Ryanfire Products

Ryanfire Passive Fire Introduction Workshop

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Ryanfire

- NZ Operated
- NZ made
- We know NZ construction practices
- Tested in NZ for the NZ market
- NZ based technical support
- **Conduct 2x fire test every week!**

RYANFIRE PASSIVE FIRE PROTECTION

NEW ZEALAND MADE ®

Passive Fire Protection - Getting It Compliant!

- Navigating the regulatory framework
- **The compliance paper trail**
- Ryanfire CLT fire resistance test library and “V” drawings
- Data transparency / compliance pathways
- Ryanfire CLT passive fire protection potholes

What is PASSIVE FIRE PROTECTION

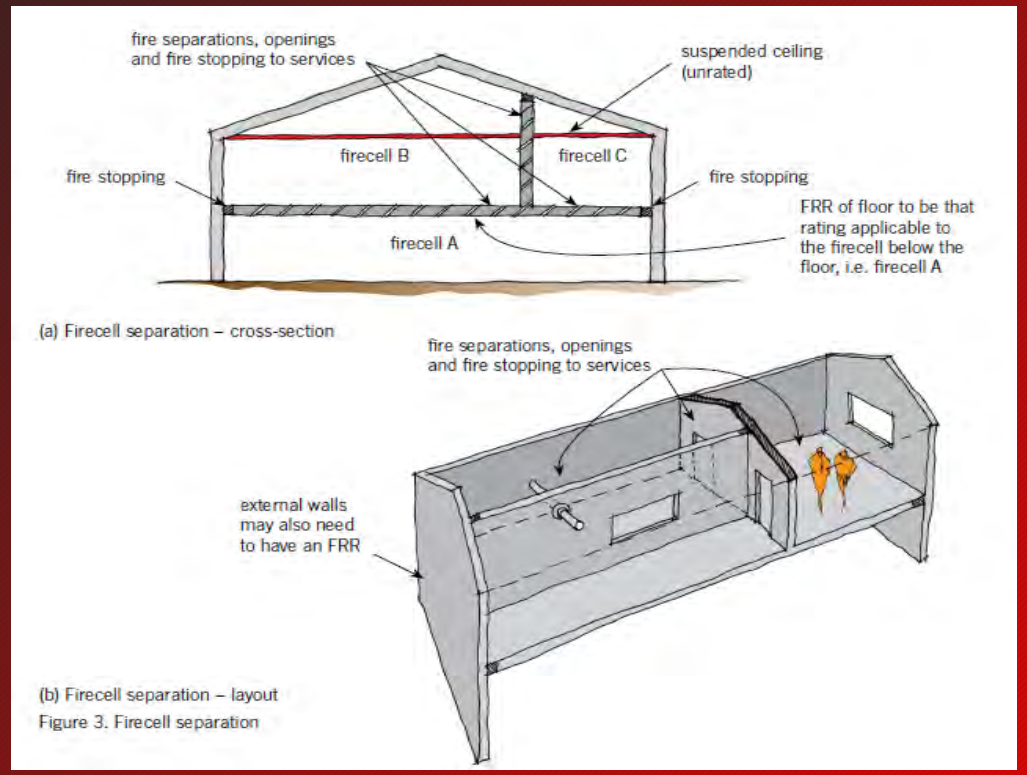
Fire safety features are designed into buildings to provide the occupants with a safe path to exit the building in the event of an emergency

Buildings are divided into compartments.

These fire cells are designed into buildings to prevent:

- The spread of fire beyond the cell of origin
- The spread of products of combustion
  (hot air, smoke, toxic gasses etc)

Each **fire safety feature** designed into a building has a specific functionality and operates in conjunction with other features to form a passive fire SYSTEM



Passive fire protection **is an assembly of various building materials** from multiple manufacturers **that form a congruent system**, each component having its own fire resistance test data as evidence of compliance with the NZ Building Code.

Where is PASSIVE FIRE PROTECTION found

Fire safety features include all manner of product and gadgets formulated to **perform a specific functions** when subject to a fire. Building are divided into **fire cells** by fire separations.

Fire rated walls bounding the means of escape to protect occupants while evacuating to a place of safety via a final exit are an obvious example

Ceilings, access hatches, HVAC grilles, dampers in ducts are examples.

Fire rated door-sets, smoke (& fire) curtains are big holes in fire walls.

All floors in a multi-level structure are fire barriers – "hot air rises & smoke generally is hot" so it stands to reason all building services (power & data cables, hydraulic supply & wastewater pipes, HVAC ducting etc) housed in service risers, shafts, ducts & cupboard floors are examples of floor penetrations.

Each of these features have a specific performance criteria or FRR (Fire Resistance Rating - x/y/z – Structural / Integrity / Insulation)

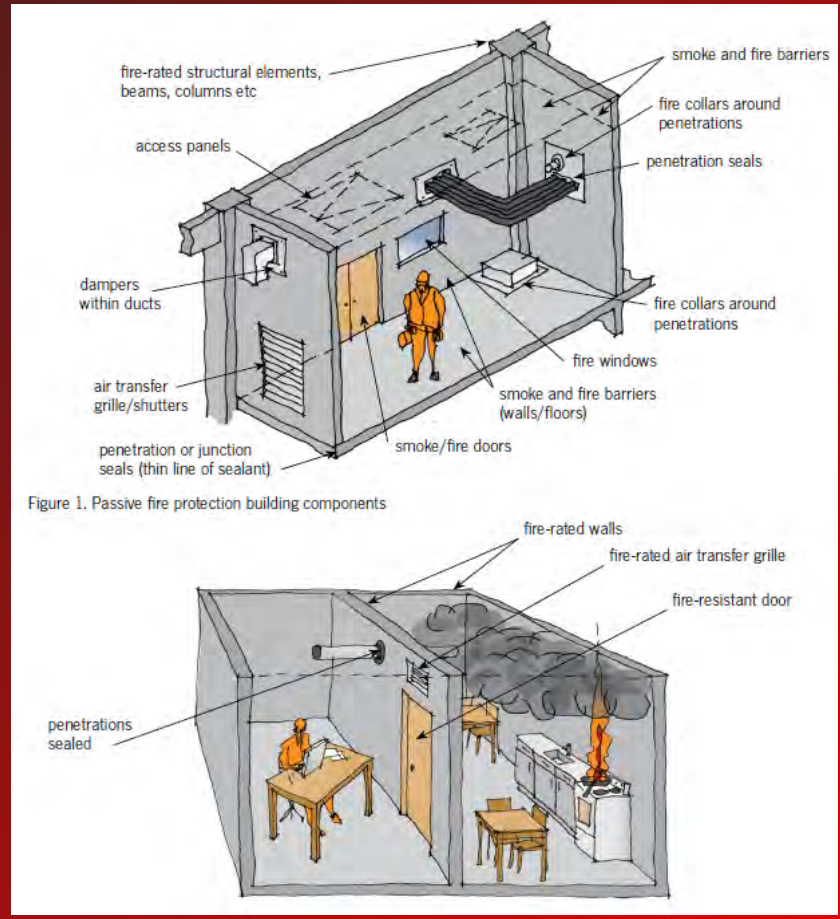


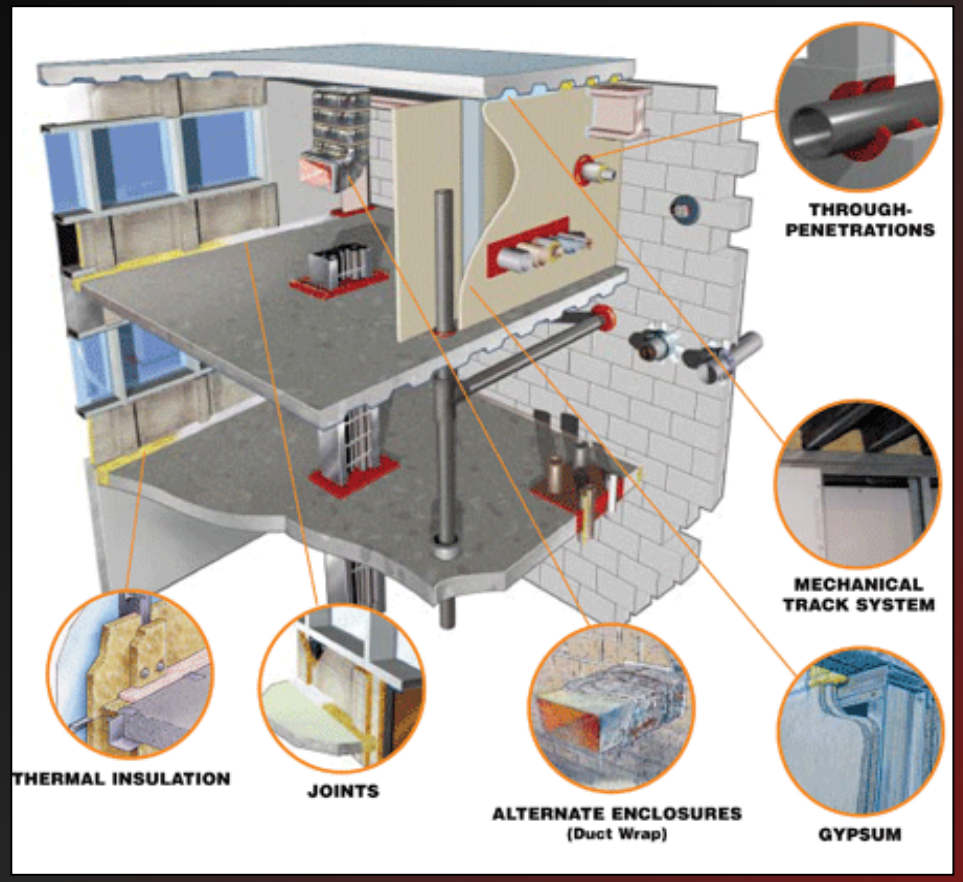
Figure 1. Passive fire protection building components

Where are fire stops in Compartmentalisation?

Where building services pass through separating elements or compartment walls & floors.

Passive fire stopping products are designed to resist the spread of fire & smoke at the point of service penetration or control joints.

Fire/Smoke rated access panels & hatches are required to facilitate inspection, maintenance & repair.



C/AS2 2023

Clause 4.16.12

"Where a fire damper is used to maintain the required fire resistance it SHALL:

c) "Be readily accessible for servicing"

What about access for maintenance of fire stops after a seismic movement event? Clause 4.15.8

Why we use PASSIVE FIRE PROTECTION

- To provide fire safety systems **designed to facilitate evacuation** of occupants without causing harm
- **Effective means of escape** for the specific use of the building (aged care vs apartments/hotels vs malls)
- **To protect the structure from premature collapse**
- To **provide safe access for FENZ** (first responders) for search & rescue operations & to fight the fire at source
- To provide asset protection and protection of adjacent structures

Indication of the benefits of compliant installation and maintenance of a passive fire SYSTEM.

The cost of partial rebuild vs total replacement + business interruption is obvious.

Owner's obligations in accordance with the Building Act

The LOGIC THREAD through some of the Regulatory Framework for compliance with the Act.

Building Act 2004

- Section 3: ".. People who use a building can do so safely and without endangering their health.."
- Section 4: ".. the reasonable expectation of a person….. undertaking firefighting to be protected from injury or illness.."
- Section 4: ".. the need to provide protection to limit the spread of fire.."
- Section 17: "..all building work must comply with the Building Code as required by the Act.."
- Sections 112 to 116A: "..must not grant building consent unless the BCA is satisfied …. that the building will comply, with provisions of the Building Code that relate to the means of escape from fire…"
- Section 121: "A building is dangerous if it is likely to cause injury or death…. AND in the event of fire, injury or death to any persons in the building **or to persons on other property…."**

Owner's obligations in accordance with the Building Act

- Building Amendments Act 2013 – calls for more detail regarding location, installation – performance – maintenance, inspection & repair standards to be recorded on the building compliance schedule
- NZ Building Code – Performance Based Code
  - C1: Objectives – safeguard people from injury or illness caused by fire & protect other property
  - C2: Prevention of Fire Occurring
  - C3: Fire Affecting Areas Beyond Fire Source
  - C4: Movement to Place of Safety
  - C5: Access & Safety for Firefighting Operations
  - C6: Structural Stability
- Section C: Protection from Fire - covers all fire safety systems, including **"built-in"** fire rated **assemblies**

Numerous performance / installation / inspection standards apply to Passive Fire Protection Systems

IS IT OPTIONAL

NO!

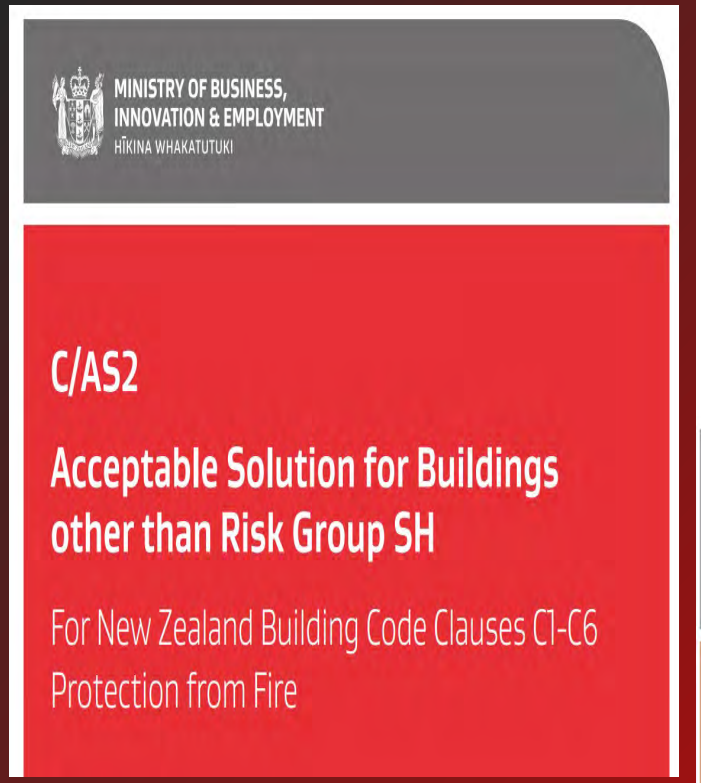
Fire protection is legislated in the

Building Act

and in Clauses C1 – C6 of the NZ

Building code:

PROTECTION FROM FIRE



AS 1530.4:2014

Australian
STANDARD

Methods for fire tests on building materials, components and structures

Part 4: Fire-resistance tests for elements of construction

AS 4072.1—2005
(Incorporating Amendment No. 1)
Reconfirmed 2016

Australian Standard™

Components for the protection of openings in fire-resistant separating elements

Part 1: Service penetrations and control joints

AS 1530.4 - How this relates to "Acceptable Solutions"

10.12 PERMISSIBLE VARIATIONS TO THE TESTED SPECIMEN

10.12.1 General

The results of the fire test contained in the test report are directly applicable without reference to the testing authority to similar constructions where one or more of the changes set out in Clauses 10.12.2 to 10.12.6 have been made.

10.12.2 Separating elements

Results obtained for sealing systems in various types of masonry and concrete construction may be applied as follows:

(a) For elements manufactured from similar types of concrete or masonry, the results of the prototype test may be applied to materials of density within ±15% of the tested specimen. For greater variations, the opinion of a registered testing authority shall be obtained.

AS 4072.1 - How this relates to "Acceptable Solutions"

4.3 VARIATIONS PERMITTED SUBJECT TO A FORMAL OPINION

4.3.1 Separating elements

4.3.1.1 *Masonry and concrete construction*

Results obtained for sealing systems in various types of masonry and concrete construction may be applied as follows.

Where an insulation failure occurs on a separating element adjacent to a penetration seal and the registered testing authority can ascertain that the thickness of the separating element was the sole cause of the failure, the testing authority may calculate the increase in thickness necessary to satisfy the insulation criterion for the required period.

4.3.1.2 *Framed walls*

Results obtained with a steel or timber stud-framed wall using a proprietary board may be used to assess the performance of alternative proprietary brands provided that a registered testing authority is satisfied that the products behave in a similar manner.

NOTE: Generally, to evaluate the performance of a sealing system it is necessary to evaluate laminated wall constructions and standard framed walls separately.

4.3.1.3 *Pre-fabricated walls*

Results obtained from a pre-fabricated wall may be used to assess the performance of alternative proprietary brands, provided that a registered testing authority is satisfied that the products behave in a similar manner

4.3.1.4 *Ceiling systems and ceiling/roof/floor combinations*

Results obtained with a suspended ceiling system using one type of proprietary board may be used to assess the performance of the suspended ceiling system using alternative proprietary boards, provided that a registered testing authority is satisfied that the products behave in a similar manner.

AS 4072.1 - How this relates to “Acceptable Solutions”

4.3 VARIATIONS PERMITTED SUBJECT TO A FORMAL OPINION

4.3.1 Separating elements

4.3.1.3 *Pre-fabricated walls*

Results obtained from a pre-fabricated wall may be used to assess the performance of alternative proprietary brands, provided that a registered testing authority is satisfied that the products behave in a similar manner

AS 4072.1 - How this relates to “Acceptable Solutions”

SECTION 1 SCOPE AND GENERAL

1.1 SCOPE

This Standard sets out minimum requirements for the construction, installation and application of fire resistance tests to sealing systems—

1.2 APPLICATION

The Standard is intended to complement the fire protection requirements of the *Building Code of Australia* (BCA) and to be read in conjunction with the appropriate clauses of AS 1530.4, which provides methods for determining the fire resistance of service penetrations and control joints.

What is a Formal Opinion???

1.4.8 Formal opinion

The written opinion, by a registered testing authority, prepared in accordance with Clause 4.2 of this Standard. Also referred to as ‘assessment’.

4.2 PREPARATION AND PRESENTATION OF FORMAL OPINIONS

Formal opinions shall be prepared and presented as follows:

(a) Each formal opinion shall be based on one or more fire resistance tests.

CONTENTS

AS1530.4 & AS4072.1

FireTSLab

Test report # PF22055

Test Number 22055

Client: Ryanfire Products Ltd

Fire resistance test for linear gaps in horizontal concrete separating element

Test method: AS 1530.4:2014

Report Date 11/10/2022

Southbrook
FIRE RESEARCH LTD

Fire Resistance Test Report

Fire Resistance Performance of Ryanfire SL Collars protecting various Combustible Pipes installed in a Concrete Floor.

Commissioning Organization: Ryanfire Products Ltd.

Report Number: 23SFR00046

Version: 1.1

Issue Date: 01/08/2023

1

warringtonfire
Proud to be part of element

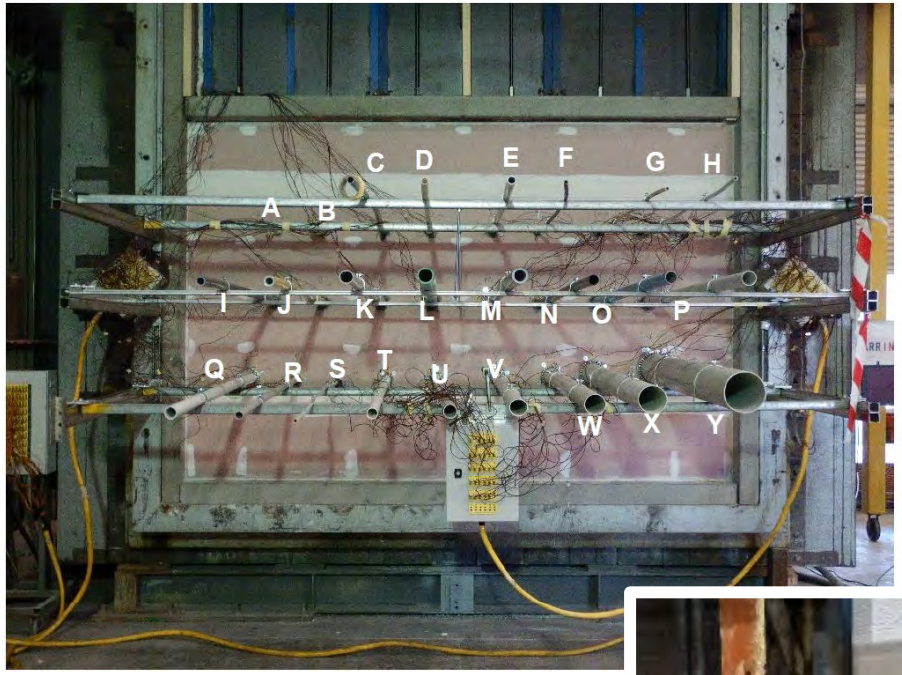
Fire assessment report

Firetherm penetration sealing systems protecting apertures if tested in accordance with AS 1530.4:2014

Sponsor: Ryanfire Products Ltd

Report number: EWFA 35084000 Project reference number: FAS200167 Revision: R3.0

Issue date: 16 June 2020 Expiry date: 30 June 2025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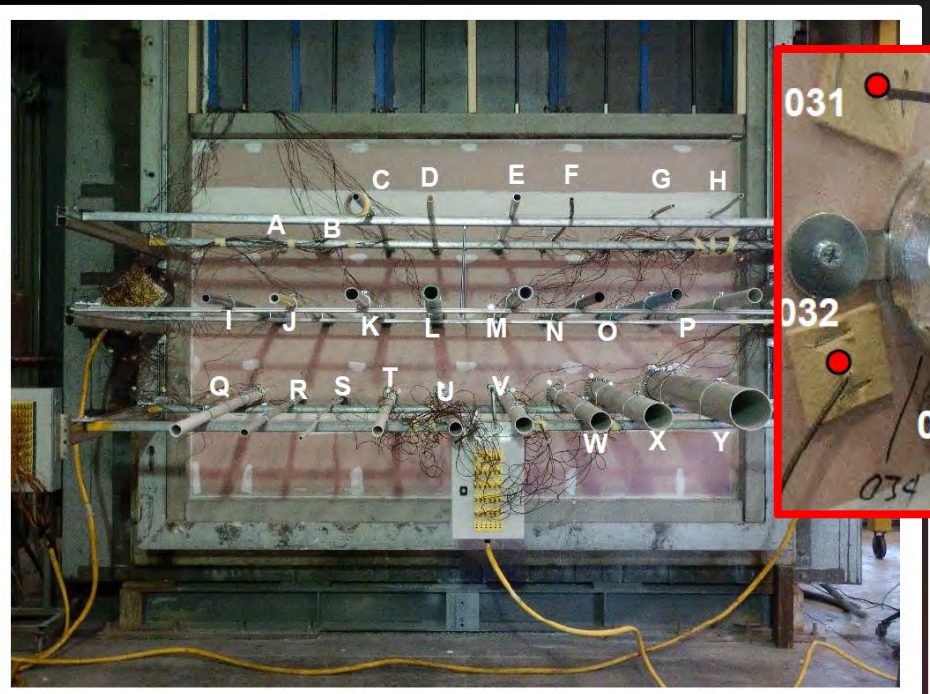
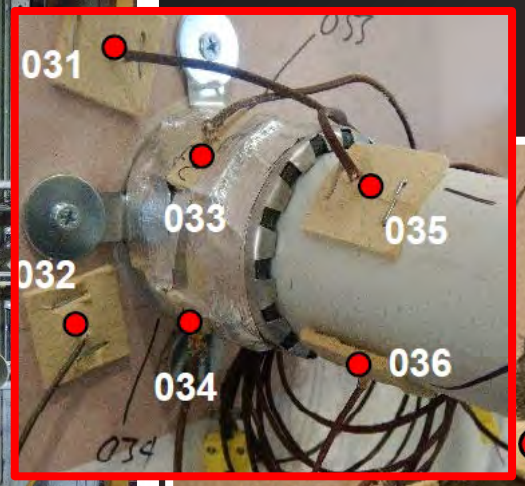
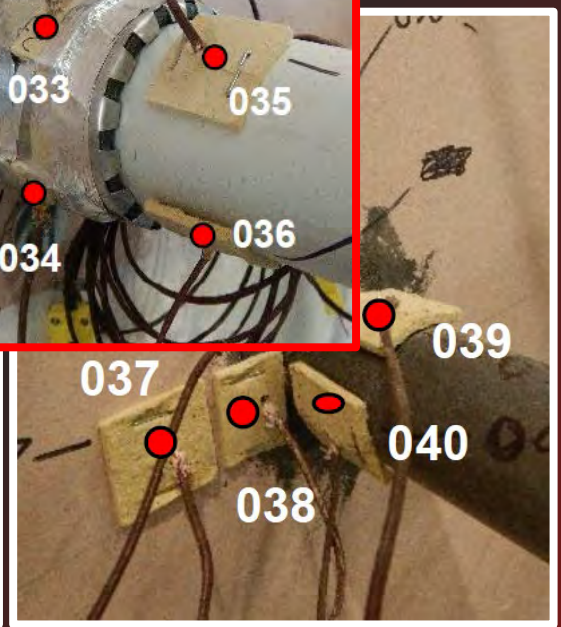


