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WOOD SOLUTIONS

Mid Rise Timber Buildings
Insulation and Sarking needs

By Joe Timi

CSR

Recent changes

- Dockland fire
- MFB review
- VBA review
- Building Surveyors
- The need for Non combustible insulation
- The need for Vapour Permeable sarking
- BCA2016 – Mid Rise Timber Buildings
  - Insulation and cavity barriers

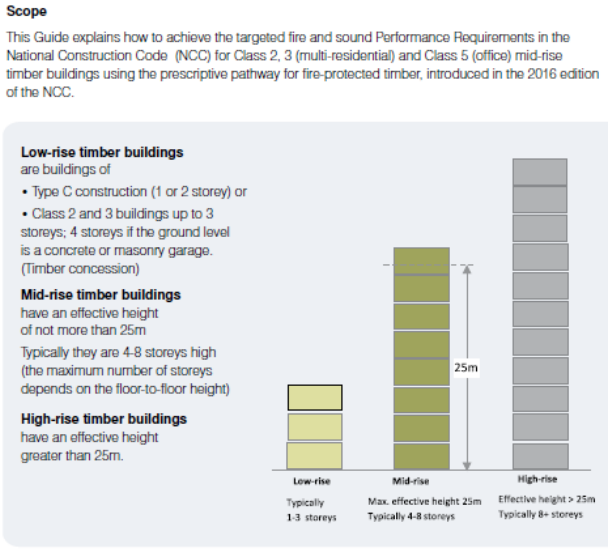

Figure 1: Comparison of low, mid and high-rise buildings

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AS1530.1 – Combustibility test for materials

AS 1530.1—1994

Australian Standard®

Methods for fire tests on building materials, components and structures

Part 1: Combustibility test for materials

BCA definition in Clause C1.12 lists acceptable Non-combustible materials

Very blunt instrument, measures even small exothermic heat release without flaming

- 45mm dia. cylindrical specimens inserted into furnace at 750ºC
- Must not flame for > 5s
- Must not cause temperature rise > 50ºC

Pass Deemed Non-Combustible	Fail Deemed Combustible

CSR BUILDING PRODUCTS Insulation Research Laboratory

TEST REPORT NR-16001

AS1530.1 Combustibility Test –CSR Bradford Acoustigard 14 14kg/m³ Partition Batts

Product Trade name:	Acoustigard™ 14
Sponsor:	CSR Bradford Insulation Triniti 3, 39 Delhi Rd North Ryde NSW 2113
Sample ID:	TC1184
Description of material:	Two pack of CSR Bradford Acoustigard™ 14 50mm 14kg/m³ R1.3 Partition batts after thermal testing
Date of test:	02-03/02/2016
Date of issue:	16/02/2016
Test apparatus:	FTT Non-Combustibility Apparatus Complied to standard EN ISO1182 with furnace performance wall & centreline temperatures measured on 27/02/2012
Test Procedure:	Five (5) samples have been randomly cut, conditioned and tested in accordance with AS1530 Methods for fire test on building materials, components and structures Part1-1994 Combustibility test for materials.

Test Results:

Mean Furnace thermocouple temperature rise ΔTf	4.2	±0.5	°C
Mean Specimen Centre thermocouple temperature rise ΔTc	6.3	±0.5	°C
Mean Specimen Surface thermocouple temperature rise ΔTs	3.8	±0.5	°C
Mean duration of sustained flaming	0.0	±0.5	S
Mean mass loss	7.4	±0.5	%

Observation: Specimens flamed 1-3s

Additional Information: Mean LOI* 6.6% (checked accord to BS2972:1989)
Mean Density* 14.3 kg/m³

* NATA accreditation does not cover the performance of this service

Combustibility: Not deemed Combustible

Statement: These test results relate only to the behavior of the test specimens of the material under the particular conditions of the test, and they are not intended to be the sole criterion for assessing the potential fire hazard of the material in use.

Accreditation No: 993
Accredited for compliance with ISO/IEC 17025.
CSR Technical Centre 376 Victoria Street Wetherill Park 2164 NSW Ph: 02 9844 7967 Fax 02 9844 7803
Approved Signatory: SHERRY MA
Signatory's Signature:

NR-16001 Page 1 of 8

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AS1530.1 – Combustibility test for materials

Core: Organic foam material

30 minute duration at 750°C

Skin: Inorganic aluminium material

The test method is not applicable to products which are coated, faced or laminated. In such cases, tests may be carried out separately on the individual materials from which the product is formed and this shall be clearly stated in the test report.

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Bradford Products that are Non Combustible

Bradford **Glasswool** Ceiling and Wall Batts provides thermal, acoustic and fire resistance

Non combustible

BRADFORD GOLD WALL BATTS

R VALUE (m^2K/W)	NOMINAL THICKNESS (mm)
1.5	75
2.0	90
2.5	90
2.7 *	90
4.0	140

BRADFORD GOLD CEILING BATTS

R VALUE (m^2K/W)	NOMINAL THICKNESS (mm)
2.5	140
3.0	165
3.5	185
4.1	215
5.0	240
6.0	260
7.0	290

All Bradford Fibertex/Fireseal (Rockwool) range

* To be confirmed with future testing

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Sarking: Vapour Barrier vs Vapour Permeable

WHY: Allow timber to breath, so for moisture levels to meet equilibrium
Act as a second skin to the external façade

