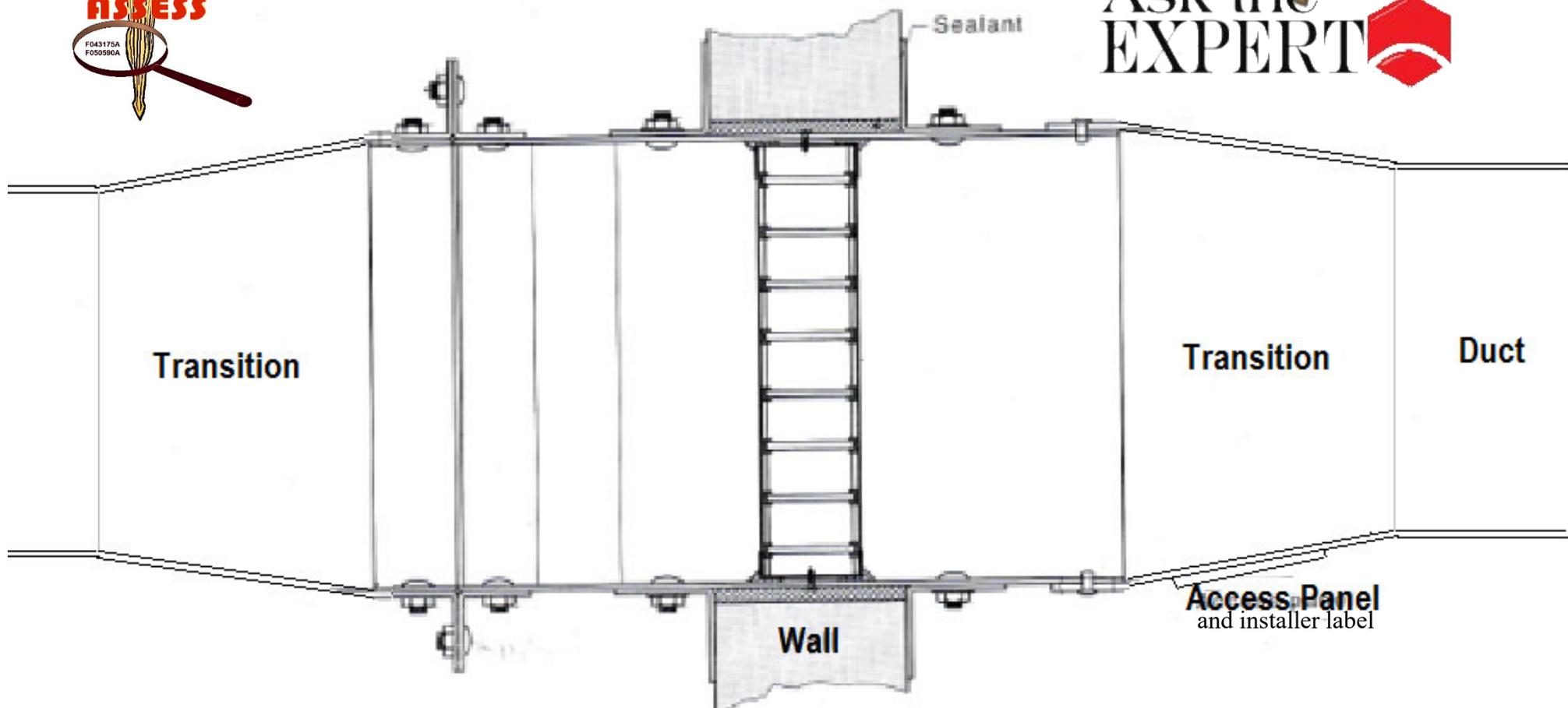
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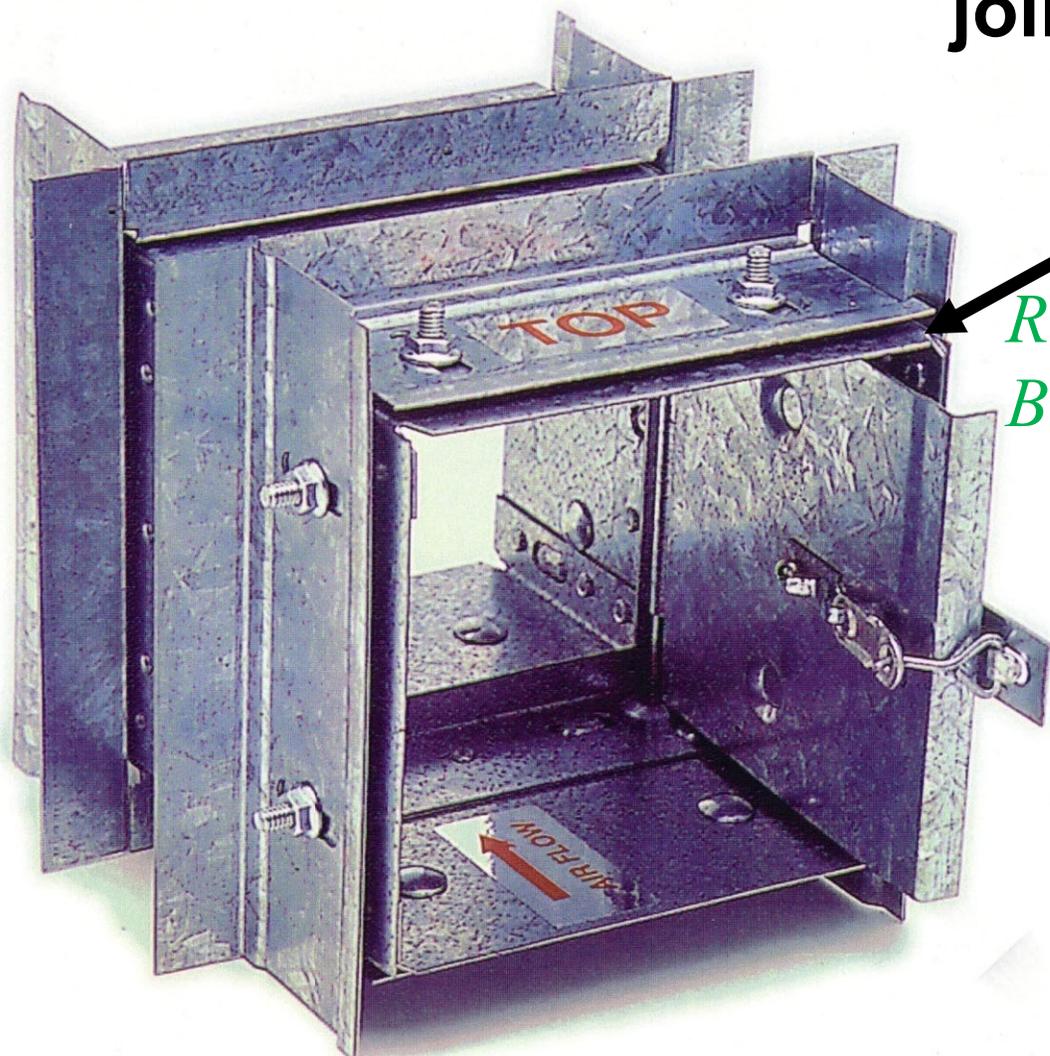
8 mm max

Metal Cleat allowed bottom only if Aluminium max 150mm length side or top – consider plastic cleats.





When you changeout a curtain or blade damper for intumescent you need to allow for decreased C.S.A. and S.P.
This means an oversized intumescent and case with a transition



Raw edge duct joint to facilitate breakaway

*Read the label?
But don't rely on it*

101%+10mm rule

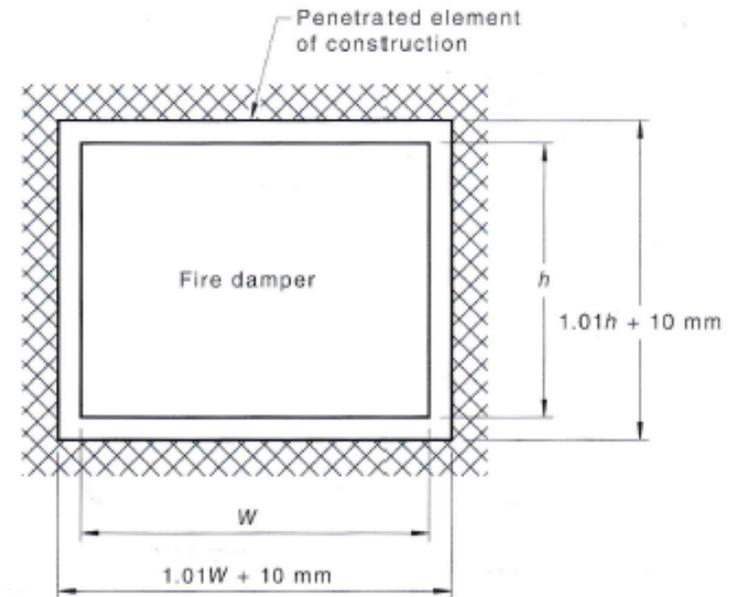


FIGURE F1 RECTANGULAR ARRANGEMENT—MINIMUM CLEARANCES

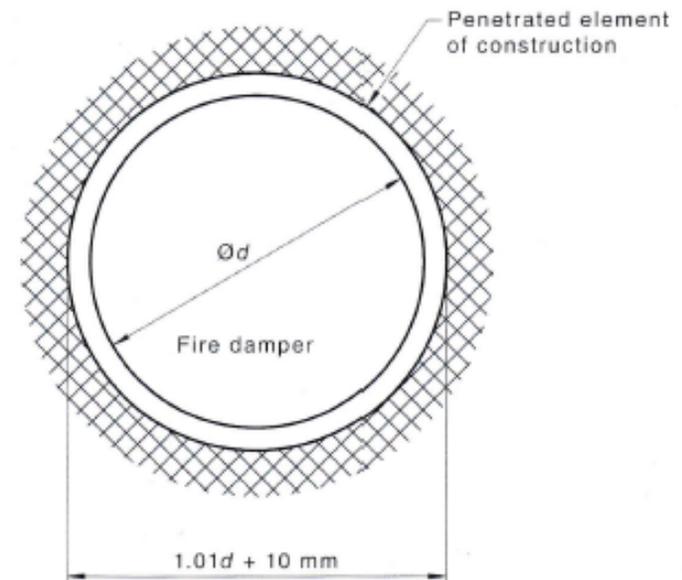
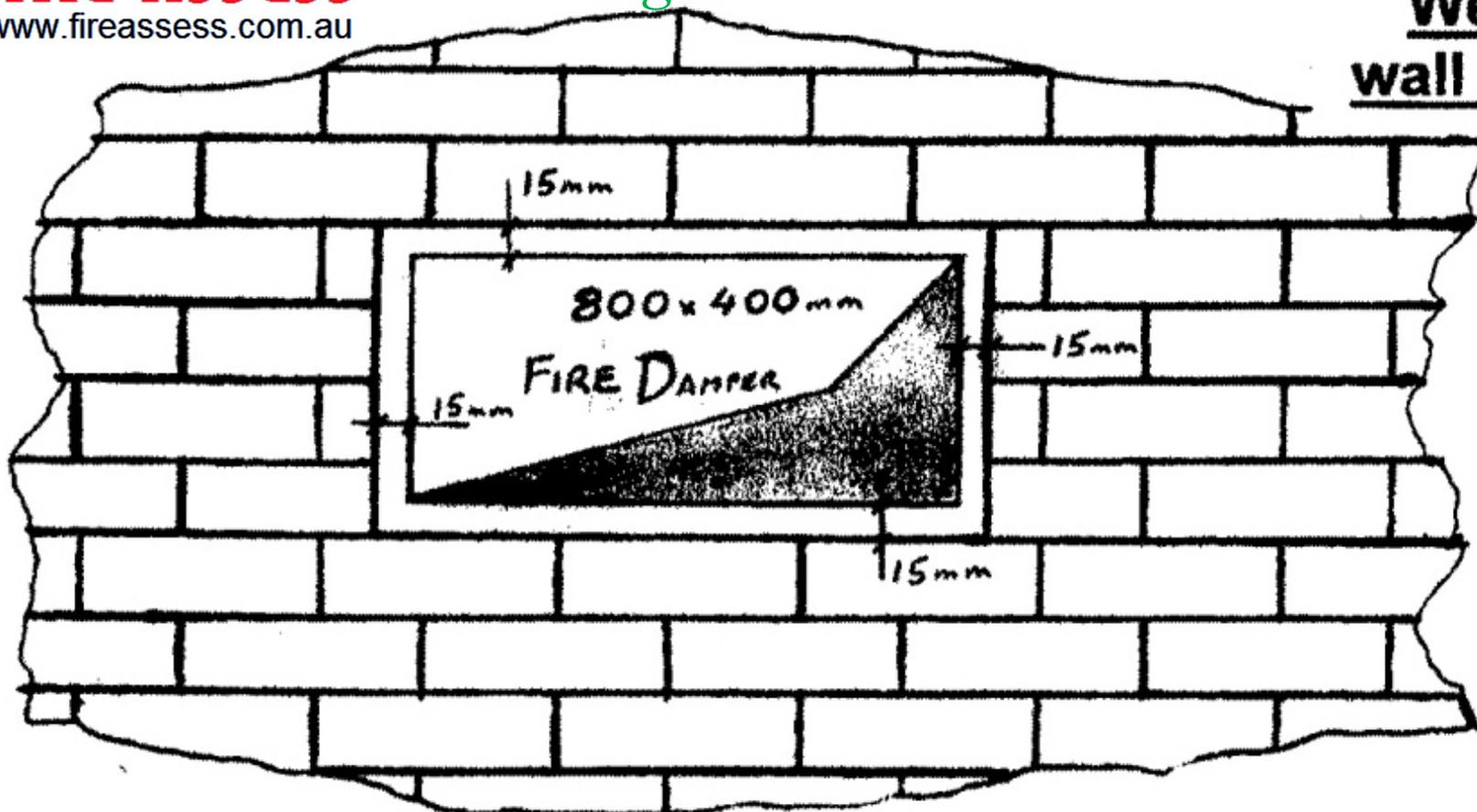