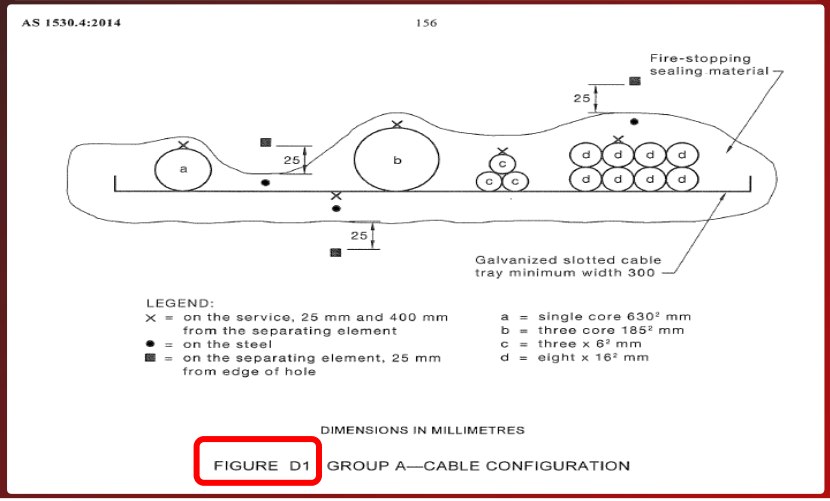




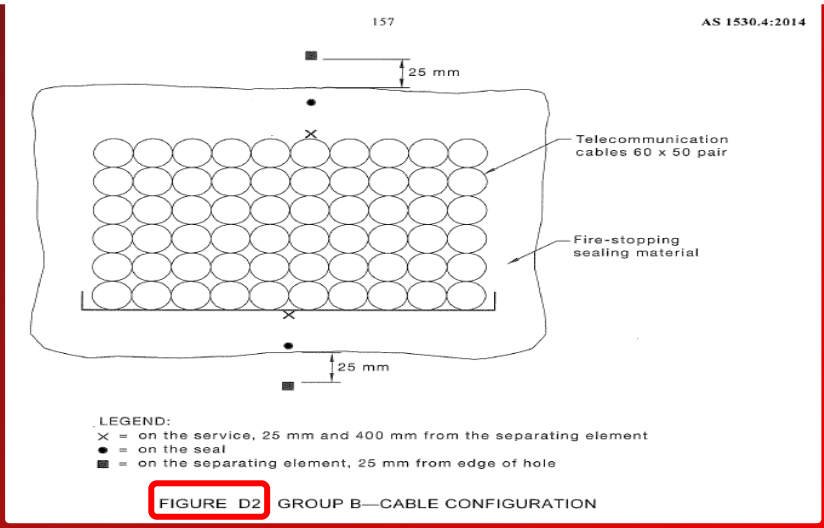
Unexposed face of specimen before the start of test

Penetration system	T/C no.	Description[2]	Temp (°C) at t (minutes) t=0	t=30	t=60	t=90	t=120	Limit[1] (minutes)
	055	On the service	19	61	89	169	51	82
	056	On the service	18	46	67	152	36	-
X	089	On the separating element	17	80	79	100	221	118
	090	On the separating element	17	60	71	81	129	-
	091	On the fire collar	17	65	83	119	191	-
	092	On the fire collar	17	48	60	80	142	-
	093	On the service	20	99	152	193	214	7
	094	On the service	18	79	89	97	124	-

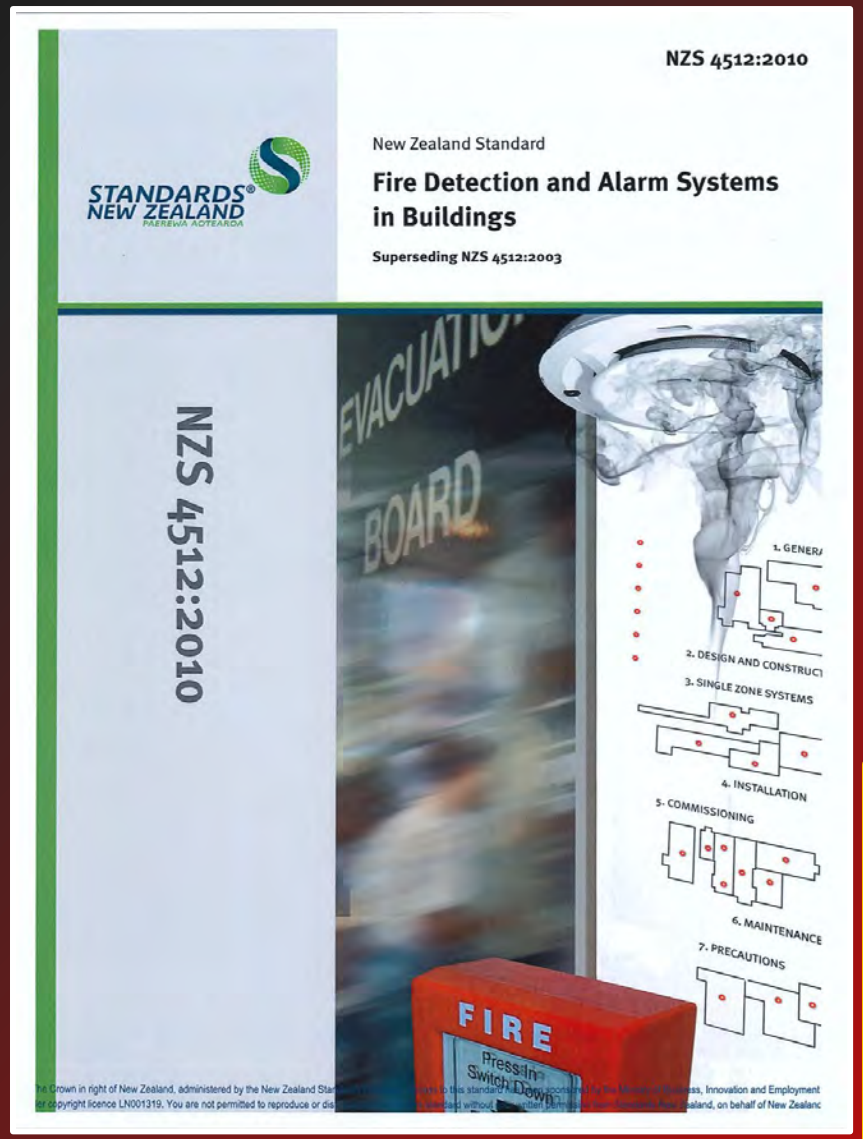
AS1530.4 Fig. "D1" Copper Core PVC Sheathed POWER Cables

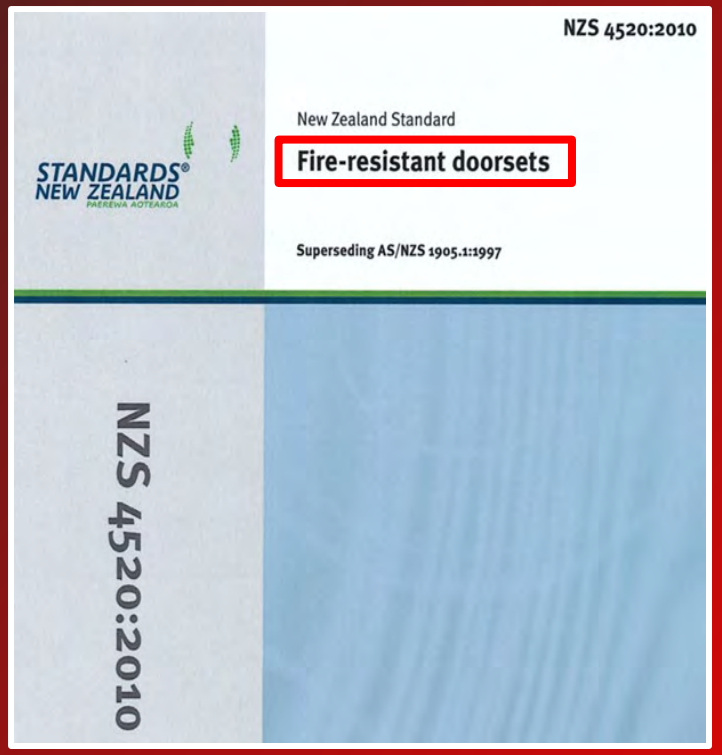


AS1530.4 Fig. "D2" Copper Core Data Cables
60 x 50 pair = 6000 Strands in old cables
CAT 6 has 4 x pair i.e., 6000 / 8 = 750
CAT 6 Data Cables per Cable Tray



Other fire protection standards





Passive Fire has
NO UNIVERSAL
Performance Standard

Fire Test Standard AS 1530.4

Fire Installation Standard AS 4072.1

Fire-Resistant Doorsets Standard NZS 4520

LOOKING FOR PERFORMANCE STANDARDS

Building Act 2004

Building Code

Section "C" – C/AS1 & C/AS2

C/AS Acceptable Solutions

C/AS 2 Appendix C 5.1.2 **Fire stops SHALL be tested**

C/AS 2 Section 4.4.3 **Fire stops and methods of installation SHALL be identical to those of the prototype used in tests to establish their FRR**

C/AS Alternative Solutions
C/VM Verification Methods

UNIVERSAL NZS / AS Standards

SS 1 - Sprinkler	NZS 4541
SS 2 - Alarm	NZS 4512
SS 4 - Emergency Lighting	AS/NZS 2293
SS 7 – Backflow Preventers	AS/NZS 2845
Fire Rated Doorsets	NZS4520

Passive Fire has NO UNIVERSAL Standard

Passive Fire Test Standard	**AS 1530.4**
Passive Fire Installation Standard	**AS 4072.1**
Passive Fire Routine Maintenance	**AS 1851 Sect 12**

Some Definitions

❖ **Compliance Schedule Handbook – Section 175 of the Building Act 2004**

Defines **"Performance Standards"** as: "The level of performance a specified system was intended to meet, and to continue to meet, at the time it was **DESIGNED** and installed in a building"

Defines **"Building Consent"** as: "An approval issued by a Building Consent Authority (the building control department of the district, city or regional council - BCA) to undertake building work **in accordance with the approved plans and SPECIFICATIONS".**

❖ **DESIGNER'S ROLE AND RESPONSIBILITIES**

- **Building Act s14D(1):** "..**Designer** means a person who prepares plans and specifications for building work OR who **gives ADVICE on the compliance of building work with the building code…."**

- **SFPE Construction Monitoring Guide, Aug 2021**:
  "A **'designer'** is considered to be someone who directly OR indirectly influences the construction, maintenance or demolition of any element of construction."

- **Health and Safety at Work Act s39:** "(2)(e)
  ..The **'designer'** must ensure that the plant, substance, or structure is designed to be without risk to **the health and safety of persons who carry out any reasonably foreseeable activity** at a workplace…"

Part 1
Health and safety at work

Subpart 1—Preliminary provisions

3 Purpose

(1) The main purpose of this Act is to provide for a balanced framework to secure the health and safety of workers and workplaces by—

(a) protecting workers and other persons against harm to their health, safety, and welfare by eliminating or minimising risks arising from work or from prescribed high-risk plant; and

(2) In furthering subsection (1)(a), regard must be had to the principle that workers and other persons should be given the highest level of protection against harm to their health, safety, and welfare from hazards and risks arising from work or from specified types of plant as is reasonably practicable.

design, in relation to plant, a substance, or structure includes—

(a) the design of part of the plant, substance, or structure; and

(b) the redesign or modification of a design

22 Meaning of reasonably practicable

In this Act, reasonably practicable, in relation to a duty of a PCBU, means that which is reasonably able to be done, taking into account all relevant matters, including -

(c) what the person concerned knows, or ought reasonably to know, about –

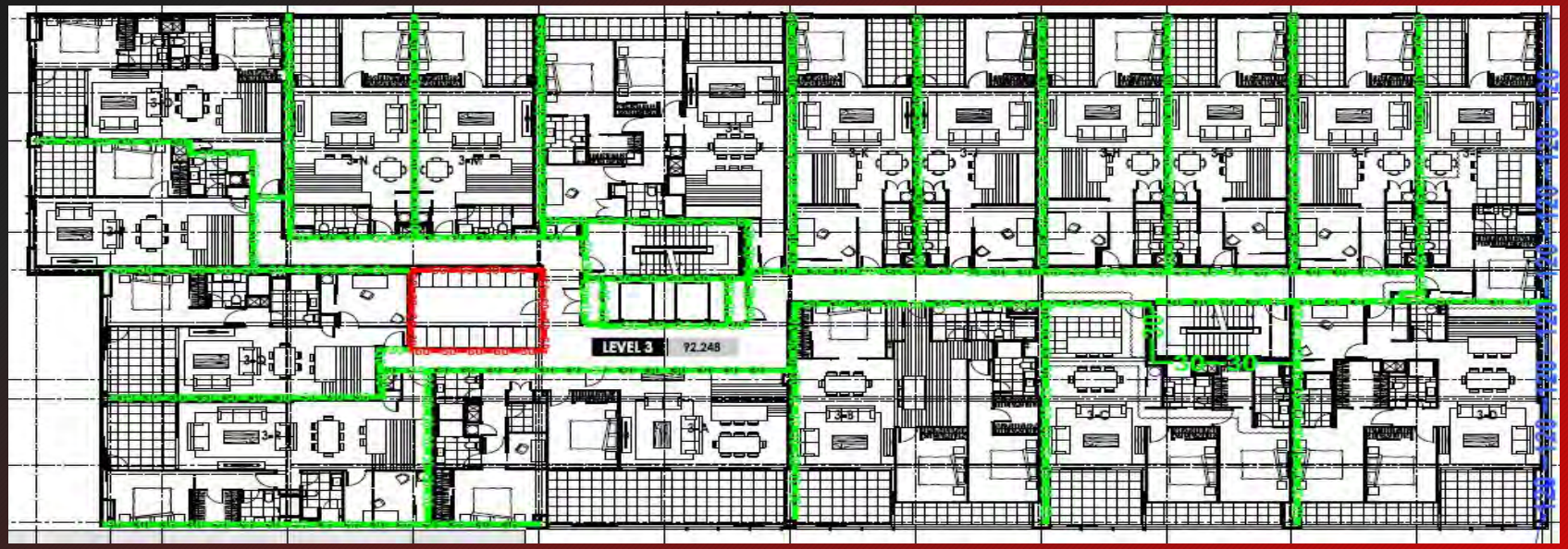
(i) the hazard or risk; and

(ii) ways of eliminating or minimising the risk .....

FIRE SAFETY DESIGN REPORT – PASSIVE FIRE

Critical information to be found in the Fire report for passive fire designers include:

- ✓ The **location** of all fire rated elements of construction (walls, floors, shafts, risers, facades etc.)
  - ❑ Building Amendments Act 2013 calls for "detailed descriptions" of passive fire systems
  - ❑ AS4072.1 Append B calls for marked-up drawings indicating location and schedules of all penetration seals & linear gap seals corresponding to the building plans & elevations



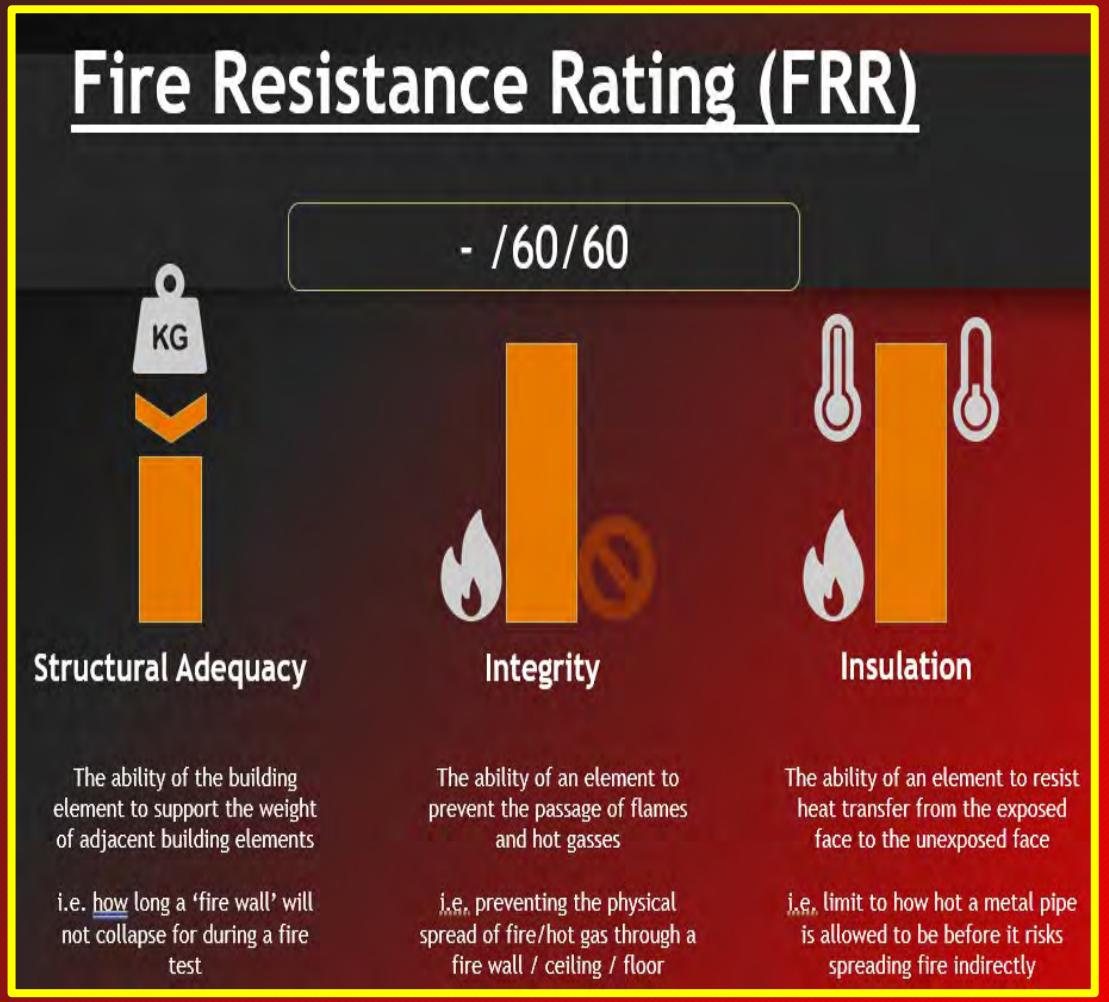
FIRE SAFETY DESIGN REPORT – PASSIVE FIRE

✓ The **performance criteria** for each of the fire rated elements of construction

The fire resistance rating FRR -/30/30 for IT walls and -/60/60 for means of escape and -/120/120 for the plant room in the basement for example

The specific criteria for fire/smoke doors (fire only OR smoke only or fire with smoke capability) and if these doors are to be held open with magnetic hold open devices connected to the fire alarm panel

Other **functionality** may include air pressurization in stairwells or smoke curtains to drop from the ceiling around a set of escalators in a shopping mall



Fire Resistance Rating (FRR)

- /60/60

Structural Adequacy

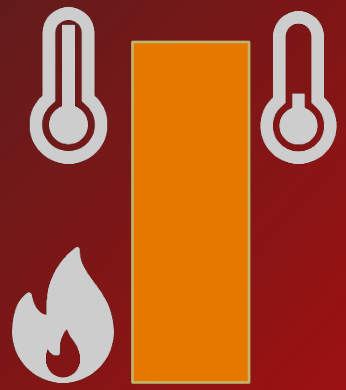
The ability of the building element to support the weight of adjacent building elements

i.e. how long a ‘fire wall’ will not collapse for during a fire test

Integrity

The ability of an element to prevent the passage of flames and hot gasses

i.e. preventing the physical spread of fire/hot gas through a fire wall / ceiling / floor



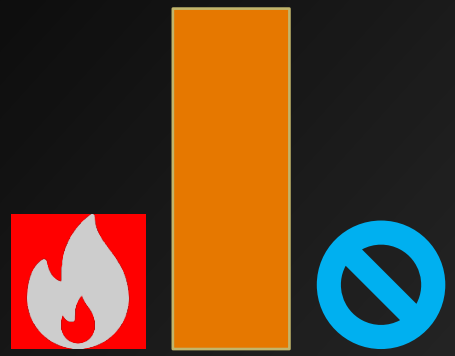
Insulation

The ability of an element to resist heat transfer from the exposed face to the unexposed face

i.e. limit to how hot a metal pipe is allowed to be before it risks spreading fire indirectly

Fire Resistance Rating (FRR)

- /60/ -



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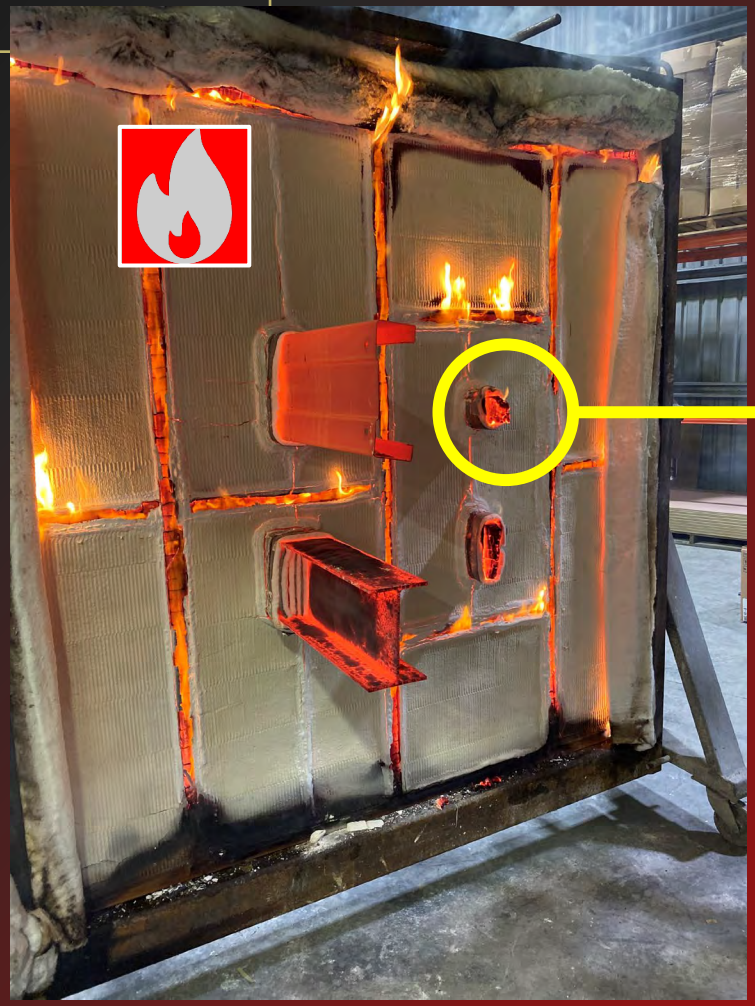
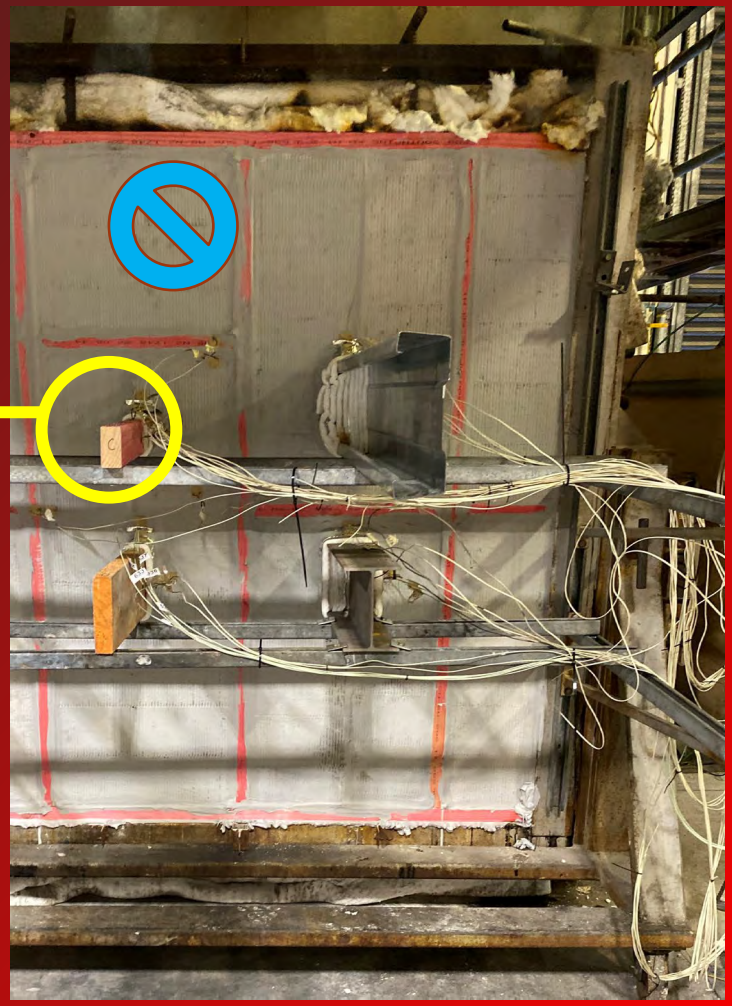
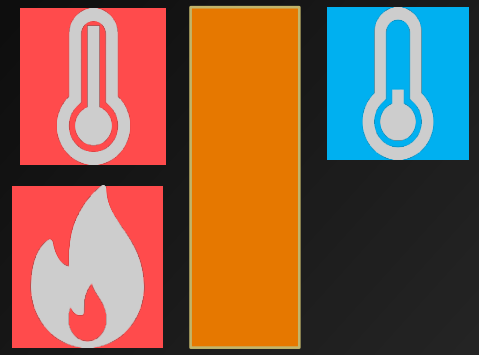