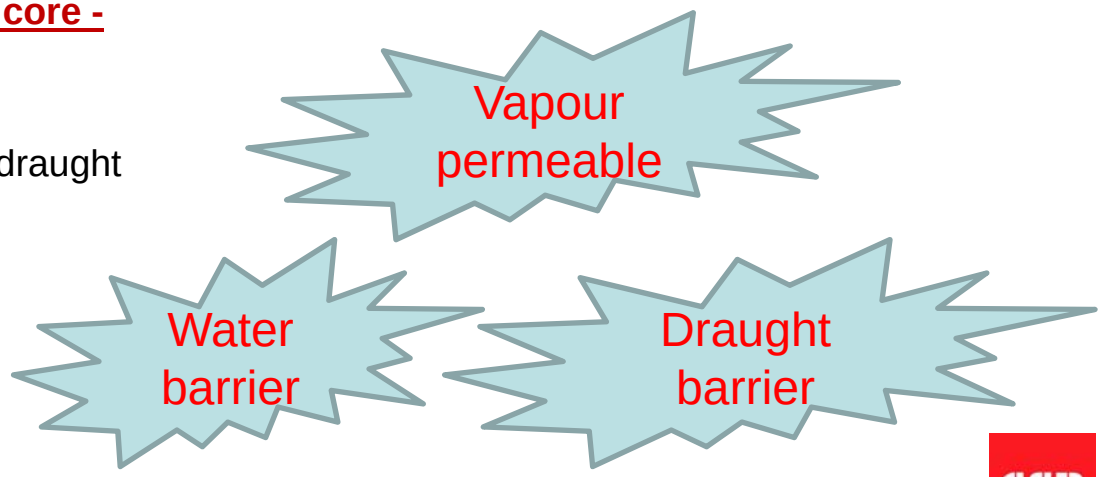
Types of Vapour barrier – Hot Climate

- foil laminate –
  - **Single sided poly weave - SSRFL**
  - Vapour barrier, water barrier, draught barrier
  - **Double sided anti-glare - DSRFL**
  - Antiglared
  - Vapour barrier, water barrier, draught barrier
  - **Double sided anti-glare with bulk core - DSRFL**
  - Antiglared
  - Vapour barrier: High, water barrier, draught barrier

AS4200.1 Vapour barrier: HIGH

Types of Permeable sarkings – Cold climate

- foil laminate –
  - **Single sided poly weave – SSRFL Breather**
  - Reflective one side
  - ~~Vapour barrier~~, ~~water barrier~~, ~~draught barrier~~
  - **Vapour Permeable**
  - water barrier, draught barrier



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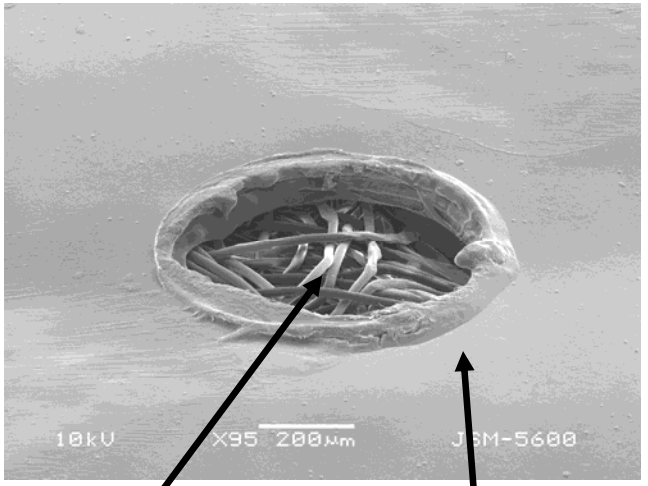
Enviroseal ProctorWrap - Vapour Permeable Sarking

For cool and cold climates

- Vapour permeable membrane
  - allows water vapour through
  - but prevents liquid water (condensate) getting through
  - Spun bond fibres laid over thin perforated aluminium or PE film with tiny pores
  - Pores large enough for water vapour, too small for liquid water molecules

- Industry need specific levels of vapour resistance, such as….
  - "*…Vapour resistance of not more than 0.5 MNs/g …*"

