LORIENT

LVH44 Intumescent Fire Dampers

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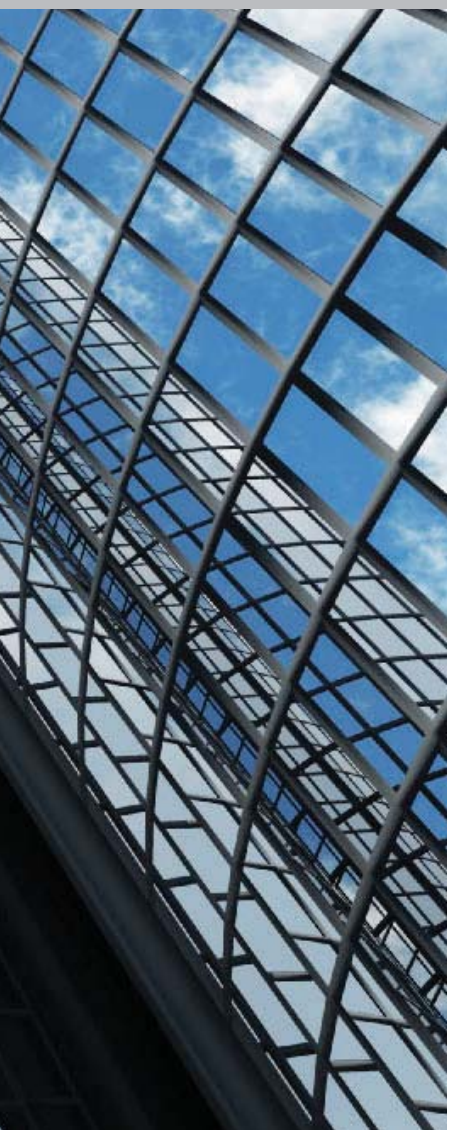
Original Lorient LVH44 Intumescent Fire Dampers

Fire and smoke protection measures are essential, life-saving precautions in a building. What's more, they protect the property from the devastating consequences of the fire itself, and the damaging effects of hot and cold smoke. So it's essential to get the product selection right, every time.

Lorient has an international reputation for designing and manufacturing a wide range of innovative sealing solutions for the containment of fire, smoke, sound and energy.

With over 35 years' of accumulated knowledge we pride ourselves on offering products that are designed to save lives, preserve property and enhance quality of life.

We recognise our responsibility to create well-designed products that will perform; products which are durable and reliable, and which genuinely improve the buildings they protect. By doing so, we can play our part in improving life safety, amenity and reducing building damage and loss.



Contents

LVH44 Intumescent Fire Dampers

Manufactured for over 25 years, the Original Lorient LVH44 Intumescent Fire Damper is the trusted, versatile fire containment solution.

Design Needs

Sub-dividing buildings into smaller fire resisting compartments is a recognised method to limit the spread of fire. Building a fire resistant wall or floor to construct an enclosed compartment is relatively simple. However, building design becomes much more complex when the compartments need to be linked for everyday use.

Ventilation through Ducting

Designers recognise the need for buildings to be well ventilated for the health and comfort of occupants. Frequent changes of air are required to flush out airborne infections, and warm and cool air needs to be circulated to maintain a comfortable temperature.

Experience has shown that ductwork can, in the event of fire, provide a conduit for fire, as well as the hot smoke and toxic gasses it produces.

As HVAC systems frequently penetrate fire compartment boundaries, it is these points that must be treated in an approved manner to preserve the integrity of the fire compartment.

The Lorient solution is to install a LVH44 intumescent fire damper into the duct at the point where it penetrates the fire resistant construction. This will effectively limit the spread of fire and restrict the passage of hot smoke and toxic gasses.

What are intumescent fire dampers and how do they work?

The Lorient LVH44 intumescent fire damper comprises a rigid galvanised steel framework that supports a series of evenly spaced reinforced parallel slats that contain an intumescent material.

Under normal circumstances they allow air to pass freely but a sudden increase in temperature, resulting from the presence of hot flames or gases, will cause the slats to expand to many times their original thickness fusing together to form a stable fire resistant barrier, which restricts fire and limits the spread of hot smoke and toxic gases.

Lorient Damper activated

Lorient Damper normal

LVH44 Intumescent Fire Dampers

Manufactured for over 25 years, Lorient LVH44 intumescent fire dampers are a recognised and well respected brand. Lorient is proud to continue to offer the LVH44 and LVH44C intumescent fire dampers to the Australian and New Zealand markets.

Australian Made

Manufactured in Sydney to the highest quality, Lorient LVH44 intumescent fire dampers are designed and approved for use in a host of different applications, providing a range of proven versatile solutions all in accordance with the latest Australian standards – see our system selector for full details.

AUSTRALIAN MADE®

Reliability

Lorient LVH44 intumescent fire dampers offer a rugged, reliable solid state design that unlike conventional mechanical fire dampers do not contain any moving parts.

Their symmetrical construction allows for bi-directional airflow and they are simply activated by a rise in temperature. The LVH44 fire damper produces a tightly sealed, highly insulative intumescent mass that provides a barrier to fire, and also restricts the spread of hot smoke and radiated heat.

Product Identification

All Lorient LVH44 intumescent fire dampers are supplied with Lorient branded foil to allow for easy identification.

LVH44 & LVH44C Intumescent Fire Dampers

System features include:

Lorient intumescent fire dampers offer a rugged, reliable solid state design, that unlike conventional mechanical fire dampers do not contain any moving parts.

Tested and approved in accordance with the very latest standards they offer designers, specifiers and mechanical contractors a simple and compliant fire damper solution.

Lorient LVH Intumescent Fire Damper System Selector

System Number	Building Element	Product	Max Size
Wall 1	Masonry or Concrete wall	LVH44	1.2m x 2.4m (2.8sqm)
Wall 2	Masonry or Concrete wall	LVH44	1.2m x 2.4m (2.8sqm)
Wall 3	Masonry or Concrete wall	LVH44	1.2m x 2.4m (2.8sqm)
Wall 4	Masonry or Concrete wall	LVH44	1.2m x 2.4m (2.8sqm)
Wall 5	Masonry or Concrete wall	LVH44	1.2m x 2.4m (2.8sqm)
Wall 6	Masonry or Concrete wall	LVH44C Circular	Up to 450mm diameter
Wall 7	CSR Hebel® wall	LVH44	450mm x 450mm
Wall 8	CSR Hebel® wall	LVH44	450mm x 450mm
Wall 9	CSR Hebel® wall	LVH44C Circular	Up to 450mm diameter
Wall 10	CSR Hebel® wall	LVH44	450mm x 450mm
Wall 11	CSR Hebel® wall	LVH44C Circular	Up to 450mm diameter
Stud wall 1	FR Plasterboard steel stud wall	LVH44	600mm x 600mm
Stud wall 2	FR Plasterboard steel stud wall	LVH44	600mm x 600mm
Stud wall 3	FR Plasterboard steel stud wall	LVH44	600mm x 600mm
Stud wall 4	FR Plasterboard steel stud wall	LVH44	600mm x 600mm
Stud wall 5	FR Plasterboard steel stud wall	LVH44	600mm x 600mm
Stud wall 6	FR Plasterboard steel stud wall	LVH44	600mm x 600mm
Stud wall 7	FR Plasterboard steel stud wall	LVH44	450mm x 450mm
Stud wall 8	FR Plasterboard timber stud wall	LVH44	450mm x 450mm
Stud wall 9	FR Plasterboard timber stud wall	LVH44	450mm x 450mm
Stud wall 10	FR Plasterboard steel stud wall	LVH44C Circular	Up to 450mm diameter
Stud wall 11	FR Plasterboard steel stud wall	LVH44C Circular	Up to 450mm diameter
Stud wall 12	FR Plasterboard steel stud wall	LVH44C Circular	Up to 450mm diameter
Stud wall 13	FR Plasterboard steel stud wall	LVH44C Circular	Up to 450mm diameter
Shaft wall 1	FR Plasterboard riser shaft wall	LVH44	600mm x 600mm
Shaft wall 2	FR Plasterboard riser shaft wall	LVH44	600mm x 600mm
Shaft wall 3	FR Plasterboard riser shaft wall	LVH44	600mm x 600mm
Shaft wall 4	FR Plasterboard laminated shaft wall	LVH44	450mm x 450mm
Shaft wall 5	FR Plasterboard laminated shaft wall	LVH44C Circular	Up to 450mm diameter

NOTE: Mechanical Services Engineers, Specifiers and Certifiers should always request access to manufacturers primary fire test approvals and satisfy themselves that these relate to the products they are specifying or certifying.

Lorient DOES NOT endorse the use of test reports which reference Lorient LVH44 fire dampers being used to support the certification of other manufacturers' intumescent fire damper products.

FRL	System Detail	Approval Reference	Standard Version
-/120/60	In duct angles both sides	CSIRO FCO 3127	AS1530.4 2014
-/120/60	In duct angles one side	CSIRO FCO 3127	AS1530.4 2014
-/120/60	In duct terminating with wall grille	CSIRO FCO 3127	AS1530.4 2014
-/120/60	In duct tight to slab	CSIRO FCO 3127	AS1530.4 2014
-/120/60	In duct tight to adjacent wall	CSIRO FCO 3127	AS1530.4 2014
-/120/60	In duct angles one side	EWFA 33233400	AS1530.4 2014
-/120/60	In duct angles both sides	EWFA 33233400	AS1530.4 2014
-/120/60	In duct angles one side	EWFA 33233400	AS1530.4 2014
-/120/60	In duct angles one side	EWFA 33233400	AS1530.4 2014
-/120/60	In duct angle to one side	EWFA 33233400	AS1530.4 2014
-/120/60	In duct angles one side	EWFA 33233400	AS1530.4 2014
-/60/-	13mm + 13mm steel stud wall	CSIRO FCO 3149	AS1530.4 2014
-/90/-	2 x 13mm + 13mm steel stud wall	CSIRO FCO 3149	AS1530.4 2014
-/120/-	2 x 13mm + 2 x 13mm steel stud wall	CSIRO FCO 3149	AS1530.4 2014
-/90/-	16mm + 16mm steel stud wall	CSIRO FCO 3149	AS1530.4 2014
-/120/-	2 x 16mm + 2 x 16mm steel stud wall	CSIRO FCO 3149	AS1530.4 2014
-/120/-	1 x 16mm + 2 x 16mm steel stud wall	CSIRO FCO 3149	AS1530.4 2014
-/120/60	2 x 13mm + 2 x 13mm steel stud wall	EWFA 33233400	AS1530.4 2014
-/120/60	2 x 13mm + 2 x 13mm timber stud wall	EWFA 33233400	AS1530.4 2014
-/120/60	2 x 16mm + 2 x 16mm timber stud wall	EWFA 33233400	AS1530.4 2014
-/120/60	2 x 13mm + 2 x 13mm steel stud wall	EWFA 33233400	AS1530.4 2014
-/120/60	2 x 16mm + 2 x 16mm steel stud wall	EWFA 33233400	AS1530.4 2014
-/90/60	16mm + 16mm steel stud wall	EWFA 33233400	AS1530.4 2014
-/60/60	13mm + 13mm steel stud wall	EWFA 33233400	AS1530.4 2014
-/120/-	25mm shaft wall liner + 16mm FR plasterboard	CSIRO FCO 3149	AS1530.4 2014
-/120/-	25mm shaft wall liner + 2 x 16mm FR plasterboard	CSIRO FCO 3149	AS1530.4 2014
-/120/-	25mm shaft wall liner + 2 x 13mm FR plasterboard	CSIRO FCO 3149	AS1530.4 2014
-/120/-	3 x 16mm laminated FR plasterboard	EWFA 33233400	AS1530.4 2014
-/120/-	3 x 16mm laminated	EWFA 33233400	AS1530.4 2014

Lorient LVH Intumescent Fire Damper System Selector

System Number	Building Element	Product	Max Size
Speedpanel® wall 1	51mm, 64mm, 78mm Speedpanel® wall	LVH44	1000mm x 1000mm
Speedpanel® wall 2	78mm Speedpanel® wall	LVH44	450mm x 450mm
Speedpanel® wall 3	78mm Speedpanel® wall	LVH44	450mm x 450mm
Speedpanel® wall 4	78mm Speedpanel® wall	LVH44C Circular	Up to 450mm diameter
Speedpanel® wall 5	78mm Speedpanel® wall	LVH44	450mm x 450mm
Pronto Panel™ 1	Pronto Panel™ wall	LVH44	450mm x 450mm
Pronto Panel™ 2	Pronto Panel™ wall	LVH44C Circular	Up to 450mm diameter
Pronto Panel™ 3	Pronto Panel™ wall	LVH44	450mm x 450mm
Pronto Panel™ 4	Pronto Panel™ wall	LVH44C Circular	Up to 450mm diameter
TBA Firefly Intubatt 1	Masonry, Concrete or Hebel® wall	LVH44	450mm x 450mm
TBA Firefly Intubatt 2	Masonry, Concrete or Hebel® wall	LVH44	450mm x 450mm
TBA Firefly Intubatt 3	FR Plasterboard stud wall	LVH44	450mm x 450mm
TBA Firefly Intubatt 4	FR Plasterboard stud wall	LVH44	450mm x 450mm
TBA Firefly Intubatt 5	FR Plasterboard stud wall	LVH44	450mm x 450mm
TBA Firefly Intubatt 6	Speedpanel® wall	LVH44	450mm x 450mm
Promat wall 1	Vermiculux or Promatect® board	LVH44	800mm x 800mm
Promat wall 2	Vermiculux or Promatect® board	LVH44	800mm x 800mm
Promat slab 3	Vermiculux or Promatect® board	LVH44	800mm x 800mm
Promat slab 4	Vermiculux or Promatect® board	LVH44	800mm x 800mm
Promat slab 5	Vermiculux or Promatect® board	LVH44	800mm x 800mm
Ceiling 1	60/60/60 RISF Plasterboard ceiling	LVH44	500mm x 500mm
Ceiling 2	60/60/60 RISF Plasterboard ceiling	LVH44	450mm x 450mm
Ceiling 3	60/60/60 RISF Plasterboard ceiling	LVH44C Circular	150mm diameter
Fire Door 1	E-core fire doors	LVH-Door	600mm x 300mm, 450mm x 450mm
Fire Door 2	Firecore TVC fire doors	LVH-Door	600mm x 300mm, 450mm x 450mm
Fire Door 3	Pyropanel FR, Pyrolite & Pandor fire doors	LVH-Door	600mm x 600mm, 600mm x 300mm, 450mm x 450mm

NOTE: Mechanical Services Engineers, Specifiers and Certifiers should always request access to manufacturers primary fire test approvals and satisfy themselves that these relate to the products they are specifying or certifying.

Lorient DOES NOT endorse the use of test reports which reference Lorient LVH44 fire dampers being used to support the certification of other manufacturers' intumescent fire damper products.

FRL	System Detail	Approval Reference	Standard Version
up to -/120/-	General installation detail	EWFA RIR 21622-24	AS1530.4 2005
-/120/30	In duct angles both sides	EWFA 33233400	AS1530.4 2014
-/120/30	In duct angles one side	EWFA 33233400	AS1530.4 2014
-/120/60	In duct angles one side	EWFA 33233400	AS1530.4 2014
-/120/30	Mounted in wall with eggcrate cover grille	EWFA 33090200	AS1530.4 2005
-/60/60	In duct angles both sides	EWFA 33233400	AS1530.4 2014
-/60/60	In duct angles one side	EWFA 33233400	AS1530.4 2014
-/120/60	In duct angles both sides	EWFA 33233400	AS1530.4 2014
-/120/60	In duct angles one side	EWFA 33233400	AS1530.4 2014
-/120/120	Intubatt & LVH44 fitted in wall aperture	EXOVA RIR 34088500	AS1530.4 2005
-/120/120	Intubatt & LVH44 overlapping wall aperture	EXOVA RIR 34088500	AS1530.4 2005
-/120/120	Intubatt & LVH44 fitted in wall aperture	EXOVA RIR 34088500	AS1530.4 2005
-/120/120	Intubatt & LVH44 overlapping wall aperture	EXOVA RIR 34088500	AS1530.4 2005
-/120/120	Intubatt & LVH44 fitted in Intubatt lined aperture	EXOVA RIR 34088500	AS1530.4 2005
-/120/120	Intubatt & LVH44 overlapping wall aperture	EXOVA RIR 34088500	AS1530.4 2005
-/120/-	Mounted in board in wall	BRANZ FAR 3404	AS1530.4 2005
-/120/-	Mounted over aperture	BRANZ FAR 3404	AS1530.4 2005
-/120/-	Mounted over aperture in slab	BRANZ FAR 3404	AS1530.4 2005
-/120/-	Mounted in aperture in slab	BRANZ FAR 4068	AS1530.4 2005
-/120/-	Mounted to underside of slab aperture	BRANZ FAR 4068	AS1530.4 2005
60/60/60 RISF 60 min	Lightweight clad plenum box	BRANZ 4581	AS1530.4 2014
60/60/60 RISF 60 min	Plasterboard clad plenum box	BRANZ 4581	AS1530.4 2014
60/60/60 RISF 60 min	Ceiling installation suitable for in-line fans	BRANZ FP5859	AS1530.4 2014
-120/30	Mini & Maxi doors up to 3 grilles per leaf	BRANZ FAR 3379	AS1530.4 1990
-/120/30	Mini & Maxi doors up to 1 grille per leaf	CSIRO FCO 3064	AS1530.4 1997
Up to -/240/30	Mini & Maxi doors up to 2 grilles per leaf	EWFA 27704400	AS1530.4 2005

Standards & Regulatory Requirements

In Australia, building construction is regulated under a framework of provisions detailed within the National Construction Code and associated Building Code of Australia. These codes set out a uniform set of technical provisions that allow for the design and construction of buildings; they also make reference to a number of Australian and International standards to ensure that materials, systems, products and services provide a consistent and quantifiable performance level to ensure the safety of occupants in the event of a fire.

NCC BCA 2016 Section C3.15 (b)

This section requires that ventilation and air-conditioning ducts or associated equipment are installed in accordance with AS 1668.1.

AS1668.1 2015: The Use of Ventilation & Air Conditioning in Buildings - Part 1: Fire & Smoke Control in Buildings

This recently revised standard sets out the minimum requirements for the design, construction, installation and commissioning of mechanical smoke control systems in buildings and requires that fire dampers – both mechanical and intumescent types are manufactured and installed in accordance with AS1682.1:2015 and AS1682.2: 2015.

AS1682.1 2015: Fire Dampers: Specification

This standard specifies requirements for the materials, design, manufacture, performance, and labelling of fire dampers. In all cases it requires that fire dampers are tested and approved in accordance with the fire test method detailed in AS 1530.4.

AS1682.2 2015: Fire Dampers: Installation

This standard specifies the requirements for the selection, installation and commissioning of fire dampers complying with AS1682.1.

AS1530.4 2014: Fire Resistance Tests on Elements of Construction

This standard provides methods for determining the fire resistance of various elements of construction when subjected to standardised range of fire exposure conditions. Depending upon the fire damper location and installation method the following sections apply.

Section 4: Floors, Roofs, Ceilings & Horizontal Separating Elements

This section sets out the procedures for determining the fire resistance of loadbearing and non-loadbearing incipient rated ceilings and elements penetrating them and is typically used to determine the fire resistance of ceiling mounted fire dampers.

Section 10: Service Penetrations & Control Joints

This section sets out the procedure for determining the fire resistance of elements of construction fitted with air transfer grilles not connected to ductwork.

Section 11: Fire Damper & Air Transfer Grill Assemblies in Ducts

This section specifies the procedure for determining the fire resistance of fire dampers and air transfer grilles in ducts that are used to prevent the passage of fire from one fire compartment to another.

Maintenance Requirements AS1851 : 2012 Routine Service of Fire Protection Systems & Equipment

This standard sets out requirements for the routine servicing (inspection, testing, preventive maintenance and survey) of fire protection systems and equipment.

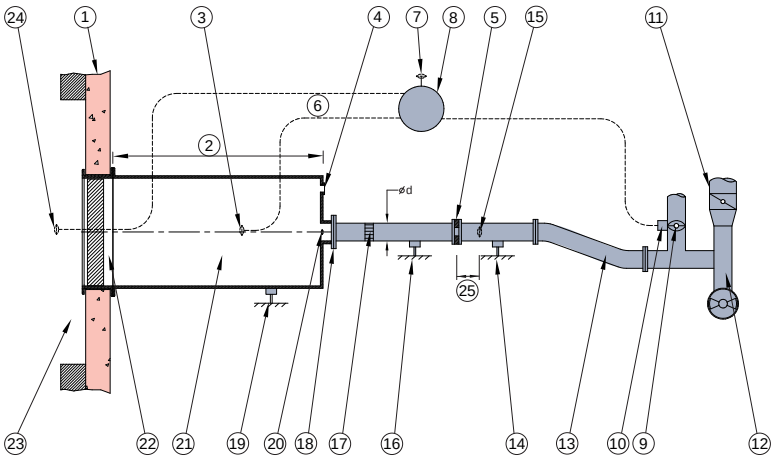
Section 13: Fire & Smoke Control Features of Mechanical Services

This section sets out the requirements for routine service of fire and smoke control features of mechanical services in buildings covered by AS/NZS 1668.1, AS 1682.1, AS 1682.2 and for fire dampers it requires that 20% of the fire dampers within a building are inspected annually so that all dampers have been inspected by the end of the fifth year. (Table 13.4.1.4 contained within the standard provides detailed guidance on maintenance and inspection requirements for intumescent fire dampers).

Standards & Regulatory Requirements

Current AS1530.4 Fire Test Methods for dampers and air transfer gilles installed in ducts

Figure 1. Example of a general test arrangement - dampers



LEGEND

1 = Supporting construction (wall)
2 = 2 x diagonal (to a maximum of 2m)
3 = Pressure sensor (on centreline)
4 = Observation port
5 = Orifice plate or venturi
6 = Pressure differential (300 Pa)
7 = Pressure sensor in laboratory
8 = Pressure differential control box
9 = Pressure control dilution damper
10 = Pneumatic actutor or manual control
11 = Balancing damper
12 = Fan
13 = Flexible connecting duct
14 = Support
15 = Thermocouple
16 = Support
17 = Flow straightener
18 = Flange
19 = Support
20 = Thermocouple at exit from connecting duct
21 = Connecting duct
22 = Test damper
23 = Furance chamber
24 = Pressure sensor (on centreline of damper)
25 = Distance: thermocouple to orifice = 2d

Dimensions in millimetres

Lorient LVH44 intumescent fire dampers are fully approved in accordance with the latest fire damper test method detailed in AS1530.4 2014.

This stringent new test method is based on a fire test with the additional burden of a negative 300Pa pressure differential applied to the unexposed face of the fire damper during the test period (essentially drawing hot furnace gasses through the fire damper). Failure is now determined when the leakage rate exceeds 360m3/hr /m2 (corrected to STP).

Specifiers should ensure that fire dampers are approved in accordance with the latest test requirements rather than relying on data that relates to old superseded test methods.

Lorient LVH intumescent fire damper - far right under test conditions

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LVH44 Intumescent Fire Damper Air Flow & Acoustic Performance

LVH44 Acoustic, Airflow and Pressure Loss Characteristics

Knowing the pressure drop through a fire damper is a critical consideration when designing a new system or upgrading an existing lay out. It is therefore critical that accurate information is available to the designer.

Lorient has undertaken extensive independent testing at the **Noise Control Research Laboratories (NCRL)** in accordance with the following standards:

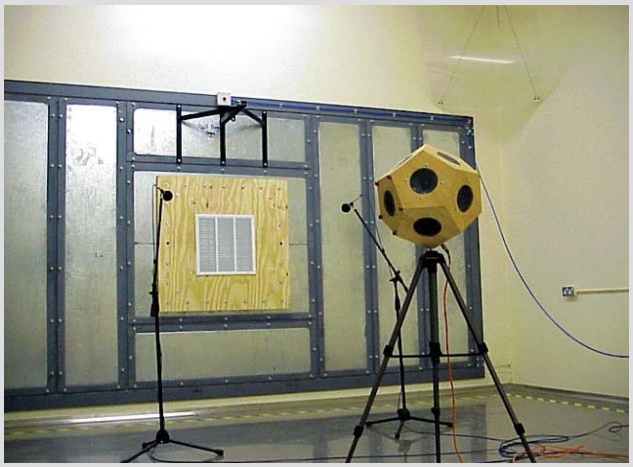
ISO 5221: 1984 Air distribution and air diffusion – Rules to methods of measuring air flow rate in an air handling duct.

IS EN 1751: 1999 Ventilation for buildings. Air terminal devices. Aerodynamic testing of dampers and valves.

ISO 5135: 1999 Acoustics. Determination of sound power levels of noise from air-terminal units, dampers and valves.

ISO3741 :1999 Acoustics – Determination of sound power levels of noise sources using sound pressure.

NCRL test report BF2001-SP 22/06/00 outlines the pressure loss and acoustic characteristics of Lorient LVH44 intumescent fire dampers. Test data has been summarised and presented in various nomograms to allow engineers to make accurate informed decisions that allow specification of the correct product at the optimum size.



NCRL Acoustic and pressure loss test

Lorient Intumescent Fire Damper Selection Nomogram for determining Pressure, Flow and Acoustic Characteristics

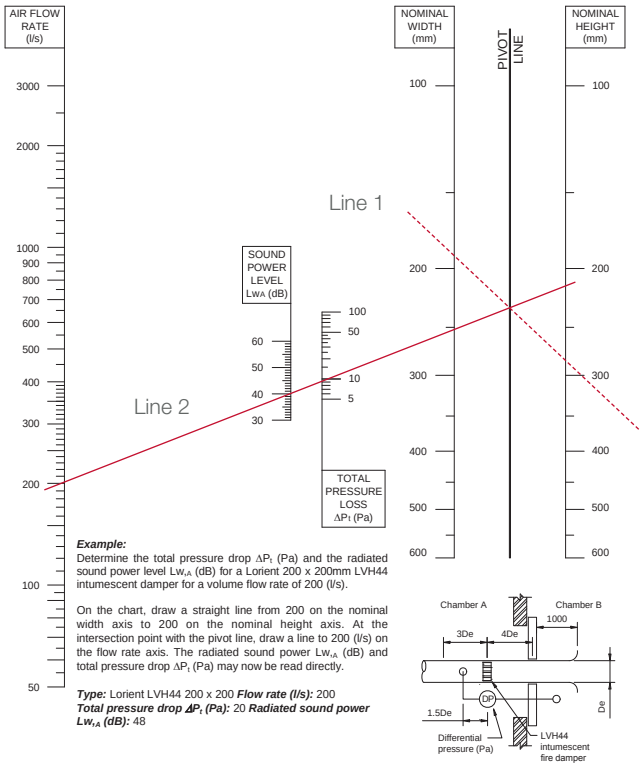
Guide on how to use the Lorient Nomogram Tool

Table 1: Obtaining pressure loss and acoustic information for a Lorient LVH44 of a known size

Draw a line to connect the width and height dimensions of the damper (Line A).

Select the desired system airflow rate value and connect this to the point where Line A intersects the Pivot Line (Line B). Pressure loss and acoustic sound power levels can now be read off the two scales.

LVH44 Intumescent Fire Damper Selection Nomogram Pressure, Flow & Acoustic Data



Example:
Determine the total pressure drop ΔP_t (Pa) and the radiated sound power level $Lw_{,A}$ (dB) for a Lorient 200 x 200mm LVH44 intumescent damper for a volume flow rate of 200 (l/s).

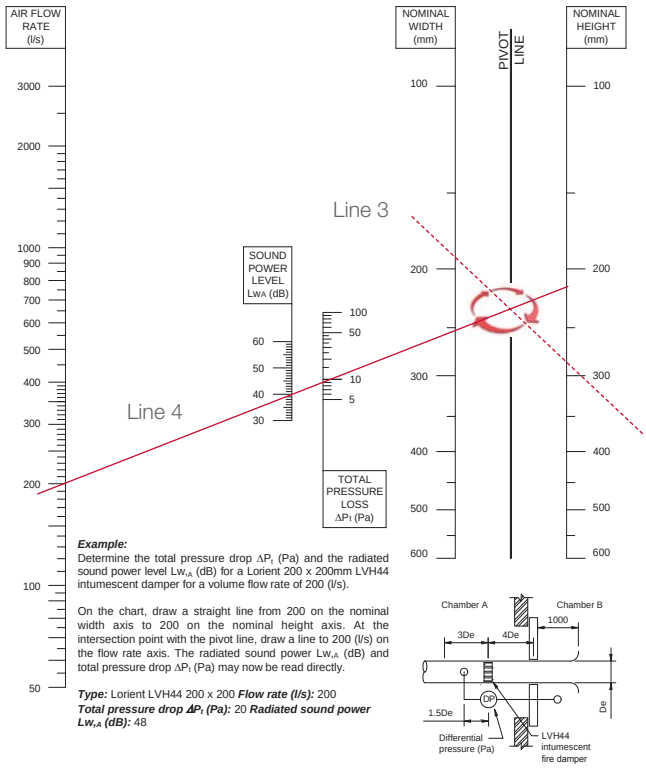
On the chart, draw a straight line from 200 on the nominal width axis to 200 on the nominal height axis. At the intersection point with the pivot line, draw a line to 200 (l/s) on the flow rate axis. The radiated sound power $Lw_{,A}$ (dB) and total pressure drop ΔP_t (Pa) may now be read directly.

Type: Lorient LVH44 200 x 200 ***Flow rate (l/s):*** 200
Total pressure drop ΔP_t (Pa): 20 ***Radiated sound power $Lw_{,A}$ (dB):*** 48

Table 2: Selecting an appropriate size Lorient LVH44 when system pressure drops and airflow rates are known

Draw a line between the known flow rate and pressure loss values and extend this to the pivot line (Line C). A line can now be drawn through this pivot line intersection (Line D) and rotated to choose an appropriate damper height and width.