Fire stop intact at 60 minutes



Fire Resistance Rating (FRR)

- /60/60



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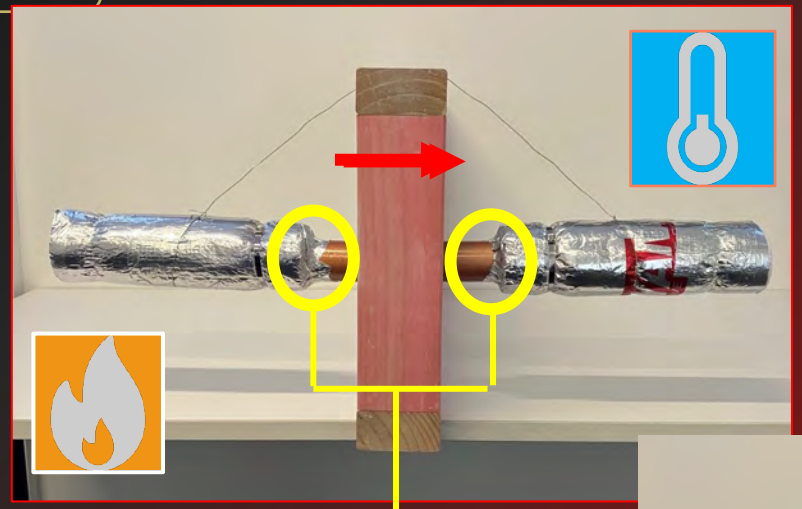
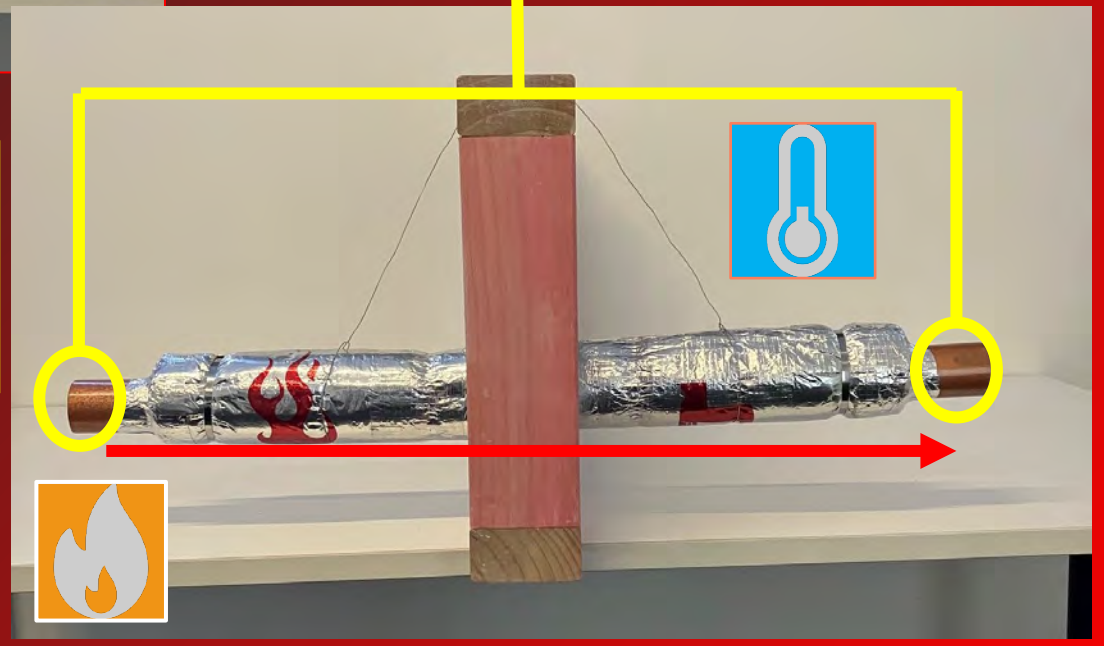


Time it takes for heat to move from fire side to safe side is the wall thickness only e.g. -/60/-

Time it takes for heat to move from fire side to safe side is wall thickness + insulation on both sides e.g. -/60/60



I have my paperwork!

- **Make sure it's the right paperwork**

- AS1530.4-2014 / AS 4072.1-2005 – linear gaps / penetration systems documentary evidence of compliance

- Liability rests with the **design** & compliance industry, not the supplier of the firestop system.

SPECIFICATION OF RECORDS - AS4072.1 APPENDIX "B"

APPENDIX B
DOCUMENTATION

B1 GENERAL

For fire-resistant service penetrations and control joints documentation, evidence of compliance with this Standard should be provided as set out in this Appendix.

When the installation of a fire-resistant sealing system has been completed, the installer should provide written evidence to the building owner or building owner's representative that—

(a) each such system (service penetration or control joint) is identical with a tested specimen, or, where there are variations from this tested specimen, these variations are in accordance with Clause 4.1 of this Standard; and

(b) each such system has been correctly installed in accordance with the manufacturer's installation instructions.

B2 DOCUMENTARY EVIDENCE

The evidence referred to in Paragraph B1 should be in the form of a numbered certificate, form, statement or the like from the installer of the system or systems, certifying—

(a) that an inspection of each type of system or systems has been carried out by the installer; and

(b) whether or not the installation is in accordance with Items (a) and (b) of Paragraph B1.

B3 STATEMENT OF COMPLIANCE AND SCHEDULE

Included on or attached to the certificate, form or statement of compliance should be a record of each installation giving the following information:

(a) Project name and address.

(b) Name, address and contact phone number of installing company or party.

(c) Date of final inspection of installation.

(d) Description of service or control joint.

(e) Identification of the position of the installations, for example—

(i) marked up drawings;

(ii) sketches; and

(iii) photographs.

(f) Description of the system used or a schedule of systems.

(g) Description of product or system used to maintain the FRL of the building element of each installation.

NOTE: Each installation should be numbered for ease of identification on the drawing.

(h) The FRL of the installation.

(i) A unique number that references each installation.

Figure B1 sets out a recommended format for listing penetrations and control joints and gives one example.

A suitable accompanying statement of compliance is shown in Figure B2.

Project name: .....

Project Address: .....

Page: ..... of .....

Certification No.: .....

Date: .....

NOTE!

Floor or wall designation	Installation Ref. No.	Wall (W) Floor (F) Ceiling (C)	FRL: Structural adequacy/integrity/ insulation min./ min./min.	Service description Service size (diameter)*× No. of *or* Group opening (mm × mm)	Manufacturer product and system number	Report Ref:
G	A12	W	–/60/60	500 × 200 mm opening with 100 mm diameter. Copper pipe plus assorted power cables	ABC mortar – System 651	R25

Signed: .....

FIGURE B1 EXAMPLE OF A SCHEDULE OF FIRE-STOPPED PENETRATIONS AND CONTROL JOINTS

AS1530.4 & AS4072.1

FireTSLab

Test report # PF22055

Test Number 22055

Client: Ryanfire Products Ltd

Fire resistance test for linear gaps in horizontal concrete separating element

Test method: AS 1530.4:2014

Report Date 11/10/2022

Southbrook
FIRE RESEARCH LTD

Fire Resistance Test Report

Fire Resistance Performance of Ryanfire SL Collars protecting various Combustible Pipes installed in a Concrete Floor.

Commissioning Organization: Ryanfire Products Ltd.

Report Number: 23SFR00046

Version: 1.1

Issue Date: 01/08/2023

1

warringtonfire
Proud to be part of element

Report number: EWFA 35084000 Project reference number: FAS200167 Revision: R3.0

Fire assessment report

Firetherm penetration sealing systems protecting apertures if tested in accordance with AS 1530.4:2014

Sponsor: Ryanfire Products Ltd

Report number: EWFA 35084000 Project reference number: FAS200167 Revision: R3.0

Issue date: 16 June 2020 Expiry date: 30 June 2025

SPECIFICATION OF RECORDS – AS4072.1 APPENDIX "B"

(*Company Name*)

SERVICE PENETRATION AND CONTROL JOINT STATEMENT OF COMPLIANCE

Statement of compliance Number 12345

Project Name: .....

Building Owner: .....

Building Address: .....

Installer's Name: .....

Installer's Address: .....

Installer's Phone No: .....

This is to certify that the service penetrations, seals and control joints identified on the attached Schedule have been inspected and labelled as required by the appropriate regulatory authorities in accordance with AS 4072.1, in respect to the evidence of compliance in Appendix B.

Certified by: .....

Name of Certifier: .....

Signature: .....

Date: .....

Penetrations and control joints covered by this statement of compliance are to be maintained in accordance with the manufacturer's instructions.

Can the plumber who is an authorized PS author for plumbing work - sign off Sect C – fire protection?

Authorised PS 3 Author / 3rd Party Monitor?

FIGURE B2 EXAMPLE OF A STATEMENT OF COMPLIANCE FOR SERVICE PENETRATION, SEAL OR CONTROL JOINT

B4 LABELLING AND INSTALLATION

Each service penetration or control joint should be clearly labelled and marked with the following information:

(a) Number of this Standard.

(b) FRL.

(c) Name and contact details of the installer.

(d) Installation date.

(e) A unique installation reference number.

(f) Name and contact details of the manufacturer.

Figure B3 shows an example of a service penetration, seal or control joint label.

The label should be positioned close to the service penetration, seal or control joint. Multiple labels may be used where appropriate, e.g., control joints.

SERVICE PENETRATION AND CONTROL JOINT SYSTEM
(TO AS 4072.1)
FRL: –/60/60

Installed by: ..... (Company/name) (Phone No.)

Installation date: .....

Installation reference: .....

Manufacturer: ..... (Name, Address, Phone No.)

CONTACT THE ABOVE IN THE EVENT OF DAMAGE OR IF REINSTATEMENT IS REQUIRED

FIGURE B3 EXAMPLE OF A LABEL FOR SERVICE PENETRATION, SEAL OR CONTROL JOINT

Not all

fire rated elements of construction are BWOF

inspection items

and not listed on the compliance schedule.

These many may be owners' responsibility

maintenance items

for example:

elevated plant platforms & mezzanine floors.

AS 1851 - How this relates to “Acceptable Solutions”

TABLE 12.4.1.1

YEARLY SERVICE SCHEDULE FIRE AND SMOKE BARRIERS WALLS, SERVICE PENETRATIONS AND CONTROL JOINTS

Item No.	Item	Action required and pass/fail requirement	Records		
			Result	Pass/Fail	Comments
1.1	Wall types, locations	INSPECT against drawings (see Clause 12.2.5) that no fire and/or smoke walls have been added, removed or modified.			
1.2	Service penetration and control joint inspection	(a) INSPECT against drawings and associated penetration schedules that no penetrations have been added, removed or modified.			
		(b) CHECK that reference drawings and penetration schedules correctly represent the installed penetrations.			
		(c) IDENTIFY any penetration and control joints work that is unprotected, damaged or incorrectly installed.			
1.3	Walls, where accessible	(a) INSPECT that walls continue up to the next horizontal fire-resistant barrier or to the underside of the roof above.			
		(b) INSPECT for any damage that will cause loss of fire resistance.			

12.4.1.2 *Floors, service penetrations and control joints*

Yearly service of fire and smoke floors, including service penetrations and control joints shall be completed in accordance with Table 12.4.1.2.

TABLE 12.4.1.2

YEARLY SERVICE SCHEDULE FIRE AND SMOKE BARRIERS FLOORS, SERVICE PENETRATIONS AND CONTROL JOINTS

Item No.	Item	Action required and pass/fail requirement	Records		
			Result	Pass/Fail	Comments
2.1	Fire rated floors	INSPECT against drawings (see Clause 12.2.5) that no fire-rated floors, including resistance to incipient spread of fire, have been added, removed or modified.			
2.2	Service penetration and control joint inspection	(a) INSPECT against drawings and associated penetration schedules that no penetrations have been added, removed or modified.			
		(b) CHECK that reference drawings and penetration schedules correctly represent the installed penetrations.			
		(c) IDENTIFY any penetration and control joints work that is unprotected, damaged or incorrectly installed.			
2.3	Floors—General	INSPECT for any damage that will cause loss of fire resistance.			

TABLE 12.4.1.3

YEARLY SERVICE SCHEDULE FIRE AND SMOKE BARRIERS CEILINGS, SERVICE PENETRATIONS AND CONTROL JOINTS

TABLE 12.4.2

YEARLY SERVICE SCHEDULE FIRE-PROTECTED STRUCTURAL MEMBERS

TABLE 12.4.1.4

YEARLY SERVICE SCHEDULE FIRE AND SMOKE BARRIERS FIRE AND SMOKE RATED ACCESS PANELS AND HATCHES

TABLE 12.4.7

YEARLY SERVICE SCHEDULE FIRE-PROTECTED AIR DUCTS

❖NZ Building Code

- Performance Based code – applicant to satisfy BCA that all building work will comply when completed
- Section C – Clauses C1 to C6 - Protection from Fire
  - C/AS1 & C/AS2 = **Acceptable Solutions**
- Other pathways to building code compliance
  - **Formal Opinion**
  - Verification Methods
  - ANARP – As Near As **Reasonably Practicable** Solution
  - Specific Engineered Designs, etc
  - Alternative Solutions

C1—OBJECTIVES OF CLAUSES C2 TO C6 (PROTECTION FROM FIRE)

Provisions

The objectives of clauses C2 to C6 are to:

(a) safeguard people from an unacceptable risk of injury or illness caused by *fire*,

(b) protect *other property* from damage caused by *fire*, and

(c) facilitate firefighting and rescue operations.

❖NZ Building Code

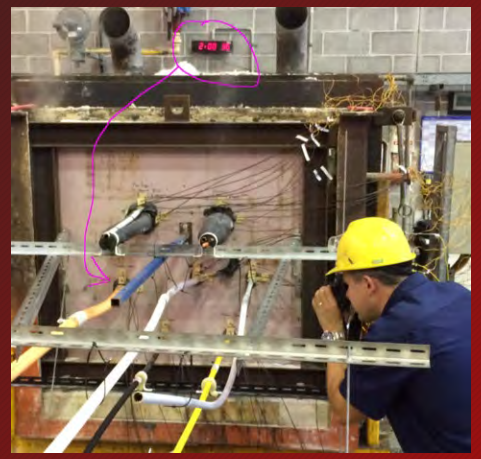
- Section C – Clauses C1 to C6 - Protection from Fire

➢ C/AS1 & C/AS2 = **Acceptable Solutions**

❖ Appendices "C" – C5.1.2 "Fire stops shall be tested"

❖ AS 1530.4 "Test Standard"

❖ AS 4072.1 "Installation Standard"



C5.1 Fire resistance

C5.1.1 *Primary* and *secondary elements*, closures and *fire stops* shall be assigned a *fire resistance rating (FRR)* when tested to:

a) AS 1530 Methods for fire tests on building materials and structures – Part 4: Fire resistance tests of elements of building construction, or

b) NZS/BS 476 Fire tests on building materials and structures – Parts 21 and 22.

C5.1.2 *Fire stops* shall be tested:

a) In circumstances representative of their use in service, paying due regard to the size of expected gaps to be *fire stopped*, and the nature of the *fire separation* within which they are to be used, and

b) In accordance with AS 4072: Components for the protection of openings in fire-resistent separating elements – Part 1: Service penetrations and control joints.

❖NZ Building Code

- Section C – Clauses C1 to C6 - Protection from Fire
  - ➢ C/AS1 & C/AS2 = **Acceptable Solutions**
    - ❖ Section 4.4.3 - FIRE Stopping – "IDENTICAL Installation"
    - ❖ Section 4.5.4 – "shall be MAINTAINED by ensuring **CONTINUITY**"

Fire stops

4.4.2 *Fire stops* shall have an *FRR* of no less than that required for the *fire separation* within which they are installed, and shall be tested in accordance with Appendix C C5.1.

4.4.3 *Fire stops* and methods of installation shall be identical to those of the prototype used in tests to establish their *FRR*.

4.5.4 *Firecell* and *smokecell* effectiveness shall be maintained by ensuring continuity of *fire separations* and *smoke separations* at separation junctions, and around joints where closures, *protected shafts* and *penetrations* occur.

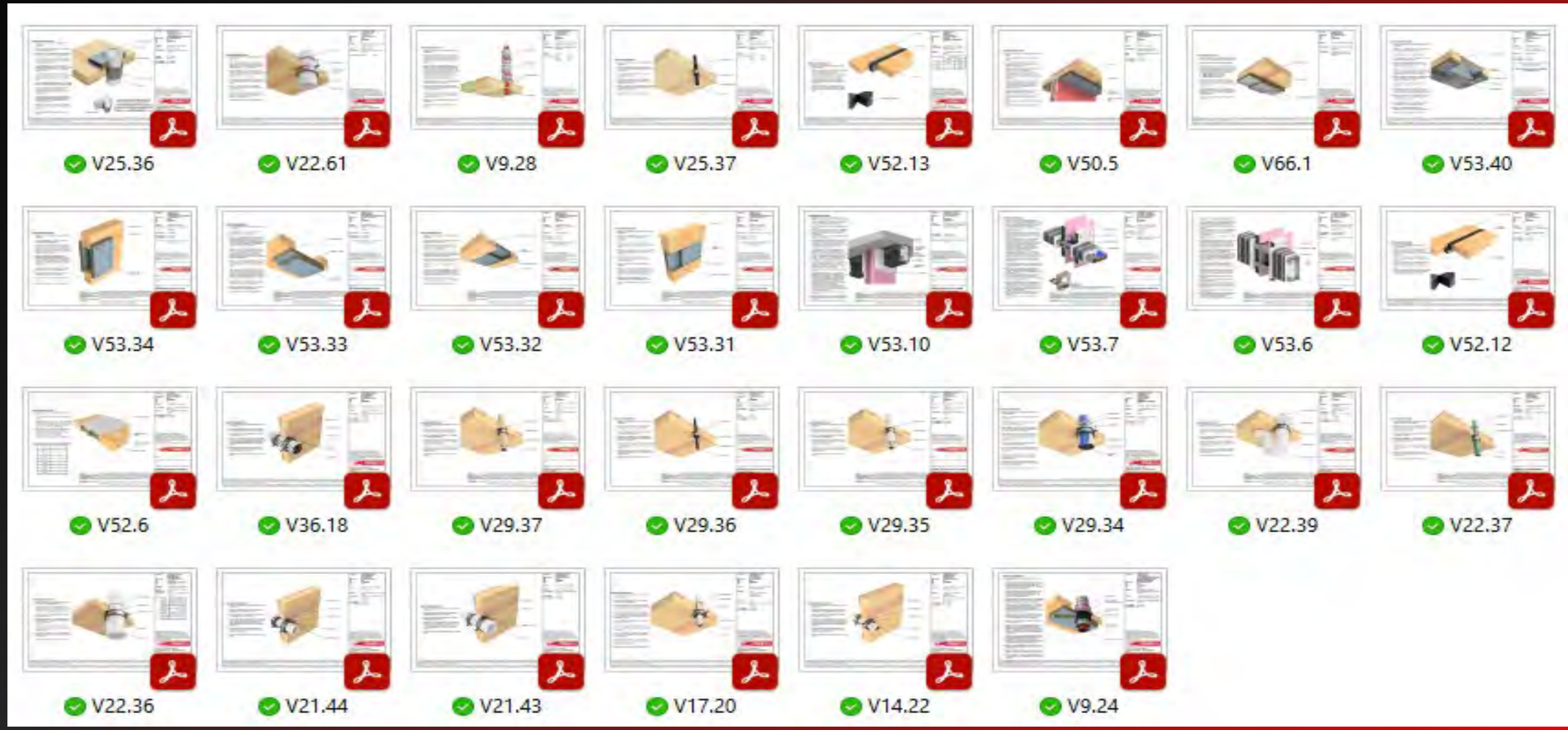
Recap the LOGICAL THREAD of the STATUTORY REQUIREMENTS for Compliance with the Act.