FIGURE F2 CIRCULAR ARRANGEMENT—MINIMUM CLEARANCES



Original installation of fire damper in a masonry wall

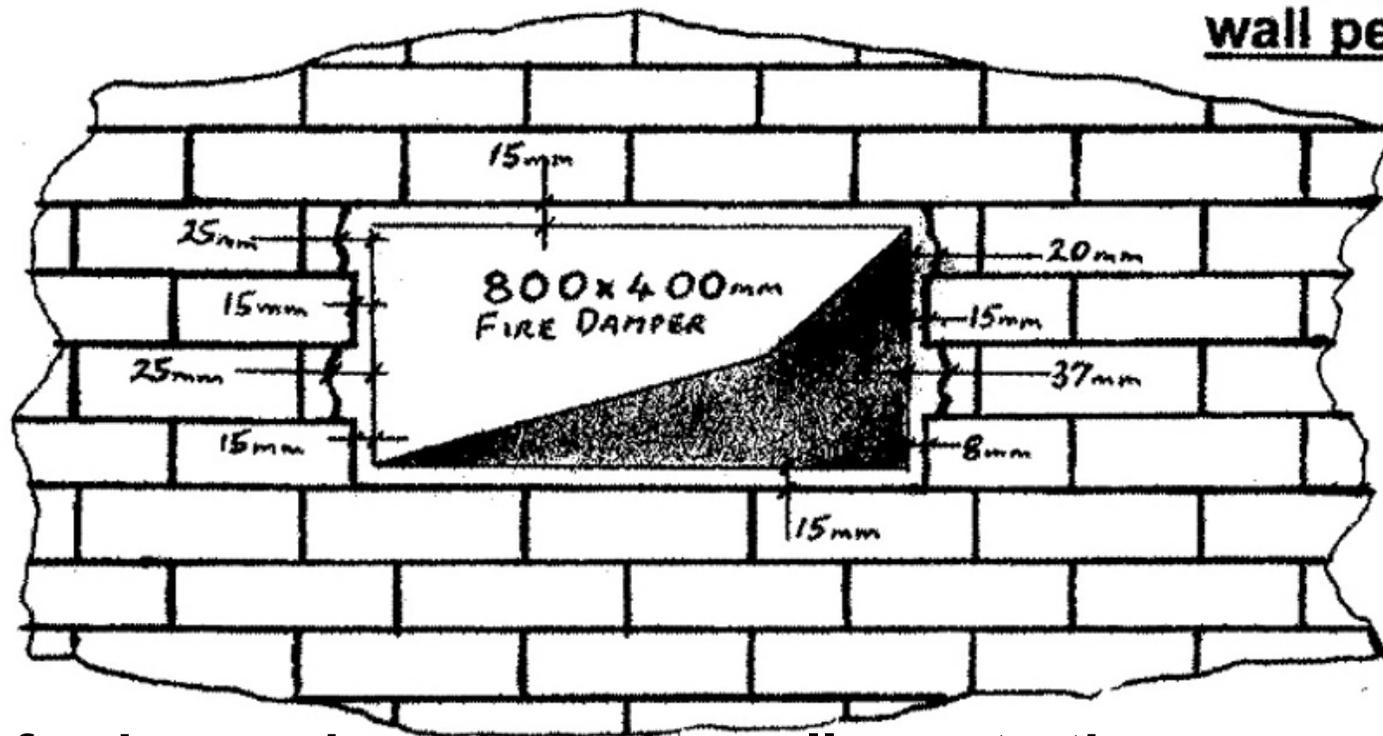
Fire Damper casing dimensions (W x H):	800 x 400 mm
Clearance between FD casing and wall:	15 mm on all 4 sides
Minimum flange width (Clauses 5.1.3 & 5.2):	2 x Clearance = 30 mm

40 x 50 mm is normal flange, supplied by manufacturer (40 mm on face of wall)

∴ Complies with Standard

Flanges twice the clearance rule

Irregular wall penetration



Installation of a damper in an irregular wall penetration

Clearance between damper casing & wall: varies 8mm~37mm max.

Average clearance on RH side: $(20+15+37+8)+4 = 20\text{mm}$

Average clearance on LH side: $(25+15+25+15)+4 = \underline{20\text{mm}}$

Sum of average clearance on opposite sides: **40mm**

Does 40mm X 50mm manufacturer supplied flange comply? **NO!**

If the damper shifts **10mm** under fire conditions, integrity is breached by **7mm**.

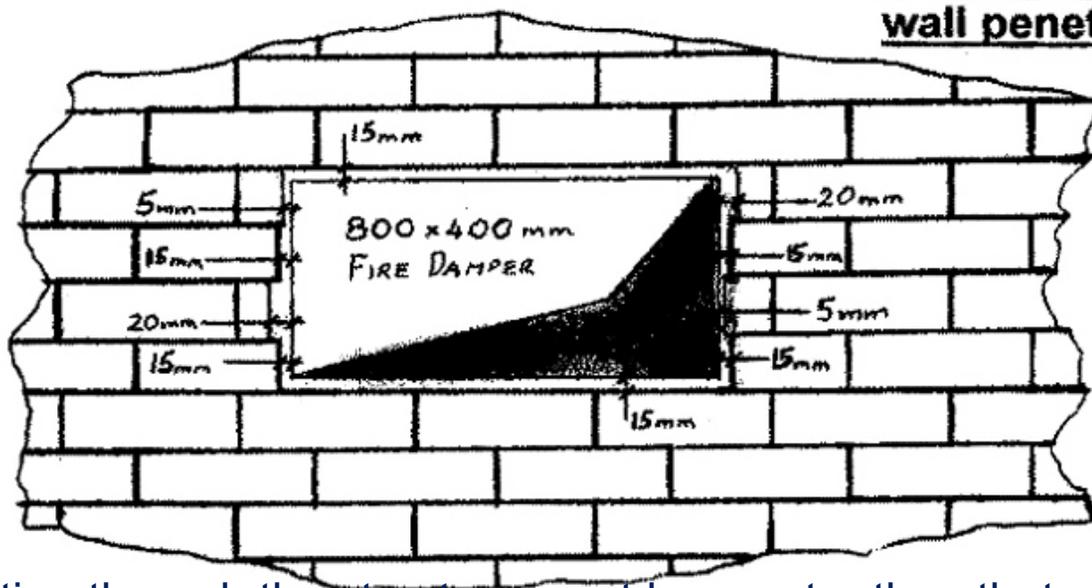
If the flange width against the wall is greater than $37+15=\underline{52\text{mm}}$, then there can be no breach in integrity.

From these scenarios, we can develop the following interpretation of AS 1682.2-2015 Appendix F

- The angle sections of the damper retaining flanges shall have a minimum width against the structure, equal to the greater of:
- The sum of the average clearance on opposite sides, between the damper casing and the surrounding structure (building element), AND
 - In the case of irregular penetrations, the sum of the greatest maximum and the least minimum clearance on any two opposite sides of the casing.

Commentary: *These criteria are to ensure that there can be no breach in integrity, even should the fire shift the damper during a fire and so that its casing is hard against the surrounding structure. This is a very conservative fire condition because where packing material has been installed, that material around the damper casing shall compress to the point that should prevent the damper from touching the surrounding structure (building element).*

Minimum size of wall penetration



AS 1682.2-2015 Appendix F
Nominates a minimum clearance between the damper casing and surrounding structure (building element)

The width or height of the penetration through the structure must be greater than that of the damper casing by at least 10mm+1% of the respective damper case external dimension.

Does this installation comply with **AS1682.2-2015 Appendix F**?

Average clearance RH side: $(20+15+5+15)+4 = 13.8\text{mm}$

Average clearance LH side: $(5+15+20+15)+4 = 13.8\text{mm}$

Hence average penetration width is: $(800+13.8+13.8) = \underline{\underline{827.6\text{mm}}}$

Minimum clearance RH side: $= 5\text{mm}$

Minimum clearance LH side: $= 5\text{mm}$

Hence maximum penetration width: $(800+5+5) = 810\text{mm}$

But 10mm + 1% of 800mm damper width is: $= 818\text{mm}$

AS1682.2 Appendix F requires a minimum width of 818mm but this minimum width is 810mm, so this installation **would not comply**.



Calculator of maximum allowable construction tolerance **T** for use when specifying fire damper penetration sizes in fire resistant walls/floors

D Largest FD dimension (Width, Height or Ø)	F Width of FD flange abutting Wall or Floor						
	25	30	32	35	38	40	50
200	6.5	9.0	10.0	11.5	13.0	14.0	19.0
300	6.0	8.5	9.5	11.0	12.5	13.5	18.5
400	5.5	8.0	9.0	10.5	12.0	13.0	18.0
500	5.0	7.5	8.5	10.0	11.5	12.5	17.5
600	4.5	7.0	8.0	9.5	11.0	12.0	17.0
700	4.0	6.5	7.5	9.0	10.5	11.5	16.5
800	3.5	6.0	7.0	8.5	10.0	11.0	16.0
900	3.0	5.5	6.5	8.0	9.5	10.5	15.5
1,000	2.5	5.0	6.0	7.5	9.0	10.0	15.0
1,100	2.0	4.5	5.5	7.0	8.5	9.5	14.5
1,200	1.5	4.0	5.0	6.5	8.0	9.0	14.0

NOTES:

- All dimensions are in millimetres
- Gap between casing & surrounding structure must be as stated in manufacturer's instructions, but if not stated, not more than ½ the flange width.
Hence, Maximum Allowable penetration size is as per manufacturer's instructions or FD dimension plus $2 \times \frac{1}{2}$ flange width. i.e: $D + F$
- Minimum Allowable penetration size must be as stated by the manufacturer, but if not stated, not less than $1.01 \times D + 10$
- Maximum specified size must be no greater than allowable max. - tolerance T i.e: Maximum specified size is $D + F - T$
- Minimum specified size must be no less than allowable min. + tolerance T i.e: Minimum specified size is $1.01 \times D + 10 + T$

Using 4 & 5 above is impractical, as it results in a different tolerance for every FD size on site. A more practical method is to agree on one (or two) reasonable construction tolerances, find these values on the table above & apply it to all FD penetration/flange combinations with larger allowable tolerances.

Using this method, the specified penetration size must be $0.5 \times (\text{allowable maximum} + \text{allowable minimum}) \pm \text{agreed tolerance}$.