LVH44 Intumescent Fire Damper Selection Nomogram Pressure, Flow & Acoustic Data

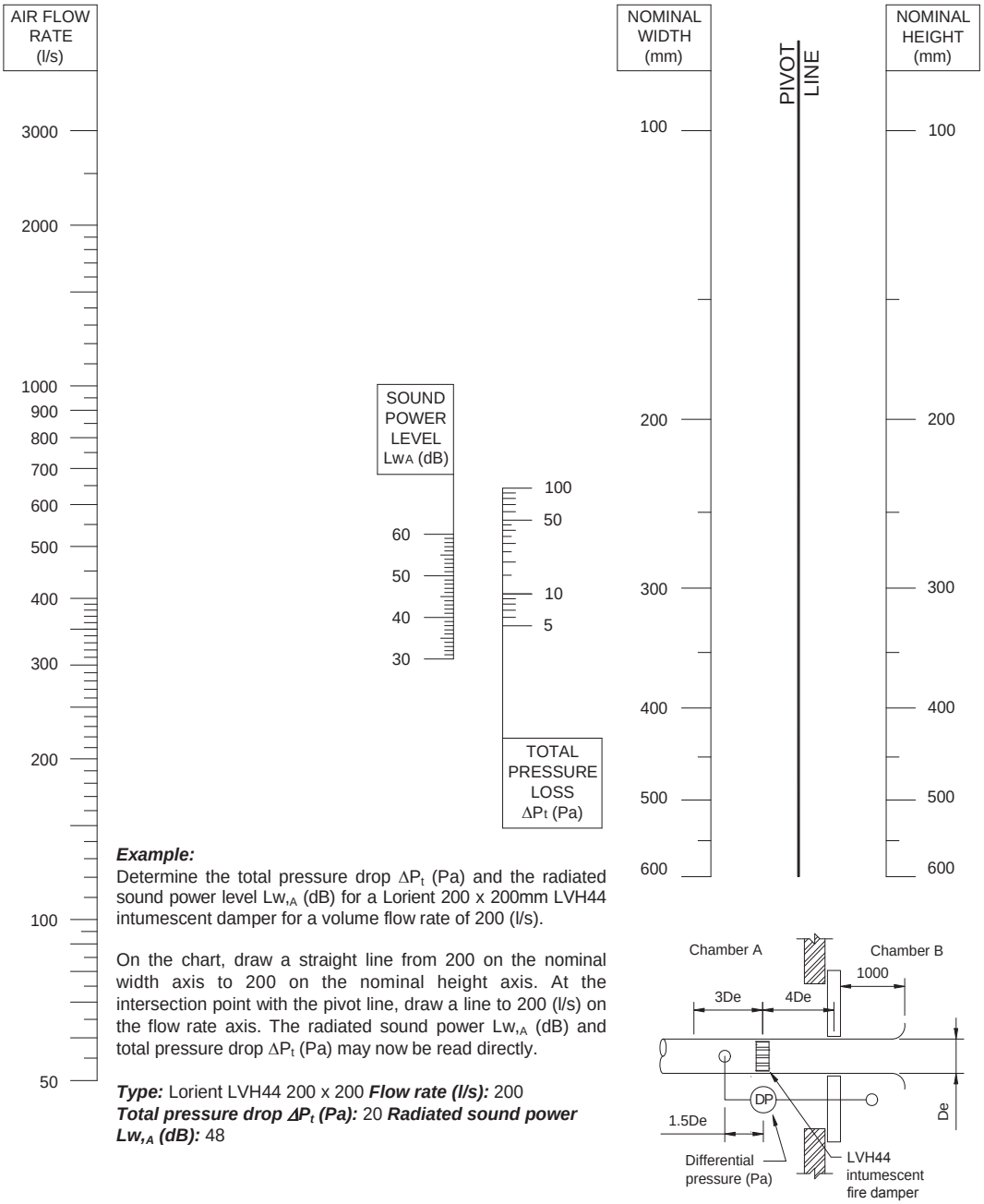


Example:
Determine the total pressure drop ΔP_t (Pa) and the radiated sound power level $Lw_{,A}$ (dB) for a Lorient 200 x 200mm LVH44 intumescent damper for a volume flow rate of 200 (l/s).

On the chart, draw a straight line from 200 on the nominal width axis to 200 on the nominal height axis. At the intersection point with the pivot line, draw a line to 200 (l/s) on the flow rate axis. The radiated sound power $Lw_{,A}$ (dB) and total pressure drop ΔP_t (Pa) may now be read directly.

Type: Lorient LVH44 200 x 200 ***Flow rate (l/s):*** 200
Total pressure drop ΔP_t (Pa): 20 ***Radiated sound power $Lw_{,A}$ (dB):*** 48

Lorient LVH44 Intumescent Fire Dampers Selection Nomogram for determining Pressure, Flow and Acoustic Characteristics

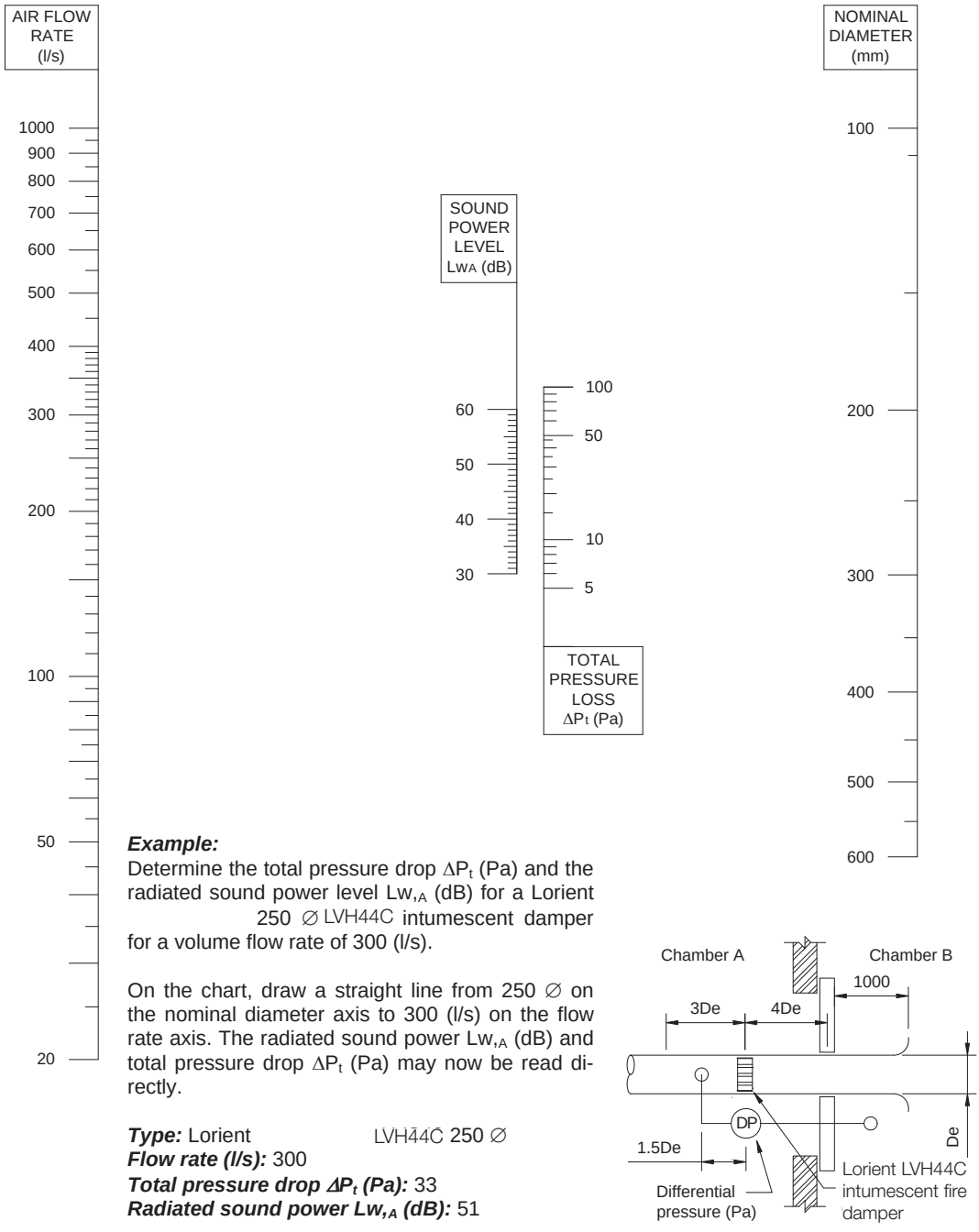


Example:
Determine the total pressure drop ΔP_t (Pa) and the radiated sound power level $Lw_{,A}$ (dB) for a Lorient 200 x 200mm LVH44 intumescent damper for a volume flow rate of 200 (l/s).

On the chart, draw a straight line from 200 on the nominal width axis to 200 on the nominal height axis. At the intersection point with the pivot line, draw a line to 200 (l/s) on the flow rate axis. The radiated sound power $Lw_{,A}$ (dB) and total pressure drop ΔP_t (Pa) may now be read directly.

Type: Lorient LVH44 200 x 200 ***Flow rate (l/s):*** 200
Total pressure drop ΔP_t (Pa): 20 ***Radiated sound power $Lw_{,A}$ (dB):*** 48

Lorient LVH44C Intumescent Fire Dampers Selection Nomogram for determining Pressure, Flow and Acoustic Characteristics

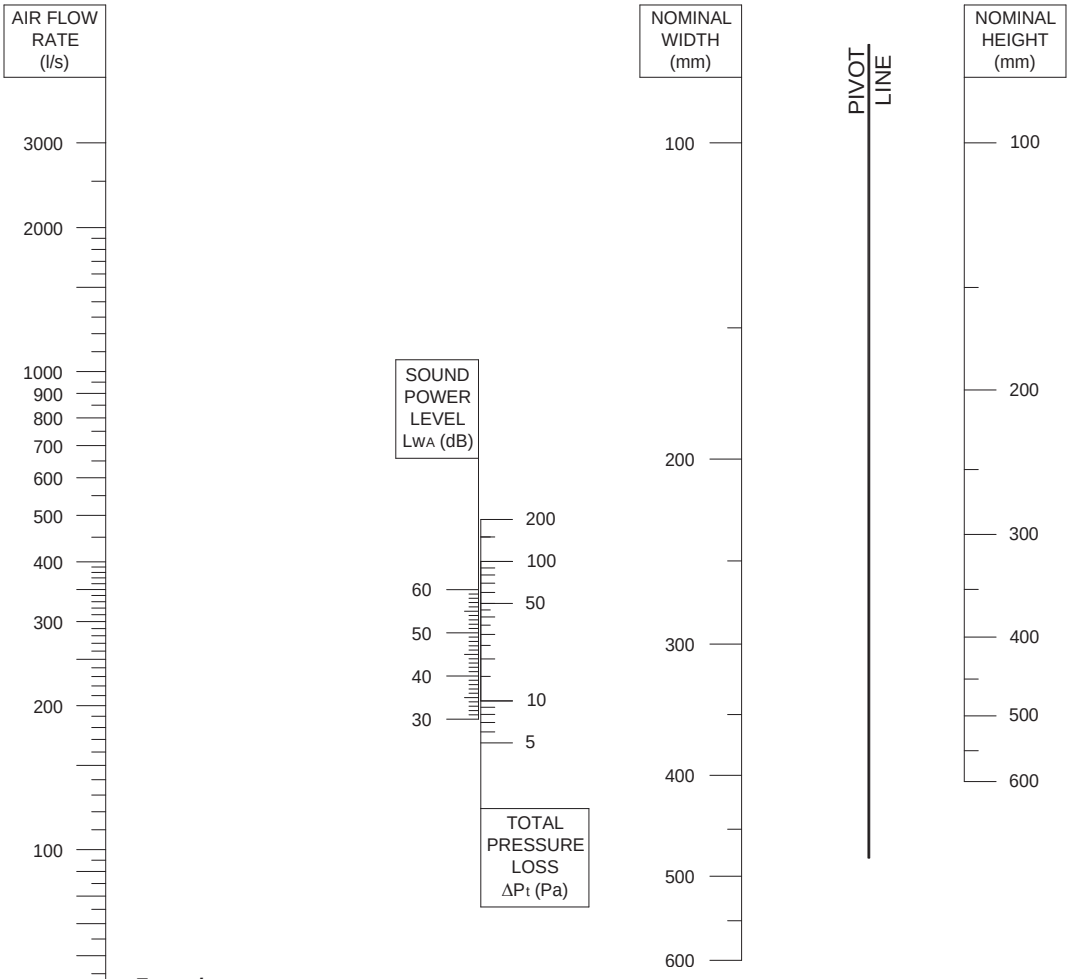


Example:
Determine the total pressure drop ΔP_t (Pa) and the radiated sound power level $Lw_{,A}$ (dB) for a Lorient 250 ∅ LVH44C intumescent damper for a volume flow rate of 300 (l/s).

On the chart, draw a straight line from 250 ∅ on the nominal diameter axis to 300 (l/s) on the flow rate axis. The radiated sound power $Lw_{,A}$ (dB) and total pressure drop ΔP_t (Pa) may now be read directly.

Type: Lorient LVH44C 250 ∅
Flow rate (l/s): 300
Total pressure drop ΔP_t (Pa): 33
Radiated sound power $Lw_{,A}$ (dB): 51

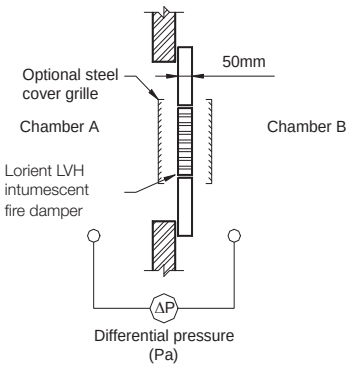
Lorient LVH Intumescent Door Grille Nomogram Pressure Loss and Acoustic Characteristics



Example:
Determine the total pressure drop ΔP_t (Pa) and the radiated sound power level $Lw_{,A}$ (dB) for a 450 x 450mm Lorient LVH Door grille for a volume flow rate of 500 (l/s).

On the chart, draw a straight line from 450 on the nominal width axis to 450 on the nominal height axis. At the intersection point with the pivot line, draw a line to 500 (l/s) on the flow rate axis. The radiated sound power $Lw_{,A}$ (dB) and total pressure drop ΔP_t (Pa) may now be read directly.

Type: Lorient LVH Door grille 450 x 450 ***Flow rate (l/s): 5***00
Total pressure drop ΔP_t (Pa): 35 Radiated sound power $Lw_{,A}$ (dB): 52



Lorient Intumescent Sealant

Lorient intumescent sealant is an integral part of Lorient's approved intumescent fire damper systems.

It is used to seal the fire damper perimeter and also provide fire stopping between the damper casing and the penetrated element (as shown in our system installation details).

When exposed to fire Lorient intumescent sealant expands in volume to fill cavities and provides a stable barrier to restrict the spread of fire and hot gasses.

Key Benefits

- Use to ensure compliance with Lorient's approved installation methods.
- Approved in accordance with AS1530.4.2005.
- Provides effective acoustic containment.
- Specially formulated for adhesion to a wide range of materials including wood, metal, concrete, masonry and plasterboard materials.
- Flexible – it tolerates differential movement in everyday service.
- Water based for easy clean up.
- Easily applied with conventional sealant applicators.
- It can be neatly injected into otherwise inaccessible areas.
- Smooth gunnability and tool off finish.

Availability

- Supplied as 310cc cartridges in box quantities of 25 units.

Fire Damper Cover Grilles

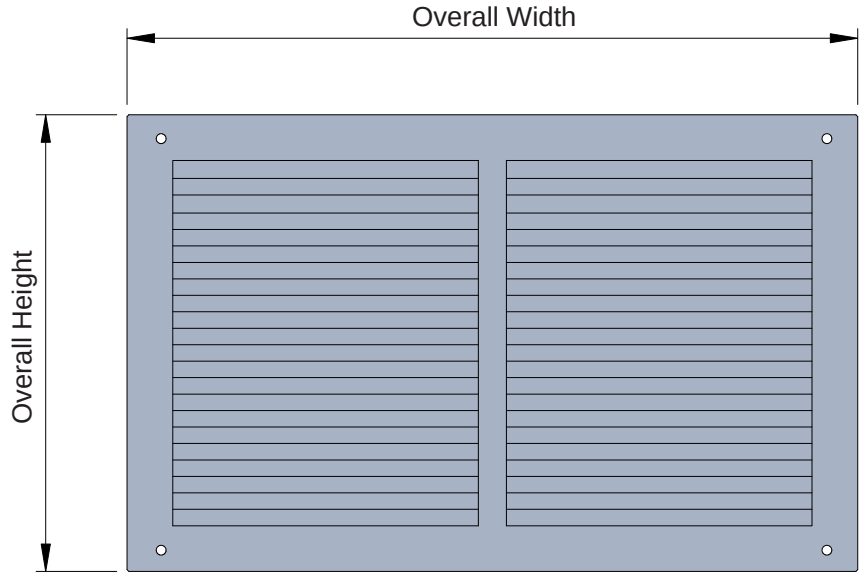
These cover grilles come with a decorative and protective silver powdercoat finish – they are face fixed to walls or doors to provide an aesthetic appearance to rectangular and circular intumescent fire dampers.

Lorient LVH cover grilles are available in the following nominal sizes (AxB):

Product code	Cover grille (overall) outside dimensions	To suit Lorient LVH damper size	Free area
LCG-150150	150 x 150mm	100 x 100mm	67%
LCG-200200	200 x 200mm	150 x 150mm	67%
LCG-300300	300 x 300mm	250 x 250mm	67%
LCG-350350	350 x 350mm	300 x 300mm	67%
LCG-500500	500 x 500mm	450 x 450mm	67%
LCG-650350	650 x 350mm	600 x 300mm	67%
LCG-650650	650 x 650mm	600 x 600mm	67%

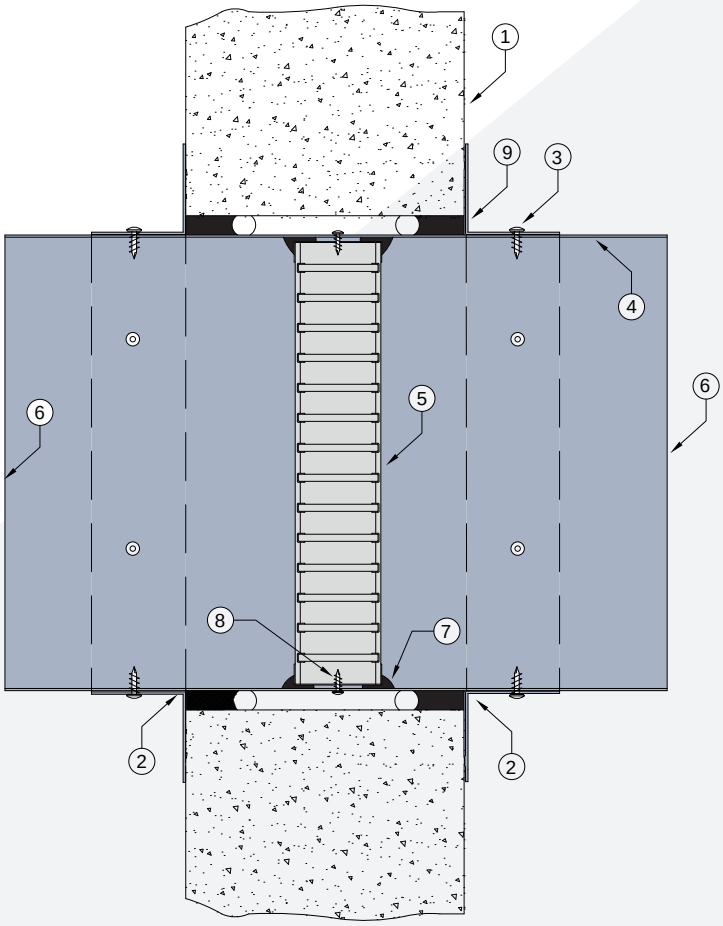
Other sizes of cover grilles are available. Minimum quantities apply.

Lorient cover grilles are designed for internal use only, due to their mild steel construction. Galvanised and aluminium versions are available on special order.



Fire Rated Masonry / Concrete Wall System: Wall 1

No	Description
1	Wall with prepared aperture.
2	0.6mm (min) Z275 gal steel angles to all four sides. Angle dimensions shall be continuous and at least 2 x the dimension of the gap between the damper casing and the penetrated element.
3	Each angle fixed to damper casing with steel fasteners at 150mm centres or at least 2 per side.
4	Z275 gal steel casing minimum thickness 0.6mm.
5	Lorient LVH44 intumescent fire damper screw fixed into casing.
6	Casing terminates with breakaway joints, as per AS1682.2.
7	Fire damper perimeter sealed with Lorient intumescent sealant.
8	LVH44 fixed to casing with steel screws.
9	Gap between casing and aperture filled with Lorient intumescent sealant. Backing rod used as required to control sealant fill depth. Maximum annular gap between casing and wall 25mm.



Installation Instruction:

- Prepare the wall opening to accept the fire damper and install in wall, as shown in this system detail.
- Centralise the casing and firestop the gap between the casing and wall with Lorient intumescent sealant, note fill details in point 9.
- Perimeter angles are mechanically fixed to casing with steel self drilling screws or pop rivets, as detailed in points 2 & 3.
- Ductwork shall be connected with breakaway joints, as per point 6.
- Ensure product identifications labels are conspicuously positioned for easy identification.
- Ensure convenient access is provided to allow for AS1851 inspection and maintenance routines.

Note: Damper casings, angles and fixings supplied by others.

LVH44 in steel casing penetrating fire rated Masonry / Concrete wall

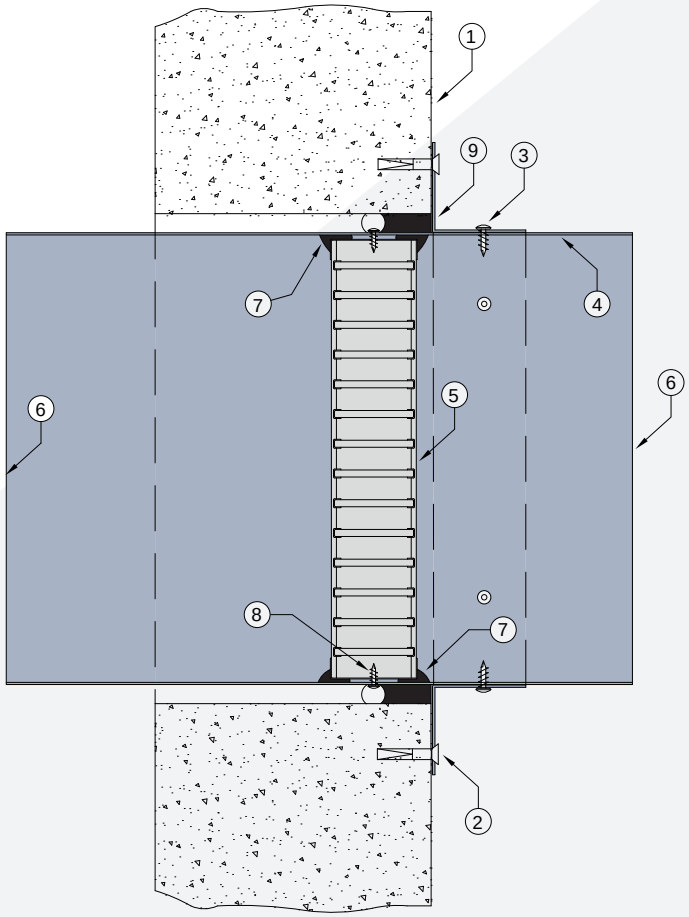
Fire Resistance in accordance with AS1530.4 2014 **-120/60**

Test Ref: CSIRO FCO 3127

Max single cell size: 600mm x 600mm
Max modular size: 2.4m x 1.2m or 1.2m x 2.4m

Fire Rated Masonry / Concrete Wall System: Wall 2

No	Description
1	Wall with prepared aperture.
2	Angles fixed to wall with steel masonry anchors at 150mm centres or at least 2 per side.
3	0.6mm (min) Z275 gal steel angles to all four sides. Angle dimensions shall be continuous and at least 2 x the dimension of the gap between the damper casing and the penetrated element. Each angle fixed to damper casing with steel fasteners at 150mm centres or at least 2 per side.
4	Z275 gal steel casing minimum thickness 0.6mm.
5	Lorient LVH44 intumescent fire damper screw fixed into casing.
6	Casing terminates with breakaway joints, as per AS1682.2.
7	Fire damper perimeter sealed with Lorient intumescent sealant.
8	LVH44 fixed to casing with steel screws.
9	Gap between casing and aperture filled with Lorient intumescent sealant. Backing rod used as required to control sealant fill depth. Maximum annular gap between casing and wall 25mm.



Installation Instruction:

- Prepare the wall opening to accept the fire damper and install in wall, as shown in this system detail.
- Centralise the casing and firestop the gap between the casing and wall with Lorient intumescent sealant, note fill details in point 9.
- Perimeter angles are mechanically fixed to casing with steel self drilling screws or pop rivets and to wall with steel masonry anchors, as detailed in points 2 & 3.
- Ductwork shall be connected with breakaway joints, as per point 6.
- Ensure product identifications labels are conspicuously positioned for easy identification.
- Ensure convenient access is provided to allow for AS1851 inspection and maintenance routines.

Note: Damper casings, angles and fixings supplied by others.

LVH44 in steel casing penetrating fire rated Masonry / Concrete wall

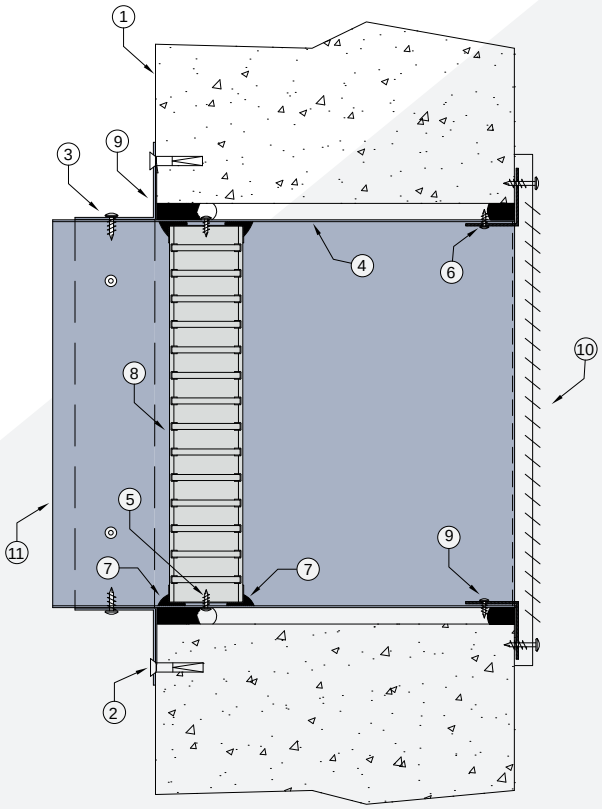
Fire Resistance in accordance with AS1530.4 2014 **-120/60**

Test Ref: CSIRO FCO 3127

Max single cell size: 600mm x 600mm
Max modular size: 2.4m x 1.2m or 1.2m x 2.4m

Fire Rated Masonry / Concrete Wall System: Wall 3 Duct with Grille

No	Description
1	Wall with prepared aperture.
2	Angles fixed to wall with steel masonry anchors at 150mm centres or at least 2 per side.
3	0.6mm (min) Z275 gal steel angles to all four sides. Angle dimensions shall be continuous and at least 2 x the dimension of the gap between the damper casing and the penetrated element. Each angle fixed to damper casing with steel fasteners at 150mm centres or at least 2 per side.
4	Z275 gal steel casing minimum thickness 0.6mm.
5	Lorient LVH44 intumescent fire damper screw fixed into casing.
6	Casing either turned out or fitted with angles to all four sides fixed in place with steel self drilling screws.
7	Fire damper perimeter sealed with Lorient intumescent sealant.
8	LVH44 fixed to casing with steel screws.
9	Gap between casing and aperture filled with Lorient intumescent sealant. Backing rod used as required to control sealant fill depth. Maximum annular gap between casing and wall 25mm.
10	Cover grille (by others) screw fixed in place to cover aperture.
11	Breakaway joint as per AS1682.2 as required.



Installation Instruction:

- Prepare the wall opening to accept the fire damper and install in wall, as shown in this system detail.
- Centralise the casing and firestop the gap between the casing and wall with Lorient intumescent sealant, note fill details in point 9.
- Perimeter angles are mechanically fixed to casing with steel self drilling screws or pop rivets and to wall with steel masonry anchors, as detailed in points 2 & 3.
- Ductwork shall be connected with breakaway joints, as per point 6.
- Ensure product identifications labels are conspicuously positioned for easy identification.
- Ensure convenient access is provided to allow for AS1851 inspection and maintenance routines.

Note: Damper casings, angles and fixings supplied by others.

LVH44 in steel casing penetrating fire rated Masonry / Concrete wall

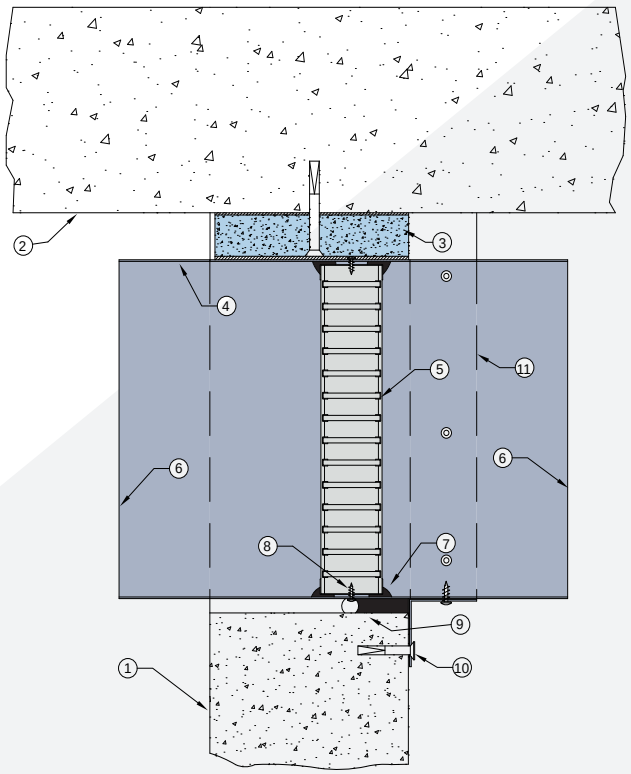
Fire Resistance in accordance with AS1530.4 2014 **-120/60**

Test Ref: CSIRO FCO 3127

Max single cell size: 600mm x 600mm
Max modular size: 2.4m x 1.2m or 1.2m x 2.4m

Fire Rated Masonry / Concrete Wall System: Wall 4 Duct tight to slab

No	Description
1	Masonry or concrete wall.
2	Concrete floor slab.
3	100mm wide x min 25mm thick non-combustible block bedded in intumescent sealant and running across width of aperture. Block mechanically fixed to slab with expanding steel anchors.
4	Z275 gal steel damper casing 0.6mm minimum thickness.
5	Lorient LVH44 intumescent fire damper.
6	Casing terminates with breakaway joints, as per AS1682.2.
7	Fire damper perimeter sealed with Lorient intumescent sealant.
8	Fire damper fixed to casing with steel screws.
9	Gap between casing and aperture filled with Lorient intumescent sealant. Backing rod used as required to control sealant fill depth. Maximum annular gap between casing and wall 25mm.
10	Angles fixed to wall with steel masonry anchors at 150mm centres or at least 2 per side.
11	0.6mm (min) Z275 gal steel angles to all four sides. Angle dimensions shall be continuous and at least 2 x the dimension of the gap between the damper casing and the penetrated element.



Installation Instruction:

- Prepare the wall opening to accept the fire damper and install in wall, as shown in this system detail.
- Non-combustible block is fixed to slab, as per point 3.
- Lorient intumescent sealant liberally applied to block and duct containing damper is positioned and pushed up tight to packing block.
- Firestop the gap between the casing and wall with Lorient intumescent sealant, note fill details in point 9.
- 3 off perimeter angles are mechanically fixed to casing with steel self drilling screws or pop rivets and fixed to wall with masonry anchors, as detailed in point 10.
- Ductwork shall be connected with breakaway joints, as per point 6.
- Ensure product identifications labels are conspicuously positioned for easy identification.
- Ensure convenient access is provided to allow for AS1851 inspection and maintenance routines.

Note: Damper casings, angles and fixings supplied by others.