- Building Act 2004 (BWOF & Compliance Schedule)
- Building Amendments Act 2013 (Base line data)
- NZ Building Code – Section C: Protection from Fire
- **NZ Health & Safety at Work Act 2015**
- Performance standards applied to Passive Fire Protection Systems

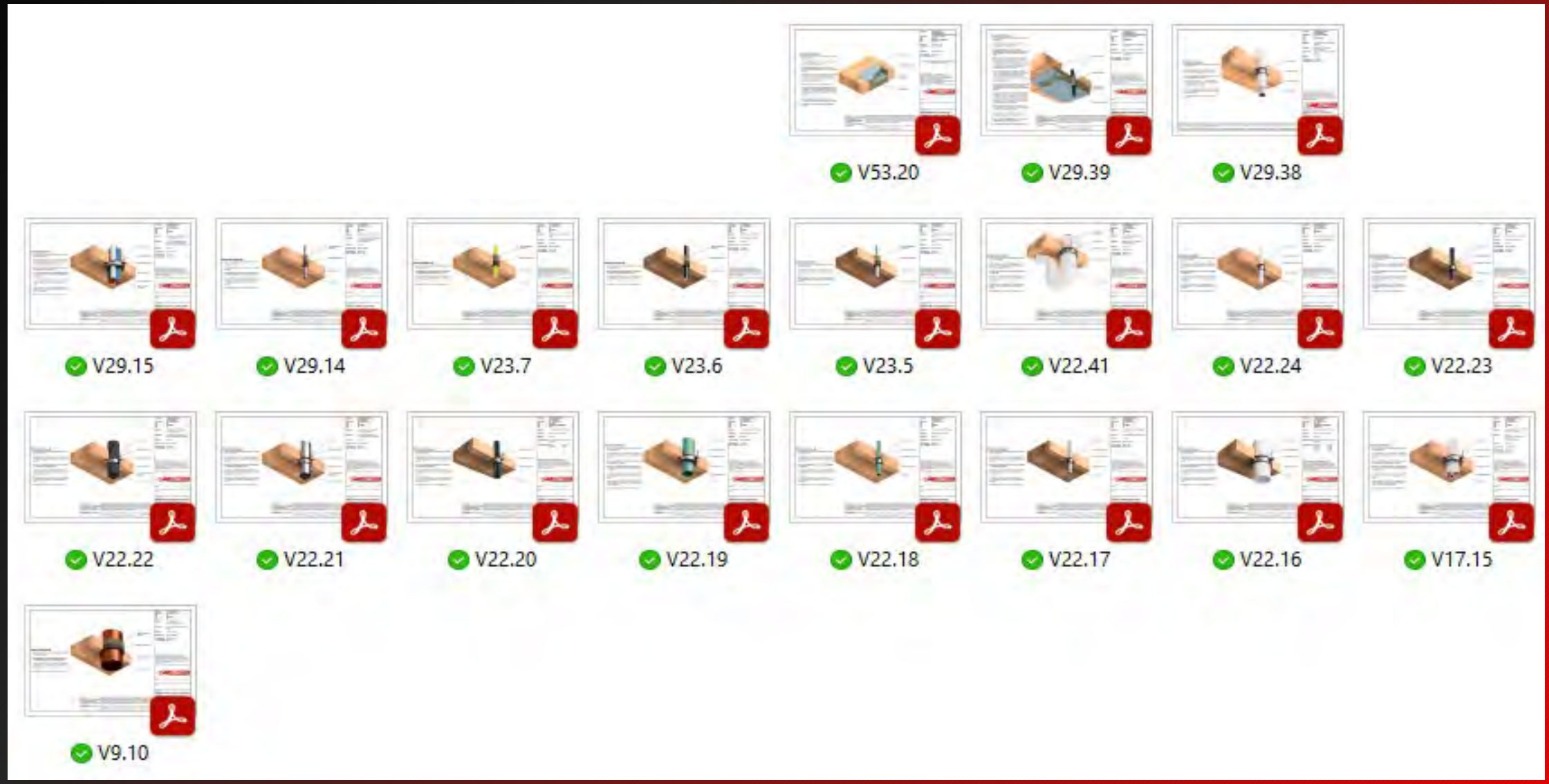
Requirements in accordance with the Compliance Schedule & Appendix "B" AS4072.1

- ✓ Detailed descriptions – substrate (performance criteria and FRR), service (size, materials, number etc), product or system used to maintain FRR, numbered schedules corresponding with as-built plans & elevations
- ✓ Identification of the position (location) of the separation and all service penetrations – numbered labels on each item marked-up on drawings, photos, sketches etc to enable inspection & routine maintenance to be performed
- ✓ Maintenance, testing, inspection and reporting procedures recorded and available in the building compliance manual

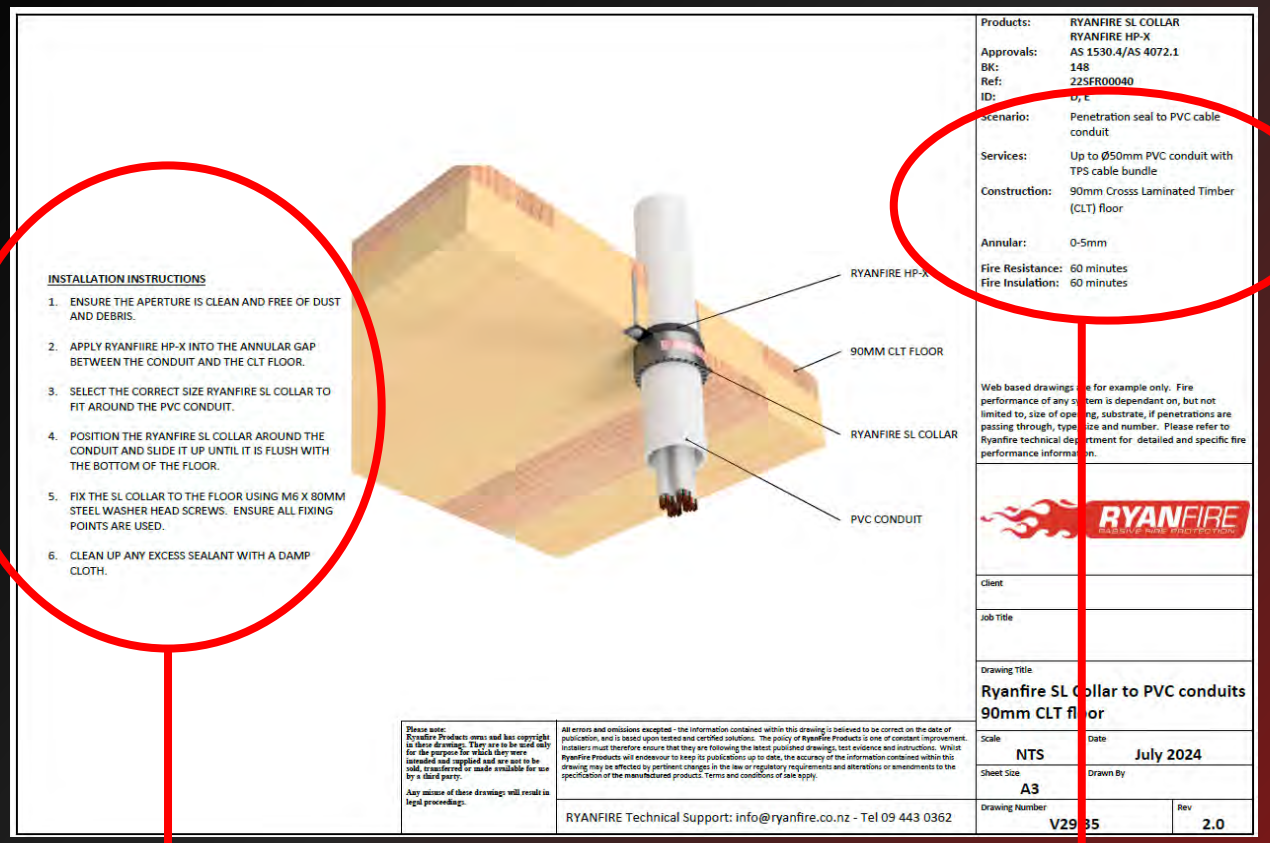
RYANFIRE CLT FIRE TESTS AND “V” DRAWINGS



RYANFIRE PLT FIRE TESTS AND “V” DRAWINGS



EXAMPLE OF FIRE STOPPING INSTALLATION GUIDANCE



INSTALLATION INSTRUCTIONS

1. ENSURE THE APERTURE IS CLEAN AND FREE OF DUST AND DEBRIS.
2. APPLY RYANFIIRE HP-X INTO THE ANNULAR GAP BETWEEN THE CONDUIT AND THE CLT FLOOR.
3. SELECT THE CORRECT SIZE RYANFIRE SL COLLAR TO FIT AROUND THE PVC CONDUIT.
4. POSITION THE RYANFIRE SL COLLAR AROUND THE CONDUIT AND SLIDE IT UP UNTIL IT IS FLUSH WITH THE BOTTOM OF THE FLOOR.
5. FIX THE SL COLLAR TO THE FLOOR USING M6 X 80MM STEEL WASHER HEAD SCREWS. ENSURE ALL FIXING POINTS ARE USED.
6. CLEAN UP ANY EXCESS SEALANT WITH A DAMP CLOTH.

Products:	RYANFIRE SL COLLAR RYANFIRE HP-X
Approvals:	AS 1530.4/AS 4072.1
BK:	148
Ref:	22SFR00040
ID:	D, E
Scenario:	Penetration seal to PVC cable conduit
Services:	Up to Ø50mm PVC conduit with TPS cable bundle
Construction:	90mm Crosss Laminated Timber (CLT) floor
Annular:	0-5mm
Fire Resistance:	60 minutes
Fire Insulation:	60 minutes

Web based drawings are for example only. Fire performance of any system is dependant on, but not limited to, size of opening, substrate, if penetrations are passing through, type, size and number. Please refer to Ryanfire technical department for detailed and specific fire performance information.

RYANFIRE PASSIVE FIRE PROTECTION

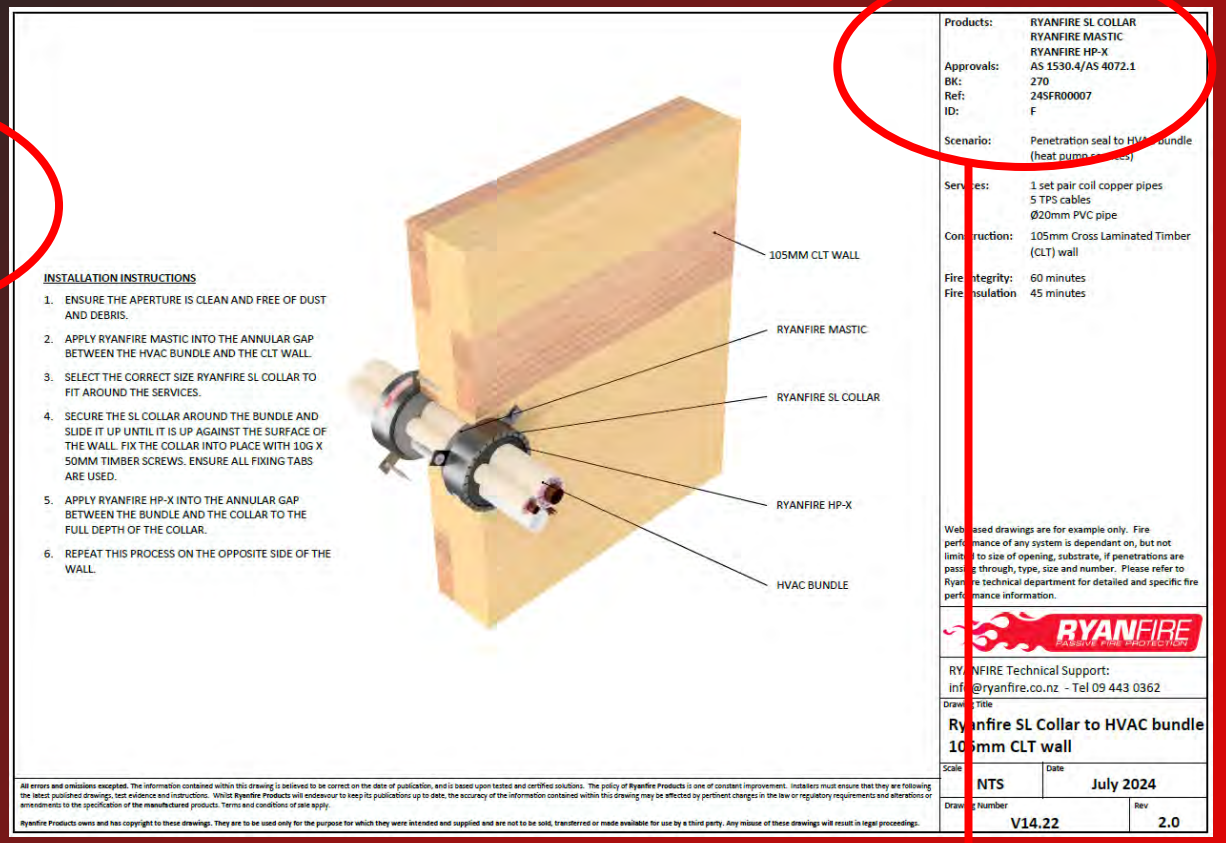
Client

Job Title

Drawing Title: Ryanfire SL Collar to PVC conduits 90mm CLT floor

Scale	Date
NTS	July 2024
Sheet Size: A3	Drawn By
Drawing Number: V29[illegible]5	Rev: 2.0

RYANFIRE Technical Support: info@ryanfire.co.nz - Tel 09 443 0362



INSTALLATION INSTRUCTIONS

1. ENSURE THE APERTURE IS CLEAN AND FREE OF DUST AND DEBRIS.
2. APPLY RYANFIRE MASTIC INTO THE ANNULAR GAP BETWEEN THE HVAC BUNDLE AND THE CLT WALL.
3. SELECT THE CORRECT SIZE RYANFIRE SL COLLAR TO FIT AROUND THE SERVICES.
4. SECURE THE SL COLLAR AROUND THE BUNDLE AND SLIDE IT UP UNTIL IT IS UP AGAINST THE SURFACE OF THE WALL. FIX THE COLLAR INTO PLACE WITH 10G X 50MM TIMBER SCREWS. ENSURE ALL FIXING TABS ARE USED.
5. APPLY RYANFIRE HP-X INTO THE ANNULAR GAP BETWEEN THE BUNDLE AND THE COLLAR TO THE FULL DEPTH OF THE COLLAR.
6. REPEAT THIS PROCESS ON THE OPPOSITE SIDE OF THE WALL.

Products:	RYANFIRE SL COLLAR RYANFIRE MASTIC RYANFIRE HP-X
Approvals:	AS 1530.4/AS 4072.1
BK:	270
Ref:	24SFR00007
ID:	F
Scenario:	Penetration seal to HVAC bundle (heat pump services)
Services:	1 set pair coil copper pipes 5 TPS cables Ø20mm PVC pipe
Construction:	105mm Cross Laminated Timber (CLT) wall
Fire Integrity:	60 minutes
Fire Insulation	45 minutes

Web based drawings are for example only. Fire performance of any system is dependant on, but not limited to size of opening, substrate, if penetrations are passing through, type, size and number. Please refer to Ryanfire technical department for detailed and specific fire performance information.

RYANFIRE PASSIVE FIRE PROTECTION

RYANFIRE Technical Support: info@ryanfire.co.nz - Tel 09 443 0362

Drawing Title: Ryanfire SL Collar to HVAC bundle 105mm CLT wall

Scale	Date
NTS	July 2024
Drawing Number: V14.22	Rev: 2.0

Installation methodology

Scenario detail:

- Substrate dimensions & material of construction
- Hole dimensions, Service type, Size, Number etc
- Fire Resistance Rating (FRR)

Fire Resistance Test Reference


RYANFIRE
POWER PAD
Instructions:
• Place pad at the back of metal flush box, label exposed
• Fire rating up to 60 or 120 minutes depending on substrate
Tested to AS 1530.4-2014 / AS 4072.1
Tested up to 95mm x 50mm metal flushbox
RYANFIRE PRODUCTS, AUCKLAND,
NEW ZEALAND - TEL: +64 9 443 0362 www.ryanfire.co.nz


RYANFIRE
POWER PAD
Instructions:
• Place pad at the back of metal flush box, label exposed
• Fire rating up to 60 or 120 minutes depending on substrate
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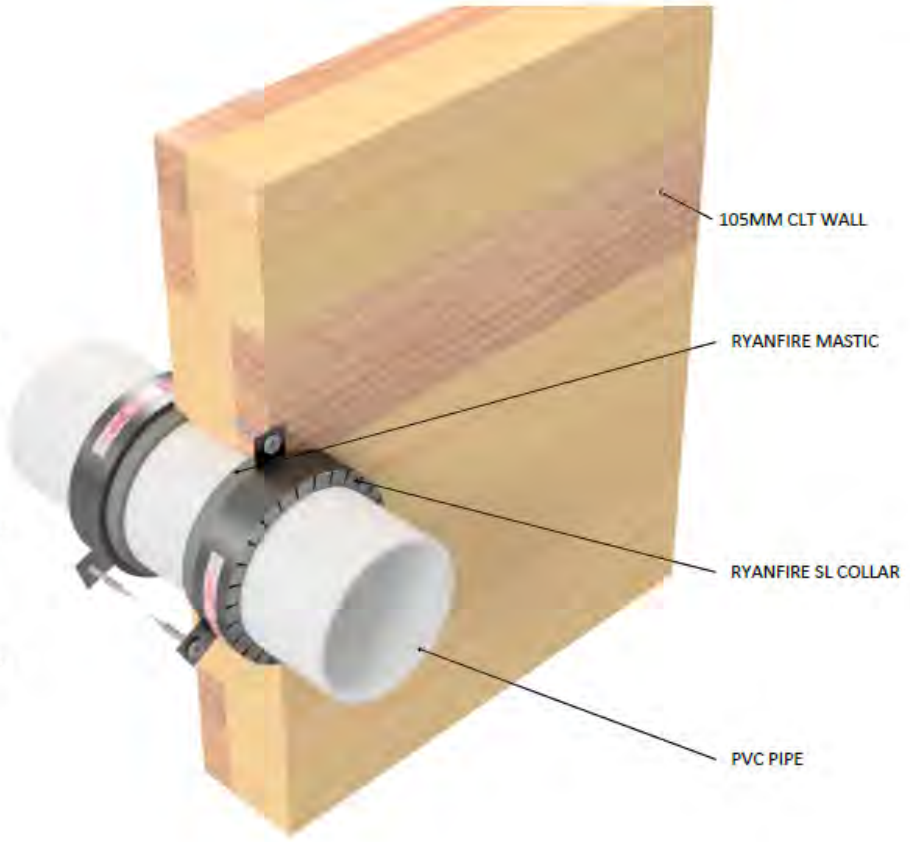
RYANFIRE PRODUCTS, AUCKLAND,
NEW ZEALAND - TEL: +64 9 443 0362 www.ryanfire.co.nz

Products:	**RYANFIRE SL COLLAR** **RYANFIRE MASTIC**
Approvals:	**AS 1530.4/AS 4072.1**
BK:	**270**
Ref:	**24SFR00007**
ID:	**A - E**
Scenario:	Penetration seal to PVC pipe
Services:	Up to Ø150mm uPVC pipes
Construction:	105mm Cross Laminated Timber (CLT) wall
Fire Integrity:	60 minutes
Fire Insulation	60 minutes

INSTALLATION INSTRUCTIONS

1. ENSURE THE APERTURE IS CLEAN AND FREE OF DUST AND DEBRIS.
2. APPLY RYANFIRE MASTIC INTO THE ANNULAR GAP BETWEEN THE PIPE AND THE CLT WALL
3. SELECT THE CORRECT SIZE RYANFIRE SL COLLAR TO FIT AROUND THE PVC PIPE.
4. SECURE THE SL COLLAR AROUND THE PIPE AND SLIDE IT UP UNTIL IT IS UP AGAINST THE SURFACE OF THE WALL. FIX THE COLLAR INTO PLACE WITH 10G X 50MM TIMBER SCREWS. ENSURE ALL FIXING TABS ARE USED.
5. REPEAT THIS PROCESS ON THE OPPOSITE SIDE OF THE WALL.



Web based drawings are for example only. Fire performance of any system is dependant on, but not limited to size of opening, substrate, if penetrations are passing through, type, size and number. Please refer to Ryanfire technical department for detailed and specific fire performance information.

RYANFIRE PASSIVE FIRE PROTECTION

RYANFIRE Technical Support:
info@ryanfire.co.nz - Tel 09 443 0362

Drawing Title

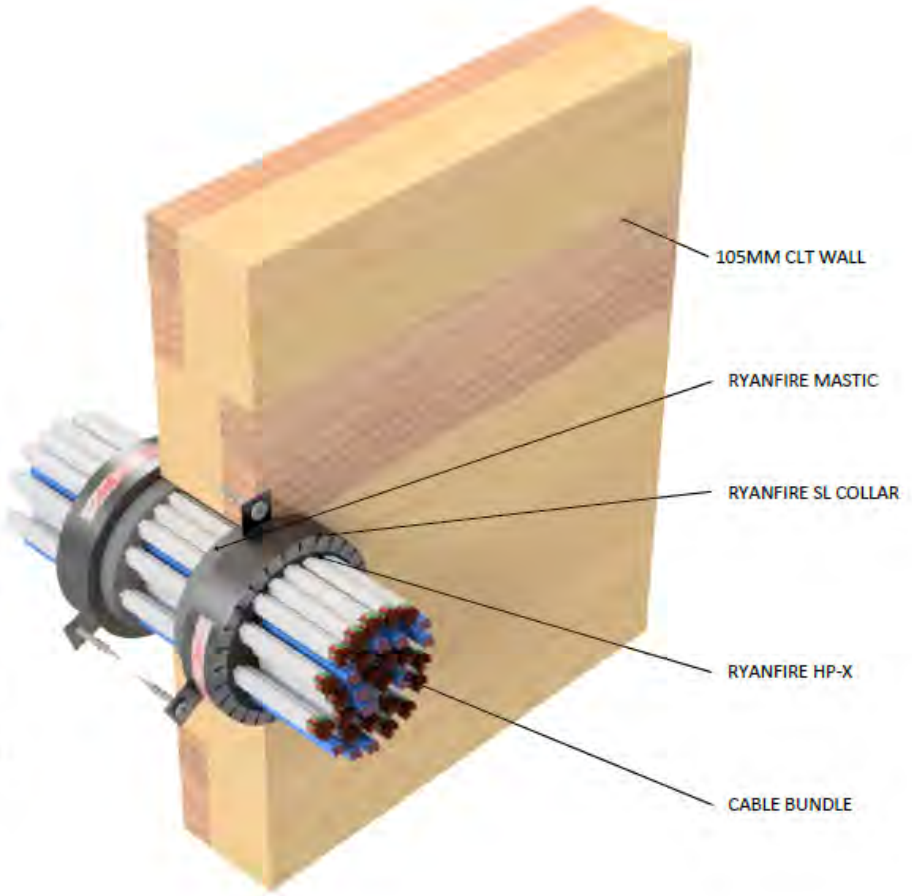
Ryanfire SL Collar to PVC pipes 105mm CLT wall

Scale	Date
NTS	**July 2024**

Drawing Number	Rev
V21.43	**2.0**

INSTALLATION INSTRUCTIONS

1. ENSURE THE APERTURE IS CLEAN AND FREE OF DUST AND DEBRIS.
2. APPLY RYANFIRE MASTIC INTO THE ANNULAR GAP BETWEEN THE CABLE BUNDLE AND THE CLT WALL.
3. SELECT THE CORRECT SIZE RYANFIRE SL COLLAR TO FIT AROUND THE CABLES.
4. SECURE THE SL COLLAR AROUND THE BUNDLE AND SLIDE IT UP UNTIL IT IS UP AGAINST THE SURFACE OF THE WALL. FIX THE COLLAR INTO PLACE WITH 10G X 50MM TIMBER SCREWS. ENSURE ALL FIXING TABS ARE USED.
5. APPLY RYANFIRE HP-X INTO THE ANNULAR GAP BETWEEN THE CABLE BUNDLE AND THE COLLAR TO THE FULL DEPTH OF THE COLLAR.
6. REPEAT THIS PROCESS ON THE OPPOSITE SIDE OF THE WALL.



Products:	**RYANFIRE SL COLLAR** **RYANFIRE MASTIC** **RYANFIRE HP-X**
Approvals:	**AS 1530.4/AS 4072.1**
BK:	**270**
Ref:	**24SFR00007**
ID:	**I**
Scenario:	Penetration seal to cable bundle
Services:	Up to Ø100mm cable bundle: TPS, Data
Construction:	105mm Cross Laminated Timber (CLT) wall
Fire Integrity:	60 minutes
Fire Insulation	60 minutes

Web based drawings are for example only. Fire performance of any system is dependant on, but not limited to size of opening, substrate, if penetrations are passing through, type, size and number. Please refer to Ryanfire technical department for detailed and specific fire performance information.

