MODEL: LR

FIRE / SMOKE (EXHAUST) / FIRE AND SMOKE / BALANCING DAMPER

The Holyoake Series LR fire / combination fire and smoke dampers are designed to impede the spread of fire and smoke between building compartments, whilst maintaining the barriers integrity. The low leakage damper blade assembly, with blade tip sealing ring, forms a solid barrier against flame, smoke, and hot gases.This leakage performance is guaranteed by our quality control process that we conduct on each damper.

LR 100 - LR 250 FIRE / SMOKE RATING:

Tested in accordance with AS 1530.4 - 2014 and AS 1530.7 - 2007, integrity was maintained for in excess of four hours and smoke leakage below 50l/s.

For the purposes of the Australian National Construction Code and New Zealand Building Code, the damper has a F.R.L./F.R.R. of -/240/- in a masonry wall / floor and -/120/- in a plasterboard wall, timber framed floor, and Hebel system.

LR 300 AND LR 350 FIRE / SMOKE RATING:

Tested in accordance with AS 1530.4 - 2014 and AS 1530.7 - 2007, integrity was maintained for in excess of 90 minutes and smoke leakage below 50l/s.

For the purposes of the Australian National Construction Code and New Zealand Building Code, the damper has a F.R.L./F.R.R. of -/90/- in a masonry wall / floor, plasterboard wall, timber framed floor, and Hebel system.

FEATURES

- Simple installation with flat head screwdriver utilising patented clamping system:
  - No sealant.
  - No fixings required.
- Minimal onsite labour.
- Smoke leakage rated to AS 1530.7 - 2007.
- Optional actuator and attachment (by others) required for smoke damper functionality.
- Available in seven diameters: 100, 125, 150, 200, 250, 300, and 350mm.
- Easy test and reset fusible link.
- Adjustable blade for airflow balancing.

NOTE: LR 100 utilises the LR 125 damper with 100-125 adaptor collars.

CONFIGURATIONS

- LR fire damper with brass fusible link.
- LR combination fire and smoke damper with spring return actuator and electro-thermal link.
- LR smoke (exhaust) damper with spring return actuator.
- LR balancing damper with either brass fusible link or actuator; applicable in combination with the other damper configurations.

CERTIFICATION

CSIRO

Fire Test Certificate No. COA 3316 in accordance with AS 1530.4 - 2014 : Section 11 (Ducted Damper Installations).

(LR 100 - LR 250 certified for 240 minute fire rating).

(LR 300 and LR 350 certified for 90 minute fire rating).

WARRINGTONFIRE

Smoke Leakage Test Certificate No. SFC 53556800.2 and SFC 2100015.1 in accordance with AS 1530.7 - 2007.

Leakage below 50l/s @ 200ºC in accordance with AS 1682.1-2015.

The LR damper can be supplied as either a fire, smoke (exhaust), or fire and smoke damper with the ability to be set to balance the airflow. It is quick and easy to install, maintain, and test. The unit comes complete with mounting flanges, jubilee clip, and the patented heat shield is supplied for plasterboard applications.

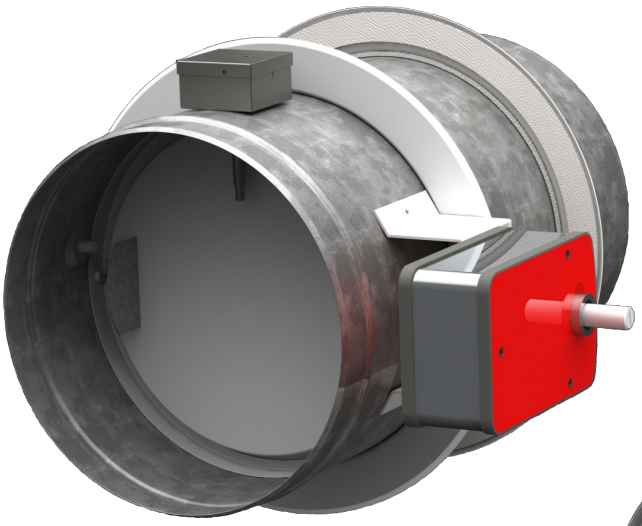
Fire protection is provided by a fusible link (manual or electro-thermal) and damper blade that seals the duct shut in the event of a fire to maintain minimum leakage as required by the test standard.