LVH44 in steel casing penetrating fire rated Masonry / Concrete wall

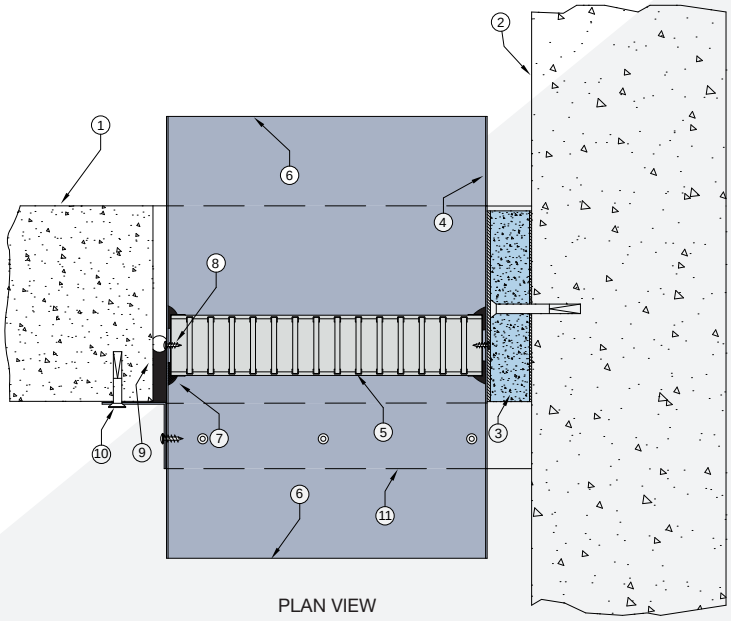
Fire Resistance in accordance with AS1530.4 2014 **-120/60**

Test Ref: CSIRO FCO 3127

Max single cell size: 600mm x 600mm
Max modular size: 2.4m x 1.2m or 1.2m x 2.4m

Fire Rated Masonry / Concrete Wall System: Wall 5 Duct tight to wall

No	Description
1	Masonry or concrete wall.
2	Adjacent masonry or concrete wall.
3	100mm wide x min 25mm thick non-combustible block bedded in intumescent sealant and running across width of aperture. Block mechanically fixed to wall with expanding steel anchors.
4	Z275 gal steel damper casing 0.6mm minimum thickness.
5	Lorient LVH44 intumescent fire damper.
6	Casing terminates with breakaway joints, as per AS1682.2.
7	Fire damper perimeter sealed with Lorient intumescent sealant.
8	Fire damper fixed to casing with steel screws.
9	Gap between casing and aperture filled with Lorient intumescent sealant. Backing rod used as required to control sealant fill depth. Maximum annular gap between casing and wall 25mm.
10	Angles fixed to wall with steel masonry anchors at 150mm centres or at least 2 per side.



PLAN VIEW

Installation Instruction:

- Prepare the wall opening to accept the fire damper and install in wall, as shown in this system detail.
- Non-combustible block is fixed to wall, as per point 3.
- Lorient intumescent sealant liberally applied to block and duct containing damper is positioned and pushed up tight to packing block.
- Firestop the gap between the casing and wall with Lorient intumescent sealant, note fill details in point 9.
- 3 off perimeter angles are mechanically fixed to casing with steel self drilling screws or pop rivets and fixed to wall with masonry anchors, as detailed in point 10.
- Ductwork shall be connected with breakaway joints, as per point 6.
- Ensure product identifications labels are conspicuously positioned for easy identification.
- Ensure convenient access is provided to allow for AS1851 inspection and maintenance routines.

Note: Damper casings, angles and fixings supplied by others.

LVH44 in steel casing penetrating fire rated Masonry / Concrete wall

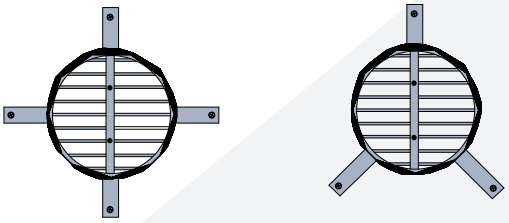
Fire Resistance in accordance with AS1530.4 2014 **-120/60**

Test Ref: CSIRO FCO 3127

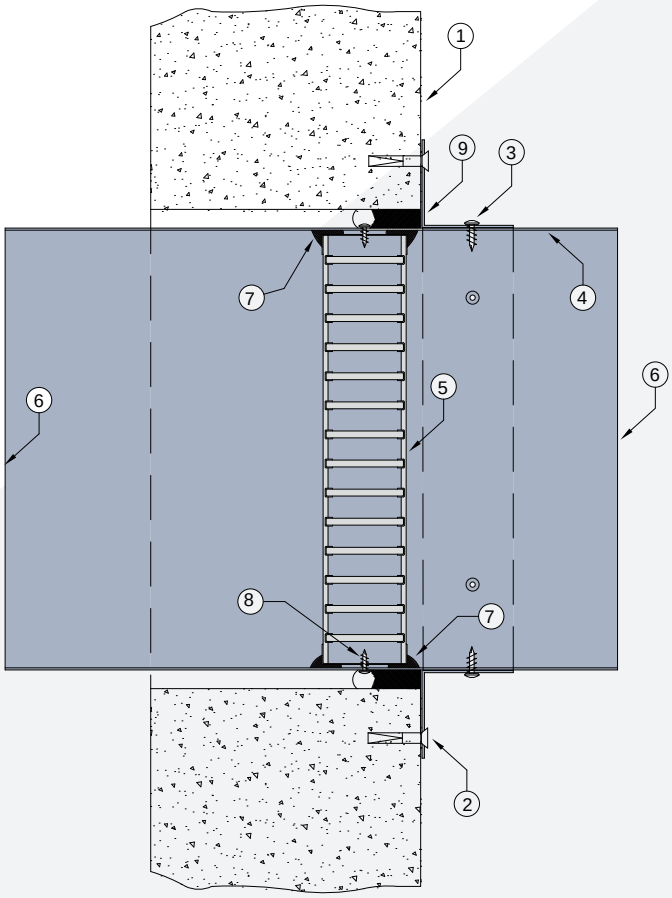
Max single cell size: 600mm x 600mm
Max modular size: 2.4m x 1.2m or 1.2m x 2.4m

Fire Rated Masonry / Concrete Wall System: Wall 6

No	Description
1	Wall with prepared aperture.
2	Angles brackets fixed to wall with steel masonry anchors.
3	25mm x 40mm x 40mm x 0.6mm (min) Z275 gal steel angle brackets fitted to damper casing with steel screws and the gap between the damper casing and wall filled with Lorient intumescent sealant.
4	Z275 gal steel casing minimum thickness 0.6mm.
5	Lorient LVH44C intumescent fire damper.
6	Casing terminates with breakaway joints, as per AS1682.2.
7	Fire damper perimeter sealed with Lorient intumescent sealant.
8	LVH44C fixed to casing with steel screws.
9	Gap between casing and aperture filled with Lorient intumescent sealant. Backing rod used as required to control sealant fill depth. Maximum annular gap between casing and wall 25mm.



3 off fixing angles up to 250mm diameter
4 off fixing angles 300mm to 450mm diameter



Installation Instruction:

- Prepare the wall opening to accept the fire damper and install in wall, as shown in this system detail.
- Fix angle brackets to casing with steel self drilling screws or pop rivets, as detailed in points 2 & 3.
- Centralise in aperture and mechanically fix to wall. Firestop the gap between the casing and wall with Lorient intumescent sealant, note fill details in point 9.
- Ductwork shall be connected with breakaway joints, as per point 6.
- Ensure product identifications labels are conspicuously positioned for easy identification.
- Ensure convenient access is provided to allow for AS1851 inspection and maintenance routines.

Note: Fixings supplied by others.

LVH44C in steel casing penetrating fire rated Masonry / Concrete wall

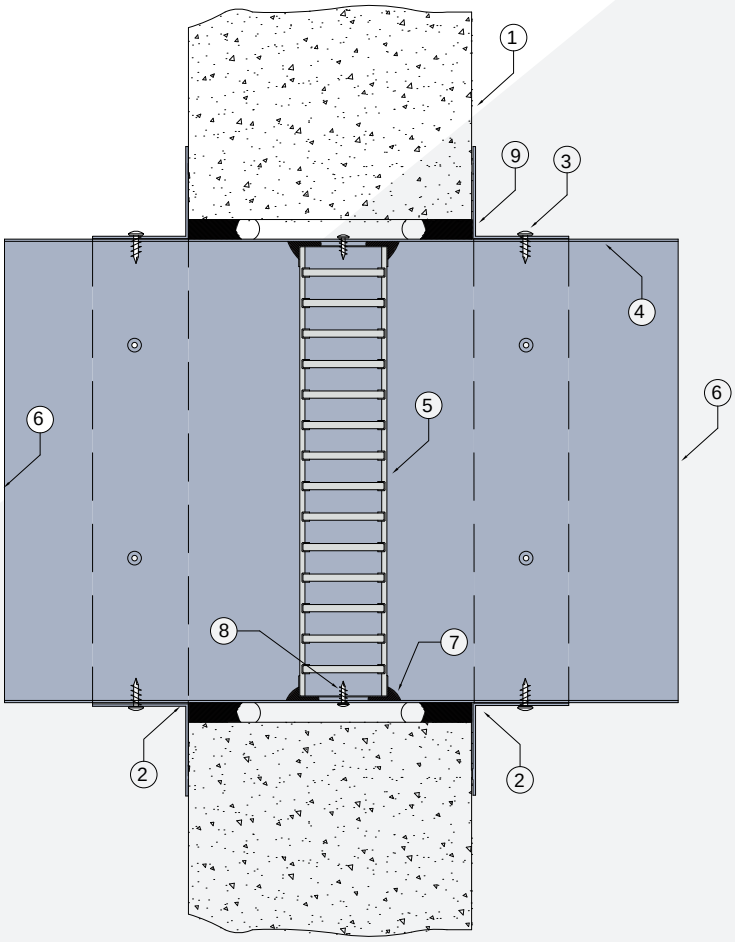
Fire Resistance in accordance with AS1530.4 2014 **-120/60**

Test Ref: EXOVA EWFA 33233400

Max size: 450mm diameter

Fire Rated CSR Hebel® Wall System: Wall 7

No	Description
1	CSR Hebel® wall with prepared aperture.
2	0.6mm (min) Z275 Gal steel angles to all four sides. Angle dimensions shall be continuous and at least 2 x the dimension of the gap between the damper casing and the penetrated element.
3	Each angle fixed to damper casing with steel fasteners at 150mm centres or at least 2 per side.
4	Z275 gal steel casing minimum thickness 0.6mm.
5	Lorient LVH44 intumescent fire damper screw fixed into casing.
6	Casing terminates with breakaway joints, as per AS1682.2
7	Fire damper perimeter sealed with Lorient intumescent sealant.
8	LVH44 fixed to casing with steel screws.
9	Gap between casing and aperture filled with Lorient intumescent sealant. Backing rod used as required to control sealant fill depth. Maximum annular gap between casing and wall 25mm.



Installation Instruction:

- Prepare the wall opening to accept the fire damper and install in wall as shown in this system detail.
- Centralise the casing and firestop the gap between the casing and wall with Lorient intumescent sealant, note fill details in point 9.
- Perimeter angles are mechanically fixed to casing with steel self drilling screws or pop rivets, as detailed in points 2 & 3.
- Ductwork shall be connected with breakaway joints, as per point 6.
- Ensure product identifications labels are conspicuously positioned for easy identification.
- Ensure convenient access is provided to allow for AS1851 inspection and maintenance routines.

Note: Damper casings, angles and fixings supplied by others.

LVH44 in steel casing penetrating fire rated CSR Hebel® wall

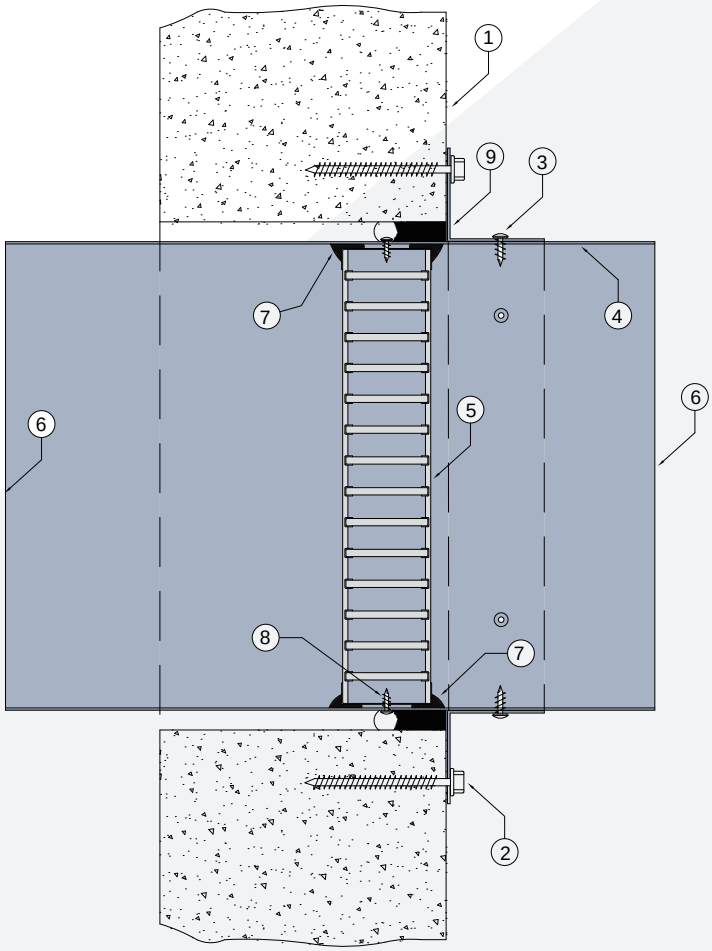
Fire Resistance in accordance with AS1530.4 2014 **Up to -120/60**

Test Ref: EWFA 33233400

Max single cell size: 450mm x 450mm

Fire Rated CSR Hebel® Wall System: Wall 8

No	Description
1	CSR Hebel® wall with prepared aperture.
2	Angles fixed to wall with No.10-14 x 65mm Hex head Type 17 coarse thread screws at 150mm centres.
3	0.6mm (min) Z275 Gal steel angles to all four sides. Angle dimensions shall be continuous and at least 2 x the dimension of the gap between the damper casing and the penetrated element. Each angle fixed to damper casing with steel fasteners at 150mm centres.
4	Z275 gal steel casing minimum thickness 0.6mm.
5	Lorient LVH44 intumescent fire damper screw fixed into casing.
6	Casing terminates with breakaway joints, as per AS1682.2.
7	Fire damper perimeter sealed with Lorient intumescent sealant.
8	LVH44 fixed to casing with steel screws.
9	Gap between casing and aperture filled with Lorient intumescent sealant. Backing rod used as required to control sealant fill depth. Maximum annular gap bewteen casing and wall 25mm.



Installation Instruction:

- Prepare the wall opening to accept the fire damper and install in wall as shown in this system detail.
- Centralise the casing and firestop the gap between the casing and wall with Lorient intumescent sealant, note fill details in point 9.
- Perimeter angles are mechanically fixed to casing with steel self drilling screws or pop rivets, as detailed in points 2 & 3.
- Ductwork shall be connected with breakaway joints, as per point 6.
- Ensure product identifications labels are conspicuously positioned for easy identification.
- Ensure convenient access is provided to allow for AS1851 inspection and maintenance routines.

Note: Damper casings, angles and fixings supplied by others.

LVH44 in steel casing penetrating fire rated CSR Hebel® wall

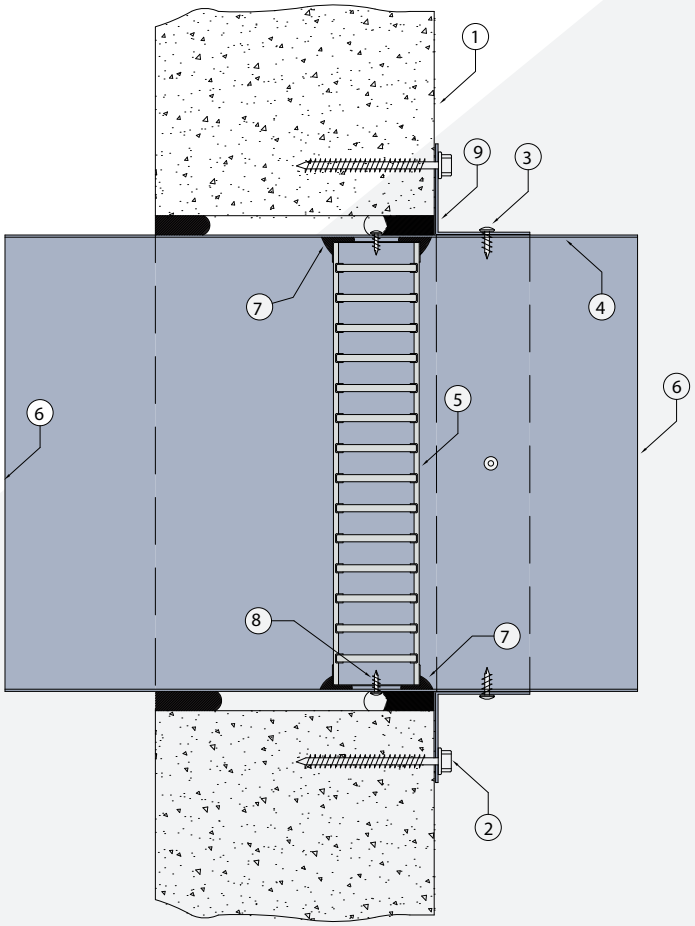
Fire Resistance in accordance with AS1530.4 2014 **Up to -120/60**

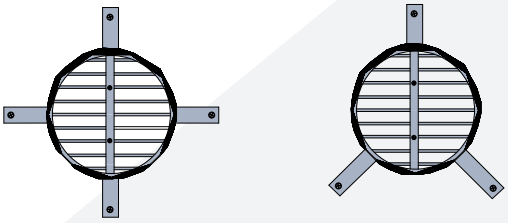
Test Ref: EWFA 33233400

Max single cell size: 450mm x 450mm

Fire Rated CSR Hebel® Wall System: Wall 9

No	Description
1	CSR Hebel® wall with prepared aperture.
2	Angles fixed to wall with No.10-14 x 65mm Hex head Type 17 coarse thread screws at 150mm centres.
3	40 x 40 x 1mm Z275 gal steel angle brackets 3 off brackets for up to 300mm diameter and 4 brackets for larger sized up to 450mm diameter. Each angle fixed to damper casing with steel fasteners.
4	Z275 Gal steel casing minimum thickness 0.6mm.
5	Lorient LVH44C intumescent fire damper screw fixed into casing.
6	Casing terminates with breakaway joints, as per AS1682.2
7	Fire damper perimeter sealed with Lorient intumescent sealant.
8	LVH44C fixed to casing with steel screws.
9	Gap between casing and aperture filled with Lorient intumescent sealant. Backing rod used as required to control sealant fill depth. Maximum annular gap between casing and wall 25mm.





3 off fixing angles up to 250mm diameter
4 off fixing angles 300mm to 450mm diameter

Installation Instruction:

- Prepare the wall opening to accept the fire damper and install in wall as shown in this system detail.
- Centralise the casing and firestop the gap between the casing and wall with Lorient intumescent sealant, note fill details in point 9.
- Perimeter angles are mechanically fixed to casing with steel self drilling screws or pop rivets, as detailed in points 2 & 3.
- Ductwork shall be connected with breakaway joints, as per point 6.
- Ensure product identifications labels are conspicuously positioned for easy identification.
- Ensure convenient access is provided to allow for AS1851 inspection and maintenance routines.

Note: Fixings supplied by others.

LVH44C in steel casing penetrating fire rated CSR Hebel wall®

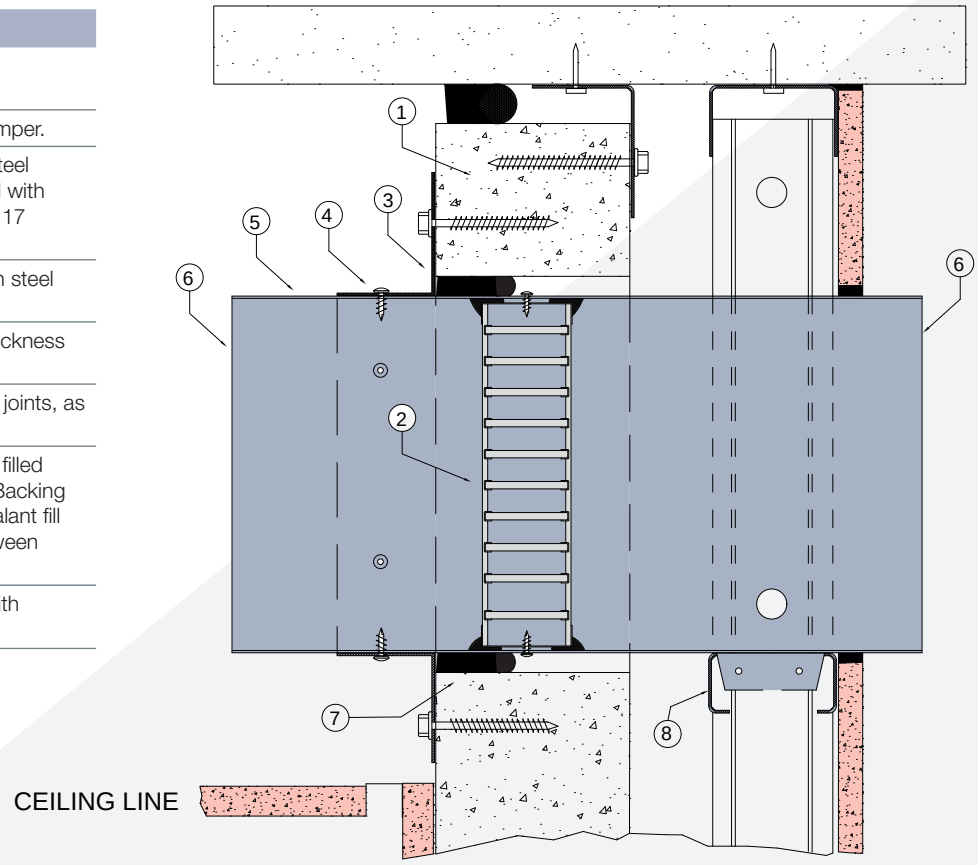
Fire Resistance in accordance with AS1530.4 2014 **Up to -120/60**

Test Ref: EWFA 33233400

Max size: 450mm diameter

Fire Rated CSR Hebel® Wall System: Wall 10

No	Description
1	CSR Hebel® wall installed as per manufacturers guidelines.
2	Lorient LVH44 intumescent fire damper.
3	40 x 40mm x 0.6 (min) Z275 Gal steel angles to all four sides fixed to wall with No.10-14 x 65mm Hex head Type 17 screw.
4	Angles fixed to damper casing with steel fixings.
5	Z275 Gal steel casing minimum thickness 0.6mm.
6	Casing terminates with breakaway joints, as per AS1682.1.
7	Gap between casing and aperture filled with Lorient intumescent sealant. Backing rod used as required to control sealant fill depth. Maximum annular gap between casing and wall 25mm.
8	Duct supported on non-fire side with noggin between studs.



Installation Instruction:

- Prepare the wall opening to accept the fire damper and install in wall, as shown in this system detail.
- Centralise the damper casing and firestop the gap between the casing and wall with Lorient intumescent sealant, see point 7 for fill details.
- Perimeter angles are mechanically fixed to casing with steel self drilling screws or pop rivets, as detailed in points 3 & 4.
- Ductwork shall be connected with breakaway joints, as per point 6.
- Ensure product identifications labels are conspicuously positioned for easy identification.
- Ensure convenient access is provided to allow for AS1851 inspection and maintenance routines.

Note: Damper casings, angles and fixings supplied by others.

LVH44 in steel casing penetrating fire rated CSR Hebel® wall

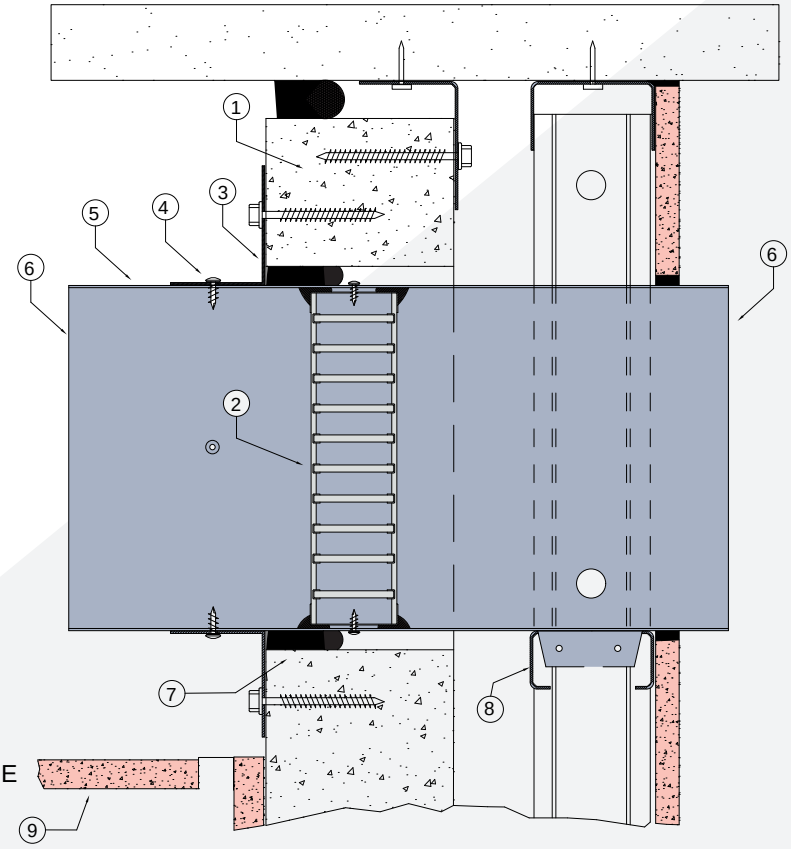
Fire Resistance in accordance with AS1530.4 2014 **Up to -/120/60**

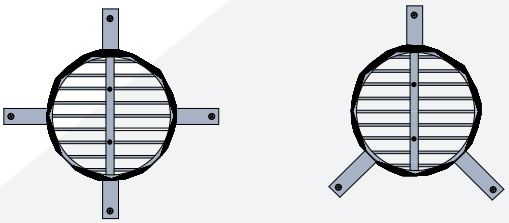
Test Ref: EWFA 33233400

Max single cell size: 450mm x 450mm

Fire Rated CSR Hebel® Wall System: Wall 11

No	Description
1	CSR Hebel® wall installed as per manufacturers instructions.
2	Lorient LVH44C circular intumescent fire damper.
3	40 x 40mm x 25 x 1mm (min) Z275 Gal steel angle fixed to wall with No.14-10 x 65mm Hex head Type 17 screw.
4	Angle brackets fixed to damper casing with steel fixings.
5	Z275 Gal steel casing minimum thickness 0.6mm.
6	Casing terminates with slip joints in accordance with AS1682.1.
7	Gap between casing and aperture filled with Lorient intumescent sealant. Backing rod used as required to control sealant fill depth. Maximum annular gap between casing and wall 25mm.
8	Duct supported on non-fire side with noggin between studs.
9	AS1851 fire damper maintenance across point required this side.





3 off fixing angles up to 250mm diameter
4 off fixing angles 300mm to 450mm diameter

Installation Instruction:

- Prepare the wall opening to accept the fire damper and install in wall as shown in this system detail.
- Centralise the casing and firestop the gap between the casing and wall with Lorient intumescent sealant, note fill details in point 7.
- Perimeter angles are mechanically fixed to casing with steel self drilling screws or pop rivets, as detailed in points 3 & 4.
- Ductwork shall be connected with breakaway joints, as per point 6.
- Ensure product identifications labels are conspicuously positioned for easy identification.
- Ensure convenient access is provided to allow for AS1851 inspection and maintenance routines.

Note: Fixings supplied by others.

LVH44C in steel casing penetrating fire rated CSR Hebel wall®

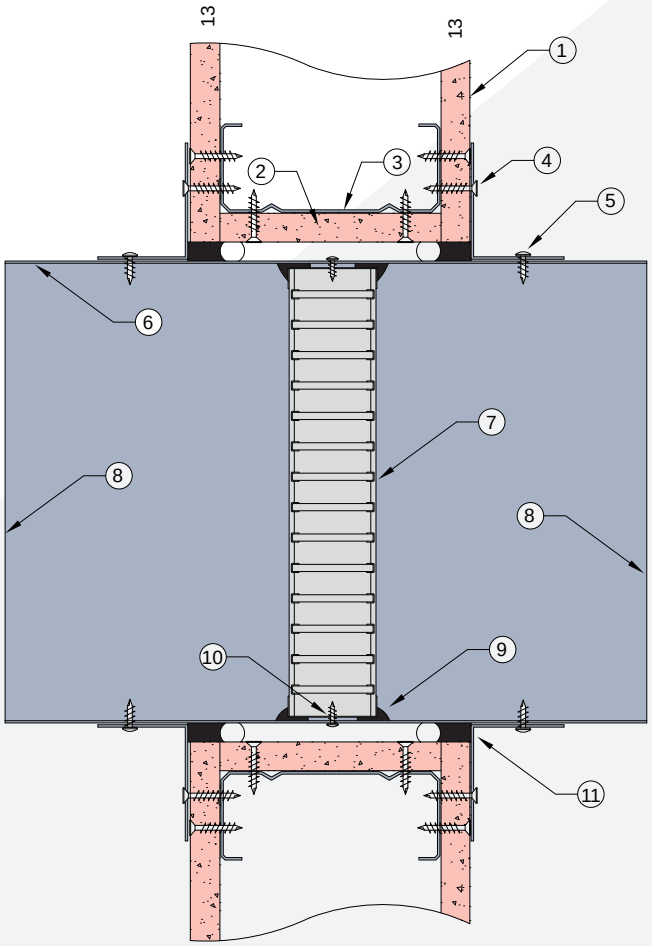
Fire Resistance in accordance with AS1530.4 2014 **Up to -120/60**

Test Ref: EWFA 33233400

Max single cell size: 450mm diameter

Fire Rated Plasterboard Wall System: Stud Wall 1

No	Description
1	13mm fire rated plasterboard.
2	13mm fire rated plasterboard lining aperture.
3	Steel stud framing out aperture.
4	Angles fixed to steel framing at 150mm centres or at least 2 per side.
5	0.6mm (min) Z275 gal steel angles to all four sides. Angle dimensions shall be continuous and at least 2 x the dimension of the gap between the damper casing and the penetrated element. Each angle fixed to damper casing with steel fasteners at 150mm centres or at least 2 per side.
6	Z275 gal steel casing minimum thickness 0.6mm.
7	Lorient LVH44 intumescent fire damper screw fixed into casing.
8	Casing terminates with breakaway joints, as per AS1682.2.
9	Fire damper perimeter sealed with Lorient intumescent sealant.
10	Fire damper fixed to casing with steel screws.
11	Gap between casing and aperture filled with Lorient intumescent sealant. Backing rod used as required to control sealant fill depth. Maximum annular gap between casing and wall 25mm.