Example 1:

Where dampers have 25 mm flanges and builder agrees to construct fire damper penetrations to ± 5 mm tolerance, then this tolerance can be applied to all penetrations where largest dimension (Width, Height or Ø) is up to 500 mm. A 400 x 200 damper requires penetration size of 419.5 ± 5 mm x 218.5 ± 5 mm

Example 2:

Where dampers have 40 mm flanges and builder agrees to construct fire damper penetrations to ± 10 mm tolerance, then this tolerance can be applied to all penetrations where largest dimension (Width, Height or Ø) is up to 1,000 mm. A 800 x 600 damper requires penetration size of 829 ± 10 mm x 628 ± 10 mm

LEGEND

Required tolerance less than ± 5 mm

Tolerance not greater than ± 5 mm

Tolerance not greater than ± 10 mm

Tolerance not greater than ± 15 mm



Ready Reckoner for specifying maximum allowable construction tolerances **T** for fire damper penetration sizes in fire resistant walls/floors

D Largest FD dimension (Width, Height or Ø)	F Width of FD flange abutting Wall or Floor						
	25	30	32	35	38	40	50
200	Tolerance	to be	Tolerance	to be not	greater	than	Tolerance
300			not				
400				to be not			
500	Tolerance must be less	to be	not	greater	than	than	than ±15mm
600							
700							
800							
900							
1,000							
1,100	than ±5	not	greater	than	than	±5 mm	than ±10 mm
1,200							

NOTES:

- All dimensions are in millimetres
- Gap between casing & surrounding structure must be as stated in manufacturer's instructions, but if not stated, not more than ½ the flange width. Hence, Maximum Allowable penetration size is as per manufacturer's instructions or FD dimension plus 2 x ½ flange width. i.e: **D + F**
- Minimum Allowable penetration size must be as stated by the manufacturer, but if not stated, not less than **1.01 x D + 10**
- Specified penetration size must be $0.5 \times (\text{Allowable Maximum} + \text{Allowable Minimum}) \pm \text{Agreed Construction Tolerance}$.

HOW TO APPLY THIS TABLE:

If agreed tolerance on fire damper penetrations is ±5 mm, then this tolerance can be used for penetrations where damper flange widths & largest dimension (Width, Height or Ø) comply with green, yellow or blue zones in table above.

If agreed tolerance on fire damper penetrations is ±10 mm, then this tolerance can only be used for penetrations where damper flange widths & largest dimension (Width, Height or Ø) comply with yellow or blue zones in table above.

If agreed tolerance on fire damper penetrations is ±15 mm, then this tolerance can only be used for penetrations where damper flange widths & largest dimension (Width, Height or Ø) comply with blue zone in table above.

INSTALLATION

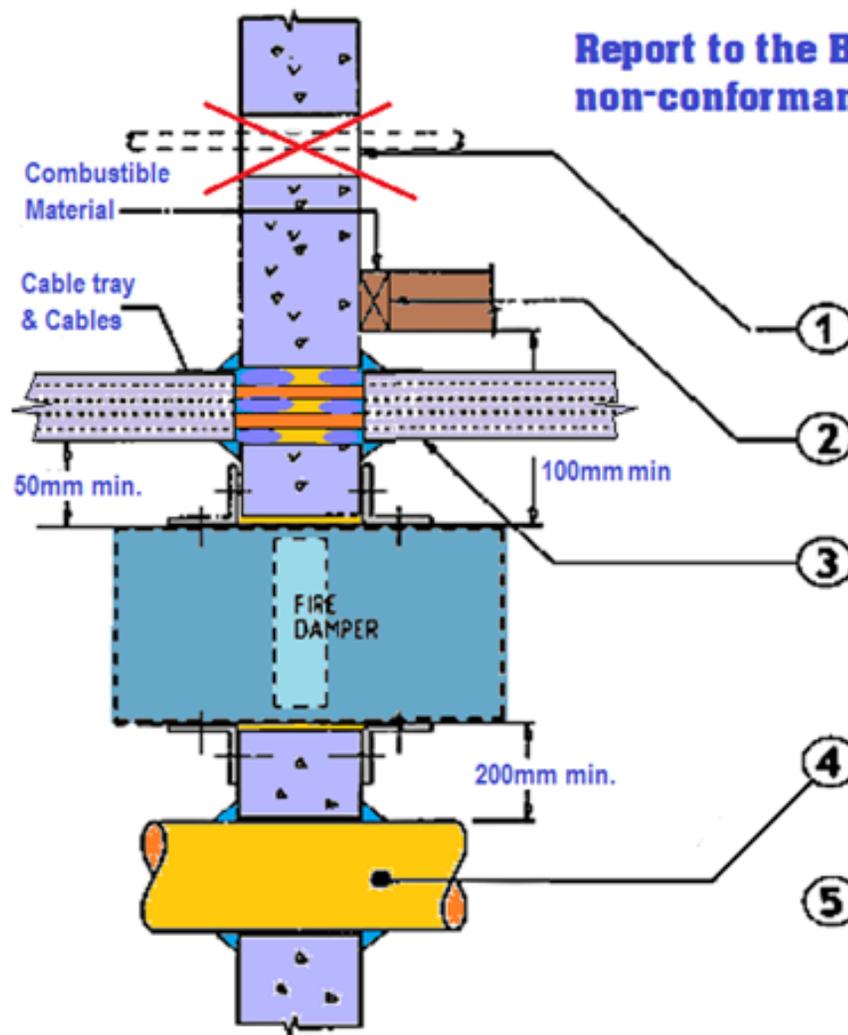
What is minimum separation between Fire Damper & other service openings?

- **NCC** (BCA spec.C3.15) requires:
 - **S13C3** Pipe openings not closer than 200mm to any other service penetration
 - **S13C5** Cable openings not closer than 50mm to any other service penetration

- For fire testing, Clauses 11.4.7 & 11.9.5 of AS 1530.4-2014 require a minimum of:
 - 200mm between Fire Dampers, and
 - 75mm between Fire Dampers & wall/floor

Minimum separation allowed between Fire Dampers and other services

**Report to the Building Owner
non-conformance with NCC S13 + AS4072.1**

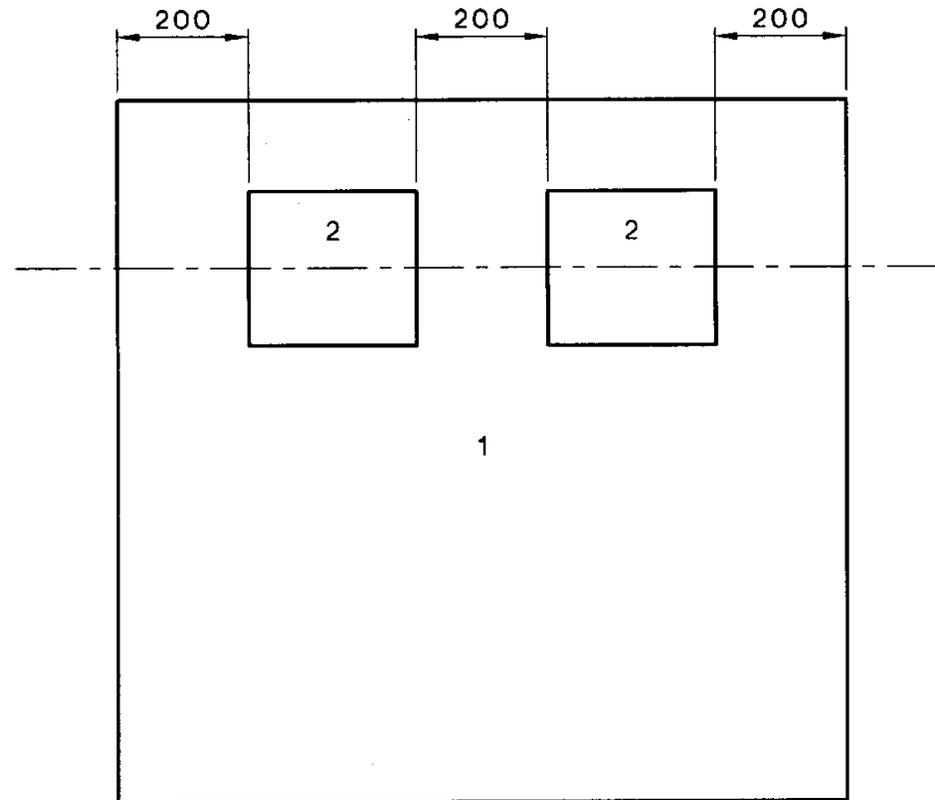


- ① Non-fire sealed penetration, with or without existing services
- ② Combustible material not closer than 100mm to any fire damper
- ③ Cabling not closer than 50mm to any fire damper.
NOTE: Cable tray must not pass through the fire wall or must be insulation wrapped either side
- ④ Metal pipe (charged)
NOTE: if uncharged must be insulation wrapped either side
- ⑤ Distance between openings or adjacent fire dampers must be sufficient to maintain the structural adequacy of the wall
OR
Where fire dampers must be installed close together, obtain an approved performance solution for the modified wall construction



From original design by:
Obrart & Co - Professional Engineered Solutions P/L
Revised, updated & copywrite by:
NEW DIRECTIONS IN BUILDING SERVICES / FIRE ASSESS
ABN 49 083183751 PO Box 115 Boolaroo NSW 2284

Min separation allowed between Fire Dampers

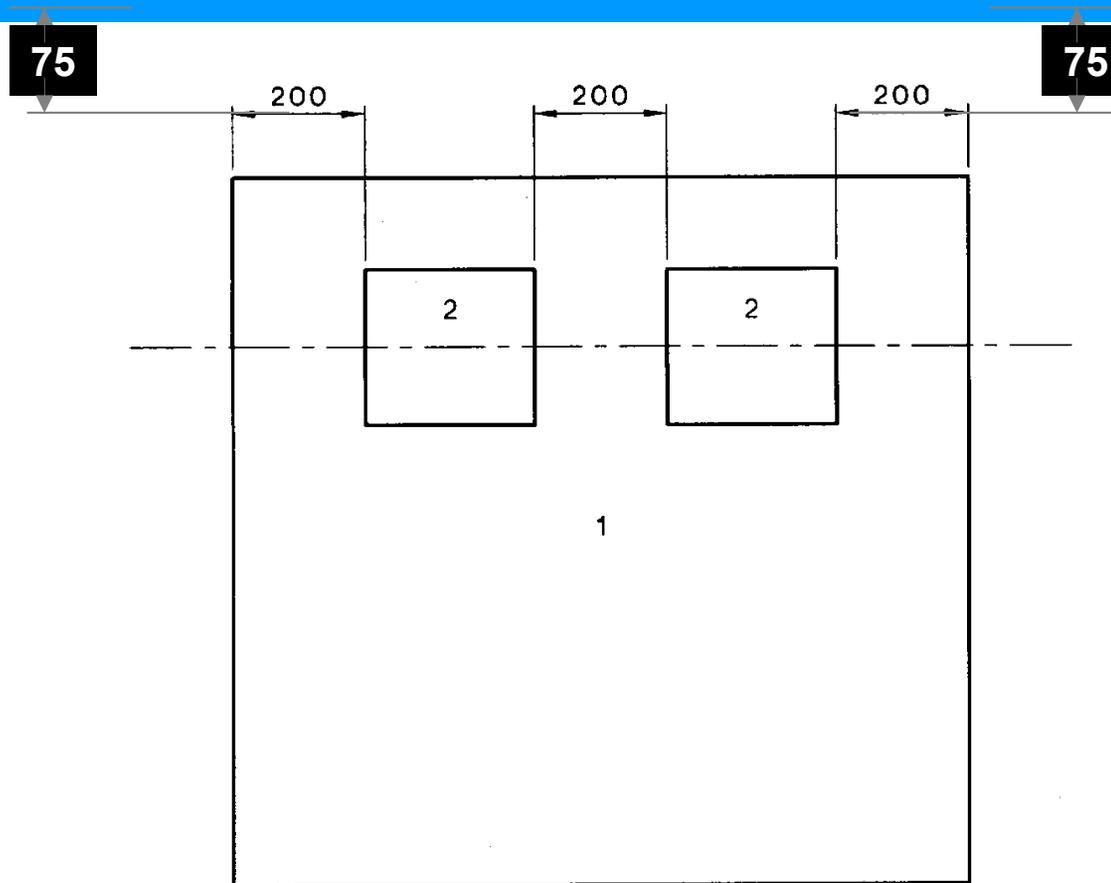


LEGEND:

- 1 = Supporting construction
- 2 = Damper

DIMENSIONS IN MILLIMETRES

Separation between Fire Damper & floor/wall



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LEGEND:

- 1 = Supporting construction
- 2 = Damper

DIMENSIONS IN MILLIMETRES

AS1530.4

MINIMUM SEPARATION BETWEEN DAMPER & FLOOR or WALL

INSTALLATION GUIDELINES

- Coordinate with all associated trades & designers
- Follow **manufacturer's** or special instructions
- Check that the damper **matches** installation
- **Retain** the damper on all sides
- **Form & support** lightweight walls as approved
- Is damper right way up & facing correct direction?
- Have **breakaway joints** been installed for FD?
- Allow **expansion** space and pack if necessary to prevent “free flow of combustion products”

INSTALLATION GUIDELINES (cont.)

- FD element **must be fully within** wall or floor
- Smoke Dampers **may** be proud of the smoke wall but **smoke sealed** to that wall.
- The “hole in the wall” **must** be self-supporting
- Insulate duct above FD in floor – unless FRL of FD meets insulation criteria
- Other services (pipes, cables, etc) **not allowed** beside duct opening or through duct!

INSTALLATION GUIDELINES (cont.)

