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PFITS FIRE ASSESSMENT REPORT

PFITSFAR 190042

LIKELY FIRE PERFORMANCE OF BOSS FIREMASTIC 300 WHEN USED AS A LINEAR GAP SEAL IN HARDWOOD TIMBER FLOORS AND WALLS AND AS A GENERAL SEALANT IN PLASTERBOARD FIRE RATED WALLS IF TESTED TO AS1530.4 (2014) AND ASSESSED TO AS 4072.1 (2005).

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APPENDIX 1 ASSESSMENT OF SPECIFIC VARIATIONS

1. INTRODUCTION

This report assesses the likely performance in accordance with AS4072.1-2005 of BossMastic-300 if used as a linear joint sealant between joints in iron bark flooring, timber columns and timber/plasterboard interfaces.

The tested systems are described in section 2 of this assessment and are subject to the proposed variations in section 3 and tested in accordance with the referenced test method described in section 4. The conclusions are summarized in section 5.

The validity of this assessment is conditional on the compliance with sections 7,8, and 9.

Summaries of the test data and information on which this assessment is bases are included in the Appendices together with a summary of any issues providing the assessment conclusions including the main points of reference.

2. TESTED PROTOTYPES

This assessment is based upon report numbers Exova Warrington Fire Research Report EWFR 168903, and BRANZ Assessment FAR 3821 and UL.

In Exova Warrington Fire Research Report no EWFR 168903 a fire resistance test was conducted to test the fire performance of three vertically orientated and three horizontally orientated specimens of Pyrocoustic (Boss FireMastic-300) linear gap sealing systems to re-instate the fire resistance of a blockwork wall and pre-cast aerated concrete floor incorporating timber and mild steel sections when tested in accordance with BS EN 1366- 4 2006. For the purposes of this assessment specimen F is applicable.

Specimen F consisted of a 50 x 25 mm joint applied over a 60mm dia PE backing rod friction fitted into the cavity between 410 kg/m^3 softwood timber 10mm thick and 150mm thick 670 kg/m^3 autoclaved aerated concrete. The test specimen failed due to sustained flaming at 57 minutes where an integrity failure was deemed to occur.

In BRANZ Assessment FAR 3821 Issue 3 assessed the FRL of Firemastic-300 and Firecoustic linear gap seals in accordance with AS4072.1-2005 when tested to AS1530.4-2005.

The conclusion of the BRANZ Assessment FAR 3821 Issue 3 states that the Firemastic-300 and Firecoustic linear gap sealant demonstrates the ability of the sealants to fill various gaps without causing flaming on the unexposed face and maintaining the integrity of the wall for up to 300 minutes It is expected that the head and side would be backed by a timber or steel stud . In this application the sealant is not subjected to the same heating conditions as in a gap penetrating through the wall. It is therefore expected that the sealant would provide Integrity and Insulation of at least 300 minutes subject to the maximum Integrity and Insulation of the wall. Generally, as the fire resistance of a plasterboard wall increases, the thickness of the lining increases, therefore the depth of the seal will increase. The gap width must not exceed 10mm and must be full depth of the plasterboard.

3. VARIATION TO TESTED PROTOTYPE

BS EN1366-4 and prEN 1366-4 give specific requirements for testing linear gap seals which are similar to those specified in AS1530.4-2014. The results of these tests can therefore be used in providing an assessment in accordance with AS4072.1-2005 when tested in accordance with AS1530.4-2014.

The proposed floor construction shall be as tested in EWFR 168903, or it may be to the following variations;

- Timber shall be hardwood with a density of at least that which was tested i.e. A minimum density of 410kg/m^3 or
- Where autoclaved aerated concrete elements are used they shall have a minimum density of 670 kg/m^3.

4. REFERENCED TEST PROCEDURES

This report is prepared with reference to the requirements of AS1530.4-2014 as appropriate for linear gap seals.

5. FORMAL ASSESSMENT SUMMARY

In the test report EWFR 168903 Specimen 'F' for Pyrocoustic Sealant (FireMastic-300) reached 57 minutes, all other seals in the Floor of the same configuration exceeded that time by over 160%, clearly indicating that the Pyrocoustic Sealant (FireMastic-300) will perform to the required 60 minutes. The timber used in the test was a softwood being only 410kg/m^3 density and at a thickness of 10mm. Looking at the photographs it appears that the failure point was the wood, due to the density and thickness used. The hardwood timber would be of a greater density in excess of 410kg/m^3 and overall thickness, decreasing the potential char rate and increasing the overall fire resistance of the seal.