Installation Instruction:

- Line out the wall opening to accept the fire damper, as shown in this system detail.
- Centralise the damper casing and firestop the gap between the casing and wall with Lorient intumescent sealant, see point 11 for fill details.
- Perimeter angles are mechanically fixed to casing with steel self drilling screws and to wall with appropriate length needle point drywall screws, as detailed in points 4 & 5.
- Ductwork shall be connected with breakaway joints, as per point 8.
- Ensure product identifications labels are conspicuously positioned for easy identification.
- Ensure convenient access is provided to allow for AS1851 inspection and maintenance routines.

Note: Damper casings, angles and fixings supplied by others.

LVH44 in steel casing penetrating fire rated Plasterboard wall

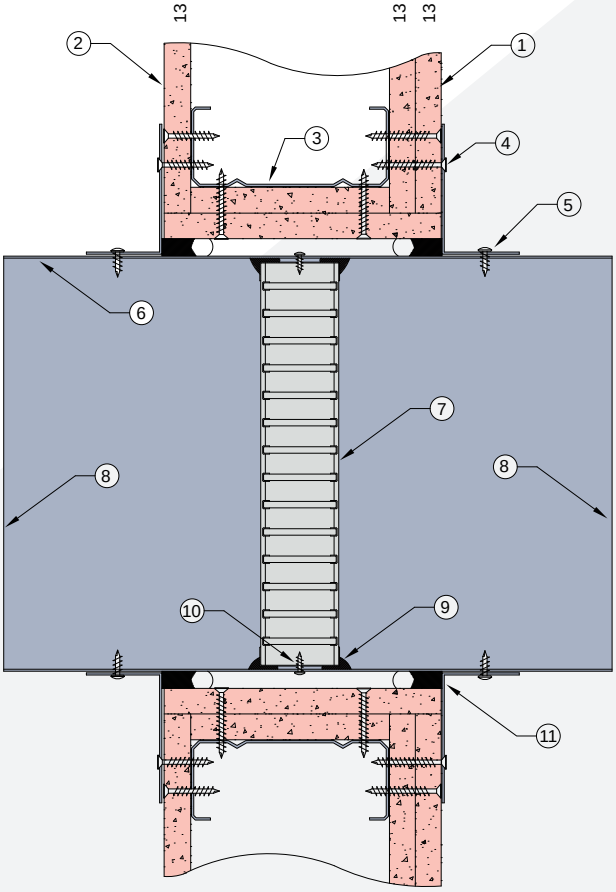
Fire Resistance in accordance with AS1530.4 2014 **-/60/-**

Test Ref: CSIRO 3149

Max single cell size: 600mm x 600mm

Fire Rated Plasterboard Wall System: Stud Wall 2

No	Description
1	2 x 13mm fire rated plasterboard.
2	13mm fire rated plasterboard.
3	2 x 13mm plasterboard plus steel framing out aperture.
4	Angles fixed to steel framing at 150mm centres or at least 2 per side.
5	0.6mm (min) Z275 gal steel angles to all four sides. Angle dimensions shall be continuous and at least 2 x the dimension of the gap between the damper casing and the penetrated element. Each angle fixed to damper casing with steel fasteners at 150mm centres or at least 2 per side.
6	Z275 gal steel casing minimum thickness 0.6mm.
7	Lorient LVH44 intumescent fire damper screw fixed into casing.
8	Casing terminates with breakaway joints, as per AS1682.2.
9	Fire damper perimeter sealed with Lorient intumescent sealant.
10	Fire damper fixed to casing with steel screws.
11	Gap between casing and aperture filled with Lorient intumescent sealant. Backing rod used as required to control sealant fill depth. Maximum annular gap between casing and wall 25mm.



Installation Instruction:

- Line out the wall opening to accept the fire damper, as shown in this system detail.
- Centralise the damper casing and firestop the gap between the casing and wall with Lorient intumescent sealant, see point 11 for fill details.
- Perimeter angles are mechanically fixed to casing with steel self drilling screws and to wall with appropriate length needle point drywall screws, as detailed in points 4 & 5.
- Ductwork shall be connected with breakaway joints, as per point 8.
- Ensure product identifications labels are conspicuously positioned for easy identification.
- Ensure convenient access is provided to allow for AS1851 inspection and maintenance routines.

Note: Damper casings, angles and fixings supplied by others.

LVH44 in steel casing penetrating fire rated Plasterboard wall

Fire Resistance in accordance with AS1530.4 2014 **-/90/-**

Test Ref: CSIRO FCO 3149

Max single cell size: 600mm x 600mm

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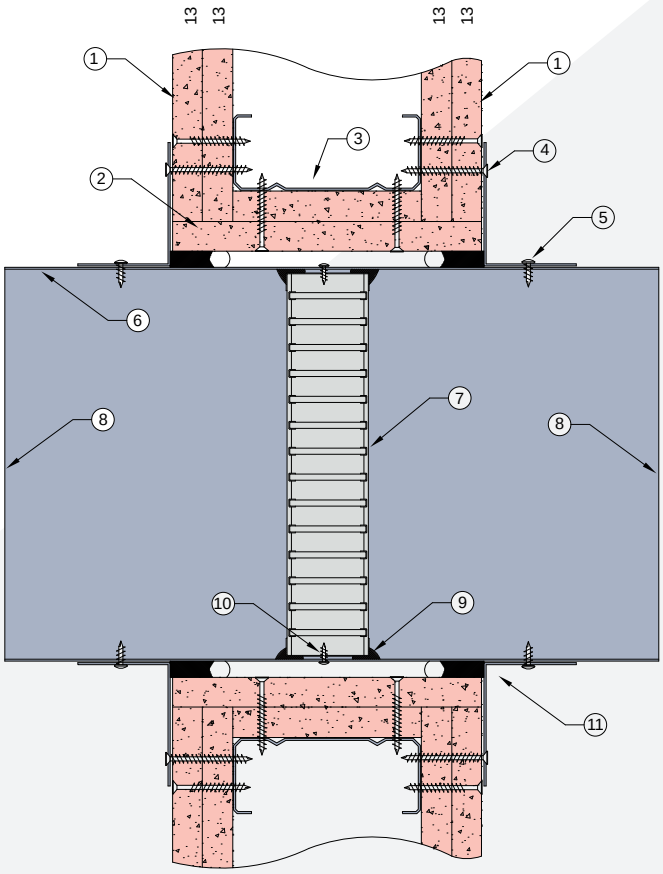
Fire Rated Plasterboard Wall System: Stud Wall 3

No	Description
1	2 x 3mm fire rated plasterboard.
2	2 x 13mm fire rated plasterboard lining aperture.
3	Steel stud framing out aperture.
4	Angles fixed to steel framing at 150mm centres or at least 2 per side.
5	0.6mm (min) Z275 gal steel angles to all four sides. Angle dimensions shall be continuous and at least 2 x the dimension of the gap between the damper casing and the penetrated element. Each angle fixed to damper casing with steel fasteners at 150mm centres or at least 2 per side.
6	Z275 gal steel casing minimum thickness 0.6mm.
7	Lorient LVH44 intumescent fire damper screw fixed into casing.
8	Casing terminates with breakaway joints, as per AS1682.2.
9	Fire damper perimeter sealed with Lorient intumescent sealant.
10	Fire damper fixed to casing with steel screws.
11	Gap between casing and aperture filled with Lorient intumescent sealant. Backing rod used as required to control sealant fill depth. Maximum annular gap between casing and wall 25mm.



Installation Instruction:

- Line out the wall opening to accept the fire damper, as shown in this system detail.
- Centralise the damper casing and firestop the gap between the casing and wall with Lorient intumescent sealant, see point 11 for fill details.
- Perimeter angles are mechanically fixed to casing with steel self drilling screws and to wall with appropriate length needle point drywall screws, as detailed in points 4 & 5.
- Ductwork shall be connected with breakaway joints, as per point 8.
- Ensure product identifications labels are conspicuously positioned for easy identification.
- Ensure convenient access is provided to allow for AS1851 inspection and maintenance routines.

Note: Damper casings, angles and fixings supplied by others.

LVH44 in steel casing penetrating fire rated Plasterboard wall

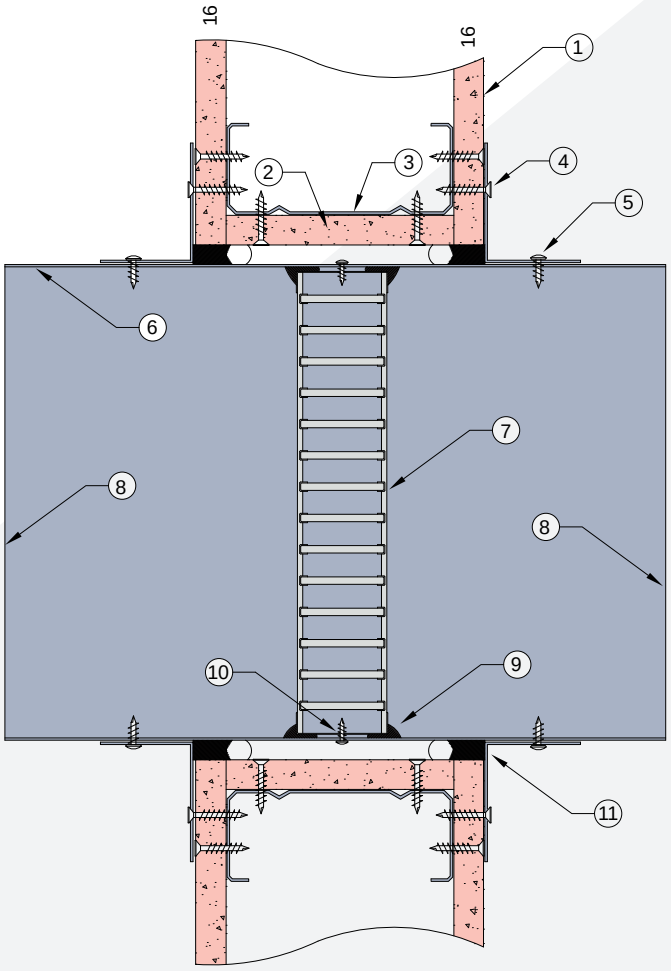
Fire Resistance in accordance with AS1530.4 2014 **-/120/-**

Test Ref: CSIRO FCO 3149

Max single cell size: 600mm x 600mm

Fire Rated Plasterboard Wall System: Stud Wall 4

No	Description
1	16mm fire rated plasterboard.
2	16mm fire rated plasterboard lining aperture.
3	Steel stud framing out aperture.
4	Angles fixed to steel framing at 150mm centres or at least 2 per side.
5	0.6mm (min) Z275 gal steel angles to all four sides. Angle dimensions shall be continuous and at least 2 x the dimension of the gap between the damper casing and the penetrated element. Each angle fixed to damper casing with steel fasteners at 150mm centres or at least 2 per side.
6	Z275 gal steel casing minimum thickness 0.6mm.
7	Lorient LVH44 intumescent fire damper screw fixed into casing.
8	Casing terminates with breakaway joints, as per AS1682.2.
9	Fire damper perimeter sealed with Lorient intumescent sealant.
10	Fire damper fixed to casing with steel screws.
11	Gap between casing and aperture filled with Lorient intumescent sealant. Backing rod used as required to control sealant fill depth. Maximum annular gap between casing and wall 25mm.



Installation Instruction:

- Line out the wall opening to accept the fire damper, as shown in this system detail.
- Centralise the damper casing and firestop the gap between the casing and wall with Lorient intumescent sealant, see point 11 for fill details.
- Perimeter angles are mechanically fixed to casing with steel self drilling screws and to wall with appropriate length needle point drywall screws, as detailed in points 4 & 5.
- Ductwork shall be connected with breakaway joints, as per point 8.
- Ensure product identifications labels are conspicuously positioned for easy identification.
- Ensure convenient access is provided to allow for AS1851 inspection and maintenance routines.

Note: Damper casings, angles and fixings supplied by others.

LVH44 in steel casing penetrating fire rated Plasterboard wall

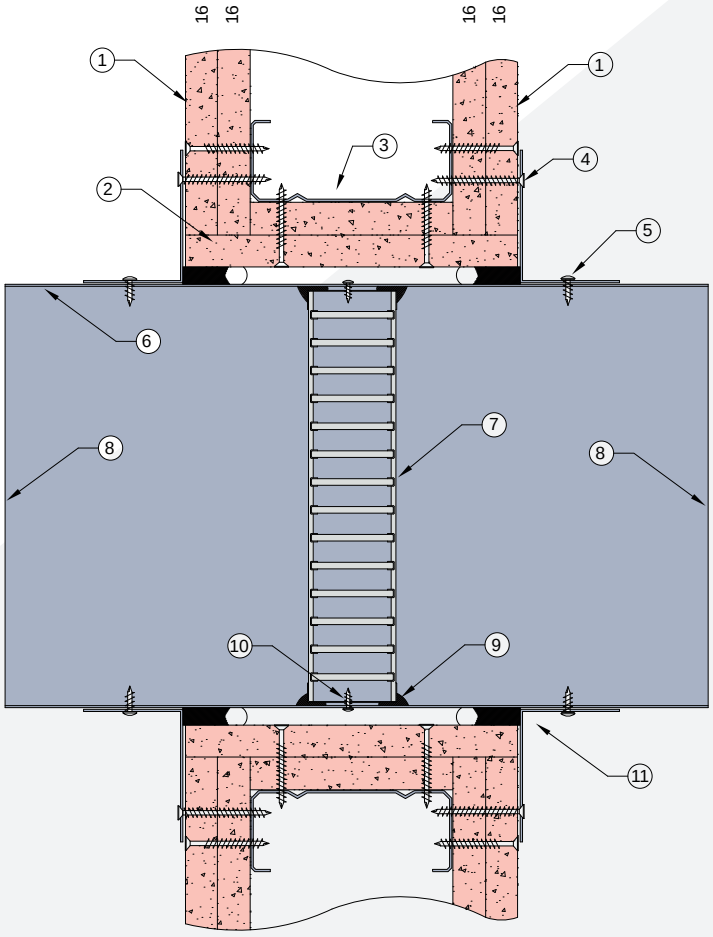
Fire Resistance in accordance with AS1530.4 2014 **-/90/-**

Test Ref: CSIRO FCO 3149

Max single cell size: 600mm x 600mm

Fire Rated Plasterboard Wall System: Stud Wall 5

No	Description
1	2 x 16mm fire rated plasterboard.
2	2 x 16mm fire rated plasterboard lining aperture.
3	Steel stud framing out aperture.
4	Angles fixed to steel framing at 150mm centres or at least 2 per side.
5	0.6mm (min) Z275 gal steel angles to all four sides. Angle dimensions shall be continuous and at least 2 x the dimension of the gap between the damper casing and the penetrated element. Each angle fixed to damper casing with steel fasteners at 150mm centres or at least 2 per side.
6	Z275 gal steel casing minimum thickness 0.6mm.
7	Lorient LVH44 intumescent fire damper screw fixed into casing.
8	Casing terminates with breakaway joints, as per AS1682.2.
9	Fire damper perimeter sealed with Lorient intumescent sealant.
10	Fire damper fixed to casing with steel screws.
11	Gap between casing and aperture filled with Lorient intumescent sealant. Backing rod used as required to control sealant fill depth. Maximum annular gap between casing and wall 25mm.



Installation Instruction:

- Line out the wall opening to accept the fire damper, as shown in this system detail.
- Centralise the damper casing and firestop the gap between the casing and wall with Lorient intumescent sealant, see point 11 for fill details.
- Perimeter angles are mechanically fixed to casing with steel self drilling screws and to wall with appropriate length needle point drywall screws, as detailed in points 4 & 5.
- Ductwork shall be connected with breakaway joints, as per point 8.
- Ensure product identifications labels are conspicuously positioned for easy identification.
- Ensure convenient access is provided to allow for AS1851 inspection and maintenance routines.

Note: Damper casings, angles and fixings supplied by others.

LVH44 in steel casing penetrating fire rated Plasterboard wall

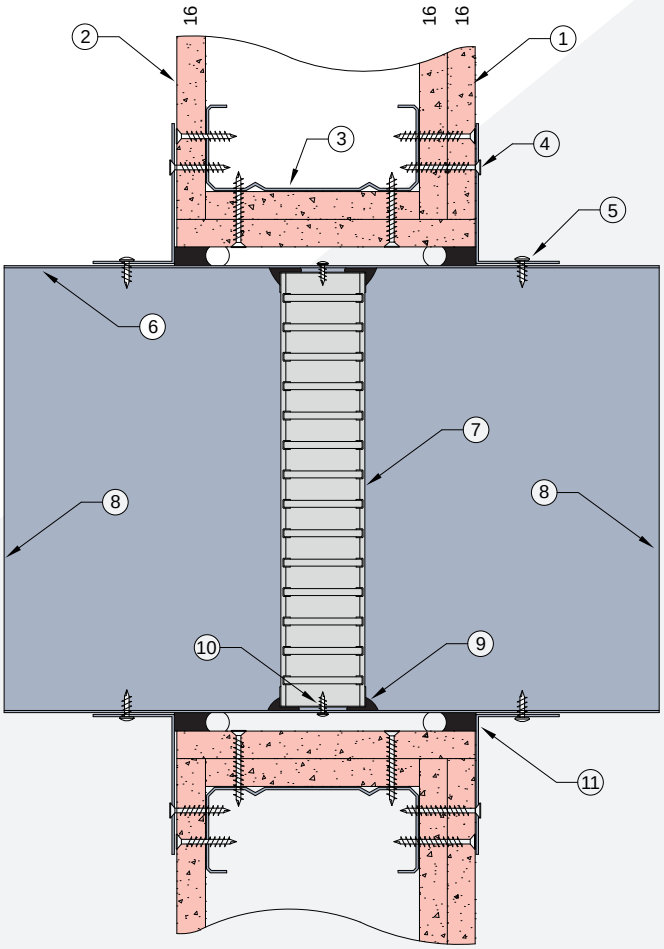
Fire Resistance in accordance with AS1530.4 2014 **-/120/-**

Test Ref: CSIRO FCO 3149

Max single cell size: 600mm x 600mm

Fire Rated Plasterboard Wall System: Stud Wall 6

No	Description
1	2 x 16mm fire rated plasterboard.
2	16mm fire rated plasterboard.
3	Steel stud and 2 x 16mm lining out aperture.
4	Angles fixed to steel framing at 150mm centres or at least 2 per side.
5	0.6mm (min) Z275 gal steel angles to all four sides. Angle dimensions shall be continuous and at least 2 x the dimension of the gap between the damper casing and the penetrated element. Each angle fixed to damper casing with steel fasteners at 150mm centres or at least 2 per side.
6	Z275 gal steel casing minimum thickness 0.6mm.
7	Lorient LVH44 intumescent fire damper screw fixed into casing.
8	Casing terminates with breakaway joints, as per AS1682.2.
9	Fire damper perimeter sealed with Lorient intumescent sealant.
10	Fire damper fixed to casing with steel screws.
11	Gap between casing and aperture filled with Lorient intumescent sealant. Backing rod used as required to control sealant fill depth. Maximum annular gap between casing and wall 25mm.



Installation Instruction:

- Line out the wall opening to accept the fire damper, as shown in this system detail.
- Centralise the damper casing and firestop the gap between the casing and wall with Lorient intumescent sealant, see point 11 for fill details.
- Perimeter angles are mechanically fixed to casing with steel self drilling screws and to wall with appropriate length needle point drywall screws, as detailed in points 4 & 5.
- Ductwork shall be connected with breakaway joints, as per point 8.
- Ensure product identifications labels are conspicuously positioned for easy identification.
- Ensure convenient access is provided to allow for AS1851 inspection and maintenance routines.

Note: Damper casings, angles and fixings supplied by others.

LVH44 in steel casing penetrating fire rated Plasterboard wall

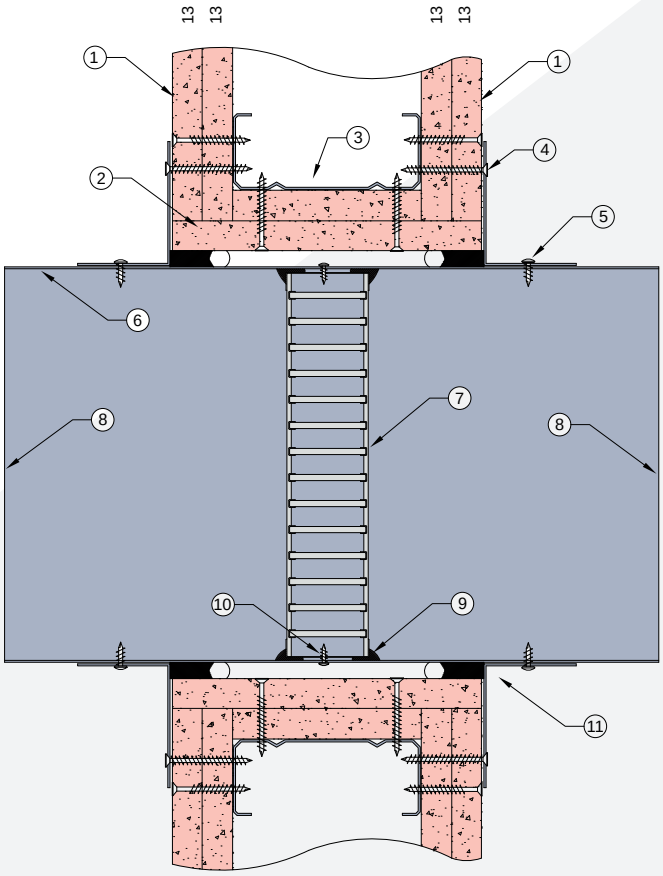
Fire Resistance in accordance with AS1530.4 2014 **-/120/-**

Test Ref: CSIRO FCO 3149

Max single cell size: 600mm x 600mm

Fire Rated Plasterboard Wall System: Stud Wall 7

No	Description
1	2 x 13mm fire rated plasterboard.
2	2 x 13mm fire rated plasterboard lining aperture.
3	Steel stud framing out aperture.
4	Angles fixed to steel framing at 150mm centres or at least 2 per side.
5	0.6mm (min) Z275 gal steel angles to all four sides. Angle dimensions shall be continuous and at least 2 x the dimension of the gap between the damper casing and the penetrated element. Each angle fixed to damper casing with steel fasteners at 150mm centres or at least 2 per side.
6	Z275 gal steel casing minimum thickness 0.6mm.
7	Lorient LVH44 intumescent fire damper screw fixed into casing.
8	Casing terminates with breakaway joints, as per AS1682.2.
9	Fire damper perimeter sealed with Lorient intumescent sealant.
10	Fire damper fixed to casing with steel screws.
11	Gap between casing and aperture filled with Lorient intumescent sealant. Backing rod used as required to control sealant fill depth. Maximum annular gap between casing and wall 25mm.



Installation Instruction:

- Line out the wall opening to accept the fire damper, as shown in this system detail.
- Centralise the damper casing and firestop the gap between the casing and wall with Lorient intumescent sealant, see point 11 for fill details.
- Perimeter angles are mechanically fixed to casing with steel self drilling screws and to wall with appropriate length needle point drywall screws, as detailed in points 4 & 5.
- Ductwork shall be connected with breakaway joints, as per point 8.
- Ensure product identifications labels are conspicuously positioned for easy identification.
- Ensure convenient access is provided to allow for AS1851 inspection and maintenance routines.

Note: Damper casings, angles and fixings supplied by others.

LVH44 in steel casing penetrating fire rated Plasterboard wall

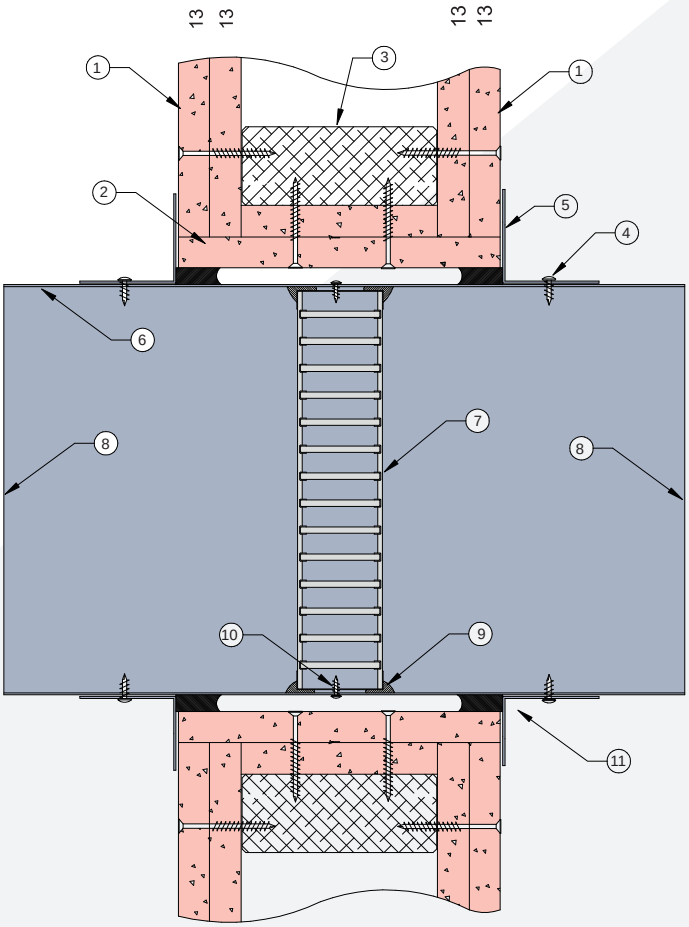
Fire Resistance in accordance with AS1530.4 2014 **-/120/60**

Test Ref: EXOVA EWFA 33233400

Max single cell size: 450mm x 450mm

Fire Rated Plasterboard Wall System: Timber Stud Wall 8

No	Description
1	2 x 13mm fire rated plasterboard.
2	2 x 13mm fire rated plasterboard lining aperture.
3	Timber stud framing out aperture.
4	Each angle fixed to damper casing with steel fasteners at 150mm centres or at least 2 per side.
5	0.6mm (min) Z275 gal steel angles to all four sides. Angle dimensions shall be continuous and at least 2 x the dimension of the gap between the damper casing and the penetrated element.
6	Z275 gal steel casing minimum thickness 0.6mm.
7	Lorient LVH44 intumescent fire damper screw fixed into casing.
8	Casing terminates with breakaway joints, as per AS1682.2.
9	Fire damper perimeter sealed with Lorient intumescent sealant.
10	Fire damper fixed to casing with steel screws.
11	Gap between casing and aperture filled with Lorient intumescent sealant. Backing rod used as required to control sealant fill depth. Maximum annular gap between casing and wall 25mm.



Installation Instruction:

- Line out the wall opening to accept the fire damper, as shown in this system detail.
- Centralise the damper casing and firestop the gap between the casing and wall with Lorient intumescent sealant, see point 11 for fill details.
- Perimeter angles are mechanically fixed to casing with steel self drilling screws and to wall with appropriate length needle point drywall screws, as detailed in points 4 & 5.
- Ductwork shall be connected with breakaway joints, as per point 8.
- Ensure product identifications labels are conspicuously positioned for easy identification.
- Ensure convenient access is provided to allow for AS1851 inspection and maintenance routines.

Note: Damper casings, angles and fixings supplied by others.

LVH44 in steel casing penetrating fire rated Plasterboard wall

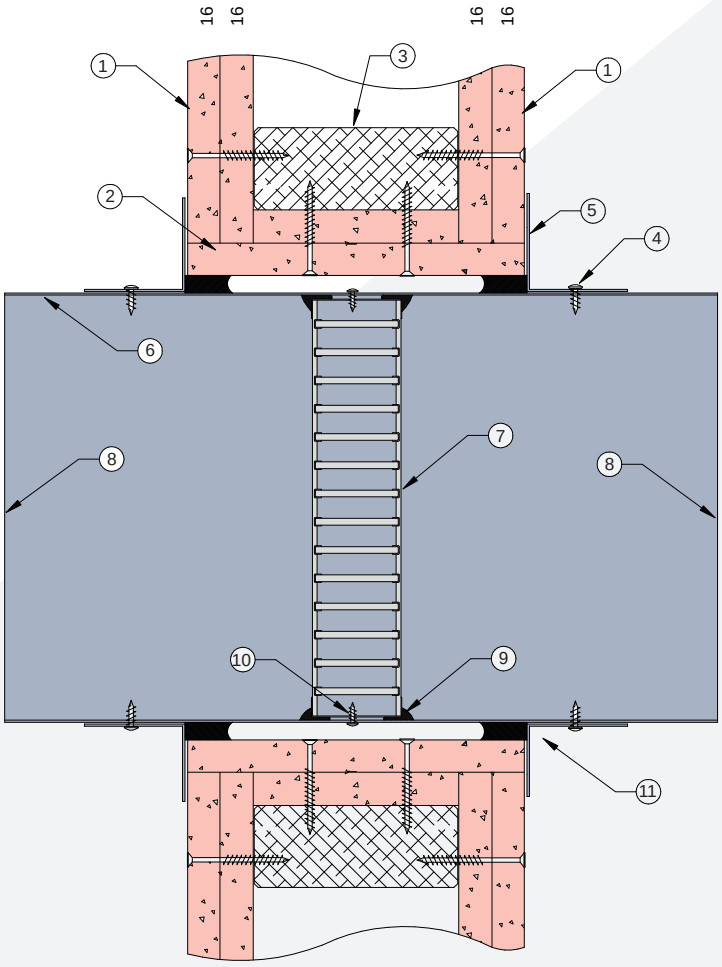
Fire Resistance in accordance with AS1530.4 2014 **-/120/60**

Test Ref: EXOVA EWFA 33233400

Max single cell size: 450mm x 450mm

Fire Rated Plasterboard Wall System: Timber Stud Wall 9

No	Description
1	2 x 16mm fire rated plasterboard.
2	2 x 16mm fire rated plasterboard lining aperture.
3	Timber stud framing out aperture.
4	Each angle fixed to damper casing with steel fasteners at 150mm centres or at least 2 per side.
5	0.6mm (min) Z275 gal steel angles to all four sides. Angle dimensions shall be continuous and at least 2 x the dimension of the gap between the damper casing and the penetrated element.
6	Z275 gal steel casing minimum thickness 0.6mm.
7	Lorient LVH44 intumescent fire damper screw fixed into casing.
8	Casing terminates with breakaway joints, as per AS1682.2.
9	Fire damper perimeter sealed with Lorient intumescent sealant.
10	Fire damper fixed to casing with steel screws.
11	Gap between casing and aperture filled with Lorient intumescent sealant. Backing rod used as required to control sealant fill depth. Maximum annular gap between casing and wall 25mm.



Installation Instruction:

- Line out the wall opening to accept the fire damper, as shown in this system detail.
- Centralise the damper casing and firestop the gap between the casing and wall with Lorient intumescent sealant, see point 11 for fill details.
- Perimeter angles are mechanically fixed to casing with steel self drilling screws and to wall with appropriate length needle point drywall screws, as detailed in points 4 & 5.
- Ductwork shall be connected with breakaway joints, as per point 8.
- Ensure product identifications labels are conspicuously positioned for easy identification
- Ensure convenient access is provided to allow for AS1851 inspection and maintenance routines.

Note: Damper casings, angles and fixings supplied by others.