- Provide adequate access for **testing operation & maintenance**
- For **FD** If the installation doesn't comply with the test sponsor's installation requirement as included with the **AS1530.4-2014** test certificate, **AS 1682.2-2015** or an approved alternative, **IT CAN'T BE CERTIFIED!**
- For **SD** install to manufacturer's detail and ensure reference to the **AS1530.7-1998** test certificate.

FRONT VIEW

WALL PENETRATION
↓

EXPANSION
GAP
12.5 / 25

EXPANSION
GAP
12.5 / 25

↑
FIRE DAMPER

Bullock Expansion gap seal system

*Note that in our view
this compromises the
Integrity by requiring
Sealing of the flanges*

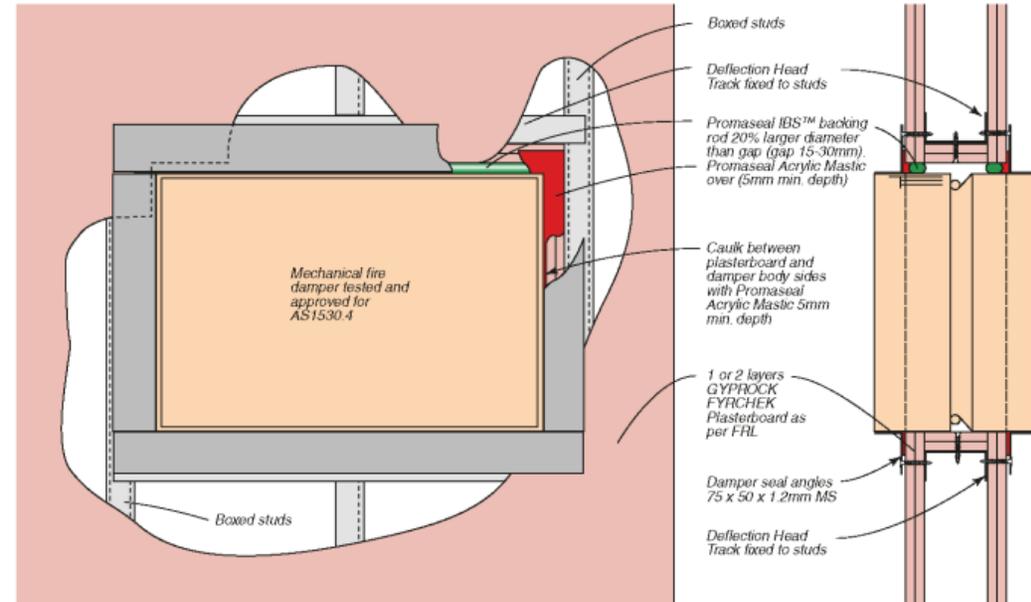
EXPANSION GAP SPACERS

Fire Damper Penetrations in Walls

Detail FIG Z212 is suitable for dampers rated up to FRL -/120/- . Duct weight must not be supported by the wall. For full specifications and installation details, refer to the appropriate damper manufacturer.

FIG Z212: INSTALLATION DETAIL FOR FIRE DAMPER IN STUD WALL SYSTEM

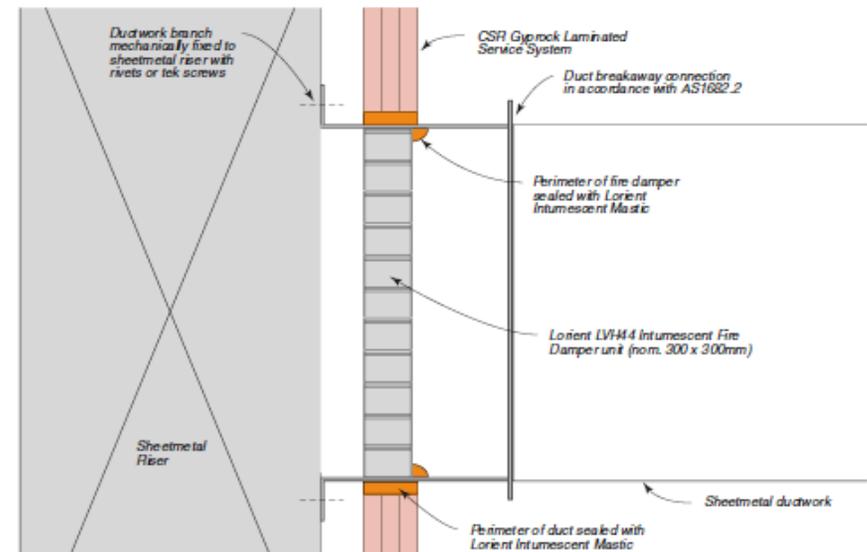
Appraisal: PROMAT FCO 2106



Ref: CSR Red book, page 245.

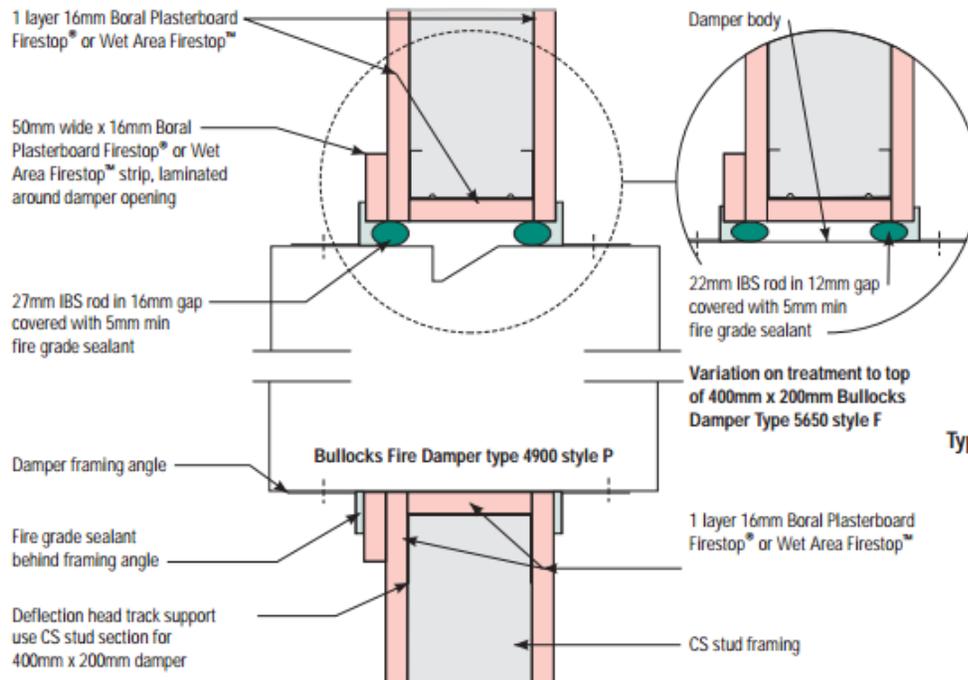
FIG Z213: INSTALLATION DETAIL FOR LORIENT LVH44 FIRE DAMPER

FRL -/120/-, Appraisal: FCO 1869/2276 LORIENT

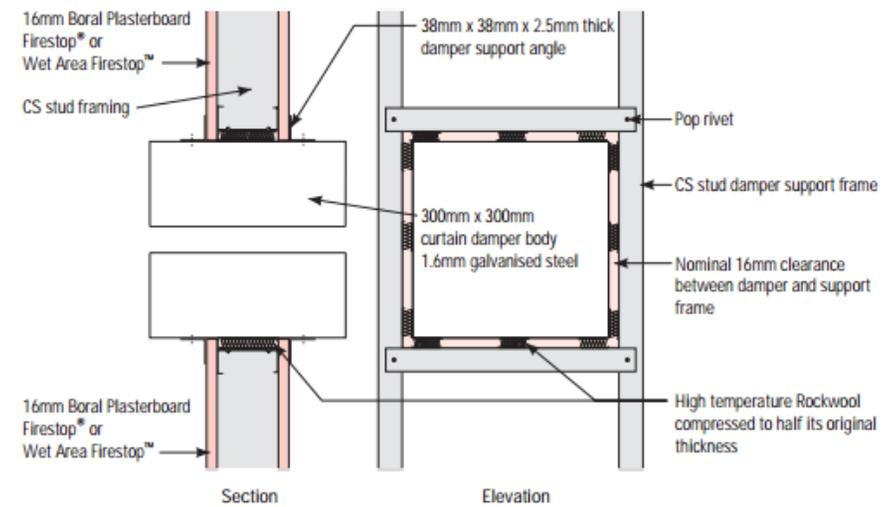


CSR Gyprock Fire Design Guide “The Red Book”

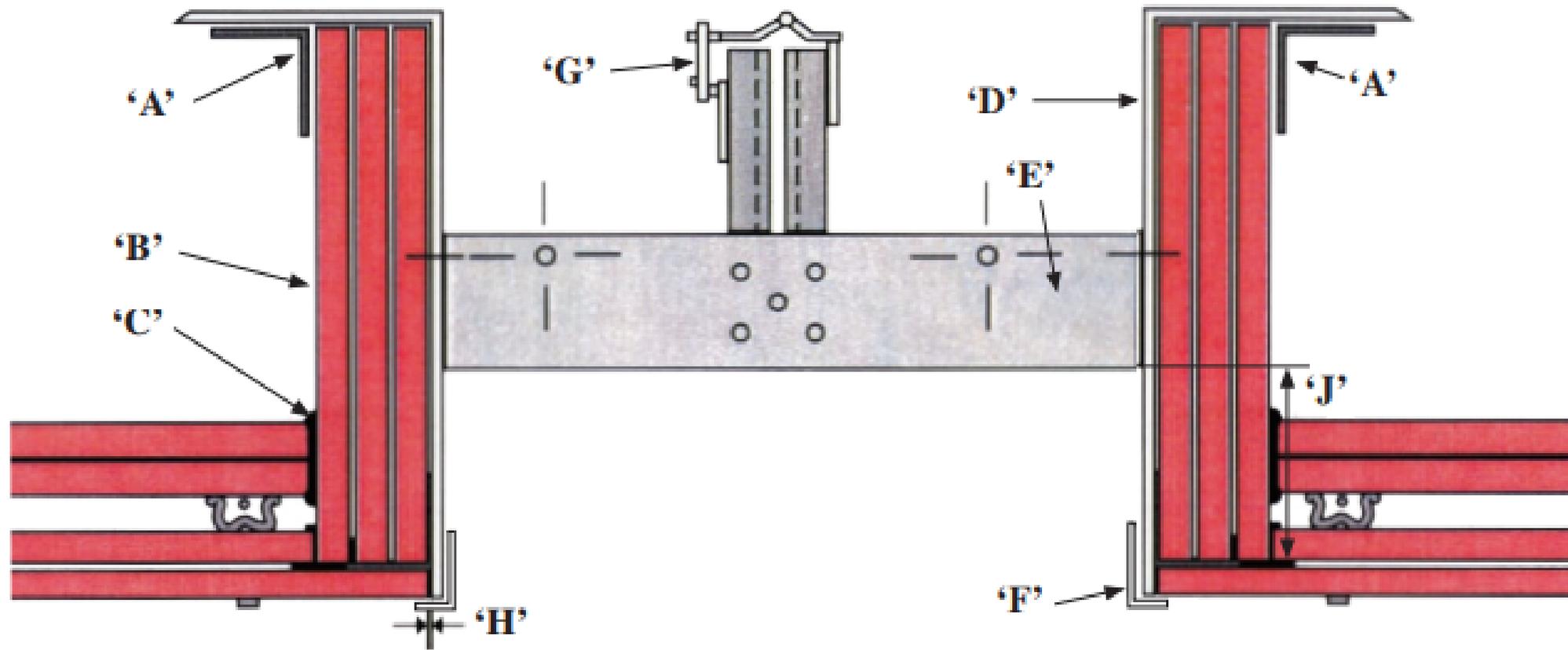
Fire Rated Steel Framed Walls - HVAC Penetrations



Typical Fire Damper Detail - FRL 60/60/60 Steel Stud Wall



Ceiling Fire Damper



LEGEND

'A' - RONDO part No 553. Continuous angle 35mm x 35mm x 0.75mm.

'B' - BORAL 16mm 'Firestop' plasterboard (3 x vertical Layers). (Part of damper assembly 5691A).

'C' - Fire rated mastic to be used in sealing all joining gaps.

'D' - 0.7mm Galvanised Steel Duct. (Part of damper assembly 5691A).