KEY INSTALLATION DETAILS

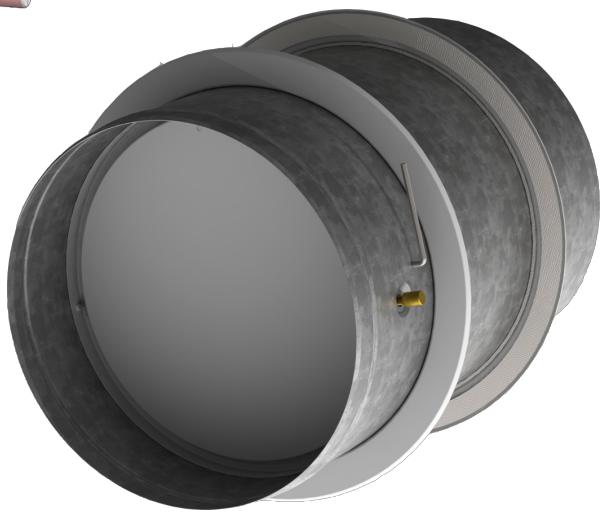
- No internal linings are required for the majority of plasterboard penetrations.
- Standard sleeve configuration suits barriers up to 190mm.
- Extended sleeve configuration suits barriers up to 295mm.
- Assessed to be installed 35mm from the damper to the adjacent element and 70mm between two LR dampers.
- Actuators available as either 24V or 240V.
- Penetration sizing (cut-out template on packaging):

Damper Size (Ø)	Penetration (mm)
LR100/125	130 - 138
LR 150	155 - 163
LR 200	205 - 213
LR 250	255 - 263
LR 300	305 - 313
LR 350	355 - 363

NOTE: See pages four - seven for detailed installation guides, including specific instructions for all plasterboard installations.



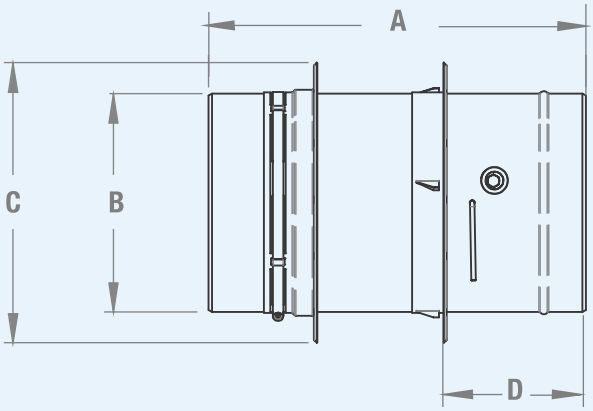
LR Fire and Smoke Damper



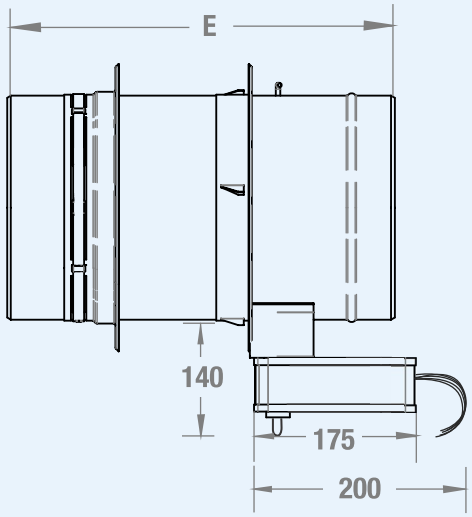
LR Fire Damper

DIMENSIONS:

Standard Configuration (suits fire barriers up to 190mm)



Extended Sleeve Configuration (suits fire barriers up to 295mm)



	LR 100 / LR 125	LR 150	LR 200	LR 250	LR 300	LR 350
A	425	425	425	425	-	-
B	96 / 121	146	196	246	296	346
C	190	215	265	315	365	415
D	150	150	150	150	150	150
E	530	530	530	530	530	530

NOTE: All dimensions are in mm

MASONRY, DRYWALL, AND TIMBER FRAMED FLOOR INSTALLATIONS

INSTALLATION INSTRUCTIONS

1. Cut penetrations as per table below. For a masonry and drywall installation use the left column and for a timber framed floor refer to special instructions below.
2. Insert Holyoake flexible heat shield into penetration (plasterboard applications only).
3. Remove loose flange from damper.
4. Insert damper through penetration until fixed flange is firmly seated on the fire barrier.
5. Slide loose flange (with seal side facing wall) onto damper and tighten jubilee clip with screwdriver.
6. Using damper handle and fusible link, test damper operation and then set blade to required position.