LVH44 in steel casing penetrating fire rated Plasterboard wall

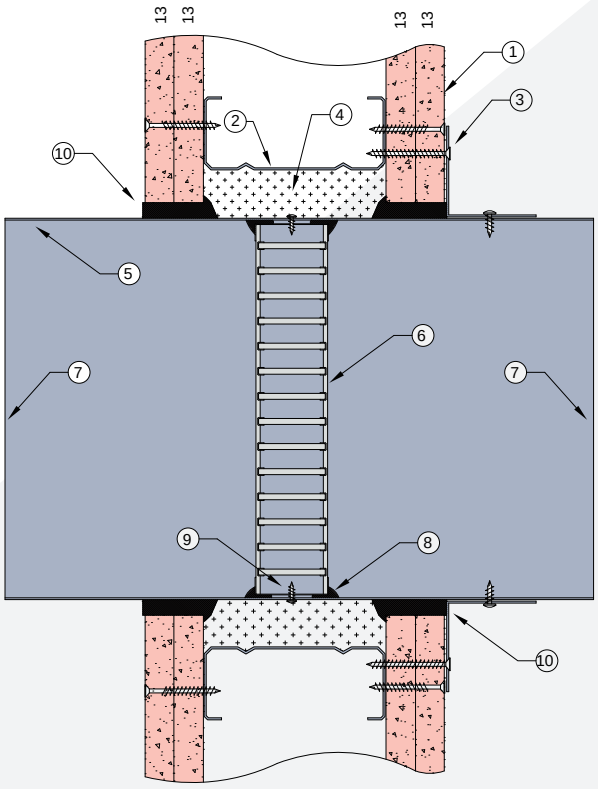
Fire Resistance in accordance with AS1530.4 2014 **-/120/60**

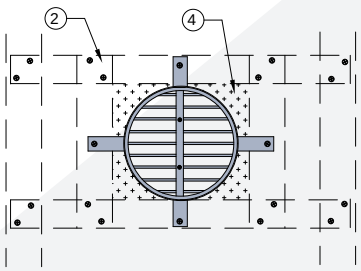
Test Ref: EXOVA EWFA 33233400

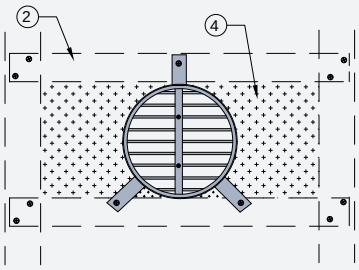
Max single cell size: 450 x 450mm

Fire Rated Plasterboard Wall System: Stud Wall 10

No	Description
1	2 x 13mm fire rated plasterboard wall.
2	Steel channel lining out aperture to all four sides.
3	25mm x 40mm x 40mm x 1mm steel angle brackets fixed to steel framing and damper casing with steel fixings.
4	Cavity around penetration filled with rockwool.
5	Z275 gal steel casing minimum thickness 0.6mm.
6	Lorient LVH44C intumescent fire damper screw fixed into casing.
7	Casing terminates with breakaway joints, as per AS1682.2.
8	Fire damper perimeter sealed with Lorient intumescent sealant.
9	Fire damper fixed to casing with steel screws.
10	Gap between casing and aperture filled with Lorient intumescent sealant. Backing rod used as required to control sealant fill depth. Maximum annular gap between casing and wall 25mm.







Circular LVH44 tied back to studs with steel track to ensure damper is fully supported within the framing structure of the wall.

Internal cavity around LVH44C packed out with rockwool to retain wall insulation.

Installation Instruction:

- Prepare the wall opening to accept the fire damper and install in wall as shown in this system detail.
- Fill cavity around penetration with rockwool, as per point 4.
- Fix angle brackets to casing with steel self drilling screws or pop rivets, as detailed in points 3.
- Centralise in aperture and mechanically fix to wall. Firestop the gap between the casing and wall with Lorient intumescent sealant, note fill details in point 10.
- Ductwork shall be connected with breakaway joints, as per point 7.
- Ensure product identifications labels are conspicuously positioned for easy identification.
- Ensure convenient access is provided to allow for AS1851 inspection and maintenance routines.

Note: Fixings and rockwool supplied by others.

LVH44C in steel casing penetrating fire rated Plasterboard wall

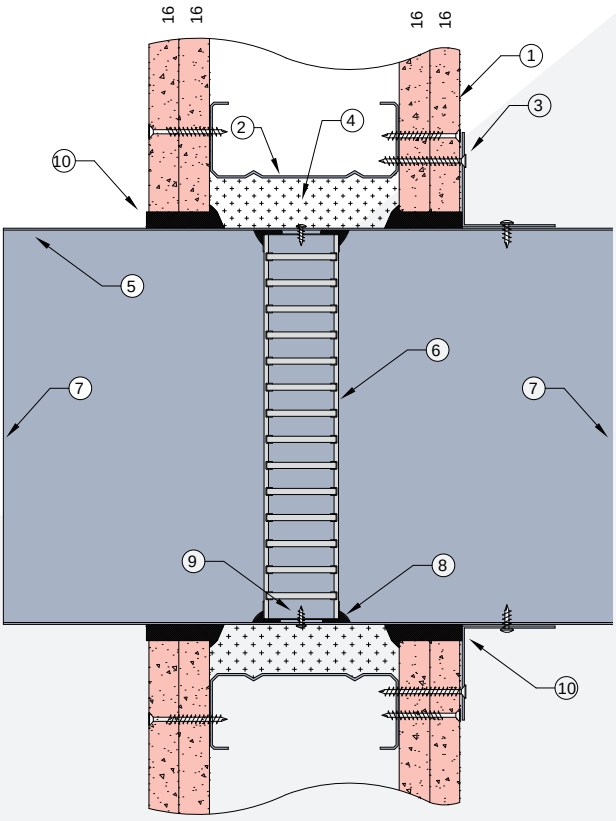
Fire Resistance in accordance with AS1530.4 2014 **-/120/60**

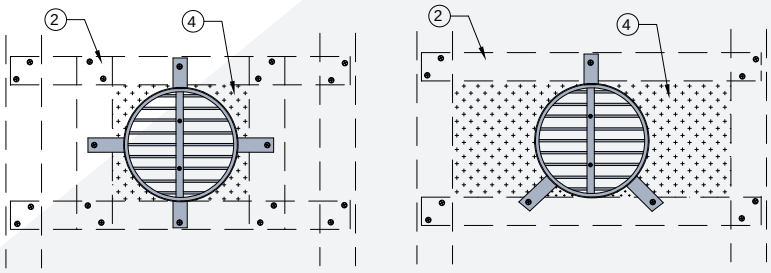
Test Ref: EXOVA EWFA 33233400

Max cell size: 450mm diameter

Fire Rated Plasterboard Wall System: Stud Wall 11

No	Description
1	2 x 16mm fire rated plasterboard wall.
2	Steel channel lining out aperture to all four sides.
3	25mm x 40mm x 40mm x 1mm steel angle brackets fixed to steel framing and damper casing with steel fixings.
4	Cavity around penetration filled with rockwool.
5	Z275 gal steel casing minimum thickness 0.6mm.
6	Lorient LVH44C circular intumescent fire damper screw fixed into casing.
7	Casing terminates with breakaway joints, as per AS1682.2.
8	Fire damper perimeter sealed with Lorient intumescent sealant.
9	Fire damper fixed to casing with steel screws.
10	Gap between casing and aperture filled with Lorient intumescent sealant. Backing rod used as required to control sealant fill depth. Maximum annular gap between casing and wall 25mm.





Circular LVH44 tied back to studs with steel track to ensure damper is fully supported within the framing structure of the wall.

Internal cavity around LVH44C packed out with rockwool to retain wall insulation.

Installation Instruction:

- Prepare the wall opening to accept the fire damper and install in wall as shown in this system detail.
- Fill cavity around penetration with rockwool, as per point 4.
- Fix angle brackets to casing with steel self drilling screws or pop rivets, as detailed in points 3.
- Centralise in aperture and mechanically fix to wall. Firestop the gap between the casing and wall with Lorient intumescent sealant, note fill details in point 10.
- Ductwork shall be connected with breakaway joints, as per point 7.
- Ensure product identifications labels are conspicuously positioned for easy identification.
- Ensure convenient access is provided to allow for AS1851 inspection and maintenance routines.

Note: Fixings and rockwool supplied by others.

LVH44C in steel casing penetrating fire rated Plasterboard wall

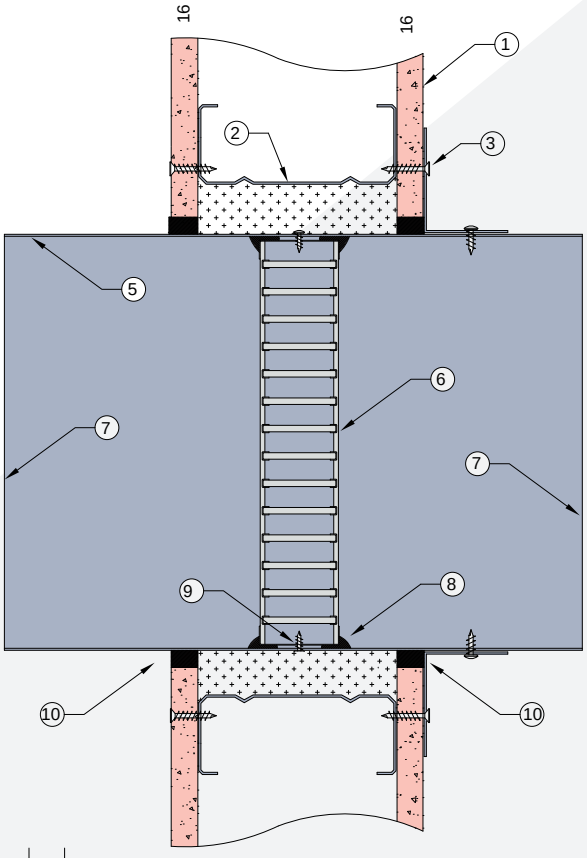
Fire Resistance in accordance with AS1530.4 2014 **-/120/60**

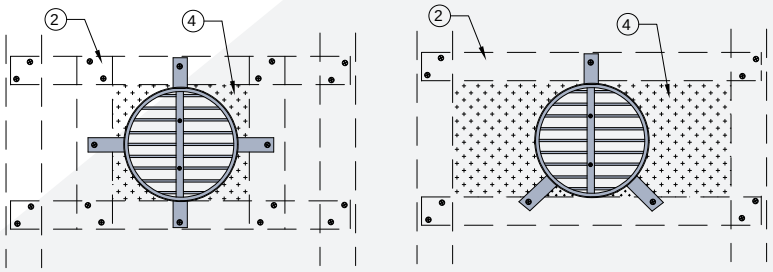
Test Ref: EXOVA EWFA 33233400

Max cell size: 450mm diameter

Fire Rated Plasterboard Wall System: Stud Wall 12

No	Description
1	16mm fire rated plasterboard.
2	Steel channel lining out aperture to all four sides.
3	25mm x 40mm x 40mm x 1mm gal steel angle brackets fixed to steel framing and damper casing with steel fixings.
4	Cavity around penetration filled with rockwool.
5	Z275 gal steel casing minimum thickness 0.6mm.
6	Lorient LVH44C circular intumescent fire damper screw fixed into casing.
7	Casing terminates with breakaway joints, as per AS1682.2.
8	Fire damper perimeter sealed with Lorient intumescent sealant.
9	LVH44C fixed to casing with steel screws.
10	Gap between casing and aperture filled with Lorient intumescent sealant. Backing rod used as required to control sealant fill depth. Maximum annular gap between casing and wall 25mm.





Circular LVH44 tied back to studs with steel track to ensure damper is fully supported within the framing structure of the wall.

Internal cavity around LVH44C packed out with rockwool to retain wall insulation.

Installation Instruction:

- Prepare the wall opening to accept the fire damper and install in wall as shown in this system detail.
- Fill cavity around penetration with rockwool, as per point 4.
- Fix angle brackets to casing with steel self drilling screws or pop rivets as detailed in points 3.
- Centralise in aperture and mechanically fix to wall. Firestop the gap between the casing and wall with Lorient intumescent sealant, note fill details in point 10.
- Ductwork shall be connected with breakaway joints, as per point 7.
- Ensure product identifications labels are conspicuously positioned for easy identification.
- Ensure convenient access is provided to allow for AS1851 inspection and maintenance routines.

Note: Fixings and rockwool supplied by others.

LVH44C in steel casing penetrating fire rated Plasterboard wall

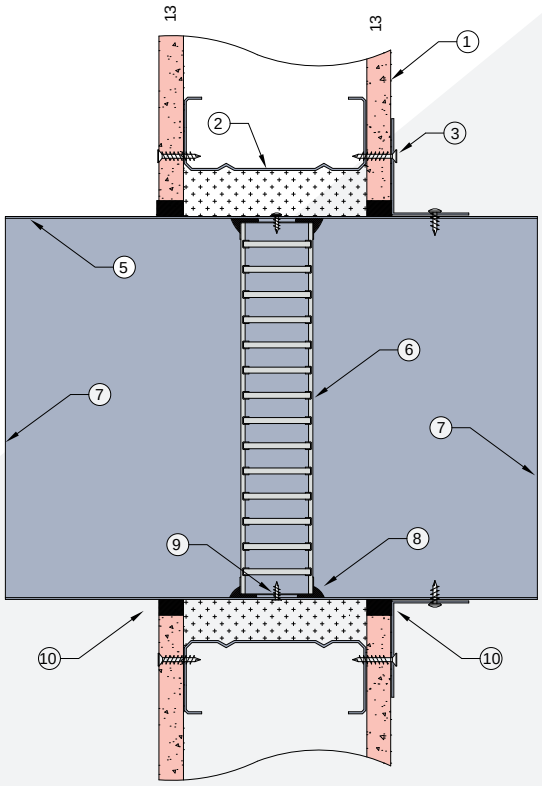
Fire Resistance in accordance with AS1530.4 2014 **-/90/60**

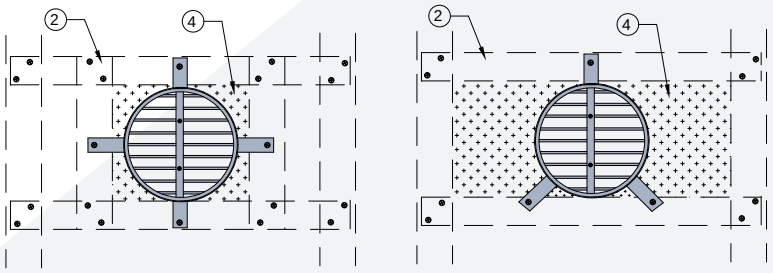
Test Ref: EXOVA EWFA 33233400

Max cell size: 450mm diameter

Fire Rated Plasterboard Wall System: Stud Wall 13

No	Description
1	13mm fire rated plasterboard.
2	Steel channel lining out aperture to all four sides.
3	25mm x 40mm x 40mm x 1mm steel angle brackets fixed to steel framing and damper casing with steel fixings.
4	Cavity around penetration filled with rockwool.
5	Z275 gal steel casing minimum thickness 0.6mm.
6	Lorient LVH44C circular intumescent fire damper screw fixed into casing.
7	Casing terminates with breakaway joints, as per AS1682.2.
8	Fire damper perimeter sealed with Lorient intumescent sealant.
9	Fire damper fixed to casing with steel screws.
10	Gap between casing and aperture filled with Lorient intumescent sealant. Backing rod used as required to control sealant fill depth. Maximum annular gap between casing and wall 25mm.





Circular LVH44 tied back to studs with steel track to ensure damper is fully supported within the framing structure of the wall.

Internal cavity around LVH44C packed out with rockwool to retain wall insulation.

Installation Instruction:

- Prepare the wall opening to accept the fire damper and install in wall as shown in this system detail.
- Fill cavity around penetration with rockwool, as per point 4.
- Fix angle brackets to casing with steel self drilling screws or pop rivets as detailed in points 3.
- Centralise in aperture and mechanically fix to wall. Firestop the gap between the casing and wall with Lorient intumescent sealant, note fill details in point 10.
- Ductwork shall be connected with breakaway joints, as per point 7.
- Ensure product identifications labels are conspicuously positioned for easy identification.
- Ensure convenient access is provided to allow for AS1851 inspection and maintenance routines.

Note: Fixings and rockwool supplied by others.

LVH44C in steel casing penetrating fire rated Plasterboard wall

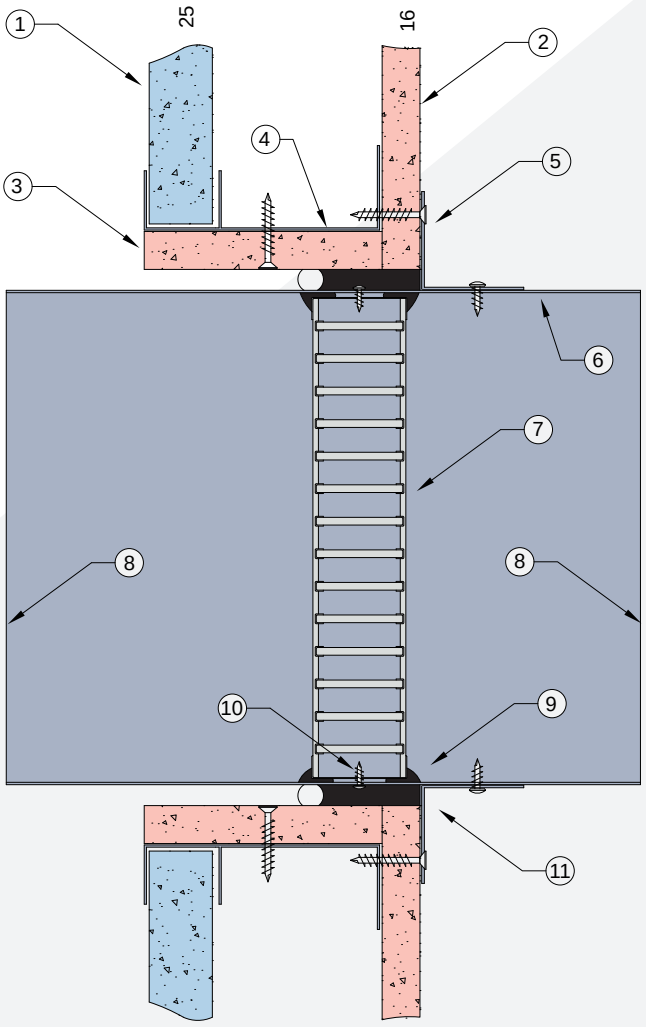
Fire Resistance in accordance with AS1530.4 2014 **-/60/60**

Test Ref: EXOVA EWFA 33233400

Max cell size: 450mm diameter

Fire Rated Plasterboard Wall System: Shaft Wall 1

No	Description
1	25mm fire rated plasterboard shaft wall liner.
2	1 x 16mm fire rated plasterboard.
3	16mm fire rated plasterboard liner framing out aperture.
4	Steel CH section or J track used to line all sides of aperture.
5	0.6mm (min) Z275 gal steel angles to all four sides. Angle dimensions shall be continuous and at least 2 x the dimension of the gap between the damper casing and the penetrated element. Each angle fixed to damper casing with steel fasteners at 150mm centres or at least 2 per side.
6	Z275 gal steel casing minimum thickness 0.6mm.
7	Lorient LVH44 intumescent fire damper screw fixed into casing.
8	Casing terminates with breakaway joints as per AS1682.2 or directly fixed to the protected sheet metal riser with steel fasteners.
9	Fire damper perimeter sealed with Lorient intumescent sealant.
10	Fire damper fixed to casing with steel screws.
11	Gap between casing and aperture filled with Lorient intumescent sealant. Backing rod used as required to control sealant fill depth. Maximum annular gap between casing and wall 25mm.



Installation Instruction:

- Line out the wall opening to accept the fire damper, as shown in this system detail.
- Centralise the damper casing and firestop the gap between the casing and wall with Lorient intumescent sealant, see point 11 for fill details.
- Perimeter angles are mechanically fixed to casing with steel self drilling screws and to wall with appropriate length needle point drywall screws, as detailed in point 5.
- Ductwork shall be connected with breakaway joints, as per point 8.
- Ensure product identifications labels are conspicuously positioned for easy identification.
- Ensure convenient access is provided to allow for AS1851 inspection and maintenance routines.

Note: Damper casings, angles and fixings supplied by others.

LVH44 in steel casing penetrating fire rated Plasterboard Shaft wall

Fire Resistance in accordance with **-/120/-**

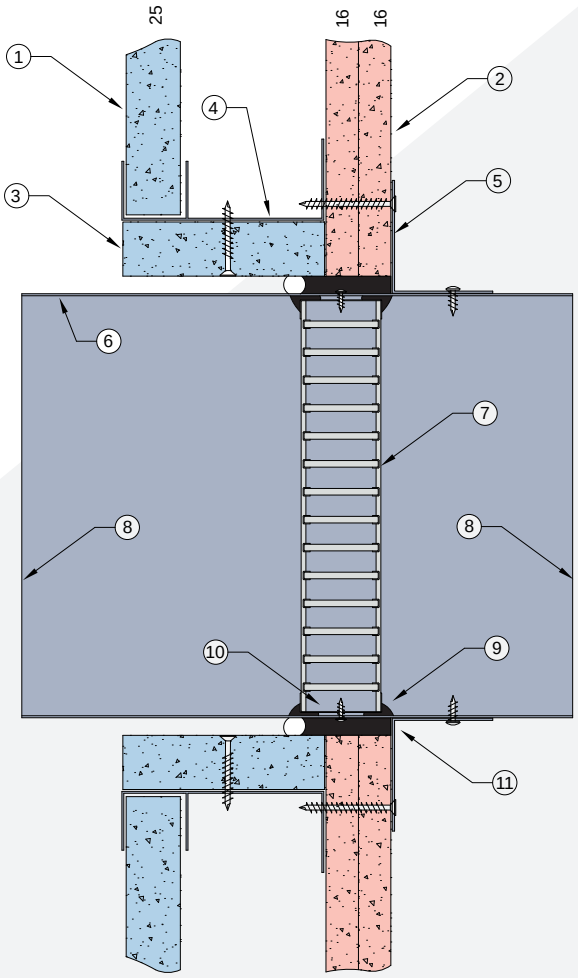
AS1530.4 2014

Test Ref: CSIRO 3149

Max single cell size: 600 x 600mm

Fire Rated Plasterboard Wall System: Shaft Wall 2

No	Description
1	25mm fire rated plasterboard shaft wall liner.
2	2 x 16mm fire rated plasterboard.
3	25mm fire rated plasterboard liner framing out aperture.
4	Steel CH section or J track used to line all sides of aperture.
5	0.6mm (min) Z275 gal steel angles to all four sides. Angle dimensions shall be continuous and at least 2 x the dimension of the gap between the damper casing and the penetrated element. Each angle fixed to damper casing with steel fasteners at 150mm centres or at least 2 per side.
6	Z275 gal steel casing minimum thickness 0.6mm.
7	Lorient LVH44 intumescent fire damper screw fixed into casing.
8	Casing terminates with breakaway joints, as per AS1682.2 or directly fixed to the protected sheet metal riser with steel fasteners.
9	Fire damper perimeter sealed with Lorient intumescent sealant.
10	Fire damper fixed to casing with steel screws.
11	Gap between casing and aperture filled with Lorient intumescent sealant. Backing rod used as required to control sealant fill depth. Maximum annular gap between casing and wall 25mm.



Installation Instruction:

- Line out the wall opening to accept the fire damper, as shown in this system detail.
- Centralise the damper casing and firestop the gap between the casing and wall with Lorient intumescent sealant, see point 11 for fill details.
- Perimeter angles are mechanically fixed to casing with steel self drilling screws and to wall with appropriate length needle point drywall screws, as detailed in point 5.
- Ductwork shall be connected with breakaway joints, as per point 8.
- Ensure product identifications labels are conspicuously positioned for easy identification.
- Ensure convenient access is provided to allow for AS1851 inspection and maintenance routines.

Note: Damper casings, angles and fixings supplied by others.

LVH44 in steel casing penetrating fire rated Plasterboard Shaft wall

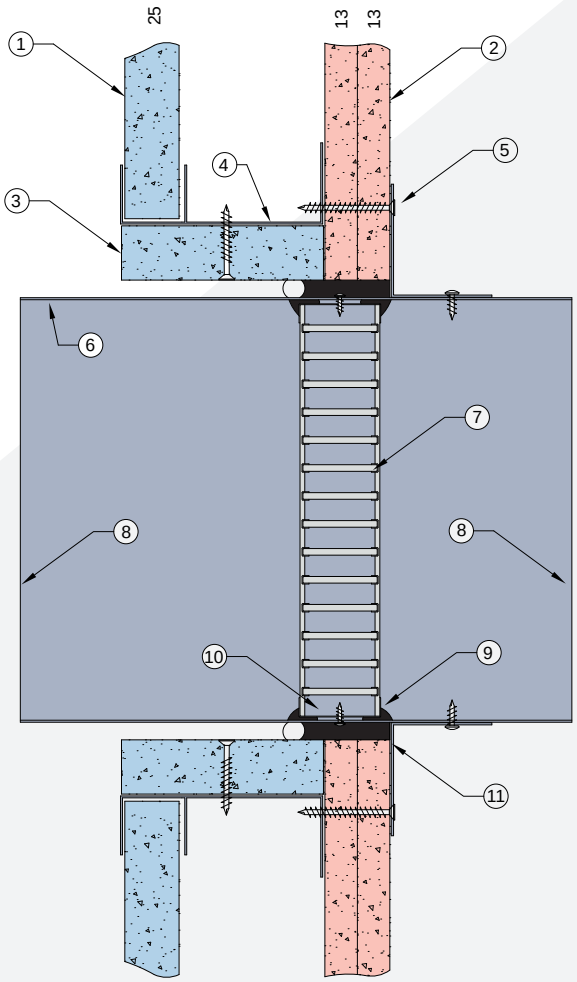
Fire Resistance in accordance with AS1530.4 2014 **-/120/-**

Test Ref: CSIRO 3149

Max single cell size: 600 x 600mm

Fire Rated Plasterboard Wall System: Shaft Wall 3

No	Description
1	25mm fire rated plasterboard shaft wall liner.
2	2 x 13mm fire rated plasterboard.
3	25mm fire rated plasterboard shaft liner framing out aperture.
4	Steel CH section or J track used to line all sides of aperture.
5	0.6mm (min) Z275 gal steel angles to all four sides. Angle dimensions shall be continuous and at least 2 x the dimension of the gap between the damper casing and the penetrated element. Each angle fixed to damper casing with steel fasteners at 150mm centres or at least 2 per side.
6	Z275 gal steel casing minimum thickness 0.6mm.
7	Lorient LVH44 intumescent fire damper screw fixed into casing.
8	Casing terminates with breakaway joints, as per AS1682.2 or directly fixed to the protected sheet metal riser with steel fasteners.
9	Fire damper perimeter sealed with Lorient intumescent sealant.
10	Fire damper fixed to casing with steel screws.
11	Gap between casing and aperture filled with Lorient intumescent sealant. Backing rod used as required to control sealant fill depth. Maximum annular gap between casing and wall 25mm.



Installation Instruction:

- Line out the wall opening to accept the fire damper as shown in this system detail.
- Centralise the damper casing and firestop the gap between the casing and wall with Lorient intumescent sealant, see point 11 for fill details.
- Perimeter angles are mechanically fixed to casing with steel self drilling screws and to wall with appropriate length needle point drywall screws, as detailed in point 5.
- Ductwork shall be connected with breakaway joints, as per point 8.
- Ensure product identifications labels are conspicuously positioned for easy identification.
- Ensure convenient access is provided to allow for AS1851 inspection and maintenance routines.

Note: Damper casings, angles and fixings supplied by others.

LVH44 in steel casing penetrating fire rated Plasterboard Shaft wall

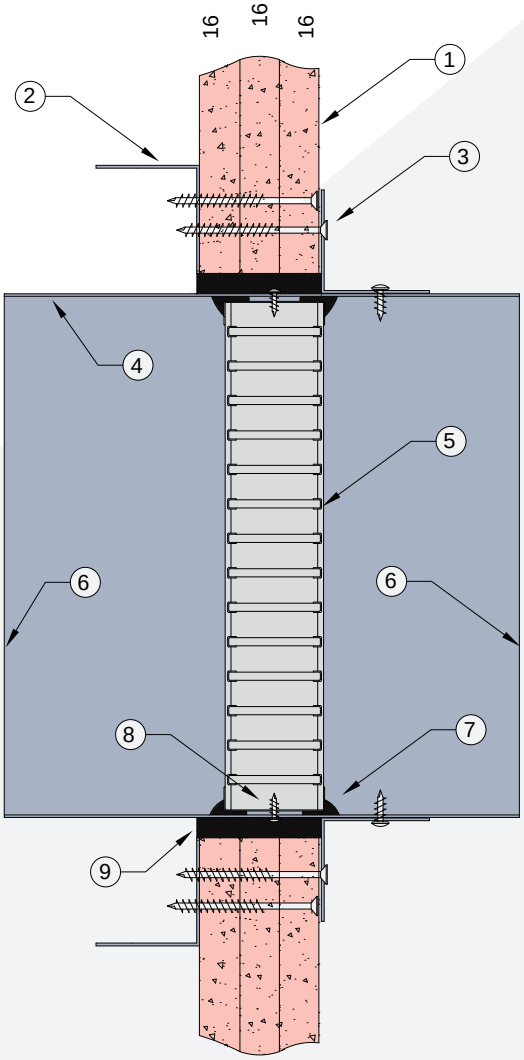
Fire Resistance in accordance with AS1530.4 2014 **-/120/-**

Test Ref: CSIRO 3149

Max single cell size: 600 x 600mm

Fire Rated Plasterboard Wall System: Shaft Wall 4

No	Description
1	3 x 16mm fire rated plasterboard.
2	40mm x 40mm 0.6mm Z275 steel angle fixed through wall with 60mm long steel needle point screws.
3	0.6mm (min) Z275 gal steel angles to all four sides. Angle dimensions shall be continuous and at least 2 x the dimension of the gap between the damper casing and the penetrated element. Each angle fixed to damper casing with 60mm long steel needle point screws at 150mm centres or at least 2 per side.
4	Z275 gal steel casing minimum thickness 0.6mm.
5	Lorient LVH44 intumescent fire damper screw fixed into casing.
6	Casing terminates with breakaway joints, as per AS1682.2.
7	Fire damper perimeter sealed with Lorient intumescent sealant.
8	Fire damper fixed to casing with steel screws.
9	Gap between casing and aperture filled with Lorient intumescent sealant. Maximum annular gap between casing and wall 25mm.



Installation Instruction:

- Prepare the wall opening to accept the fire damper and install in wall, as shown in this system detail.
- Fix reinforcing angles to inside of wall as shown above. Fix angle brackets to damper casing, as per point 2 & 3.
- Centralise in aperture and mechanically fix through wall into opposing angle. Firestop the gap between the casing and wall with Lorient intumescent sealant, note fill details in point 9.
- Ductwork shall be connected with breakaway joints, as per point 6.
- Ensure product identifications labels are conspicuously positioned for easy identification.
- Ensure convenient access is provided to allow for AS1851 inspection and maintenance routines.

Note: Damper casings, angles and fixings supplied by others.