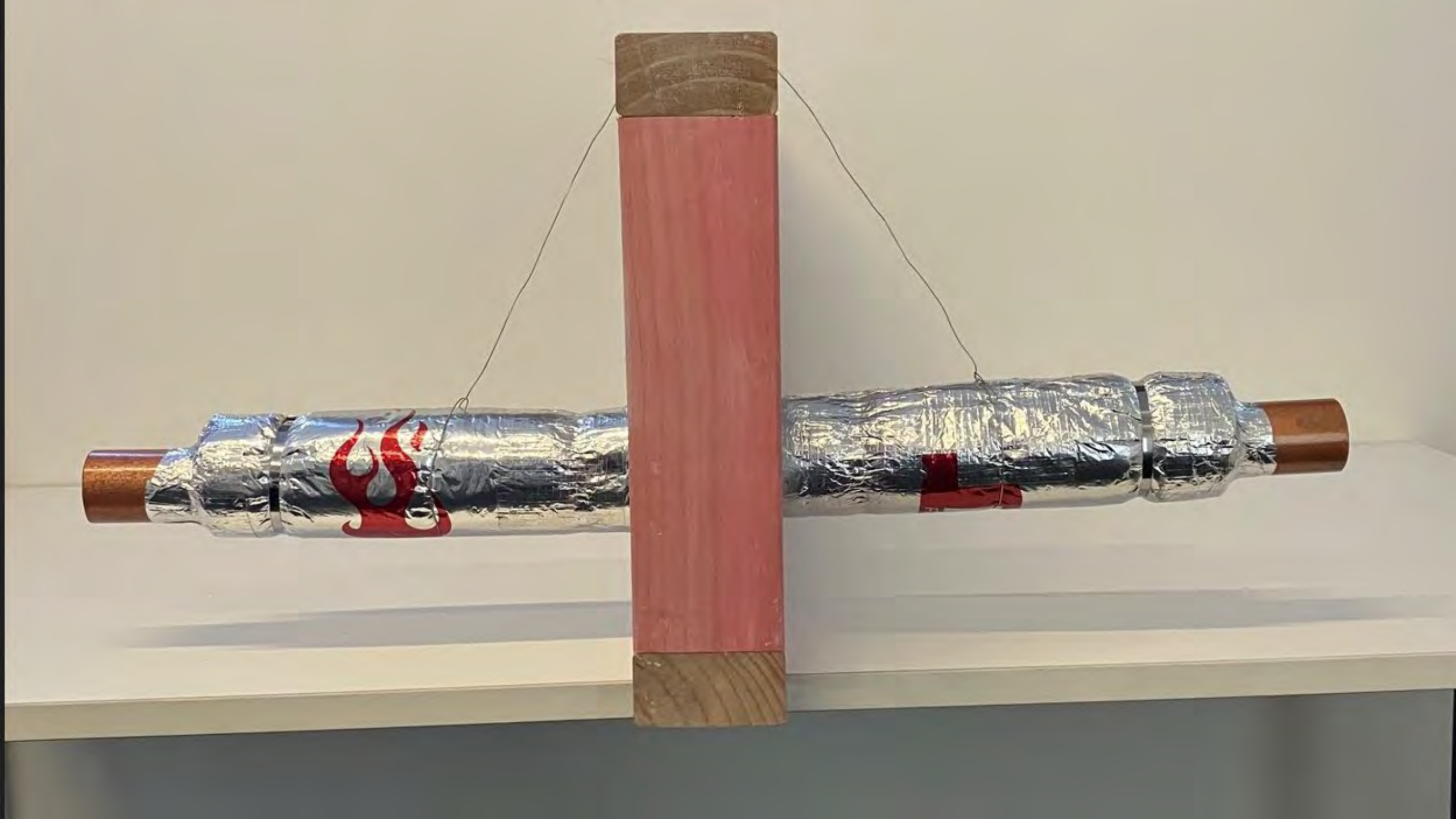
RYANFIRE Technical Support:
info@ryanfire.co.nz - Tel 09 443 0362

Drawing Title

Ryanfire SL Collar to cable bundle 105mm CLT wall

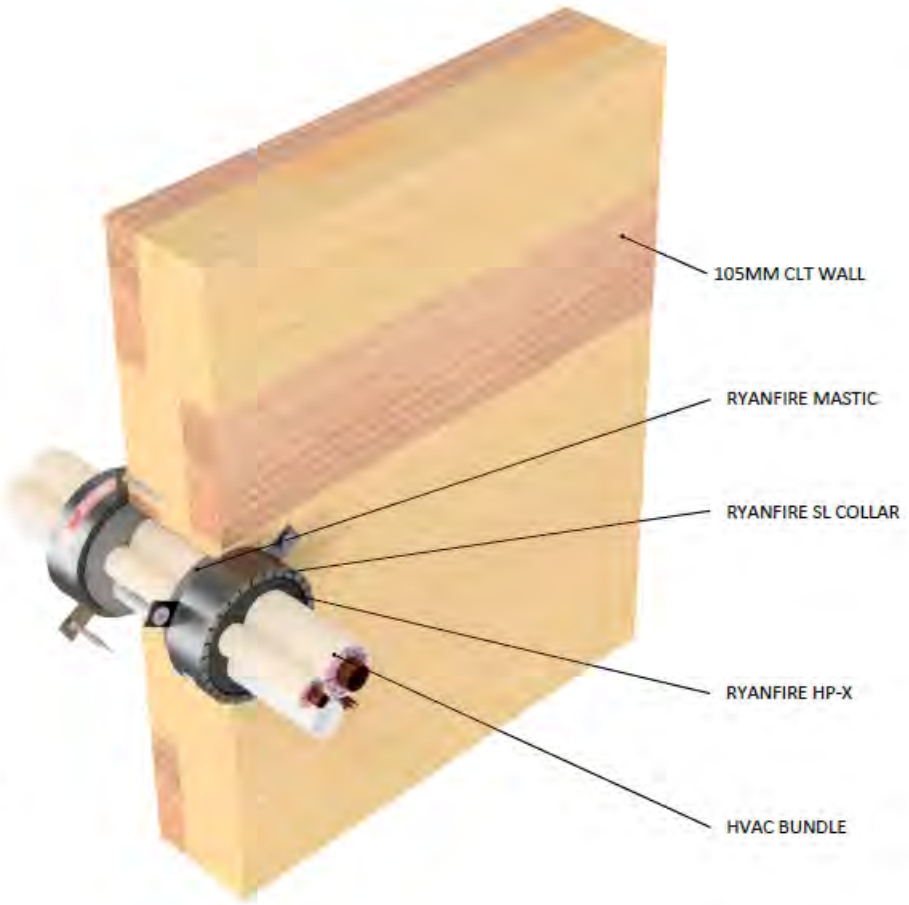
Scale	Date
NTS	**July 2024**

Drawing Number	Rev
V36.18	**2.0**



INSTALLATION INSTRUCTIONS

1. ENSURE THE APERTURE IS CLEAN AND FREE OF DUST AND DEBRIS.
2. APPLY RYANFIRE MASTIC INTO THE ANNULAR GAP BETWEEN THE HVAC BUNDLE AND THE CLT WALL.
3. SELECT THE CORRECT SIZE RYANFIRE SL COLLAR TO FIT AROUND THE SERVICES.
4. SECURE THE SL COLLAR AROUND THE BUNDLE AND SLIDE IT UP UNTIL IT IS UP AGAINST THE SURFACE OF THE WALL. FIX THE COLLAR INTO PLACE WITH 10G X 50MM TIMBER SCREWS. ENSURE ALL FIXING TABS ARE USED.
5. APPLY RYANFIRE HP-X INTO THE ANNULAR GAP BETWEEN THE BUNDLE AND THE COLLAR TO THE FULL DEPTH OF THE COLLAR.
6. REPEAT THIS PROCESS ON THE OPPOSITE SIDE OF THE WALL.



Products:	**RYANFIRE SL COLLAR** **RYANFIRE MASTIC** **RYANFIRE HP-X**
Approvals:	**AS 1530.4/AS 4072.1**
BK:	**270**
Ref:	**24SFR00007**
ID:	**F**
Scenario:	Penetration seal to HVAC bundle (heat pump services)
Services:	1 set pair coil copper pipes 5 TPS cables Ø20mm PVC pipe
Construction:	105mm Cross Laminated Timber (CLT) wall
Fire Integrity:	60 minutes
Fire Insulation	45 minutes

Web based drawings are for example only. Fire performance of any system is dependant on, but not limited to size of opening, substrate, if penetrations are passing through, type, size and number. Please refer to Ryanfire technical department for detailed and specific fire performance information.

RYANFIRE Technical Support:
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Drawing Title

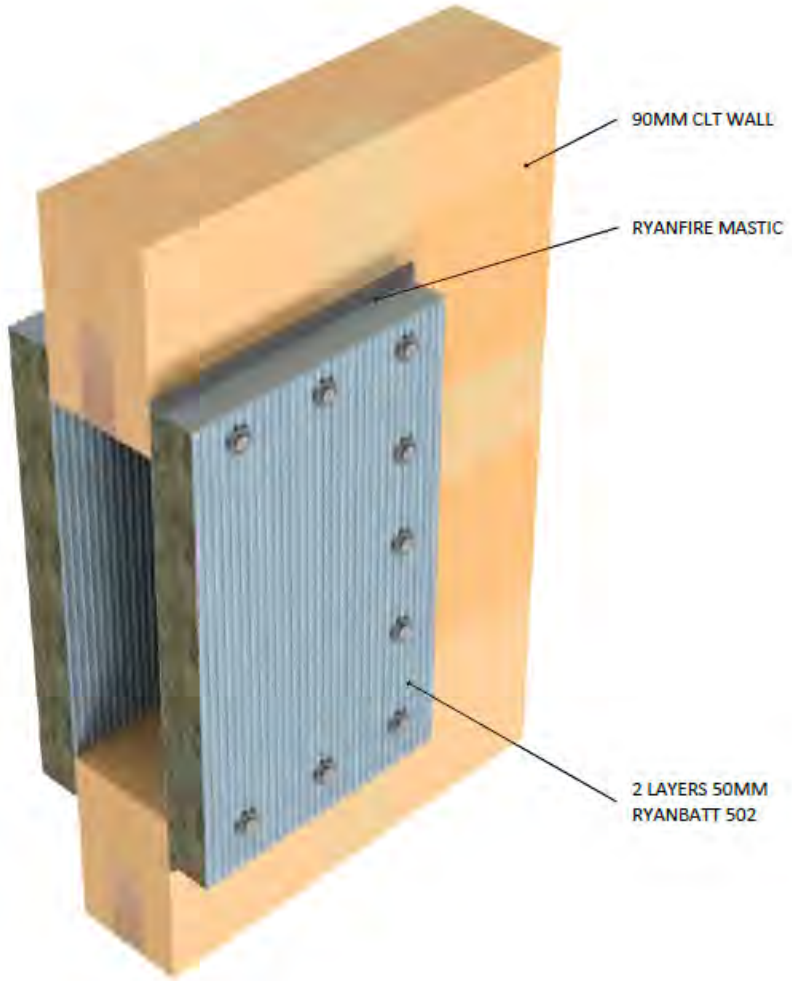
Ryanfire SL Collar to HVAC bundle 105mm CLT wall

Scale	Date
NTS	**July 2024**

Drawing Number	Rev
V14.22	**2.0**

INSTALLATION INSTRUCTIONS

1. ENSURE THE APERTURE IS CLEAN AND FREE OF DUST AND DEBRIS.
2. CUT THE RYANBATT 502 TO CREATE A 100MM OVERLAP AROUND THE APERTURE.
3. APPLY A THICK, 100MM WIDE COAT OF RYANFIRE BRUSH GRADE MASTIC AROUND THE PERIMETER OF THE APERTURE. APPLY A THICK BEAD OF RYANFIRE MASTIC TO THE RYANBATT 502, WHERE THE BOARD WILL MATE WITH THE WALL.
4. PLACE THE RYANBATT OVER THE APERTURE ENSURING THE 100MM OVERLAP ON ALL SIDES. SECURE THE BOARD INTO PLACE WITH 80MM STEEL WASHER HEAD SCREWS & PENNY WASHERS, 50MM FROM THE EDGE AND AT CENTRES NOT EXCEEDING 200MM.
5. APPLY A BEAD OF RYANFIRE MASTIC TO THE JOINT BETWEEN THE CLT WALL AND THE RYANBATT.
6. APPLY RYANFIRE BRUSH GRADE MASTIC TO ALL CUT AND EXPOSED EDGES OF THE RYANBATT.
7. REPEAT THIS PROCESS ON THE OTHER SIDE OF THE WALL.
8. CLEAN ANY EXCESS MASTIC WITH A DAMP CLOTH.



Products:	**RYANBATT 502** **RYANFIRE MASTIC** **RYANFIRE BRUSH GRADE MASTIC**
Approval:	**AS 1530.4/AS 4072.1**
BK:	**128**
Ref:	**22SFR00025**
ID:	**A**
Scenario:	Linear (blank) wall seal
Construction:	90mm Cross Laminated Timber (CLT) wall
Aperture Size:	900 x 900mm
Fire Integrity:	60 minutes
Fire Insulation:	60 minutes

The fire rating may change depending on service penetration performance.

Web based drawings are for example only. Fire performance of any system is dependant on, but not limited to size of opening, substrate, if penetrations are passing through, type, size and number. Please refer to Ryanfire technical department for detailed and specific fire performance information.

RYANFIRE
PASSIVE FIRE PROTECTION

Client

Job Title

Drawing Title

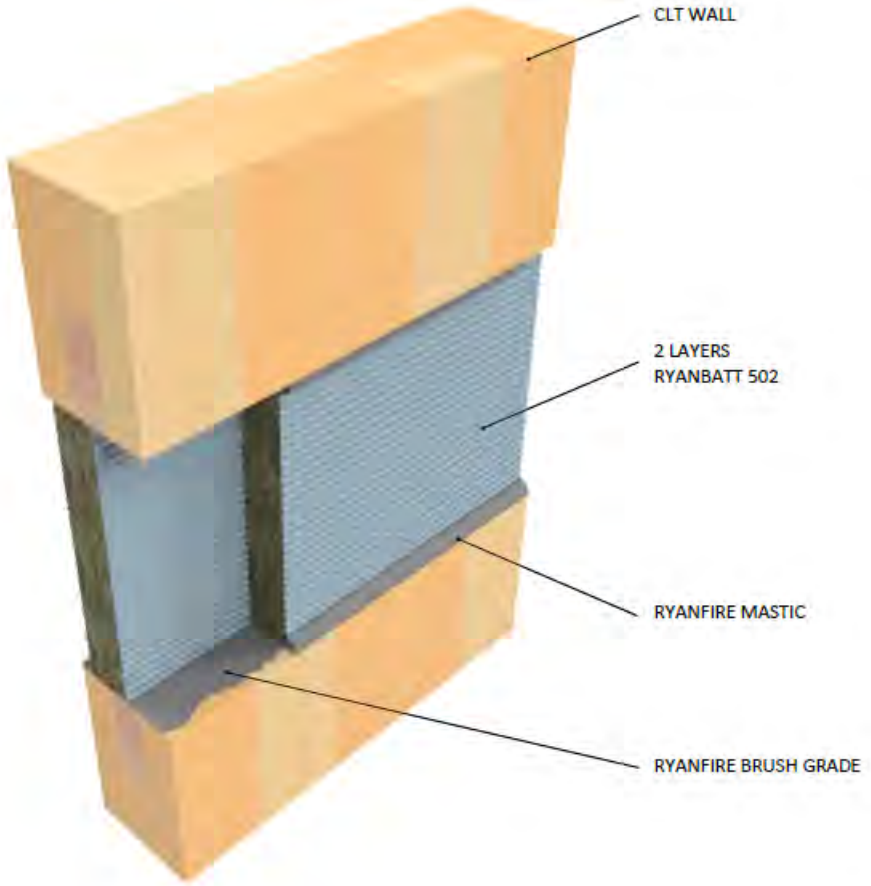
Ryanbatt 502 linear wall seal Cross Laminated Timber wall

Scale	Date
NTS	July 2024
Sheet Size	**Drawn By**
A3	
Drawing Number	**Rev**
V53.34	2.0

RYANFIRE Technical Support: info@ryanfire.co.nz

INSTALLATION INSTRUCTIONS

1. ENSURE THE APERTURE IS CLEAN AND FREE OF DUST AND DEBRIS.
2. CUT THE FIRST LAYER OF RYANBATT 502 TO THE CORRECT SIZE TO FIT TIGHTLY WITHIN THE APERTURE.
3. APPLY RYANFIRE BRUSH GRADE MASTIC TO ALL EDGES OF THE APERTURE AND ALL THE EDGES OF THE BOARD.
4. INSERT THE FIRST LAYER OF RYANBATT 502 INTO THE APERTURE. FIT THE BOARD RECESSED 15MM FROM THE FACE OF THE WALL.
5. APPLY A BEAD OF RYANFIRE MASTIC TO THE PERIMETER ON THE MATING FACE OF THE FIRST LAYER OF RYANBATT.
6. REPEAT STEP 2 & 3 FOR THE SECOND LAYER OF RYANBATT.
7. INSERT THE SECOND LAYER OF RYANBATT 502 INTO THE APERTURE AND PUSH IT HARD UP AGAINST THE FIRST LAYER. THE BOARDS SHOULD BE POSITIONED CENTRALLY WITHIN THE PLANE OF THE WALL.
8. APPLY A BEAD OF RYANFIRE MASTIC TO ALL PERIMETER JOINTS AND RYANBATT JUNCTIONS.
9. CLEAN EXCESS MATERIAL AWAY USING A DAMP CLOTH.



Products:	**RYANBATT 502** **RYANFIRE MASTIC** **RYANFIRE BRUSH GRADE MASTIC**
Approval:	**AS 1530.4/AS 4072.1**
BK:	**116**
Ref:	**22SFR00008**
ID:	**A**
Scenario:	Linear (blank) wall seal
Construction:	130mm Cross Laminated Timber (CLT) Wall
Aperture Size:	1000 x 1000mm (130mm wall)
Fire Integrity:	60 minutes
Fire Insulation:	60 minutes

The fire rating may change depending on service penetration performance.

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RYANFIRE PASSIVE FIRE PROTECTION

Client

Job Title

Drawing Title

Ryanbatt 502 linear wall seal Cross Laminated Timber wall

Scale	Date
NTS	**July 2024**
Sheet Size	**Drawn By**
A3	

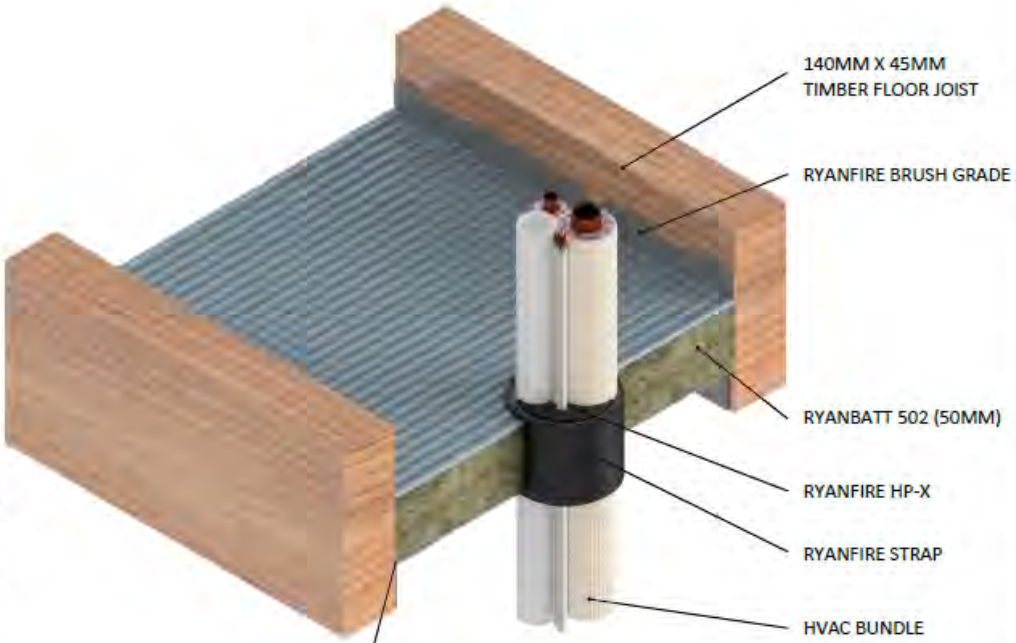
Drawing Number **V53.31** Rev **4.0**

RYANFIRE Technical Support: info@ryanfire.co.nz

RYANFIRE 502 BATT HAS OVER 170 SOLUTIONS WITH “V” DRAWINGS FOR WALLS AND FLOORS

INSTALLATION INSTRUCTIONS

1. ENSURE THE APERTURE IS CLEAN AND FREE OF DEBRIS.
2. CUT THE RYANFIRE STRAP TO ALLOW 2 REVOLUTIONS AROUND THE HVAC BUNDLE.
3. WRAP THE BUNDLE WITH THE RYANFIRE STRAP AT THE SAME LEVEL WHERE THE BUNDLE WILL PASS THROUGH THE RYANBATT 502.
4. INSTALL 35MM X 35MM X 200MM STEEL ANGLES ONTO THE JOISTS MID WAY ALONG THE LENGTH AND MID WAY ALONG THE WIDTH OF THE RYANBATT 502.
5. COAT THE TIMBER FLOOR JOISTS AND STEEL ANGLES WITH RYANFIRE MASTIC BRUSH GRADE.
6. INSTALL THE RYANBATT 502 BETWEEN THE TIMBER FLOOR JOISTS, RESTING ON TOP OF THE STEEL ANGLES.
7. ENSURE THE RYANBATT IS CUT TO FIT TIGHT AROUND THE HVAC BUNDLE AND RYANFIRE STRAP
8. APPLY RYANFIRE HP-X INTO ANY GAPS BETWEEN THE HVAC BUNDLE AND THE RYANFIRE STRAP.
9. ANY FULL BOARD TO BOARD JOINTS MUST BE JOINED WITH A 25MM X 25MM SHIPLAP JOINT.
10. ENSURE ALL RYANBATT JOINTS ARE SEALED USING RYANFIRE MASTIC BRUSH GRADE.
11. REMOVE EXCESS MASTIC USING A DAMP CLOTH.



35MM X 35MM STEEL ANGLE

25MM X 25MM SHIPLAP JOINT

Products:	RYANBATT 502 RYANFIRE STRAP RYANFIRE HP-X RYANFIRE MASTIC
Approvals:	AS 1530.4/AS 4072.1
BK:	70
Ref:	PF 19047
ID:	E
Scenario:	HVAC bundle (heat pump services) through Ryanfire Naked Floor System
Services:	Up to: 1 set pair coil copper pipes 3 TPS cables Ø25mm uPVC pipe
Construction:	140 x 45mm unlined timber framed ceiling
Fire Integrity:	60 minutes
Fire Insulation:	0 minutes

Web based drawings are for example only. Fire performance of any system is dependant on, but not limited to, size of opening, substrate, if penetrations are passing through, type, size and number. Please refer to Ryanfire technical department for detailed and specific fire performance information.

RYANFIRE
PASSIVE FIRE PROTECTION

Client

Job Title

Drawing Title

Ryanfire Naked Floor System HVAC bundle

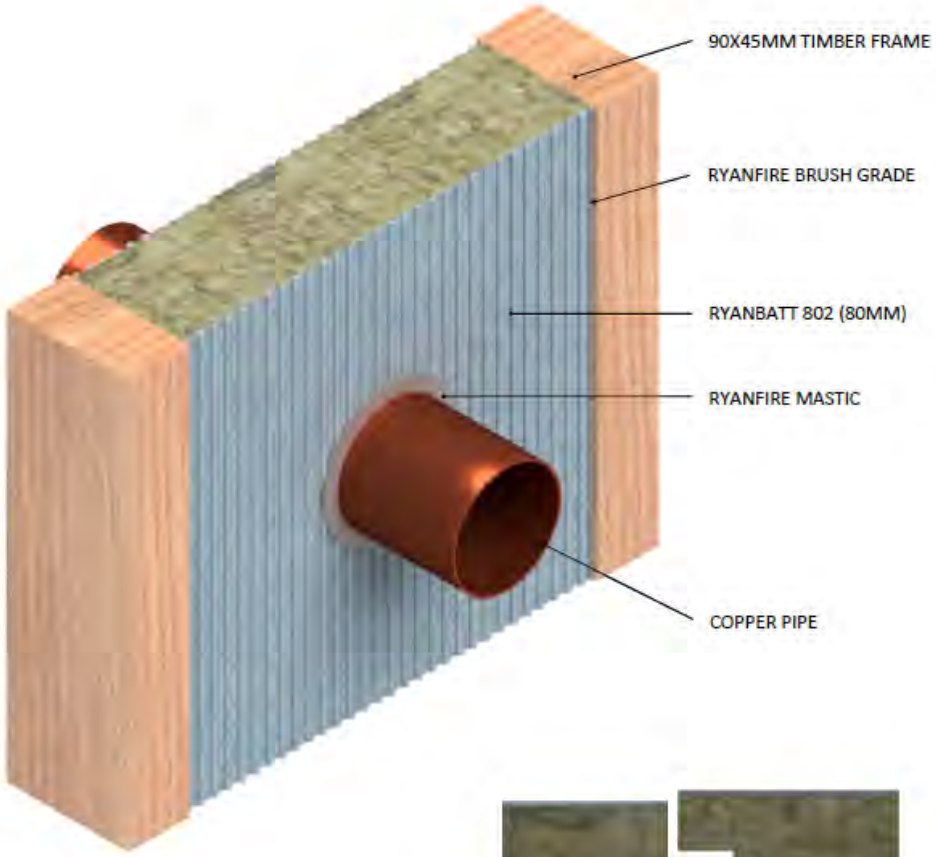
Scale	Date
NTS	July 2024
Sheet Size	Drawn By
A3	
Drawing Number	Rev
V17.12	6.0

RYANFIRE Technical Support: info@ryanfire.co.nz - Tel 09 443 0362

INSTALLATION INSTRUCTIONS

1. ENSURE THE APERTURE IS CLEAN AND FREE OF DEBRIS.
2. CUT THE RYANBATT 802 TO FIT TIGHTLY BETWEEN THE TIMBER FRAMING AND THE COPPER PIPE, JOINS IN THE 802 SHOULD UTILISE A 40MM X 40MM SHIPLAP JOINT.
3. COAT ALL INTERNAL FRAMING WITH RYANFIRE MASTIC BRUSH GRADE.
4. COAT ALL RYANBATT 802 CUT EDGES AND JOINTS WITH RYANFIRE BRUSH GRADE MASTIC OR RYANFIRE MASTIC.
5. FIT THE RYANBATT 802 INTO THE VOID.
6. APPLY RYANFIRE MASTIC AROUND THE JUNCTION BETWEEN THE RYANBATT AND THE COPPER PIPE.
7. APPLY RYANFIRE MASTIC TO ALL OTHER JUNCTIONS.