Based on the information from other seals in the test the Pyrocoustic Sealant (FireMastic-300) can offer 60 minutes fire resistance when installed at a ratio of 2:1 for seals 24mm wide and greater to a maximum of 50mm wide. For seals less than 24mm wide the sealant depth is to be a minimum of 12mm. The wooden deck would undoubtedly have increased fire resistance due to mass and density. It is our opinion that if this construction was tested in accordance with AS1530.4 the likely performance of the test would be:

-/60/60

6. DIRECT FIELD OF APPLICATION

It is considered that FireMastic-300 sealant may be used as a linear gap seal between hardwood timber in floor and wall systems, in gaps not greater than 50mm wide and achieve the levels of Integrity and Insulation as given in Section 5, in accordance with AS4072.1 (2005) and AS1530.4 (2014). A typical installation of this system is described in Appendix 1.

It is considered that FireMastic-300 sealant may be used as a linear gap seal between hardwood timber elements and plasterboard ceiling lining, in gaps not greater than 50mm wide and achieve the levels of Integrity and Insulation as given in Section 5, in accordance with AS4072.1 (2005) and AS1530.4 (2014). A typical installation of this system is described in Appendix 1.

It is considered that Firemastic-300 sealant may be used as a linear gap seal in plasterboard wall/ceiling systems in gaps not greater than 50mm wide, and achieve the levels of Integrity and Insulation as given in Section 5, in accordance with AS4072.1 (2005) and AS1530.4 (2014)

7. REQUIREMENTS

This report details the methods of construction test conditions and assessed results that would have been expected had the specific elements of construction describe in the report been tested in accordance with AS1530.4 (2014)

Any further variations with regards to size construction details, loads, stresses, edge or end conditions other than those identified in this report, may invalidate the conclusions drawn in this report.

It is required that the joints are prepared such that they provide a construction capable of providing support for the fire resistance period.

8. VALIDITY

This assessment report does not provide an endorsement by PFITS Laboratories Ltd of the actual data provided.

The conclusions of this report may be used to directly assess the fire resistance performance under such conditions, but it should be acknowledged that a single test method will not provide a full assessment of the product under all fire conditions.

Because of the nature of fire resistance testing and the consequential difficulty in quantifying the uncertainty of measurement, it is not possible to provide a stated degree of accuracy. The inherent variability in testing procedures, materials and methods of construction and installation may lead to variations in performance between elements of similar construction.

This assessment can only therefore relate to the actual prototype test specimens, testing conditions and methodology provided in the supporting data and does not imply any performance abilities of constructions of subsequent manufacture. This assessment is based on the information provided and experience available at the time of writing. The published procedures for the conduct of tests and the assessment of test results are subject to constant review and improvement and it is recommended that this report be reviewed on or before the stated expiry date.

The information contained in this report shall not be used for the assessment of variations other than those in the conclusions above. This assessment is valid providing no modifications are made to the systems described in this report.

All details of construction should be consistent with the requirements stated in the relevant test reports and all referenced documents.

9. AUTHORITY

9.1 APPLICANT UNDERTAKINGS AND CONDITIONS OF USE

By using this report as evidence of compliance of performance, the applicant(s) confirms that;

- to their knowledge the component or element of structure which is the subject of this assessment has not been subjected to a fire test to the standard against which this assessment is being made, and;
- they agree to withdraw this assessment from circulation should the component to element of structure be subject to a fire test by a recognized test authority in accordance with the standard against which this assessment is being made and the results are not in agreement with this assessment and;
- they are not aware of any information that could adversely affect the conclusions of this assessment and if they subsequently become aware of any such information agree to ask the assessing authority to withdraw the assessment.