  This requires a vapour permeable membrane



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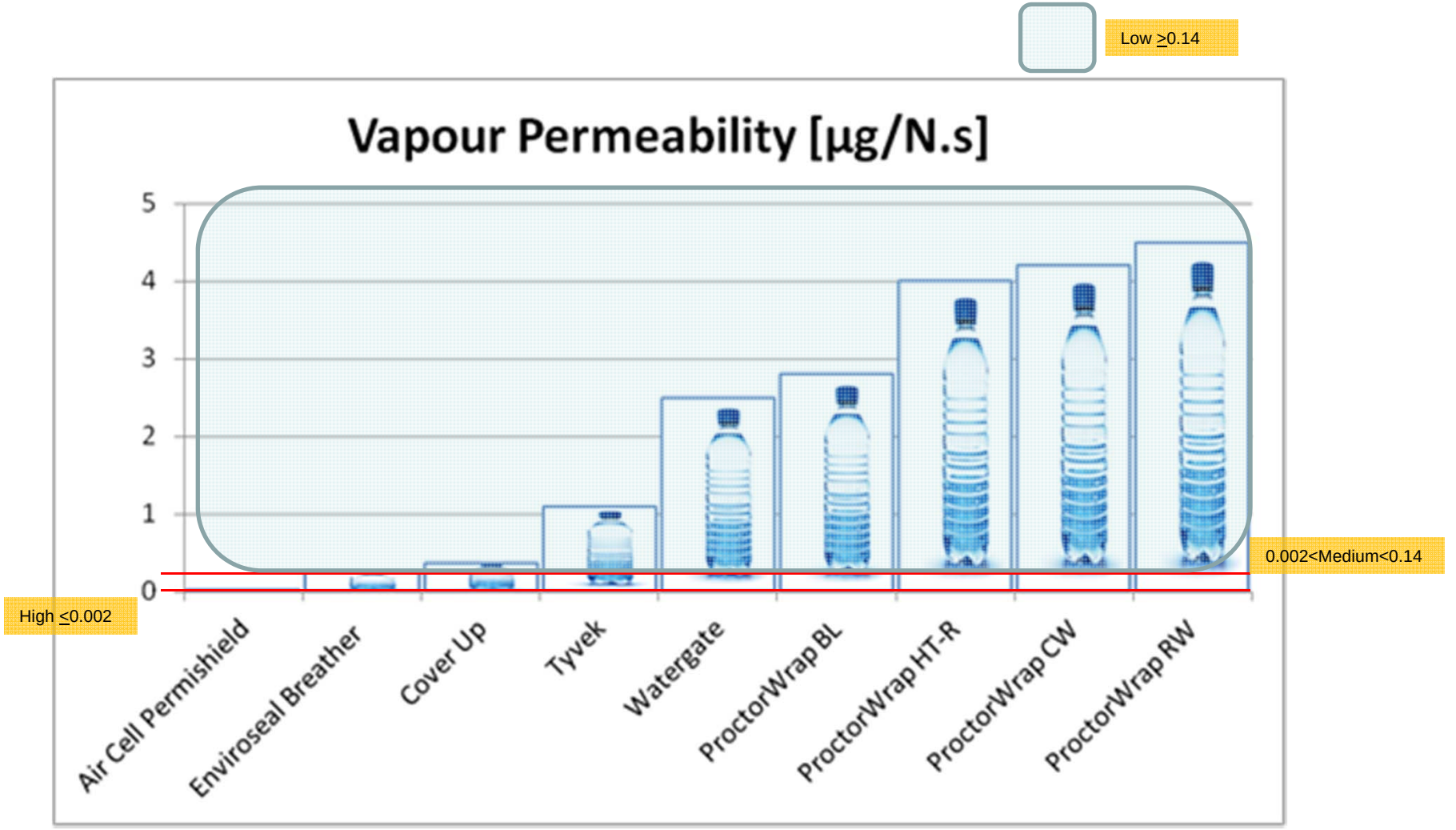
How does ProctorWrap compare to competitors using AS4200.1



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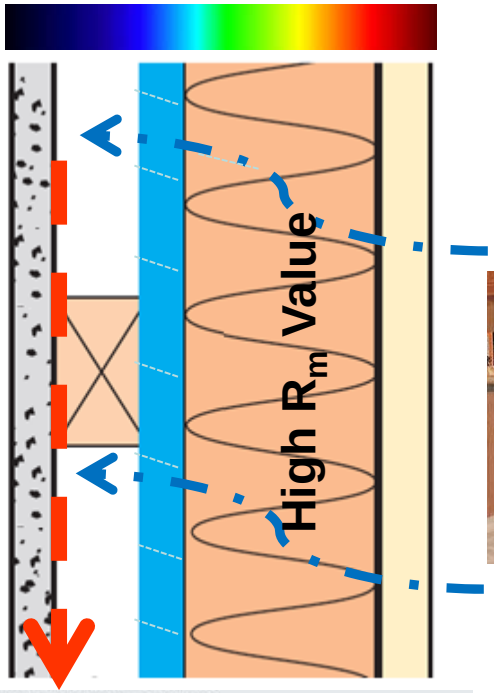
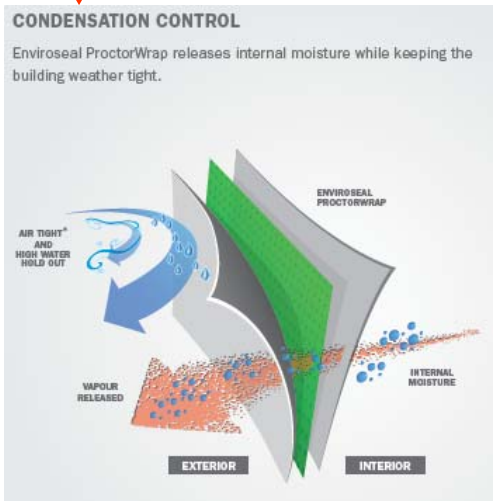
LOWER THE RISK OF CONDENSATION SARKING