OPTIONS TO INSTALL FROM ONE SIDE OF THE WALL ARE AVAILABLE. PLEASE CONTACT RYANFIRE FOR FURTHER DETAILS.



40MM X 40MM SHIPLAP JOINT

Products:	**RYANBATT 802** **RYANFIRE BRUSH GRADE MASTIC** **RYANFIRE MASTIC**
Approval:	**AS 1530.4/AS 4072.1**
BK:	**78**
REF:	**PF 20007**
ID:	**A**
Scenario:	Copper pipe through Ryanfire Naked Wall System
Services:	Up to Ø80mm copper pipe
Construction:	90mm x 45mm timber framed wall
Fire Integrity:	60 minutes
Fire Insulation:	0 minutes

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RYANFIRE
PASSIVE FIRE PROTECTION

Client

Job Title

Drawing Title

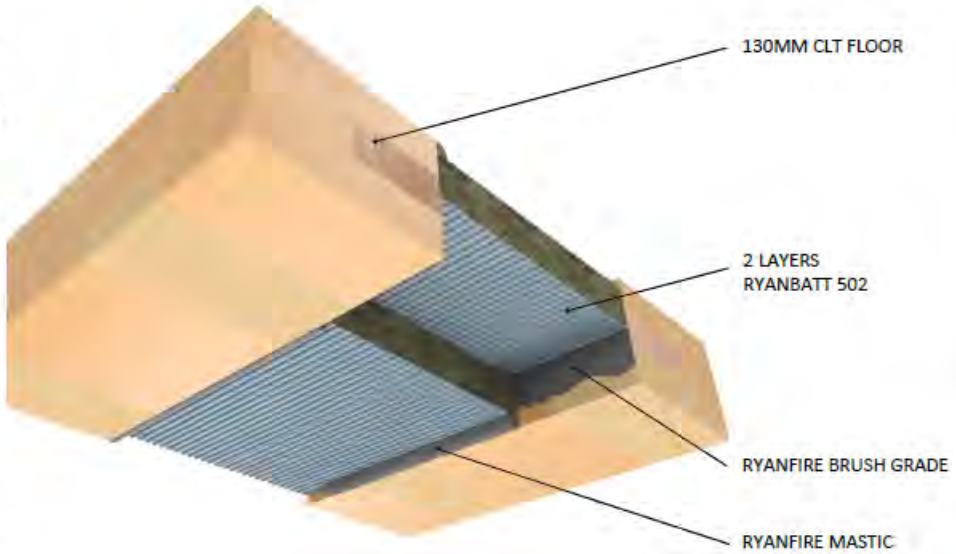
Ryanfire 90mm Naked Wall System Copper Pipe

Scale	Date
NTS	**August 2024**
Sheet Size	**Drawn By**
A3	
Drawing Number	**Rev**
V5.2	**6.0**

RYANFIRE Technical Support: info@ryanfire.co.nz - Tel 09 443 0362

INSTALLATION INSTRUCTIONS

1. ENSURE THE APERTURE IS CLEAN AND FREE OF DUST AND DEBRIS.
2. CUT THE RYANBATT 502 TO THE CORRECT SIZE TO FIT TIGHTLY WITHIN THE APERTURE.
3. APPLY RYANFIRE BRUSH GRADE MASTIC TO ALL EDGES OF THE APERTURE AND ALL THE CUT AND EXPOSED EDGES OF THE BOARD
4. INSERT THE FIRST LAYER OF RYANBATT 502 INTO THE APERTURE, RECESSED NOMINALLY 65MM FROM THE TOP OF THE FLOOR. ENSURE A TIGHT FIT.
5. APPLY RYANFIRE MASTIC TO THE PERIMETER, ON THE TOP FACE OF THE FIRST LAYER OF RYANBATT.
6. REPEAT STEP 2 & 3 FOR THE SECOND LAYER OF RYANBATT.
7. INSERT THE SECOND LAYER OF RYANBATT 502 INTO THE VOID. SLIDE IT UNTIL BOTH BOARDS ARE HARD UP AGAINST EACH OTHER. THE BOARDS SHOULD BE FIXED CENTRALLY WITHIN THE PLANE OF THE FLOOR.
8. APPLY A BEAD OF RYANFIRE MASTIC TO ALL PERIMETER JOINTS AND RYANBATT 502 JUNCTIONS.
9. CLEAN EXCESS MASTIC USING A DAMP CLOTH.



Products:	**RYANBATT 502** **RYANFIRE MASTIC** **RYANFIRE BRUSH GRADE MASTIC**
Approval:	**AS 1530.4/AS 4072.1**
BK:	**119**
Ref:	**22SFR00011**
ID:	**A**
Scenario:	Linear (blank) floor seal
Construction:	130mm Cross Laminated Timber (CLT) Floor
Void Size:	1000mm x 1000mm
Fire Integrity:	60 minutes
Fire Insulation:	60 minutes

The fire rating may change depending on service penetration performance.

Web based drawings are for example only. Fire performance of any system is dependant on, but not limited to size of opening, substrate, if penetrations are passing through, type, size and number.
Please refer to Ryanfire technical department for detailed and specific fire performance information.

RYANFIRE
PASSIVE FIRE PROTECTION

Client

Job Title

Drawing Title

Ryanbatt 502 linear floor seal Cross Laminated Timber floor

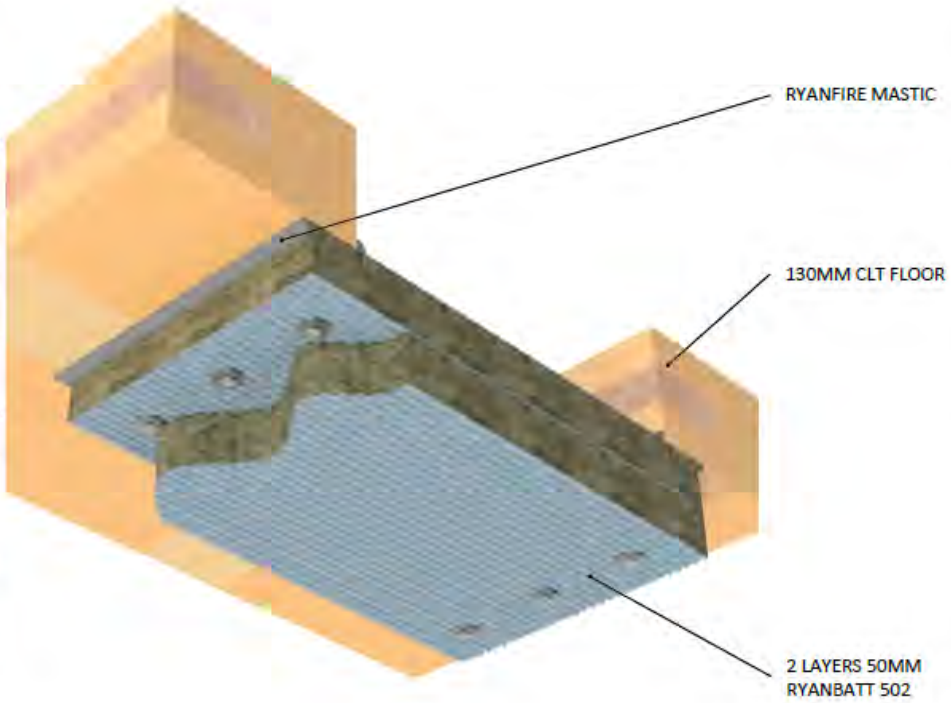
Scale	Date
NTS	**July 2024**
Sheet Size	**Drawn By**
A3	
Drawing Number	**Rev**
V53.32	**2.0**

All errors and omissions excepted - the information contained within this drawing is believed to be correct on the date of publication, and is based upon tested and certified solutions. The policy of **RyanFire Products** is one of constant improvement. Installers must therefore ensure that they are following the latest published drawings, test evidence and instructions. Whilst **RyanFire Products** will endeavour to keep its publications up to date, the accuracy of the information contained within this drawing may be affected by pertinent changes in the law or regulatory requirements and alterations or amendments to the specification of the manufactured products. Terms and conditions of sale apply.

RYANFIRE Technical Support: info@ryanfire.co.nz

INSTALLATION INSTRUCTIONS

1. ENSURE THE APERTURE IS CLEAN AND FREE OF DUST AND DEBRIS.
2. CUT THE RYANBATT 502 TO CREATE A 100MM OVERLAP AROUND THE APERTURE.
3. APPLY A THICK, 100MM WIDE COAT OF RYANFIRE BRUSH GRADE MASTIC AROUND THE PERIMETER OF THE APERTURE, ON THE BOTTOM SURFACE OF THE FLOOR. APPLY A THICK BEAD OF RYANFIRE MASTIC TO THE FIRST LAYER OF RYANBATT 502, WHERE THE BOARD WILL MATE WITH THE FLOOR.
4. PLACE THE FIRST LAYER OF RYANBATT OVER THE APERTURE ENSURING THE 100MM OVERLAP ON ALL SIDES. SECURE THE BOARD INTO PLACE WITH 80MM STEEL WASHER HEAD SCREWS & PENNY WASHERS, 50MM FROM THE EDGE AND AT CENTRES NOT EXCEEDING 200MM.
5. APPLY A THICK BEAD OF RYANFIRE MASTIC ONTO THE BOTTOM FACE OF THE FIRST LAYER OF RYANBATT. ALTERNATIVELY COAT THE FACE WITH BRUSH GRADE MASTIC.
6. PLACE THE SECOND LAYER OF RYANBATT OVER THE FIRST LAYER. SECURE THE BOARD INTO PLACE WITH 125MM STEEL SCREWS & PENNY WASHERS, 50MM FROM THE EDGE AND AT CENTRES NOT EXCEEDING 200MM. OFFSET THE SCREWS TO AVOID CLASHING WITH THE FIRST LAYER OF SCREWS.
7. APPLY A BEAD OF RYANFIRE MASTIC TO THE JOINT BETWEEN THE CLT AND THE RYANBATT.
8. APPLY RYANFIRE BRUSH GRADE MASTIC TO ALL CUT AND EXPOSED EDGES OF THE RYANBATT.
9. CLEAN ANY EXCESS MASTIC WITH A DAMP CLOTH.



Products:	**RYANBATT 502** **RYANFIRE MASTIC** **RYANFIRE BRUSH GRADE MASTIC**
Approval:	**AS 1530.4/AS 4072.1**
BK:	**120**
Ref:	**22SFR00018**
ID:	**A**
Scenario:	Linear (blank) floor seal
Construction:	130mm Cross Laminated Timber (CLT) floor
Aperture Size:	900 x 900mm
Fire Integrity:	60 minutes
Fire Insulation:	60 minutes

The fire rating may change depending on service penetration performance.

Web based drawings are for example only. Fire performance of any system is dependant on, but not limited to size of opening, substrate, if penetrations are passing through, type, size and number. Please refer to Ryanfire technical department for detailed and specific fire performance information.

RYANFIRE
PASSIVE FIRE PROTECTION

Client

Job Title

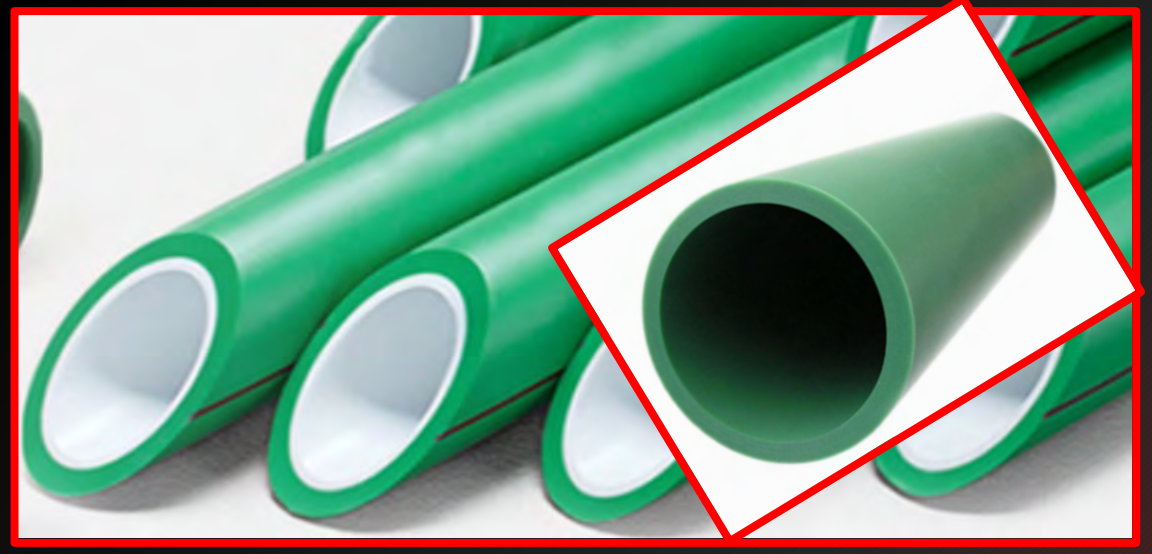
Drawing Title

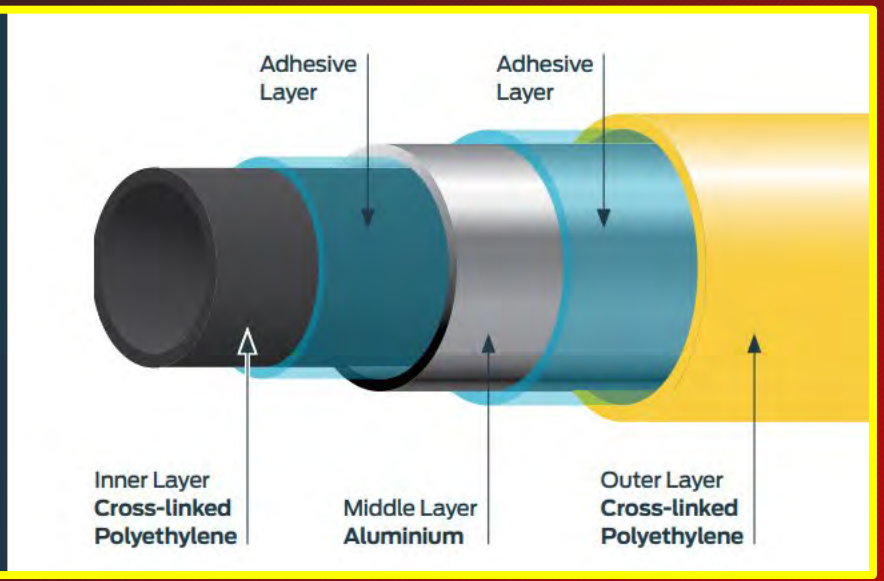
Ryanbatt 502 linear floor seal Cross Laminated Timber floor

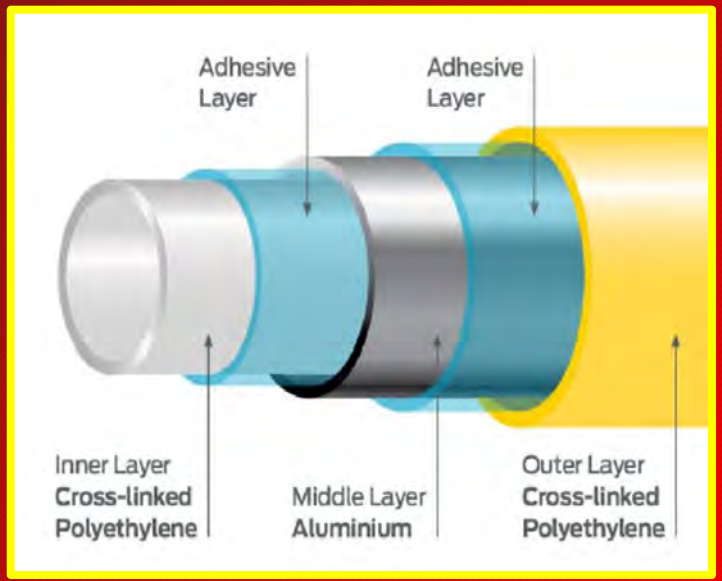
Scale	Date
NTS	**July 2024**
Sheet Size	**Drawn By**
A3	

Drawing Number	Rev
V53.33	**2.0**

RYANFIRE Technical Support: info@ryanfire.co.nz

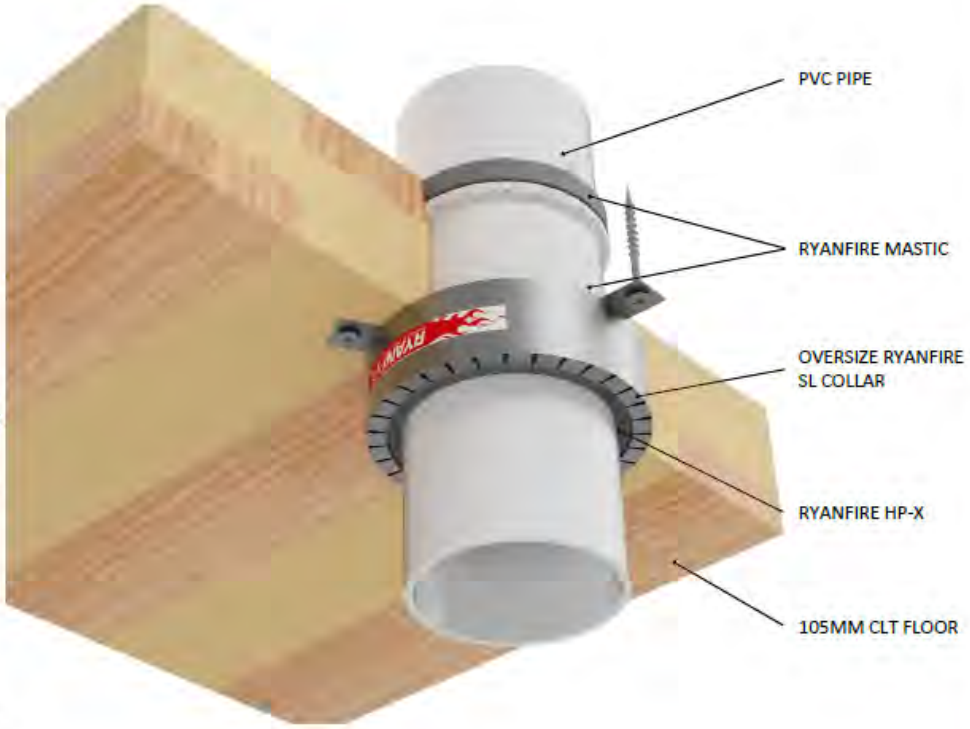



Adhesive Layer
Adhesive Layer
Inner Layer
Cross-linked
Polyethylene
Middle Layer
Aluminium
Outer Layer
Cross-linked
Polyethylene


Adhesive Layer
Adhesive Layer
Inner Layer
Cross-linked
Polyethylene
Middle Layer
Aluminium
Outer Layer
Cross-linked
Polyethylene

INSTALLATION INSTRUCTIONS

1. ENSURE THE APERTURE IS CLEAN AND FREE OF DUST AND DEBRIS.
2. APPLY 10MM DEEP RYANFIRE MASTIC INTO THE ANNULAR GAP BETWEEN THE PIPE AND THE FLOOR, ON BOTH SIDES OF THE FLOOR. USE PEF BACKING ROD TO REGULATE THE SEALANT DEPTH.
3. SELECT A RYANFIRE SL COLLAR THAT IS ONE SIZE LARGER THAN WHAT WOULD USUALLY BE REQUIRED TO FIT AROUND THE PIPE. E.G FOR Ø100MM PIPE USE AN SL125 INSTEAD OF AN SL110.
4. POSITION THE COLLAR AROUND THE PIPE AND SLIDE IT UP UNTIL IT IS UP AGAINST THE BOTTOM OF THE FLOOR.
5. FIX THE SL COLLAR TO THE CLT FLOOR USING 10G X 80MM TIMBER SCREWS. ENSURE ALL FIXING POINTS ARE USED.
6. APPLY RYANFIRE HP-X INTO THE ANNULAR GAP BETWEEN THE PVC PIPE AND THE SL COLLAR, TO THE FULL DEPTH OF THE COLLAR.
7. CLEAN ANY EXCESS SEALANT WITH A DAMP CLOTH.



Products:	**RYANFIRE SL COLLAR** **RYANFIRE MASTIC** **RYANFIRE HP-X**
Approvals:	**AS 1530.4/AS 4072.1**
BK:	**313**
Ref:	**24SFR00063**
ID:	**B**
Scenario:	Penetration seal to PVC pipes with oversized SL collars
Services:	Ø100mm PVC pipe
Construction:	105mm Cross Laminated Timber (CLT) floor
Fire Resistance:	Ø100mm : -/60/60

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RYANFIRE PASSIVE FIRE PROTECTION

RYANFIRE Technical Support:
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Drawing Title

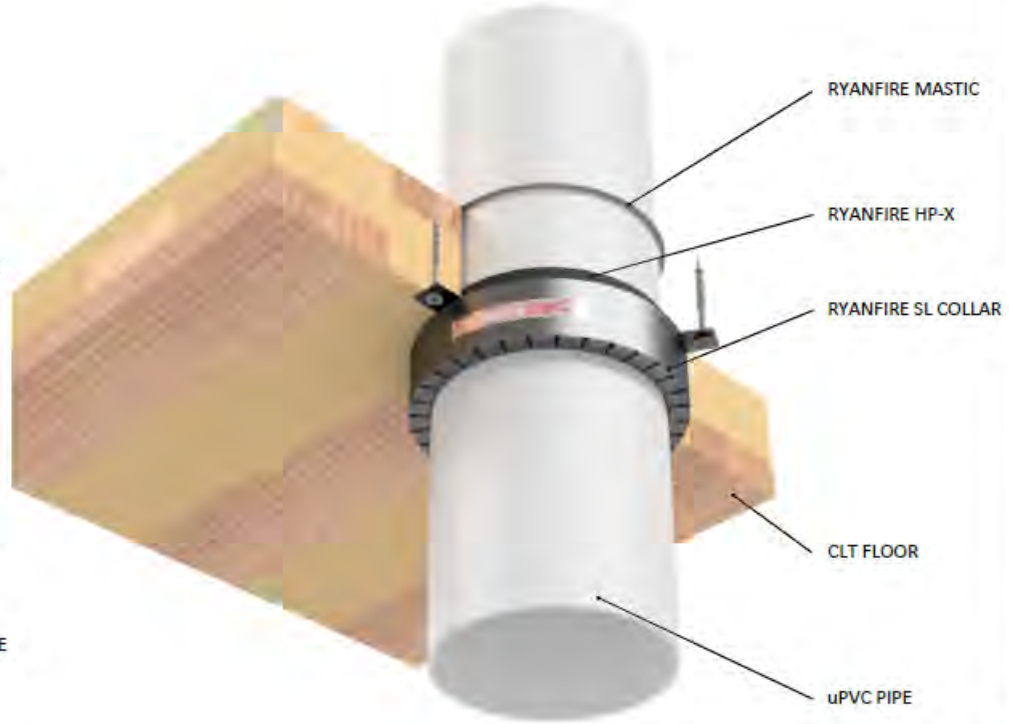
Oversized SL Collar to PVC pipes 105mm CLT floors

Scale	Date
NTS	January 2025

Drawing Number	Rev
V22.61	1.0

INSTALLATION INSTRUCTIONS

1. ENSURE THE APERTURE IS CLEAN AND FREE OF ANY LOOSE CEMENT, DUST AND DEBRIS.
2. APPLY RYANFIRE HP-X INTO THE ANNULAR GAP BETWEEN THE PVC PIPE AND THE CLT FLOOR ON THE BOTTOM SIDE OF THE FLOOR, 20MM DEEP.
3. SELECT THE CORRECT SIZE RYANFIRE SL COLLAR TO FIT AROUND THE PIPE.
4. POSITION THE RYANFIRE SL COLLAR AROUND THE PIPE AND SLIDE IT UP UNTIL IT IS FLUSH WITH THE BOTTOM OF THE FLOOR.
5. FIX THE COLLAR TO THE FLOOR USING 80MM STEEL WASHER HEAD SCREWS. ENSURE ALL FIXING POINTS ARE USED.
6. APPLY RYANFIRE MASTIC INTO THE ANNULAR GAP BETWEEN THE PIPE AND THE FLOOR ON THE TOP SIDE OF THE FLOOR.
7. CLEAN ANY EXCESS MASTIC WITH A DAMP CLOTH.