Damper Size (Ø)	Standard Penetration (mm)	Timber Flooring Penetration* (mm)
LR100/125	130 - 138	160 - 180
LR 150	155 - 163	185 - 205
LR 200	205 - 213	235 - 255
LR 250	255 - 263	285 - 305
LR 300	305 - 313	335 - 355
LR 350	355 - 363	385 - 405

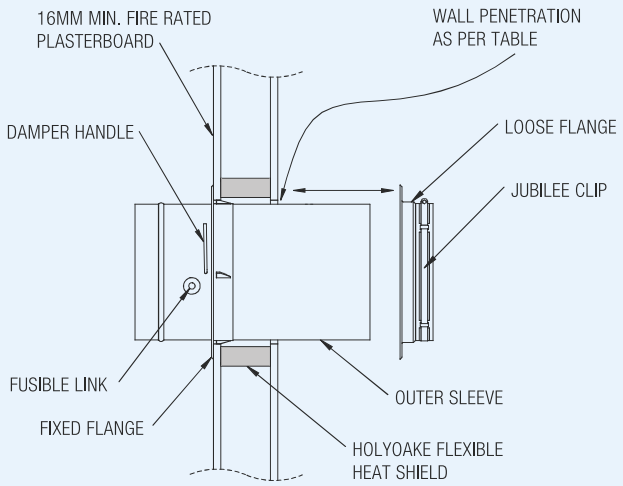
*Penetration size for timber framed floors 17mm min. flooring

SPECIAL PENETRATION SIZING FOR TIMBER FRAMED FLOOR INSTALLATION

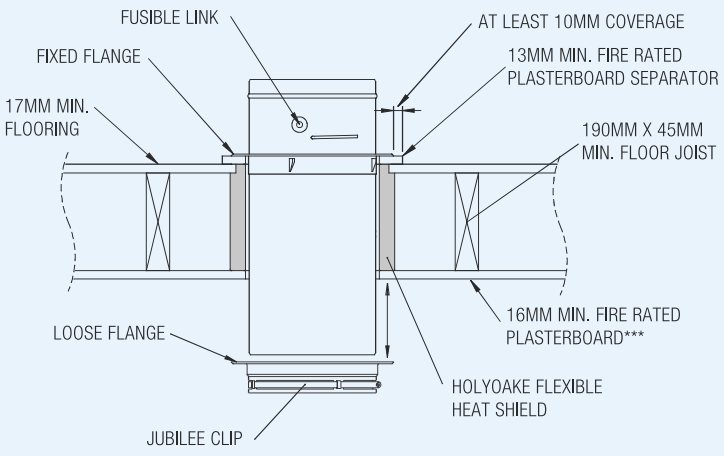
The penetration through a timber framed floor requires two uniquely sized holes. These dimensions can be found in the table above and are explained below:

1. The plasterboard underside is to be cut as per the dimensions in the left column (Standard Penetration) of the table.
2. The flooring on the top side of the penetration, is to be cut to the larger diameter sizing in the right column (Timber Flooring Penetration) of the table. This is to incorporate the flexible heat shield.
3. The inner diameter of the separator is to be sized as per the plasterboard underside (left column - Standard Penetration - of table) and must have at least 10mm of coverage as detailed in the installation on the right.

DRYWALL INSTALLATION - 60 MINUTE DETAIL



TIMBER FRAMED FLOOR INSTALLATION** - 60 MINUTE DETAIL



**Ensure any connecting ductwork is self-supporting

***Two Layers of 13mm min. fire rated plasterboard in Australia

SPECIAL INSTALLATION OPTIONS

1. The LR damper is able to be installed such that the sleeve is separated from an adjacent construction element by a minimum distance of 35mm (as shown on the right).
2. Multiple LR dampers can be positioned with their sleeves separated by a minimum distance of 70mm.

NOTE: These options are applicable to both vertical and horizontal installations.