9.2 GENERAL CONDITIONS OF USE

This assessment may only be reproduced in full without modifications by the report sponsor. Copies, extracts or abridgements of this report in any form shall not be published by other organisations or individuals without the permission of PFITS Laboratories Ltd

9.3 AUTHORISATION OF BEHALF OF PFITS CONSULTANCY LTD

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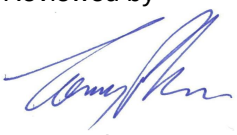

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9.4 REVIEWED BY PFITS LABORATORIES LTD

Andrew Bain

Managing Director

IANZ Approved Signatory

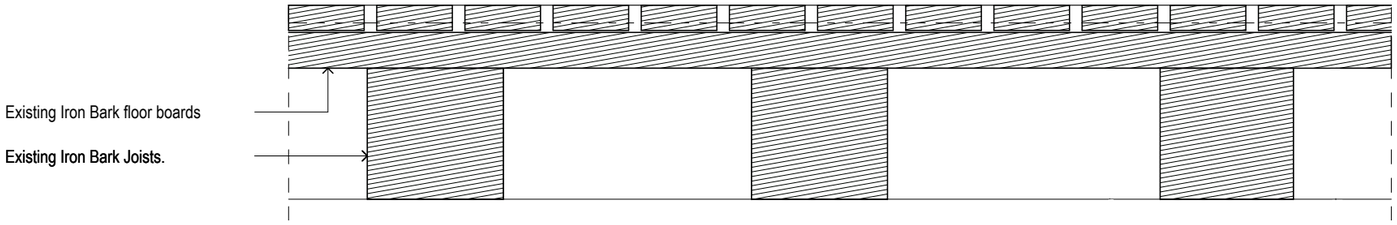
9.4 DATE OF ISSUE

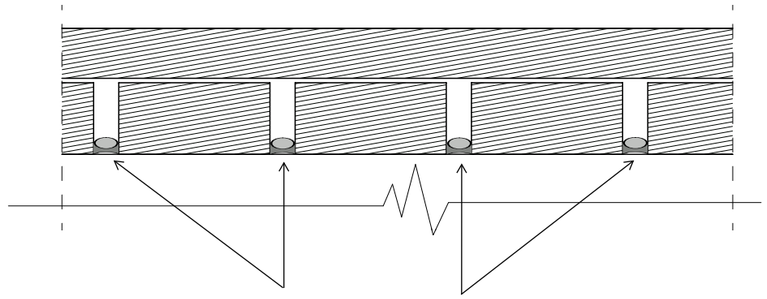
09/08/2019

9.5 EXPIRY DATE

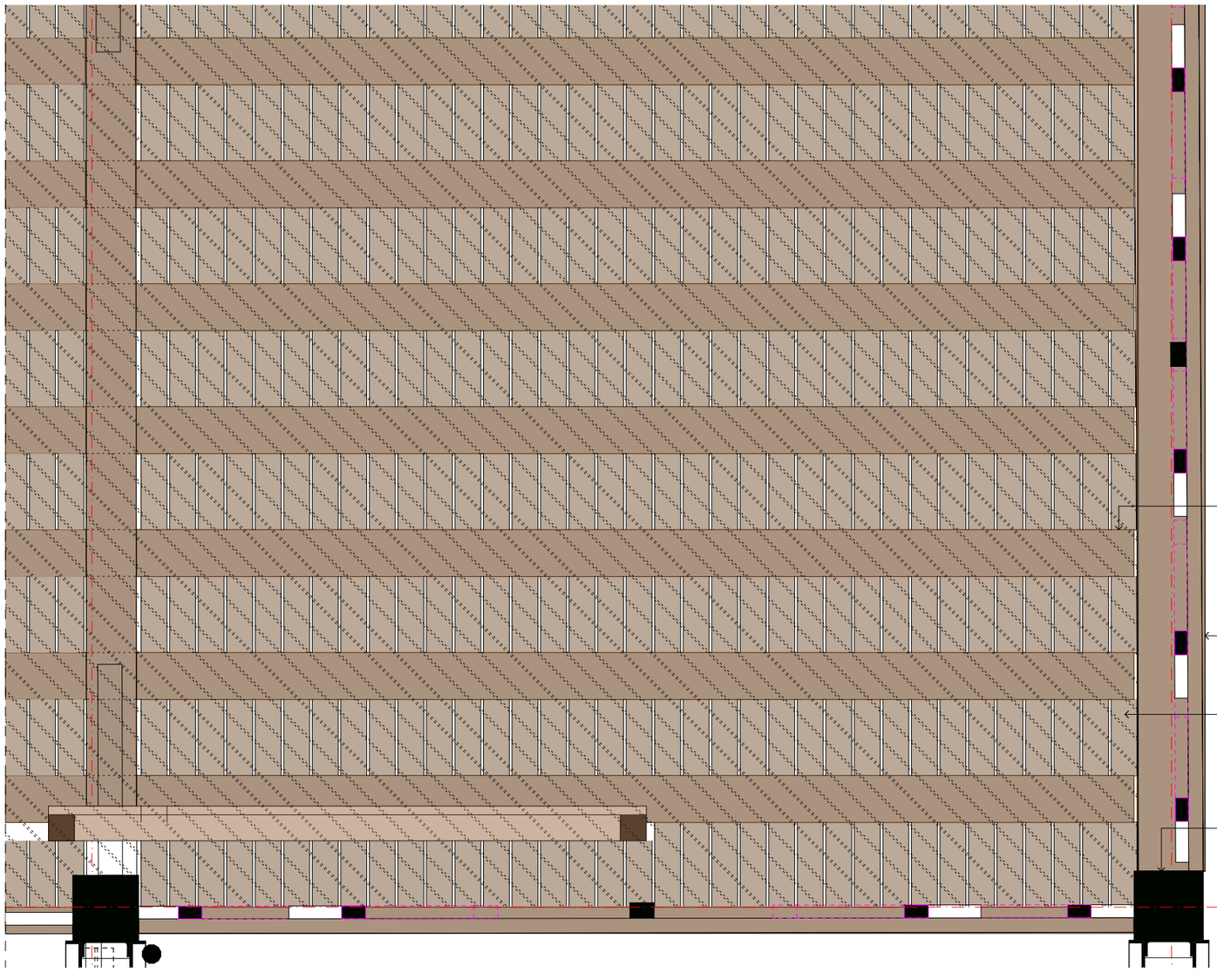
09/08/2024

APPENDIX 1 - ASSESSMENT OF SPECIFIC VARIATIONS





FM300 sealant between floor boards.
For gaps >= 10mm wide, a backing rod must be installed behind sealant (eg. open cell foam backing).



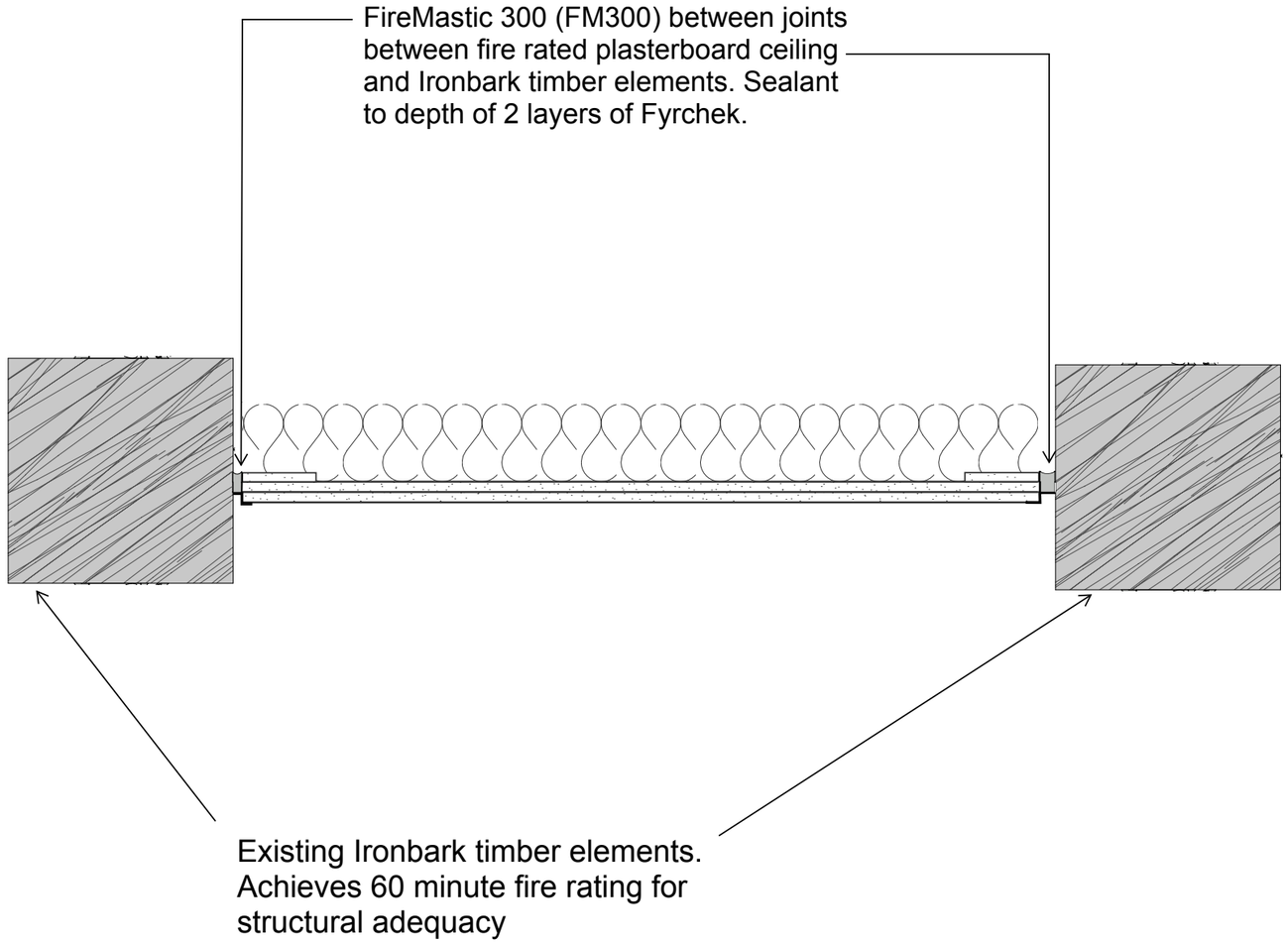
Notes:

1) Boss FM300 sealant between floorboards, maximum width 50mm

2) Sealant width:depth ratio is 2:1 for gaps >= 24mm wide.
For gaps <24mm wide, minimum depth of sealant is 12mm.

3) For gaps >=10mm, backing rod must be used to control depth of FM300 sealant.

Drawing No. FT-01 - Timber Floor Board Caulking Detail

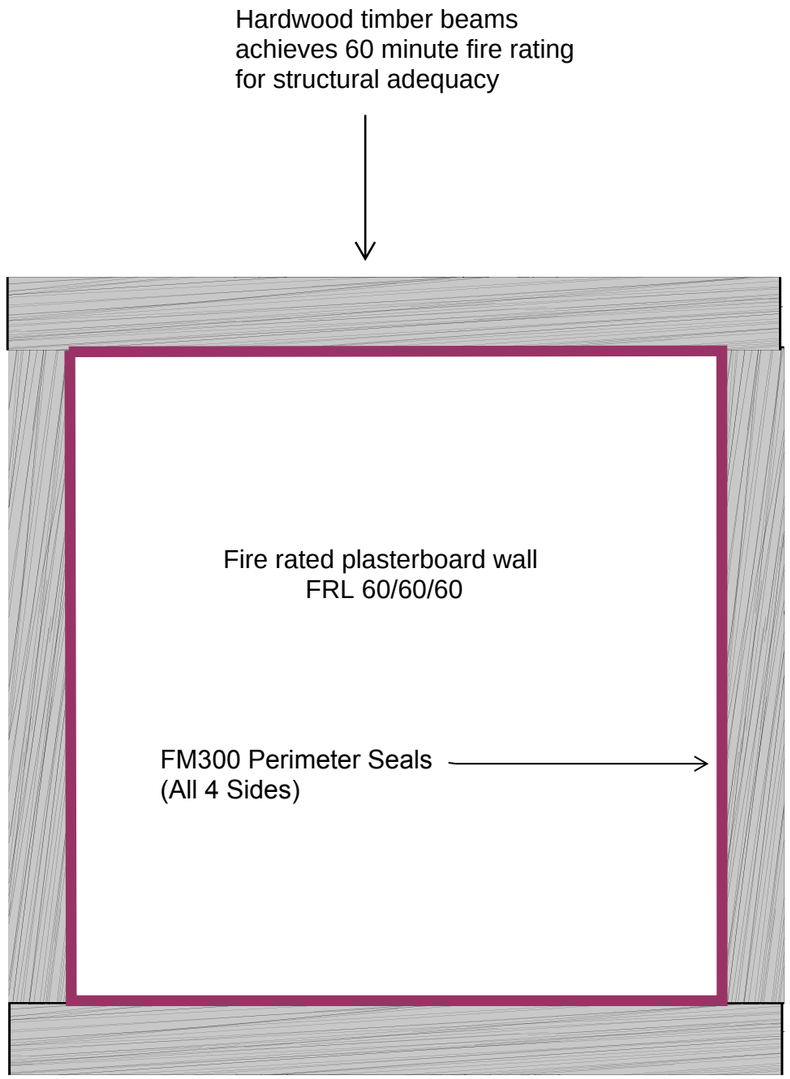


Ceiling support system including furring channels and hangers as specified.