LVH44 in steel casing penetrating fire rated laminated Plasterboard Shaft wall

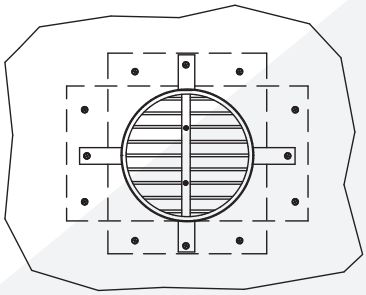
Fire Resistance in accordance with AS1530.4 2014 **-/120/-**

Test Ref: EXOVA EWFA 33233400

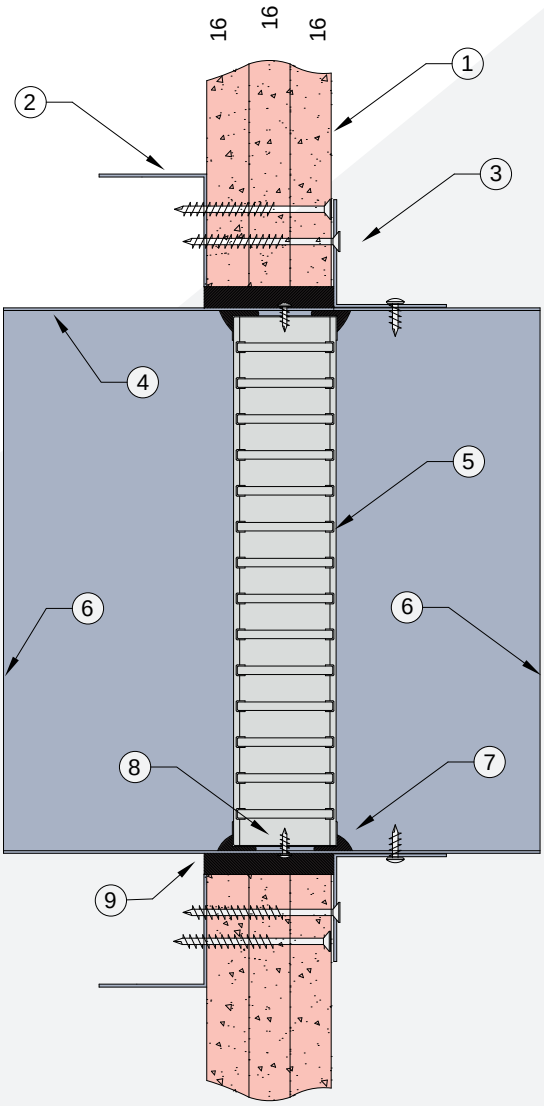
Max single cell size: 450mm x 450mm

Fire Rated Plasterboard Wall System: Shaft Wall 5

No	Description
1	3 x 16mm fire rated plasterboard.
2	40mm x 40mm 0.6mm Z275 steel reinforcing angles fixed around aperture with 60mm long steel needle point screws.
3	0.6mm (min) 25mm x 40mm x 40mm Z275 gal steel angles fitted to casing with steel self drilling screws or pop rivets. Damper angles fixed through wall into reinforcing angles with 60mm needle point self drilling screws as shown.
4	Z275 gal steel casing minimum thickness 0.6mm.
5	Lorient LVH44C circular intumescent fire damper screw fixed into casing.
6	Casing terminates with breakaway joints, as per AS1682.2.
7	Fire damper perimeter sealed with Lorient intumescent sealant.
8	Fire damper fixed to casing with steel screws.
9	Gap between casing and aperture filled with Lorient intumescent sealant. Backing rod used as required to control sealant fill depth. Maximum annular gap between casing and wall 20mm.



Rondo 40mm x 40mm equal angle fixed around aperture to provide anchor point for fixing angle brackets 4 off fixing angles required as shown.



Installation Instruction:

- Prepare the wall opening to accept the fire damper and install in wall, as shown in this system detail.
- Fix reinforcing angles to inside of wall as shown above. Fix angle brackets to damper casing, as per point 2 & 3.
- Centralise in aperture and mechanically fix through wall into opposing angle. Firestop the gap between the casing and wall with Lorient intumescent sealant, note fill details in point 9.
- Ductwork shall be connected with breakaway joints, as per point 6.
- Ensure product identifications labels are conspicuously positioned for easy identification.
- Ensure convenient access is provided to allow for AS1851 inspection and maintenance routines.

Note: Fixings and angles supplied by others.

LVH44C in steel casing penetrating fire rated Plasterboard Shaft wall

Fire Resistance in accordance with **-/120/-**

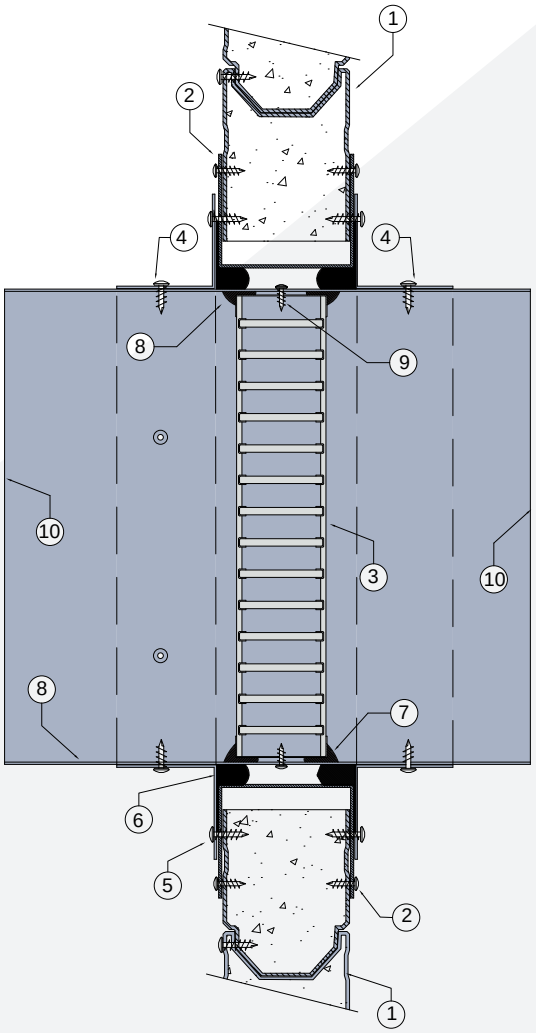
AS1530.4 2014

Test Ref: EXOVA EWFA 33233400

Max single cell size: 450mm diameter

Fire Rated Speedpanel® Wall System: Speedpanel® 1

No	Description
1	Speedpanel® wall system.
2	Aperture lined out with gal steel C track section and screw fixed to wall with steel fixings as per Speedpanel test approvals.
3	Lorient LVH44 intumescent fire damper.
4	Angles fixed to casing with steel self drilling screws at 150mm centres.
5	0.6mm (min) Z275 gal steel angles to all four sides. Angle dimensions shall be continuous and at least 2 x the dimension of the gap between the damper casing and the penetrated element.
6	Gap between casing and aperture filled with Lorient intumescent sealant. Backing rod used as required to control sealant fill depth. Maximum annular gap between casing and wall 25mm.
7	Fire damper perimeter sealed with Lorient intumescent sealant.
8	Z275 gal steel casing minimum 0.6mm.
9	LVH44 fixed to casing with steel self drilling screws or pop rivets.
10	Casing terminates with breakaway joints, as per AS1682.2.



Installation Instruction:

- Prepare the wall opening to accept the fire damper and install in wall, as shown in this system detail.
- Centralise the casing and firestop the gap between the casing and wall with Lorient intumescent sealant, note fill details in point 6.
- Perimeter angles are mechanically fixed to casing with steel self drilling screws or pop rivets, as detailed in points 4 & 5.
- Ductwork shall be connected with breakaway joints, as per point 10.
- Ensure product identifications labels are conspicuously positioned for easy identification.
- Ensure convenient access is provided to allow for AS1851 inspection and maintenance routines.

Note: Damper casings, angles and fixings supplied by others.

LVH44 in steel casing penetrating fire rated Speedpanel® wall

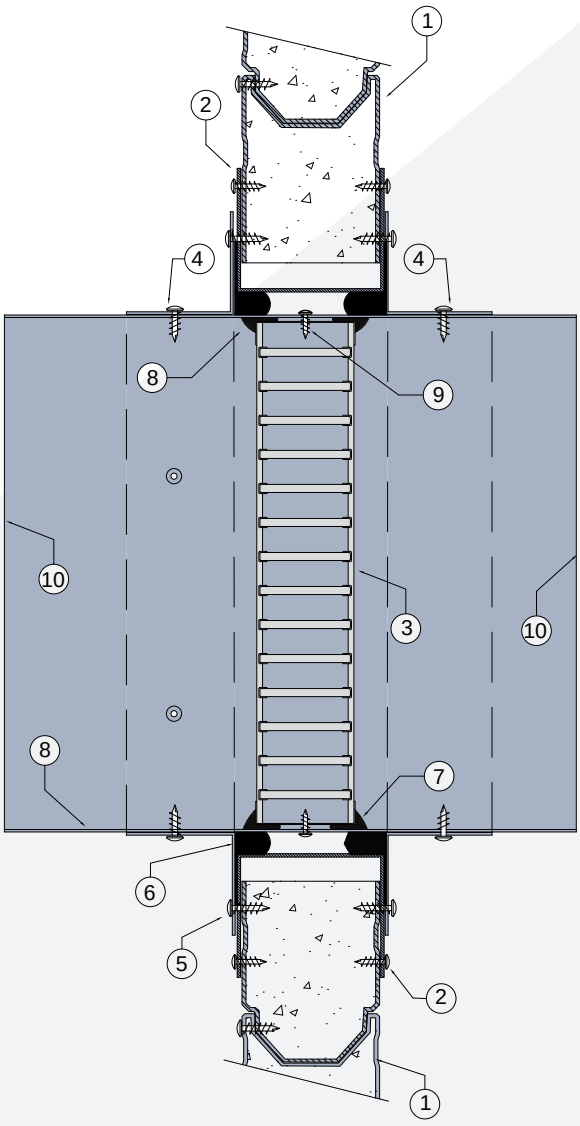
Fire Resistance in accordance with AS1530.4 2005 **Up to -/120/-**

Test Ref: EXOVA RIR 21622

Max size: 1000mm x 1000mm

Fire Rated Speedpanel® Wall System: Speedpanel® 2

No	Description
1	Speedpanel® wall system.
2	Aperture lined out with gal steel C track section and screw fixed to wall with steel fixings as per Speedpanel test approvals.
3	Lorient LVH44 intumescent fire damper.
4	Angles fixed to casing with steel self drilling screws at 150mm centres.
5	0.6mm (min) Z275 gal steel angles to all four sides. Angle dimensions shall be continuous and at least 2 x the dimension of the gap between the damper casing and the penetrated element.
6	Gap between casing and aperture filled with Lorient intumescent sealant. Backing rod used as required to control sealant fill depth. Maximum annular gap between casing and wall 25mm.
7	Fire damper perimeter sealed with Lorient intumescent sealant.
8	Z275 gal steel casing minimum 0.6mm.
9	LVH44 fixed to casing with steel self drilling screws or pop rivets.
10	Casing terminates with breakaway joints, as per AS1682.2.



Installation Instruction:

- Prepare the wall opening to accept the fire damper and install in wall, as shown in system detail.
- Centralise the casing and firestop the gap between the casing and wall with Lorient intumescent sealant, note fill details in point 6.
- Perimeter angles are mechanically fixed to casing with steel self drilling screws or pop rivets, as detailed in points 4 & 5.
- Ductwork shall be connected with breakaway joints, as per point 10.
- Ensure product identifications labels are conspicuously positioned for easy identification.
- Ensure convenient access is provided to allow for AS1851 inspection and maintenance routines.

Note: Damper casings, angles and fixings supplied by others.

LVH44 in steel casing penetrating fire rated Speedpanel® wall

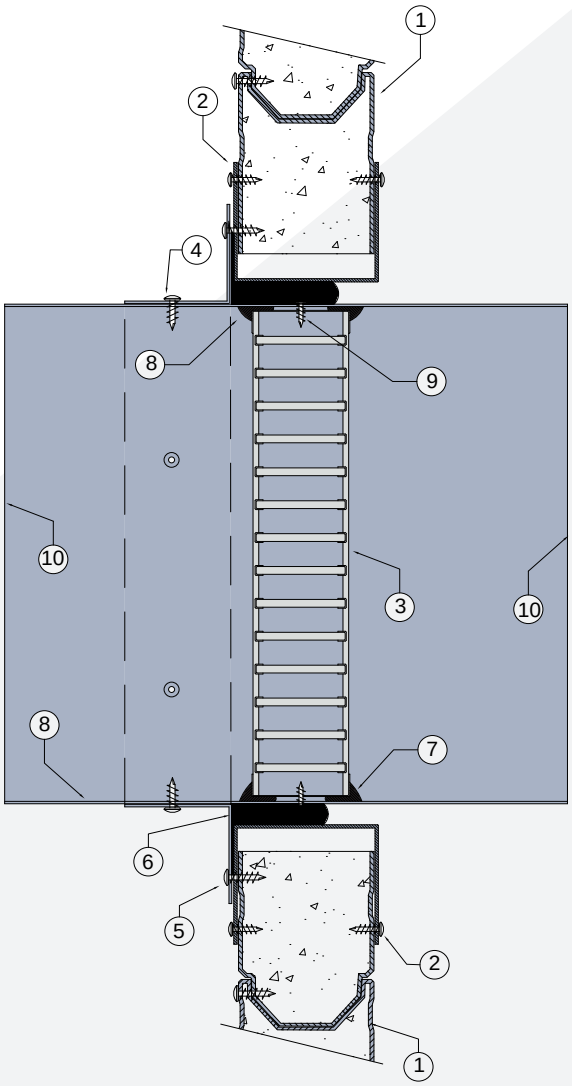
Fire Resistance in accordance with AS1530.4 2014 **-/120/30**

Test Ref: EXOVA 332333400

Max single cell size: 450mm x 450mm

Fire Rated Speedpanel® Wall System: Speedpanel® 3

No	Description
1	Speedpanel® wall system.
2	Aperture lined out with gal steel C track section and screw fixed to wall with steel fixings, as per Speedpanel test approvals.
3	Lorient LVH44 intumescent fire damper.
4	Angles fixed to casing with steel self drilling screws at 150mm centres.
5	0.6mm (min) Z275 gal steel angles to all four sides. Angle dimensions shall be continuous and at least 2 x the dimension of the gap between the damper casing and the penetrated element.
6	Gap between casing and aperture filled with Lorient intumescent sealant. Backing rod used as required to control sealant fill depth. Maximum annular gap between casing and wall 25mm.
7	Fire damper perimeter sealed with Lorient intumescent sealant.
8	Z275 gal steel casing minimum 0.6mm.
9	LVH44 fixed to casing with steel self drilling screws or pop rivets.
10	Casing terminates with breakaway joints, as per AS1682.2.



Installation Instruction:

- Prepare the wall opening to accept the fire damper and install in wall, as shown in system detail.
- Centralise the casing and firestop the gap between the casing and wall with Lorient intumescent sealant, note fill details in point 6.
- Perimeter angles are mechanically fixed to casing with steel self drilling screws or pop rivets, as detailed in points 4 & 5.
- Ductwork shall be connected with breakaway joints, as per point 10.
- Ensure product identifications labels are conspicuously positioned for easy identification.
- Ensure convenient access is provided to allow for AS1851 inspection and maintenance routines.

Note: Damper casings, angles and fixings supplied by others.

LVH44 in steel casing penetrating fire rated Speedpanel® wall

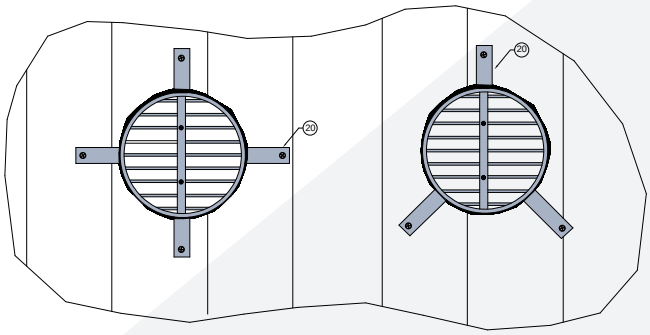
Fire Resistance in accordance with AS1530.4 2014 **-/120/30**

Test Ref: EXOVA 332333400

Max single cell size: 450mm x 450mm

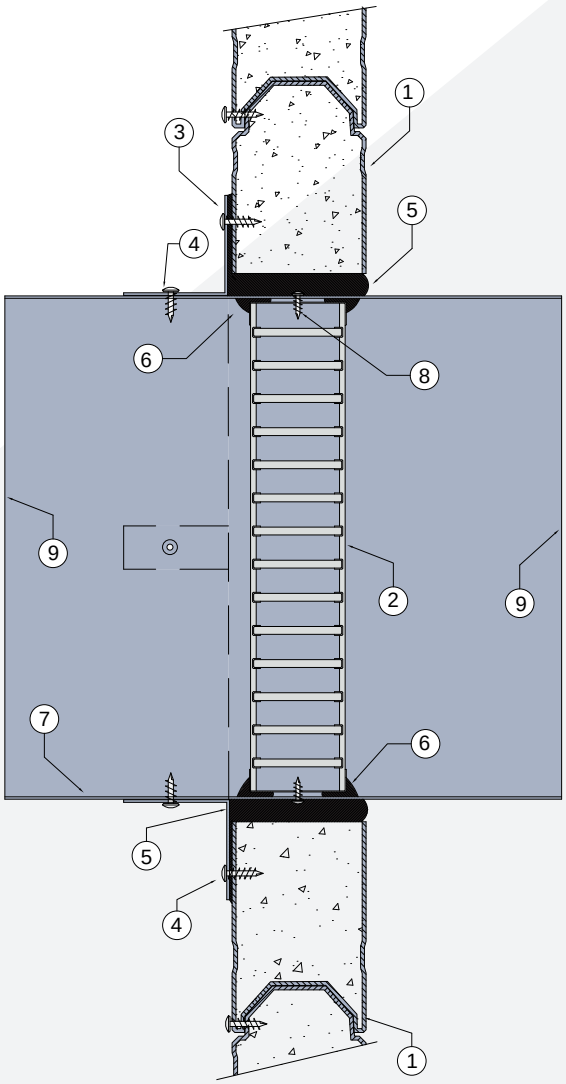
Fire Rated Speedpanel® Wall System: Speedpanel® 4

No	Description
1	Speedpanel® wall system with cored out circular aperture.
2	Lorient LVH44C intumescent fire damper.
3	25mm x 40mm x 40mm x 0.1mm (min) Z275 gal steel angle brackets fixed with self drilling screws.
4	Angles fixed to wall and casing with steel self drilling screws.
5	Gap between casing and aperture filled with Lorient intumescent sealant. Backing rod used as required to control sealant fill depth. Maximum annular gap between casing and wall 25mm.
6	Fire damper perimeter sealed with Lorient intumescent sealant.
7	Z275 gal steel casing minimum 0.6mm.
8	LVH44C fixed to casing with steel self drilling screws or pop rivets.
9	Casing terminates with breakaway joints, as per AS1682.2.



Circular aperture cored straight through wall.

3 off fixing angles up to 250mm diameter
4 off fixing angles 300mm to 450mm diameter.



Installation Instruction:

- Prepare the wall opening to accept the fire damper and install in wall as shown in system detail.
- Centralise the casing and firestop the gap between the casing and wall with Lorient intumescent sealant, note fill details in point 6.
- Perimeter angles are mechanically fixed to casing with steel self drilling screws or pop rivets, as detailed in points 4 & 5.
- Ductwork shall be connected with breakaway joints, as per point 9.
- Ensure product identifications labels are conspicuously positioned for easy identification.
- Ensure convenient access is provided to allow for AS1851 inspection and maintenance routines.

Note: Fixings supplied by others.

LVH44C in steel casing penetrating fire rated Speedpanel® wall

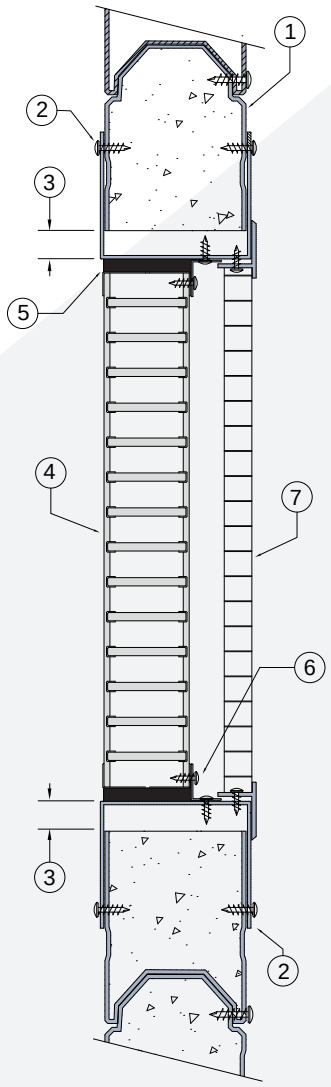
Fire Resistance in accordance with AS1530.4 2014 **-/120/60**

Test Ref: EXOVA 33233400

Max size: 450mm diameter

Fire Rated Speedpanel® Wall System: Speedpanel® 5

No	Description
1	78mm Speedpanel® wall system.
2	Aperture lined out with box track section screw fixed to wall with 10G self drill steel screws @ 400mm centres (or min 2 per side).
3	Gap between box channel and aperture varies - max 20mm.
4	Lorient LVH44 intumescent fire damper.
5	Gap between damper and aperture filled full depth with Lorient intumescent sealant.
6	Angles fixed to wall with steel self drilling screws at 150mm centres.
7	Aluminium egg crate supply / return air grille.



Installation Instruction:

- Prepare the wall opening to accept the fire damper, as per point 2.
- Install LVH44 in aperture, as shown in system detail.
- Angle brackets are mechanically fixed aperture with steel self drilling screws, as per point 6.
- Firestop the gap between the perimeter and wall with Lorient intumescent sealant, note fill details in point 5.
- Ensure product identifications labels are conspicuously positioned for easy identification.
- Ensure convenient access is provided to allow for AS1851 inspection and maintenance routines.

Note: Supply / return air grille, angles and fixings supplied by others.

LVH44 mounted from one side in fire rated Speedpanel® wall system

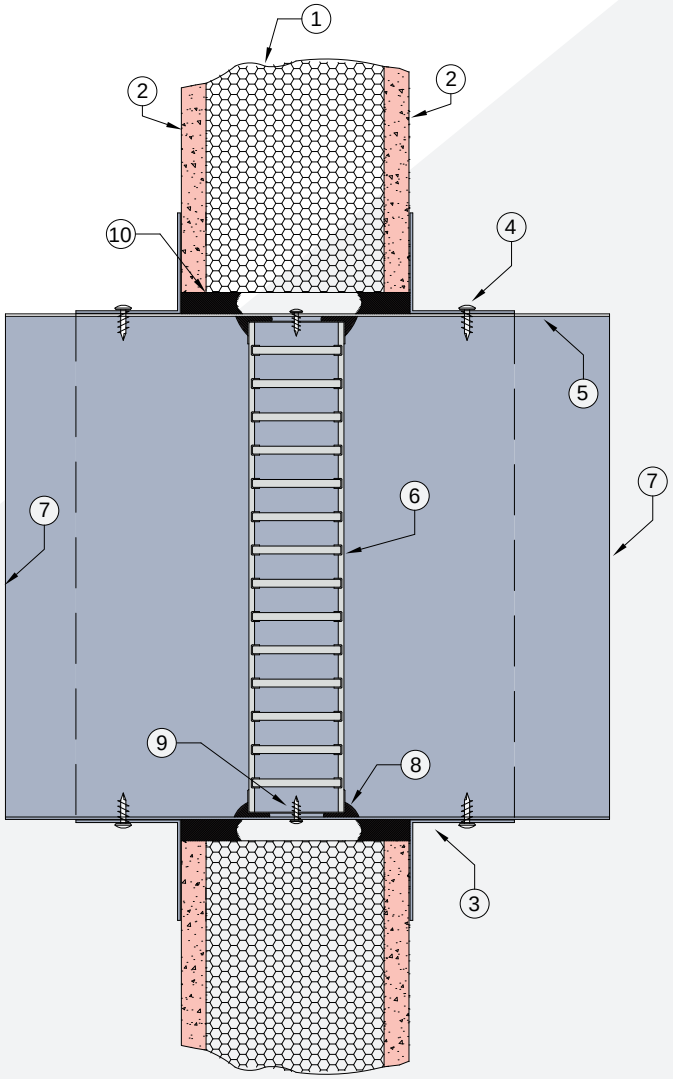
Fire Resistance in accordance with AS1530.4 2005 **-/120/30**

Test Ref: EXOVA 33090200

Max single cell size: 450mm x 450mm

Fire Rated Pronto Panel™ 1

No	Description
1	Brickworks Pronto Panel™ wall as per manufacturers test report.
2	10mm plasterboard fitted as per Pronto Panel™ Wall System 1C.
3	0.6mm (min) Z275 gal steel angles to all four sides. Angle dimensions shall be continuous and at least 2 x the dimension of the gap between the damper casing and the penetrated element.
4	Each angle fixed to damper casing with steel fasteners at 150mm centres or at least 2 per side.
5	Steel stud supporting plasterboard sheet. Steel track used to frame out aperture around damper penetration.
6	Z275 gal steel casing minimum thickness minimum 0.6mm
7	Lorient LVH44 intumescent fire damper screw fixed into casing.
8	Casing terminates with breakaway joints, as per AS1682.2.
9	Fire damper perimeter sealed with Lorient intumescent sealant.
10	LVH44 fixed to casing with steel screws.
11	Gap between casing and aperture filled with Lorient intumescent sealant. Backing rod used as required to control sealant fill depth. Maximum annular gap between casing and wall 25mm.



Installation Instruction:

- Prepare the wall opening to accept the fire damper and install in wall, as shown in this system detail.
- Centralise the casing and firestop the gap between the casing and wall with Lorient intumescent sealant, note fill details in point 11.
- Perimeter angles are mechanically fixed to casing with steel self drilling screws or pop rivets, as detailed in points 3 & 4.
- Ductwork shall be connected with breakaway joints, as per point 8.
- Ensure product identifications labels are conspicuously positioned for easy identification.
- Ensure convenient access is provided to allow for AS1851 inspection and maintenance routines.

Note: Damper casings, angles and fixings supplied by others.

LVH44 in steel casing penetrating fire rated Pronto Panel™ wall

Fire Resistance in accordance with AS1530.4 2014 **-/60/60**

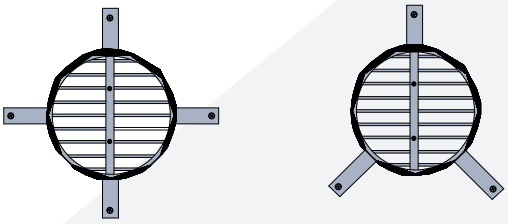
Test Ref: EXOVA 33233400

Max single cell size: 450mm x 450mm

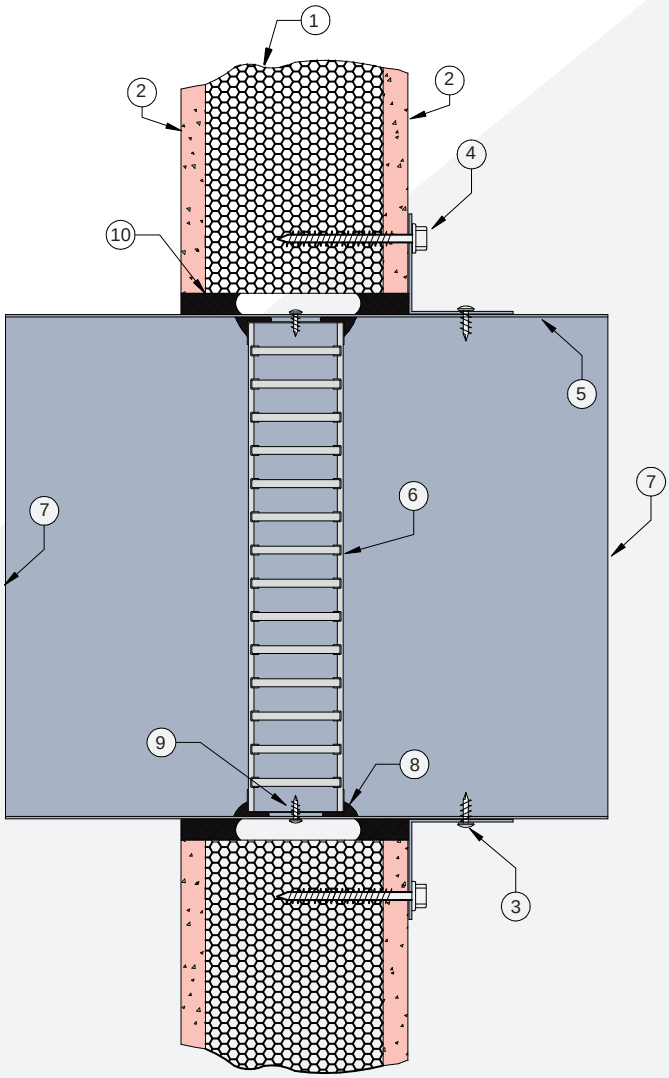
LORIENT

Fire Rated Pronto Panel™ 2

No	Description
1	Brickworks Pronto Panel™ wall as per manufacturers test report.
2	10mm plasterboard fitted as per Pronto Panel™ Wall System 1C.
3	40mm x 40mm x 25mm x 1mm steel angles fixed to casing with steel screws.
4	Angle bracket fixed to wall with number 10 x 50mm steel Hex Head Type 17 screws.
5	Z275 gal steel casing minimum thickness minimum 0.6mm
6	Lorient LVH44C intumescent fire damper screw fixed into casing.
7	Casing terminates with breakaway joints, as per AS1682.2.
8	Fire damper perimeter sealed with Lorient intumescent sealant.
9	LVH44C fixed to casing with steel screws.
10	Gap between casing and aperture filled with Lorient intumescent sealant. Backing rod used as required to control sealant fill depth. Maximum annular gap between casing and wall 25mm.



3 off fixing angles up to 250mm diameter
4 off fixing angles 300mm to 450mm diameter



Installation Instruction:

- Prepare the wall opening to accept the fire damper and install in wall, as shown in this system detail.
- Fix angle brackets to casing with steel self drilling screws or pop rivets, as detailed in points 3 & 4.
- Centralise within the aperture and mechanically fix to wall. Firestop the gap between the casing and wall with Lorient intumescent sealant, note fill details in point 10.
- Ductwork shall be connected with breakaway joints, as per point 7.
- Ensure product identifications labels are conspicuously positioned for easy identification.
- Ensure convenient access is provided to allow for maintenance routines.

Note: Fixings supplied by others.