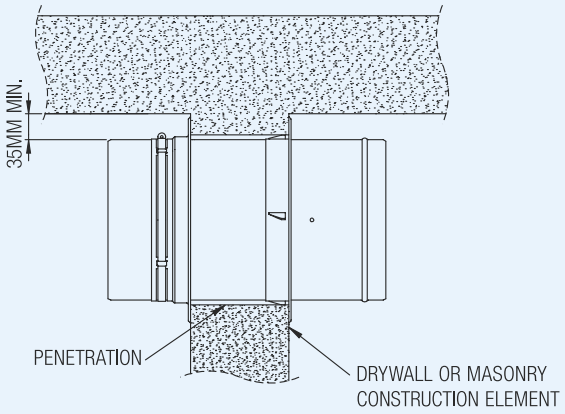
DRYWALL AND TIMBER FRAMED FLOOR LINING INSTALLATION REQUIREMENTS

To determine the installation requirement of the LR damper use the following procedure:

1. Enter the wall or floor FRL/FRR that the damper will be fitted through in the table below.
2. Find the corresponding minimum distance(s) 'X' (depicted below in figure 1) between the dampers heat shield and the surrounding joists/ studs and noggings.
3. Use these two values to establish the required installation figure found below.

LR DAMPER
PRODUCT INFORMATION AND
INSTALLATION GUIDE

INSTALLATION ADJACENT TO CONSTRUCTION ELEMENT



EXAMPLE: An LR 250 damper is to be placed in a timber framed floor with an FRL/FRR of 90/90/90, the dampers heat shield will be located 100mm away from one floor joist and over 145mm from the other joist and noggings.

1. From the table locate all floors with an FRL/FRR of 90/90/90.
2. Check the floors corresponding minimum distances (0mm and 145mm) against the actual distances (100mm and >145mm).
3. Figure 2 is therefore the obligatory installation, which requires one 16mm fire rated plasterboard lining on the joist located 100mm away from the heat shield.*

*Note that the remaining joist and noggings comform with figure 1 and so do not require an additional fire rated plasterboard lining.

FRL/FRR[1]			Corresponding Distance and Figures	
LR 100 - LR 250	LR 300 & LR 350	Wall or Floor	Minimum Distance (Xmm)	Installation Figure
-/60/-	-/60/-	-/60/60 or 60/60/60	0	1
-/90/-	-/90/-	-/90/90 or 90/90/90	0	2[2]
		-/90/90[3]	30	1
	-	-/90/90 or 90/90/90	145	1
-/120/-	-/90/-	-/120/120 or 120/120/120	0	2[4]
	-	-/120/120[5]	145	1

[1]Tested in accordance with as 1530.4:2014
[2]One layer of 16mm fire rated plasterboard lining
[3]Wall constructions only
[4]Two layers of 16mm fire rated plasterboard lining
[5]Steel framing walls only

ALTERNATIVE PENETRATION PLACEMENT DETAIL FOR WALLS AND FLOORS

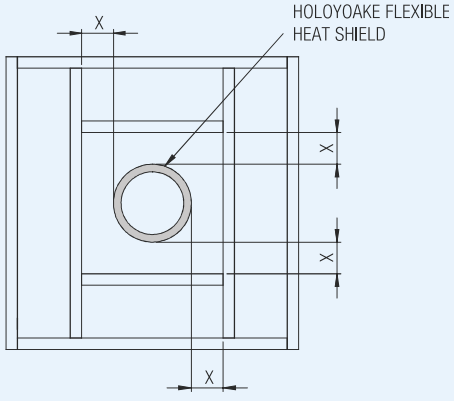


FIGURE 1: NO ADDITIONAL LINING REQUIRED

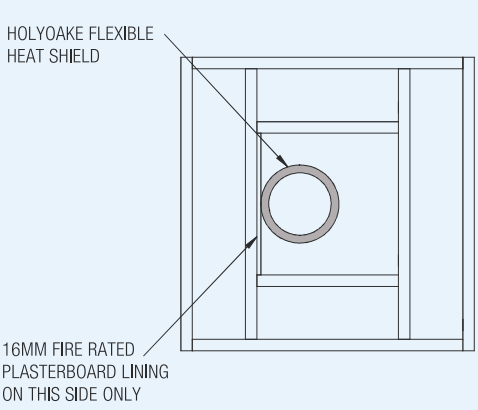


FIGURE 2: ADDITIONAL LINING REQUIRED WITHIN THIS COMPARTMENT ONLY

LR FIRE DAMPER INSTALLATION FLOWCHART

PENETRATION PREPARATION

To ensure the compliant installation of the LR fire damper, please follow the flowchart and steps below based on your specific job. Note that this preparation is only relevant for fire dampers and some penetrations will require additional lining (see chart below).

STEP 1: Begin with the fire barrier (seperating element) the LR damper is being installed into.

STEP 2: Select the relevant separating elements required F.R.L./F.R.R.