Products: RYANFIRE SL COLLAR
RYANFIRE HP-X
RYANFIRE MASTIC

Approvals: AS 1530.4/AS 4072.1
BK: 115 / 234
Ref: 22SFR00007 / 23SFR00075
ID: A-F / C, F, G

Scenario: Penetration seal to PVC pipes

Services: Up to Ø150mm uPVC pipes
Annular gap: 0-8mm

Construction: 130mm Cross Laminated Timber (CLT) floor

Fire Resistance:

	Floor Construction	
Services	103mm	130mm
Ø40mm	-/60/60	-/60/30
Ø50mm		-/60/60
Ø65mm		-/60/60
Ø80mm	-/60/60	-/60/60
Ø100mm	-/60/60	-/60/60
Ø150mm		-/60/60

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RYANFIRE Technical Support:
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Drawing Title

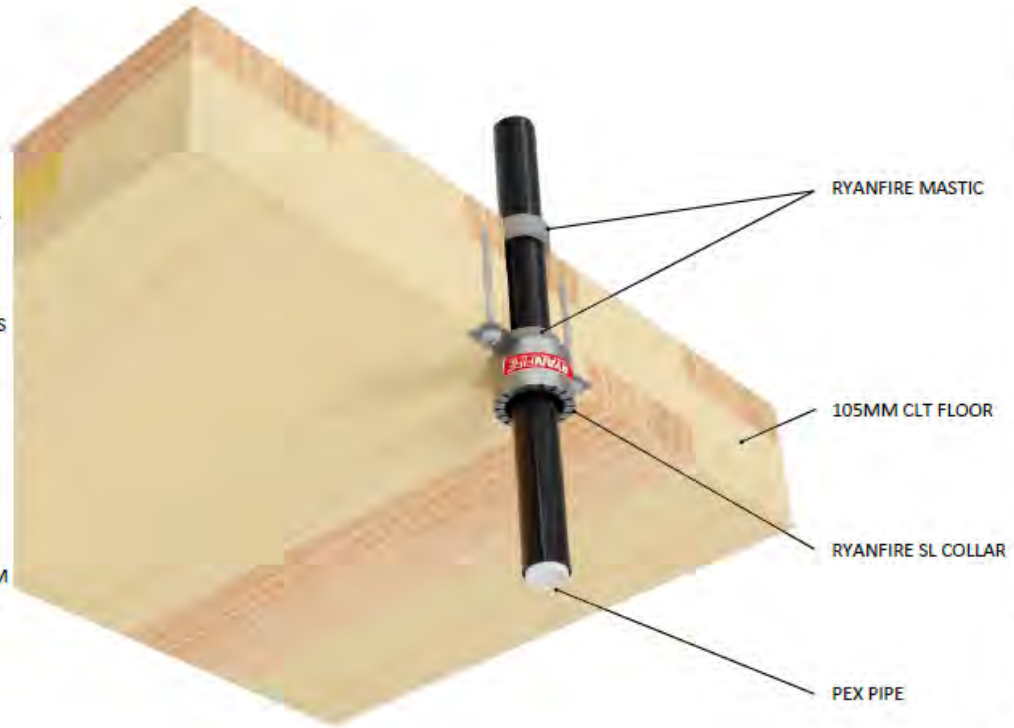
Ryanfire SL Collar to uPVC pipes 103 - 130mm CLT floor

Scale	Date
NTS	July 2024

Drawing Number	Rev
V22.36	4.0

INSTALLATION INSTRUCTIONS

1. ENSURE THE APERTURE IS CLEAN AND FREE OF DUST AND DEBRIS.
2. APPLY RYANFIIRE MASTIC INTO THE ANNULAR GAP BETWEEN THE PIPE AND THE FLOOR, ON BOTH SIDES OF THE FLOOR
3. SELECT THE CORRECT SIZE RYANFIRE SL COLLAR TO FIT AROUND THE PEX PIPE.
4. POSITION THE RYANFIRE SL COLLAR AROUND THE PIPE AND SLIDE IT UNTIL IT IS UP AGAINST THE BOTTOM OF THE FLOOR.
5. FIX THE SL COLLAR TO THE FLOOR USING M6 X 80MM STEEL WASHER HEAD TIMBER SCREWS. ENSURE ALL FIXING POINTS ARE USED.
6. CLEAN UP ANY EXCESS SEALANT WITH A DAMP CLOTH.



Products:	**RYANFIRE SL COLLAR** **RYANFIRE MASTIC**
Approvals:	**AS 1530.4/AS 4072.1**
BK:	**313**
Ref:	**24SFR00063**
ID:	**D - F**
Scenario:	Penetration seal to PEX pipe
Services:	Up to Ø25mm PEX pipe
Construction:	105mm Cross Laminated Timber (CLT) floor
Annular:	0 – 3 mm
Fire Resistance:	Ø16mm : -/60/30 Ø20mm : -/45/45 Ø25mm : -/45/15

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RYANFIRE PASSIVE FIRE PROTECTION

RYANFIRE Technical Support:
info@ryanfire.co.nz - Tel 09 443 0362

Drawing Title

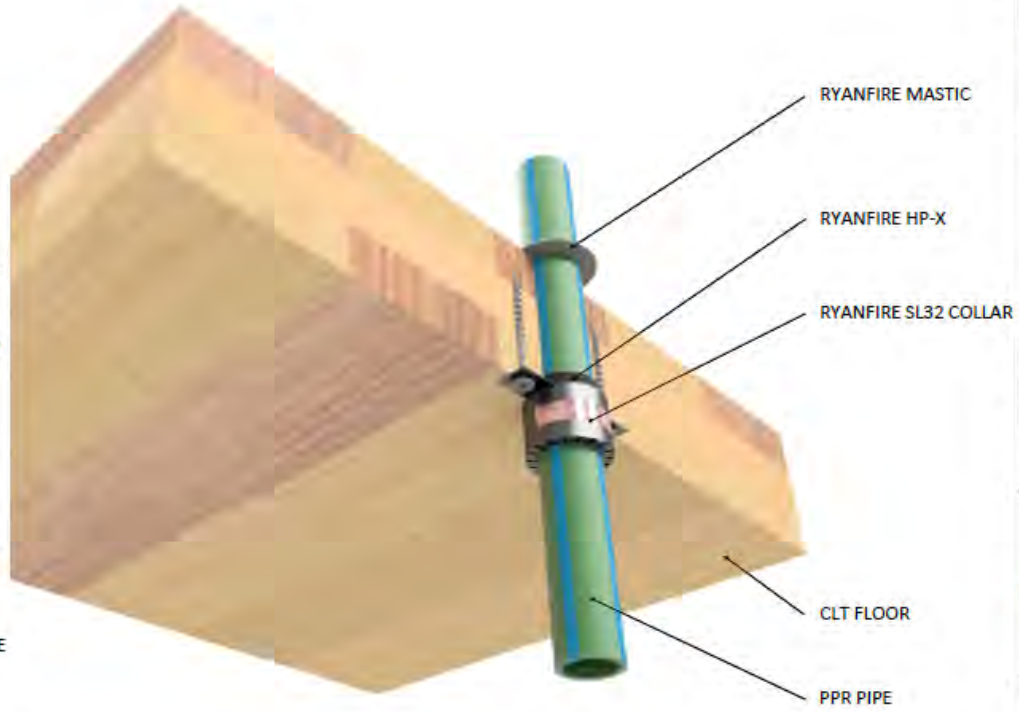
Ryanfire SL Collar to PEX pipe 105mm CLT floor

Scale	Date
NTS	**April 2025**

Drawing Number	Rev
V25.37	**1.0**

INSTALLATION INSTRUCTIONS

1. ENSURE THE APERTURE IS CLEAN AND FREE OF ANY LOOSE CEMENT, DUST AND DEBRIS.
2. APPLY RYANFIRE HP-X INTO THE ANNULAR GAP BETWEEN THE PPR PIPE AND THE CLT FLOOR ON THE BOTTOM SIDE OF THE FLOOR.
3. SELECT THE CORRECT SIZE RYANFIRE SL32 COLLAR TO FIT AROUND THE PIPE.
4. POSITION THE RYANFIRE SL COLLAR AROUND THE PIPE AND SLIDE IT UP UNTIL IT IS FLUSH WITH THE BOTTOM OF THE FLOOR.
5. FIX THE COLLAR TO THE FLOOR USING 80MM STEEL WASHER HEAD SCREWS. ENSURE ALL FIXING POINTS ARE USED.
6. APPLY RYANFIRE MASTIC INTO THE ANNULAR GAP BETWEEN THE PIPE AND THE FLOOR ON THE TOP SIDE OF THE FLOOR.
7. CLEAN ANY EXCESS MASTIC WITH A DAMP CLOTH.



Products:	RYANFIRE SL COLLAR RYANFIRE HP-X RYANFIRE MASTIC
Approvals:	AS 1530.4/AS 4072.1
BK:	115
Ref:	22SFR00007
ID:	G
Scenario:	Penetration seal to PPR pipes
Services:	Up to Ø32mm PPR pipes
Annular gap:	0-3mm
Construction:	130mm Cross Laminated Timber (CLT) floor
Fire Integrity:	30 minutes
Fire Insulation:	30 minutes

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RYANFIRE
PASSIVE FIRE PROTECTION

Client

Job Title

Drawing Title

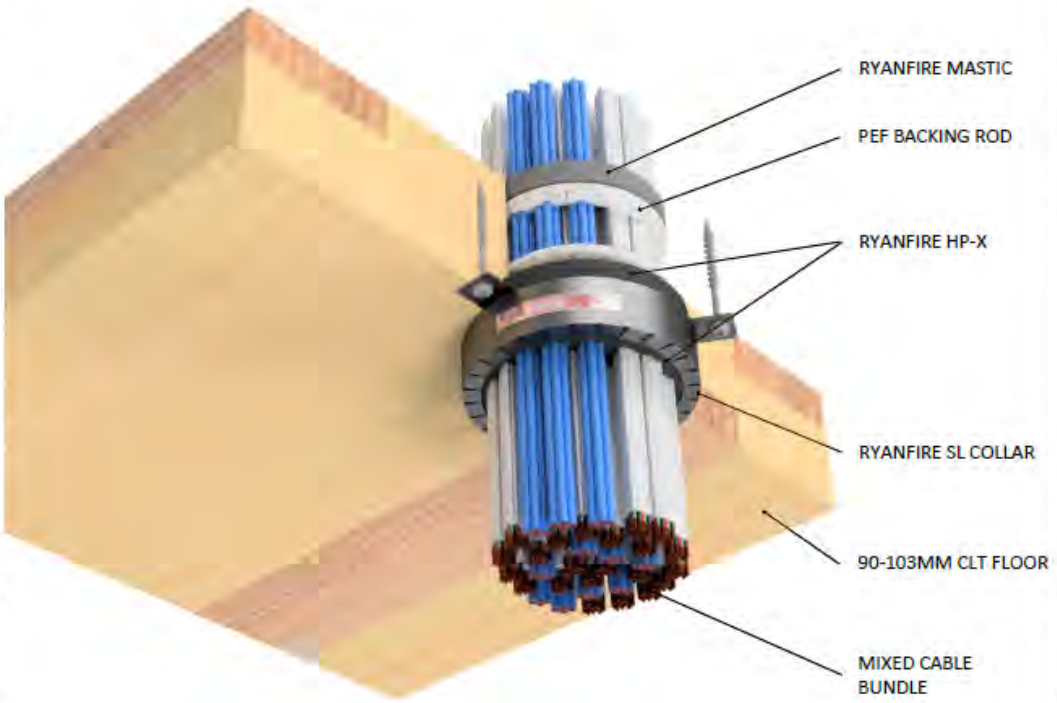
Ryanfire SL Collar to PPR pipes 130mm CLT floor

Scale	Date
NTS	July 2024
Sheet Size	**Drawn By**
A3	
Drawing Number	**Rev**
V22.37	2.0

RYANFIRE Technical Support: info@ryanfire.co.nz - Tel 09 443 0362

INSTALLATION INSTRUCTIONS

1. ENSURE THE APERTURE IS CLEAN AND FREE OF ANY DUST AND DEBRIS.
2. ENSURE THE CABLES ARE TIED TOGETHER TO FORM A TIGHT BUNDLE.
3. INSERT PEF BACKING ROD INTO THE ANNULAR GAP ON BOTH SIDES OF THE FLOOR.
4. APPLY RYANFIRE MASTIC TO THE DEPTH OF 10MM INTO THE ANNULAR GAP BETWEEN THE CABLES AND THE FLOOR ON THE TOP OF THE FLOOR.
5. APPLY RYANFIRE HP-X TO A DEPTH OF 20MM INTO THE ANNULAR GAP, AND IN BETWEEN THE CABLES, ON THE BOTTOM OF THE FLOOR. ENSURE THE GAP IS COMPLETELY FILLED.
6. SELECT THE CORRECT SIZE RYANFIRE SL COLLAR TO FIT AROUND THE CABLE BUNDLE.
7. FIT THE SL COLLAR AROUND THE BUNDLE AND SLIDE IT UP UNTIL IT IS FLUSH TO THE BOTTOM SURFACE OF THE FLOOR.
8. FIX THE COLLAR TO THE FLOOR WITH M6 X 80MM STEEL WASHER HEAD SCREWS. ENSURE ALL FIXING POINTS ARE USED.
9. APPLY RYANFIRE HP-X INTO THE GAP BETWEEN THE COLLAR AND THE CABLE BUNDLE TO THE FULL DEPTH OF THE SL COLLAR (30MM).
10. REMOVE ANY EXCESS SEALANT WITH A DAMP CLOTH.



Products:	**RYANFIRE SL COLLAR** **RYANFIRE HP-X** **RYANFIRE MASTIC**
Approval:	**AS 1530.4/4072.1**
BK:	**148 / 234**
Ref:	**22SFR00040 / 23SFR00075**
ID:	**B / E**
Scenario:	Penetration seal to cable bundles
Services:	Up to Ø100mm cable bundle: TPS, Data
Annular:	3-17mm
Construction:	90 - 103mm Cross Laminated Timber (CLT) floor
Fire Integrity:	60 minutes
Fire Insulation:	60 minutes

Web based drawings are for example only. fire performance of any system is dependant on, but not limited to size of opening, substrate, if penetrations are passing through, type, size and number. Please refer to Ryanfire technical department for detailed and specific fire performance information.

RYANFIRE Technical Support:
info@ryanfire.co.nz - Tel 09 443 0362

Drawing Title

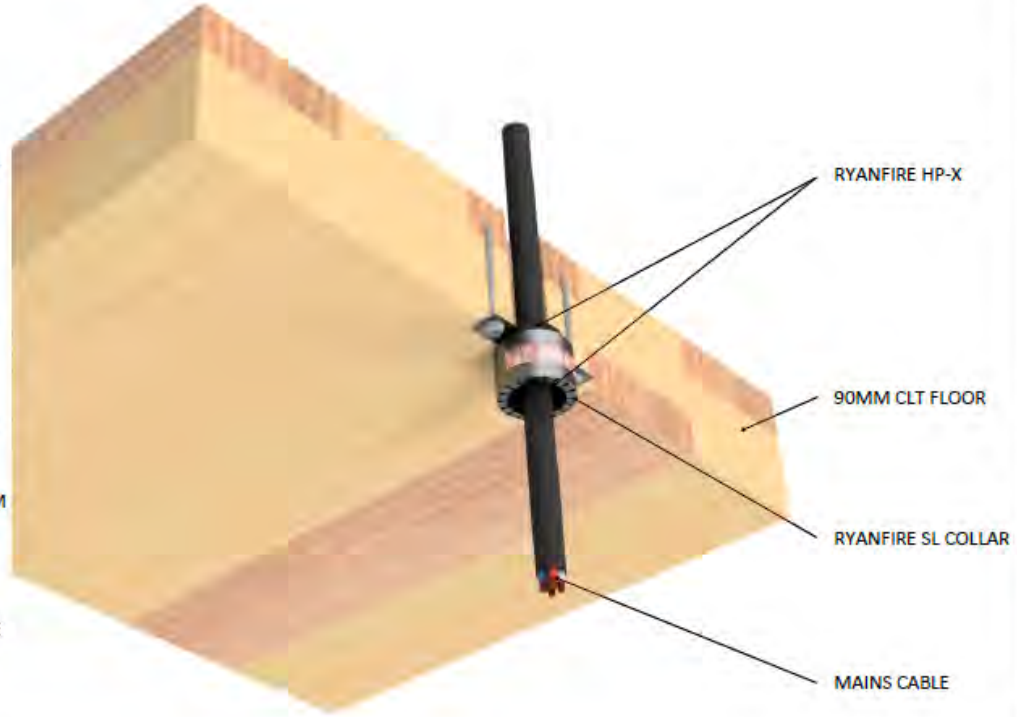
Ryanfire SL Collar to cable bundle 90 - 103mm CLT floor

Scale	Date
NTS	July 2024

Drawing Number	Rev
V29.34	4.0

INSTALLATION INSTRUCTIONS

1. ENSURE THE APERTURE IS CLEAN AND FREE OF DUST AND DEBRIS.
2. APPLY RYANFIIRE HP-X INTO THE ANNULAR GAP BETWEEN THE CABLE AND THE CLT FLOOR.
3. SELECT THE CORRECT SIZE RYANFIRE SL COLLAR TO FIT AROUND THE MAINS CABLE.
4. POSITION THE RYANFIRE SL COLLAR AROUND THE CABLE AND SLIDE IT UP UNTIL IT IS FLUSH WITH THE BOTTOM OF THE FLOOR.
5. FIX THE SL COLLAR TO THE FLOOR USING M6 X 80MM STEEL WASHER HEAD SCREWS. ENSURE ALL FIXING POINTS ARE USED.
6. APPLY RYANFIRE HP-X INTO THE GAP BETWEEN THE COLLAR AND THE CABLE, TO THE FULL DEPTH OF THE COLLAR(30MM).
7. CLEAN UP ANY EXCESS SEALANT WITH A DAMP CLOTH.



Products:	**RYANFIRE SL COLLAR** **RYANFIRE HP-X**
Approvals:	**AS 1530.4/AS 4072.1**
BK:	**148**
Ref:	**22SFR00040**
ID:	**F**
Scenario:	Penetration seal to power cable
Services:	Up to 25mm^2 mains cable
Construction:	90mm Cross Laminated Timber (CLT) floor
Annular:	10mm
Fire Resistance:	60 minutes
Fire Insulation:	30 minutes

Web based drawings are for example only. Fire performance of any system is dependant on, but not limited to, size of opening, substrate, if penetrations are passing through, type, size and number. Please refer to Ryanfire technical department for detailed and specific fire performance information.

RYANFIRE
PASSIVE FIRE PROTECTION

Client

Job Title

Drawing Title

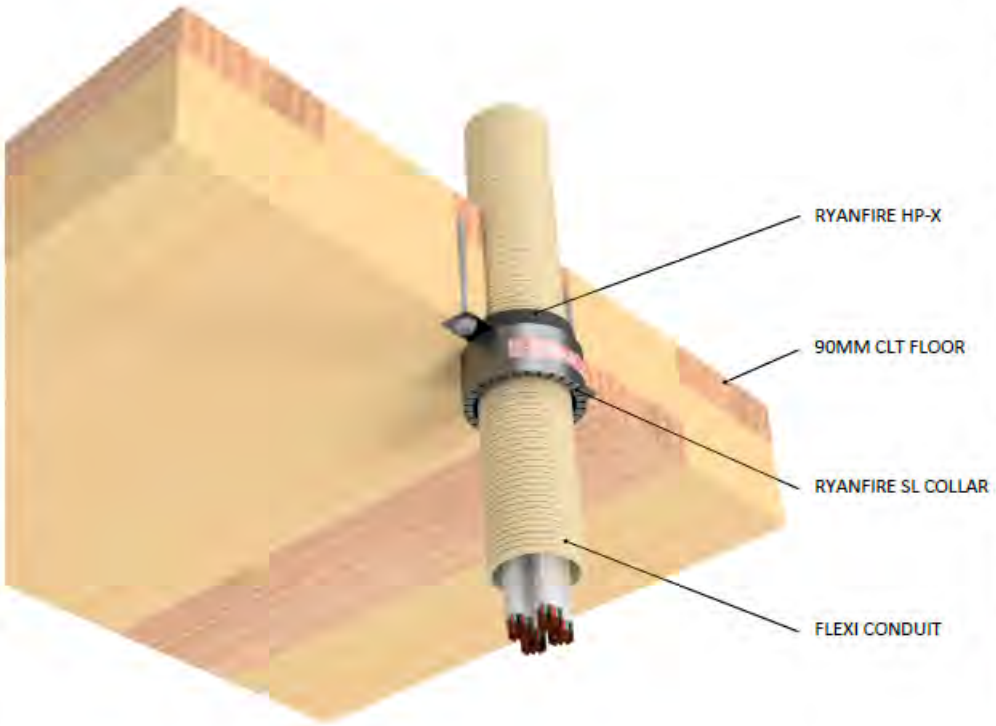
Ryanfire SL Collar to mains cable 90mm CLT floor

Scale	Date
NTS	**July 2024**
Sheet Size	**Drawn By**
A3	
Drawing Number	**Rev**
V29.36	**2.0**

RYANFIRE Technical Support: info@ryanfire.co.nz - Tel 09 443 0362

INSTALLATION INSTRUCTIONS

1. ENSURE THE APERTURE IS CLEAN AND FREE OF DUST AND DEBRIS.
2. APPLY RYANFIIRE HP-X INTO THE ANNULAR GAP BETWEEN THE CONDUIT AND THE CLT FLOOR.
3. SELECT THE CORRECT SIZE RYANFIRE SL COLLAR TO FIT AROUND THE CONDUIT.
4. POSITION THE RYANFIRE SL COLLAR AROUND THE CONDUIT AND SLIDE IT UP UNTIL IT IS FLUSH WITH THE BOTTOM OF THE FLOOR.
5. FIX THE SL COLLAR TO THE FLOOR USING M6 X 80MM STEEL WASHER HEAD SCREWS. ENSURE ALL FIXING POINTS ARE USED.
6. CLEAN UP ANY EXCESS SEALANT WITH A DAMP CLOTH.