LVH44C in steel casing penetrating fire rated Pronto Panel™ wall

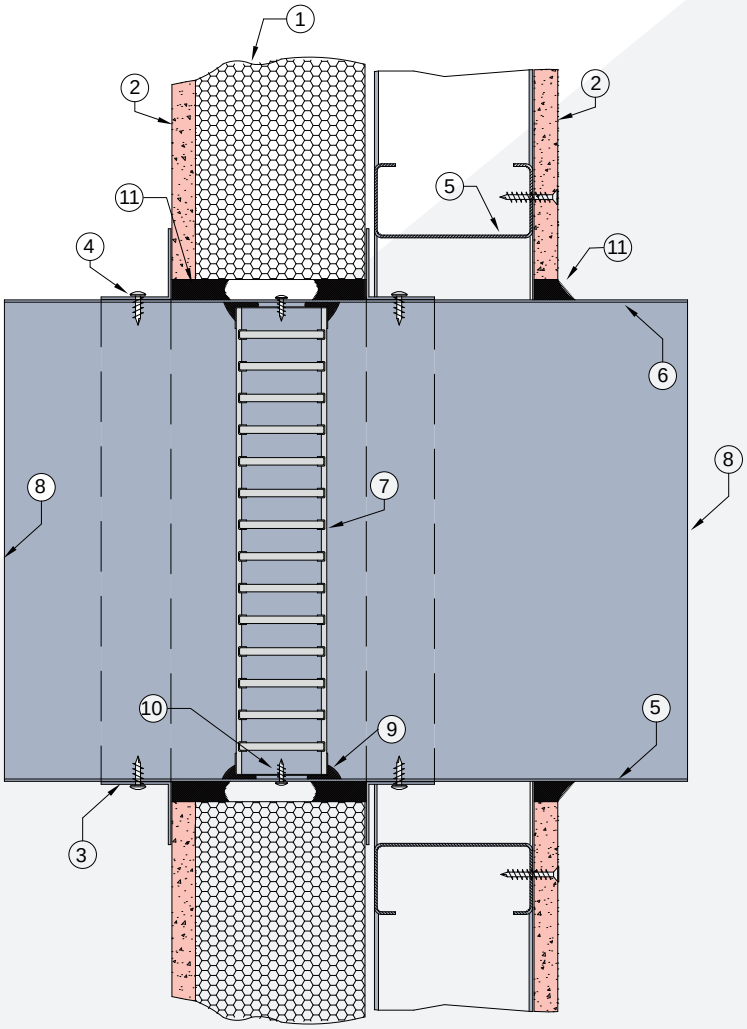
Fire Resistance in accordance with AS1530.4 2014 **-/60/60**

Test Ref: EXOVA 33233400

Max size: 450mm diameter

Fire Rated Pronto Panel™ 3

No	Description
1	Brickworks Pronto Panel™ wall as per manufacturers test report.
2	Plasterboard and cavity infill as per Pronto Panel™ wall system 1A or 1B.
3	0.6mm (min) Z275 gal steel angles to all four sides. Angle dimensions shall be continuous and at least 2 x the dimension of the gap between the damper casing and the penetrated element.
4	Each angle fixed to damper casing with steel fasteners at 150mm centres or at least 2 per side.
5	Steel stud supporting plasterboard sheet. Steel track used to frame out aperture around damper penetration.
6	Z275 gal steel minimum thickness minimum 0.6mm.
7	Lorient LVH44 intumescent fire damper screw fixed into casing.
8	Casing terminates with breakaway joints, as per AS1682.2.
9	Fire damper perimeter sealed with Lorient intumescent sealant.
10	LVH44 fixed to casing with steel screws.
11	Gap between casing and aperture filled with Lorient intumescent sealant. Backing rod used as required to control sealant fill depth. Maximum annular gap between casing and wall 25mm.



Installation Instruction:

- Prepare the wall opening to accept the fire damper and install in wall, as shown in this system detail.
- Fix angle brackets to casing with steel self drilling screws or pop rivets, as detailed in points 3 & 4.
- Centralise in aperture and mechanically fix to wall. Firestop the gap between the casing and wall with Lorient intumescent sealant, note fill details in point 11.
- Fit additional studwork and plasterboard as per Brickworks system details and seal gap between wall as per point 11.
- Ductwork shall be connected with breakaway joints, as per point 8.
- Ensure product identifications labels are conspicuously positioned for easy identification.
- Ensure convenient access is provided to allow for maintenance routines.

Note: Damper casings, angles and fixings supplied by others.

LVH44 in steel casing penetrating fire rated Pronto Panel™ wall

Fire Resistance in accordance with AS1530.4 2014 **-/120/60**

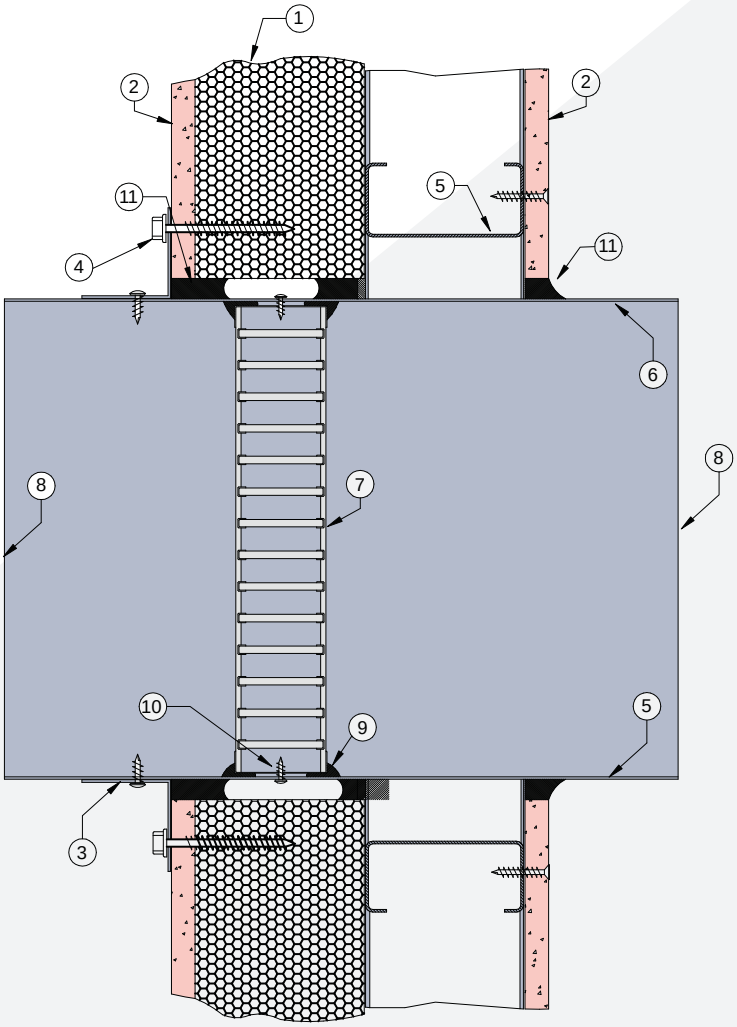
Test Ref: EXOVA 33233400

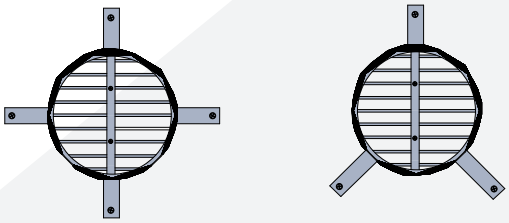
Max single cell size: 450mm x 450mm

LORIENT

Fire Rated Pronto Panel™ 4

No	Description
1	Brickworks Pronto Panel™ wall as per manufacturers test report.
2	Plasterboard and cavity infill as per Pronto Panel™ wall system 1A or 1B.
3	40mm x 40mm x 25mm x 1mm steel angles fixed to casing with steel screws.
4	Angle bracket fixed to wall with number 10 x 50mm steel Hex Head Type 17 screws.
5	Steel stud supporting plasterboard sheet. Steel track used to frame out aperture around damper penetration.
6	Z275 gal steel casing minimum thickness minimum 0.6mm.
7	Lorient LVH44C intumescent fire damper screw fixed into casing.
8	Casing terminates with breakaway joints, as per AS1682.2.
9	Fire damper perimeter sealed with Lorient intumescent sealant.
10	LVH44C fixed to casing with steel screws.
11	Gap between casing and aperture filled with Lorient intumescent sealant. Backing rod used as required to control sealant fill depth. Maximum annular gap between casing and wall 25mm.





3 off fixing angles up to 250mm diameter
4 off fixing angles 300mm to 450mm diameter

Installation Instruction:

- Prepare the wall opening to accept the fire damper and install in wall, as shown in this system detail.
- Fix angle brackets to casing with steel self drilling screws or pop rivets, as detailed in points 3 & 4.
- Centralise in aperture and mechanically fix to wall. Firestop the gap between the casing and wall with Lorient intumescent sealant, note fill details in point 11.
- Fit additional studwork and plasterboard as per Brickworks system details and seal gap between wall as per point 11.
- Ductwork shall be connected with breakaway joints, as per point 8.
- Ensure product identifications labels are conspicuously positioned for easy identification.
- Ensure convenient access is provided to allow for maintenance routines.

Note: Fixings supplied by others.

LVH44C in steel casing penetrating fire rated Pronto Panel™ wall

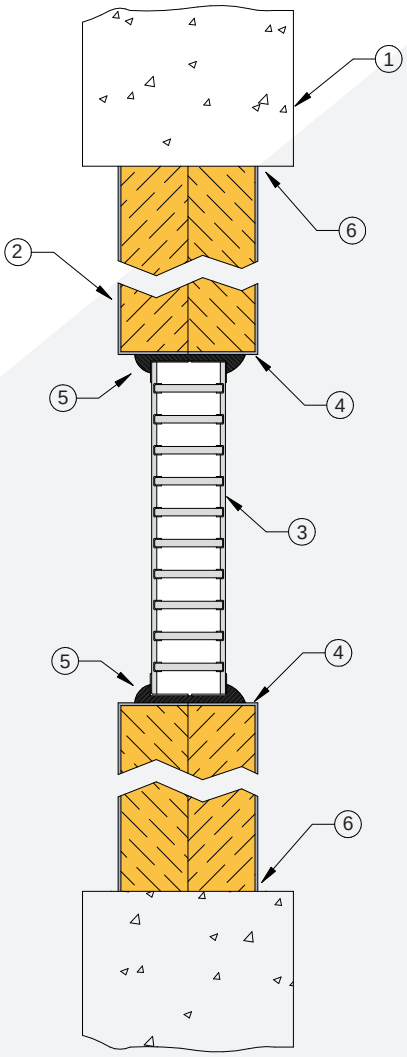
Fire Resistance in accordance with AS1530.4 2014 **-/120/60**

Test Ref: EXOVA 33233400

Max size: 450mm diameter

Fire Rated Wall fitted with TBA Firefly Intubatt System: Intubatt 1

No	Description
1	110mm minimum thick Masonry, Concrete or Hebel® wall.
2	2 x 50mm thick TBA Firefly Intubatt friction fitted centrally into wall aperture.
3	TBA Firefly Intubatt incorporates Lorient LVH44 intumescent fire damper max. 450mm x 450mm.
4	TBA Firefly Intubatt aperture raw edges treated with brushable TBA Firefly intumastic sealant as per test approvals.
5	Lorient LVH44 intumescent fire damper glued into TBA Firefly Intubatt with TBA Firefly Intumastic Sealant (full depth).
6	All other joints sealed with TBA Firefly intumastic sealant.
For TBA Firefly product enquiry's visit: www.tbafirefly.com.au	



Installation Instruction:

- Prepare opening in wall to accept the TBA Firefly Intubatt.
- Friction fit Intubatt into wall aperture as per test approval and see point 2.
- Cut hole for LVH44 and prepare aperture in Intubatt, as per point 4.
- Fit LVH44 into prepared Intubatt aperture and adhere in place using TBA Firefly intumastic sealant. Note fill details in point 5.
- Ensure all joints are sealed, as per point 6.
- Ensure product identifications labels are conspicuously positioned for easy identification.
- Ensure convenient access is provided to allow for AS1851 inspection and maintenance routines.

Note: TBA Intubatt and TBA intumastic sealant supplied by others.

Masonry, concrete or Hebel® wall with TBA Firefly Intubatt containing Lorient LVH44 intumescent damper

Fire Resistance in accordance with AS1530.4 2005 **-/120/120**

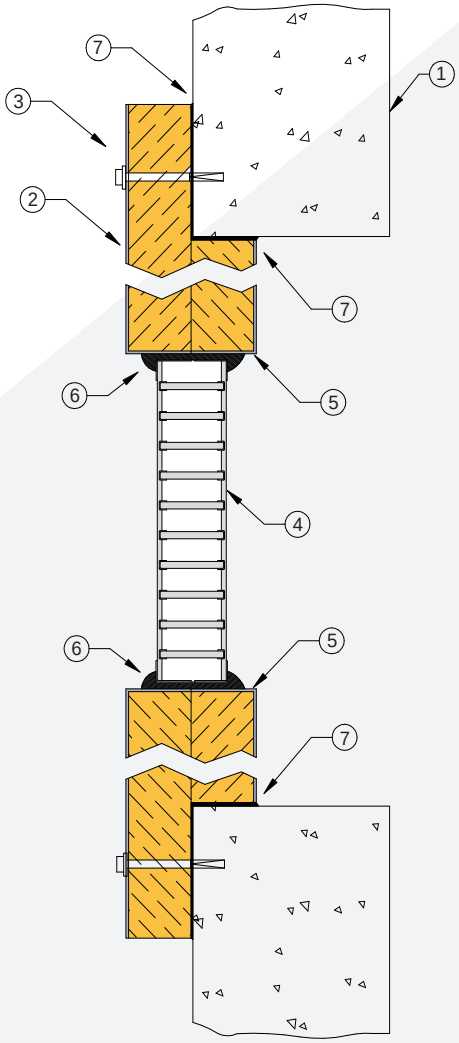
Test Ref: EXOVA RIR 34088500

Max cell size: 450mm x 450mm

LORIENT

Fire Rated Wall fitted with TBA Firefly Intubatt System: Intubatt 2

No	Description
1	110mm minimum thick Masonry, Concrete or Hebel® wall.
2	2 x 50mm thick TBA Firefly Intubatt one friction fit and one overlapping aperture (min. 100mm).
3	TBA Firefly Intubatt panel mechanically fixed to wall with 75mm masonry anchors at 300mm centres, as per test approvals.
4	TBA Firefly Intubatt incorporates Lorient LVH44 intumescent fire damper max. 450mm x 450mm.
5	TBA Firefly Intubatt aperture raw edges treated with brushable TBA Firefly intumastic sealant, as per test approvals.
6	Lorient LVH44 intumescent fire damper glued into TBA Firefly Intubatt with TBA Firefly intumastic sealant (full depth).
7	All other joints sealed with TBA Firefly intumastic sealant.
For TBA Firefly product enquiry's visit: www.tbafirefly.com.au	



Installation Instruction:

- Prepare wall opening to accept TBA Firefly Intubatt.
- Cut and friction fit Intubatt into wall aperture and fix with masonry anchors as per test approval - see points 2 & 3.
- Cut hole for LVH44 and prepare aperture in Intubatt cut edges, as per point 4.
- Fit LVH44 into prepared Intubatt aperture and adhere in place using TBA Firefly intumastic sealant. Note fill details in point 5.
- Ensure all joints are sealed, as per point 6.
- Ensure product identifications labels are conspicuously positioned for easy identification.
- Ensure convenient access is provided to allow for AS1851 inspection and maintenance routines.

Note: TBA Intubatt and TBA intumastic sealant and metal fixings supplied by others.

Masonry, concrete or Hebel® wall with TBA Firefly Intubatt containing Lorient LVH44 intumescent damper

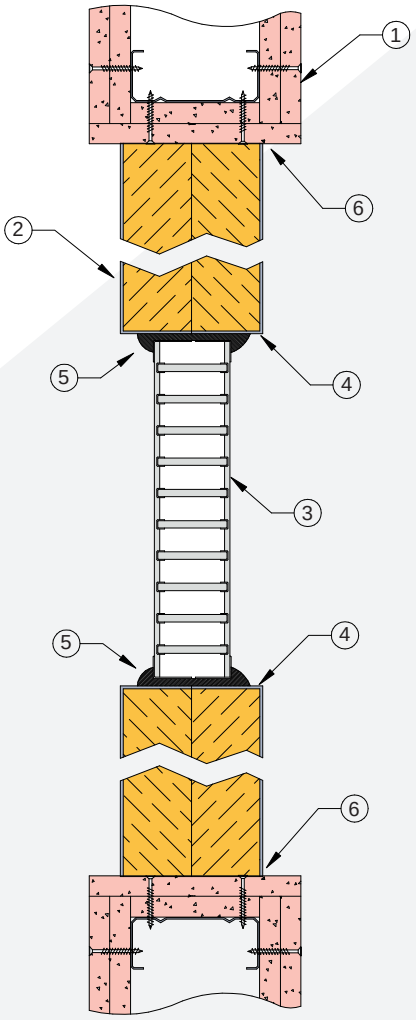
Fire Resistance in accordance with AS1530.4 2005 **-/120/120**

Test Ref: EXOVA RIR 34088500

Max cell size: 450mm x 450mm

Fire Rated Wall fitted with TBA Firefly Intubatt System: Intubatt 3

No	Description
1	110mm minimum thick Plasterboard stud wall with plasterboard lined aperture.
2	2 x 50mm thick TBA Firefly Intubatt friction fitted centrally into wall aperture.
3	TBA Firefly Intubatt incorporates Lorient LVH44 intumescent fire damper max. 450mm x 450mm.
4	TBA Firefly Intubatt aperture raw edges treated with brushable TBA Firefly intumastic sealant as per test approvals.
5	Lorient LVH44 intumescent fire damper glued into TBA Firefly Intubatt with TBA Firefly Intumastic Sealant (full depth).
6	All other joints sealed with TBA Firefly intumastic sealant.
For TBA Firefly product enquiry's visit: www.tbafirefly.com.au	



Installation Instruction:

- Prepare opening in wall to accept the TBA Firefly Intubatt.
- Friction fit Intubatt into wall aperture, as per test approval and see point 2.
- Cut hole for LVH44 and prepare aperture in Intubatt, as per point 4.
- Fit LVH44 into prepared Intubatt aperture and adhere in place using TBA Firefly intumastic sealant. Note fill details in point 5.
- Ensure all joints are sealed, as per point 6.
- Ensure product identifications labels are conspicuously positioned for easy identification.
- Ensure convenient access is provided to allow for AS1851 inspection and maintenance routines.

Note: TBA Intubatt and TBA intumastic sealant supplied by others.

Fire rated plasterboard stud wall with TBA Firefly Intubatt containing Lorient LVH44 intumescent damper

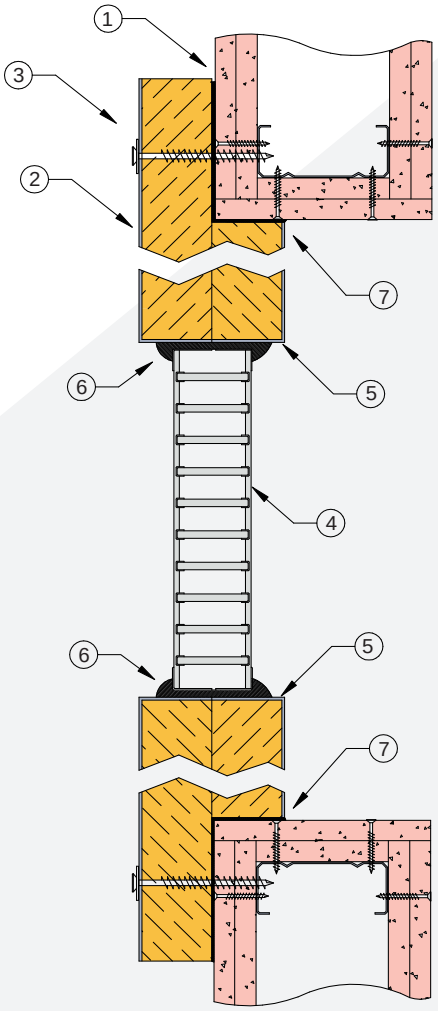
Fire Resistance in accordance with AS1530.4 2005 **-/120/120**

Test Ref: EXOVA RIR 34088500

Max cell size: 450mm x 450mm

Fire Rated Wall fitted with TBA Firefly Intubatt System: Intubatt 4

No	Description
1	110mm minimum plasterboard stud wall with plasterboard lined aperture.
2	2 x 50mm thick TBA Firefly Intubatt friction fit and one overlapping aperture (min. 100mm).
3	TBA Firefly Intubatt panel mechanically fixed to wall with 75mm needle point screws and penny washers at 300mm centres as per test approvals.
4	TBA Firefly Intubatt incorporates Lorient LVH44 intumescent fire damper max. 450mm x 450mm.
5	TBA Firefly Intubatt aperture raw edges treated with brushable TBA Firefly intumastic sealant, as per test approvals.
6	Lorient LVH44 intumescent fire damper glued into TBA Firefly Intubatt with TBA Firefly intumastic sealant (full depth).
7	All other joints sealed with TBA Firefly intumastic sealant.
For TBA Firefly product enquiry's visit: www.tbafirefly.com.au	



Installation Instruction:

- Prepare wall opening to accept TBA Firefly Intubatt.
- Cut and friction fit Intubatt into wall aperture and fix with screws and washers, as per test approval - see points 2 & 3.
- Cut hole for LVH44 and prepare aperture in Intubatt cut edges, as per point 4.
- Fit LVH44 into prepared Intubatt aperture and adhere in place using TBA Firefly intumastic sealant. Note fill details in point 5.
- Ensure all joints are sealed, as per point 6.
- Ensure product identifications labels are conspicuously positioned for easy identification.
- Ensure convenient access is provided to allow for AS1851 inspection and maintenance routines.

Note: TBA Intubatt and TBA intumastic sealant supplied by others.

Fire rated plasterboard stud wall with TBA Firefly Intubatt containing Lorient LVH44 intumescent damper

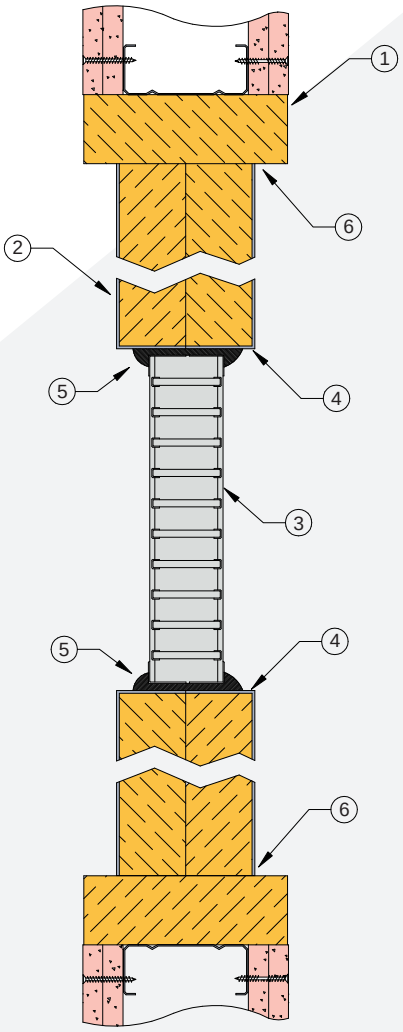
Fire Resistance in accordance with AS1530.4 2005 **-/120/120**

Test Ref: EXOVA RIR 34088500

Max cell size: 450mm x 450mm

Fire Rated Wall fitted with TBA Firefly Intubatt System: Intubatt 5

No	Description
1	110mm minimum thick Plasterboard stud wall with TBA Firefly Intubatt aperture lining.
2	2 x 50mm thick TBA Firefly Intubatt friction fitted centrally into wall aperture.
3	TBA Firefly Intubatt incorporates Lorient LVH44 intumescent fire damper max. 450mm x 450mm.
4	TBA Firefly Intubatt aperture raw edges treated with brushable TBA Firefly intumastic sealant as per test approvals.
5	Lorient LVH44 intumescent fire damper glued into TBA Firefly Intubatt with TBA Firefly intumastic sealant (full depth).
6	All other joints sealed with TBA Firefly intumastic sealant.
For TBA Firefly product enquiry's visit: www.tbafirefly.com.au	



Installation Instruction:

- Prepare opening in wall to accept the TBA Firefly Intubatt.
- Line aperture with Intubatt as per test approvals.
- Friction fit Intubatt into wall aperture as per test approval - see point 2.
- Cut hole for LVH44 and pepare aperture in Intubatt, as per point 4.
- Fit LVH44 into prepared Intubatt aperture and adhere in place using TBA Firefly intumastic sealant. Note fill details in point 5.
- Ensure all joints are sealed, as per point 6.
- Ensure product identifications labels are conspicuously positioned for easy identification.
- Ensure convenient access is provided to allow for AS1851 inspection and maintenance routines.

Note: TBA Intubatt and TBA intumastic sealant supplied by others.

Fire rated plasterboard stud wall with TBA Firefly Intubatt containing Lorient LVH44 intumescent damper

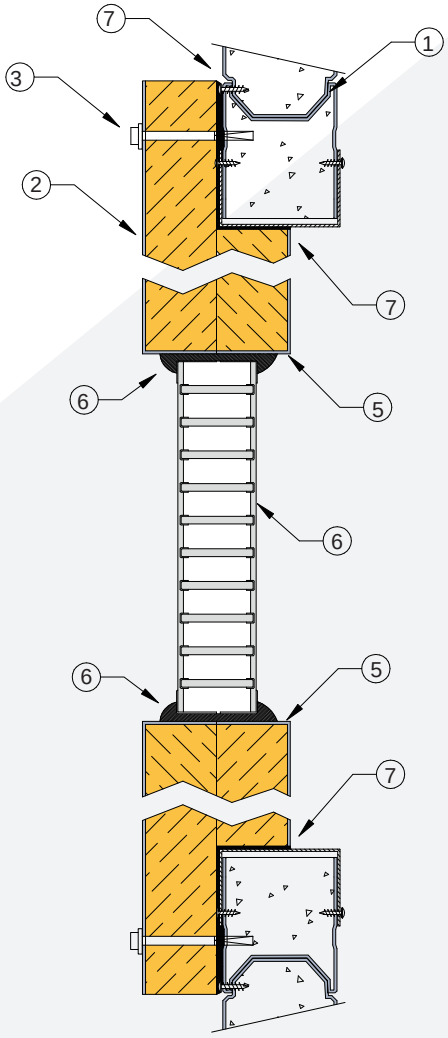
Fire Resistance in accordance with AS1530.4 2005 **-/120/120**

Test Ref: EXOVA RIR 34088500

Max cell size: 450mm x 450mm

Fire Rated Wall fitted with TBA Firefly Intubatt System: Intubatt 6

No	Description
1	78mm Speedpanel® wall.
2	2 x 50mm thick TBA Firefly Intubatt friction fit and one overlapping aperture (min. 100mm).
3	TBA Firefly Intubatt panel mechanically fixed to wall with 75mm masonry anchors, as per test approvals.
4	TBA Firefly Intubatt incorporates Lorient LVH44 intumescent fire damper max. 450mm x 450mm.
5	TBA Firefly Intubatt aperture raw edges treated with brushable TBA Firefly intumastic sealant as per test approvals.
6	All other joints sealed with TBA Firefly intumastic sealant.
For TBA Firefly product enquiry's visit: www.tbafirefly.com.au	



Installation Instruction:

- Prepare wall opening to accept TBA Firefly Intubatt.
- Cut and friction fit Intubatt into wall aperture and fix with masonry anchors as per test approval - see points 2 & 3.
- Cut hole for LVH44 and prepare aperture in Intubatt cut edges, as per point 4.
- Fit LVH44 into prepared Intubatt aperture and adhere in place using TBA Firefly intumastic sealant. Note fill details in point 5.
- Ensure all joints are sealed, as per point 6.
- Ensure product identifications labels are conspicuously positioned for easy identification.
- Ensure convenient access is provided to allow for AS1851 inspection and maintenance routines.

Note: TBA Intubatt and TBA intumastic sealant and metal fixings supplied by others.

LVH44 fiitted into TBA Firefly Intubatt panel

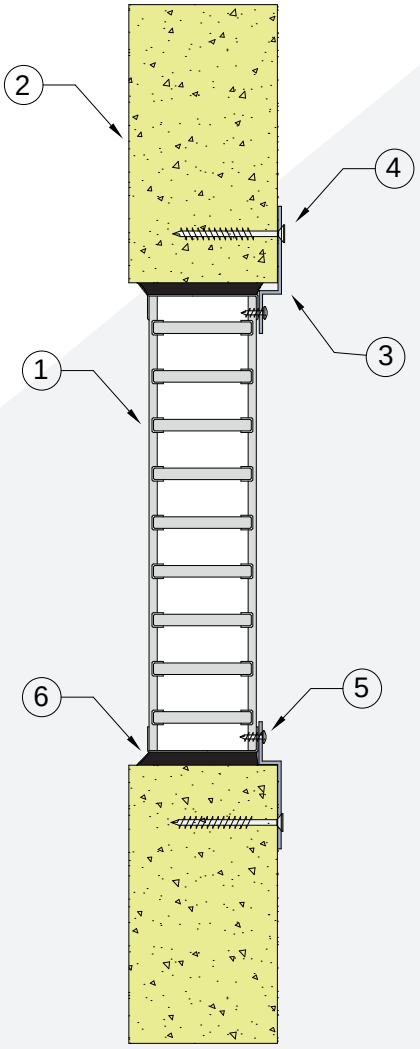
Fire Resistance in accordance with AS1530.4 2005 **-/120/120**

Test Ref: EXOVA RIR 34088500

Max cell size: 450mm x 450mm

Fire Rated Promat Board Systems: Promat Wall 1

No	Description
1	Lorient LVH44 intumescent fire damper.
2	60mm thick Vermiculux or 52mm thick Promatect® L500.
3	Steel Z fixing flange 1.2mm thick fitted to all four sides.
4	Z flange fixed to damper with steel self drilling screws at 150mm centres.
5	Z angles fixed to board with 7 x 50mm coarse thread screws at 150mm centres.
6	Perimeter filled full depth with intumescent sealant.



Installation Instruction:

- Prepare the opening in Promat board to accept the fire damper installation.
- Attach Z angles to fire damper, as per points 3 & 4.
- Z angles are fixed to wall, as per point 5.
- Seal perimeter with intumescent sealant, as per point 6.
- Ensure product identifications labels are conspicuously positioned for easy identification.
- Ensure convenient access is provided to allow for AS1851 inspection and maintenance routines.

Note: Metal angles and fixings supplied by others.