Fire Assessment

External sarking membranes need to be handed as an Alternative Solution

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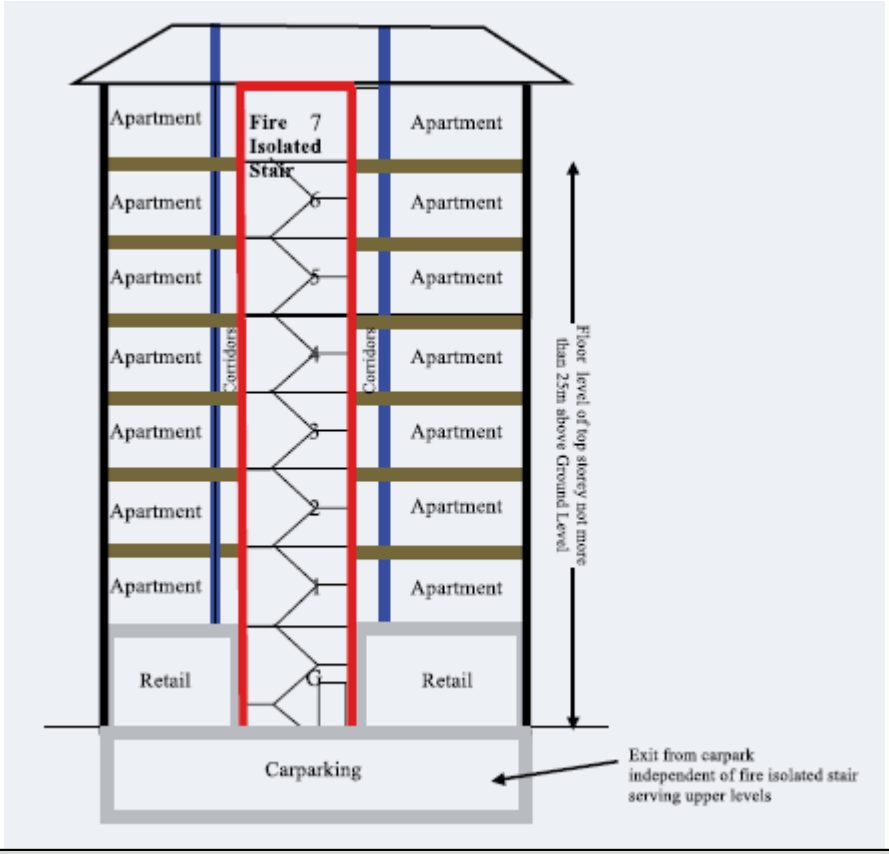
Mid Rise Timber Buildings

Internal Walls

Party Walls

Mid Floors

External Walls



Timber industry dream becomes reality

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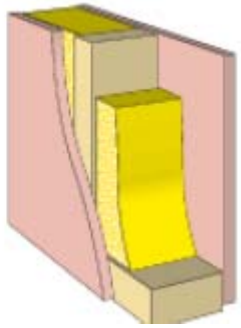
Internal Wall selection

– /60/60 and 60/60/60

FAR 2303

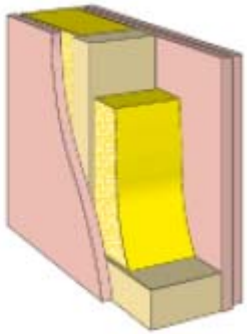


Both Sides

- 1 x 16mm GYPROCK FYRCHEK plasterboard.

– /90/90 and 60/60/60

FAR 2303



Side One

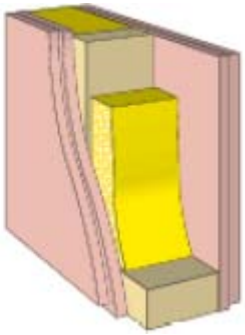
- 1 x 16mm GYPROCK FYRCHEK plasterboard.

Side Two

- 2 x 16mm GYPROCK FYRCHEK plasterboard.

– /120/120 and 90/90/90

FAR 2303



Both Sides

- 2 x 13mm GYPROCK FYRCHEK plasterboard.

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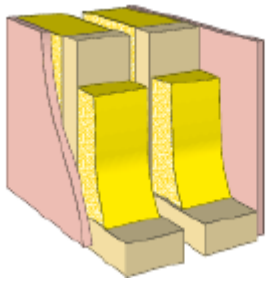
Party Wall selection

– /60/60 and 60/60/60

FAR 2303

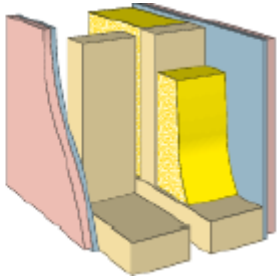


Both Sides

- 1 x 16mm GYPROCK FYRCHEK plasterboard.

– /90/90 60/60/60 90/90/90*

* ACR Group 3 FAR 2303

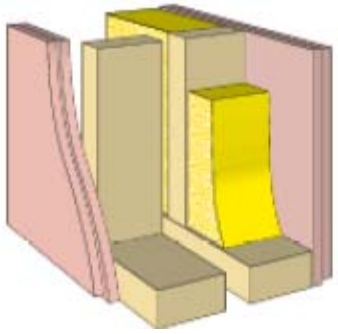


Both Sides

- 1 x 6mm CeminSeal™ Wallboard (against studs)
- 1 x 16mm GYPROCK FYRCHEK plasterboard.

– /120/120 and 120/120/120

FAR 2303



Both Sides

- 2 x 16mm GYPROCK FYRCHEK plasterboard.