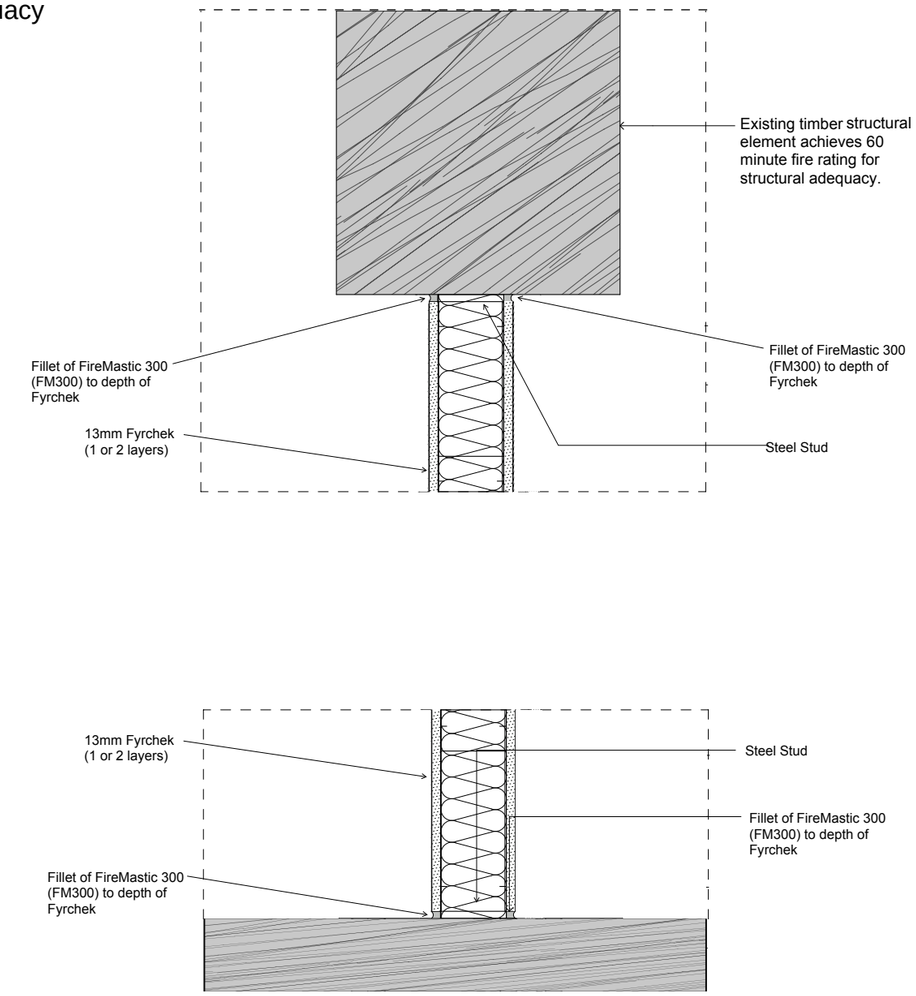
100mm acoustic absorption.

2 layers of 13mm fire rated plasterboard.
P50 shadow line junctions at original fabric with extra layer of plasterboard locally. Paint finish.
Assembly to achieve 60/60/60 FRL.
Fire rated penetrations.

Drawing No. FT-02 - Fire Rated Ceiling To Timber Detail



ELEVATION



SECTION

Drawing No. FT-03 - Fire Rated Plasterboard Wall To Timber Detail