LVH44 installed in Promat board

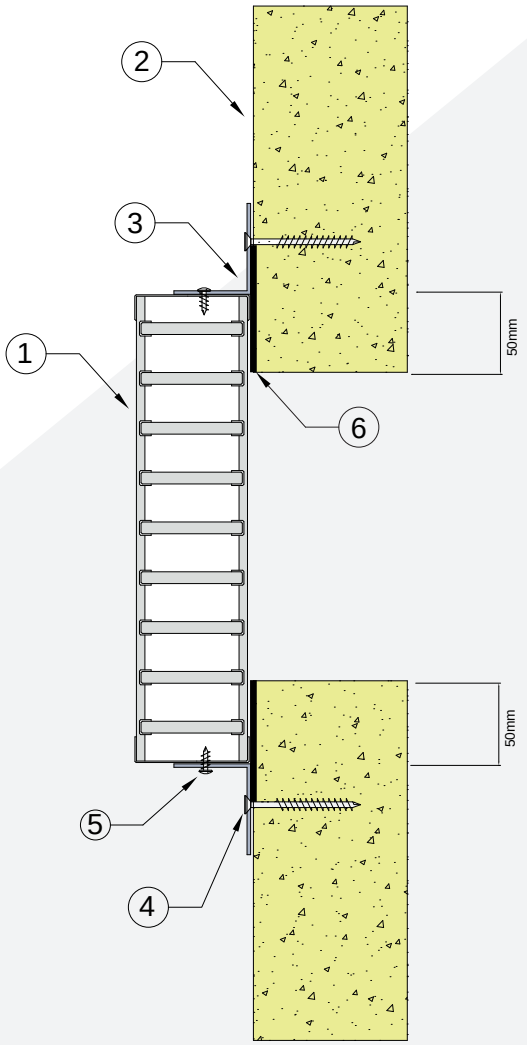
Fire Resistance in accordance with AS1530.4 2005 **-/120/-**

Test Ref: BRANZ FAR 3404

Max cell size: 800mm x 800mm

Fire Rated Promat Board Systems: Promat Wall 2

No	Description
1	Lorient LVH44 intumescent fire damper with minimum 50mm minimum overlap around aperture.
2	60mm thick Vermiculux or 52mm thick Promatect® L500.
3	40mm x 40mm x 1.2mm steel angle to all four sides.
4	Angles fixed with steel self drilling screws at 150mm centres.
5	Angles fitted to board with 7 x 50mm coarse thread screws at 150mm centres.
6	Damper bedded in intumescent sealant.



Installation Instruction:

- Prepare the opening in Promat board to accept the fire damper installation.
- Ensure minimum 50mm overlap between hole and LVH44 damper perimeter.
- Attach angles to fire damper, as per points 3 & 4.
- Liberally apply intumescent sealant around aperture.
- Bed the damper into the sealant and fix angles to the wall, as per point 5.
- Ensure product identifications labels are conspicuously positioned for easy identification.
- Ensure convenient access is provided to allow for AS1851 inspection and maintenance routines.

Note: Metal angles and fixings supplied by others.

LVH44 installed in Promat board

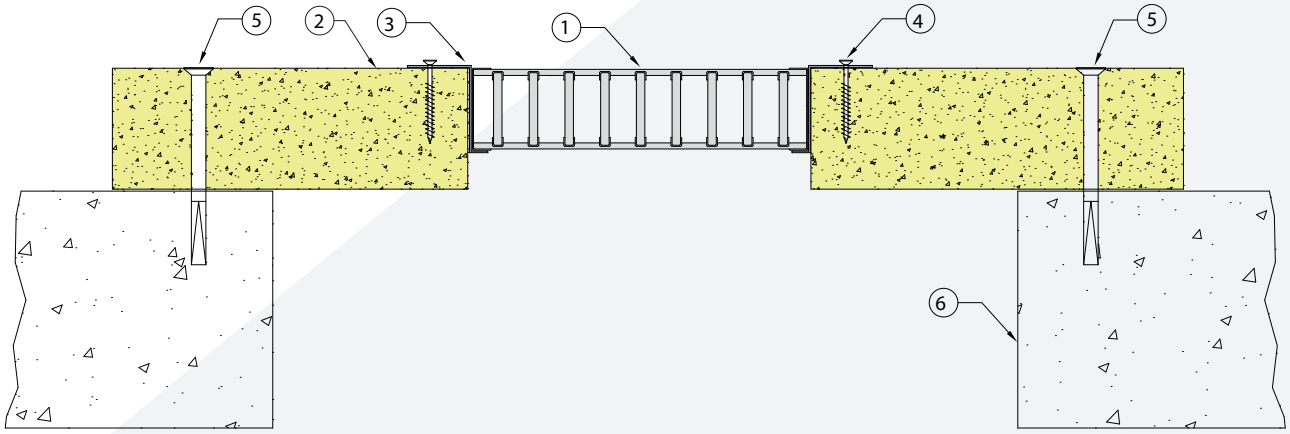
Fire Resistance in accordance with AS1530.4 2005 **-/120/-**

Test Ref: BRANZ FAR 3404

Max cell size: 800mm x 800mm

Fire Rated Promat Board Systems: Promat Slab 3

No	Description
1	Lorient LVH44 intumescent fire damper.
2	60mm thick Vermiculux or 52mm thick Promatect® L500 board bedded in intumescent sealant.
3	60mm x 45mm x 5mm x 1.6mm steel "Z" angle to all four sides.
4	Z angle fixed to board with 7 x 50mm coarse thread screws at 200mm centres and gaps sealed with intumescent sealant.
5	Steel expanding masonry anchors at 200mm
6	Concrete slab.



NOTE: This system is NON-LOADBEARING. A weight bearing cover grille may be required to prevent injury if installed in trafficable areas.

Installation Instruction:

- Prepare the opening in Promat board.
- Attach Z angles to board, as per points 3 & 4.
- Mount LVH44 damper into aperture and fill any gaps with intumescent sealant.
- Apply intumescent sealant to slab and enbed in the board. Fix in place with masonry anchors, as per point 5.
- Ensure product identifications labels are conspicuously positioned for easy identification.
- Ensure convenient access is provided to allow for AS1851 inspection and maintenance routines.

Note: Metal angles and fixings supplied by others.

LVH44 installed in Promat board

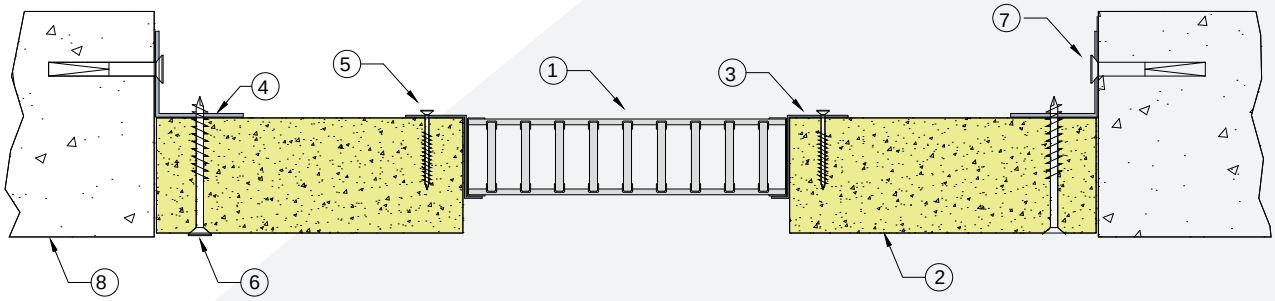
Fire Resistance in accordance with AS1530.4 2005 **-/120/-**

Test Ref: BRANZ FAR 4068

Max cell size: 800mm x 800mm

Fire Rated Promat Board Systems: Promat Slab 4

No	Description
1	Lorient LVH44 intumescent damper.
2	60mm thick Vermiculux or 52mm thick Promatect® L500 board.
3	60mm x 45mm x 5mm x 1.6mm thick steel "Z" section fited to all four sides of aperture.
4	50mm x 50mm x 1mm thick steel angle to all four sides.
5	Z sections fitted to aperture with 7 x 50mm long coarse thread screws at 200mm centres.
6	No. 7 x 65mm long coarse thread screws at 200mm centres.
7	Steel expanding masonry anchors at 200mm centres.
8	Concrete slab.



NOTE: This system is NON-LOADBEARING. A weight bearing cover grille may be required to prevent injury if installed in trafficable areas.

Installation Instruction:

- Prepare Promat board for slab opening and machine hole for fire damper.
- Attach Z angles to Promat board, as per points 3 & 4.
- Mount LVH44 damper into aperture and fill any gaps with approved intumescent sealant.
- Fix equal angles to slab with masonry anchors, as per point 7, and then fix board as per point 6.
- Seal all gaps with approved intumescent sealant.
- Ensure product identifications labels are conspicuously positioned for easy identification.
- Ensure convenient access is provided to allow for AS1851 inspection and maintenance routines.

Note: Metal angles and fixings supplied by others.

LVH44 installed in Promat board

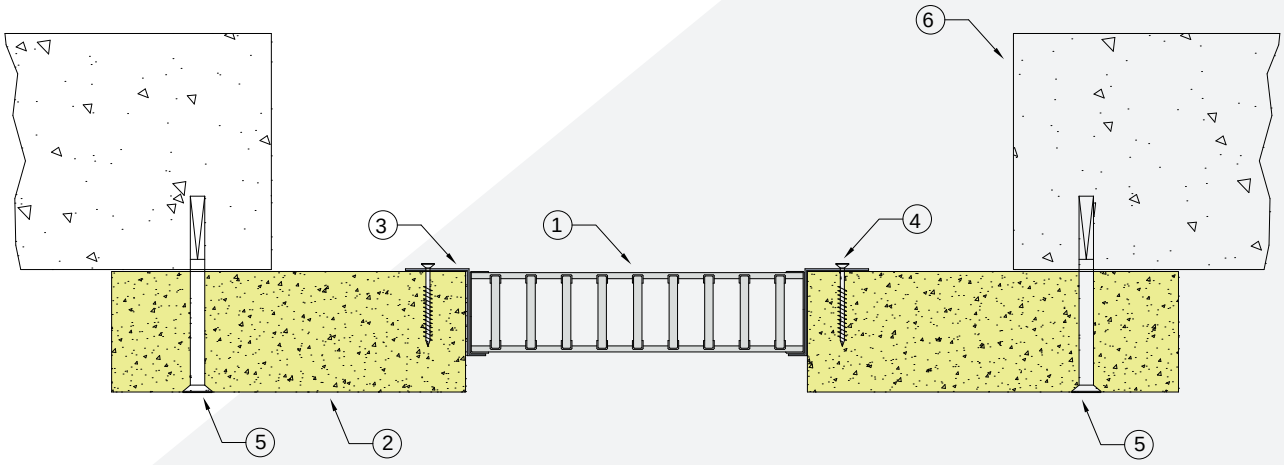
Fire Resistance in accordance with AS1530.4 2005 **-/120/-**

Test Ref: BRANZ FAR 4068

Max cell size: 800mm x 800mm

Fire Rated Promat Board Systems: Promat Slab 5

No	Description
1	Lorient LVH44 intumescent fire damper.
2	60mm thick Vermiculux or 52mm thick Promatect® L500 board bedded in intumescent sealant.
3	60mm x 45mm x 5mm x 1.6mm steel “Z” angle to all four sides.
4	Z angle fixed to board with 7 x 50mm coarse thread screws at 200mm centres and gaps sealed with intumescent sealant.
5	Steel expanding masonry anchors at 200mm centres.
6	Concrete slab.



NOTE: This system is NON-LOADBEARING. A weight bearing cover grille may be required to prevent injury if installed in trafficable areas.

Installation Instruction:

- Prepare the opening in Promat board.
- Attach Z angles to board, as per points 3 & 4.
- Mount LVH44 damper into aperture and fill any gaps with intumescent sealant.
- Apply intumescent sealant to slab and embed in the board. Fix in place with masonry anchors, as per point 5.
- Ensure product identifications labels are conspicuously positioned for easy identification.
- Ensure convenient access is provided to allow for AS1851 inspection and maintenance routines.

Note: Metal angles and fixings supplied by others.

LVH44 installed in Promat board

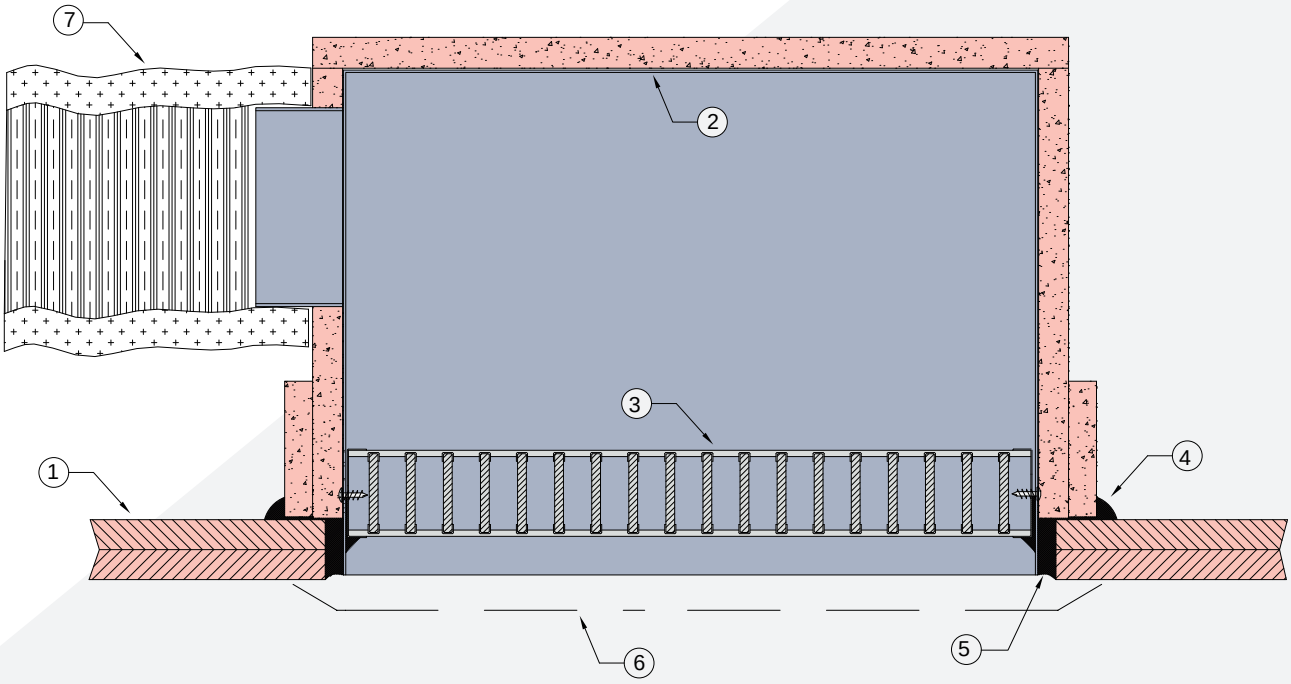
Fire Resistance in accordance with AS1530.4 2005 **-/120/-**

Test Ref: BRANZ FAR 4068

Max cell size: 800mm x 800mm

Fire & Incipient Rated Ceilings: Ceiling 1

No	Description
1	Dual layer fire rated plasterboard ceiling.
2	LOR-LITE fire rated plenum box.
3	Lorient LVH44 intumescent grille.
4	Plenum box bedded in Lorient intumescent sealant.
5	Gap between casing and plasterboard filled full depth with Lorient intumescent sealant.
6	Aluminium diffuser fitted to underside as required.
7	Insulated flexible duct connected to box.



Installation Instruction:

- Prepare aperture in ceiling to accept installation.
- Fit supplied plenum box to aperture as detailed.
- Liberally apply Lorient intumescent sealant around aperture and bed box into sealant, as per point 4.
- Seal gap between box and aperture full depth with Lorient intumescent sealant, as per point 5.
- Ensure product identifications labels are conspicuously positioned for easy identification.
- Ensure convenient access is provided to allow for AS1851 inspection and maintenance routines.

Note: Air diffuser supplied by others.

LVH44 installed in Ceiling

Fire Resistance in accordance with AS1530.4 2014 **60/60/60**

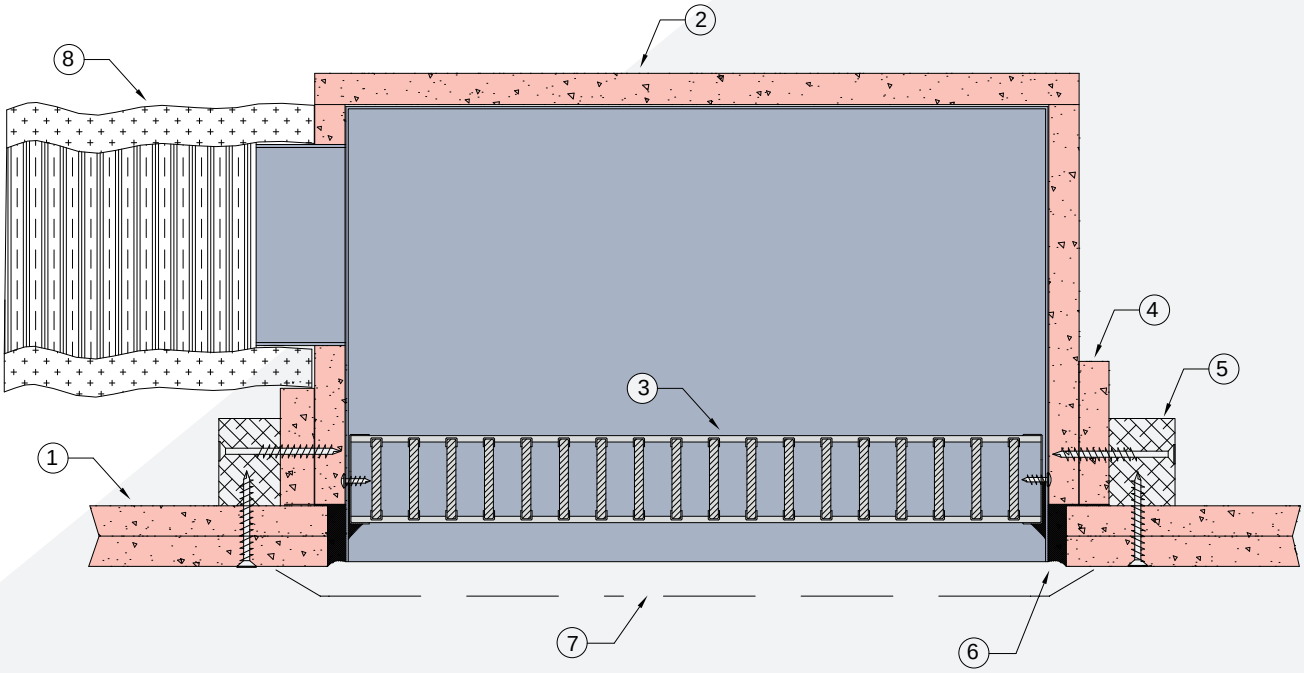
60 minutes resistance to the incipient spread of flame (RISF)

Test Ref: BRANZ FAR 4581

Max single cell size: 500mm x 500mm

Fire & Incipient Rated Ceilings: Ceiling 2

No	Description
1	Dual layer fire rated plasterboard ceiling.
2	Lorient fire rated ceiling box.
3	Lorient LVH44 intumescent fire damper.
4	13mm x 70mm plasterboard collar.
5	45mm x 45mm timber trimmer tied back to joists on two sides. Trimmer fixed to box and ceiling with 50mm long steel screws 2 per side.
6	Gap between casing and plasterboard filled full depth with Lorient intumescent sealant.
7	Aluminium diffuser fitted to underside as required.
8	Insulated flexible duct connected to box.



Installation Instruction:

- Prepare aperture in ceiling to accept installation.
- Fit supplied plenum box to aperture as detailed.
- Tie plenum box back to weight bearing joists with 70mm x 35mm header and trimmers, as per point 5.
- Seal gap between box and aperture full depth with Lorient intumescent sealant, as per point 4.
- Ensure product identifications labels are conspicuously positioned for easy identification.
- Ensure convenient access is provided to allow for AS1851 inspection and maintenance routines.

Note: Air diffuser and fixings supplied by others.

LVH44 installed in Ceiling

Fire Resistance in accordance with AS1530.4 2014 **-60/60/60**

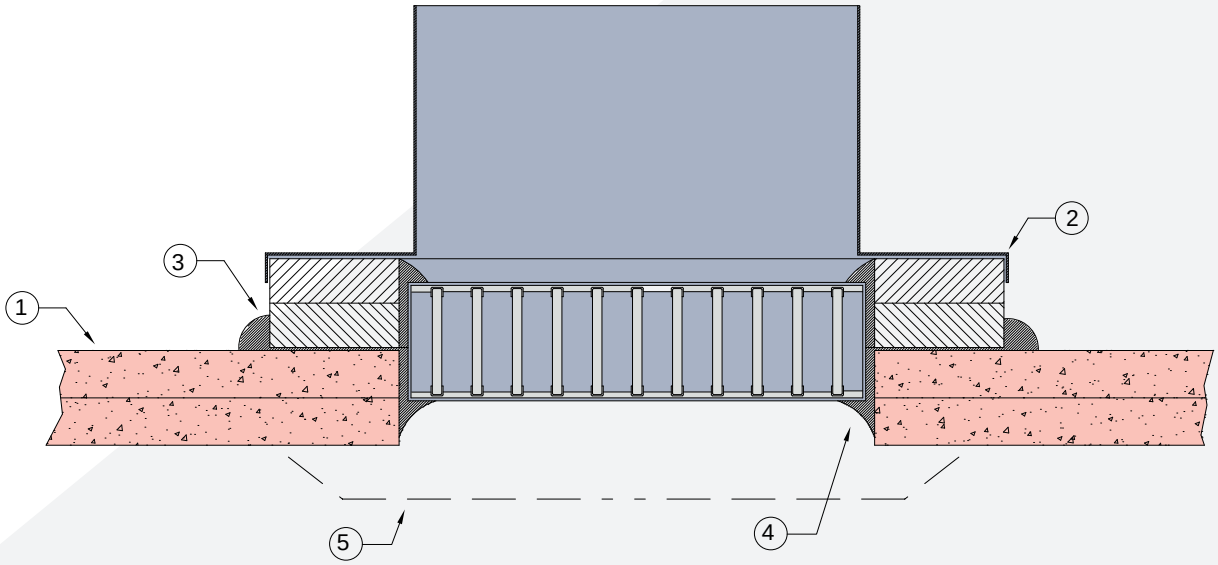
60 minutes resistance to the incipient spread of flame (RISF)

Test Ref: BRANZ FAR 4581

Max single cell size: 450mm x 450mm

Fire & Incipient Rated Ceilings: Ceiling 3

No	Description
1	Dual layer rated plasterboard ceiling.
2	Lorient fire rated inline fan connection block.
3	Base plate bedded in Lorient intumescent sealant.
4	Perimeter gap filled full depth with Lorient intumescent sealant.
5	Aluminium return / supply air cover grilles as required.



Installation Instruction:

- Determine location and prepare 165mm diameter hole in ceiling.
- Liberally apply Lorient intumescent sealant to the damper baseplate and a 25mm band around the aperture.
- Fit damper centrally within the aperture and push into the intumescent sealant ensuring that is completely bedded in.
- Connect flexible ductwork to casing spigot.
- On the underside of the ceiling seal fill the gap between damper and aperture full depth with Lorient intumescent sealant.
- Fit face cover plate as required.

Note: Air diffuser / cover plate supplied by others.

LVH44C installed in Ceiling

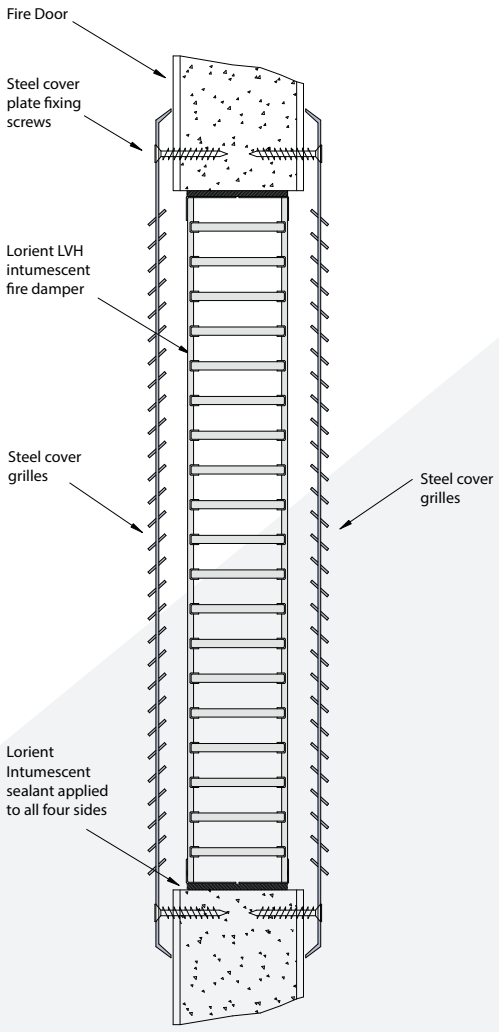
Fire Resistance in accordance with AS1530.4 2014 **60/60/60**

60 minutes resistance to the incipient spread of flame (RISF)

Test Ref: BRANZ FP 5859

Max cell size: 150mm diameter

Fire Door 1:
Ecore Fire Doors



Installation Instruction:

- Identify fire door type and check manufacturer's approvals to ensure that cutting an aperture in the door will not detract from the integrity of the door leaf.
- Establish the number of allowable openings, their maximum size and if there are any positioning limitations.
- Carefully cut the aperture to the required size allowing an additional 5mm clearance to all sides (for application of intumescent sealant).
- Ensure aperture is square and true and position the damper into the cut-out so perimeter gaps between the aperture and damper are even.
- Apply Lorient intumescent sealant to both sides, making sure the perimeter gap is completely filled.
- Position pressed steel cover grilles centrally over the damper and fix to the door leaf using supplied screws.

LVH-Door grille installed in e-core fire door assemblies

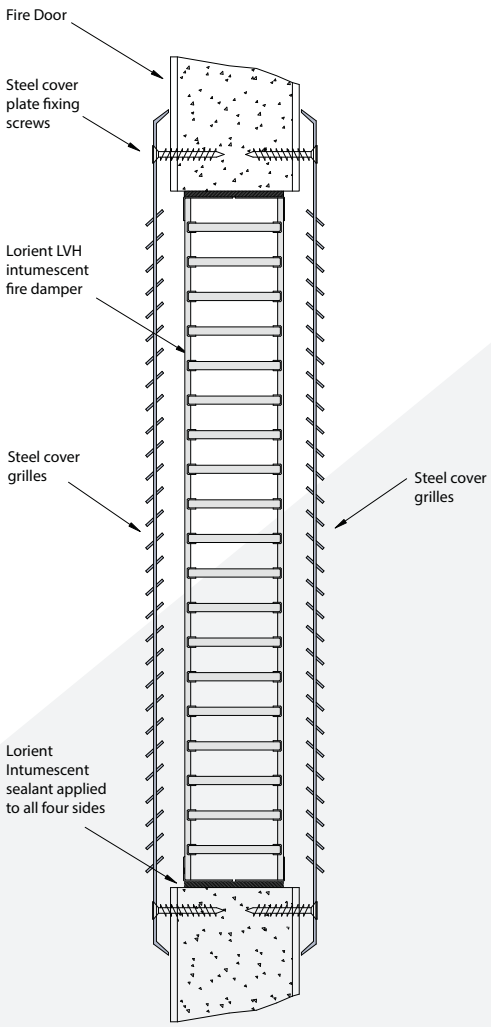
Fire Resistance in accordance with AS1530.4 1990 **/120/30**

Test Ref: BRANZ FAR 3379

Approved sizes: 600mm x 300mm
450mm x 450mm

Up to 3 grilles per door - refer to our technical department for installation requirements

Fire Door 2:
Firecore Fire Doors



Installation Instruction:

- Identify fire door type and check manufacturer's approvals to ensure that cutting an aperture in the door will not detract from the integrity of the door leaf.
- Establish the number of allowable openings, their maximum size and if there are any positioning limitations.
- Carefully cut the aperture to the required size allowing an additional 5mm clearance to all sides (for application of intumescent sealant).
- Ensure aperture is square and true and position the damper into the cut-out so perimeter gaps between the aperture and damper are even.
- Apply Lorient intumescent sealant to both sides, making sure the perimeter gap is completely filled.
- Position pressed steel cover grilles centrally over the damper and fix to the door leaf using supplied screws.

LVH-Door grille installed in Firecore fire door assemblies

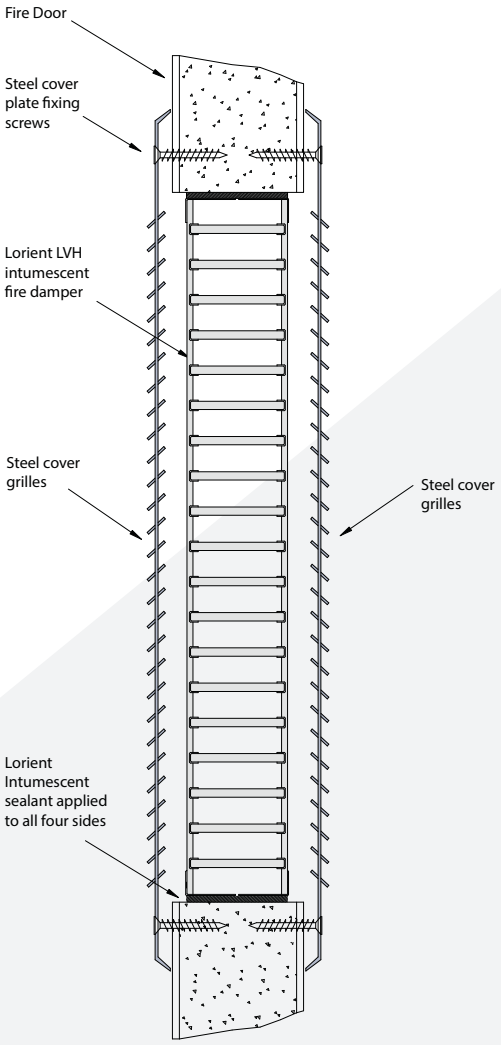
Fire Resistance in accordance with AS1530.4 1990 **/120/30**

Test Ref: CSIRO FCO 3064

Approved sizes: 600mm x 300mm
450mm x 450mm

Up to 1 grille per door - refer to our technical department for installation requirements

Fire Door 3:
Pyropanel Fire Doors



Installation Instruction:

- Identify fire door type and check manufacturer's approvals to ensure that cutting an aperture in the door will not detract from the integrity of the door leaf.
- Establish the number of allowable openings, their maximum size and if there are any positioning limitations.
- Carefully cut the aperture to the required size allowing an additional 5mm clearance to all sides (for application of intumescent sealant).
- Ensure aperture is square and true and position the damper into the cut-out so perimeter gaps between the aperture and damper are even.
- Apply Lorient intumescent sealant to both sides, making sure the perimeter gap is completely filled.
- Position pressed steel cover grilles centrally over the damper and fix to the door leaf using supplied screws.

LVH-Door grille installed in Pyropanel fire door assemblies

Fire Resistance in accordance with AS1530.4 2005 up to **-/240/30**

Test Ref: EWFA 27704400

Approved sizes: 600mm x 600mm
600mm x 300mm 450mm x 450mm

Up to 2 grilles per door - refer to our technical department for installation requirements requirements for Pyropanel fire door types

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sales@lorientau.com.au

www.lorient.com.au

Please note: Recommendations as to methods, use of materials and construction details are based on the experience and knowledge of Lorient and are given in good faith as a general guide and service to designers, contractors and manufacturers. Lorient reserves the right to make alterations or delete installation detail without prior notice. Installers must ensure that installation details are fully complied with to ensure installations fulfil the requirements of relevant test approvals.

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Lorient Pty Ltd
Tel: +61 (02) 9907 6221
Fax: +61 (02) 99076152
email: sales@lorientau.com.au

www.lorient.com.au

Heating, Ventilation & Air Conditioning Fire Containment Solutions

LORIENT

Lorient Pty Ltd
Unit D15
1 Campbell Parade
Manly Vale
New South Wales
2093
Australia