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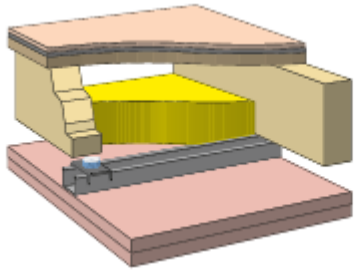
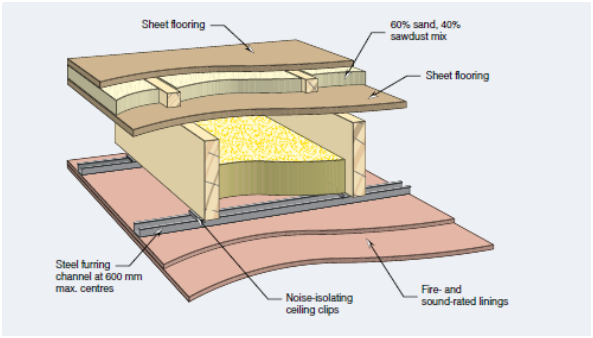
Floor Selection

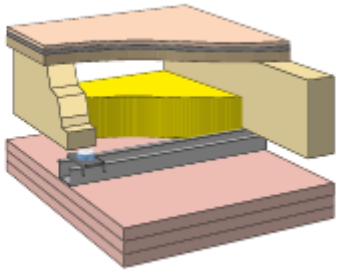
90/90/90
+RISF 60 minutes
EWFA 26162



- 2 x 16mm GYPROCK FYRCHEK plasterboard.

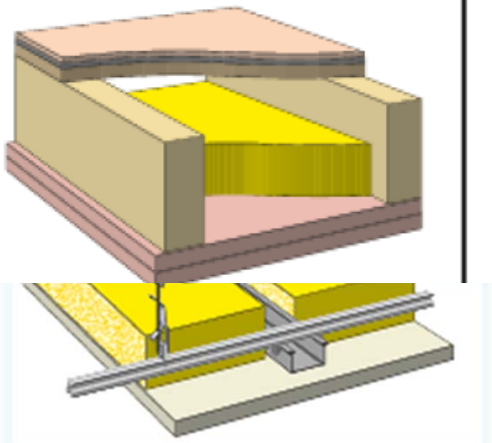


120/120/120
+RISF 60 minutes
EWFA 26162



- 3 x 16mm GYPROCK FYRCHEK plasterboard.

90/90/90
+RISF 60 minutes
EWFA 26162



- 2 x 16mm GYPROCK FYRCHEK Plasterboard.

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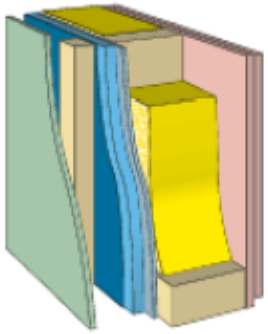
External Wall selection

90/90/90*

* ACR Group 3

FAR 2303

CSR 912

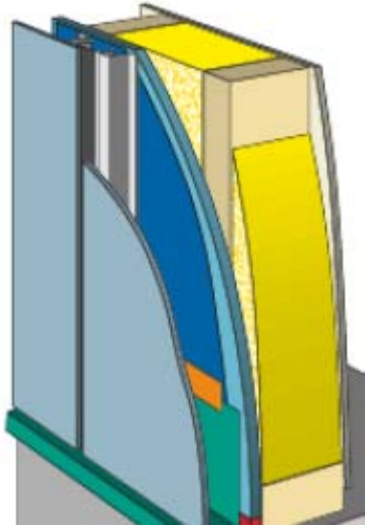


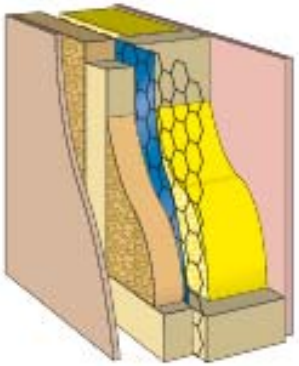
External Wall Side

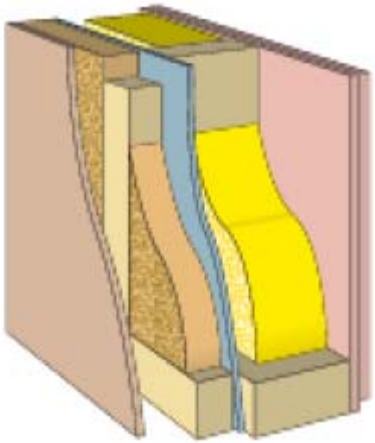
- 1 x 6mm CSR CeminSeal™ Wallboard (against studs)
- 1 x 16mm GYPROCK FYRCHEK MR plasterboard.

Internal Wall Side

- 2 x 13mm GYPROCK FYRCHEK plasterboard.







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Cavity Barriers – work in progress