Products:	**RYANFIRE SL COLLAR** **RYANFIRE HP-X**
Approvals:	**AS 1530.4/AS 4072.1**
BK:	**148**
Ref:	**22SFR00040**
ID:	**G**
Scenario:	Penetration seal to PVC Flexi cable conduit
Services:	Up to Ø50mm PVC conduit Flexi with cables
Construction:	90mm Cross Laminated Timber (CLT) floor
Annular:	0-5mm
Fire Resistance:	60 minutes
Fire Insulation:	60 minutes

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RYANFIRE
PASSIVE FIRE PROTECTION

Client

Job Title

Drawing Title

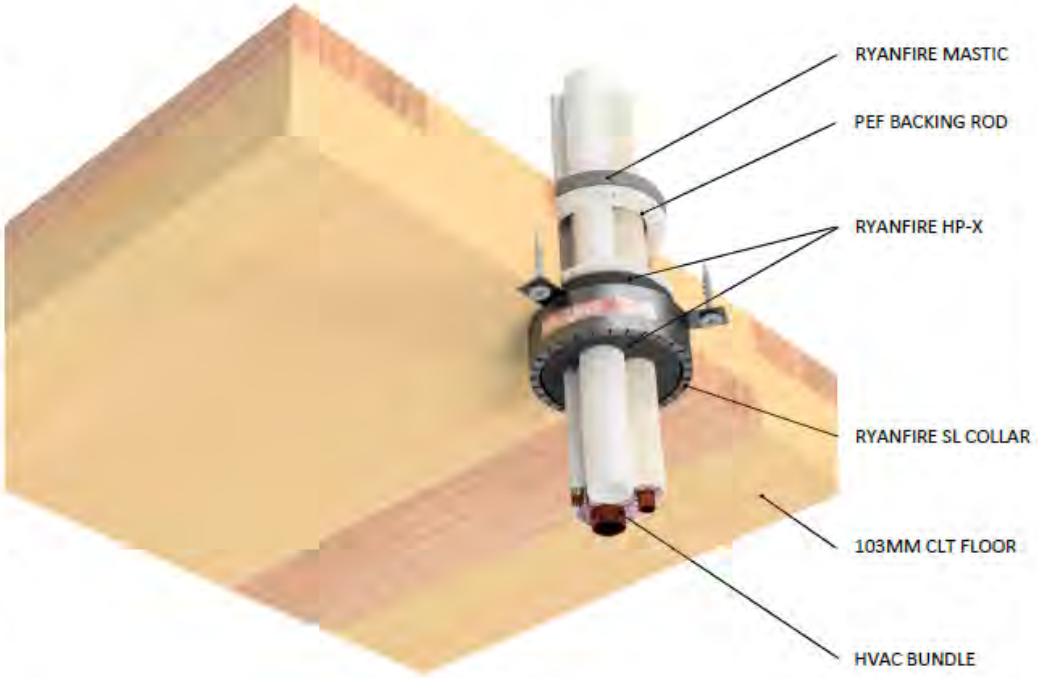
Ryanfire SL Collar to PVC flexi conduit 90mm CLT floor

Scale	Date
NTS	July 2024
Sheet Size	**Drawn By**
A3	
Drawing Number	**Rev**
V29.37	2.0

RYANFIRE Technical Support: info@ryanfire.co.nz - Tel 09 443 0362

INSTALLATION INSTRUCTIONS

1. ENSURE THE APERTURE IS CLEAN AND FREE OF ANY DUST AND DEBRIS.
2. INSERT PEF BACKING ROD INTO THE ANNULAR GAP ON BOTH SIDES OF THE FLOOR.
3. APPLY RYANFIRE MASTIC TO THE DEPTH OF 10MM INTO THE ANNULAR GAP BETWEEN THE BUNDLE AND THE FLOOR ON THE TOP OF THE FLOOR.
4. APPLY RYANFIRE HP-X TO A DEPTH OF 20MM INTO THE ANNULAR GAP, AND IN BETWEEN THE BUNDLE, ON THE BOTTOM OF THE FLOOR. ENSURE THE GAP IS COMPLETELY FILLED.
5. SELECT THE CORRECT SIZE RYANFIRE SL COLLAR TO FIT AROUND THE BUNDLE.
6. FIT THE SL COLLAR AROUND THE BUNDLE AND SLIDE IT UP UNTIL IT IS FLUSH TO THE BOTTOM SURFACE OF THE FLOOR.
7. FIX THE COLLAR TO THE FLOOR WITH M6 X 80MM STEEL WASHER HEAD SCREWS. ENSURE ALL FIXING POINTS ARE USED.
8. APPLY RYANFIRE HP-X INTO THE GAP BETWEEN THE COLLAR AND THE HVAC BUNDLE TO THE FULL DEPTH OF THE SL COLLAR (30MM).
9. REMOVE ANY EXCESS SEALANT WITH A DAMP CLOTH.



Products:	**RYANFIRE SL COLLAR** **RYANFIRE HP-X** **RYANFIRE MASTIC**
Approval:	**AS 1530.4/4072.1**
BK:	**234**
Ref:	**23SFR00075**
ID:	**D**
Scenario:	Penetration seal to HVAC bundle (heat pump services)
Services:	Up to : 1 set pair coil copper pipes 5 TPS cables Ø20mm PVC pipe
Annular:	3-17mm
Construction:	103mm Cross Laminated Timber (CLT) floor
Fire Integrity:	30 minutes
Fire Insulation:	30 minutes

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RYANFIRE Technical Support:
info@ryanfire.co.nz - Tel 09 443 0362

Drawing Title

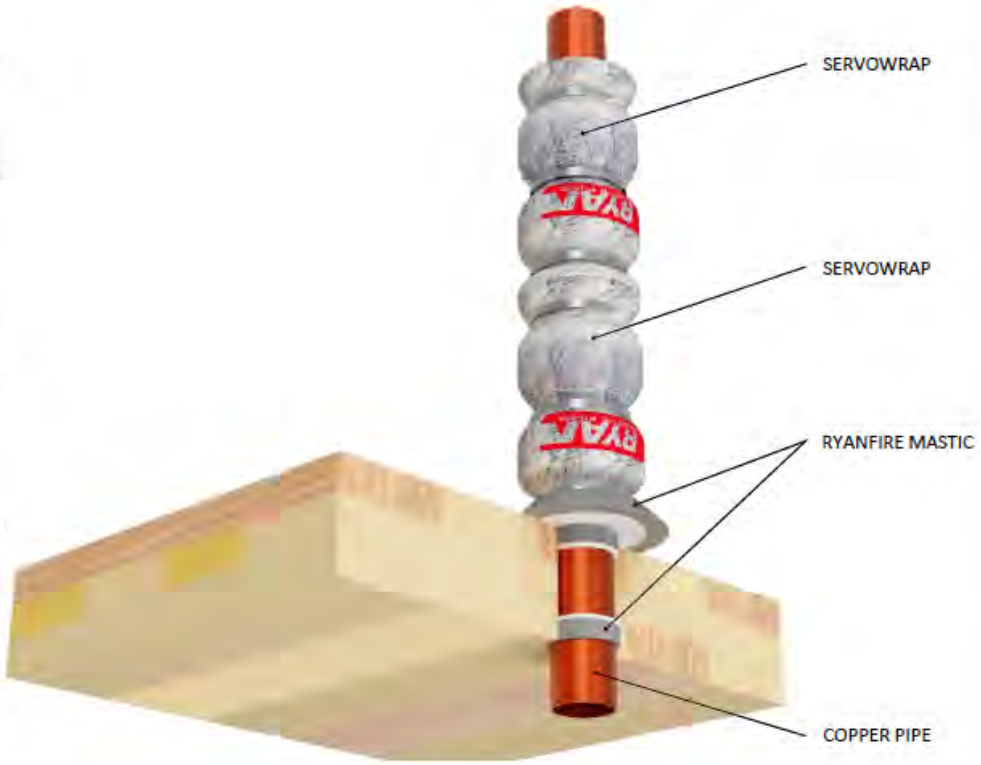
Ryanfire SL Collar to HVAC bundle 103mm CLT floor

Scale	Date
NTS	July 2024

Drawing Number	Rev
V17.20	2.0

INSTALLATION INSTRUCTIONS

1. ENSURE THE APERTURE IS CLEAN AND FREE OF DUST AND DEBRIS.
2. APPLY RYANFIRE MASTIC INTO THE ANNULAR GAP BETWEEN THE PIPE AND THE FLOOR, TO A DEPTH OF 10MM, ON BOTH SIDES OF THE FLOOR. USE PEF BACKING ROD TO REGULATE THE DEPTH OF THE MASTIC.
3. WRAP 2 LAYERS OF 300MM WIDE SERVOWRAP AROUND THE PIPE, WITH AN OVERLAP OF 100MM ON THE LONG EDGE. SLIDE THE FIRST LAYER DOWN UNTIL IS IT UP AGAINST THE SURFACE OF THE FLOOR AND SECURE INTO PLACE WITH STEEL CABLE TIES. SLIDE THE SECOND LAYER DOWN UNTIL IT IS UP AGAINST THE TOP EDGE OF THE FIRST LAYER AND SECURE INTO PLACE WITH STEEL CABLE TIES.
4. THE SERVOWRAP MUST EXTEND A TOTAL OF 600MM FROM THE SURFACE OF THE FLOOR.
5. SECURE THE STAINLESS STEEL CABLE TIES 50MM FROM EACH END, AND ADDITIONAL TIES AT CENTRES NOT EXCEEDING 200MM.
6. APPLY A 25MM X 25MM CONE OF RYANFIRE MASTIC TO THE JUNCTION BETWEEN THE SERVOWRAP AND THE TOP OF THE FLOOR.
7. APPLY FOIL TAPE TO ANY EXPOSED EDGES OF THE SERVOWRAP.
8. CLEAN UP ANY EXCESS SEALANT WITH A DAMP CLOTH.



Products:	RYANFIRE SERVOWRAP RYANFIRE MASTIC
Approvals:	AS 1530.4/AS 4072.1
BK:	313
Ref:	24SFR00063
ID:	G - I
Scenario:	Penetration seal to copper pipes
Services:	Up to Ø150mm copper pipe
Construction:	105mm Cross Laminated Timber (CLT) floor
Annular:	9 - 11mm
Fire Resistance:	Ø50mm : -/60/60 Ø100mm : -/60/45 Ø150mm : -/60/45

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RYANFIRE PASSIVE FIRE PROTECTION

RYANFIRE Technical Support:
info@ryanfire.co.nz - Tel 09 443 0362

Drawing Title

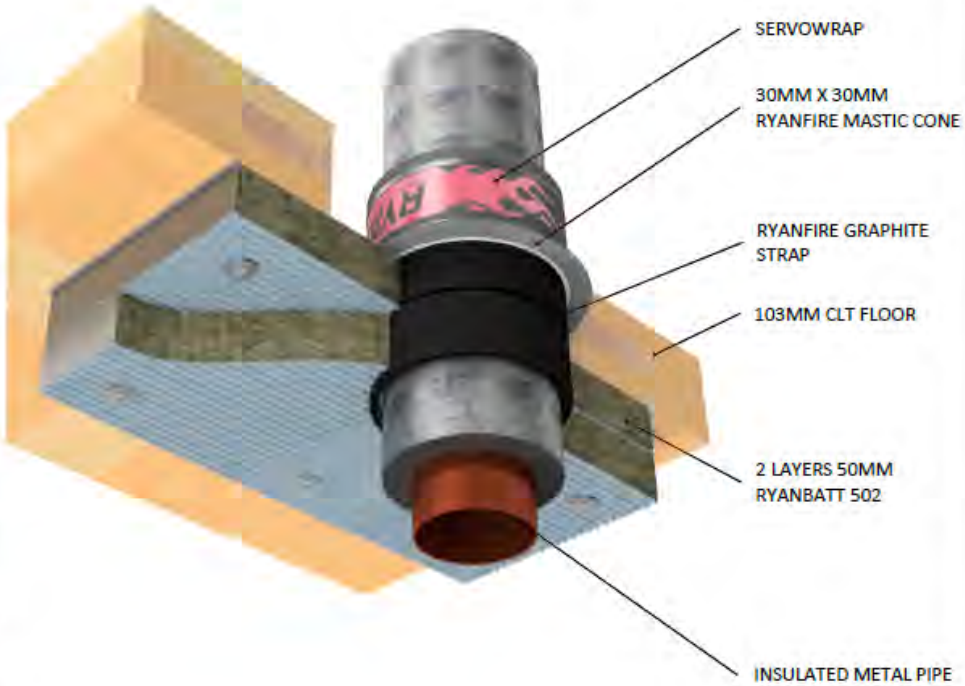
Ryanfire Servowrap to copper pipe 105mm CLT floor

Scale	Date
NTS	April 2025

Drawing Number	Rev
V9.28	1.0

INSTALLATION INSTRUCTIONS

1. ENSURE THE APERTURE IS CLEAN AND FREE OF DUST AND DEBRIS.
2. CUT THE RYANFIRE STRAP TO THE CORRECT LENGTH TO WRAP 3 REVOLUTIONS AROUND THE INSULATED PIPE. POSITION TWO LAYERS OF RYANFIRE STRAP TO SIT WITHIN THE PLANES OF THE RYANBATT 502, ONE LAYER FOR EACH LAYER OF 502 BOARD.
3. CUT THE RYANBATT 502 TO FIT TIGHTLY AROUND THE WRAPPED PIPE, AND TO ALLOW A 100MM OVERLAP AROUND THE APERTURE. ANY JOINTS IN THE 502 BETWEEN THE FIRST AND SECOND LAYER MUST BE STAGGERED BY MINIMUM 200MM.
4. CUT THE RYANBATT ACROSS THE SHORTEST DIMENSION INCORPORATING THE MIDPOINT OF THE PENETRATION TO ENABLE THE BOARD TO BE FITTED IN PLACE.
5. APPLY A GENEROUS BEAD OF RYANFIRE MASTIC TO THE UNDERSIDE OF THE FLOOR AROUND THE PERIMETER OF THE APERTURE, 50MM FROM THE EDGE OF THE APERTURE AND A BEAD OF MASTIC AROUND THE STRAP. COAT ANY CUT AND EXPOSED EDGES OF THE 502 WITH BRUSH GRADE MASTIC.
6. INSTALL THE FIRST LAYER OF 502 TO THE FLOOR AND SECURE INTO PLACE USING 6G X 80MM STEEL SCREWS & PENNY WASHERS, 50MM FROM THE EDGE OF THE 502 AND AT CENTRES NOT EXCEEDING 200MM.
7. APPLY A BEAD OF MASTIC TO THE BOTTOM FACE OF THE FIRST LAYER OF 502.
8. REPEAT STEPS 4 - 7 FOR THE SECOND LAYER OF 502. PLACE THE SECOND LAYER OF 502 OVER THE FIRST LAYER SECURING WITH 125MM STEEL SCREWS & PENNY WASHERS, 50MM FROM THE EDGE OF THE 502, AND AT CENTRES NOT EXCEEDING 200MM. OFFSET THE SCREWS SO THEY DON'T CLASH WITH THE SCREWS OF THE FIRST LAYER.
9. WRAP 1LAYER OF 300MM WIDE RYANFIRE SERVOWRAP AROUND THE INSULATED PIPE WITH A 100MM OVERLAP, ON THE TOP SIDE OF THE SEAL. PRESS THE SERVOWRAP UP AGAINST THE SURFACE OF THE RYANBATT. SEAL THE OVERLAP AND EXPOSED EDGES OF THE SERVOWRAP WITH ALUMINIUM FOIL TAPE.
10. SECURE THE SERVOWRAP AROUND THE PIPE USING STEEL CABLE TIES, 50MM FROM EACH END AND ONE NOMINALLY IN THE CENTRE.
11. APPLY A 30X30MM CONE OF RYANFIRE MASTIC TO THE JOINT BETWEEN THE SERVOWRAP AND THE RYANBATT.
12. APPLY A NOMINAL 5MM BEAD OF RYANFIRE MASTIC TO THE PERIMETER OF THE RYANBATT AND TO ANY JOINTS AND GAPS.



Products:	**RYANBATT 502** **RYANFIRE MASTIC** **RYANFIRE BRUSH GRADE MASTIC** **RYANFIRE GRAPHITE STRAP** **RYANFIRE SERVOWRAP**
Approvals:	**AS 1530.4/AS 4072.1**
BK:	**249**
Ref:	**23SFR00070**
ID:	**B, C, D**
Scenario:	Penetration seal to XPLE (Thermobreak) insulated copper / steel pipe
Services:	Up to Ø100mm copper pipe with: 65mm Thermobreak Insulation
Construction:	103mm Cross Laminated Timber (CLT) floor
Fire Integrity:	60 minutes
Fire Insulation:	60 minutes

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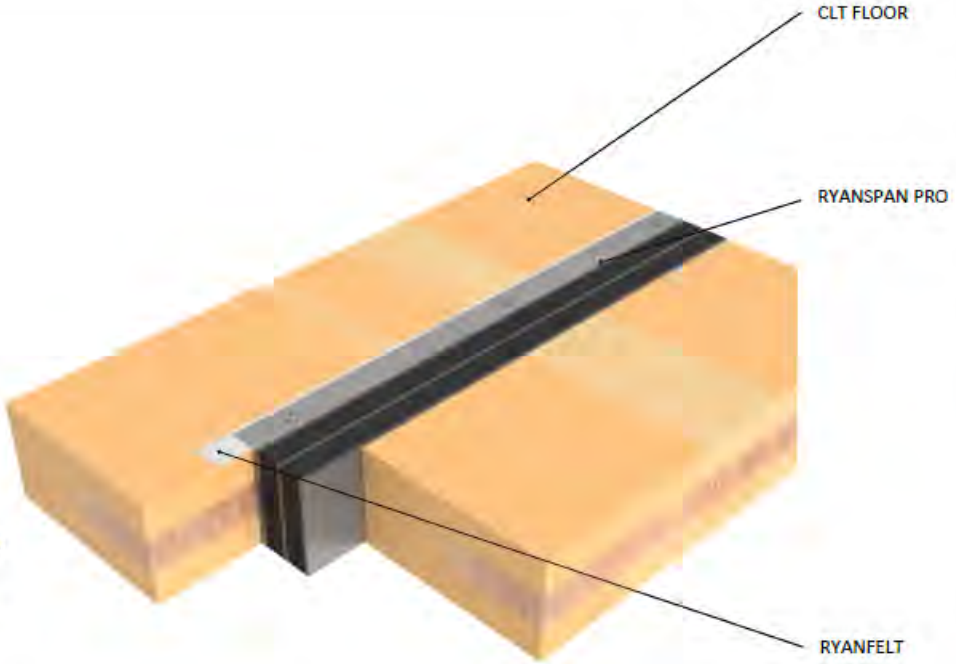
Drawing Title
Ryanbatt 502, Servowrap & Ryanstrap to Thermobreak insulated copper pipe 103mm CLT floor

Scale	Date
NTS	**July 2024**

Drawing Number	Rev
V9.24	**2.0**



INSTALLATION INSTRUCTIONS

1. ENSURE THE APERTURE IS CLEAN AND FREE OF DUST AND DEBRIS.
2. READY THE 30MM WIDE RYANFELT BY PLACING IT ON TOP OF THE FLOOR NEXT TO THE GAP.
3. INSERT THE RYANSPAN PRO INTO THE VOID SO THAT THE FIXING STRIP SITS ON TOP OF THE RYANFELT STRIP, FLUSH WITH THE TOP OF THE FLOOR.
4. FIX THE RYANSPAN PRO INTO PLACE WITH 8G X 32MM TIMBER SCREWS, THROUGH THE PRE-CUT FIXING HOLES.
5. TO JOIN TWO PIECES OF RYANSPAN PRO, APPLY RYANFIRE HP-X TO EACH END AND BUTT THEM UP AGAINST EACH OTHER. ENSURE A TIGHT FITTING SEAL.

Products: RYANSPAN PRO
RYANFELT
RYANFIRE HP-X

Approvals: AS 1530.4/AS 4072.1

BK: 234 / 288

Ref: 23SFR00075 / 24SFR00006

ID: A / A - C

Scenario: Linear gap seal to CLT floor

Construction: 103 - 106mm Cross Laminated Timber (CLT) floor

Void Size: Up to 100mm wide, unlimited length

Fire Resistance:

	Floor Thickness	
	103mm	106mm
50mm	-/60/60	-/60/60
75mm		-/60/60
100mm		-/60/45

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Drawing Title

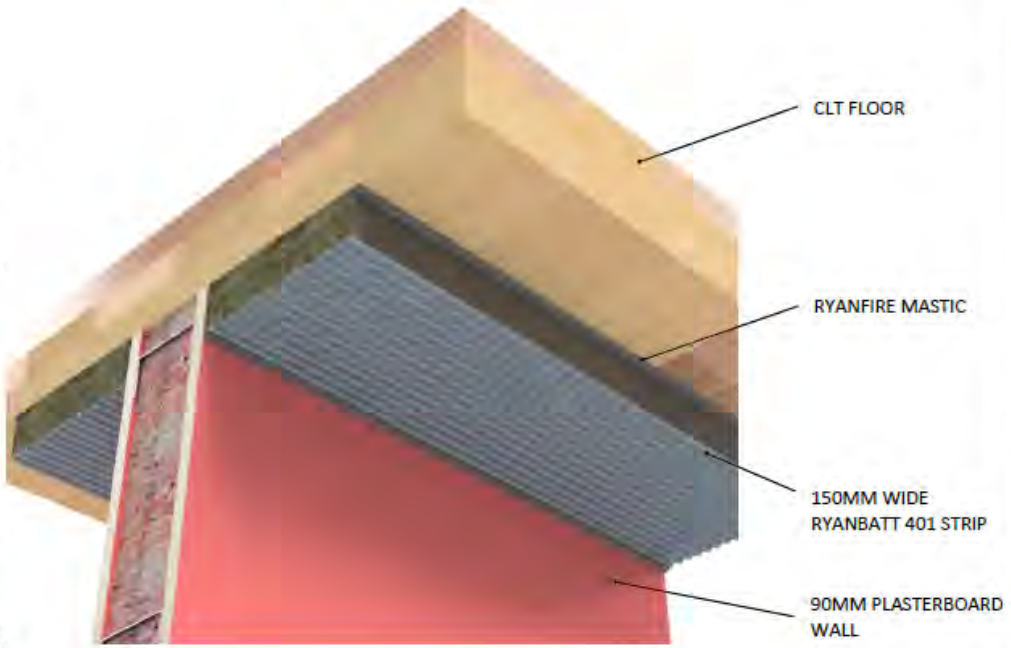
Ryanspan Pro slab edge/floor seal 103mm / 106 mm CLT floor

Scale	Date
NTS	February 2025

Drawing Number	Rev
V52.13	3.0

INSTALLATION INSTRUCTIONS

1. ENSURE THE AREA IS CLEAN AND FREE OF DUST AND DEBRIS.
2. CUT THE RYANBATT 401 INTO STRIPS OF 150MM WIDE.
3. COAT THE UNDERSIDE OF THE CLT FLOOR WITH RYANFIRE BRUSH GRADE MASTIC, WHERE THE 401 WILL MATE WITH THE FLOOR.
4. APPLY A 5MM SERPENTINE BEAD OF MASTIC TO THE UNCOATED FACE OF THE 401 BOARD
5. INSTALL THE 401 BOARD INTO THE CORNER JUNCTION BETWEEN THE FLOOR AND THE WALL. ENSURE THE 401 IS PRESSED TIGHTLY AGAINST BOTH SUBSTRATES.
6. SECURE THE BOARD INTO PLACE USING 6MM X 80MM WASHER HEAD TIMBER SCREWS, LOCATED CENTRALLY, 50MM FROM EACH END AND AT CENTRES NOT EXCEEDING 200MM ALONG THE LENGTH OF THE STRIP.
7. APPLY RYANFIRE BRUSH GRADE MASTIC TO ALL CUT AND EXPOSED EDGES OF THE 401 BOARD.
8. APPLY A 10MM BEAD OF RYANFIRE MASTIC TO THE JOINTS BETWEEN THE BOARD, FLOOR, AND THE WALL.
9. REPEAT THIS PROCESS ON THE OPPOSITE SIDE OF THE WALL.
10. CLEAN ANY EXCESS SEALANT WITH A DAMP CLOTH.



Products:	**RYANBATT 401** **RYANFIRE MASTIC** **RYANFIRE BRUSH GRADE MASTIC**
Approval:	**AS 1530.4/AS 4072.1**
BK:	**300**
Ref:	**24SFR00041**
ID:	**E**
Scenario:	Head of wall junction
Construction:	FR plasterboard wall / Cross laminated timber (CLT) floor
Wall:	90mm FR plasterboard / Masonry
Floor:	60 min CLT
Fire Integrity:	60 minutes
Fire Insulation:	60 minutes

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RYANFIRE Technical Support:
info@ryanfire.co.nz - Tel 09 443 0362

Drawing Title

Head-of-wall junction seal
90mm plasterboard wall / CLT floor

Scale	Date
NTS	**September 2024**

Drawing Number	Rev
V50.5	**1.0**

Recap of Acts, Codes & Standards for compliance

NZ Building Act 2004

NZ Health & Safety at Work Act 2015

Building Code	C/AS1 & C/AS2 - Acceptable Solutions Project specific Fire Safety Design Report
AS1530.4 – 2014	Methods for fire tests on building materials, components & structures Part 4: Fire-resistance test of elements of construction
AS4072.1 – 2005	Components for the protection of openings that penetrate fire rated elements
NZS4520 – 2010	Fire rated door-sets
AS1851 – 2012	Routine service of fire protection systems and equipment (Sect.12: Passive fire & smoke systems)
Building Act – 2004	Code Compliance Certificate (CCC), Certificate of Public Use (CPU), Compliance Schedule Requirements (Ongoing BWOF)
Building Amendments Act – 2013	Refers ONLY to **Acceptable Solutions & Verification Methods**

Discussion Time

RYANFIRE
PASSIVE FIRE PROTECTION

Malcolm Christie – Specification Manager
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Thank you for your participation.