STEP 3: Measure the anticipated distance from the heat shield to the nearest joist/stud or nogging.

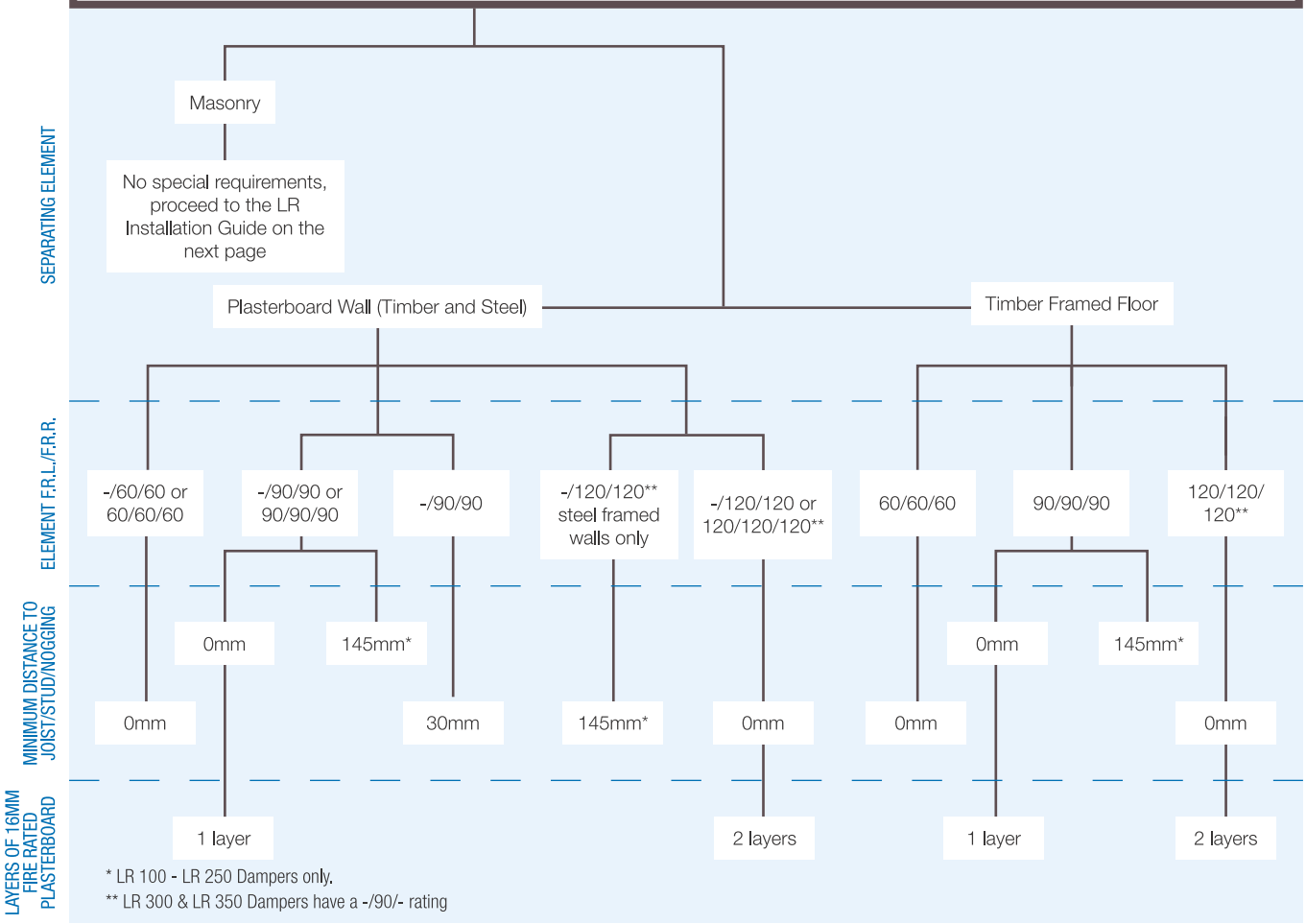
STEP 4: Compare this value to the minimum distance allowed to a joist/stud or nogging.