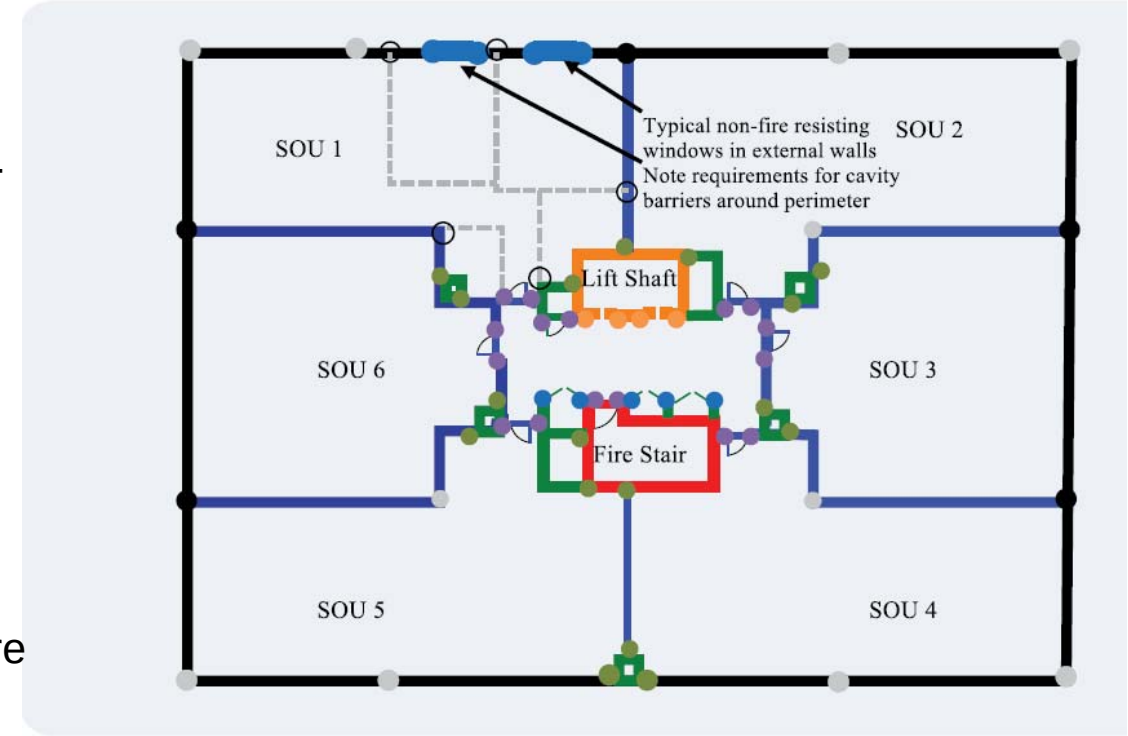
Requirements: Sound treatment, Thermal Resistance, fire proofing