'E' - BULLOCK Model 5691 Ceiling Radiation / Fire Damper. (5691 assembly comes complete with plasterboard)

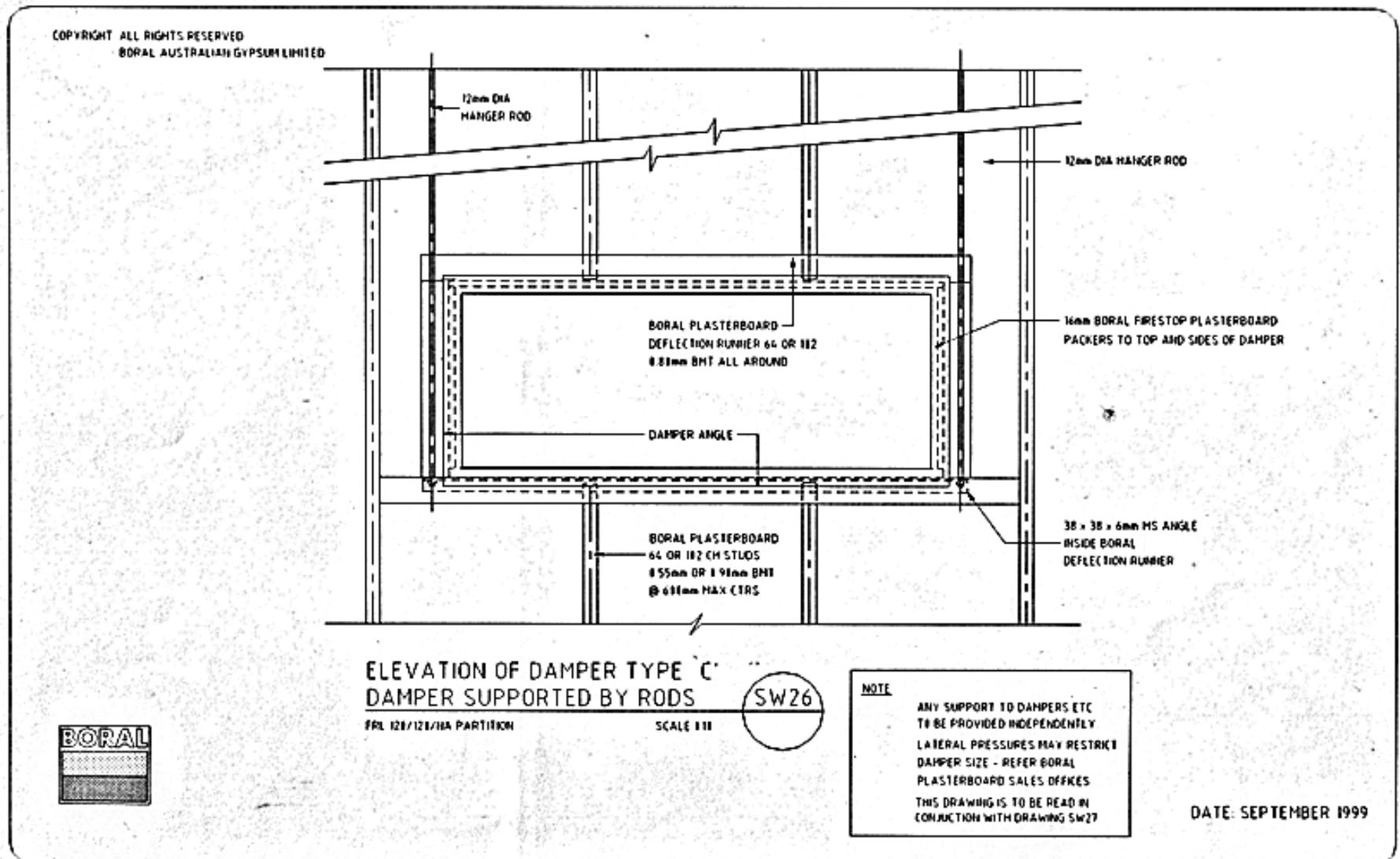
'F' - Duct retaining angle (Bottom turn out to be a minimum of 15mm).

'G' - UL33 Fusible Link.

'H' - Maximum gap between duct drop underside sheet is to be 5mm. Seal with fire rated mastic.

'J' - Maximum distance is 92mm.

Box frame supported by brooker rods are encased within the FR lightweight walls, thereby the structural integrity retains its adequacy.



lib: (C) wa 1b79/ignivmilitid: 144/101

53102903

BORAL

TECHNICAL CENTRE
676 Lorimer Street Port Melbourne AUSTRALIA 3207
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Technical Help Desk Freecall 1800 811 222

REVISION	DESCRIPTION	BY	DATE

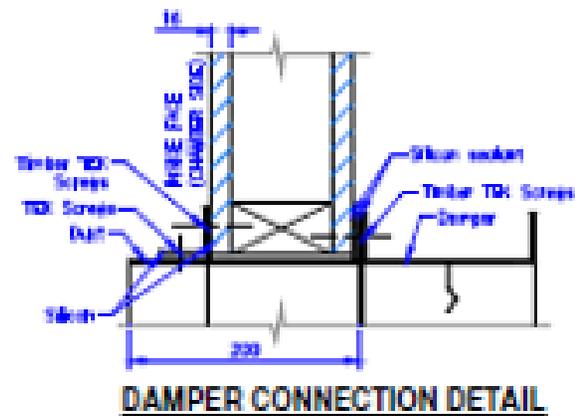
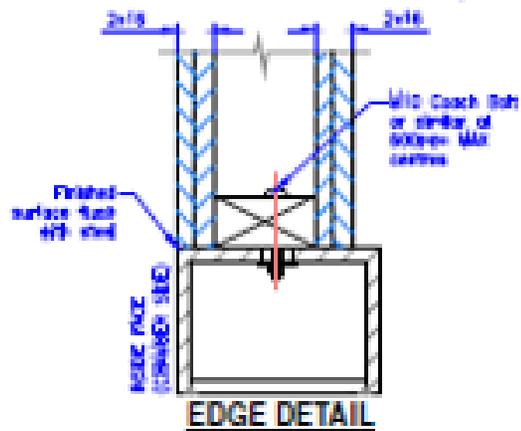
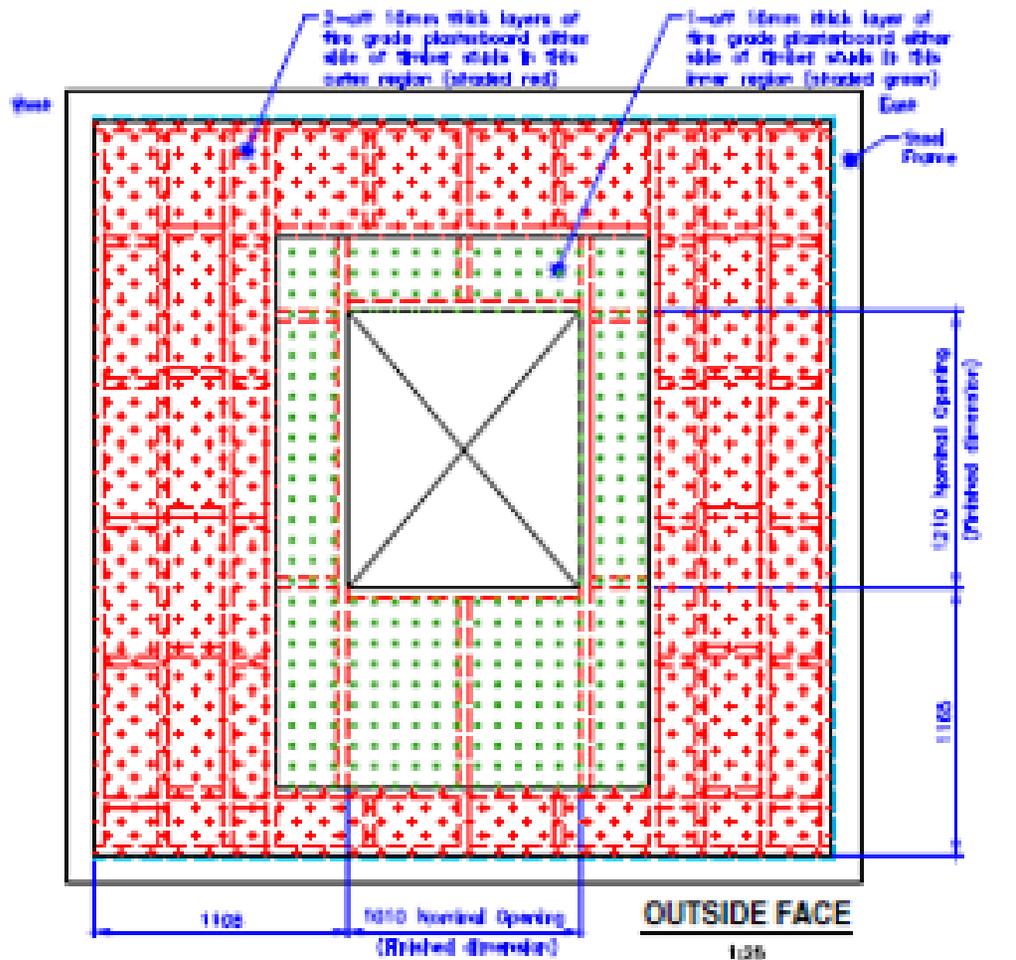
DISCLAIMER: THE INFORMATION CONTAINED IN THIS DRAWING MAY ONLY BE USED IN CONJUNCTION WITH BORAL AUSTRALIAN GYPSUM LIMITED APPROVED MATERIALS AND SYSTEMS AND IS SUBJECT TO CHANGE WITHOUT NOTICE

DRAWN BY	CHECKED BY	SCALE	DATE
	WGP	1:1	SEP 1999

DRAWING TITLE: ELEVATION OF DAMPER TYPE 'C'

DRAWING NUMBER: SW26

REVISION:



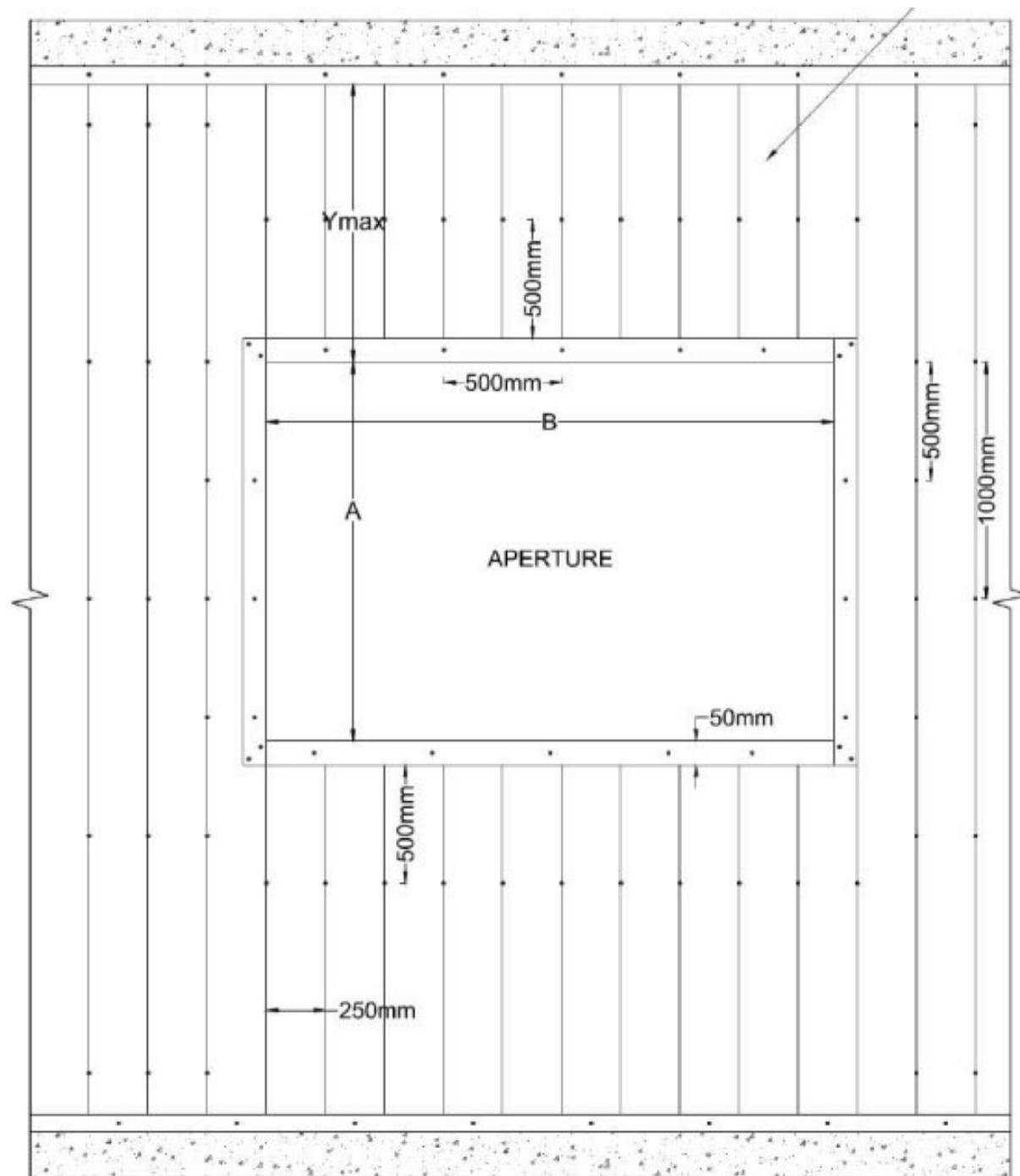


Figure 1 –Typical vertical Speedpanel details around single apertures

**Compromised access to
Service fire damper**

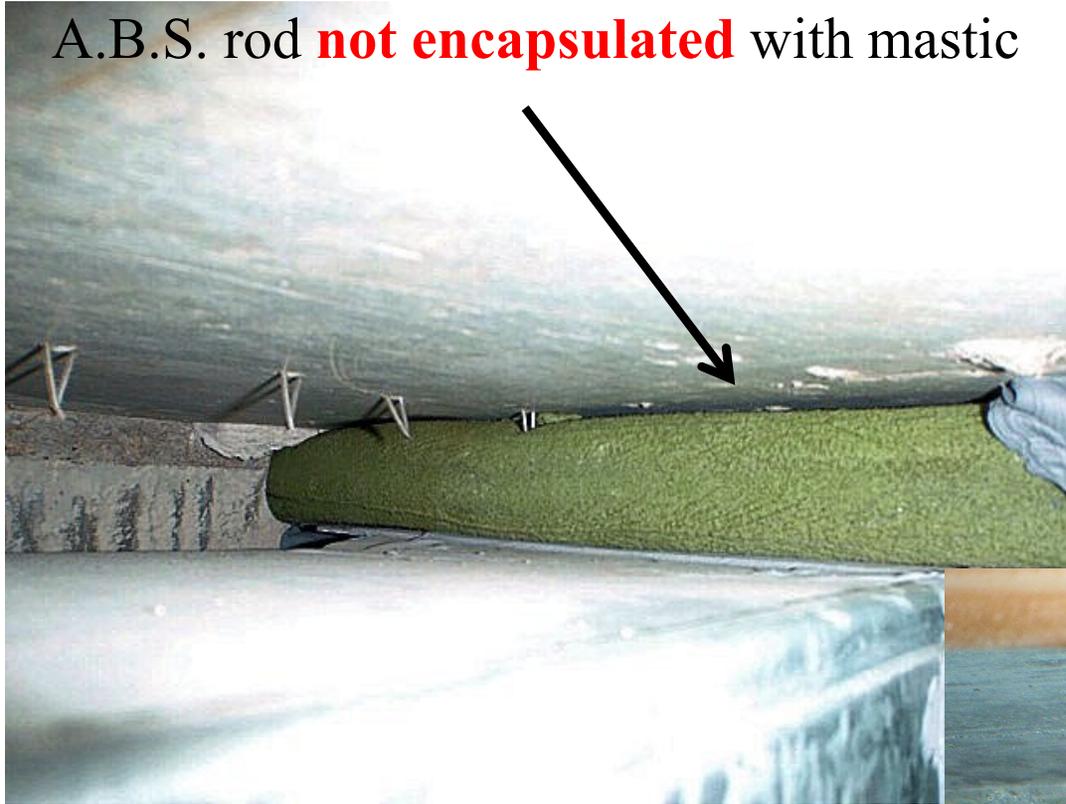
*No separation / compromised
Note no thermal barrier protection
and conduit visibly through slab
without collar*



But dispensation **MUST** be applied to really Essential Services?

Beer

A.B.S. rod **not encapsulated** with mastic



Not the way to retain a damper

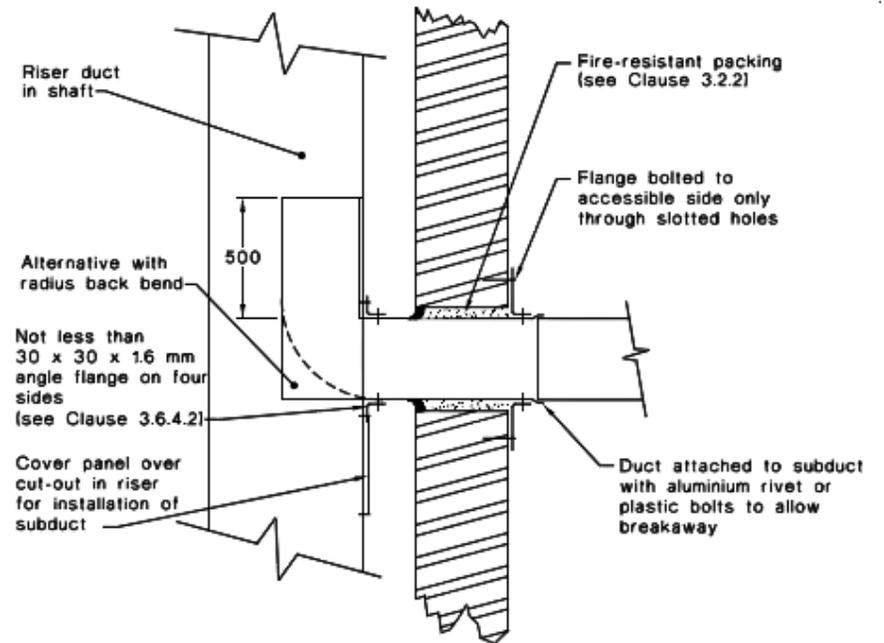


Note that expanding sealants have never been approved for this application and this product is only approved as tested to AS 1530.4 between masonry to masonry.

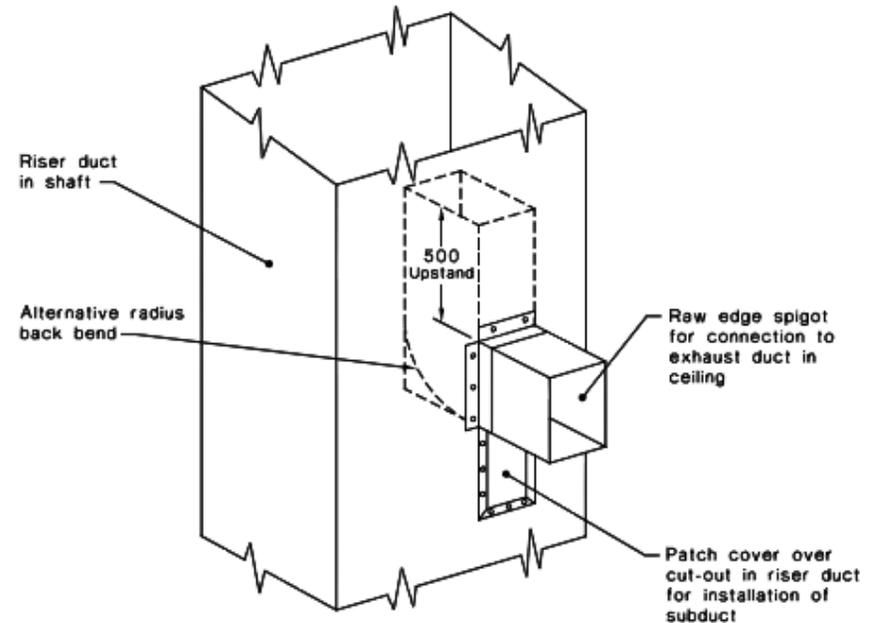
This fire damper was not appropriately retained







SECTIONAL ELEVATION



ISOMETRIC VIEW

DIMENSIONS IN MILLIMETRES

MAINTENANCE REQUIREMENTS OF AS 1851-2012 Sect.13

- Check **20%** each year, so **all are checked** every **5 yrs**
- Check for obstructions that might prevent closure
- Confirm position correct - Damper blade & DAMPER
- Check for corrosion
- Check that mounting is sound
- Where relevant check integrity of wall/floor
- Check for correct operation – Release and Reset

MINIMUM MAINTENANCE REQUIREMENTS

- **Access** to the damper to inspect & test
- Is the damper **still there**?
- Has the mechanism corroded so it **can't operate**?
- Will the **blade** still close freely & latch?
- Will dust, lint, dirt or corrosion prevent operation?
- Has dust or lint clogged an intumescent damper?
- Will the casing still retain the damper in the wall/floor and still guide the blades? Has it been corroded or dislodged?

EXTRA MAINTENANCE NEEDED AFTER BUILDING WORK

- Is the Damper still retained effectively.
- Has integrity of the wall/floor been **breached** by other trades or builder's work adjacent to the damper?
- Has recent work otherwise adversely affected the damper?

CHECKLISTS

FIRE DAMPER INSTALLATION CHECKLIST

A FOLLOW THE WRITTEN INSTRUCTIONS

1. Read and understand Australian Standards
AS/NZS 1668.1-2015 AS 1682.1-2015 & AS 1682.2-2015
2. Follow **manufacturer's** installation instructions,
particularly important with “special” fire dampers or
alternative solutions.
3. Check the damper is **labelled**, and that label information
matches the installation

FIRE DAMPER INSTALLATION CHECKLIST

B PRINCIPLES OF INSTALLATION

1. Penetration **must** comply with wall manufacturer's instructions – especially with lightweight walls
2. FD must **not reduce FRL** of surrounding structure
3. Make sure **duct** either **can't fall away** or can fall **without taking the fire damper** or affecting its operation
4. FD casing **must fully penetrate** surrounding structure
5. FD **must be retained** on BOTH sides of structure OR on accessible side by bolts through flanges

FIRE DAMPER INSTALLATION CHECKLIST

B PRINCIPLES OF INSTALLATION (continued)

6. Retaining flanges must be **butted** against structure & **bolted** to FD
7. Flange width to be **twice the clearance** around opening
8. **Pack** space between FD & structure “*to prevent free flow of combustion products*”
9. Allow adequate **clearance all round**, for expansion
10. When closed, FD blade & pivot must be **within** the surrounding structure

FIRE DAMPER INSTALLATION CHECKLIST

B PRINCIPLES OF INSTALLATION (continued)

11. FD casing **must not extend** beyond wall or floor by more than 150mm (*unless motorised*)
12. Mechanical action FDs **must have a thermal release** link
13. Install FD so that gravity & airflow **don't impede** closure
14. FD must be **installed fully open**, & close fully on release
15. **Orientation** of FD must be correct (Airflow, Up, Down)
16. Provide enough **access** for maintenance & release/reset

FIRE DAMPER INSTALLATION CHECKLIST

B PRINCIPLES OF INSTALLATION (continued)

17. Remove temporary supports after installation
18. Unless it meets the FRL **Insulation** criteria, ductwork above a floor-mounted FD **must be insulated** or enclosed in masonry (Refer AS/NZS 1668.1-2015)
19. **Remove construction debris** from FD & adjacent ducts
20. Is installers label visible, legible and completed
21. **Record** the checking/commissioning process of the original installation on the attached Inspection Form

General checks applying to all fire & smoke dampers:

Signoff: 1 All fire dampers selected to meet the FRL & construction requirements of surrounding structure and comply with the prototype test.

Signoff: 2 All fire dampers installed in accordance with manufacturer's specified instructions where applicable and AS1682.2.