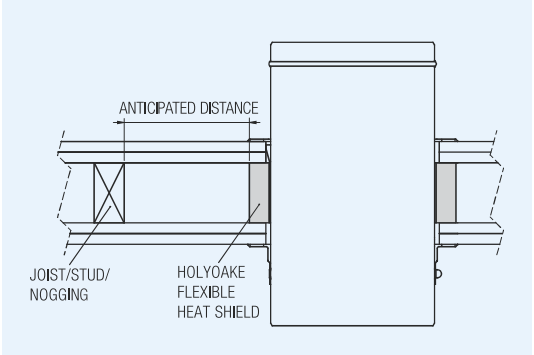
STEP 5: Continue down the path to get the required number of 16mm fire rated plasterboard layers.

STEP 6: Attach the specified layers of fire rated plasterboard to that joist/stud or nogging along its entire length, in that cavity only. If the number of layers is not specified, no lining is required.

STEP 7: Repeat steps three to seven for all joists/studs and noggings in the penetrations cavity.

STEP 8: Proceed to the LR Installation Guide on the next page.





EXAMPLE: An LR 250 damper is to be placed in a plasterboard wall with an F.R.L./F.R.R. of 90/90/90, the dampers heat shield will be located 100mm away from one stud and over 145mm from the other stud and noggings. Using the flowchart, move down to 'Plasterboard Wall', locate all walls with an F.R.L./F.R.R. of 90/90/90, and check the wall's corresponding minimum distances (0mm and 145mm) against the anticipated distances (100mm and >145mm). This means the stud located 100mm away from the heat shield is classified under '0mm' and will require one layer of 16mm fire rated plasterboard. The other stud and noggings are classified under '145mm' and require no additional linings.

LR FIRE DAMPER INSTALLATION GUIDE

INSTALLATION STEPS

STEP 1. Cut penetration(s) as per Table 1 below.

STEP 2. Compress Holyoake flexible heat shield and insert into penetration (plasterboard applications only). Expand heat shield once inserted.

STEP 3. Remove loose flange from damper. Insert damper into penetration with fixed flange sitting against fire barrier.

STEP 4. Slide loose flange (high temperature seal facing wall) onto the damper and tighten jubilee clip with screwdriver.

STEP 5. Using damper handle and fusible link, test damper operation and then set blade to required position.

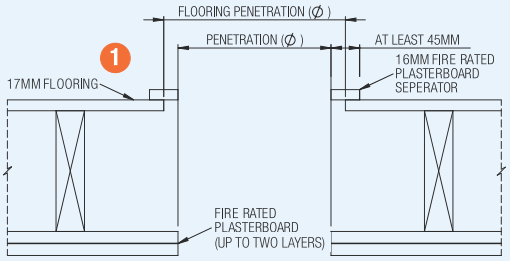
Table 1: Penetration Sizing

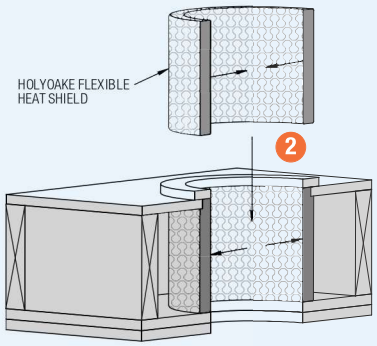
Damper Size (Ø)	Penetration (mm)	Flooring Penetration (mm)
LR100/125	130 - 138	160 - 180
LR 150	155 - 163	185 - 205
LR 200	205 - 213	235 - 255
LR 250	255 - 263	285 - 305
LR 300	305 - 313	335 - 355
LR 350	355 - 363	385 - 405

Blue arrows: indicate progression between steps of the installation.

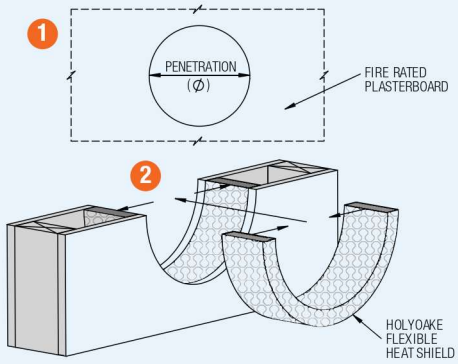
Black arrows: illustrate directional movement required by the objects.

Timber Framed Floor [side view]

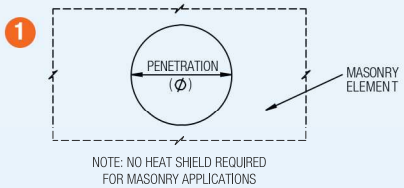




Plasterboard Wall (Timber and Steel)



Masonry Wall and Slab



General Wall/Slab/Floor Installation