Single and Double stud T-junctions

Vertical fire flow

Wall
Recessed fixture

Ceiling
Recessed fixture



Horizontal fire flow

Double Stud
Horizontal cavity

Double Stud
vertical cavity

Penetrations
- Small pipe
- Large pipe
- Irregular shape

Floor joist to wall St

External façade cavity

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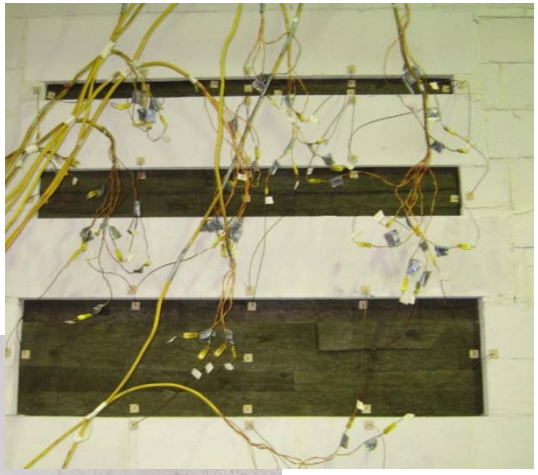
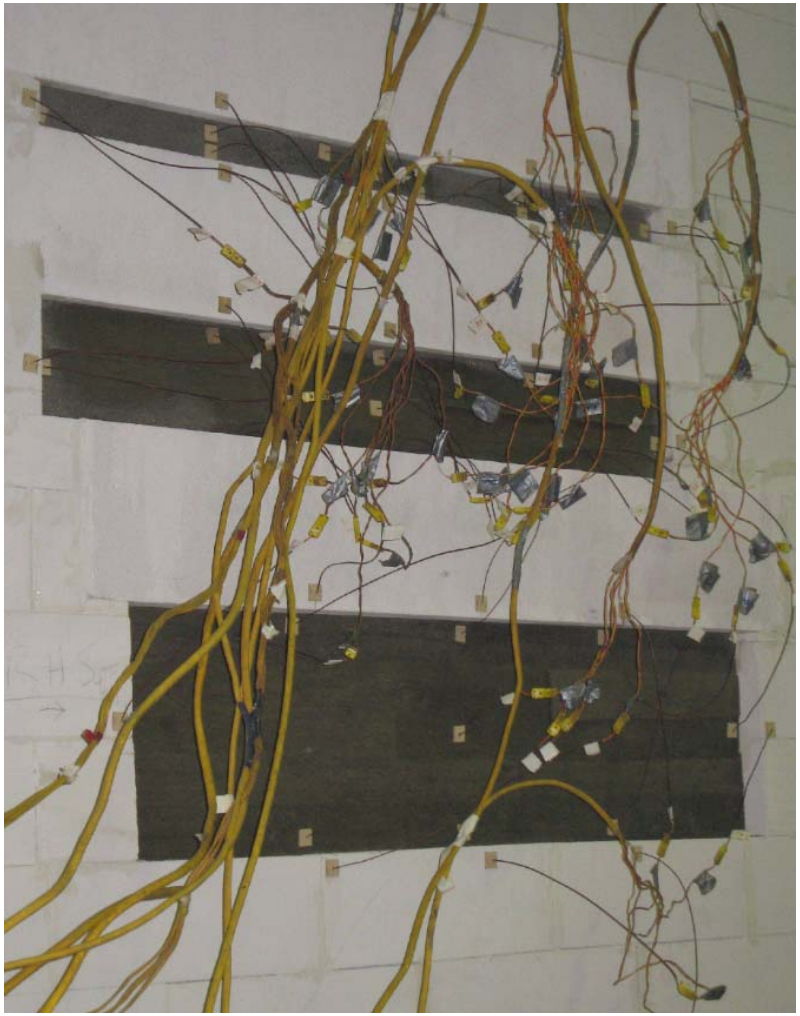
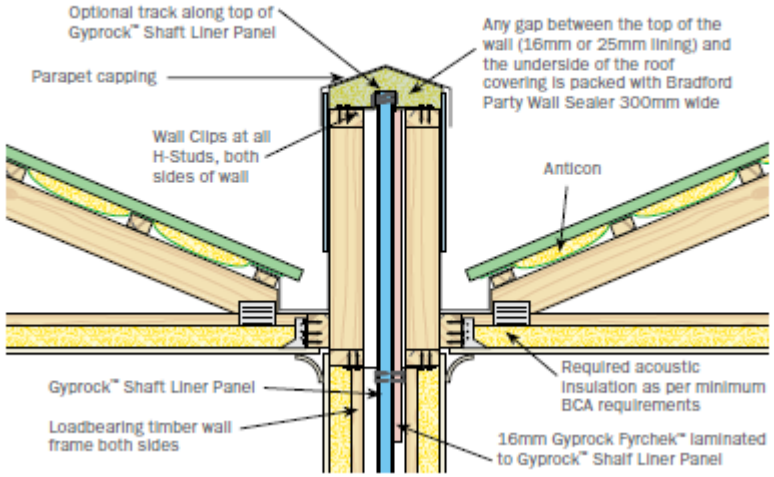
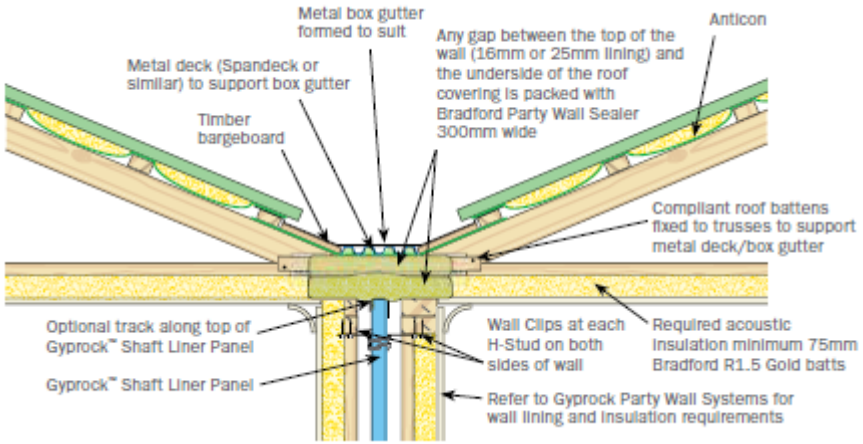
Cavity Barriers