For each FD:

-  FIRE DAMPER NUMBER & LOCATION
DRAWING REFERENCE
-  DAMPER MANUFACTURER & TYPE
-  FIRE DAMPER TEST CERTIFICATE /
OEM INSTALLATION REFERENCE
-  OPENING IN FIRE RATED CONSTRUCTION
CORRECT (inspected by wall/floor builder)
-  DAMPER WHOLLY WITHIN WALL,
CASING SQUARE AND TRUE

General checks applying to all fire & smoke dampers:

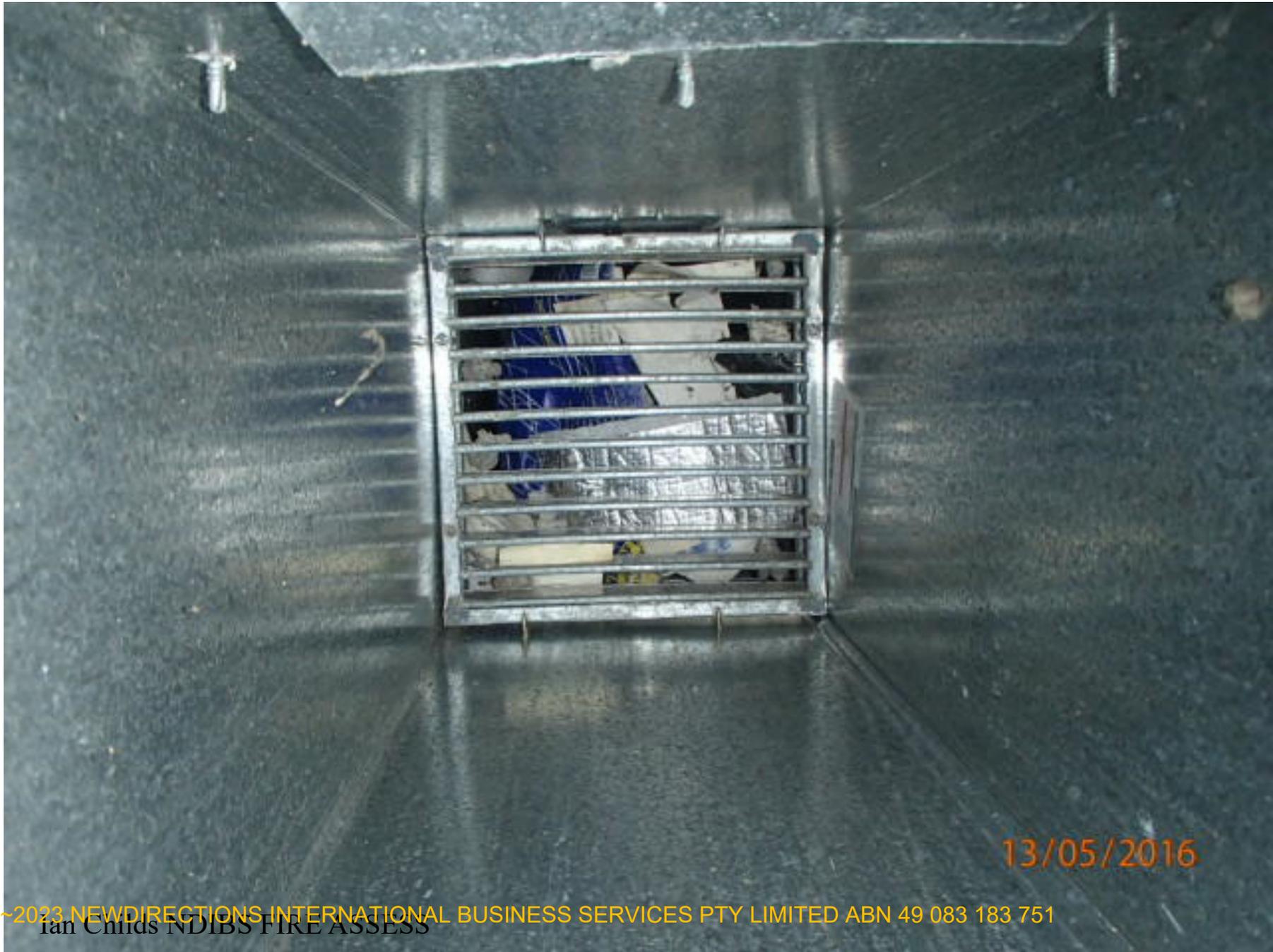
For each FD:

- 🔥 DAMPER FULLY OPEN; BLADES FREE TO CLOSE & LATCH
- 🔥 DAMPER ORIENTATION & AIRFLOW DIRECTION CORRECT
- 🔥 ACCESS PROVIDED – INSTALLERS LABEL COMPLETE
- 🔥 FUSIBLE LINK FITTED, TEMP RATING CORRECT, MFG LABEL FITTED
- 🔥 PACKING INSTALLED AROUND CASING WHERE REQUIRED
- 🔥 FLANGES ATTACHED CORRECTLY
- 🔥 DUCT & BREAKAWAY ATTACHED CORRECTLY
- 🔥 CERTIFIED IN ACCORDANCE WITH THE FIRE TEST REPORT

General checks applying to all fire & smoke dampers:

For each Project:

- 🔥 Marked up drawings detailing fire walls, smoke walls and fire and smoke damper locations with reference ID & schedule
- 🔥 Copies of all AS1530.4-2014 Test Certificates for fire dampers
- 🔥 Copies of all AS1530.7-1998 Test Certificates for smoke dampers
- 🔥 Copies of Test Sponsor (Manufacturer) Installation instructions & declaration that by the installer that they have followed such details
- 🔥 Where any variation from the installation instructions, an endorsement letter (by an accredited Testing Authority) or other suitable evidence offsetting the non-conformance.
Note that Fire Engineers are not so accredited
- 🔥 Have you sufficient evidence provided in the O&M Manual to provide such comfort to those who conduct fire safety assessments, that they shall never disrupt that installation (photographic evidence and checklists).
- 🔥 Maintenance to manufacturer or Australian Standards (provided in searchable pdf electronic format)



13/05/2016







DAMPER MAINTENANCE CHECKLIST

- A FOLLOW THE WRITTEN INSTRUCTIONS & LOOK OUT FOR “SPECIALS”**
- 1. Read and understand Australian Standard AS 1682.2**
 - 2. Read and understand Australian Standard AS1851-2012 Sect.13**
 - 3. Check the O & M Manual for special installation details or dispensations**
 - 4. Check that there is a schedule or drawing showing all fire & smoke dampers in the building and a 5 year inspection plan**

DAMPER MAINTENANCE CHECKLIST

B CHECKS REQUIRED FOR ROUTINE MAINTENANCE

1. Is **access** adequate for maintenance and Release/Reset?
2. Is the damper **still there**, or if not where is approval for removal?
3. Has **corrosion** of casing, blade or linkage rendered the damper ineffective?
4. Make sure there are **no obstructions** preventing closure, and gravity or airflow will not impede closure.

DAMPER MAINTENANCE CHECKLIST

B CHECKS REQUIRED FOR ROUTINE MAINTENANCE (cont)

5. A Fire Damper should be **fully open** and able to **fully close (and latch)** when released. Can it be reset?
6. There should be clearance all round for expansion. **Has any recent work** interfered with expansion clearance?

DAMPER MAINTENANCE CHECKLIST

C IF THE DAMPERS HAVE NOT BEEN CHECKED BEFORE OR WHERE SUBJECT TO RECENT WORK NEARBY

- 1. Check** that damper is labelled & label suits installation
2. Is space between FD & structure **packed** “ *to prevent free flow of combustion products*”?
3. Is FD **retained** on both sides by flanges, OR on accessible side by flanges bolted to the structure?
4. Are the mounting flanges **twice the width** of the space between casing and structure?

DAMPER MAINTENANCE CHECKLIST

- C IF THE DAMPERS HAVE NOT BEEN CHECKED BEFORE OR SUBJECT TO RECENT WORK NEARBY (cont)**
5. Will connections between duct & FD **allow duct to collapse** without affecting FD?
 6. Does FD installation affect **FRL** of the surrounding structure?
 7. The FD must be fully **within the wall/floor** when closed.
 8. The FD casing should **not extend beyond** wall/floor by more than 150mm or where motorised, 250mm on motor side only.

General checks applying to all fire dampers:

Signoff: 1 This assessment presumes that the original fire damper and installation methods were compatible with the FRL of the surrounding fire resistive structure and complied with those standards applying to the original installation as well as the fire damper manufacturer's special instructions, where applicable..

Signoff: 2 Wall and floor elements to be inspected by personnel who are competent to assess fire resistant structures.

Signoff: 3 Assessor has reviewed against commissioning data and this is available in the at site Operations & Maintenance Manual

Year FD inspected, Year Structure inspected, year approved
Schedule should list all FD's and when they will next be tested.

General checks applying to all fire dampers:

For each FD:

- 🔥 FIRE DAMPER NUMBER
- 🔥 FIRE DAMPER LOCATION
- 🔥 DAMPER BLADES FULLY OPEN
- 🔥 FUSIBLE LINK
- 🔥 FREE OF OBSTRUCTIONS
- 🔥 MOUNTING SOUND & NO CORROSION
- 🔥 INTEGRITY OF SURROUNDING STRUCTURE

Where subject to recent works or never previously assessed.

- 🔥 AIRFLOW DIRECTION
- 🔥 PACKING + FLANGES + BREAKAWAY
- 🔥 OPENING (HOLE) WELL FORMED

SMOKE DAMPER & AIR DAMPER (HIGH TEMPERATURE) SERVICING

- Is the Smoke Damper mechanisms accessible?
- Has integrity of the smoke wall (or shaft) been **breached** by other trades or builder's work adjacent to the SD or AD_(HT)?
- Is the integrity of the ductwork and shrouds intact?
- Has recent work otherwise adversely affected the Smoke Damper?

SMOKE DAMPER & AIR DAMPER (HIGH TEMPERATURE) SERVICING

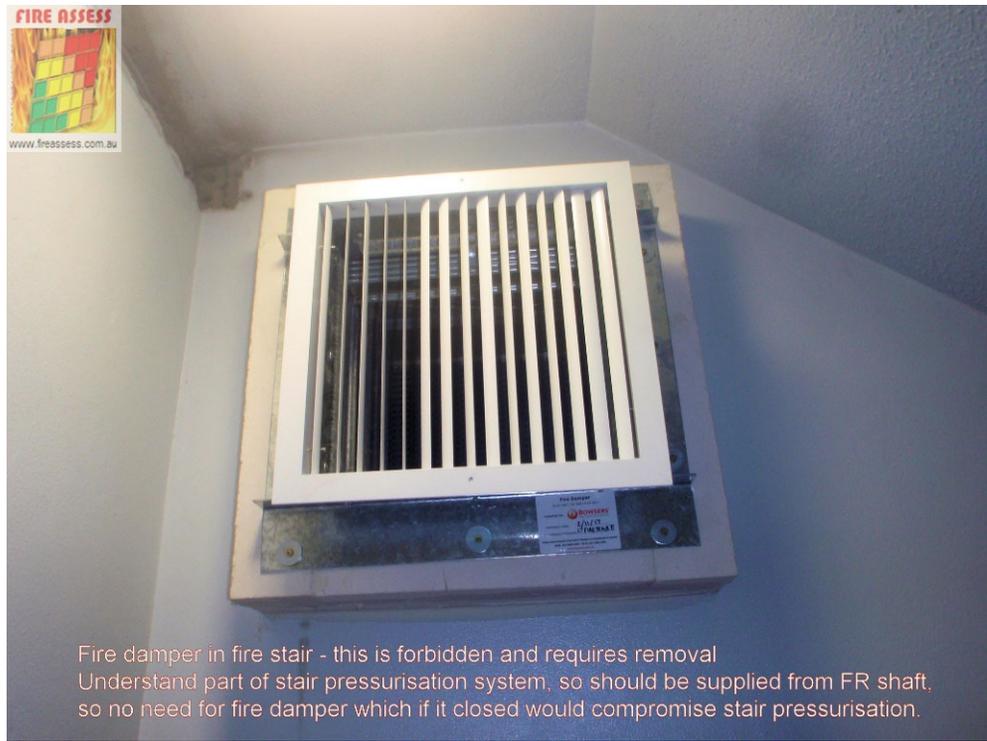
- Does the smoke damper or air damper (high temperature) **operate** as detailed in the fire interface matrix and smoke control strategy?
- *Remember that the operation of these elements is tested as part of the annual **full function interface testing** – so smoke dampers and air dampers (high temperature) get tested for performance **annually**.*

END OF PAPER No. 5





Ian Childs NDIBS FIRE ASSESS



Fire damper in fire stair - this is forbidden and requires removal. Understand part of stair pressurisation system, so should be supplied from FR shaft, so no need for fire damper which if it closed would compromise stair pressurisation.



Non compliant Kitchen Exhaust System



Non-compliant Kitchen Exhaust System



Fire Wall thermal bridge



Non compliant foam





Smoke spill – NOT!





Non compliant foam



Tek screw holding damper open

Tek screws hold damper open



Angles, packing???