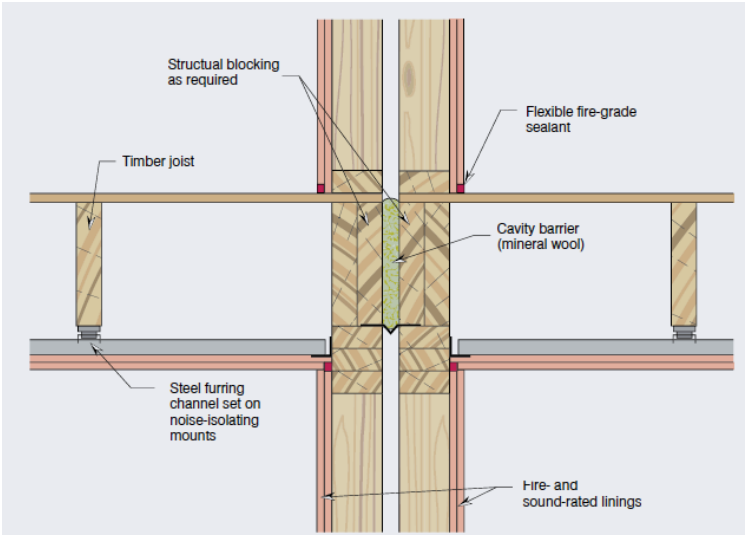


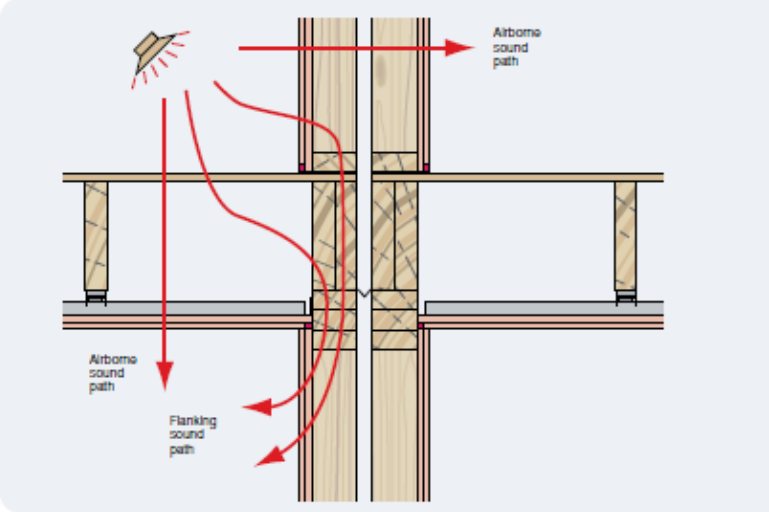


Cavity Barriers

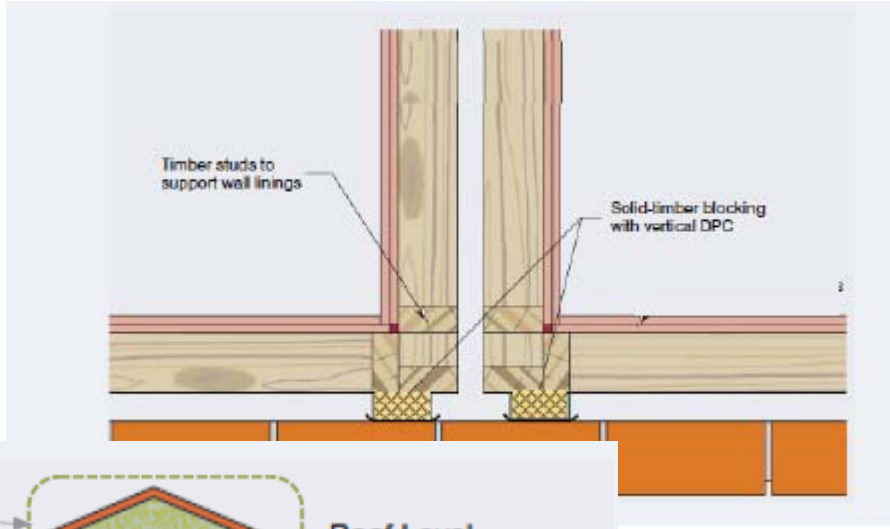


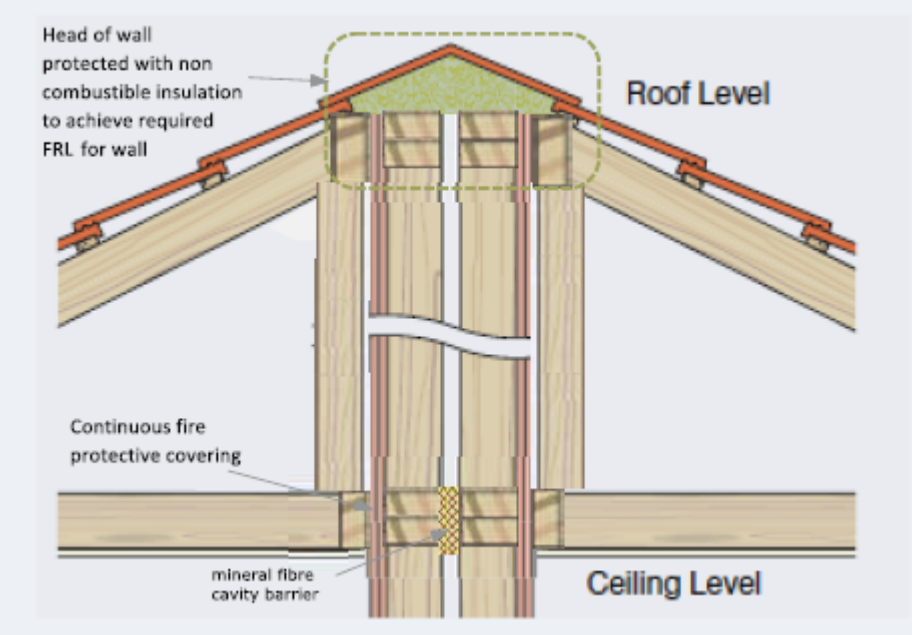


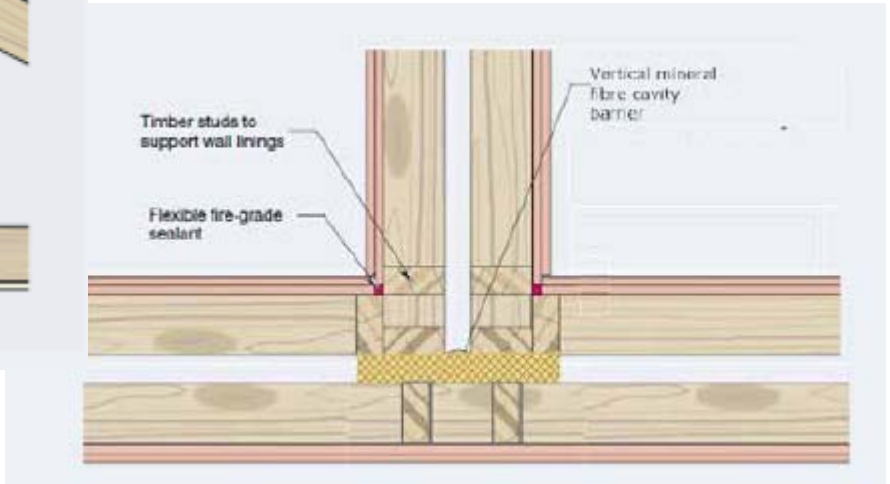




Cavity Barriers







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If you need further assistance:

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