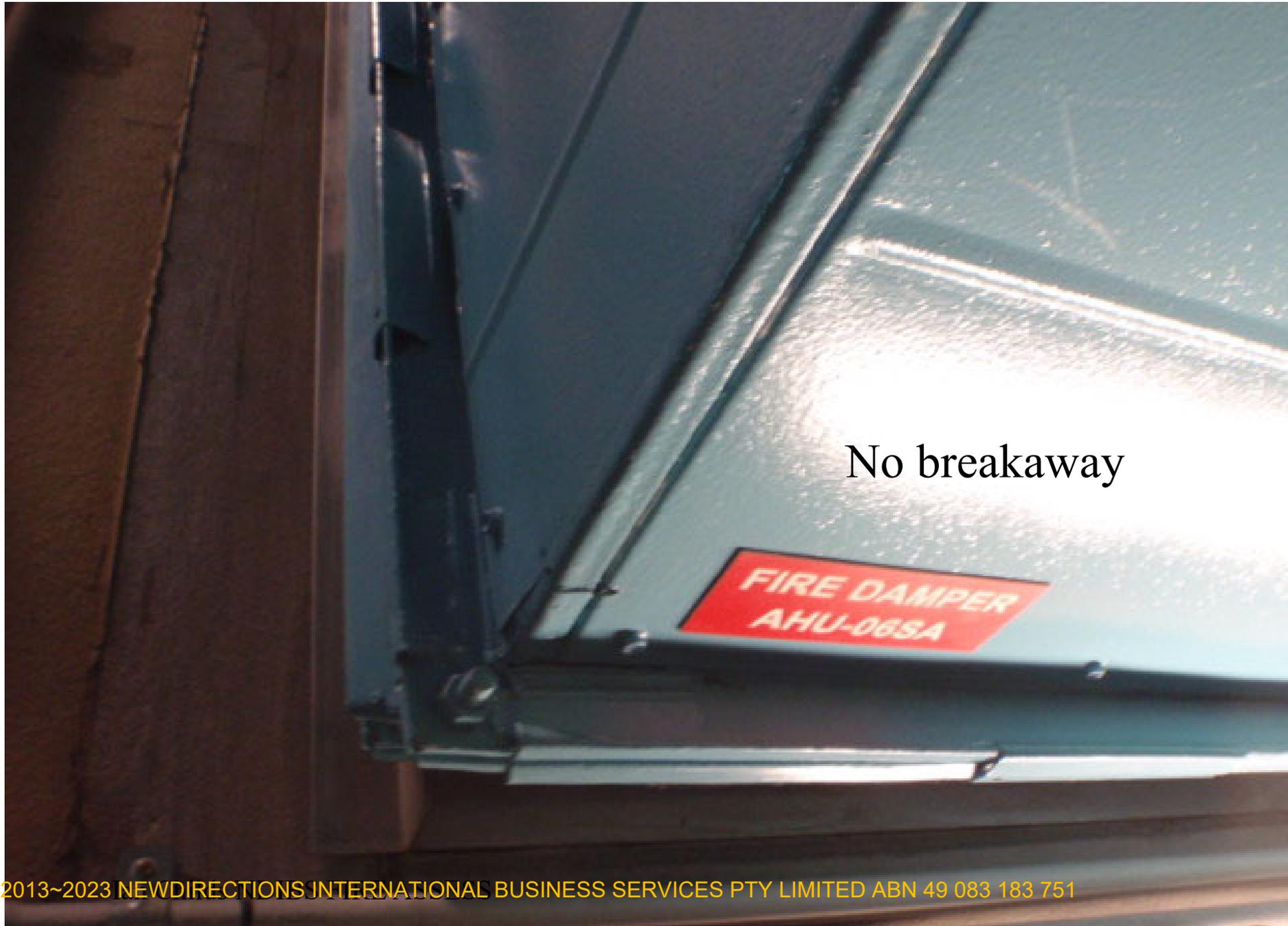




Rick Foster – Fire & Security Consulting



Vertical Service riser with
Polystyrene is not fire rated



No breakaway

FIRE DAMPER
AHU-06SA

New fire damper through lightweight rated wall
Without framing or packing







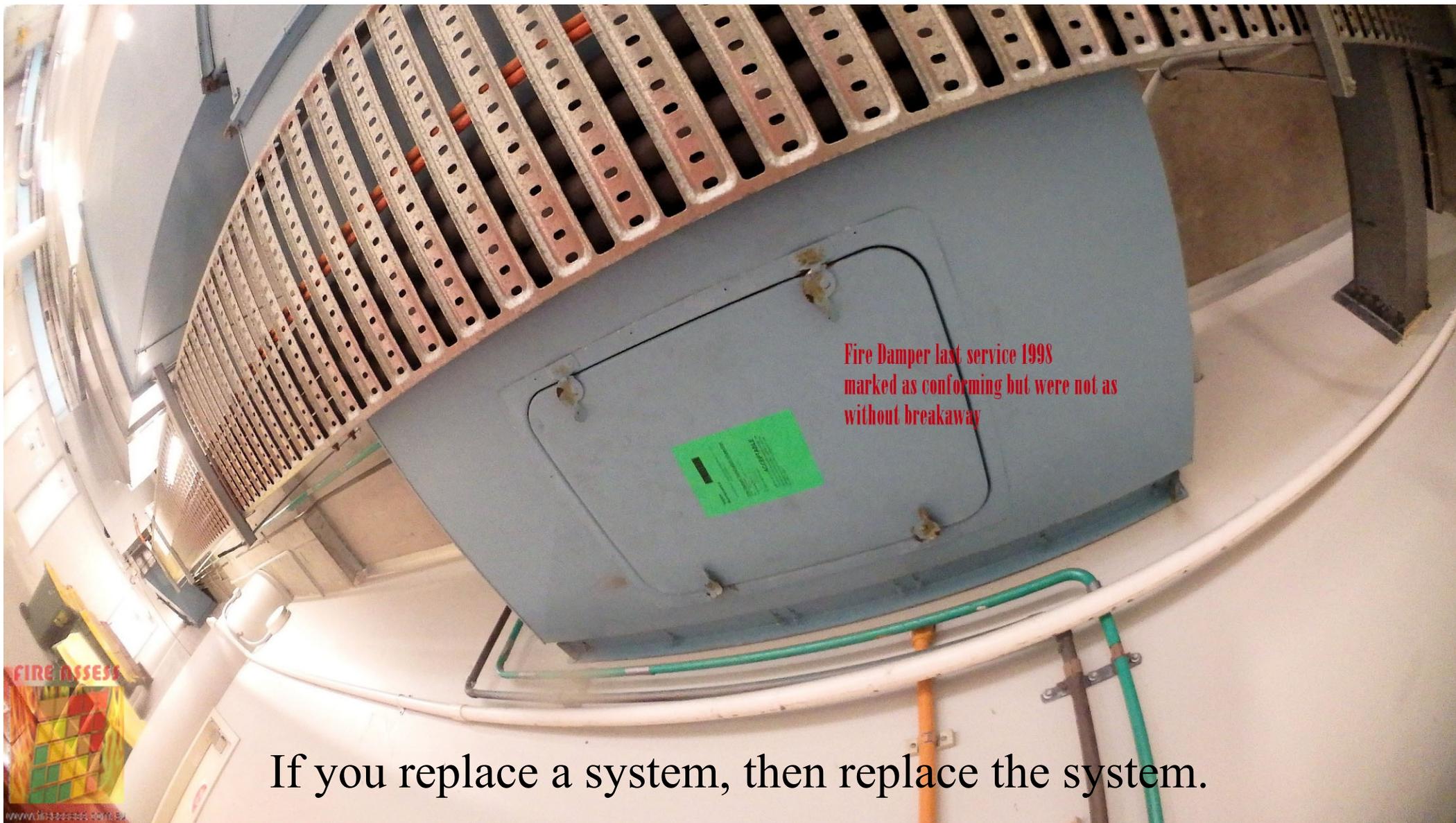
Mandating
AS1851 in
Legislation
should stop
this!



18-03-2019 14:36

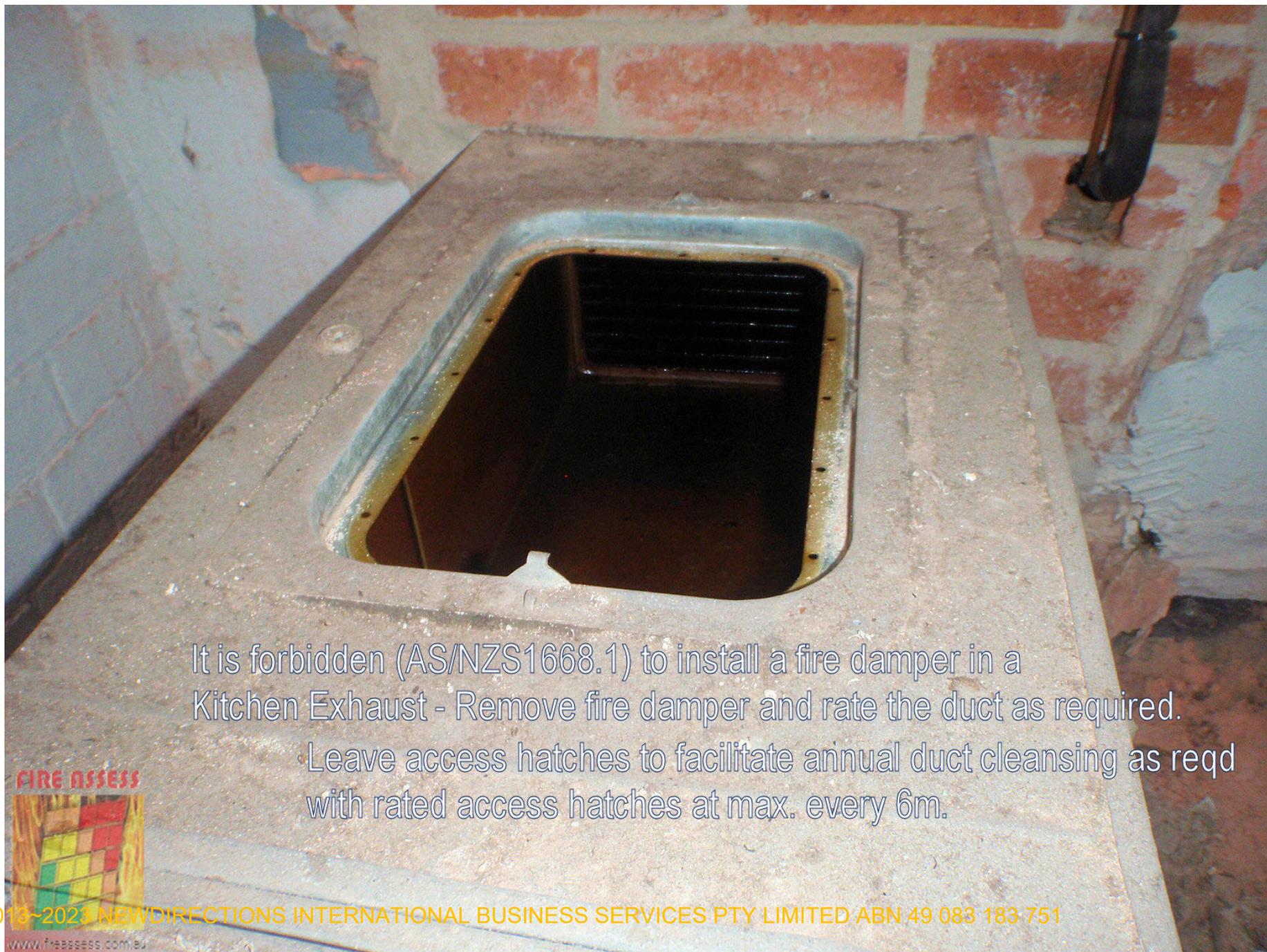


If you see it,
YOU MUST
Report it!



Fire Damper last service 1998
marked as conforming but were not as
without breakaway

If you replace a system, then replace the system.



It is forbidden (AS/NZS1668.1) to install a fire damper in a Kitchen Exhaust - Remove fire damper and rate the duct as required.

Leave access hatches to facilitate annual duct cleansing as reqd with rated access hatches at max. every 6m.





Intumescent fire damper inappropriately installed within the kitchen exhaust duct

FIRE ASSESS

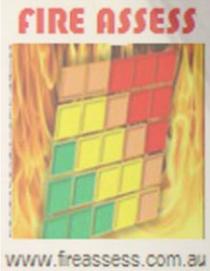






Too large





Fire damper in fire stair - this is forbidden and requires removal
Understand part of stair pressurisation system, so should be supplied from FR shaft,
so no need for fire damper which if it closed would compromise stair pressurisation.



Non compliant fire damper to AS/NZS1668.1-1998 AS1682.2-1990





Curtain fire damper mounted horizontally without spring - non-compliant



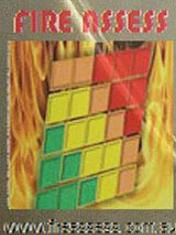
Upside down



Yes – it really was upside down.



*Fire Damper
installation
non-conforming to
AS/NZS1668.1-2015 &
AS1682.2-2015*





THAT'S NOT MY JOB!

This is a story about four people named: **Everybody**, **Somebody**, **Anybody** and **Nobody**. There was an important job to be done and **Everybody** was sure that **Somebody** would do it. **Anybody** could have done it, but **Nobody** did it. **Somebody** got angry about that, because it was **Everybody's** job. **Everybody** thought **Anybody** could do it, but **Nobody** realised that **Everybody** wouldn't do it. It ended up that **Everybody** blamed **Somebody** when **Nobody** did what **Anybody** could have done.

